

# **APPENDIX B1**

*Biological Resources Technical Report*



**BIOLOGICAL TECHNICAL REPORT**  
for the  
**OTAY RANCH VILLAGE FOUR PROJECT**  
**CITY OF CHULA VISTA,**  
**SAN DIEGO COUNTY, CALIFORNIA**

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**MAY 2017**



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## **ACRONYMS AND ABBREVIATIONS**

ACOE	U.S. Army Corps of Engineers
amsl	above mean sea level
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Environmental Quality Act
City	City of Chula Vista
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
EIR	Environmental Impact Report
FESA	federal Endangered Species Act
GDP	General Development Plan
GIS	geographic information systems
GPS	Global Positioning System
HLIT	Habitat Loss and Incidental Take (Ordinance)
MBTA	Migratory Bird Treaty Act
MSCP	Multiple Species Conservation Program
OHW	ordinary high water mark
RMP	Resource Management Plan
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SPA	Sectional Planning Area
SWPPP	stormwater pollution prevention plan
TM	Tentative Map
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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# **Biological Technical Report for the Otay Ranch Village Four Project**

## **1 INTRODUCTION**

### **1.1 Purpose of the Report**

The purpose of this biological resources report is to provide the following items: (1) describe the existing conditions of biological resources within the Otay Ranch Village Four Sectional Planning Area (SPA) Plan Project (project or proposed project) area and off-site areas in terms of vegetation, jurisdictional aquatic resources, flora, wildlife, and wildlife habitats; (2) discuss potential impacts to biological resources that would result from development of the property; (3) describe those impacts in terms of biological significance in view of federal, state, and local laws and policies; and (4) recommend mitigation measures for potential impacts to sensitive biological resources, if necessary. Recommendations will follow federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA), the Otay Ranch General Development Plan (GDP) and Resource Management Plan (RMP; ORJPP 2004; City of Chula Vista and County of San Diego 1993a and 2002), and the Chula Vista Multiple Species Conservation Plan (MSCP) Subarea Plan (City of Chula Vista 2003).

### **1.2 Project Description**

The Otay Ranch Village Four SPA Plan Project (i.e., project area, 169.56 acres) is located in the eastern portion of the City of Chula Vista (City) in southwestern San Diego County, California (Figures 1-1 and 1-2). The project area includes the proposed development footprint and associated Preserve within the Village Four boundary as well as off-site areas. Specifically, Village Four occupies a total of approximately 166.02 acres east of Wolf Canyon and north of the Otay Quarry (Quarry), while off-site impact areas total 3.54 acres and are located within the Quarry and Village Three (Figure 1-2). Land uses surrounding the project area include proposed Preserve areas to the north and west, proposed development to the east, and the quarry operation to the south.

The development program for the proposed project is based on the Chula Vista General Plan and the approved Otay Ranch planning documents (Otay Ranch GDP, Overall Design Plan, and other SPA Plans for Otay Ranch), which describe the land use plans and general design characteristics of the Otay Ranch Villages. The village design is intended to provide balanced and diverse land uses, focus on transit and pedestrian orientation, and create a “sense of place” for village residents while creating an 11,375-acre open space reserve system that preserves the most sensitive habitat and wildlife corridors in permanent, funded, managed open space.

As each village SPA has been adopted, major roadways have been designed to meet the City’s roadway standards. When originally envisioned with the adoption of the Otay Ranch GDP/Subregional Plan, Main Street (also known as Otay Valley Road) serves as the major east–

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west roadway connecting Village Three with Village Eight. In order to match the approved alignments for Main Street on the adjacent developments, the proposed Multiple Species Conservation Program (MSCP) Preserve Boundary Line Adjustment would be necessary. The shift of Main Street will require a Boundary Adjustment to the City of Chula Vista MSCP Subarea Plan and Otay Ranch RMP, which will adjust the boundary of the Preserve along the northern portion of Village Four and ultimately will add land (1.72 acres) to the Preserve. This Boundary Adjustment is included as part of the total acreage analyzed for the project (i.e., the analysis assumes the Boundary Adjustment is approved, thus the proposed give acreage is assumed to be Preserve and the proposed take acreage is assumed to be impact). Therefore, the Development Area for the proposed project includes 65.28 acres of developable land within Village Four (which includes the Boundary Adjustment take acreage and on-site development), 13.42 acres of Planned and Future Facilities within the Village Four Preserve and 3.54 acres of off-site impacts (see Figures 1-3 and 1-4). The project would include a new sewer pipeline alignment that would connect with the Salt Creek Interceptor south of the project area. These improvements are located outside of the Village Four SPA Plan Area within the Preserve associated with Village Three. These impacts, which total 1.58 acres, are within the Preserve and are categorized as off-site Planned Facilities (see Section 1.2.2). The remaining 1.96 acres of off-site impacts are within the Otay Quarry boundary.

### **1.2.1 Village Four**

The proposed project includes approximately 73 single-family low- to medium-density residential dwelling units, approximately 160 multi-family medium- to high-density residential dwelling units, and approximately 117 multi-family high-density residential dwelling units on approximately 65.28 acres within Village Four. The overall density of the low- to medium-density residential units would range from 3 to 6 dwelling units per acre; medium- to high-density would range from 11 to 18 dwelling units per acre; and high-density would range from 18 to 27 dwelling units per acre.

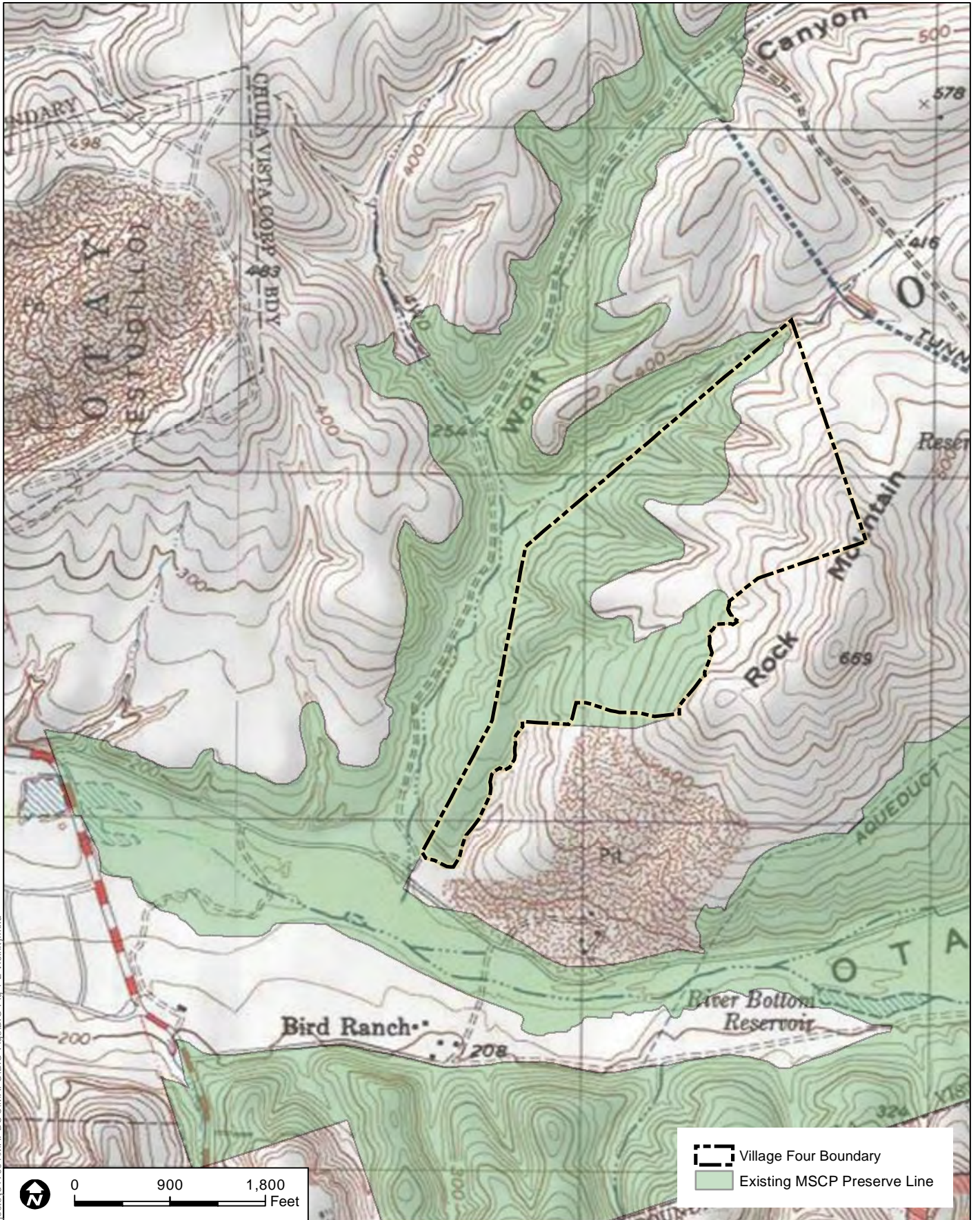
Under this design, Main Street would be shifted to the northwest to result in a buffer for the Preserve, allow for less adjacency of residential development to the Preserve, and to consolidate a majority of development to the southern and eastern portions of Village Four. The original location is no longer feasible given the realignment of Main Street as a part of the proposed Village Three project. To connect to Main Street as it is designed for Village Three, and maintain developable land, the proposed project requires a boundary line adjustment. The give/take areas, which collectively compose the Boundary Line Adjustment Area, include both the areas proposed to be given to the MSCP Preserve and those proposed to be removed from the Preserve.





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-  Village Four Boundary
-  Existing MSCP Preserve Line

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**DUDEK**

AERIAL SOURCE: BING MAPPING SERVICE

**FIGURE 1-2  
Vicinity Map**





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Otay Ranch Village Four Biological Resources Technical Report

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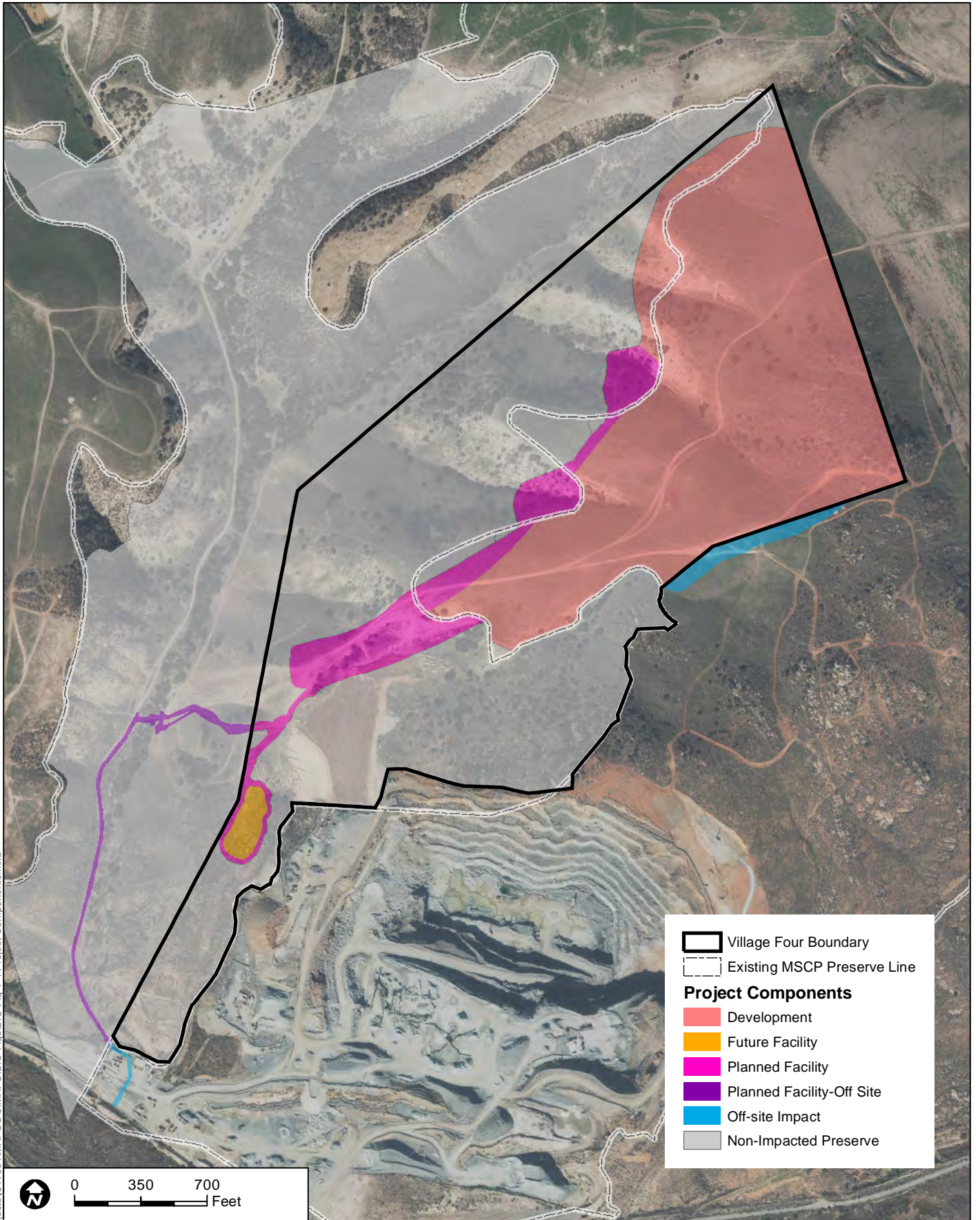


-  Village Four Boundary
-  Existing MSCP Preserve
-  Planned Facility-Off-site
-  Off-Site Impact

**FIGURE 1-3  
Project Area**

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	Village Four Boundary
	Existing MSCP Preserve Line
<b>Project Components</b>	
	Development
	Future Facility
	Planned Facility
	Planned Facility-Off Site
	Off-site Impact
	Non-Impacted Preserve

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The majority of the proposed project would be within the area designated for development under the Otay Ranch RMP and the MSCP Subarea Plan, with the exception of a limited number of facilities that will be located in designated Preserve areas. Development of the proposed project would require impacts to 12.19 acres of Preserve lands within Village Four in order to construct Planned and Future Facilities. Chapter 6.0 of the City's MSCP Subarea Plan identifies permitted uses within the Preserve, and these proposed facilities are considered allowable uses because they adhere to the Facilities Siting Criteria. The proposed project includes permanent impacts to the Preserve resulting from the following infrastructure uses: a detention basin, associated storm-drain and sewer lines, and associated access roads for maintenance of these facilities. In addition, the proposed project will impact areas within the Preserve associated with the Main Street construction. These Planned and Future Facilities are subject to the Facilities Siting Criteria which ensures that the facilities located within the Preserve have been sited within the least environmentally sensitive areas and that impacts to the Preserve have been minimized to the maximum extent practical. All of the infrastructure uses are co-located including the detention basin and a new sewer lateral pipeline connecting to the Salt Creek Interceptor. Co-locating facilities results in a reduction of impacts to the Preserve, for the entire length of the facilities. This report provides a discussion and rationale for the proposed locations of these facilities.

## **1.2.2 Off-Site Areas**

As previously stated, the majority of the proposed project would be within the area designated for development under the Otay Ranch RMP and the MSCP Subarea Plan, with the exception of a limited number of facilities that will be located within off-site areas. Off-site areas are those portions of the project area owned by others and/or outside of the Village Four Development boundary. The proposed project would require impacts to 3.54 acres of off-site areas within the Otay Quarry and Village Three (Figure 1-4). The Planned Facility impacts to Village Three are entirely within Preserve lands and are subject to Facilities Siting Criteria (See Sections 1.2.1 and 5.1.8.1). In order to connect to the Salt Creek Interceptor, the southern portion of this alternative includes impacts to Quarry lands. In addition, a small portion of the fuel modification zone required for Village Four will extend into Quarry lands. All impacts within Quarry lands are subject to the Habitat Loss and Incidental Take (HLIT) Ordinance because the Quarry is not considered to be part of the Otay Ranch (See Sections 3.6.6 and 5.1.8.3).

## **1.3 Site Description**

The proposed project is located within the City in southwestern San Diego County, approximately 3.5 miles east of downtown Chula Vista and 13 miles southeast of downtown San Diego (Figure 1-1). The project area, which includes the Non-Preserve and Preserve lands discussed in Section 1.2 and off-site impacts, occurs on approximately 169.56 acres within the City, and is located on the U.S. Geological Survey (USGS) 7.5-minute series Otay Mesa, with surrounding areas in the

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Imperial Beach, National City, Jamul Mountains, Dulzura, and Otay Mountain quadrangles (Figure 1-1). Immediate off-site areas include Village Three and the Quarry and total 3.54 acres. Former land uses on site were farming and cattle grazing. The project area is currently undeveloped. There are a number of dirt roads traversing the project area.

The proposed project is located in the southwest corner of the Otay Valley Parcel of the Otay Ranch GDP. The Village Four site surrounds Rock Mountain and consists of large, flat mesas, with slopes adjacent to and within Wolf Canyon. Wolf Canyon comprises the western and northern edge of the village. Village Four is located immediately west of Village Eight, east of Village Three, and north of the Otay River Valley. An existing rock and gravel extraction facility is located south of Village Four. Village Two, currently undeveloped, is located directly north of the village.

## **Topography**

The project area is topographically diverse with elevation ranging from approximately 610 feet above mean sea level (amsl) along the southeastern boundary of Village Four to 165 feet at the storm drain outlet and sewer tie-in located just outside the Otay River within off-site Quarry lands. There are two drainages on site which drain into Wolf Canyon and ultimately the Otay River, which is located immediately south of Main Street.

## **Soils**

Soils on site consist of Diablo clays, gravel pits, Linne clay loams, Las Posas stony fine sandy loam, Olivenhain cobbly loam, and Salinas clay loam, (USDA 1973). Village Four site soils are dominated by the Diablo clays and Linne clay loam. Geotechnical surveys confirmed four surficial deposits, consisting of undocumented fill, topsoil/colluvium, landslide debris, and alluvium (Geocon 2015). According to the 2015 Geotechnical Report, the undocumented fill is attributed to the existing quarry; the topsoil/colluvium consists of sandy clay to clayey sand with gravel and cobble; the alluvium is comprised of material found within the canyon drainages; and the landslide debris is generated from the Otay Formation (Geocon 2015).

## **1.4 Regional Resource Planning Context**

### **1.4.1 Federal**

The federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. Under provisions of Section 9(a)(1)(B) of FESA, it is unlawful to “take” any listed



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species. “Take” is defined in Section 3(19) of FESA as, “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 U.S.C. 703 et seq.). Additionally, Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds,” requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged and/or fill material into “waters of the United States.” The term “wetlands” (a subset of waters) is defined in 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as intermittent streams, extend to the “ordinary high water mark,” which is defined in 33 CFR 328.3(e).

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act, passed in 1940 to protect the bald eagle and amended in 1962 to include the golden eagle (16 U.S.C. 668a–d). This act (16 U.S.C. 668–668d) prohibits the take, possession, sale, purchase, barter, offering to sell or purchase, export or import, or transport of bald eagles and golden eagles and their parts, eggs, or nests without a permit issued by USFWS. The definition of “take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The act prohibits any form of possession or taking of both eagle species, and the statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses. Further, the act provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, and Indian religious uses.

However, there is allowance within the act that, after investigation, the Secretary of the Interior may determine that direct and purposeful taking is compatible with the preservation of the bald eagle or the golden eagle. If so, then the Secretary may permit the taking, possession, and transportation of specimens for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes. The Secretary may also determine that it is necessary to permit the taking of eagles for the protection of wildlife or of agricultural or other interests in any particular locality. This permitting may be for the seasonal

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protection of domesticated flocks and herds, and may also permit the taking, possession, and transportation of golden eagles for the purposes of falconry if the eagles may cause depredations on livestock or wildlife. Finally, the Secretary of the Interior may permit the taking of golden eagle nests that interfere with resource development or recovery operations, or in an emergency.

In November 2009, USFWS published the Final Eagle Permit Rule (74 FR 46836–46879) providing a mechanism to permit and allow for incidental (i.e., non-purposeful) take of bald and golden eagles pursuant to the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Disturb means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” These regulations may apply to projects such as wind turbines and transmission lines, and were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (Pagel et al. 2010). In February 2011, the USFWS released Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits acquisition by wind power projects consistent with the 2009 rule.

### **1.4.2 State**

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA; California Fish and Game Code, Section 2050 et seq.), which prohibits the “take” of plant and animal species designated by the Fish and Game Commission as endangered or threatened in the State of California. Under CESA Section 86, take is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA Section 2053 stipulates that state agencies may not approve projects that will “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.”

According to Sections 3511 and 4700 of the Fish and Game Code, which regulate birds and mammals, respectively, a “fully protected” species may not be taken or possessed without a permit from the Fish and Game Commission, and “incidental takes” of these species are not authorized.

CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, “No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (Fish and Game Code,

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Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001).”

Pursuant to Section 1602 of the Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement is required for impacts to jurisdictional wetlands in accordance with Section 1602 of the California Fish and Game Code.

The intent of the Porter–Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Board (RWQCB) develops basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under the Porter–Cologne Water Quality Control Act include isolated waters that are no longer regulated by the ACOE. Developments with impact to jurisdictional waters must demonstrate compliance with the goals of the act by developing Stormwater Pollution Prevention Plans (SWPPPs), Standard Urban Storm Water Mitigation Plans, and other measures to obtain a Clean Water Act Section 401 certification.

CEQA requires identification of a project’s potentially significant impacts on biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose “survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors” (14 CCR 15000 et seq.). A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists “in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or ... [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered ‘threatened’ as that term is used in the federal Endangered Species Act.” Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project’s potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

## **Biological Technical Report for the Otay Ranch Village Four Project**

### **1.4.3 Otay Ranch General Development Plan and Resource Management Plan**

Village Four is part of the Otay Ranch GDP and RMP. The GDP and RMP were approved by the City in October of 1993 (City of Chula Vista and County of San Diego 1993a and 2002). The RMP is composed of two separate documents: Phase 1 RMP and Phase 2 RMP. The Phase 1 RMP identifies Preserve areas within Otay Ranch and presents policies regarding species and habitat conservation and long-term management of the Preserve. The Phase 2 RMP was approved by the City in 1996 and incorporated into the Chula Vista MSCP Subarea Plan when the Subarea Plan was approved in 2003 (City of Chula Vista 2003). This Phase 2 RMP includes ranch-wide studies that were conducted pursuant to the Phase 1 RMP and provides additional detail on conveyance, management, and funding. The GDP identifies conceptual development, circulation, and open space plans. In addition to the GDP and RMP for Otay Ranch, the municipalities of southern San Diego County collaborated in producing the MSCP Subregional Plan.

In a regional context, the Otay Ranch RMP Preserve provides CEQA mitigation for development of less sensitive areas within the areas proposed for development on Otay Ranch. Therefore, the project design must demonstrate conformance with the conservation goals and Preserve boundaries of the GDP, RMP, and Chula Vista MSCP Subarea Plan.

### **1.4.4 Chula Vista MSCP Subarea Plan**

The MSCP Subregional Plan is implemented through individual Subarea Plans adopted by each jurisdiction receiving take authorization for covered species. The Chula Vista MSCP Subarea Plan was approved by the City in May 2003 and received take authorization in January 2005. The Subarea Plan provides for conservation of upland habitats and species through Preserve design, regulation of impacts and uses, and management of the Preserve. The proposed project is considered a “Covered Project” under the Chula Vista MSCP Subarea Plan. The 100% Conservation Areas are either already in public ownership or will be dedicated to the Preserve as part of the development approval process for Covered Projects. Any portions of Covered Projects that are located within 100% Conservation Areas must be consistent with conditions allowing specific land uses within the Preserve, as outlined in Chapter 6.0 of the Subarea Plan, and are subject to the Narrow Endemic Species policy (avoidance and minimization) and the Wetlands Protection Program.

#### **1.4.4.1 *Narrow Endemic Species Protection***

The following specific provisions are applicable to the project area.

# **Biological Technical Report for the Otay Ranch Village Four Project**

## **Development Areas within Covered Projects**

Covered Projects provide protection of Narrow Endemic Species through consideration of Narrow Endemic Species in the Preserve design for those projects. Take of covered species, including Narrow Endemic Species, for Development Areas within Covered Projects will be extended at the time of development approval. There are no limitations on impacts to Narrow Endemic Species within the Development Areas of Covered Projects.

## **100% Conservation Areas within Covered Projects**

Projects located within the 100% Conservation Areas of Covered Projects (i.e., within the Preserve) are limited to uses described in Sections 6.1, 6.2, and 6.3 of the Subarea Plan. Impacts to covered Narrow Endemic Species from Planned and Future Facilities located within the 100% Conservation Areas of Covered Projects will be avoided to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts will be limited to 5% of the total Narrow Endemic Species population within the project area. Unavoidable impacts to narrow endemics are subject to the equivalency findings, limitations, and provisions of Section 5.2.3.6, Equivalency Findings, of the Subarea Plan.

If impacts exceed 5% of the covered Narrow Endemic Species population within the project area after comprehensive consideration of avoidance and minimization measures, the City must make a determination of biologically superior preservation consistent with Section 5.2.3.7 of the Subarea Plan. Regardless of the percent of impact to Narrow Endemic Species, the findings of equivalency and wildlife agency concurrence are required.

### **1.4.4.2 Wetlands Protection**

As part of the CEQA review, development projects that contain wetlands will be required to demonstrate that impacts to wetlands have been avoided to the greatest extent practicable and, where impacts are nonetheless proposed, that such impacts have been minimized. For unavoidable impacts to wetlands within the Development Area, the mitigation ratio will be in accordance with the wetlands mitigation ratios identified in the Subarea Plan. The wetlands mitigation ratios provide a standard for each habitat type but may be adjusted depending on both the functions and values of the impacted wetlands and the wetlands mitigation proposed by the project. The City may also consider the wetland habitat type(s) being impacted and utilized for mitigation in establishing whether these standards have been met.

### **1.4.5 City of Chula Vista**

In compliance with the MSCP Subregional Plan and the Subarea Plan, the City established development standards, the HLIT Ordinance, as a condition of issuance of take authorization by

## **Biological Technical Report for the Otay Ranch Village Four Project**

the Wildlife Agencies. The HLIT is consistent with the conservation and mitigation goals of the MSCP Subregional Plan and the City of Chula Vista Subarea Plan, which require impacts to sensitive vegetation communities to be avoided and minimized to the maximum extent practicable. Furthermore, the HLIT identifies specific impact and mitigation requirements for impacts to native and some non-native communities (e.g., non-native grassland). Project compliance with the HLIT is described in Section 5.1.8.3 of this report.

# **Biological Technical Report for the Otay Ranch Village Four Project**

## **2 METHODS AND SURVEY LIMITATIONS**

Data regarding biological resources present on the project area were obtained through a review of pertinent literature, field reconnaissance, and mapping. Each method is described in detail below.

### **2.1 Literature Review**

Sensitive biological resources present or potentially present on the project area were identified through a literature search using the following sources: USFWS data (USFWS 2016), CDFW (2016), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2016). As described in Section 2.2, consultant-generated data sources include information from previous surveys conducted by Dudek in support of the Otay Valley Quarry Reclamation Plan Amendment Environmental Impact Report (Quarry project) (City of Chula Vista 2011), updated focused surveys are shown in Table 2-1. Resource mapping for the sewer/storm drain alignment was obtained from the Biological Technical Report for the Otay Ranch University Villages Project (Dudek 2014).

### **2.2 Field Reconnaissance**

Surveys for the proposed project area were initiated in 2008 in conjunction with the Quarry project located south of Village Four. All previous surveys conducted within the Village Four development area, the Boundary Line Adjustment Area, and Preserve areas associated with Planned and Future Facilities (i.e., Village Four Survey Area) were updated in 2014/2015 by Dudek to include current mapping of biological resources and special-status species. In addition, focused surveys for Quino checkerspot butterfly (*Euphydryas editha quino*) were conducted. Surveys within the preserve areas of Village Four, outside of the Boundary Adjustment and planned and future facilities, were not updated in 2014/2015. Instead, plant populations within the remaining preserve areas of Village Four were obtained from the 2009 surveys conducted for the Quarry project. Thus, the majority of resources were included in current inventories within the past year. A summary of surveys that have been conducted on the project area is provided in Table 2-1. Surveys were conducted on foot and in accordance with focused survey guidelines where applicable. Focused surveys were not conducted for the off-site areas within Wolf Canyon and the Quarry. Instead, existing data from the University Villages Project (prepared in 2011) was utilized to determine impacts for the off-site portion located within Village Three.

## Biological Technical Report for the Otay Ranch Village Four Project

**Table 2-1  
Schedule of Surveys for Village Four Project Area**

Date	Hours	Personnel*	Village Four Project Survey Area	Conditions
<i>Quino Checkerspot Butterfly Habitat Assessment and Protocol Surveys</i>				
February through May 2015	varied	EB, PCS, JDP, CJF, PML, MP	Village Four Survey Area	Varied (see focused survey report)
<i>Burrowing Owl Habitat Assessment and Survey</i>				
7/29/09	0900–1600	SF, CEO	Entire Project Area	70°F–85°F, 40%–0% cc, 1–8 mph winds
4/14/2015	0540–1040	MP	Pass 1– North Village Four Survey Area	56°F–72°F, 0% cc, 0–2 mph winds
4/15/2015	0530–1030	MP	Pass 1– South Village Four Survey Area`	56°F–67°F, 0% cc, 0 mph winds
5/6/2015	0600–1000	KMS	Pass 2– North Village Four Survey Area	60°F–74°F, 100% cc, 0–1 mph winds
5/7/2015	0605–1000	KMS	Pass 2– South Village Four Survey Area	56°F–64°F, 85%–100% cc, 3–10 mph winds
5/28/2015	0605–1025	KMS	Pass 3– North Village Four Survey Area	60°F–65°F, 100% cc, 1–5 mph winds
5/29/2015	0605–0950	KMS	Pass 3– South Village Four Survey Area	58°F–70°F, 100%–10% cc, 0–3 mph winds
6/25/2015	0545–1045	MP	Pass 4– North Village Four Survey Area	62°F–75°F, clear, 0–3 mph winds
6/26/2015	0600–1000	MP	Pass 4– South Village Four Survey Area	60°F–72°F, 0%–10% cc, 0–2 mph winds
<i>California Gnatcatcher Surveys</i>				
7/10/09	0605–1145	AMH	Entire Project Area	67°F–78°F; 95%–0% cc; 0–3 mph winds
7/17/09	0740–1200	JDP	Entire Project Area	68°F–85°F; 70%–5% cc; 0–10 mph winds
7/17/09	0745–1200	TWP	Entire Project Area	68°F–81°F; 70%–5% cc; 0–10 mph winds
7/24/09	0800–1130	TWP	Entire Project Area	70°F–80°F; 100%–5% cc; 0–2 mph winds
7/28/09	0815–1150	PML	Entire Project Area	74°F–81°F; 0% cc; 0–5 mph winds
7/24/09	0710–1230	JDP	Entire Project Area	70°F–80°F; 100%–5% cc; 0–2 mph winds
7/31/09	0830–1200	TWP	Entire Project Area	70°F–80°F; 45%–0% cc; 1–6 mph winds
7/31/09	0800–1215	JDP	Entire Project Area	70°F–80°F; 60%–0% cc; 1–6 mph winds
8/7/09	0645–1315	JDP	Entire Project Area	70°F–76°F; 90%–10% cc; 0–8 mph winds
4/17/2015	0615–1015	JDP	Pass 1 – Village Four Survey Area	55°F–78°F, 0% cc, 0–4 mph winds
4/28/2015	0600–1000	JDP	Pass 2 – Village Four Survey Area	60°F–84°F, 0% cc, 1–4 mph winds



# Biological Technical Report for the Otay Ranch Village Four Project

**Table 2-1  
Schedule of Surveys for Village Four Project Area**

Date	Hours	Personnel*	Village Four Project Survey Area	Conditions
5/6/2015	0900–1200	JDP	Pass 3 – Village Four Survey Area	67°F–69°F, 100% cc, 0–3 mph winds
<i>General Wildlife Survey</i>				
7/16/15	0930–1230	JDP	Entire Project Area	76°F–79 F, 0% cc, 2–6 mph winds
<i>Vegetation Mapping</i>				
9/16/2008	0800–1600	ACT, KCD	Entire Project Area	75°F, clear, 2–4 mph winds
9/23/2008	0800–1400	ACT, KCD	Entire Project Area	65°F, clear, 0–4 mph winds
April 2014	0800–1300	ACT	Entire Project Area	Not recorded, 80% cc, 0–2 mph winds
2/20/15	0900–1000	PCS	Preserve Area and Otay Quarry	67°F–82°F, 100%–70% cc, 1–5 mph winds
<i>Jurisdictional Delineation</i>				
3/27/2008	0900–1700	JMH	Entire Project Area and Otay Quarry	Not recorded
4/8/2008	0900–1300	JMH	Entire Project Area and Otay Quarry	Not recorded
4/9/2008	0900–1200	JMH	Entire Project Area and Otay Quarry	Not recorded
12/19/2014	0820–1400	EW, EB	Village Four Survey Area	52°F–65°F, 0%–40% cc, 0–3 mph winds
<i>Rare Plant Survey</i>				
July and August 2009	0800–1800	ACT, JM, H, PCS, CEO	Entire Project Area	Not recorded
3/16/2015	0900–1600	KCD, EB	Pass 1– South Village Four Survey Area	72°F–82°F, 80%–30% cc, 1–5 mph winds
3/30/2015	0900–1420	KCD, EB	Pass 1– North Village Four Survey Area	60°F–79°F, 60%–0% cc, 0–1 mph winds
4/21/2015	0820–1620	CJF, EB	Pass 2– South Village Four Survey Area	65°F, 35% cc, 3 mph winds
4/23/2015	0900–1620	CJF, EB	Pass 2– North Village Four Survey Area	62°F–60°F, 100% cc, 0–2 mph winds

\*Personnel Key:

ACT	Andy Thomson	EB	Erin Bergman	MP	Marshall Paymard
AMH	Anita M. Hayworth, PhD	EW	Emily Wier	PCS	Patricia Schuyler
CEO	Chris Oesch	JMH	J. Mike Howard	PML	Paul Lemons
CJF	Callie Ford	KCD	Katie Dayton	SF	Stewart Fraiser
JDP	Jeff Priest	KMS	Kevin Shaw	TWP	Tricia Wotipka-Priest

°F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour

## 2.2.1 Resource Mapping

Vegetation mapping included identifying all plant communities present and mapping them in the field directly onto a 100-scale (1 inch = 100 feet) color aerial photograph (Bing 2014; Digital Globe 2008; Google Earth 2015). Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS and a geographic information system (GIS) coverage was created. Once in ArcGIS, the acreage of each vegetation community

## **Biological Technical Report for the Otay Ranch Village Four Project**

and land cover present within the project area was determined. Based on the length of time since surveys were previously conducted on the property, the Village Four development area was visited in 2014 to revise the vegetation mapping and/or confirm the site conditions. Portions of the Otay Quarry and Village Four Preserve areas were mapped in 2015. Resource mapping for the sewer/storm drain alignment within Village Three was obtained from the Biological Technical Report for the Otay Ranch University Villages Project (Dudek 2014).

Plant community classifications used in this report follow Oberbauer et al. (2008), with modifications to accommodate the lack of conformity of the observed communities to those of Oberbauer et al. Because of past and current land uses, portions of native plant communities within the Village Four project area are in a disturbed state. As such, visual estimations of vegetative cover were used to distinguish vegetation communities, based on Oberbauer et al. (2008). Areas that supported less than 20% native shrubs are mapped as non-native grasslands (if dominated by non-native grasses), or disturbed land (if dominated by non-native herbs or lacking vegetation). Native shrub communities are mapped based on constituent species (as described per community below). Where shrub cover is between 20% and 50%, the community is designated as disturbed. Native grasslands are mapped where native grass species occupy at least 10% of the total cover

### **2.2.2 Flora**

All plant species encountered during the field surveys were identified and recorded. For those species that could not be identified immediately, samples suitably sized for identification were brought into the laboratory for further investigation. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the California Native Plant Society Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2016). 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 2016), and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2016). The list of plant species observed on site is presented in Appendix A.

### **2.2.3 Fauna**

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Wildlife surveys were conducted as summarized in Table 2-1. Binoculars (8 mm x 32 mm or 10 mm x 50 mm power) were used to identify observed animals. In addition to species actually observed, expected wildlife use of the project area was determined by known habitat preferences of local species and knowledge of their range and relative distributions in the area. A list of animal species observed or detected on site is presented in Appendix B.

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Latin and common names of animals follow Crother (2012) for reptiles and amphibians, American Ornithologists' Union (AOU 2016) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2001) or San Diego Natural History Museum (2002) for butterflies.

### **2.2.4 Jurisdictional Aquatic Resources**

Features that convey or hold water are regulated by multiple agencies. Federal, state, and local agencies have different definitions and terminology for these types of features. Hereinafter in this document, water-dependent resources regulated by the ACOE, RWQCB, CDFW, and City will be collectively referred to as jurisdictional aquatic resources. A jurisdictional delineation for the proposed project area, excluding off-site areas, was conducted in March and April 2008 by Dudek biologist Mike Howard. In order to reflect current site conditions associated with planned development and the Boundary Adjustment Area, the delineation was updated in December 2014 by Dudek biologists Emily Weir and Erin Bergman. Ms. Wier and Ms. Bergman delineated the extent of jurisdictional aquatic resources within the Village Four Survey Area as previously defined. This delineation did not cover off-site areas. Based on previous surveys, off-site areas associated with the Quarry were determined to not contain jurisdictional resources. Jurisdictional boundaries were mapped in the field using a Trimble GeoXT Global Positioning System (GPS) with submeter accuracy. The delineation defined areas under the jurisdiction of CDFW, pursuant to Sections 1600–1603 of the California Fish and Game Code; ACOE, pursuant to Section 404 of the federal Clean Water Act; and RWQCB, pursuant to Clean Water Act Section 401 and the Porter–Cologne Act. Jurisdictional resource mapping for the sewer/storm drain alignment within Village Three was obtained from the Biological Technical Report for the Otay Ranch University Villages Project (Dudek 2014).

The methodology used for each jurisdiction or regulating agency (ACOE, CDFW, and RWQCB) is described as follows. The ACOE wetlands delineation was performed in accordance with the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (ACOE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement) (ACOE 2008a), A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (ACOE 2008b), and guidance provided by the ACOE and Environmental Protection Agency (EPA) on the geographic extent of jurisdiction based on the U.S. Supreme Court's interpretation of the Clean Water Act (ACOE and EPA 2008). The ACOE and RWQCB jurisdictional areas, pursuant to the federal Clean Water Act, include all areas supporting the three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. RWQCB jurisdiction is coincident with the ACOE in accordance with the federal Clean Water Act, except in cases where a resource is determined to be isolated from navigable waters of the United States and where the RWQCB may take jurisdiction under the Porter–Cologne Act. The RWQCB may also take

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jurisdiction over surface waters lacking ACOE regulation, pursuant to the Porter–Cologne Act. These areas generally include areas with at least one of the three wetlands indicators but isolated from a tributary of navigable water through lack of evidence of surface water hydrology. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian areas. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification (Cowardin et al. 1979), which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology).

To assist in the determination of jurisdictional areas within the project area, data were collected at five sampling points (Appendix C). Hydrology, vegetation, and soils were assessed and sampling data were collected on approved ACOE forms. The site was evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland vegetation, and nexus to a traditional navigable water. The extent of jurisdictional aquatic resources was determined by mapping the areas with similar vegetation and topography to sampled locations.

### **2.2.4.1 Hydrophytic Vegetation**

Seasonal changes in species composition, human land use practices, wildfires, and other natural disturbances can adversely affect the hydrophytic vegetation determination. During the delineation, a sampling point 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 “Arid West 2014 Final Regional Wetland Plant List” (ACOE 2014). In those cases, where the dominance test failed, 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. All plant species observed during the surveys were identified and recorded. Where plant identification could not be made in the field, a sample was taken and later identified in the laboratory.

### **2.2.4.2 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 and NRCS 2015). Soil pits were prepared using a “sharp shooter” shovel to determine if hydric soils were present. The presence of hydric soils was determined through consultations with the ACOE’s 2010 *Field Indicators of Hydric Soils in the United States v. 7.0* (USDA and NRCS 2010), ACOE’s Arid West Supplement (ACOE 2008a), and Munsell Soil Color Charts. Where feasible, soil pits were prepared to depths ranging from 10 to 16 inches, and dry soils were moistened to obtain the most accurate color. Excavated soils were examined for evidence of hydric conditions, including low chroma values and mottling, vertical streaking, sulfidic odor, and high organic matter content in the upper

## **Biological Technical Report for the Otay Ranch Village Four Project**

horizon. Evidence of previous ponding or flooding was assessed along with the slope, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation to determine whether hydric soils were present.

### **2.2.4.3 Hydrology**

Per the guidelines prescribed in the Arid West Supplement (ACOE 2008a), 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 of ponding, including 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 Facultative (FAC)-Neutral test” (ACOE 2008a). 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, where present, were evaluated in the Village Four project area.

The jurisdiction of Chula Vista MSCP Subarea Plan wetlands was also determined during the delineations. According to the Subarea Plan, wetlands are generally defined as those areas that are inundated or saturated by surface water or groundwater at a frequency or duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. For purposes of the Subarea Plan, wetlands are those lands that contain naturally occurring wetland communities listed on Table 5-6 of the Subarea Plan and further described in Appendix B of the Subarea Plan. Wetlands also include areas lacking wetland communities due to non-permitted filling of previously existing wetlands.

### **2.2.5 Sensitive Biological Resources**

Sensitive biological resources are defined as follows: (1) species that have been given special recognition by federal, state, or local agencies and organizations due to limited, declining, or threatened population sizes; (2) habitat types recognized by local and regional 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 sensitive biological resources are as follows: plants—USFWS (2016), CDFW (2016a, 2016b, 2016c), and CNPS (2016); wildlife—USFWS (2016) and CDFW (2016a, 2016d, 2016e); plant communities—Holland (1986) and Oberbauer et al. (2008) and the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003).

The primary purpose of the recent field surveys by Dudek was to more thoroughly examine those areas suspected, based on previous field work, to support sensitive biological resources and to

## **Biological Technical Report for the Otay Ranch Village Four Project**

determine the extent of those resources within the project area. Several focused surveys also have been conducted for this project area to determine the presence/absence of special-status plant and animal species (see Table 2-1). Dudek conducted focused surveys and/or habitat assessments for the following sensitive biological resources: focused protocol surveys for coastal California gnatcatcher (*Polioptila californica californica*); a habitat assessment, larval host plant survey, and protocol surveys for Quino checkerspot butterfly; a habitat assessment and four-pass focused burrowing owl (*Athene cunicularia*) survey.

### **Rare Plants**

Focused surveys for special-status plant species were conducted within the Village Four project area (excluding off-site areas) in July and August 2009 by Dudek biologists Andy Thomson, Mike Howard, Patricia Schuyler, and Chris Oesch (Table 2-1). Focused surveys for special-status plant species within the project area were updated in March and April 2015 by Dudek biologists Katie Dayton, Callie Ford, and Erin Bergman (Table 2-1). No plant surveys were conducted in areas within Village Three and off-site areas within the Quarry due to access restrictions; therefore, data collected by Dudek for the University Villages (Dudek 2014) and the Quarry (Dudek 2011) will be used for this report.

Prior to conducting the 2015 surveys, reference populations were checked at nearby sites to ensure the Otay tarplant (*Deinandra conjugens*) was in bloom. During focused surveys for other species, previously recorded populations of special-status plants were reviewed to ensure that the timing of the surveys was appropriate and additional populations were mapped. All surveys were conducted on foot via meandering transects throughout the entire project area. Field survey methods and mapping of rare plants generally conformed to CNPS Botanical Survey Guidelines (CNPS 2001), Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000), and General Rare Plant Survey Guidelines (Cypher 2002). For most species, the location was mapped by hand and/or by portable GPS unit, and the number of individuals was visually counted or estimated. For many areas, estimation of the number of individuals involved estimating an average density within the mapped polygon.

### **General Wildlife Survey**

A general wildlife survey was conducted for the project area in July 2015. The purpose of the general wildlife survey is to record species which may have been missed during focused surveys. The general wildlife survey covered the Village Four Survey Area and focused on recording all species within the site. Any special-status species observed during this survey were mapped. Incidental detections of any special-status wildlife species during these surveys, either through sight, calls, tracks, scat, or other signs, if present, were also recorded.

# **Biological Technical Report for the Otay Ranch Village Four Project**

## **Coastal California Gnatcatcher**

Focused surveys within the project area (excluding off-site areas) for coastal California gnatcatcher were conducted in July and August 2009. Focused surveys within the Village Four boundary were updated in 2015 (Table 2-1). Surveys were completed in accordance with the USFWS survey protocol (USFWS 1997) using standard meandering transects within suitable habitat during suitable weather conditions. A tape of recorded gnatcatcher vocalizations was played approximately every 50 to 100 feet to induce responses from potentially present gnatcatchers. When gnatcatchers were detected, tape playback was terminated to minimize potential for harassment. Binoculars (10×42 magnification) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of gnatcatchers. All suitable habitat for coastal California gnatcatcher, including all forms of coastal sage scrub and maritime succulent scrub, were surveyed. See Appendix D for the focused survey reports.

## **Quino Checkerspot Butterfly**

Focused surveys for the Quino checkerspot butterfly were conducted from February to May 2015 by Dudek Biologists Paul Lemons, Jeff Priest, Erin Bergman, Patricia Schuyler, Callie Ford and Marshall Paymard (Table 2-1). These surveys were conducted in accordance with the USFWS protocol (USFWS 2014) and were focused on the Village Four Survey Area. See Appendix E for the focused survey report.

## **Burrowing Owl**

A four-pass survey for burrowing owl within the proposed project area (excluding off-site areas) was conducted according to CDFW recommendations in The Staff Report on Burrowing Owl Mitigation (CDFG 2012). The surveys were initiated in April and concluded in June 2015. Weather conditions, time of day, and season were appropriate for the detection of burrowing owl (Table 2-1). Prior to conducting burrowing owl habitat surveys, relevant sources pertaining to burrowing owl occurrences, including the California Natural Diversity Database (CNDDDB; CDFW 2015), were examined along with mapped vegetation communities for the site.

The survey area included approximately 93.7 acres within Village Four boundary. The survey consisted of walking the entire survey area where suitable habitat (e.g., grasslands, disturbed lands, and other open habitats where suitable burrow resources exist, and are relatively flat or have low slopes) occurred, while searching for burrowing owls, sign, and potential burrow sites. Suitable burrows and cavities (e.g., rock cavities, pipes, culverts, debris piles) 4 inches (11 centimeters) or greater in diameter are also required for habitat to be considered suitable. The survey was conducted such that 100% coverage of the entire project development area and buffer area was covered (i.e., approximate 30-meter transects were walked across the entire site). While

## **Biological Technical Report for the Otay Ranch Village Four Project**

walking the project area, the biologist searched for owls, owl sign, and potential burrow sites. Climatic conditions at the time of the survey were within protocol guidelines and consisted of 0%–30% cloud cover; 0–4 miles per hour (mph) breezes; and 60° to 80° Fahrenheit (°F) temperatures. All potential burrows were examined for sign and recorded using a GPS unit. Surveys were conducted under good weather conditions that would permit clear detection of individuals should they occur on site.

### **2.3 Survey Limitations**

The biological resource maps for the proposed project portray only the sensitive species and habitat data collected by Dudek during surveys between 2008 and 2015. These surveys were comprehensive and portray the most up-to-date conditions on the properties. Sensitive resources information from earlier work is described in a qualitative manner in the results section as historical information, but quantification of impacts is based on current data.

Limitations of the field surveys include a diurnal bias and the absence of focused trapping for mammals and reptiles. Surveys were conducted mostly during the daytime to maximize visibility for the detection of plants and most animals. Birds represent the largest component of the vertebrate fauna, and because they are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. Daytime surveys may result in fewer observations of animals that are more active at night, such as mammals. In addition, many species of reptiles and amphibians are nocturnal and/or secretive in their habits and are difficult to observe using standard meandering transects. However, despite these limitations, the survey work conducted on the project area provides an adequate overall assessment of faunal resources for purposes of evaluating potential project impacts. To account for survey limitations, special-status wildlife species that could occur, based on pertinent distribution and habitat preference literature and recorded off-site observations, are analyzed based upon their potential to occur and adequate measures to avoid and minimize impacts are provided in this report.

Focused surveys for potentially occurring special-status plants have been conducted for the proposed project area (i.e., spring and summer) in order to document rare plants that have different seasonal blooming periods. The southwest has experienced a decrease in rainfall over the last few years, which affects some plant growth. The nearest weather station is located in Chula Vista, California (041758), and generally receives an average rainfall of approximately 9.73 inches per year and 0.79 per month (WRCC 2016). Precipitation water year (i.e., July 1 to June 30) amounts for Chula Vista from 2011 were recorded at 9.88 inches, from 2012 were recorded at 8.07 inches, from 2013 were recorded at 5.53 inches, from 2014 were recorded at 7.29 inches, and from 2015 were recorded at 7.15 inches.



# Biological Technical Report for the Otay Ranch Village Four Project

## 3 RESULTS OF SURVEYS

### 3.1 Vegetation Communities

Vegetation communities and land covers mapped within the Village Four project area, which, as defined in this report, encompasses all of Village Four, the Boundary Line Adjustment Area, and off-site areas, include the following: coastal sage scrub, disturbed coastal sage scrub, non-native grassland, desert saltbush scrub, maritime succulent scrub, cismontane alkali marsh, tamarisk scrub, mulefat scrub, disturbed habitat, and developed (Figure 3-1; Table 3-1). The total acreage reflected in Table 3-1 includes 55.51 acres of preserve lands within the Village Four boundary which are not affected by the proposed project. Although these preserve lands have been previously mapped, they were not included in the 2015 vegetation update and are therefore excluded from the individual vegetation community acreages. These preserve areas are shown as NOT MAPPED in Table 3-1.

**Table 3-1  
Vegetation Communities and Land Cover Within the Village Four Project Area  
(Quarry Boundary, Village Three, and Village Four)**

Vegetation Type	Acres
<i>Otay Quarry Boundary – Off Site</i>	
Coastal Sage Scrub	0.24
Desert Saltbush Scrub	<0.01
Developed	0.19
Disturbed Habitat	0.05
Non-native Grassland	1.47
<i>Subtotal</i>	1.96
<i>Village Three – Off Site</i>	
Developed	<0.01
Disturbed Coastal Sage Scrub	0.04
Disturbed Habitat	0.77
Non-native Grassland	0.74
Unvegetated Channel	0.02
<i>Subtotal</i>	1.58
<i>Village Four – Development and Preserve</i>	
Cismontane Alkali Marsh	0.17
Coastal Sage Scrub	28.26
Desert Saltbush Scrub	0.04
Disturbed Coastal Sage Scrub	8.47
Disturbed Habitat	3.66
Disturbed Habitat – Rock Quarry	2.86
Maritime Succulent Scrub	2.22
Non-native Grassland	64.68

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 3-1**  
**Vegetation Communities and Land Cover Within the Village Four Project Area**  
**(Quarry Boundary, Village Three, and Village Four)**

Vegetation Type	Acres
Tamarisk Scrub	0.12
Unvegetated Channel	0.04
Not Mapped <sup>1</sup>	55.51
<i>Subtotal</i>	<i>166.02</i>
<b>Total</b>	<b>169.56</b>

**Note:**

<sup>1</sup> Areas that are not mapped include portions of the Preserve which are not affected by the proposed project.

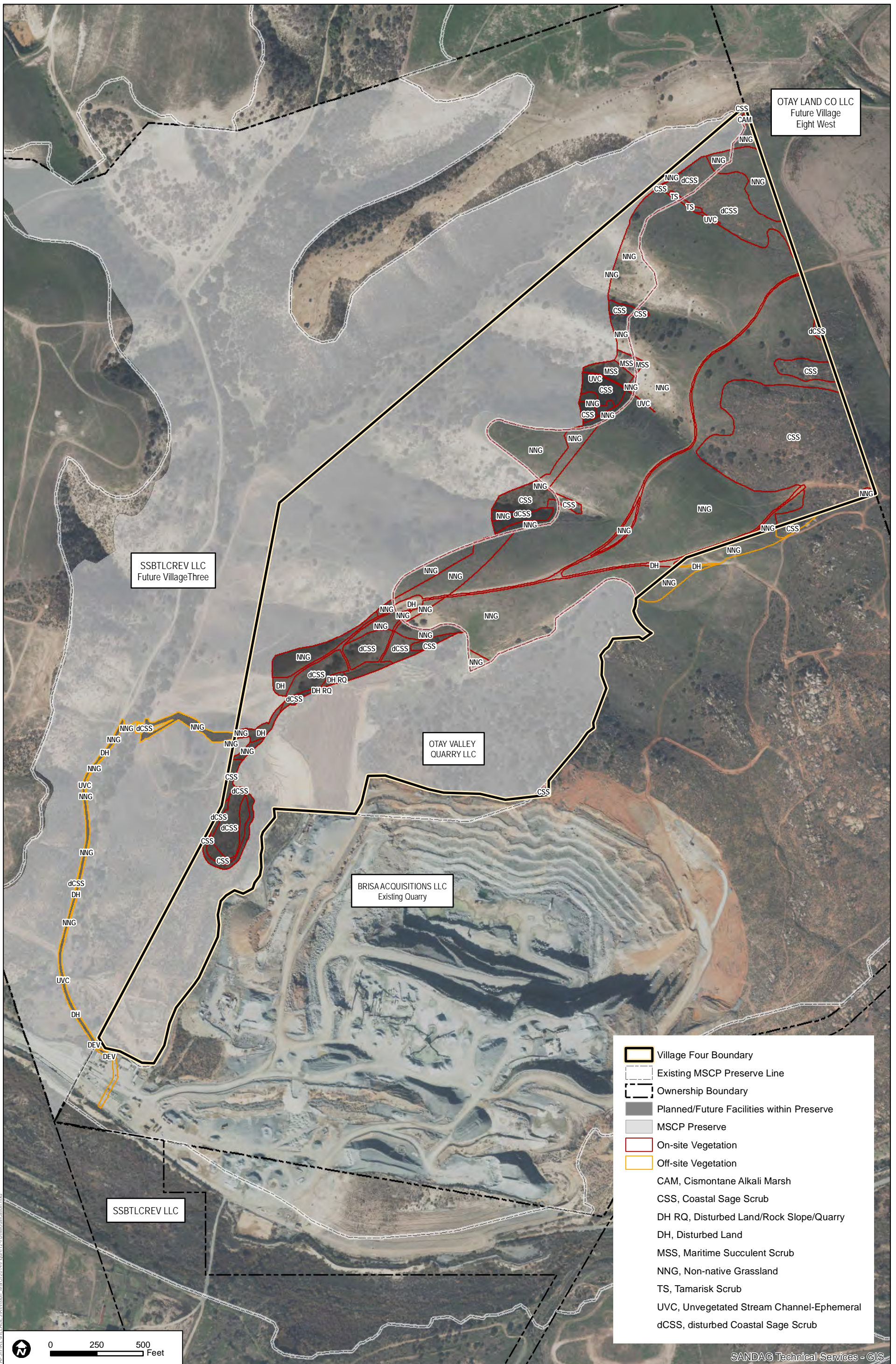
### 3.1.1 Coastal Sage Scrub

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

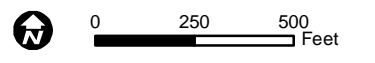
Coastal sage scrub occurs within Village Four and the Quarry (Figure 3-1). Coastal sage scrub is generally dominated by lemonade sumac that occurs as a mosaic with non-native grassland. Other coastal sage scrub species present include California sagebrush and California buckwheat; however, these species occur in lower densities, and there is overall lower species richness within this subtype of coastal sage scrub. This subtype of coastal sage scrub occurs on clay soils and so would also be expected to include a number of special-status plant species such as Otay tarplant and variegated dudleya (*Dudleya variegata*) as discussed below. In addition, the open grassland patches in between the shrubs also could provide foraging opportunities for raptors.

### 3.1.2 Disturbed Coastal Sage Scrub

Disturbed coastal sage scrub is similar in species composition to coastal sage scrub but has higher cover (20%–50%) of bare ground or non-native shrubs, forbs and grasses. Disturbed coastal sage scrub intergrades with annual grassland and disturbed habitat depending on the abundance of annual grasses or non-native forbs. Disturbed coastal sage scrub occurs within Village Four and the off-site portions of Village Three (Figure 3-1).



- Village Four Boundary
  - Existing MSCP Preserve Line
  - Ownership Boundary
  - Planned/Future Facilities within Preserve
  - MSCP Preserve
  - On-site Vegetation
  - Off-site Vegetation
- CAM, Cismontane Alkali Marsh  
 CSS, Coastal Sage Scrub  
 DH RQ, Disturbed Land/Rock Slope/Quarry  
 DH, Disturbed Land  
 MSS, Maritime Succulent Scrub  
 NNG, Non-native Grassland  
 TS, Tamarisk Scrub  
 UVC, Unvegetated Stream Channel-Ephemeral  
 dCSS, disturbed Coastal Sage Scrub



SANDAG Technical Services - GIS

**FIGURE 3-1**  
**Vegetation Map - Village Four Development**

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## **Biological Technical Report for the Otay Ranch Village Four Project**

The disturbed coastal sage scrub community was identified in small patches throughout the Village Four and off-site portions of Village Three. Disturbed coastal sage scrub primarily occurs adjacent to coastal sage scrub and to non-native grassland. Floral species found in this area are characteristic of the coastal sage scrub community, but also include several non-native grasses: ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), and slender wild oat (*Avena barbata*).

### **3.1.3 Desert Saltbush Scrub**

Desert saltbush scrub occurs on poorly drained soils with high alkalinity or salinity, often on slightly higher ground surrounding playas. Desert saltbush scrub is typically comprised of low, microphyllus shrubs, with occasional succulent shrubs. This community is dominated by *Atriplex* species with open grassland patches in between the shrubs. Desert saltbush scrub represents the smallest community on site (<1 acre) and occurs along the southern boundary between Village Four and the Quarry (Figure 3-1).

### **3.1.4 Maritime Succulent Scrub**

The maritime succulent scrub community is found on thin, rocky, or sandy soils, often on steep slopes, where there is a small amount of summer rainfall. It integrates with coastal sage scrub on better-developed soils away from the immediate coast. Maritime succulent scrub is a low, open (25% to 75% cover), scrub-dominated plant community consisting of drought-deciduous shrubs and succulents.

On site, maritime succulent scrub occurs exclusively within Village Four (Figure 3-1) and is dominated by San Diego County viguiera (*Viguiera* (= *Bahiopsis*) *laciniata*), California buckwheat, coast cholla (*Cylindropuntia prolifera*), San Diego barrel cactus (*Ferocactus viridescens*), California box-thorn (*Lycium californicum*), California bush sunflower (*Encelia californica*), purple needlegrass (*Stipa pulchra*) and chalk dudleya (*Dudleya pulverulenta*).

### **3.1.5 Non-native Grassland**

Where the native vegetation has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community usually is incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, including slender wild oat, bromes (*Bromus* spp.), and mustards (*Brassica* and *Hirschfeldia* spp.). The non-native grassland within Village Four, Village Three, and the Quarry was formerly agriculture land but has recovered to non-native grassland. The non-native grassland community occupies the largest acreage within the project area (Figure 3-1). It is dominated by non-native grass species and includes slender wild oat and a lower cover of forbs.

## **Biological Technical Report for the Otay Ranch Village Four Project**

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### **3.1.6 Cismontane Alkali Marsh**

According to Holland (1986), cismontane alkali marsh typically occurs in areas that are wet or inundated throughout most to all of the year. Dominant species include rushes (*Juncus* spp.), salt grass (*Distichlis spicata*), sedges (*Carex* spp.), yerba mansa (*Anemopsis californica*), and alkali heath (*Frankenia grandifolia*). This community occurs in lake beds and floodplains below 1,000 feet amsl and is characterized by higher levels of salts than are found in the freshwater marsh community. It differs from coastal saltmarsh primarily in that it is not subject to tidal inundation. Cismontane alkali marsh supports many of the same wildlife species found in coastal and valley freshwater marsh.

There is cismontane alkali marsh along the northeastern corner of Village Four (Figure 3-1). This patch of cismontane alkali marsh is dominated by spiny rush (*Juncus acutus*) and bulrush (*Schoenoplectus* spp.) and is considered riparian habitat under the jurisdiction of the CDFW, and wetlands under the jurisdiction of the ACOE, and RWQCB. In addition, cismontane alkali marsh is considered to be a City wetland as defined in the Chula Vista MSCP Subarea Plan.

### **3.1.7 Tamarisk Scrub**

Tamarisk scrub is a non-native riparian community dominated by stands of tamarisk usually supplanting native vegetation following a major disturbance. This habitat is usually found in sandy or gravelly braided washes or intermittent streams. Common species include narrowleaf willow (*Salix exigua*), big saltbush (*Atriplex lentiformis*), salt grass (*Distichlis spicata*), tamarisk (*Tamarix* sp.), and arrowweed (*Pluchea sericea*). Other species commonly associated with this community include Bermuda grass (*Cynodon dactylon*), mulefat (*Baccharis salicifolia*), and San Diego marsh-elder (*Iva hayesiana*).

Tamarisk scrub occurs in one relatively small patch within Village Four (Figure 3-1). Although the tamarisk scrub in Village Four is associated with an unvegetated stream channel, the area lacks enough hydrophytic vegetation to be considered jurisdictional under ACOE, or RWQCB but would be considered riparian habitat under the jurisdiction of CDFW. In addition, tamarisk scrub is considered to be a City wetland as defined in the Chula Vista MSCP Subarea Plan.

### **3.1.8 Unvegetated Channel**

According to Oberbauer et al. (2008), non-vegetated channel is the sandy, gravelly, or rocky fringe of waterways or flood channels that is unvegetated on a relatively permanent basis. Vegetation may be present but is usually less than 10% total cover and grows on the outer edge of the channel.

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Two unvegetated channels are located along the northern slopes of Village Four and one unvegetated channel crosses an existing dirt road three times within Village Three. These unvegetated channels are considered waters of the United States under the jurisdiction of the ACOE, and waters of the State of California under the jurisdiction of the RWQCB and CDFW. In addition, unvegetated channels are under City jurisdiction as defined in the Chula Vista MSCP Subarea Plan.

### **3.1.9 Disturbed Habitat/Disturbed Habitat –Rock Quarry**

For the purposes of this report, disturbed land includes all dirt roads, graded areas, and other places that lack vegetation. In general, these areas have been subjected to mechanical perturbations that have greatly limited the growth of any vegetation. Within the project area, disturbed habitat is associated with dirt roads (Figure 3-1). In addition, portions of the steep slope associated with the adjacent rock quarry have been mapped as disturbed habitat-rock quarry.

### **3.1.10 Developed**

Developed land refers to land with buildings, structures, homes, parking lots, paved roads, and maintained areas. Developed areas do not support native vegetation. The developed lands on site occur at the very southern tip of the project area and are either parking lots or paved roads associated with Village Three and the Quarry.

## **3.2 Jurisdictional Waters and Wetlands**

This section describes the jurisdictional features located within the project area, and Figure 3-2 shows where these areas are located. The jurisdictional delineation did not cover areas outside the Village Four boundary; however, jurisdictional resource mapping for the sewer/storm drain alignment within Village Three was obtained from the Biological Technical Report for the Otay Ranch University Villages Project (Dudek 2014). All waters and wetlands described in this section are Chula Vista MSCP Subarea Plan wetlands.

### **3.2.1 Village Four**

Village Four contains a total of 0.32 acre of jurisdictional resources in both the Development Area and the Preserve. There are two types of jurisdictional features totaling 0.12 acre within the Development Area and two features total 0.20 acre within the Preserve. Acreages for jurisdictional resources are summarized in Table 3-2 and represented in Figure 3-2.

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 3-2  
Jurisdictional Wetlands and Waters on Village Four**

Wetlands Vegetation Community	Jurisdiction	Acres
<i>Development</i>		
Tamarisk scrub	CDFW/City	0.12
Unvegetated channel	ACOE/RWQCB/CDFW/City	<0.01
<i>Subtotal – Development</i>		<i>0.12</i>
<i>Preserve</i>		
Cismontane alkali marsh	ACOE/RWQCB/CDFW/City	0.17
Unvegetated channel	ACOE/RWQCB/CDFW/City	0.03
<i>Subtotal – Preserve</i>		<i>0.20</i>
<b>Total* Jurisdictional Area</b>		<b>0.32</b>

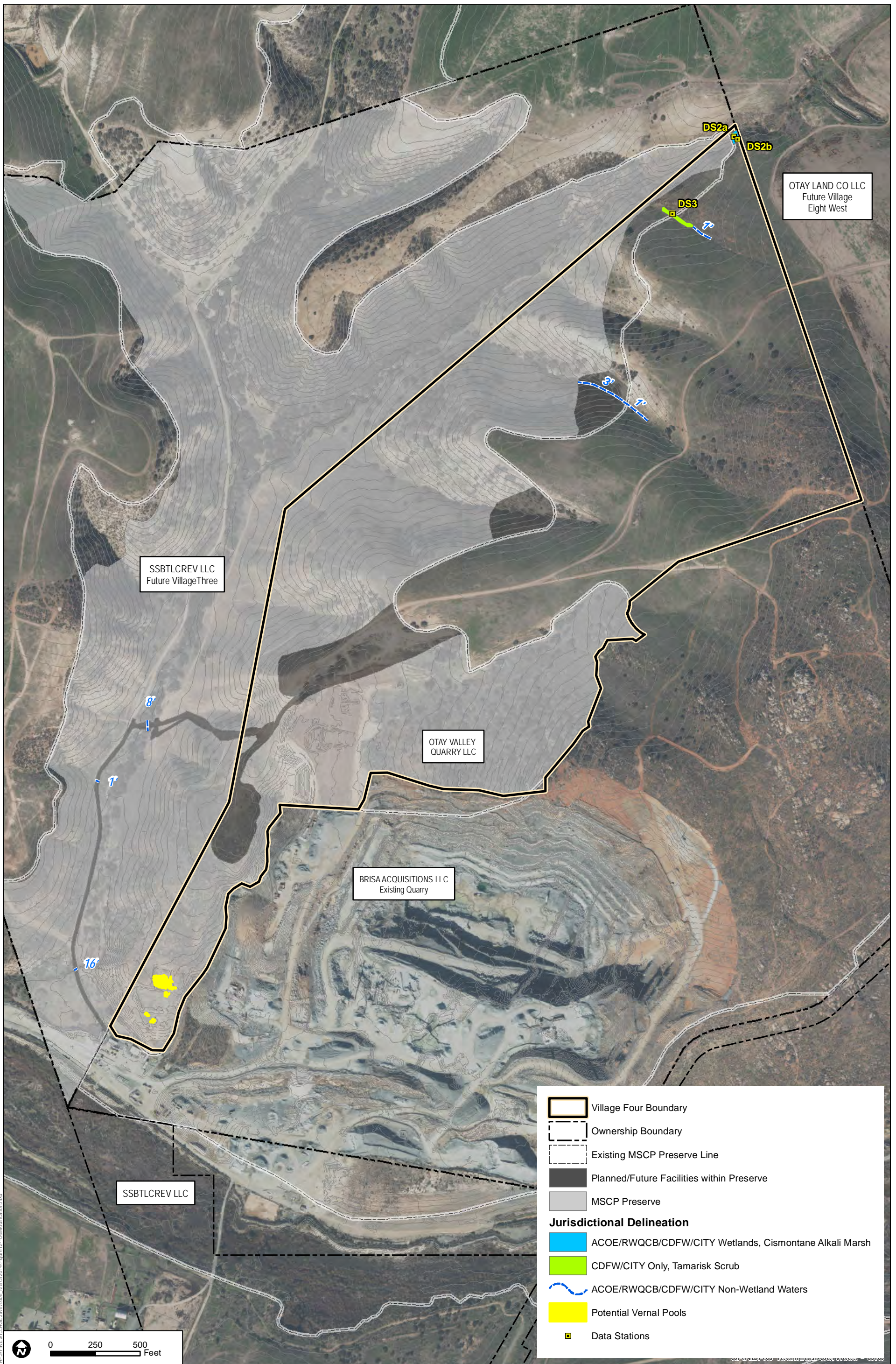
**Note:** \* Total may not sum due to rounding.

Two unvegetated channels are located along the northern slopes of the Village Four project area that flow toward the northwest, outside of the Development Area, into Wolf Canyon then eventually into the Otay River. The Otay River flows into the Pacific Ocean, a navigable water of the United States. These drainages do not contain hydrophytic vegetation or hydric soils; however, they do exhibit evidence of hydrology and a clear bed and bank. These drainages are mapped on Figure 3-2 as line features. These unvegetated drainages are considered waters of the United States under the jurisdiction of the ACOE, and waters of the State of California under the jurisdiction of the RWQCB and CDFW, and under City jurisdiction. Approximately 0.12 acre of CDFW and City jurisdictional tamarisk scrub within the Village Four Development is associated with one of the unvegetated channels. In addition, 0.17 acre of ACOE, RWQCB, CDFW, City jurisdictional cismontane alkali marsh is located within the Preserve. Data Stations were taken within the cismontane alkali marsh and tamarisk scrub (Figure 3-2); the results are summarized in Table 3-3.

**Table 3-3  
Data Station Point Summary**

Data Station	ACOE Wetland Determination Field Indicators			Determination, Vegetation Community	Jurisdiction
	<i>Vegetation</i>	<i>Hydric Soils</i>	<i>Hydrology</i>		
2a	✓	✓	✓	Wetland/Riparian Habitat, Cismontane Alkali Marsh	ACOE//RWQCB/CDFW
2b	None	None	None	None, Non-native Grassland	None
3	None	✓	✓	Riparian Habitat, Tamarisk Scrub	CDFW only





	Village Four Boundary
	Ownership Boundary
	Existing MSCP Preserve Line
	Planned/Future Facilities within Preserve
	MSCP Preserve
<b>Jurisdictional Delineation</b>	
	ACOE/RWQCB/CDFW/CITY Wetlands, Cismontane Alkali Marsh
	CDFW/CITY Only, Tamarisk Scrub
	ACOE/RWQCB/CDFW/CITY Non-Wetland Waters
	Potential Vernal Pools
	Data Stations

0 250 500 Feet



FIGURE 3-2

Wetland Delineation Map - Village Four Development

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## Biological Technical Report for the Otay Ranch Village Four Project

Other jurisdictional resources occurring within Village Four include potential vernal pools (Figure 3-2). Vernal pools are considered a type of wetland and are protected by state and federal laws. During focused surveys for Quino checkerspot butterfly in February 2015, multiple potential vernal pools were recorded within an area mapped as coastal sage scrub in the most southern area of the Preserve. The potential vernal pools within the Preserve are circular-shaped depressions that support ponded water following storm events, as observed during field surveys. These pools could potentially support hydrophytic vegetation, including woolly-marbles (*Psilocarphus brevissimus*) as well as wildlife species that are endemic to vernal pools such as vernal pool branchiopods and western spadefoot toads (*Spea hammondi*). No vernal pools were observed within the Village Four Development Area due to the severely damaged topography as the result of long-term agricultural practices, therefore no significant mima mound topography remains within the Development Area. Because the potential pools are contained within the Preserve approximately 200 feet away from the closest impact area, and are not hydrologically connected to any jurisdictional waters of the United States, they were not surveyed for special-status species and will not be further addressed in this report.

### 3.2.2 Off-Site Areas

The jurisdictional delineation conducted in 2015 did not cover off-site areas due to access restrictions. However, jurisdictional resource mapping for the sewer/storm drain alignment within Village Three was obtained from the Biological Technical Report for the Otay Ranch University Villages Project (Dudek 2014). There is a total of 0.02 acre of jurisdictional non-wetlands waters within Village Three. Acreages for off-site jurisdictional resources are summarized in Table 3-4 and represented in Figure 3-2.

**Table 3-4  
Off-site Jurisdictional Non-wetlands Waters within Village Three**

Wetlands Vegetation Community	Jurisdiction	Acres
<i>Village Three</i>		
Unvegetated channel	ACOE/RWQCB/CDFW/City Non-wetlands Waters	0.02
<b>Total Jurisdictional Area</b>		<b>0.02</b>

The existing dirt road within Village Three contains one culvert which conveys flows from a side tributary to the main channel within Wolf Canyon and another culvert which directs flow from the main channel under the southern portion of the dirt road. The tributary to Wolf Canyon and the main channel in Wolf Canyon flow into the Otay River. The Otay River flows into the Pacific Ocean, a navigable water of the United States. These drainages do not contain hydrophytic vegetation or hydric soils; however, they do exhibit evidence of hydrology and a clear bed and bank. These drainages are mapped on Figure 3-2 as line features. These unvegetated drainages are

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considered waters of the United States under the jurisdiction of the ACOE, waters of the State of California under the jurisdiction of the RWQCB, a streambed under the jurisdiction of CDFW, and under City jurisdiction.

### **3.3 Botany – Plant Diversity**

A total of 148 species of plants were observed within the Village Four project area during the 2009 and 2015 surveys conducted by Dudek (Appendix A). Forty-three families are represented on site, with nearly half of species coming from the Asteraceae, Poaceae, and Fabaceae families. Species composition includes 97 (66%) native species and 51 (34%) non-native species occurring on site.

### **3.4 Zoology – Wildlife Diversity**

Historic information and recent surveys are the basis for the description of wildlife on the project area. Wildlife expected to occur throughout the project area are discussed in Sections 3.4.1 through 3.4.4. A cumulative list of wildlife species observed or detected on site is included in Appendix B.

#### **3.4.1 Birds**

A total of 52 species of birds were observed within the Village Four project area or immediately off site during the surveys conducted by Dudek from 2008 to 2015. Some of the species observed include coastal California gnatcatcher, rufous-crowned sparrow (*Aimophila ruficeps*), California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and northern mockingbird (*Mimus polyglottos*).

#### **3.4.2 Reptiles and Amphibians**

Seven species of reptiles were observed within the Village Four project area during the Dudek surveys: western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), western skink (*Plestiodon skiltonianus*), striped racer (*Coluber lateralis*), gopher snake (*Pituophis melanoleucus*), western rattlesnake (*Crotalus oreganus*), and southern alligator lizard (*Elgaria multicarinatus*). Based on the habitat present and Dudek biologists' knowledge of the area, it is presumed that several other reptile and amphibian species occur on the project area. Some of these include coastal whiptail (*Aspidoscelis tigris*), red-diamond rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), and western toad (*Bufo boreas*).

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### **3.4.3 Mammals**

Seven species of mammals were detected within the Village Four project area by direct observation or sign; they are San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), brush rabbit (*Sylvilagus bachmani*), desert wood rat (*Neotoma lepida*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus (Otospermophilus) beecheyi*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). Other mammal species that likely use the site include Dulzura kangaroo rat (*Dipodomys simulans*) and common raccoon (*Procyon lotor*).

### **3.4.4 Invertebrates**

Twenty-six species of invertebrates, the majority of which were butterflies, were identified within the Development Area or in the Preserve by direct observation. Common species on site include Behr's metalmark (*Apodemia mormo virgulti*), common California ringlet (*Coenonympha tullia*), Pacific Sara orangetip (*Anthocharis sara sara*), and checkered white (*Pontia protodice*). Invertebrate diversity is expected to be moderately high, especially in the naturally vegetated portions of the project area.

## **3.5 Sensitive Biological Resources**

The following resources are discussed in this section: (1) plant and wildlife species present in the project vicinity that are given special recognition by federal, state, or local agencies and organizations; (2) habitat types recognized by local and regional agencies as sensitive; (3) habitat areas that are unique, are of relatively limited distribution, or are of particular value to wildlife; (4) wildlife corridors and habitat linkages.

### **3.5.1 Special-Status Plant Species**

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guidelines Section 15380 (14 CCR 15000 et seq.). Tables F-1 and F-2 in Appendix F provides a cumulative list of special-status plant species that have potential to occur in the project area based on the literature search. Table F-1 describes the special-status plants that have been observed or have moderate or high potential to occur; Table F-2 describes special-status plants that have low potential or are not expected to occur in the project area. The potential to occur is based on known occurrences in the region, elevation ranges, and the general habitat requirements.

Focused surveys within the project area were conducted according to the methods presented in Sections 2.2.2 and 2.2.5. One federally and state-listed plant species was detected within the

## Biological Technical Report for the Otay Ranch Village Four Project

Development Area: Otay tarplant (federally threatened and state endangered, MSCP Covered, Narrow Endemic, CRPR 1B.1). Nine other species considered sensitive by various agencies also occur within the project area: singlewhorl burrobrush (*Ambrosia monogyra*), variegated dudleya (MSCP Covered, Narrow Endemic), San Diego barrel cactus (MSCP Covered), small-flowered morning glory (*Convolvulus simulans*), Palmer’s grapplinghook (*Harpagonella palmeri*), mesa spikemoss (*Selaginella cinerascens*), small-flowered microseris (*Microseris douglasii* ssp. *platycarpa*), California box-thorn, and San Diego County viguiera. Additional populations within the preserve outside of the survey area and outside of the proposed project impacts were derived from previous surveys for the Quarry and Village Three. Table 3-5 provides the populations of special-status plant species observed within the project site with the exception of California box-thorn, San Diego County viguiera, small-flowered microseris, and Mesa spikemoss. Due to their low CRPR, and in the case of San Diego County viguiera common observations within the project area, locations and populations for this species were not recorded. The data for species locations is represented on Figure 3-3.

The species locations were generally mapped by hand and/or with a portable GPS unit by point records where the occurrence is of a single individual and as polygons for a population. The number of individuals within a polygon for a population of special-status plants was visually estimated. For many areas, estimation of number of individuals involved estimating an average density within the mapped polygon. Species with a CRPR 3 and 4 (i.e. California box-thorn, San Diego County viguiera, small-flowered microseris, and Mesa spikemoss) were recorded but not mapped due to low ranking. CRPR 3 and 4 species typically exhibit relatively widespread distribution and at the current time have not reached a level of threat, nor have numbers or populations declined to a point that would cause these taxa to be considered “rare.” CRPR 4 is defined by CNPS as “Plants of Limited Distribution – A Watch List.” Therefore, for purposes of determining CEQA significance, only plants ranked as CRPR 1 or 2 are considered “rare” or “endangered” (Table 3-5). The number of individuals within the Development Area includes those proposed for take and the species included within the proposed Give areas are include in the Planned and Future Facilities total.

**Table 3-5  
Special-Status Plant Populations within the Project Area and Preserve**

Plant Species	Status (Federal/State/ CNPS/MSCP)	Village Four Development	Population			
			Planned and Future Facilities	Off-Site Areas	Village Four Preserve	Total
Singlewhorl burrobrush ( <i>Ambrosia monogyra</i> )	None/None/2B.2/None	—	—	18	—	18
Small-flowered morning	None/None/4.2/None	28	30	—	—	58

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 3-5  
Special-Status Plant Populations within the Project Area and Preserve**

Plant Species	Status (Federal/State/ CNPS/MSCP)	Village Four Development	Population			
			Planned and Future Facilities	Off-Site Areas	Village Four Preserve	Total
glory ( <i>Convolvulus simulans</i> )						
Otay tarplant ( <i>Deinandra conjugens</i> )	FT/CE/1B.1/Covered, NE	56,920	8,026	114	11,837	76,897
Variegated dudleya ( <i>Dudleya variegata</i> )	None/None/1B.2/ Covered, NE	175	—	—	—	175
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	None/None/2B.1/ Covered	183	6	—	303	492
Palmer's grapplinghook ( <i>Harpagonella palmeri</i> )	None/None/4.2/None	100	—	—	281	381
California box-thorn ( <i>Lycium californicum</i> )	None/None/4.2/None	Not mapped due to low ranking and prevalence within the project area.				
Small-flowered microseris ( <i>Microseris douglasii</i> ssp. <i>platycarpha</i> )	None/None/4.2/None	Not mapped due to low ranking and prevalence within the project area.				
Ashy spikemoss ( <i>Selaginella cinerascens</i> )	None/None/4.1/None	Not mapped due to low ranking and prevalence within the project area.				
San Diego County viguiera ( <i>Bahiopsis (=Viguiera)</i> <i>laciniata</i> )	None/None/4.2/None	Not mapped due to low ranking and prevalence within the project area.				

**Status Legend**

**Federal**

FT: Federally listed as threatened.

**State**

CE: State listed as endangered.

**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 more common elsewhere

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)

MSCP: Chula Vista MSCP Subarea Plan Covered Species

**California Box-Thorn (*Lycium californicum*), CRPR 4.2**

California box-thorn is a perennial shrub that blooms December through August and grows in coastal bluff scrub and coastal scrub (CNPS 2015). This species was observed during 2015

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surveys in areas where San Diego barrel cactus was abundant; however, due to the species low CRPR, exact locations and populations for this species were not recorded.

### **Otay Tarplant (*Deinandra conjugens*), Federally Threatened, State Endangered, CRPR 1B.1, MSCP Covered, Narrow Endemic**

Otay tarplant is an annual herb that blooms May through June and grows in coastal scrub and valley and foothill grassland with clay soils (CNPS 2015). Otay tarplant was mapped within the Village Four project area during the 2015 surveys. It is located abundantly throughout the Village Four project area, with 11,837 individuals within the Preserve, 8,140 individuals in the Planned and Future Facilities (includes 114 individuals occurring in off-site areas), and 56,920 individuals within the Development Area, which totals to 76,897 individuals. The Development Area total includes the 6,111 individuals located within the proposed take area. A total population of 5,064 Otay tarplants will be given as a part of the proposed Boundary Adjustment. However, 4,988 of those individuals will be impacted by the Planned Facilities; therefore, the net total of individuals given to the Preserve is 76. It should be noted that population size of this species varies dramatically from year to year, depending on rainfall patterns.

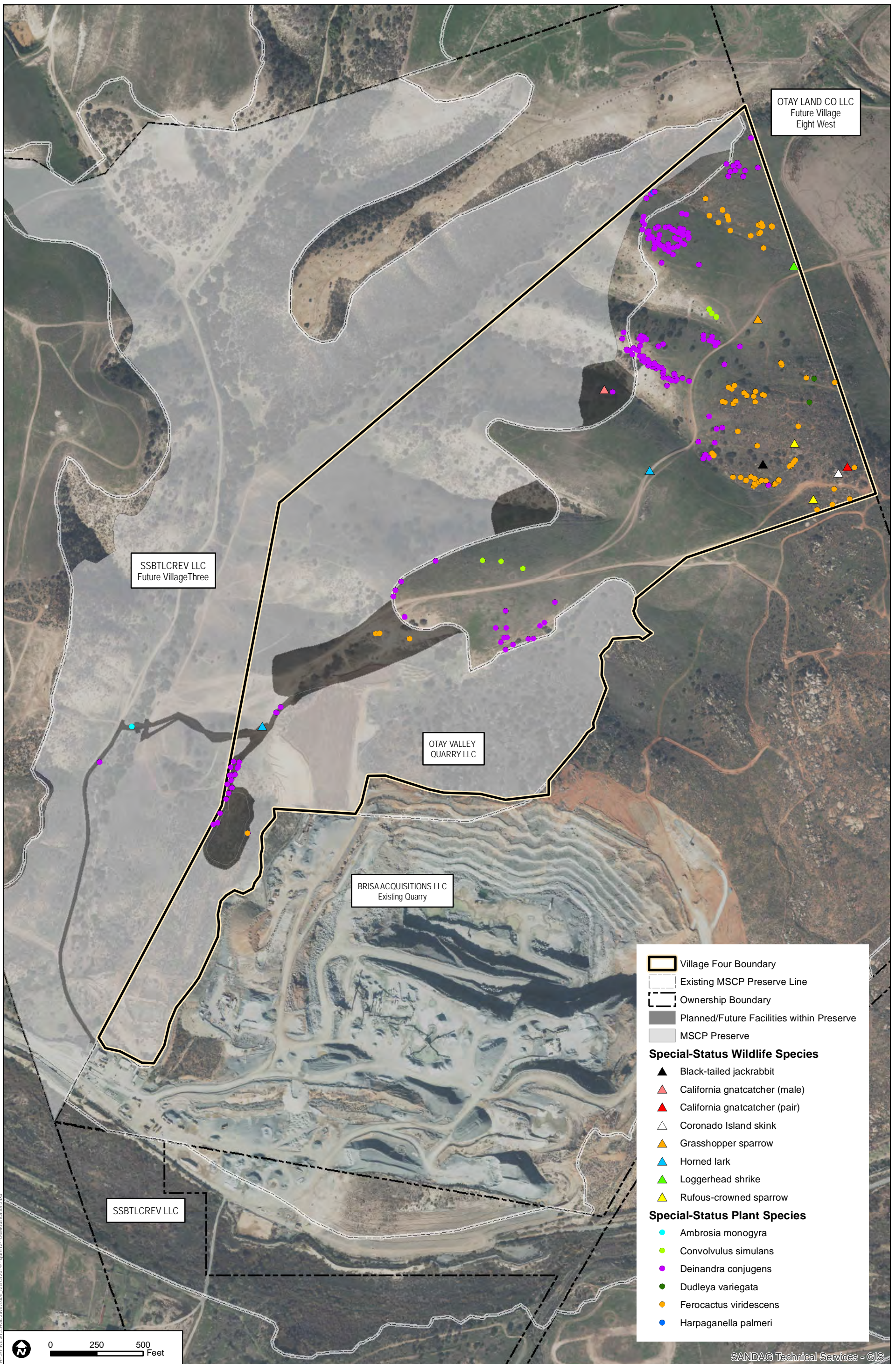
### **Palmer's Grapplinghook (*Harpagonella palmeri*), CRPR 4.2**

Palmer's grapplinghook is an annual herb that blooms March through May and grows in chaparral, coastal scrub, and valley and foothill grassland (CNPS 2015). During the 2015 surveys, approximately 281 Palmer's grapplinghook individuals were recorded within the southern portion of the Preserve. There are 100 Palmer's grapplinghook individuals within the proposed take area included as part of the Village Four Development Area.

### **San Diego Barrel Cactus (*Ferocactus viridescens*), CRPR 2B.1, MSCP Covered**

San Diego barrel cactus is a perennial stem succulent that blooms May through June and grows in chaparral, coastal scrub, valley and foothill grassland, and vernal pools (CNPS 2015). During the 2015 surveys, 183 San Diego barrel cactus individuals were mapped within the Village Four Development Area, 6 individuals within the Planned and Future Facilities, and 303 individuals were mapped within the Preserve. This species is located throughout the Village Four project area along hillsides and totals to 492 individuals.





**FIGURE 3-3**  
**Special-Status Species Map - Village Four Development**

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## **Biological Technical Report for the Otay Ranch Village Four Project**

### **San Diego County Viguiera (*Bahiopsis (Viguiera laciniata)*), CRPR 4.2**

San Diego County viguiera is a perennial shrub that blooms February through August and grows in chaparral and coastal scrub (CNPS 2015). San Diego County viguiera occurs as a common shrub in some of the coastal sage scrub on site, as well as throughout other vegetation communities. This species was observed abundantly throughout the project area during the 2015 surveys. However, due to the species low CRPR, exact locations and populations for this species were not recorded.

### **Small-Flowered Morning Glory (*Convolvulus simulans*), CRPR 4.2**

Small-flowered morning glory is an annual herb that blooms March through July and grows in openings in chaparral, coastal scrub, and valley and foothill grassland. The species is also associated with clay, serpentinite seeps (CNPS 2015). Approximately 58 individuals were mapped during the 2015 survey efforts—28 in the Development Area and 30 individuals within the proposed give area as part of the Planned and Future Facilities in the Preserve. All individuals were recorded within non-native grassland.

### **Small-Flowered microseris (*Microseris douglasii* ssp. *platycarpa*), CRPR 4.2**

Small-flowered microseris is an annual herb that blooms March through May and grows in cismontane woodland, valley and foothill grassland, and vernal pools. The species is associated with clay soils (CNPS 2015). Within the Village Four project area, this species was recorded during the 2015 surveys just above the vernal pools within the Preserve.

### **Singlewhorl burrobrush (*Ambrosia monogyra*), CRPR 2B.2**

Singlewhorl burrobrush is a perennial shrub that blooms August through November and grows in chaparral and Sonoran Desert scrub. The species is associated with sandy soils (CNPS 2015). This species was recorded during the 2010 surveys in the off-site area of the Village Three Preserve (Dudek 2014), which is part of Village Four project area Planned Facilities.

### **Variegated Dudleya (*Dudleya variegata*), CRPR 1B.2, MSCP Covered, Narrow Endemic**

Variegated dudleya is a perennial herb that blooms April through June and grows in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland with clay soils, and vernal pools (CNPS 2015). Approximately 175 individuals of variegated dudleya were recorded during the 2015 surveys within two areas of coastal sage scrub in the eastern portion of the Village Four Development Area.

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## **Ashy Spikemoss (*Selaginella cinerascens*), CRPR 4.1**

Ashy spikemoss is a perennial rhizomatous herb that grows in chaparral and coastal scrub, (CNPS 2015). This species was observed throughout the project area during the 2015 surveys, however due to the species low CRPR, locations and populations for this species were not recorded. Additionally, ashy spikemoss grows as a continuous mat, which makes it difficult to know exact numbers.

### **3.5.2 Special-Status Wildlife Species**

Tables G-1 and G-2 in Appendix G provides a cumulative list of special-status wildlife species that have potential to occur in the project area based on the literature search. Table G-1 describes the special-status wildlife species that have been observed or have moderate or high potential to occur; Table G-2 describes special-status wildlife species that have low potential or are not expected to occur in the project area. The potential to occur is based on known occurrences in the region, life history, and the general habitat requirements.

Focused surveys of the project area were conducted according to the methods presented in Sections 2.2.3 and 2.2.5. Focused surveys for burrowing owl and Quino checkerspot butterfly were conducted within the Village Four boundary and within a small off-site area within the Quarry boundary, whereas focused surveys for California gnatcatcher and the general wildlife survey were only conducted within the Village Four boundary. Special-status wildlife species observed include southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), horned lark (*Eremophila alpestris actia*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), coastal California gnatcatcher, black-tailed jackrabbit, San Diego desert woodrat (*Neotoma lepida intermedia*) loggerhead shrike (*Lanius ludovicianus*), and Coronado Island skink (*Plestiodon skiltonianus interparietalis*).

A description of special-status wildlife species observed or detected during surveys is included below. Federally listed and state fully protected species are listed first.

#### **Coastal California Gnatcatcher (*Polioptila californica californica*); Federally Threatened, State Species of Special Concern, MSCP Covered Species**

Coastal California gnatcatcher is distributed from eastern Orange and southwestern Riverside Counties south through the coastal foothills of San Diego County and along the coast at Palos Verdes Peninsula. It occurs in low numbers in the San Gabriel and San Bernardino Mountains of Los Angeles and San Bernardino Counties (Zeiner et al. 1990a). Coastal California gnatcatcher is considered an obligate resident of coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills, and habitat areas dominated by California buckwheat, coastal sagebrush, and prickly pear patches are especially preferred (Zeiner et al. 1990a). Coastal California gnatcatcher is an

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insectivorous species that forages by gleaning. Appendix D includes the focused survey Coastal California gnatcatcher reports from 2009 and 2015.

### ***Occurrence in Project Area***

Two coastal California gnatcatcher pairs and one individual male were observed in the project area during focused surveys. One pair was observed in the Village Four Development Area (Figure 3-3), and one pair and one male were observed in the Village Four Preserve. The individual male was observed within the Planned Facilities area of the Village Four Preserve, while the pair was observed within the non-impacted area of the Village Four Preserve.

There are 92.23 acres of potentially suitable habitat including coastal sage scrub and disturbed coastal sage scrub in the project area: 14.93 acres are located within the Village Four Development Area (includes take area), 77.30 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 0.25 acre in the off-site areas.

### **Coronado Island Skink (*Plestiodon skiltonianus interparietalis*); State Species of Special Concern**

The range of the Coronado skink subspecies is from inland Southern California, south through the north Pacific coast region of northern Baja California, from sea level to approximately 8,300 feet amsl (Nafis 2015). This reptile typically prefers grassland, woodlands, pine forests, and chaparral, especially in open sunny areas near the edges of creeks, rivers, and clearings. It prefers rocky areas near streams with abundant vegetation, but it is also found in areas away from water (Nafis 2015).

### ***Occurrence in Project Area***

Coronado Island skink was observed in the project area. One occurrence was mapped within the Village Four Development Area (Figure 3-3). There are 166.41 acres of potentially suitable habitat including all vegetation communities (except for developed and disturbed habitat-rock quarry) in the project area: 65.28 acres are located within the Village Four Development area (includes take area), 97.88 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 3.25 acres in the off-site areas.

### **Cooper's Hawk (*Accipiter cooperii*), State Watch List; MSCP Covered Species**

Cooper's hawk inhabits live oak, riparian deciduous, and other forest habitats near water. Nesting and foraging usually occur near open water or riparian vegetation. Nests are built in dense stands with moderate crown depths, usually in second-growth conifer or deciduous riparian areas. Nests in deciduous trees are typically located in crotches 20 to 50 feet above the ground; in conifers, nests are in horizontal branches or the main crotch. Cooper's hawks use patchy woodlands and

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edges with snags for perching and hunting small birds, small mammals, reptiles, and amphibians (Zeiner et al. 1990a). Cooper's hawks are diurnally active and year-round residents. Breeding occurs from March through August, with peak activity in May through July. Males defend an area about 330 feet around potential nest sites (Zeiner et al. 1990a).

### ***Occurrence in Project Area***

Cooper's hawk was observed in the project area, but was not mapped. There is suitable foraging habitat throughout the project area, but nesting habitat does not readily occur in the project area. This species likely nests in the riparian woodland habitat in the Otay River, located immediately south of the project area.

There are 166.41 acres of potentially suitable foraging habitat including all vegetation communities (except for developed and disturbed habitat-rock quarry) in the project area: 65.28 acres are located within the Village Four Development Area (includes take area), 97.88 acres within the Village Four Preserve (includes Give areas, and areas impacted by the Planned and Future Facilities), and 3.25 acres in the off-site areas. There is 0.12 acre of potentially suitable nesting habitat located within the Village Four Development Area. There is no habitat located within the Village Four Preserve or in the off-site areas.

### **Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*); State Watch List, MSCP Covered Species**

Southern California rufous-crowned sparrow inhabits mixed chaparral and coastal sage scrub. In California, its range extends southward from Mendocino and Tehama Counties; this species is most numerous in the western part of this range (Zeiner et al. 1990a). Southern California rufous-crowned sparrows breed and forage on dry grass and/or forbs on hillsides with scattered shrubs and rock outcrops. Nests are usually made on the ground, at the base of grass tussock or shrubs. It is a year-round resident and diurnally active, eating mostly insects and spiders during the breeding season and seeds, grass, and forb shoots throughout the year. It breeds from mid-March to mid-June with a peak in May. In Southern California coastal sage scrub, the average sized territory is about 2 acres (Zeiner et al. 1990a).

### ***Occurrence in Project Area***

Southern California rufous-crowned sparrow was observed in the project area. There are two observations in the Village Four Development Area (Figure 3-3) and one observation in the Village Four Preserve.

There are 161.59 acres of potentially suitable habitat, including coastal sage scrub (including disturbed), desert saltbush scrub, maritime succulent scrub, non-native grassland, and 55.51 acres

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of “not mapped” preserve lands in the project area: 64.08 acres are located within the Village Four Development Area (includes Take area), 95.10 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 2.41 acres in the off-site areas.

### **Grasshopper Sparrow (*Ammodramus savannarum*); State Species of Special Concern**

The grasshopper sparrow is a neotropical migrant that breeds throughout the eastern two-thirds of the United States, except for the extreme southeast (Vickery 1996). In California, birds observed during the winter in breeding areas may be residents or winter migrants (Unitt 2008). Its breeding range in California includes Humboldt, Del Norte, Mendocino, Trinity, and Tehama Counties in the north; areas west of the Cascade and Sierra Nevada ranges; and south to San Diego County (Unitt 2008). The grasshopper sparrow uses dense, dry, or well-drained grassland, especially native grassland with a mix of grasses and forbs for foraging and nesting, and requires fairly continuous native grassland areas with occasional taller grasses, forbs, or shrubs for song perches (Garrett and Dunn 1981; Unitt 2008). Grasshopper sparrows feed primarily on insects in the summer and grass and forb seeds in winter (Vickery 1996). Grasshopper sparrows breed from early April to mid-July, with a peak in May and June. Clutch size is four to five eggs that incubate in 11 to 12 days (Harrison 1978).

### ***Occurrence in Project Area***

There is one observation of grasshopper sparrow within the Village Four Development Area (Figure 3-3). There are 122.35 acres of potentially suitable habitat, including non-native grassland and 55.51 acres of “not mapped” preserve lands in the project area: 48.88 acres are located within the Village Four Development Area (includes take area), 71.31 acres within the Village Four preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 2.16 acres in the off-site areas.

### **Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*); USFWS Birds of Conservation Concern, State Species of Special Concern, MSCP Covered Species**

Coastal cactus wren is a locally common resident in the Mojave and Colorado Deserts, from Mexico to Inyo and Kern Counties. The coastal subspecies is found in arid parts of Southern California’s westward-draining slopes. The coastal cactus wren occurs in desert succulent shrub, Joshua tree, and desert wash habitats. It forages for insects, spiders, other small invertebrates, cactus fruits, other fruits, nectar, and seeds. The coastal cactus wren breeds from March to June, commonly with two broods per season and four to five eggs per clutch (Zeiner et al. 1990a).

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### ***Occurrence in Project Area***

A single coastal cactus wren individual was recorded within the Village Four Preserve (outside the give and take areas). While there is no cactus scrub mapped out as a separate vegetation community, cactus scrub patches occur within the maritime succulent scrub and portions of the Preserve areas that are not mapped. There are 57.73 acres of potentially suitable habitat, including maritime succulent scrub and 55.51 acres of “not mapped” preserve lands in the project area: 0.27 acre are located within the Village Four Development Area (includes take area) and 57.46 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities).

### **California Horned Lark (*Eremophila alpestris actia*); State Watch List**

California horned lark inhabits grasslands and other open habitats with low, sparse vegetation, such as open desert scrub and alpine dwarf-shrub habitat. It is occasionally found in coniferous or chaparral habitats. California horned larks nest in depressions on the ground and feed on insects, snails, and spiders during breeding season, adding grass and forb seeds in other seasons. California horned larks are yearlong residents in lowland areas throughout California, except the northern coastal area. The Eastern Sierras also provide habitat in summer, with most birds in these montane habitats moving down slope in the winter. Winter migrants from out of state may join flocks in the southeastern deserts. Horned larks breed from March through July, with peak activity in May (Zeiner et al. 1990b).

### ***Occurrence in Project Area***

California horned lark was observed in the project area. There were four observations in the Village Four Development Area (Figure 3-3) and three observations in the Village Four Preserve.

There are 122.39 acres of potentially suitable habitat, including desert saltbush scrub, non-native grassland, and 55.51 acres of “not mapped” preserve lands in the project area: 48.88 acres are located within the Village Four Development Area (includes take area), 71.35 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 2.16 acres in the off-site areas.

### **Loggerhead Shrike (*Lanius ludovicianus*); USFWS Birds of Conservation Concern, State Species of Special Concern**

The loggerhead shrike is widespread throughout the United States, Mexico, and portions of Canada (Humple 2008). While shrikes are widespread at the lower elevations in California, the largest breeding populations are located in portions of the Central Valley, the Coast Ranges, and the southeastern deserts (Humple 2008). Preferred habitats for the loggerhead shrike are open



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areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures that provide a location to impale prey items for storage or manipulation, such as the top of chain-link fences or barbed wire (Humple 2008). For nesting, the height of shrubs and presence of canopy cover are most important (Yosef 1996). Loggerhead shrikes prey mainly on arthropods (primarily grasshoppers, crickets, beetles, and caterpillars); they also take reptiles, amphibians, fish, small birds, and rodents (Humple 2008). In California, they lay four to eight eggs from March into May (Yosef 1996).

### ***Occurrence in Project Area***

There is one observation of loggerhead shrike in the Village Four Development Area (Figure 3-3). There are 161.70 acres of potentially suitable habitat, including coastal sage scrub (including disturbed), desert saltbush scrub, maritime succulent scrub, non-native grassland, tamarisk scrub, and 55.51 acres of “not mapped” preserve lands in the project area: 64.19 acres are located within the Village Four Development Area (includes take area), 95.10 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 2.41 acres in the off-site areas.

### **San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*); State Species of Special Concern**

San Diego black-tailed jackrabbit is found in coastal scrub and chaparral areas in the San Diego, Riverside, San Bernardino, and Los Angeles Counties (Zeiner et al. 1990b). The San Diego black-tailed jackrabbit is herbivorous, grazes on grasses and forbs, and uses shrubs for cover (Zeiner et al. 1990b). San Diego black-tailed jackrabbit breeds throughout the year, and young are born beneath vegetation (Zeiner et al. 1990b). A litter of three to four offspring is produced four times throughout the year, depending on environmental conditions (Zeiner et al. 1990b).

### ***Occurrence in Project Area***

San Diego black-tailed jackrabbit was observed in the project area. One observation was recorded in the Village Four Development Area; however, this species likely utilizes much of the project area (Figure 3-3).

There are 166.24 acres of potentially suitable habitat, including coastal sage scrub (including disturbed), desert saltbush scrub, maritime succulent scrub, non-native grassland, tamarisk scrub, unvegetated channel, disturbed habitat, and 55.51 acres of “not mapped” preserve lands in the project area: 65.28 acres are located within the Village Four Development Area (includes take area), 97.71 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 3.25 acres in the off-site areas.

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### **San Diego Desert Woodrat (*Neotoma lepida intermedia*); State Species of Special Concern**

San Diego desert woodrat is found in coastal Southern California into Baja California, Mexico (Reid 2006). Marginal eastern records for the San Diego desert woodrat in the United States include San Luis Obispo, San Fernando in Los Angeles County, the San Bernardino Mountains and Redlands in San Bernardino County, and Julian in San Diego County (Hall 1981). Desert woodrats are found in a variety of shrub and desert habitats and are primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.

#### ***Occurrence in Project Area***

San Diego desert woodrat sign was observed in the project area, but its location was not mapped. There are 94.86 acres of potentially suitable habitat, including coastal sage scrub (including disturbed), desert saltbush scrub, maritime succulent scrub, tamarisk scrub, and 55.51 acres of “not mapped” preserve lands in the project area: 15.31 acres are located within the Village Four Development Area (includes take area), 79.30 acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 0.25 acre in the off-site areas.

### **Mule Deer (*Odocoileus hemionus*); MSCP Covered Species**

Mule deer is a common species with a widespread distribution throughout the western United States and Canada and south into mainland and Baja California, Mexico (Hall 1981). It occurs throughout most of California, except in deserts and intensively farmed areas without cover (Zeiner et al. 1990b). Throughout its range, mule deer uses coniferous and deciduous forests, riparian habitats, desert shrub, coastal scrub, chaparral, and grasslands with shrubs. It is often associated with successional vegetation, especially near agricultural lands (NatureServe 2015). It uses forested cover for protection from the elements and open areas for feeding (Wilson and Ruff 1999). Mule deer fawn in a variety of habitats that have available water and abundant forage, including moderately dense shrubs and forests, dense herbaceous stands, and higher-elevation riparian and mountain shrub vegetation.

#### ***Occurrence in Project Area***

Direct mule deer observations as well as detection of mule deer sign (scat and tracks) were observed in the project area, but the locations were not mapped. It is expected that this species utilizes the entire project area, however off-road activities within the proposed development footprint likely limit use to Preserve areas. There are 166.41 acres of potentially suitable habitat, including all vegetation communities (except for developed and disturbed habitat-rock quarry), in the project area: 65.28 acres are located within the Village Four Development Area, 97.88

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acres within the Village Four Preserve (includes give areas, and areas impacted by the Planned and Future Facilities), and 3.25 acres in the off-site areas.

### **Special-Status Species for Which Surveys Were Negative**

**Quino Checkerspot Butterfly.** Based on habitat and host plants observed in the project area, Quino checkerspot butterfly has a high potential to occur within the project area. However, no Quino checkerspot butterflies were observed during the 2015 Quino checkerspot butterfly focused survey on the project area either within the Development Area or within the portion of the Preserve surveyed (see Appendix E). Based on the review of the USFWS website reporting observations of Quino checkerspot butterfly and based on the observation of other co-occurring butterfly species, the conditions and timing were appropriate for the survey. USFWS and CNDDDB records include occurrences approximately 0.5 mile from the western boundary of the project area along the Otay River in the Otay Valley south of Lower Otay Reservoir (CDFW 2015; USFWS 2015). During the 2015 Quino checkerspot butterfly focused survey (Appendix E), the location and size of host plants was recorded. Patches or individuals of the host plant dot-seed plantain (*Plantago erecta*) were recorded in the Village Four Development Area and Preserve. The narrow southwestern portion of the Village Four Preserve supports the majority of the dot-seed plantain mapped during the 2015 survey (see Appendix E).

**Burrowing Owl.** Based on habitat and occurrence data, there is a moderate potential for burrowing owl to occur within the project area in both the Development Area and Preserve and portions of the off-site areas. There are two CNDDDB occurrences (presumed extant) from 2003 approximately 0.5 mile and 1 mile to the east of the Village Four project area (CDFW 2016a). Although there is suitable habitat within the project area in both the Development Area and Preserve and portions of the off-site areas, no burrowing owls were detected during focused surveys for this species conducted on the Village Four Development Area and portions of the Preserve in 2015.

### **Special-Status Wildlife Species with Potential to Occur**

Other special-status wildlife species that have moderate or high potential to occur are described in Table G-1 in Appendix G. Other special-status bird species that may occur within the Village Four Development Area (excludes preserve) include raptors utilizing the site for foraging and some scrub and grassland bird species. These potentially occurring special-status bird species include golden eagle, Bell's sage sparrow (*Amphispiza belli belli*), burrowing owl, northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and American peregrine falcon (*Falco peregrinus anatum*).

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Several special-status reptile that may occur within the Village Four Development Area include silvery legless lizard (*Anniella pulchra pulchra*), orange-throated whiptail (*Aspidoscelis hyperythra*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), red diamondback rattlesnake, San Diego ring-necked snake (*Diadophis punctatus similis*), Blainville's horned lizard, Coronado Island skink, and coast patch-nosed snake (*Salvadora hexalepis virgultea*). An amphibian, the western spadefoot toad, also has a moderate potential to occur in the Village Four Development Area.

Special-status mammals that may occur within the Village Four Development Area include pallid bat (*Antrozous pallidus*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Mexican long-tongued bat (*Choeronycteris mexicana*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), cougar (*Puma concolor*), and American badger (*Taxidea taxus*).

### **3.5.3 Sensitive Vegetation Communities**

Sensitive habitats are those that are considered rare within the region, support special-status plant and/or wildlife species, or are important to provide connections for wildlife movement. The City of Chula Vista defines sensitive biological resources as those that contain natural vegetation; that are identified as Tier I, II, or III on Table 5-3 of the Chula Vista MSCP Subarea Plan; and/or that are wetlands. Habitat types found on the project area that are considered sensitive include cismontane alkali marsh (including disturbed), coastal sage scrub (including disturbed), maritime succulent scrub (including disturbed), non-native grassland, mixed riparian, and tamarisk scrub (Table 3-1; Figure 3-1).

#### **Cismontane Alkali Marsh**

Cismontane alkali marsh is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan and because of its function as a wetland community under the Subarea Plan. Cismontane alkali marsh often supports rare plant species and contributes to nutrient retention and transformation of water. Due to its wetland function, this habitat type is considered a wetland/riparian habitat under the jurisdiction of the ACOE, RWQCB, and/or CDFW.

#### **Coastal Sage Scrub**

Coastal sage scrub (and disturbed coastal sage scrub) is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the Subarea Plan. In addition, it may support the federally listed threatened coastal

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California gnatcatcher and federally listed endangered Quino checkerspot butterfly. Many other federal, state, or regionally recognized sensitive plant and wildlife species may occur in coastal sage scrub. Oberbauer (1991) estimated the historical loss of coastal sage scrub in San Diego County at approximately 72%. The primary cause for this loss has been agriculture, grazing, and, more recently, urban development.

### **Maritime Succulent Scrub**

Maritime succulent scrub (including areas mapped as disturbed maritime succulent scrub) is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan, such as coastal cactus wren.

### **Non-native Grassland**

Non-native grassland is generally considered sensitive by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan. The sensitivity of this community is based on its function as foraging habitat for several wildlife species, including raptors, as well as its function as resident habitat for special-status species, such as loggerhead shrike, horned lark, and burrowing owl.

### **Tamarisk Scrub**

Tamarisk scrub is considered a sensitive vegetation community by the Chula Vista MSCP Subarea Plan because it supports species that are covered under the plan and because of its function as a wetland community under the plan. In addition, this vegetation community is regulated by CDFW as riparian habitat.

### **Jurisdictional Resources**

Several open ephemeral drainages occur throughout the Development Area and the Preserve. These drainages are considered waters of the United States and waters of the State of California under jurisdiction of the ACOE, RWQCB, and CDFW, and are regulated by the City under the Chula Vista MSCP Subarea Plan Wetlands Protection Program. Several of the drainages flow into the Otay River, either directly, through Wolf Canyon, or via groundwater or sheet flow. These waters are described in greater detail in Section 3.2. Wetland vegetation communities are also present on site and are described in Section 3.4.3 and in Section 3.2.

#### **3.5.4 Wildlife Corridors and Habitat Linkages**

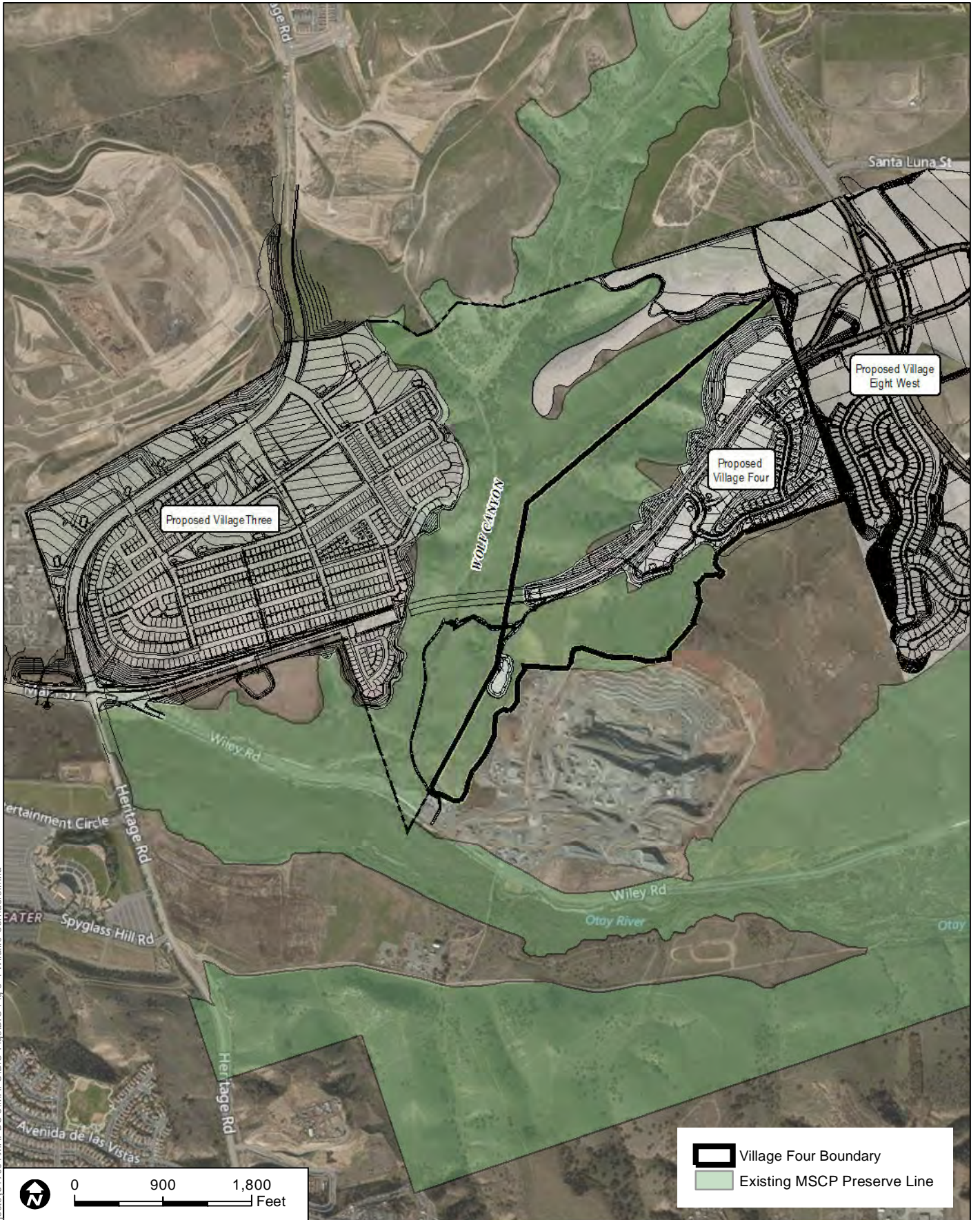
Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Wildlife corridors contribute to population viability in several ways: (1) they allow the continual exchange of genes between

## **Biological Technical Report for the Otay Ranch Village Four Project**

populations, which helps maintain genetic diversity; (2) they provide access to adjacent habitat areas, representing additional territory for foraging and mating; (3) they allow for a greater carrying capacity of wildlife populations by including “live-in” habitat; and (4) they provide routes for recolonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

Habitat linkages are patches of native habitat that function to join two substantially larger patches of habitat. They serve as connections between distinct habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage does represent a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and as avenues of gene flow for small animals, such as reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat “islands” that function as “stepping-stones” for dispersal.

The Otay River provides a major wildlife corridor for not only the Otay Ranch but for the entire South Bay region. As such, the Preserve areas of Otay Ranch make a major contribution to that regional wildlife movement. The Village Four Preserve is adjacent to the Otay Ranch Preserve areas around Wolf Canyon, which connects to the Otay River (Figure 3-4). The Village Four Preserve contains upland habitat that provides ecotonal contributions to the surrounding Otay Ranch Preserve areas. Coastal California gnatcatchers and other upland species use this Preserve area as live-in habitat, but are also provided a conduit for movement within the Otay River Valley south of the project area, which is composed of a mosaic of riparian and upland biological resources. While the existing extension of Main Street (Wiley Road) bisects the upland habitat to the north, separating it from habitat within the Otay River, at current use levels, the road does not preclude wildlife movement (including by bird and mammal species) between the upland and riparian areas. The wildlife corridor study prepared by Ogden (1992) concluded that Wolf Canyon, located between the Development Areas of Village Three North and Village Four, functions as a local corridor for mammal species, including mule deer, and as a regional connection for coastal California gnatcatchers and coastal cactus wrens located in Wolf Canyon. Currently, Wolf Canyon does not link two or more patches of habitat, which, by definition, is required of a corridor.



Document Path: Z:\Projects\181900\1\MAP\DOC\MAPS\BIO\_Figs\BIO Fig 3-4 Wildlife Corridors.mxd

**FIGURE 3-4  
Wildlife Corridors**

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According to the Ogden study, for Wolf Canyon to function even as an avian connection, one or two of the low passes that connect Poggi Canyon with Wolf Canyon would have required revegetation. Because of the lack of connection between Poggi and Wolf Canyons due to recent development, Wolf Canyon does not function as a habitat linkage or wildlife corridor. However, as the focused surveys for coastal California gnatcatcher have documented, Wolf Canyon provides live-in habitat for coastal sage scrub species and ecotonal function due to the drainage located in the bottom of the canyon. Movement of wildlife within the Preserve located adjacent to Wolf Canyon connects to the south to the regional Preserve corridor in the Otay River Valley.

There is undeveloped land to the west (Wolf Canyon), to the east continuing past SR-125, and to the north for approximately 0.3 mile until the residential development. Since it is undeveloped, Village Four currently allows general wildlife movement across the entire site including the Development Area. However, habitat that provides more substantial shelter for wildlife is within the Preserve areas on the western and northwestern slopes, which connect to Wolf Canyon.

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# **Biological Technical Report for the Otay Ranch Village Four Project**

## **4 MSCP PRESERVE BOUNDARY ADJUSTMENT AND FINDINGS**

As previously mentioned in Section 1.2 of this report and shown on Figures 1-3 and 1-4, the movement of Main Street (proposed action) will require a Boundary Adjustment to the City of Chula Vista MSCP Subarea Plan and Otay Ranch RMP. The proposed action meets the definition of a Boundary Line Adjustment. The following findings are provided to describe the proposed Preserve Boundary Line Adjustment Area for the Village Four Project to ensure that the biological functions and values assumed in the MSCP Subarea Plan are not compromised.

### **4.1 Preserve Boundary Line Adjustment Description**

The proposed Preserve Boundary Line Adjustment would modify the Preserve boundary along the northern portion of Village Four (Figure 4-1). The adjustment to the MSCP Preserve is proposed in order to shift the location of Main Street to the northern edge of Village Four. The City has planned on moving the Main Street alignment to the north prior to the development plans prepared by the Village Four Applicant. The proposed alignment for the project reflects this new alignment shift to the north and is the focus of this MSCP Boundary Line Adjustment.

The proposed Preserve Boundary Adjustment showing the give and take area is depicted in Figures 4-1 and 4-2, and the end result of the Boundary Adjustment is depicted in Figure 4-3. It would result in a 1.72-acre increase in overall acreage of the Preserve.

### **4.2 Applicable Biological Functional Equivalency**

Pursuant to the Chula Vista MSCP Subarea Plan, the standard of review for the proposed Boundary Adjustment is one of “biological functional equivalency.” As defined in Section 1.3 of the Chula Vista MSCP Subarea Plan:

**Biological Functional Equivalency** – A modification to a Preserve boundary which results in a Preserve configuration with a biological value that is equal to or higher than the original Preserve configuration. The comparison of biological value is based on the “like or equivalent” exchange concept for biological factors identified in Section 5.4.2 of the MSCP Subregional Plan.

The following is a discussion and comparison of biological value of the proposed Preserve Boundary Line Adjustment, pursuant to the provisions of Section 5.4.2 of the MSCP Subregional Plan.

#### **1. Effects on Significantly and Sufficiently Conserved Habitats (i.e., the exchange maintains or improves the conservation, configuration, or status of significantly or sufficiently conserved habitats)**

**The exchange maintains or improves the conservation of conserved habitat.** The Preserve Boundary Line Adjustment would provide for greater conservation, an increase of 2.48 acres of

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non-native grassland, an important habitat for raptor foraging, as well as an important habitat for special-status plant species such as Otay tarplant. Small changes would occur to coastal sage scrub (0.08 acre take), maritime succulent scrub (0.20 acre take), tamarisk scrub (0.04 acre take), cismontane alkali marsh (0.05 acre give) and disturbed habitat (0.25 acre give). Although the proposed Boundary Adjustment will result in the loss of 0.74 acre of disturbed coastal sage scrub, there would be a net increase in overage acreage of the Preserve as a result of the proposed Preserve Boundary Line Adjustment (Figure 4-2; Table 4-1).

**Table 4-1  
Preserve Boundary Line Adjustment Vegetation Impacts**

<b>Vegetation Type</b>	<b>Given to Preserve (Acres)</b>	<b>Removed from Preserve (Acres)</b>	<b>Net Change* (Acres)</b>
Coastal Sage Scrub	+0.11	-0.19	-0.08
Disturbed Coastal Sage Scrub	0	-0.74	-0.74
Maritime Succulent Scrub	0	-0.20	-0.20
Non-native Grassland	+5.30	-2.82	+2.48
Cismontane Alkali Marsh	+0.05	0	+0.05
Tamarisk Scrub	0	-0.04	-0.04
Disturbed Habitat	+0.25	0	+0.25
<b>Total</b>	<b>+5.71</b>	<b>-3.99</b>	<b>+1.72</b>

**Note: \*** A positive number represents a net increase of this vegetation type in the Preserve, and a negative number represents a net decrease of this vegetation type in the Preserve.

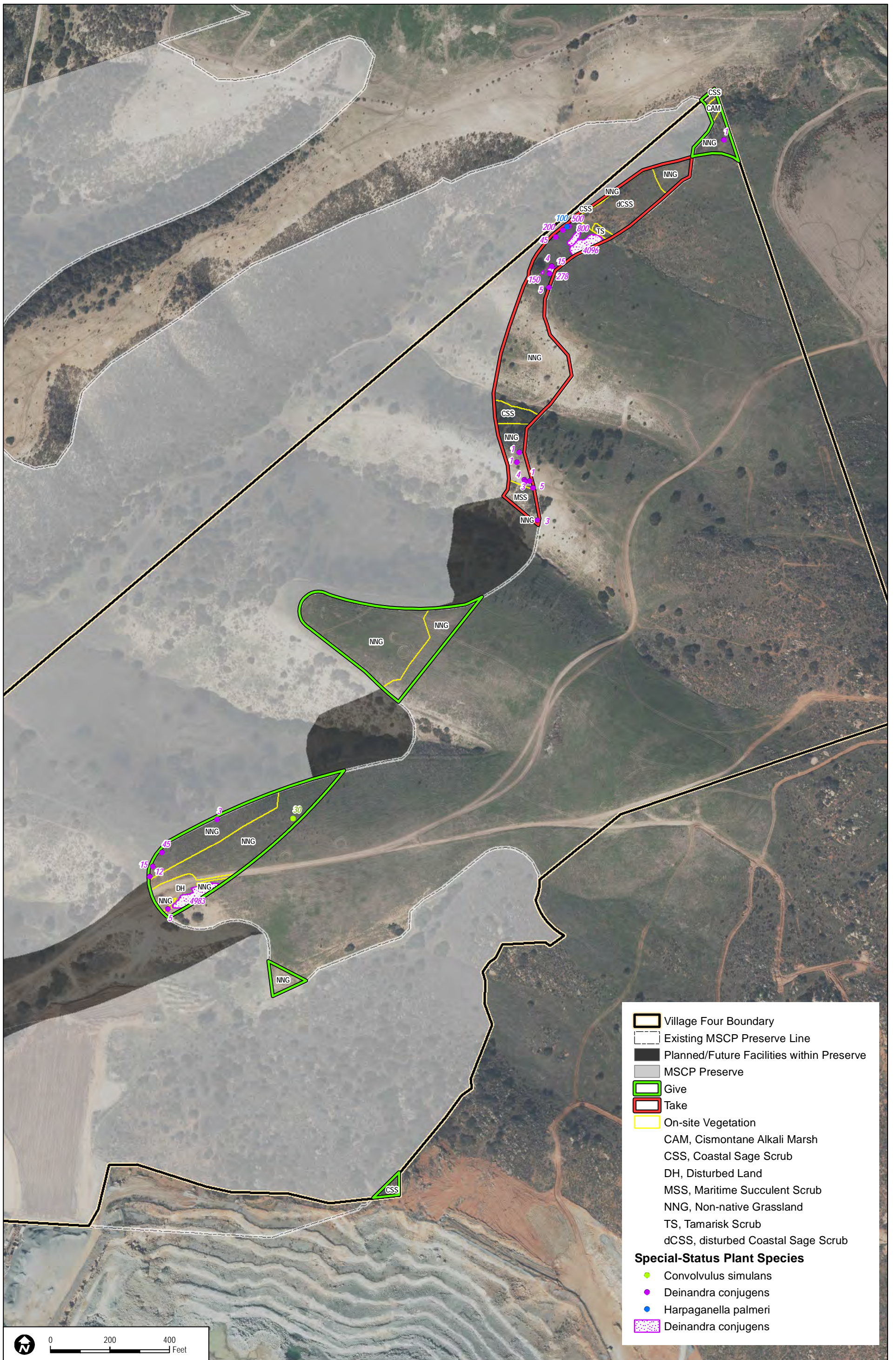
The proposed take area is one contiguous polygon within the northern tip of the Village Four boundary in close proximity to other development areas including Village Eight West (Figure 4-2). Within this polygon the following vegetation communities will be removed from the Preserve: coastal sage scrub (including disturbed), maritime succulent scrub, non-native grassland, and tamarisk scrub. The coastal sage scrub proposed for take from the Preserve occurs on the slopes of the northern tip of Village Four. The take area is composed of habitat that is dominated by lemonade sumac and that is not occupied by California gnatcatcher. The disturbed coastal sage scrub proposed as part of the take is a portion of a larger polygon of disturbed coastal sage scrub that will be impacted by the proposed project development. This area is immediately adjacent to non-native grassland, which has encroached upon the native habitat. Upon completion of the project, the slope will be revegetated with native habitat.

The non-native grassland proposed for take is located along the northern portion of the site as well and is adjacent to the coastal sage scrub. It is dominated by non-native grasses and wild oats. The proposed take includes a small portion of a larger maritime succulent scrub polygon. In addition, a small portion of tamarisk scrub, of which the remainder is included in development, is also included as part of this larger take.

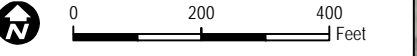


- Village Four Boundary
- Existing MSCP Preserve Line
- Planned/Future Facilities within Preserve
- MSCP Preserve
- Give
- Take

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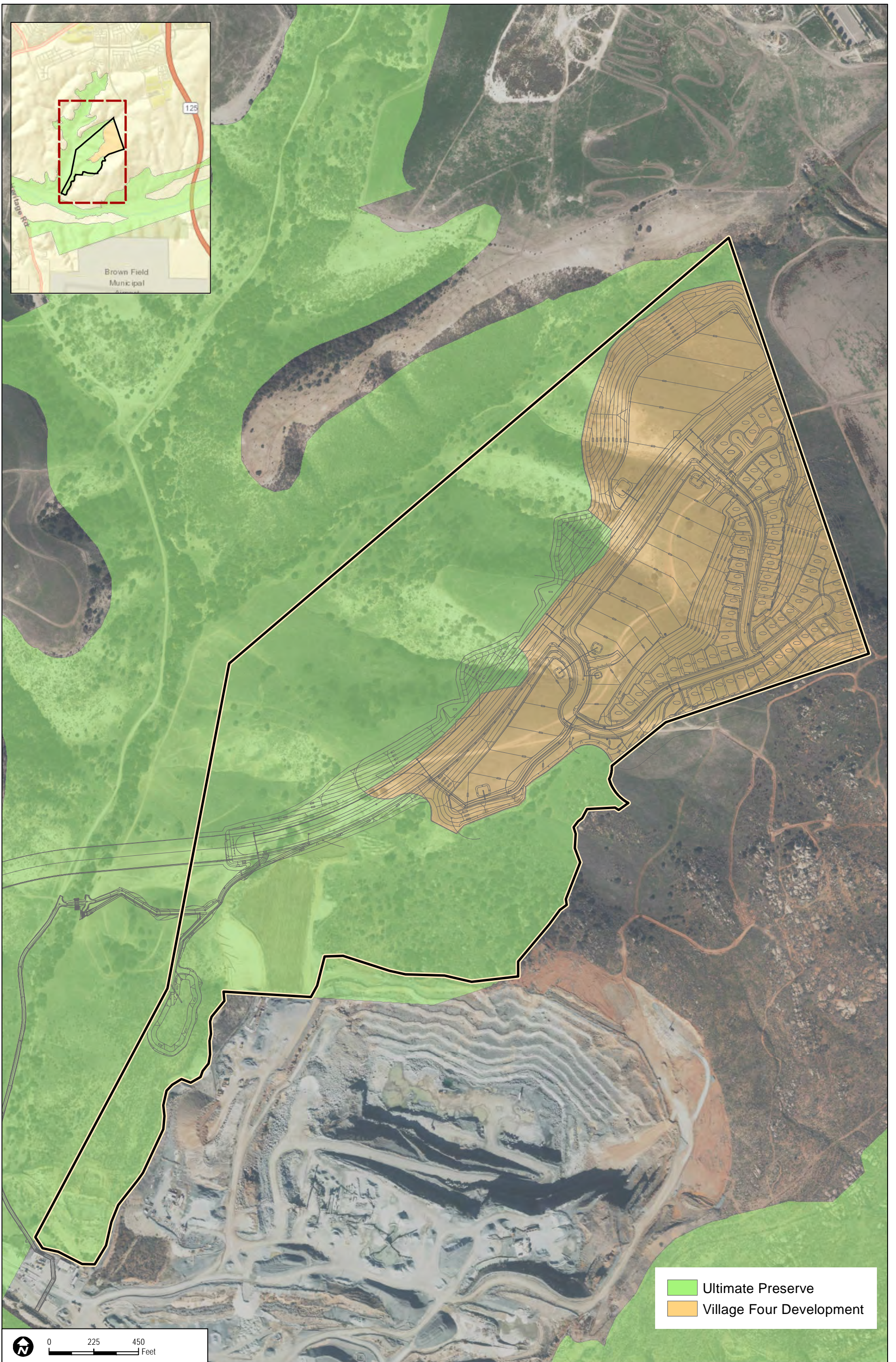


	Village Four Boundary
	Existing MSCP Preserve Line
	Planned/Future Facilities within Preserve
	MSCP Preserve
	Give
	Take
	On-site Vegetation
	CAM, Cismontane Alkali Marsh
	CSS, Coastal Sage Scrub
	DH, Disturbed Land
	MSS, Maritime Succulent Scrub
	NNG, Non-native Grassland
	TS, Tamarisk Scrub
	dCSS, disturbed Coastal Sage Scrub
<b>Special-Status Plant Species</b>	
	Convolvulus simulans
	Deinandra conjugens
	Harpaganella palmeri
	Deinandra conjugens



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Ultimate Preserve  
 Village Four Development

0 225 450  
 Feet

**DUDEK**

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Otay Ranch Village Four Biological Resources Technical Report

**FIGURE 4-3**  
**Village Four Give/Take Analysis - Ultimate Preserve Boundary**

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The five areas proposed to be given to the Preserve are largely composed of non-native grassland with coastal sage scrub and cismontane alkali marsh. The northern tip of Village Four included as part of the give is comprised of coastal sage scrub, cismontane alkali marsh, and non-native grassland. Along the southern boundary of Village Four is a small isolated area composed of coastal sage scrub included as part of the give. The other three areas are comprised of non-native grassland with a small patch of disturbed habitat. The non-native grassland proposed for the give is also dominated by non-native grasses and includes wild oats and is very similar in structure and composition to the proposed take area. The net increase of non-native grassland within the Preserve provides valuable habitat for special-status species such as Otay tarplant, burrowing owl, and Quino checkerspot butterfly. The proposed give areas are all adjacent to existing Preserve areas and provide for a net increase in the MSCP Preserve by a total of 1.72 acres. Any proposed give areas that are included within the Preserve and that might be impacted by the proposed road construction will be restored to native habitat and monitored with a 5-year mitigation and monitoring program to verify meeting success criteria. In addition, impacts to 0.2 acre of maritime succulent scrub associated with the Boundary Adjustment and subsequent development will be restored off-site within the City's Central City Preserve (Figure 4-4). Details of the revegetation will be provided in the revegetation plan.

**Configuration.** The configuration of the conserved habitat is equivalent or improved with the proposed Preserve Boundary Line Adjustment because the proposed give area adds to and widens the Preserve within the tributary of Wolf Canyon. The two large give areas would increase the Preserve width in those areas by 200 feet and 470 feet. This area is important for conservation of special status plant species and to provide foraging opportunities for raptors. The give areas also eliminate pockets of development that could have intruded into the Preserve. In addition, the take has been designed to follow the contour of the proposed development and limit encroachment into Wolf Canyon, providing a native vegetation buffer adjacent to the Preserve. The take area is proposed to become a manufactured graded slope, which will be revegetated to native habitat, and will not contain structures or other hardscape. The northern tip of Village Four is designated development, but as a part of the Boundary Adjustment will be given to the Preserve, preventing further fragmentation of the Preserve.

**Status of Significantly or Sufficiently Conserved Habitat.** The status of the proposed give habitat includes additional acreage of the Tier III habitat non-native grassland and includes conservation of a listed plant species as discussed below. The small amount of coastal sage scrub that is within the take area is not occupied by listed species and is dominated by lemonade sumac, and the other polygon of coastal sage scrub is considered disturbed. The give also includes the continuation of a wetland community (cismontane alkali marsh) and surrounding uplands within Wolf Canyon. The 0.2 acre of impact to maritime succulent scrub will be compensated for with the restoration of comparable acreages in the City's Central City Preserve.

## Biological Technical Report for the Otay Ranch Village Four Project

This will offset the loss of maritime succulent scrub within the MSCP Preserve. Hence the status of the conserved habitats is improved by providing equal or greater acreage of the sensitive species habitat preserved under the MSCP.

### **2. Effects on Covered Species (i.e., the exchange maintains or increases the conservation of Covered Species)**

Surveys for special-status covered species have been conducted within the Village Four project site and within the Preserve Boundary Adjustment area. Surveys conducted in 2009 were part of a focused survey for California gnatcatcher, burrowing owl, and rare plants within the Otay Quarry property. More recent surveys, conducted in 2014 and 2015, focused on Village Four and included all of the above surveys in addition to focused surveys for Quino checkerspot butterfly. Numerous species were recorded during these survey efforts.

The results of the recent surveys indicated that within the proposed give area, the following Covered Species occur: Otay tarplant. Within the proposed take area, the Covered Species recorded in the recent surveys also include Otay tarplant. Due to the extensive populations observed, some of these areas were mapped as polygons with populations estimated. The analysis of give and take of Covered Species is provided in Table 4-2. A description of the give and take of this species is provided below.

**Table 4-2  
Summary of Give/Take for Covered and Non-Covered Special-Status Plant Species**

Species	Existing Population within the Project Area	Existing Population within the Preserve	Give to the Preserve	Take from the Preserve	Net Population within the Preserve
Otay tarplant ( <i>Deinandra conjugens</i> )	76,897	21,024	76	-6,111	14,989
Small-flowered morning glory ( <i>Convolvulus simulans</i> )	58	n/a	30	n/a	0
Palmer's grapplinghook ( <i>Harpagonella palmeri</i> )	381	381	n/a	-100	281

**Note:** A total population of 5,064 Otay tarplant will be given as a part of the proposed Boundary Adjustment. However, 4,988 of those individuals will be impacted by the construction of Main Street (an allowable use within the Preserve). Additionally, the 30 small-flowered morning glory individuals given to the Preserve will be impacted by the Planned Facilities; therefore, the net population within the Preserve is zero.



**FIGURE 4-4**  
**Proposed Otay Tarplant Enhancement and**  
**Maritime Succulent Scrub Restoration Areas in PMA4**

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**Otay tarplant.** Within the project site, there are approximately 76,897 tarplant individuals. Of that population of 76,897 individuals, 21,024 are currently within the Preserve boundary. There are approximately 5,064 individuals of Otay tarplant in the give areas with all but one occurring in the southwestern give polygon. However, 4,988 of those will be impacted by the construction of Main Street (see Section 5.0) and therefore cannot be counted towards the populations given to the Preserve as a part of the Boundary Adjustment. Therefore, the give will contain 76 tarplant individuals. A total of 6,111 Otay tarplant individuals were recorded in the take area. Therefore, implementation of the Preserve Boundary Line Adjustment would result in a net reduction of approximately 6,035 individuals of Otay tarplant, or 7.8% of the project area population, to the portion of the Preserve that has been recently surveyed. Large portions of the Preserve within the project area, north and south of the Development Area, were not surveyed in 2015. It is highly likely that additional Otay tarplant populations occur within those preserve areas. It should be noted that population size of this species varies dramatically from year to year, depending on rainfall patterns. The proposed Preserve Boundary Line Adjustment provides for suitable habitat for this species, and the species is documented within the proposed give areas. The soils within the give and take areas are either diablo clay or linne clay loam soil, both of which are soils which support this species. In addition, to compensate for impacts to Otay tarplant that are within the areas given to the Preserve but which will be utilized for the construction of Main Street, a Restoration Plan will be prepared to provide restored habitat on the slopes of Main Street. The Restoration Plan will include a five-year monitoring and maintenance program as well as success criteria in order to result in the improvement of the habitat within the impact area to native coastal sage scrub.

**Summary of MSCP Equivalency Finding “Effects on Covered Species.”** The proposed Preserve Boundary Line Adjustment would remove a net of 0.08 acre of coastal sage scrub that is not occupied by California coastal gnatcatcher and 2.82 acres of non-native grassland with approximately 6,111 individuals of Otay tarplant. The give area would add 5.30 acres of non-native grassland containing approximately 5,064 individuals of Otay tarplant. However, construction of Main Street will result in the impact of 4,988 of those individuals and therefore cannot be counted towards the populations given to the Preserve as a part of the Boundary Adjustment. Overall the Boundary Adjustment would result in a loss of approximately 6,035 Otay tarplant individuals (29%) of the known populations within the Village Four Preserve boundary (21,024 individuals), and a loss of 7.8% of the population (76,897 individuals, Table 4-2) within the project area. In addition to the populations being conserved, suitable habitat on suitable soils will also be included, and improved configuration for the species is provided with the Boundary Adjustment. Although it will be removed from the preserve area, the take area will be a manufactured graded slope and will be landscaped with native species to provide a buffer for the Preserve. The slope will also be seeded with Otay tarplant in an effort to re-establish populations within these areas. In addition, the give areas will be a potential recipient of

## **Biological Technical Report for the Otay Ranch Village Four Project**

transplantable species such as cactus which may be located within the impact area. In order to compensate for the net loss of 6,035 Otay tarplant individuals as a part of the Boundary Adjustment, an Otay tarplant Compensation Plan will be developed which will include off-site compensation at a 1:1 ratio within the City's Preserve system. The Compensation Plan will be prepared by a qualified City-approved biologist familiar with the City's MSCP Subarea Plan and will include, but is not limited to, an implementation plan; appropriate seed mixtures and planting method; an irrigation method (if required); quantitative and qualitative success criteria; a maintenance, monitoring, and reporting program; an estimated completion time; and contingency measures. The project Applicant shall be required to prepare and implement the Compensation Plan subject to the oversight and approval of the Development Services Director (or their designee). Specific information regarding the revegetation effort for the graded slope and the Otay tarplant Compensation Plan is provided in the Preserve Edge Plan (Atlantis Group 2017) and the Revegetation Plan to be prepared for the proposed project for the slope area within the take area.

### **3. Effects on Habitat Linkages and Function of Preserve Areas (i.e., the exchange maintains or improves a habitat linkage or wildlife corridor)**

Wolf Canyon is an extension of the Preserve system from the Otay River Valley, capturing live-in habitat for birds and smaller mammal species. Wolf Canyon is identified in the Otay Ranch Wildlife Corridor Study as a local corridor for target mammal species. The Wolf Canyon local corridor is unaffected by the proposed Boundary Adjustment.

Covered species that may use the give and take areas for movement would benefit by a reduction of development intrusion into the preserve by the removal of the two "points" of habitat area from development. The take area will be a manufactured graded slope and will be landscaped with native species providing a buffer for the Preserve, although it will be removed from the Preserve area. This graded slope will not contain structures, roads, or infrastructure. Therefore, it will still be able to function as wildlife movement habitat. Additional information regarding the revegetation of the slope is provided in the Preserve Edge Plan (Atlantis Group 2017) and the Revegetation Plan to be prepared for the proposed project.

The edge effects of a Preserve area are assumed to extend approximately 150 feet into Preserve lands according to studies (City of Chula Vista 2003; Sauer 1998). Edge effects are especially important to species such as birds, which often suffer from predation from homeowner's pets. Edge effects also can be detrimental to special-status plant species, which can be outcompeted by invasive plants from developed areas. Improving the edge-to-area ratio of a preserve improves the protection for the special-status species occurring within it and also can improve the efficiency of preserve management by reducing the stressors upon the preserve that need to be dealt with and by making it more efficient to monitor since less time is required to monitor a block than a narrow strip of



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preserve land. That edge length is directly related to the edge effects associated with the 150-foot-wide edge area. The current edge length along the Preserve/development interface is calculated as 6,300 linear feet. The proposed Preserve Boundary Line Adjustment would reduce the linear edge of the Preserve to 4,300 linear feet, which reduces the overall edge effects within the Preserve. When taking into account the 150 feet of edge effect, a reduction of 2,000 linear feet of Preserve/development interface results in almost 7 acres less of edge effect within the Preserve.

In summary, the habitat linkage and Preserve function will be improved because of the following:

- The connection that is currently documented to be used in Wolf Canyon is unaffected.
- Two “points” of development will be removed from intrusion into the Preserve thus widening the habitat area within the tributary to Wolf Canyon.
- Efficiency is improved by giving additional habitat to the Preserve to create more of a block of habitat.
- Edge effects are reduced by reducing the linear length of Preserve edge.

#### **4. Effects on Preserve Configuration and Management (i.e., the exchange results in similar or improved management efficiency and/or protection for biological resources)**

Preserve management efficiency or effectiveness is not compromised by the proposed Preserve Boundary Line Adjustment. As part of the Otay Ranch Resource Management Plan, Preserve lands are required to be conveyed to the Otay Ranch Preserve.

**Similar or Improved Management Efficiency.** The proposed Preserve Boundary Adjustment provides for a more effective and contiguous Preserve design. The current MSCP Preserve has an undulating edge shape with narrow parts of development intruding into the Preserve. This gives the adopted Preserve a high perimeter-to-area ratio, meaning that the Preserve has many narrow parts that have a high linear length and yet small acreage. Two of these narrow intrusion areas are proposed to be adjusted into the Preserve and will reduce edge effects at those two locations by 550 feet and 150 feet. As noted above, the take area is proposed to be a graded slope, will not contain structures, and will be landscaped with native species.

**Protection for Biological Resources.** The adjustment to the MSCP Preserve is proposed in order to shift the location of Main Street to the northern edge of Village Four. By doing so, the road functions as a barrier to the influences of development within the Preserve, and development is concentrated in the southern and eastern portions of the site so that it is adjacent to other development and away from the Preserve. As described in Section 3, covered species preservation is roughly similar with the proposed Preserve Boundary Line Adjustment. Although there is a reduction in the overall population of Otay tarplant, additional habitat for this species will be

## **Biological Technical Report for the Otay Ranch Village Four Project**

conserved thus allowing for the potential expansion of existing populations within the Preserve. The Compensation Plan noted above will provide for compensation for loss of Otay tarplant.

### **5. Effects on Ecotones or Other Conditions Affecting Species Diversity (i.e., the exchange maintains topographic and structural diversity and habitat interfaces of the Preserve)**

The proposed Preserve Boundary Line Adjustment would result in little change to the ecotone or species diversity since the habitats proposed for give and take are primarily upland habitat.

### **6. Effects on Species of Concern not on the Covered Species List (i.e., the exchange does not significantly increase the likelihood that a non-covered species will meet the criteria for listing under either the federal or state Endangered Species Acts)**

The proposed adjustment would contribute to the conservation of non-covered species of concern in the area that are known to use grassland. Non-covered grassland bird species recorded occur within the proposed project area include horned lark and loggerhead shrike. Additionally, the proposed adjustment would provide foraging habitat for non-covered raptor species.

Two additional plant species will be affected by the Boundary Adjustment: small-flowered morning glory and Palmer's grapplehook (Table 4-2). The proposed Boundary Adjustment will include a population of approximately 30 small-flowered morning glory individuals while also removing a population of approximately 100 Palmer's grapplehook individuals.

**Small-Flowered Morning Glory.** The proposed Preserve Boundary Line Adjustment will increase the amount of small-flowered morning glory within the Preserve by 30 individuals; however, these 30 individuals will be impacted by the Planned Facilities in the Preserve. Small-flowered morning glory has a CRPR of 4.2, which means that this species is of limited distribution, but is not considered rare, and is only fairly threatened; therefore, loss of 30 individuals does not significantly increase the likelihood that this species will meet the criteria for listing under either the federal or state Endangered Species Acts.

**Palmer's Grapplehook.** Although the proposed Preserve Boundary Line Adjustment would result in a loss of approximately 100 individuals, this loss does not significantly increase the likelihood that this species will meet the criteria for listing under either the federal or state Endangered Species Acts. Palmer's grapplehook has a CRPR of 4.2, which means that this species is of limited distribution, but is not considered rare, and is only fairly threatened.

## **4.3 Summary of Biological Value Comparison**

Based on the analysis contained in this section, the proposed Preserve Boundary Adjustment, coupled with compensation for impacts to Otay tarplant, provides for an equivalent or higher

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biological value of the Preserve, and therefore no significant impacts to regional resource planning would result. The ultimate design of the Preserve is shown in Figure 4-3.

## **4.4 Equivalency Analysis for the Boundary Adjustment**

Equivalency finding requirements are provided in Section 5.2.3.6 of the Subarea Plan. Equivalency findings are required when a Preserve Boundary Adjustment results in impacts to covered Narrow Endemic Species beyond the threshold limits identified in the Subarea Plan. The proposed Boundary Adjustment would result in a net loss of Otay tarplant populations within the project area but would provide compensation for the species within an off site area.

### **1. Definition of the project area.**

The project area includes all of Village Four (Preserve and development), and off-site areas necessary for locating sewer and storm drain facilities along with associated access roads necessary for the detention basin.

### **2. A written description of the project.**

The proposed Boundary Adjustment to the MSCP Subarea Plan would remove one area currently designated as Preserve and permit this for development; it would also add five areas currently designated as development to the Preserve.

### **3. A written description of biological information available for the project site including the results of Narrow Endemic surveys.**

Please refer to Sections 2 and 3 of this report for a written description of biological information available for the project area. One Narrow Endemic plant species was detected within the project area: Otay tarplant (also listed as federally threatened and state endangered). Approximately 6,111 individuals of Otay tarplant have been recorded within the take area. The give area includes approximately 5,064 individuals of Otay tarplant located within non-native grassland primarily in the southwestern give area, of which 4,988 will be impacted by the construction of Main Street. Approximately 7.8% of the project area population of Otay tarplant will be affected by the Boundary Adjustment, while the population within the boundary of Village Four will be reduced by 29%.

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### **4. Written finding of infeasibility of total avoidance of Narrow Endemic species' population(s).**

Given the goals and configuration of the proposed project, a complete avoidance of Otay tarplant could not be accomplished in the proposed Preserve Boundary Line Adjustment. The location of Main Street has been previously determined with proposed projects to the east and west of Village Four relying on this connection and the City proposed alignment. No additional Narrow Endemic Species will be affected by the proposed boundary adjustment.

### **5. Quantification of impacts to Narrow Endemic Species associated with the project including direct and indirect effects.**

The proposed Preserve Boundary Line Adjustment would remove approximately 6,111 Otay tarplant individuals from Preserve. Because this impact to the 6,111 Otay tarplant individuals is within a 100% conservation area, wildlife agency concurrence is required. Approximately 76 tarplant individuals would be added to the Preserve, resulting in a net decrease of 6,035 individuals. The RMP includes an 80% ranch-wide preservation of Otay tarplant. Approximately 14,989 additional Otay tarplant individuals will remain within the Preserve boundaries. The loss of 6,035 individuals represents approximately 29% of the known population within the Village Four Preserve and a loss of 7.8% of the population within the project area. A Compensation Plan, focused on off-site compensation within the City's Preserve, will be developed to address unavoidable impacts to Otay tarplant.

During construction of the project, indirect effects to Otay tarplant may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. Long-term edge effects could include intrusions by humans and domestic pets and possible trampling of individual plants, invasion by exotic plant and wildlife species, exposure to urban pollutants, soil erosion, litter, fire, and hydrological changes (e.g., changes in surface and groundwater level and quality). Mitigation measures to reduce the effects of indirect impacts for the proposed project will be addressed within Section 6.0 in this report.

### **6. A written description of project design features that reduce indirect effects such as edge treatments, landscaping, elevation differences; minimization; and/or compensation through restoration or enhancement.**

The SPA Plans for each village include a Preserve Edge Plan, as required by the Otay Ranch RMP. The Preserve edge is a 100-foot buffer between the Preserve and development and is not located within the Preserve. These plans detail the uses allowed within the 100-foot-wide Preserve edge, provide a list of plant species that are appropriate adjacent to the Preserve, and overlap with the proposed 100-foot fuel modification zone. The Preserve Edge Plan (Atlantis

## **Biological Technical Report for the Otay Ranch Village Four Project**

Group 2017) addresses drainage, toxic substances, lighting, noise, fuel modification, fencing, and invasive species, as required by Section 7.5.2 of the Chula Vista MSCP Subarea Plan.

Further, the project site includes a Fire Protection Plan for each SPA Plan, which establishes a 100-foot fuel modification zone. When finalized, the Fire Protection Plan will include a plant palette reviewed and approved by the project biologist, which restricts the plant palette within the fuel modification zone.

Finally, the proposed project is part of the Otay Ranch GDP. The Otay Ranch GDP required the preparation of an RMP, which jointly established the Otay Ranch Preserve. The Otay Ranch Preserve is a “master planned Preserve system” managed by a Preserve Owner/Manager. The operations of the Preserve Owner/Manager are financed by a property tax assessment on all developed parcels within Otay Ranch. Further, the Otay Ranch Phase 2 RMP requires that for every 1 acre of development in Otay Ranch, 1.188 acres will be conveyed to the Otay Ranch Preserve. Therefore, because the project is within Otay Ranch, it will contribute significant land and funding to the Preserve, which are available for restoration and enhancement.

**7. Description of measures proposed to compensate for identified impacts in a manner that demonstrates that the proposed design including compensation would result in a long-term Preserve design for the species of concern that is functionally equivalent to or better than the Preserve design that would occur in the absence of the identified impact. The equivalency analysis will be based on the particular requirements of the species of concern.**

While approximately 6,111 individuals of Otay tarplant would be impacted, the proposed Preserve Boundary Line Adjustment conserves 76 individuals that would otherwise be subject to impacts without the boundary adjustment. In addition, to compensate for impacts to Otay tarplant that are within the areas given to the Preserve, but which will be utilized for the construction of Main Street, a restoration plan will be prepared. Restoration and compensation of areas within the City’s Preserve system will ensure that there is no net loss of Otay tarplant populations (Figure 4-4). The boundary adjustment proposes to smooth edges of the Preserve in Wolf Canyon, which lessens edge effects by reducing the overall length of interface between development and the Preserve. The proposed give area provides additional suitable habitat and soil types for Otay tarplant. In addition, the boundary adjustment preserves habitat for Narrow Endemic Species that occur, or could potentially occur. As summarized previously, the give of acreage to the Preserve is approximately 5.71 acres while the Take acreage totals approximately 3.99 acres. The result of the proposed Preserve Boundary Line Adjustment is a net increase of 1.72 acres (including disturbed land) to the Preserve. The restoration and compensation plan for Otay tarplant will also include restoration of 0.2 acre of maritime succulent scrub, which will be developed as a part of the Boundary Adjustment.

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### **8. A summary conclusion, including findings of consistency with the applicable percentage criterion.**

Based on the information contained above, the proposed Preserve Boundary Line Adjustment would provide conservation of Covered Species and habitats within the modified Preserve by inclusion of additional upland vegetation communities in the Preserve. Although a population of the Narrow Endemic Species Otay tarplant would be impacted, impacts are limited to 29% of the known population within the Village Four Preserve and 7.8% of the population within the entire project area and additional populations will be preserved. The Chula Vista MSCP Subarea Plan states that impacts to Narrow Endemic Species are limited to 5% of the project area. The proposed Boundary Adjustment impacts to Otay tarplant are above that threshold. However, in order to offset unavoidable impacts to Otay tarplant, an Otay tarplant Compensation Plan will be developed that will include off-site mitigation within the City's Preserve system (see Section 4.2). This Compensation Plan will also include the restoration of 0.2 acre of maritime succulent scrub. The proposed Preserve Boundary Line Adjustment would result in an increase of Preserve acreage (1.72 acres), and improve Preserve design by resulting in less edge and, hence, fewer edge effects. The proposed adjustment would not affect Preserve management or wildlife movement: wildlife will continue to be able to move throughout Wolf Canyon to the Otay River Valley. Based on analysis of approved and currently proposed projects within Otay Ranch, the ranch-wide preservation meets or exceeds the goals of the RMP.

# **Biological Technical Report for the Otay Ranch Village Four Project**

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## **5 ANTICIPATED PROJECT 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 anticipated limits of grading on the biological resources map and quantifying impacts. The limits of grading are presumed to encompass all future development and use areas (i.e., “worst-case scenario”) including off-site impacted areas, lots, utilities, and brush management.

**Indirect Impacts** result from adverse edge effects, either short-term indirect impacts related to construction, or long-term, chronic indirect impacts associated with the location of urban development in proximity to biological resources within natural open space. During construction of the project, short-term indirect impacts may include dust and noise, which could disrupt habitat and species vitality temporarily, and construction-related soil erosion and runoff; however, all project grading is subject to established restrictions and requirements that restrict erosion and runoff, including the federal Clean Water Act and National Pollution Discharge Elimination System, as well as preparation of a SWPPP. These programs minimize project impacts to erosion/runoff. Long-term indirect impacts to adjacent open space may include intrusions by humans and domestic pets, noise, lighting, invasion by exotic plant and wildlife species, effects of toxic chemicals (e.g., fertilizers, pesticides, herbicides, and other hazardous materials), urban runoff from developed areas, soil erosion, litter, fire, and hydrological changes (e.g., changes in groundwater level and quality). In addition, the project is subject to RMP requirements due to the adjacency with the Wolf Canyon Preserve and the Otay River Valley; therefore, Edge Plan restrictions will apply and reduce or avoid potential long-term indirect impacts.

**Cumulative Impacts** refer to incremental individual environmental effects of two or more projects when considered together. These impacts taken individually may be minor, but become collectively significant as they occur over a period of time.

The proposed project contains impact areas both inside and outside of the Preserve. Since these impacts may require varying mitigation ratios and/or different mitigation measures, they will be quantified separately. Two types of on-site impacts to biological resources will occur in association with the proposed project: on-site area outside of the Preserve (SPA Plan Areas planned for development) and on-site compatible use within the Preserve (Planned and Future Facilities). There are also proposed off-site impacts that include impacts required for fuel modification and infrastructure, including access roads and utility easements. The off-site impacted areas are further divided as within or outside Otay Ranch and within or outside the Preserve.

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The City may authorize “Take” for impacts to Covered Species and habitat resulting from construction of Future Facilities located within the Preserve, subject to a limitation of 2 acres of impact for individual projects and a cumulative total of 50 acres for all Future Facilities within Otay Ranch. Wildlife Agency concurrence will be required for authorization of Take for any impacts to Covered Species and habitat within the Preserve that exceed 2 acres from construction of any individual Future Facility and 50 acres from all Future Facilities combined. The proposed 1.23-acre detention basin is the only Future Facility associated with Village Four and is under the 2-acre limit. Additionally, the impacts from the Village Four Future Facilities would not exceed the 50-acre cumulative limit. Table 5-1 summarizes the cumulative impacts from all Future Facilities within Otay Ranch.

**Table 5-1  
Proposed and Cumulative Impacts to Covered Habitat from  
Future Facilities within Otay Ranch**

<b>Project</b>	<b>Permanent Impacts to Covered Habitat (acres)</b>
Village Eleven	0.50
Village Two	0.10
Village Eight West	0.09
Village Nine	0.20
Village Three North, Eight East, Ten	6.10
Village Four (proposed)	1.23
<b>Total</b>	<b>8.22</b>

Impacts to biological resources within the Preserve that are proposed to be removed from the Preserve as part of the Boundary Adjustment are addressed by the Boundary Adjustment Functional Equivalency Analysis discussed in Section 4.0. The Boundary Adjustment Functional Equivalency Analysis concludes the proposed Preserve configuration provides an equal or better Preserve, consistent with the requirements of the MSCP. Therefore, impacts to areas proposed to be adjusted from Preserve to Developable Area by the Preserve Boundary Line Adjustment are included in the Development Area totals (i.e., the analysis assumes the boundary adjustment is approved).

### **5.1 Direct Impacts**

#### **5.1.1 Impacts to Vegetation Communities in the Development Area (Village Four)**

Implementation of the proposed project would result in permanent impacts to approximately 65.28 acres within the Village Four Development Area (Table 5-2). The proposed project also



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consists of permanent impacts from Planned and Future Facilities within the Preserve. Future Facilities would result in 1.23 acres of impacts. Planned Facilities would permanently impact a total of 12.41 acres on site. Off-site impacts from the Planned Facilities are discussed in Section 5.1.2 (see Section 5.1.8.1 for a discussion of the Planned and Future Facilities).

Sensitive vegetation communities to be permanently impacted within the Development Area and the Planned and Future Facilities include coastal sage scrub, disturbed coastal sage scrub, maritime succulent scrub, non-native grassland, tamarisk scrub, and unvegetated channel. Impacts to sensitive vegetation communities (as noted in Table 5-2) are considered significant and would be reduced to a less-than-significant level by virtue of the biological mitigation (Mitigation Measures BIO1, BIO2, BIO3, BIO4, BIO5, and BIO6).

A complete breakdown of vegetation impacts within the Village Four project area is presented in Table 5-2. Losses would occur as a result of grading and infrastructure installation. All temporary construction staging areas will be within the Development Area of Village Four. The Planned and Future Facilities are included to present the total impacts associated with project implementation and defined as the overall Development Area.

Figure 5-1 shows impacts to vegetation communities within the Village Four project area and associated facilities located within the Preserve. Impacts associated with off-site facilities are discussed in Section 5.1.2.

**Table 5-2**  
**Impacts Associated with the Village Four Project Area**

Vegetation Community/ Land Cover	Impacts		
	<i>Development Area</i>	<i>Future Facilities (Detention Basin) within the Preserve</i>	<i>Planned Facilities (Including On-Site Utility Access, and Main Street) within the Preserve</i>
<i>Village Four</i>			
<i>Non-sensitive Vegetation Communities/Land Covers</i>			
Disturbed Habitat	1.08	—	1.26
Disturbed Habitat – Rock Quarry	—	—	0.15
<i>Non-sensitive vegetation communities/land covers subtotal</i>	1.08	—	1.40
<i>Sensitive Vegetation Communities</i>			
Coastal Sage Scrub	11.59	0.41	2.38
Disturbed Coastal Sage Scrub	3.34	0.82	2.75
Maritime succulent scrub	0.27*	—	0.45
Non-native Grassland	48.88	—	5.40
Tamarisk Scrub	0.12	—	—
Unvegetated Channel	0.01	—	0.02

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 5-2**  
**Impacts Associated with the Village Four Project Area**

Vegetation Community/ Land Cover	Impacts		
	<i>Development Area</i>	<i>Future Facilities (Detention Basin) within the Preserve</i>	<i>Planned Facilities (Including On-Site Utility Access, and Main Street) within the Preserve</i>
<i>Sensitive vegetation communities subtotal</i>	64.20	1.23	11.00
<b>Total impacts for Village Four</b>	<b>65.28</b>	<b>1.23</b>	<b>12.41</b>

**Notes:** Gross acreage is correct; columns may not precisely total due to rounding.  
The total for this table only includes impacts to vegetation communities.  
This total includes 0.2 acre of take which will be restored.

## 5.1.2 Off-Site Impacts to Vegetation Communities

The project also includes off-site areas, described in Section 1.2.2, that will be impacted with the construction of the Planned Facilities and the fuel modification zone. These off-site areas total 1.96 acres within the Otay Quarry and 1.58 acres within Village Three, and consist of four sensitive vegetation communities including unvegetated channel, desert saltbush scrub, non-native grassland, and coastal sage scrub (including disturbed) (Table 5-3; Figure 5-1).

**Table 5-3**  
**Impacts Associated within Off-Site Areas**

Vegetation Community/Land Cover	Total Impacts (Acres)
<i>Otay Quarry</i>	
<i>Sensitive Vegetation Communities</i>	
Coastal Sage Scrub	0.24
Non-native Grassland	1.47
Desert Saltbush Scrub	<0.01
<i>Sensitive vegetation communities subtotal</i>	1.71
<i>Non-sensitive Vegetation Communities/Land Covers</i>	
Disturbed Habitat	0.05
Developed	0.19
<i>Non-sensitive vegetation communities/land covers subtotal</i>	0.24
<b>Total Impacts for Otay Quarry</b>	<b>1.96</b>
<i>Village Three</i>	
<i>Sensitive Vegetation Communities</i>	
Disturbed Coastal Sage Scrub	0.04
Non-native Grassland	0.74
Unvegetated Channel	0.02
<i>Sensitive vegetation communities subtotal</i>	0.80
<i>Non-sensitive Vegetation Communities/Land Covers</i>	
Developed	<0.01

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 5-3**  
**Impacts Associated within Off-Site Areas**

Vegetation Community/Land Cover	Total Impacts (Acres)
Disturbed Habitat	0.77
<i>Non-sensitive vegetation communities/land covers subtotal</i>	0.78
<b>Total Impacts for Village Three</b>	<b>1.58</b>

The proposed project would require impacts to off-site areas within the Quarry and Village Three in order to construct Planned Facilities. The Planned Facility impacts to Village Three are entirely within Preserve Lands and are subject to Facilities Siting Criteria (See Sections 1.2.1 and 5.1.8.1). The off-site areas within the Quarry are outside of the Otay Ranch boundary, and are therefore subject to the City’s HLIT Ordinance. Impacts to the areas outside of Otay Ranch are described in greater detail in Section 5.1.8.3, and Appendix H, and will be reduced to a less-than-significant impact through Mitigation Measure BIO7.

### 5.1.3 Special-Status Plant Species

Implementation of the proposed project would result in the direct loss of special-status plant species occurring within the Village Four Development Area; locations and individuals of special-status plant species are identified on Figure 3-3 and described in the text. The proposed project will also impact four special-status species located in the Village Four Preserve and within the Village Three boundary, as part of the Planned and Future Facilities. The proposed project will not impact any special-status plant species located within off-site areas of the Otay Quarry that are associated with the construction of the Planned Facilities or fuel modification. Table 5-4 summarizes impacts located within the Village Four project area (Figure 5-2).

**Table 5-4**  
**Permanent Impacts to Special-Status Plant Species within the Village Four Project and Off-site Areas**

Common Name (Scientific Name)	Status (Federal/State/CRPR/ MSCP)	Impacts (estimated number of individuals)			
		Development Area	Preserve		Total Impacts
			Future Facilities	Planned Facilities	
<i>Village Four</i>					
California box-thorn ( <i>Lycium californicum</i> )	None/None/4.2/None	—	—	—	Not mapped due to low ranking and prevalence within the project area. Occurs in areas where barrel cactus was abundant

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**Table 5-4  
Permanent Impacts to Special-Status Plant Species within the  
Village Four Project and Off-site Areas**

Common Name (Scientific Name)	Status (Federal/State/CRPR/ MSCP)	Impacts (estimated number of individuals)			
		Development Area	Preserve		Total Impacts
			Future Facilities	Planned Facilities	
Otay tarplant ( <i>Deinandra conjugens</i> )	FT/SE/1B.1, MSCP Covered Narrow Endemic	56,920	—	8,026	64,946
Palmer's grapplinghook ( <i>Harpagonella palmeri</i> )	None/None/4.2/None	100	—	—	100
San Diego barrel cactus ( <i>Ferocactus viridescens</i> )	None/None/2.1/MSCP Covered	183	—	6	189
San Diego County viguiera ( <i>Viguiera laciniata</i> )	None/None/4.2/None	—	—	—	Not mapped due to low ranking and prevalence within the project area.
Small-flowered morning glory ( <i>Convolvulus simulans</i> )	None/None/4.2/None	28	—	30	58
Ashy spikemoss ( <i>Selaginella cinerascens</i> )	None/None/4.1/None	—	—	—	Not mapped due to low ranking and prevalence within the project area.
Variegated dudleya ( <i>Dudleya variegata</i> )	None/None/1B.2/MSCP Covered Narrow Endemic	175	—	—	175
<i>Village Three</i>					
Singlewhorl burrobrush ( <i>Ambrosia monogyra</i> )	None/None/2B.2/None	—	—	18	18
Otay tarplant ( <i>Deinandra conjugens</i> )	FT/SE/1B.1/MSCP Covered Narrow Endemic	—	—	114	114

**Status Legend:**

FT: Federally Threatened

SE: State Endangered

**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 more common elsewhere

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)

MSCP: Chula Vista MSCP Subarea Plan Covered Species

Under the Subarea Plan, significant direct impacts to “covered” special-status plant species include the following species: Otay tarplant, variegated dudleya, and San Diego barrel cactus. Otay tarplant and variegated dudleya are identified in the Subarea Plan as Narrow Endemic

## Biological Technical Report for the Otay Ranch Village Four Project

Species. Significant impacts to non-covered species include singlewhorl burrobrush. Impacts to covered and non-covered species will be reduced to less-than-significant through Mitigation Measures BIO1 and BIO8.

Impacts to the following non-covered, CRPR 4 species, California box-thorn, Palmer's grapplinghook, San Diego viguiera, small-flowered morning glory, ashy spikemoss, and southwestern spiny rush, are not considered significant, because as CRPR 4.2/4.1 species, they are relatively common in this portion of the County as well as the Village Four project area, and therefore are not considered significantly rare for the proposed loss to be significant. Additionally, it is assumed that the Preserve contains enough individuals and suitable habitat for the impacts to these species to be less than significant (Mitigation Measure BIO1).

Exhibit B, from the Otay Ranch Mitigation and Monitoring Program (City of Chula Vista 1993b) states that the project design must conserve 75 percent of the San Diego viguiera on site; and that San Diego viguiera dominated coastal sage scrub shall be restored at a 2:1 ratio (restored to impacted habitat) using seed from the ranch. Since the San Diego viguiera occurs as a common shrub (but not the dominate shrub) in coastal sage scrub vegetation and the majority of the coastal sage scrub occurs within mapped and unmapped portions of the Preserve, it is therefore assumed that the Preserve would retain 75 percent of San Diego viguiera individuals. The impacted coastal sage scrub is not dominated by San Diego viqueira and therefore mitigation for impacts would not be required at a 2:1 ratio.

### 5.1.4 Special-Status Wildlife Species

Implementation of the proposed project would result in the direct loss of habitat for all of the special-status wildlife species discussed in Section 3.5.2, which is considered significant. Figure 5-2 shows the impact areas in relation to the special-status wildlife species occurrences on site, and Table 5-5 summarizes the impacts to wildlife by project component.

**Table 5-5**

**Permanent Impacts to Special-Status Wildlife Species within the Village Four Project Area**

Common Name (Scientific Name)	Status (Federal/State/MSCP)	Impacts (estimated number of individuals)			
		Development Area	Preserve		Total Impacts
			Future Facilities	Planned Facilities	
<i>Village Four</i>					
Black-tailed jackrabbit ( <i>Lepus californicus bennettii</i> )	None/SSC/None	1	—	—	1
California gnatcatcher ( <i>Poliptila californica californica</i> )	FT/SSC/MSCP Covered	2 (1 pair)	—	1 (1 male)	3 (1 pair, 1 male)

## Biological Technical Report for the Otay Ranch Village Four Project

**Table 5-5**  
**Permanent Impacts to Special-Status Wildlife Species within the Village Four Project Area**

Common Name (Scientific Name)	Status (Federal/State/MSCP)	Impacts (estimated number of individuals)			Total Impacts
		Development Area	Preserve		
			Future Facilities	Planned Facilities	
Coronado island skink ( <i>Plestiodon skiltonianus interparietalis</i> )	None/SSC/None	1	—	—	1
Grasshopper sparrow ( <i>Ammodramus savannarum</i> )	None/SSC/None	1	—	—	1
California Horned Lark ( <i>Eremophila alpestris actia</i> )	None/WL/None	4	—	3	7
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	None/SSC/None	1	—	—	1
Southern California rufous-crowned sparrow ( <i>Aimophila ruficeps canescens</i> )	None/WL/MSCP Covered	2	—	—	2

**Status Legend:**

FT: Federally Threatened

SSC: California Species of Special Concern

WL: CDFW Watch List

MSCP: Chula Vista MSCP Subarea Plan Covered Species

Impacts to special-status wildlife species listed as having a moderate to high potential to occur within the project area are considered significant. The project’s contribution to the Otay Ranch RMP Preserve would mitigate impacts to the species discussed in Section 3.5.2 by providing suitable habitat in a configuration that preserves genetic exchange and species viability (Mitigation Measure BIO1). Thus, direct impacts to non-covered special-status wildlife species (white-tailed kite, Coronado island skink, grasshopper sparrow, California horned lark, loggerhead shrike, San Diego black-tailed jackrabbit, and San Diego desert woodrat), with the exception of Quino checkerspot butterfly, would be reduced to a less-than-significant level by virtue of the biological mitigation measures provided by the Otay Ranch RMP.

Because avian species are mobile, the species recorded would not necessarily be directly impacted; however, the suitable habitat associated with the five covered special-status bird species—coastal California gnatcatcher, Cooper’s hawk, southern California rufous-crowed sparrow, coastal cactus wren, and northern harrier—would be directly impacted by project implementation. However, habitat for the remaining pairs and individuals found within the Preserve will be conserved, reducing the impact to less than significant (Mitigation Measures BIO1).

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Impacts to potential nesting covered species shall be mitigated through avoidance of clearing occupied habitat between February 15 and August 31 (avoidance of nesting season). The MBTA prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursuing, hunting, shooting, capturing, collecting, killing, or attempting to commit any of these acts (16 U.S.C. 703 et seq.). Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The executive order requires federal agencies to work with the USFWS to develop a memorandum of understanding. The USFWS reviews actions that might affect these species. If any active nests or the young of nesting special-status bird species are impacted through direct grading, these impacts would be considered significant, absent mitigation, based on the MBTA (Mitigation Measure BIO9). In addition, the Subarea Plan requires nesting bird surveys up to 900-feet from the development area for northern harrier (BIO10).

Neither burrowing owl individuals or sign were detected during the focused surveys conducted within the project area. However, to ensure that no burrowing owls have migrated into the development footprint, a preconstruction survey will be conducted (Mitigation Measure BIO11). If occupied burrows are detected, the County-approved biologist shall prepare a passive relocation mitigation plan subject to review and approval by the Wildlife Agencies and the County, including any subsequent burrowing owl relocation plans to avoid impacts from construction-related activities.

## 5.1.5 Jurisdictional Waters and Wetlands within the Development Area

Impacts to jurisdictional waters and wetlands would occur as a result of the project as shown on Figure 5-3 and summarized in Table 5-6. The proposed project would result in impacts to jurisdictional areas within the Village Four Development Area, as well as within the Village Four Preserve. Impacts to jurisdictional waters and wetlands are considered significant; however, through implementation of Mitigation Measures BIO1, BIO4, BIO5, BIO6, BIO12, BIO13, and BIO14 these impacts would be considered less than significant.

**Table 5-6**  
**Impacts to Jurisdictional Wetlands and Waters within the Village Four Project Area**

Wetlands Vegetation Community/Water Feature	Jurisdiction	Impact Type (Acres)		
		Development Area	Planned Facilities within the Preserve	Total Impacts*
<i>Village Four</i>				
Tamarisk scrub	CDFW/City	0.12	—	0.12
Unvegetated channel	ACOE/CDFW/RWQCB/City Non-wetlands waters	<0.01	0.02	0.02
<b>Total jurisdictional impacts Village Four</b>		<b>0.12</b>	<b>0.02</b>	<b>0.14</b>

Note: \*Totals may not sum due to rounding.

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Section 5.2.4 of the Subarea Plan states that development projects are required to demonstrate that impacts to wetlands have been avoided or minimized to the greatest extent practicable. The major drainage within Wolf Canyon is included in the Preserve. Therefore, this drainage will not be subject to grading and will have protective measures required as described; thus, no direct or indirect impacts will occur. Impacts to ephemeral drainages and wetlands within the project area have been avoided and minimized to the extent feasible. Indirect impacts to wetlands and waters of the United States within the Preserve areas are avoid as described below. Project drainage impacts will be minimized in compliance with the San Diego RWQCB Permit CAS0109266 by Order No. R9-2013-0001. Bioretention basins and on-site Low Impact Development measures are proposed to mitigate sediment and pollutants of concern associated with the proposed development in compliance with the current National Pollutant Discharge Elimination System permit. Infiltration structures with energy dissipaters are proposed to reduce flows to non-erosive velocities at the Otay River outfall to avoid direct impacts from development runoff. The Preserve Edge Plan (Atlantis Group 2017) provides the description of and analysis for the storm drains, drainage outfalls, and drainage basins that are proposed within the project area (Mitigation Measures BIO15 and BIO16).

### **5.1.6 Off-Site Impacts to Jurisdictional Waters and Wetlands**

Off-site facilities, i.e., outside of the Village Four Development Area boundary, impact a total of 0.02 acre of non-wetland waters/streambed under ACOE, RWQCB, CDFW, and City jurisdiction from Planned Facilities within Village Three. Impacts to jurisdictional resources associated within Village Three are described in Table 5-7 and shown on Figure 5-3.

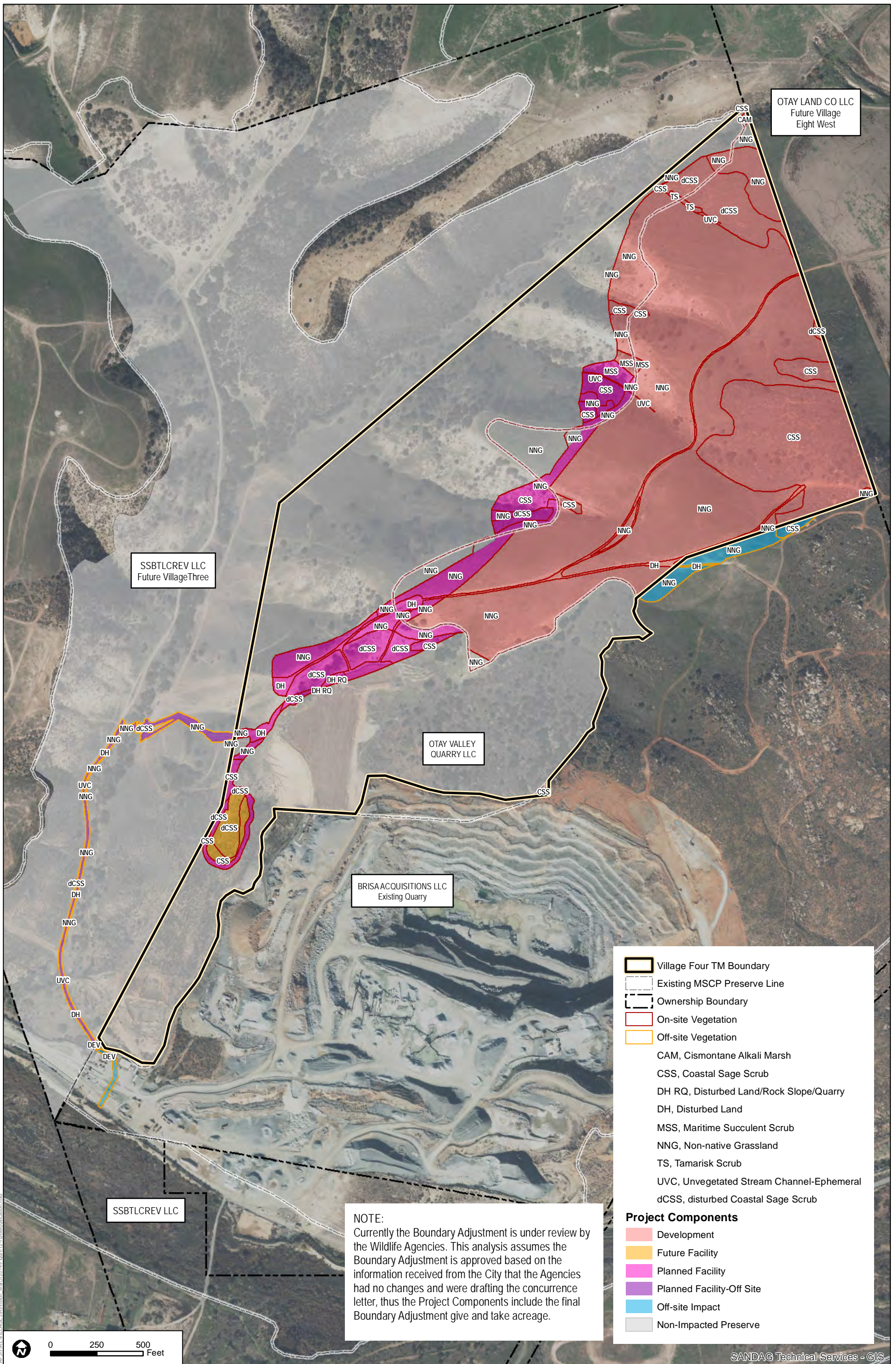
**Table 5-7  
Impacts to Jurisdictional Waters within the Off-Site Areas**

Wetlands Vegetation Community/Water Feature	Jurisdiction	Impact Type (Acres)		
		Development Area	Planned Facilities within the Preserve	Total Impacts*
<i>Village Three</i>				
Unvegetated channel	ACOE/RWQCB Non-wetlands waters, CDFW streambed/City	—	0.02	0.02
<b>Total jurisdictional impacts Village Three</b>		<b>—</b>	<b>0.02</b>	<b>0.02</b>

**Note:** \* Totals may not sum due to rounding.

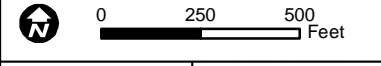
The Planned Facility impacts to Village Three are entirely within Preserve lands and are subject to Facilities Siting Criteria (See Section 5.1.8.1) and will be reduced to a less-than-significant impact through Mitigation Measures BIO4, BIO5, BIO6, BIO12, BIO13, and BIO14.



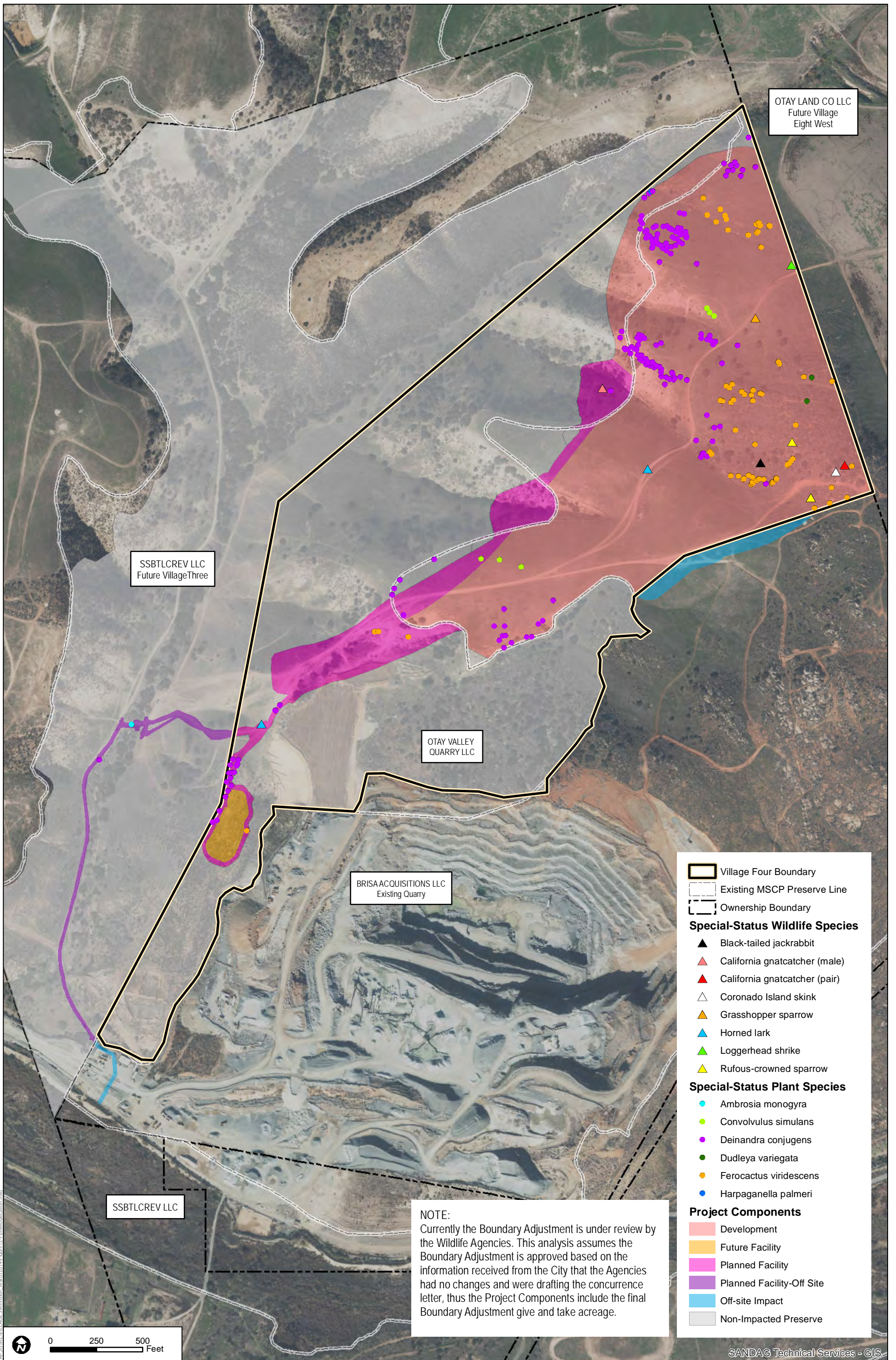


**NOTE:**  
 Currently the Boundary Adjustment is under review by the Wildlife Agencies. This analysis assumes the Boundary Adjustment is approved based on the information received from the City that the Agencies had no changes and were drafting the concurrence letter, thus the Project Components include the final Boundary Adjustment give and take acreage.

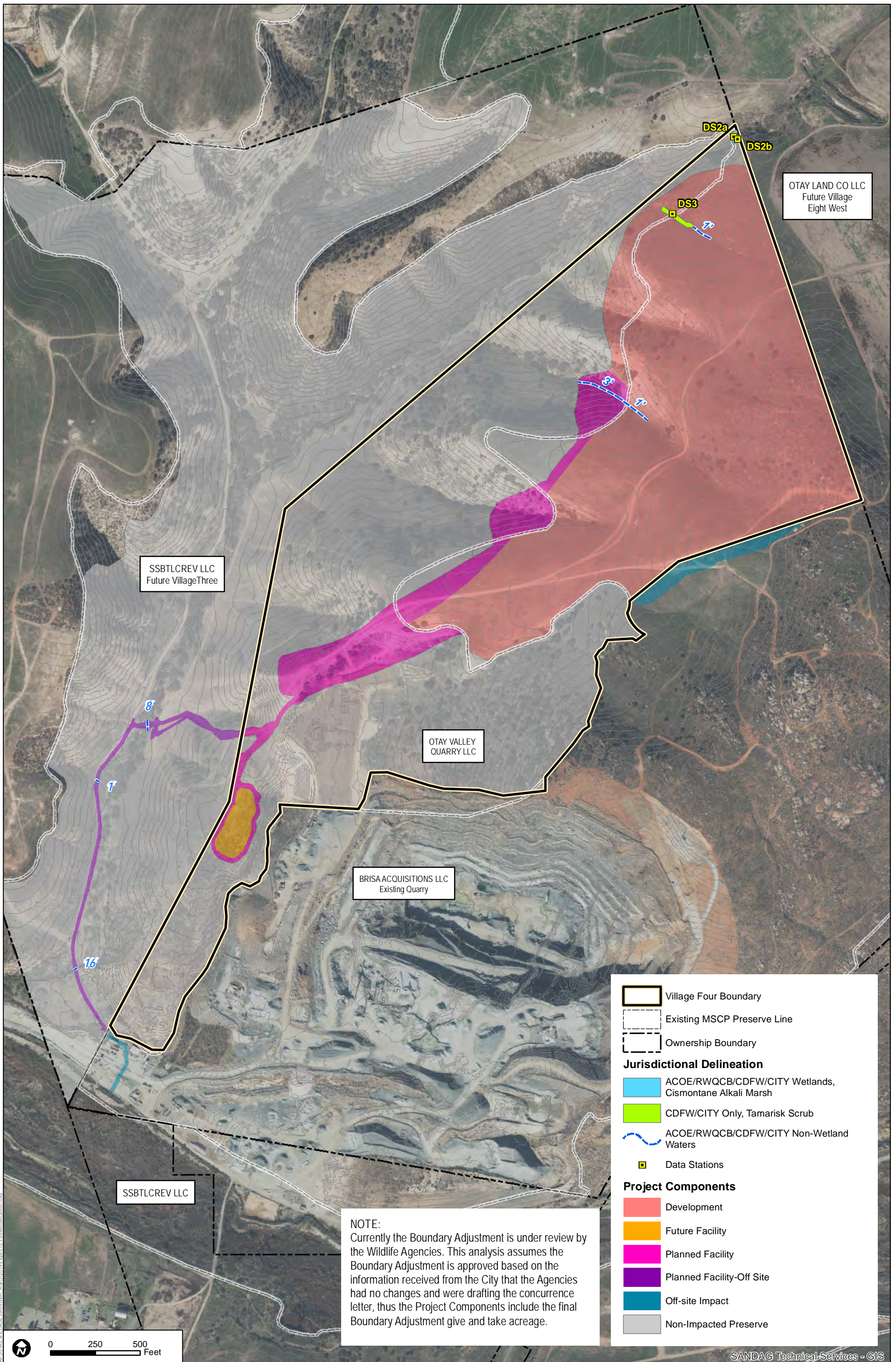
	Village Four TM Boundary
	Existing MSCP Preserve Line
	Ownership Boundary
	On-site Vegetation
	Off-site Vegetation
CAM, Cismontane Alkali Marsh	
CSS, Coastal Sage Scrub	
DH RQ, Disturbed Land/Rock Slope/Quarry	
DH, Disturbed Land	
MSS, Maritime Succulent Scrub	
NNG, Non-native Grassland	
TS, Tamarisk Scrub	
UVC, Unvegetated Stream Channel-Ephemeral	
dCSS, disturbed Coastal Sage Scrub	
<b>Project Components</b>	
	Development
	Future Facility
	Planned Facility
	Planned Facility-Off Site
	Off-site Impact
	Non-Impacted Preserve



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## **Biological Technical Report for the Otay Ranch Village Four Project**

### **5.1.7 Habitat Linkages/Movement Corridors**

In the western portion of Otay Ranch (west of Lower Otay Lake), significant areas of wildlife habitat occur in the Otay River Valley, Wolf Canyon, Poggi Canyon, and Salt Creek Canyon (Ogden 1992). Wolf Canyon, and the Otay River Valley are within the boundaries of the Preserve areas of Village Four or within the Boundary Adjustment areas (Figure 3-4).

#### **Village Four**

The Village Four Preserve is adjacent to Wolf Canyon, which connects to the Otay River. Wolf Canyon does not function as a regional habitat linkage or wildlife corridor, but is identified as a local corridor for focused mammal and bird species. The northern portion of Wolf Canyon functions as a corridor for coastal California gnatcatcher and coastal cactus wren (Ogden 1992). The proposed project includes a Boundary Adjustment that will add an additional 1.72 acres to the Preserve, thereby widening the Preserve within the tributary of Wolf Canyon. The Preserve Boundary Line Adjustment proposes to smooth edges of the Preserve in Wolf Canyon, which lessens edge effects by reducing the overall length of interface between development and the Preserve. Therefore, the Boundary Adjustment will help maintain the wildlife movement within Wolf Canyon and the connection with the Otay River Valley. The Village Four Preserve Edge Plan (Atlantis Group 2017) provides the required 100-foot buffer between the Preserve and the proposed development and is not located within the Preserve. There are Planned Facilities proposed to be located within the Wolf Canyon and Village Four Preserve. Construction of the Planned Facilities will not preclude wildlife from using the area since the facilities would be placed underground within an existing roadway and there would be no barrier to movement by wildlife. The Future Facilities include the detention basin located within disturbed coastal sage scrub, in an area that has already been disturbed by off-road activity, and there is potential for wildlife to be attracted to water within the basin. The access roads are not expected to preclude wildlife from using the area, as wildlife will traverse the road. In addition, the road is not expected to receive much traffic because it is designed and limited to use as maintenance for the basins. Therefore, it is not expected that the development within Village Four and the Planned and Future Facilities located within the Preserve will interfere with the movement of wildlife species or impede the use of native wildlife nursery sites within Wolf Canyon. Main Street is located immediately adjacent to the proposed development, only a small portion occurs on the slope above Wolf Canyon, and will not preclude wildlife from using Wolf Canyon and the Otay River Valley to the south. Main Street will not impede a major regional linkage, and culverts will not be required within the Preserve. Connection of the mouth of Wolf Canyon to the Otay River Valley will be unaffected by the project since it is not located at that point.

The Otay River Valley is located immediately south and outside of the Development Area. The Otay River Valley provides regional wildlife movement and habitat connectivity functions for

## **Biological Technical Report for the Otay Ranch Village Four Project**

both mammal and bird species. The Otay River Valley will not be impacted through the implementation of the Planned Facilities located within the Quarry. Impacts will occur within existing developed areas adjacent to the Otay River Valley, but the project will not adversely affect the habitat connectivity or wildlife movement functions of the Otay River Valley.

### **5.1.8 Consistency with Chula Vista MSCP Subarea Plan and Otay Ranch RMP**

The proposed project design is consistent with the MSCP Subarea Plan and the Otay Ranch RMP through specific adherence to conditions of coverage and mitigation/conveyance requirements for Covered Projects as defined in the Chula Vista MSCP Subarea Plan, Section 7.6, and the Otay Ranch RMP. The Planned and Future Facilities located within the Preserve were designed to minimize impacts to covered habitats and species by following the MSCP Siting Criteria described in Section 5.1.8.1 of this report.

The Otay Ranch RMP and the Otay Ranch Preserve were the primary basis for CEQA mitigation of biological impacts identified in the Otay Ranch GDP Program Environmental Impact Report (EIR). The RMP includes conveyance procedures for dedicating parcels of land to the Otay Ranch Preserve. The conveyance ratio for all development is 1.188 acres for each acre of project area that does not include “common uses,” which are identified as schools, parks, and arterial roadways. These common areas are excluded from the required mitigation/conveyance. The total acreage for conveyance would be 68.90 acres. The proposed project would have significant impacts related to biological resources unless the Otay Ranch Preserve is assembled proportionally and concurrently with development in accordance with provisions of the City’s MSCP Subarea Plan and Otay Ranch RMP.

#### **5.1.8.1 *Planned and Future Facilities Siting Criteria for Project Components Located within the Preserve***

The development of the proposed project would be within the area designated for development under the Otay Ranch RMP and the MSCP Subarea Plan, with the exception of a limited number of facilities that will be located in designated Preserve areas. Chapter 6.0 of the City’s MSCP Subarea Plan identifies permitted uses within the Preserve. The proposed project includes permanent impacts to the Preserve resulting from the following infrastructure uses: a detention basin, associated storm drain and sewer lines, access roads for the detention basin, and a sewer lateral connecting to the Salt Creek Interceptor. In addition, the proposed project will impact areas within the Preserve associated with the Main Street construction. These uses are considered facilities within the Preserve as described in Section 6.3.3 of the Subarea Plan.

Section 6.3.3 of the Subarea Plan differentiates between “Planned Facilities” and “Future Facilities.” Planned Facilities are major roads and infrastructure which were planned for



## **Biological Technical Report for the Otay Ranch Village Four Project**

development through existing plans and/or project approvals (i.e., General Plan and GDP) and allowed to be constructed, operated, and maintained within the Preserve at the time of writing of the Subarea Plan. These Planned Facilities are identified in Table 6-1 of the Subarea Plan. Consistent with Table 6-1, associated ancillary sewer facilities for the Salt Creek Interceptor, including connections and maintenance access roads, are Planned Facilities.

Future Facilities are those facilities necessary to support planned development that were not identified at the time of the Subarea Plan but were anticipated to be required. Table 6-2 of the Subarea Plan identifies Future Facilities and Implementation Criteria. These facilities include detention facilities/basins, storm drain systems, and maintenance and operations roads.

Both Planned and Future Facilities located within the Preserve are subject to the Facilities Siting Criteria contained in Section 6.3.3.4 of the City's MSCP Subarea Plan. Compliance with the Facilities Siting Criteria ensures that the facilities located within the Preserve have been sited within the least environmentally sensitive areas and that impacts to the Preserve have been minimized to the maximum extent practical.

The following is a summary of the Facilities Siting Criteria (Section 6.3.3.4 and Table 6-1 of the Subarea Plan) as required for the project's Planned and Future Facilities:

1. Such facilities will be located in the least environmentally sensitive location feasible, and use existing roads, trails and other disturbed areas, including use of the active recreation areas in the Otay River Valley, as much as possible (except where such areas are occupied by the QCB [Quino checkerspot butterfly]). Facilities should be routed through developed or developing areas where possible. If no other routing is feasible, alignments should follow previously existing roads, easements, rights of way, and disturbed areas, minimizing habitat fragmentation.
2. Such facilities shall avoid, to the maximum extent practicable, impacts to Covered Species and Wetlands, and will be subject to the provisions, limits, and mitigation requirements for Narrow Endemic Species and Wetlands pursuant to Section 5.2.3 and 5.2.4 of the Subarea Plan.
3. Where roads cross the Preserve, they should provide for wildlife movement in areas that are graphically depicted on and listed in the MSCP Subregional Plan Generalized Core Biological Resource Areas and Linkages map as a core biological area or a regional linkage between core biological areas. All roads crossing the Preserve should be designed to result in the least impact feasible to Covered Species and Wetlands. Where possible at wildlife crossings, road bridges for vehicular traffic rather than tunnels for wildlife use will be employed. Culverts will only be used when they can achieve the wildlife crossing/movement goals for a specific location. To the extent feasible, crossings will be designed as follows: the substrate will be left in a natural condition or revegetated if soils

## **Biological Technical Report for the Otay Ranch Village Four Project**

engineering requirements force subsurface excavation and vegetated with native vegetation if possible; a line-of-sight to the other end will be provided; and if necessary, low-level illumination will be installed in the tunnel.

4. To minimize habitat disruption, habitat fragmentation, impediments to wildlife movement and impact to breeding areas, road and/or right-of-way width shall be narrowed from existing City design and engineering standards, to the maximum extent practicable. In addition, roads shall be located in lower quality habitat or disturbed areas to the maximum extent practicable.
5. Impacts to Covered Species and habitats within the Preserve resulting from construction of Future Facilities will be evaluated by the City during project review and permitting. The City may authorize Take for impacts to Covered Species and habitats resulting from construction of Future Facilities located outside the Preserve, pursuant to the Subarea Plan and consistent with the Facility Siting Criteria in this Section.
6. The City may authorize “Take” for impacts to Covered Species resulting from construction of Future Facilities located within the Preserve, subject to a limitation of 2 acres of impact for individual projects and a cumulative total of 50 acres for all Future Facilities. Wildlife Agency concurrence will be required for authorization of Take for any impacts to Covered Species and habitat within the Preserve that exceed 2 acres that may result from construction of any individual Future Facility. Wildlife Agency concurrence will be required for authorization of Take for impacts to Covered Species and habitat within the Preserve that exceed 50 acres that may result from all Future Facilities combined.
7. Planned and Future Facilities must avoid impacts to covered Narrow Endemic Species and the QCB [Quino checkerspot butterfly] to the maximum extent practicable. When such impacts cannot be avoided, Planned and Future facilities located within the Preserve are subject to the provisions of Section 5.2.3.6 of the Subarea Plan. Impacts to QCB that will result from construction of Planned and Future Facilities within the Preserve are subject to the provisions of Section 5.2.8 of the Subarea Plan.

This section outlines the Planned Facilities and Future Facilities associated with the proposed project and how they adhere to the Facilities Siting Criteria. The facilities necessary to support the proposed project were sited in primarily disturbed, developed, and non-native grassland. In general, the process for designing and locating the Planned and Future Facilities followed an iterative process with the project civil engineer. The facilities were analyzed by overlaying potential Planned and Future Facility locations with biological resources, including vegetation communities, species locations, and jurisdictional aquatic resources. Adjustments were made to reduce impacts to sensitive resources to the greatest extent possible without compromising the integrity and purpose of each facility. In addition, facilities such as roads, sewer lines, and water

## Biological Technical Report for the Otay Ranch Village Four Project

lines were co-located to reduce impacts. In some cases, there are impacts to sensitive resources; however, the effects of shifting facilities would have been more impactful.

### **5.1.8.1.1 Impact Summary for Planned and Future Facilities**

The location of the detention basin along with sewer and storm drains and associated access roads is shown on Figure 5-4. An access road off Main Street would extend south to the proposed basin location, and sewer and storm lines would be co-located within the access road. An additional access road would be created to the west of the Main Street offshoot, downslope towards an existing dirt road within Wolf Canyon. Storm and sewer drains would also be co-located within the access road impact.

### **Vegetation Communities and Land Cover Types**

Placement of the detention basin and associated facilities would result in 6.66 acres of permanent impacts. These planned and future facilities would result in impacts to coastal sage scrub, including disturbed, but the majority of impacts would be to non-native grassland, and disturbed or developed areas (Tables 5-9 and 5-10, Figure 5-5).<sup>1</sup> The majority of impacts associated with Main Street include coastal sage scrub (including disturbed), and non-native grassland (Tables 5-8 and 5-9).

**Table 5-8  
Impacts to Vegetation Communities and Land Covers  
Associated with Planned and Future Facilities by Ownership**

Vegetation Type	Existing Acreage	Detention Basin and Facilities (Acres)	Main Street (Acres)
		Permanent Impacts	Permanent Impacts
<i>Village Three – Off Site</i>			
Disturbed Coastal Sage Scrub	0.04	0.04	0
Non-native Grassland	0.74	0.74	0
Unvegetated Channel	0.02	0.02	0
Disturbed Habitat	0.77	0.77	0
Developed	<0.01	<0.01	0
<i>Subtotal</i>	1.58	1.58	0
<i>Village Four</i>			
Coastal Sage Scrub	28.26	0.98	1.81
Disturbed Coastal Sage Scrub	8.47	1.14	2.43
Desert Saltbush Scrub	0.04	0	0

<sup>1</sup> Vegetation impacts within Village Three were quantified using mapping from the University Villages Project (Dudek 2014).

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 5-8**  
**Impacts to Vegetation Communities and Land Covers**  
**Associated with Planned and Future Facilities by Ownership**

Vegetation Type	Existing Acreage	Detention Basin and Facilities (Acres)	Main Street (Acres)
		<i>Permanent Impacts</i>	<i>Permanent Impacts</i>
Maritime Succulent Scrub	2.22	0	0.45
Non-native Grassland	64.68	2.43	2.97
Cismontane Alkali Marsh	0.17	0	0
Tamarisk Scrub	0.12	0	0
Unvegetated Channel	0.04	0	0.02
Disturbed Habitat	3.66	0.53	0.73
Disturbed Habitat – Rock Quarry	2.86	0.01	0.14
Not Mapped <sup>1</sup>	55.51	0	0
<i>Subtotal</i>	<i>166.02</i>	<i>5.08</i>	<i>8.55</i>
<b>Total</b>	<b>169.56</b>	<b>6.66</b>	<b>8.55</b>

**Note:** <sup>1</sup> Areas that are not mapped include portions of the Preserve that are not affected by the proposed project.

**Table 5-9**  
**Impacts to Vegetation Communities and Land**  
**Covers Associated with Planned and Future Facilities**

Vegetation Type	Existing Acreage	Detention Basin and Facilities (Acres)	Main Street (Acres)
		<i>Permanent Impacts</i>	<i>Permanent Impacts</i>
Coastal Sage Scrub	28.26	0.98	1.81
Disturbed Coastal Sage Scrub	8.52	1.18	2.43
Desert Saltbush Scrub	0.04	0	0
Maritime Succulent Scrub	2.22	0	0.45
Non-native Grassland	65.42	3.17	2.97
Cismontane Alkali Marsh	0.17	0	0
Tamarisk Scrub	0.12	0	0
Unvegetated Channel	0.06	0.02	0.02
Disturbed Habitat	4.43	1.30	0.73
Disturbed Habitat – Rock Quarry	2.86	0.01	0.14
Developed	<0.01	<0.01	0
Not Mapped <sup>1</sup>	55.51	0	0
<b>Total</b>	<b>169.56</b>	<b>6.66</b>	<b>8.55</b>

**Note:** <sup>1</sup> Areas not mapped within Village Four include portions of the Preserve which are not affected by the proposed project.

# Biological Technical Report for the Otay Ranch Village Four Project

## Jurisdictional Aquatic Resources

Sewer and storm drain alignment and the access road necessary for the storm drain would result in permanent impacts to 0.02 acre of unvegetated channel (Table 5-10). Main Street would impact 0.02 acre of an unvegetated channel (Table 5-10).

**Table 5-10**

**Impacts to Jurisdictional Aquatic Resources Associated with Planned and Future Facilities**

Jurisdictional Aquatic Resource	Detention Basin and Facilities (Acres)	Main Street (Acres)
	<i>Permanent Impacts</i>	<i>Permanent Impacts</i>
<i>Village Three – Off Site</i>		
Unvegetated Channel	0.02	0
<i>Subtotal</i>	<i>0.02</i>	<i>0</i>
<i>Village Four</i>		
Cismontane Alkali Marsh	0	0
Tamarisk Scrub	0	0
Unvegetated Channel	0	0.02
<i>Subtotal</i>	<i>0</i>	<i>0.02</i>
<b>Total</b>	<b>0.02</b>	<b>0.02</b>

**Note:** <sup>1</sup> Areas not mapped within the quarry boundary include the Otay River Valley. Based on aerial photography it is assumed that a portion of this area is riparian habitat associated with the river valley.

## Special-Status Species

Several special-status species have been observed throughout the Village Four project area. Two Covered Species will be impacted as a part of the proposed project components: Otay tarplant, also a Narrow Endemic Species, and San Diego barrel cactus (Table 5-11).

**Table 5-11**

**Summary Impacts to Covered and Narrow Endemic Plant Species**

Species	Detention Basin and Facilities	Main Street
	<i>Permanent Impacts</i>	<i>Permanent Impacts</i>
<i>Village Three</i>		
Otay tarplant	114	0
<i>Village Four</i>		
Otay tarplant	2,594	5,432
<b>Otay tarplant Total</b>	<b>2,708</b>	<b>5,432</b>
San Diego barrel cactus	1	5
<b>San Diego barrel cactus Total</b>	<b>1</b>	<b>5</b>

## Biological Technical Report for the Otay Ranch Village Four Project

Several special-status wildlife species have also been observed throughout the Village Four project area. Only habitat for one Covered Species, California gnatcatcher, will be impacted by the construction of the proposed detention basin and Main Street (Table 5-12).

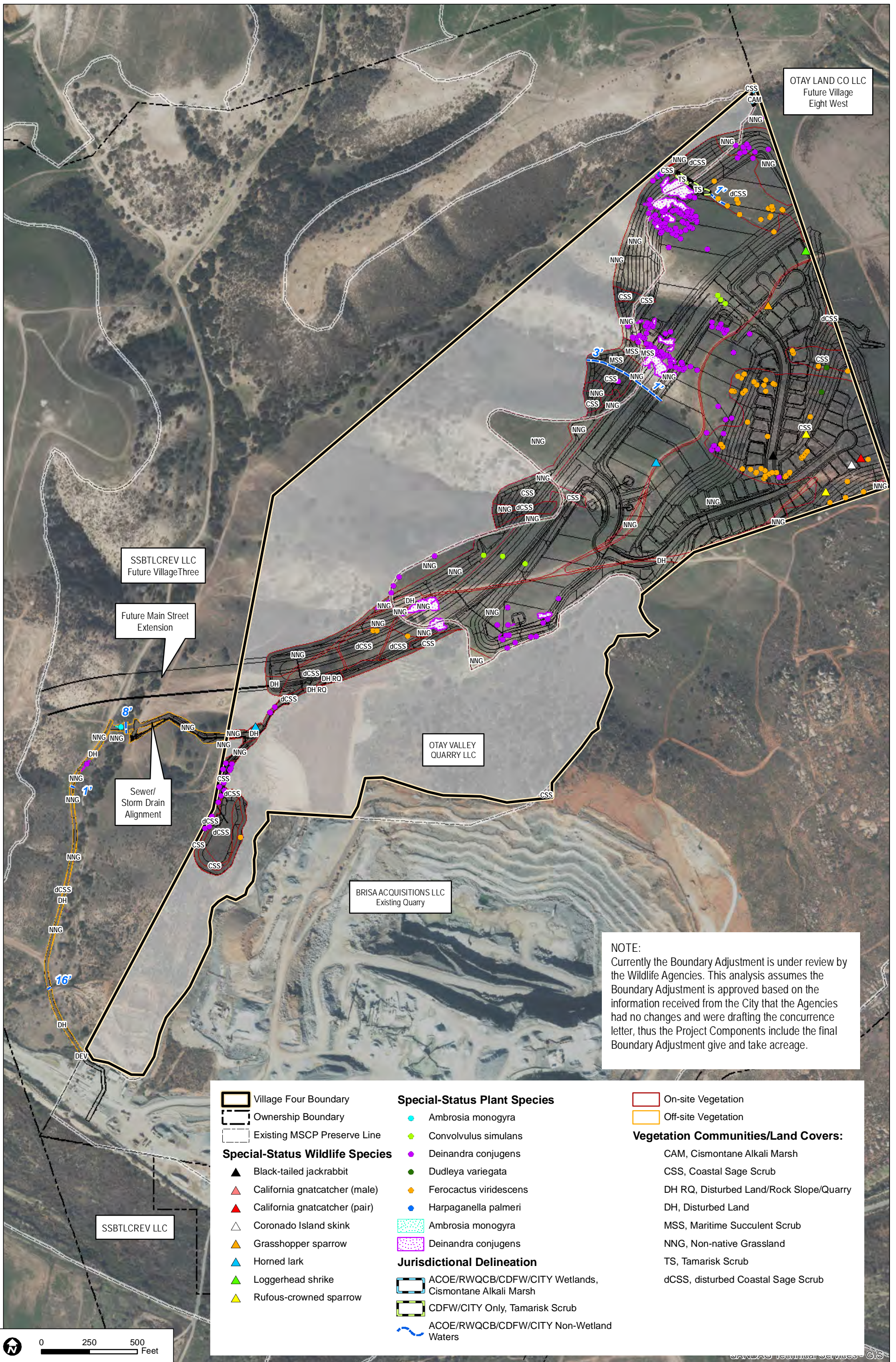
**Table 5-12**  
**Summary Impacts to Covered Wildlife Species**

<b>Species</b>	<b>Detention Basin and Facilities</b>	<b>Main Street</b>
	<i>Permanent Impact</i>	<i>Permanent Impact</i>
<i>Village Four</i>		
California gnatcatcher	0	1 male
<i>Vegetation Type</i>	<i>Permanent Impact (acres)</i>	<i>Permanent Impact (acres)</i>
Coastal Sage Scrub	0.98	1.81
Disturbed Coastal Sage Scrub	1.18	2.43
<b>Total</b>	<b>2.16</b>	<b>4.24</b>



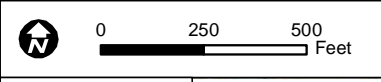
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**NOTE:**  
 Currently the Boundary Adjustment is under review by the Wildlife Agencies. This analysis assumes the Boundary Adjustment is approved based on the information received from the City that the Agencies had no changes and were drafting the concurrence letter, thus the Project Components include the final Boundary Adjustment give and take acreage.

<p><b>Village Four Boundary</b></p> <ul style="list-style-type: none"> <li><span style="border: 2px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Village Four Boundary</li> <li><span style="border: 1px dashed black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Ownership Boundary</li> <li><span style="border: 1px dotted black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Existing MSCP Preserve Line</li> </ul> <p><b>Special-Status Wildlife Species</b></p> <ul style="list-style-type: none"> <li><span style="color: black;">▲</span> Black-tailed jackrabbit</li> <li><span style="color: red;">▲</span> California gnatcatcher (male)</li> <li><span style="color: red;">▲</span> California gnatcatcher (pair)</li> <li><span style="color: black;">△</span> Coronado Island skink</li> <li><span style="color: orange;">▲</span> Grasshopper sparrow</li> <li><span style="color: blue;">▲</span> Horned lark</li> <li><span style="color: green;">▲</span> Loggerhead shrike</li> <li><span style="color: yellow;">▲</span> Rufous-crowned sparrow</li> </ul>	<p><b>Special-Status Plant Species</b></p> <ul style="list-style-type: none"> <li><span style="color: cyan;">●</span> Ambrosia monogyra</li> <li><span style="color: green;">●</span> Convolvulus simulans</li> <li><span style="color: purple;">●</span> Deinandra conjugens</li> <li><span style="color: green;">●</span> Dudleya variegata</li> <li><span style="color: orange;">●</span> Ferocactus viridescens</li> <li><span style="color: blue;">●</span> Harpaganella palmeri</li> </ul> <p><b>Jurisdictional Delineation</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> ACOE/RWQCB/CDFW/CITY Wetlands, Cismontane Alkali Marsh</li> <li><span style="border: 1px solid green; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> CDFW/CITY Only, Tamarisk Scrub</li> <li><span style="color: blue; font-size: 1.2em;">~</span> ACOE/RWQCB/CDFW/CITY Non-Wetland Waters</li> </ul>	<p><b>Vegetation Communities/Land Covers:</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> On-site Vegetation</li> <li><span style="border: 1px solid orange; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Off-site Vegetation</li> <li>CAM, Cismontane Alkali Marsh</li> <li>CSS, Coastal Sage Scrub</li> <li>DH RQ, Disturbed Land/Rock Slope/Quarry</li> <li>DH, Disturbed Land</li> <li>MSS, Maritime Succulent Scrub</li> <li>NNG, Non-native Grassland</li> <li>TS, Tamarisk Scrub</li> <li>dCSS, disturbed Coastal Sage Scrub</li> </ul>
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**FIGURE 5-5**  
**Site Plan with Sewer/Storm Drain Alignment Biological Resources Map**

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# Biological Technical Report for the Otay Ranch Village Four Project

## **5.1.8.1.2 Detention Basin, Access Roads, and Associated Utilities – Planned and Future Facilities**

The detention basin (Future Facility) is located south of development and adjacent to the development area/quarry boundary. The basin will be lined and planted with native vegetation which will likely consist of a custom seed mix or container plants of the following species: *Carex praeegracilis*, *Carex spissa*, *Sporobolus airoides*, *Juncus acutus* ssp. *leopoldii*, *Leymus condensatus*, and *Leymus triticoides*. The detention basin will have an access road (Future Facility) extending off Main Street. Storm drain (Future Facility) and sewer lines (Planned Facility) extending south from Village Four will be in line with the location of the detention basin access roads. In order to connect the basin with the Salt Creek Interceptor (Planned Facility) to the south of Wiley Road, storm drain and sewer lines will be placed within the footprint of an existing dirt access road (Planned Facility) located within Village Three. The utility easement within the existing dirt road will require a graded width of 18 feet, and the existing dirt road will be replaced with a 12-foot-wide all-weather access road. The new road from Main Street to the basin and the dirt road will require a graded width of 25 feet with a 12-foot-wide utility access road constructed within that 25-foot-wide easement. The detention basin, access road from Main Street, and the storm drain are considered Future Facilities, while the Salt Creek Interceptor, sewer lines, and access road from the basin to the Salt Creek Interceptor are Planned Facilities. Because the extent of the access road from Main Street to the detention basin and utilities are the same, the impact is based on the Planned Facility, i.e., width necessary for sewer facilities. All facilities/utilities have been co-located within the planned easement of the access road to the Salt Creek Interceptor, and the access road width is able to accommodate these additional facilities/utilities without resulting in additional impacts. Therefore, the only Future Facility not co-located with a Planned Facility is the detention basin. Table 5-13 provides a summary of these facilities as they relate to the Facilities Siting Criteria.

**Table 5-13  
Summary Facilities Siting Criteria  
Detention Basin and Associated Facilities**

Facilities Siting Criteria	Detention Basin, Access Roads, Storm Drain and Sewer Lines, Sewer Line Connection to Salt Creek Interceptor, and Storm Drain Outfall – Planned and Future Facilities (6.66 acres permanent impact)
Least environmentally sensitive location	<p>The detention basin has been located within disturbed coastal sage scrub, in an area that has already been disturbed by off-road activity. Topography is such that moving the detention basin north into non-native grassland would not be feasible.</p> <p>The access road from the detention basin to the Salt Creek Interceptor is located almost exclusively within an existing dirt road. Impacts to vegetation located on either side of the existing dirt road have been reduced to the greatest extent feasible. The portion of the access road from the existing dirt road to the detention basin is primarily located within non-native grassland and in an area which is heavily degraded by off-road activity.</p>

# Biological Technical Report for the Otay Ranch Village Four Project

**Table 5-13**  
**Summary Facilities Siting Criteria**  
**Detention Basin and Associated Facilities**

Facilities Siting Criteria	Detention Basin, Access Roads, Storm Drain and Sewer Lines, Sewer Line Connection to Salt Creek Interceptor, and Storm Drain Outfall – Planned and Future Facilities (6.66 acres permanent impact)
	Storm and sewer lines were co-located to reduce the need for two locations. Impacts to sensitive habitat will be mitigated through the implementation of Mitigation Measures as outlined in the biological resources technical report. In addition, any manufactured slopes (within the Preserve) created in conjunction with Planned and Future Facilities will be replanted/landscape with native species consistent with the Preserve Edge Plan (Atlantis Group 2017).
Avoid wetlands and covered species and address Narrow Endemic Species	<p>The construction of the basin will not impact any jurisdictional aquatic resources, Covered Species, or Narrow Endemic Species, but construction of the basin's access road will result in impacts to Narrow Endemic plant species (Otay tarplant) and Covered Species (San Diego barrel cactus). Construction of the basin and access road will also impact coastal sage scrub likely utilized by a pair of gnatcatcher.</p> <p>The access roads, storm drain and sewer lines will impact 0.02 acre of unvegetated channel. These facilities will also impact populations of Otay tarplant and one occurrence of San Diego barrel cactus. Impacts to jurisdictional resources will be permitted by the resource agencies.</p>
Provide for wildlife movement	Construction of the basin and access roads with co-located facilities will not preclude wildlife from using the area since there is no barrier to movement by wildlife and there is a potential for wildlife to be attracted to water within the basins. The access roads are not expected to preclude wildlife from using the area, as wildlife will traverse the road. In addition, the road is not expected to receive much traffic because it is designed and limited to use as maintenance for the basins.
Road widths are narrowed and in lower quality habitat	The roads were designed to be as narrow as possible (15 and 25 feet) while still accommodating the co-location of sewer and storm drains.
Future facilities are limited to 2 acres or cumulative total of 50 acres	The detention basin is the only Future Facility that is not co-located with a Planned Facility. The proposed detention basin is 1.23 acres and is therefore under the 2-acre limit.
Avoid impacts to covered Narrow Endemic Species and Quino Checkerspot Butterfly	Construction of the detention basin, the access road from Main Street to the detention basin and associated co-located facilities will impact locations of host plants for Quino checkerspot butterfly as well as populations of Otay tarplant. Construction of the basin will result in impacts to coastal sage scrub likely utilized by a pair of coastal California gnatcatchers. The access road through Village Three will result in impacts to Otay tarplant populations located along the existing road. Due to lack of site access a focused survey for Quino checkerspot butterfly, and thus host plant mapping, was not conducted for the off-site areas. However, given the habitat located along the existing dirt road, primarily non-native grassland, there is a low potential for host plants and therefore low potential for Quino checkerspot butterfly to occur in this area.

### 5.1.8.1.3 Main Street

#### Main Street, Sewer and Storm Drains – Planned and Future Facilities

Main Street will be located through the center of Village Four along the Preserve and Development Boundary. Portions of the alignment are not within the Preserve and therefore not subject to the

## **Biological Technical Report for the Otay Ranch Village Four Project**

siting criteria. The Main Street sewer connection and storm drain improvements have been co-located within the road right-of-way (ROW) to minimize and avoid additional impacts. Thus, the two 20-foot-wide easements that would have been required for these two facilities have been co-located within the road, resulting in a reduction of impacts to the MSCP Preserve. These facilities are all clustered within a single construction ROW to minimize habitat and sensitive species impact and habitat fragmentation. Table 5-14 provides a summary of these facilities as they relate to the siting criteria.

**Table 5-14  
Summary of Facilities Siting Criteria  
Village Four – Main Street and Associated Utilities**

<b>Facilities Siting Criteria</b>	<b>Main Street, Sewer Line, and Storm Drain – Planned Facilities (8.55 acres)</b>
Least environmentally sensitive location	The street has been designed to be contained within the development footprint to the extent feasible and will limit impacts to the Preserve and habitat by reducing the amount of fill necessary to construct the road. Main Street will be located immediately adjacent to development and will not cause fragmentation of habitat. All facilities are located within a single ROW and include the Main Street alignment, sewer, and storm drain. Any manufactured slopes (within the Preserve) created in conjunction with Planned and Future Facilities will be replanted/landscape with native species consistent with the Preserve Edge Plan (Atlantis Group 2017).
Avoid wetlands and covered species and address Narrow Endemic Species	A middle reach of an unvegetated stream channel (0.02 acre) will be impacted by the proposed alignment. The upper reaches of the channel are within the development footprint. All impacts to jurisdictional aquatic resources will be permitted by the resource agencies. A total of 5 San Diego barrel cactus and 4 populations of Otay tarplant, consisting of 444 individuals, will be impacted by development of the road. Moving the alignment to avoid the Otay tarplant would have been infeasible since the current alignment needs to be matched.
Provide for wildlife movement	The road is located immediately adjacent to the proposed development and will not preclude wildlife from using Wolf Canyon and the Otay River Valley to the south. Main Street will not impede a major regional linkage, and culverts will not be required within the Preserve. Because of their co-location within a minimal-width construction ROW, these linear facilities would not impede wildlife movement.
Road widths are narrowed and in lower quality habitat	The majority of impacts associated with Main Street are to non-native grassland and disturbed coastal sage scrub. The width of the road is set based on connections to Main Street within the adjacent Villages.
Impacts for future facilities will be evaluated by the City	N/A – All facilities/utilities have been co-located with the planned alignment of Main Street.
Future facilities are limited to 2 acres or cumulative total of 50 acres	N/A – All facilities/utilities have been co-located with the planned alignment of Main Street.
Avoid impacts to covered Narrow Endemic Species and Quino Checkerspot Butterfly	Construction of Main Street, and associated facilities, will not impact any Quino checkerspot butterfly host plant locations and therefore no impacts to Quino checkerspot butterfly are anticipated. Additionally, surveys for Quino checkerspot were negative. Four populations of Otay tarplant totaling 444 plants will be impacted by development of the road.

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### **5.1.8.1.4 Equivalency Analysis for Future Facilities**

Equivalency finding requirements are contained in Section 5.2.3.6 of the Subarea Plan. Equivalency findings are required when the development of Future Facilities result in impacts to covered Narrow Endemic species beyond the threshold limits identified in the Subarea Plan. The construction of the detention basin would not result in a net loss of Otay tarplant populations within the project area nor any other Narrow Endemic Species. Therefore, the equivalency analysis for future facilities is not required for the construction of the basin.

### **5.1.8.2 Adjacent Land Uses and Setback Criteria**

All development located adjacent to the Preserve is required to prepare an Edge Plan (Section 7.2 of the RMP). The Preserve edge is a strip of land 100 feet wide that surrounds the perimeter of the Preserve; however, it is not part of the Preserve. A Preserve Edge Plan was prepared for Village Four (Atlantis Group 2017) in consultation with a qualified biologist. This plan details the uses allowed within the 100-foot-wide Preserve edge, and provides a list of plant species that are appropriate adjacent to the Preserve and overlap with the proposed 100-foot-wide fuel modification zone. This Preserve Edge Plan also analyzes how each village complies with the Preserve adjacency guidelines from Section 7.5.2 of the Chula Vista MSCP Subarea Plan.

In addition, the RMP outlines eight specific setback criteria in the guidelines for Policy 9.8, to which all boundary modifications must adhere. The setback criteria are designed to provide a buffer between the development and special-status species and resources, including coastal sage scrub, coastal California gnatcatcher, perennial (native) grassland, vernal pools, mulefat scrub, riparian woodlands, oak woodlands, and southern interior cypress forest. The Preserve Boundary Line Adjustment includes the following applicable resources: coastal sage scrub and coastal California gnatcatcher. The guidelines for these two resources are as follows:

1. Coastal sage scrub and chaparral shall be provided a 100-foot-wide setback where interfacing with residences and a minimum of 50-foot-wide where interfacing with commercial and industrial development, active park uses, and schools.
2. Coastal sage scrub habitat occupied by gnatcatcher and/or cactus wren shall be provided a setback no less than 100 feet determined in consideration of topography or other factors through additional study at the SPA level.

The proposed project and associated Preserve Boundary Line Adjustment adhere to the setback criteria through compliance with RMP Policy 7.2, which requires a minimum 100-foot-wide setback between development and the Preserve. The 100-foot-wide Preserve edge is not strictly an open space area but includes storm drainage facilities, recreational community facilities (passive hiking trail, fencing, interpretive and trail signage, and maintenance access via trail

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access points), and fuel modification zones. Perimeter fencing will be installed along the rear yards of Village Four Development Area to restrict unauthorized access into the Preserve. There are no public streets that require lighting adjacent to the Preserve edge, and trails and maintenance access roads within the Preserve will not be lighted. To avoid erosion impacts to the Preserve, the project has been designed to include energy dissipation and infiltration structures to reduce runoff and flow velocities to below erosive velocity limits. Because the proposed project provides a buffer of 100 feet between development and the Preserve edge, the setbacks prescribed by RMP Policy 9.8 are achieved (Mitigation Measures BIO15 and BIO16). Please refer to the village-specific Preserve Edge Plan for more detailed information regarding uses within the 100-foot-wide Preserve buffer (Atlantis Group 2017).

### **5.1.8.3 HLIT Ordinance**

As previously stated, a portion of the proposed project is located outside of the Otay Ranch boundary and is subject to the City’s HLIT Ordinance. These off-site areas are all affiliated with the Quarry and are associated with the Planned Facilities or the fuel modification zone (Figure 1-4; Table 5-15). The off-site impact area, as proposed, is consistent with City Planning Guidelines and does not conflict with the goals or standards of the City’s Subarea Plan; however, compliance with the City’s HLIT Ordinance will require conformance with several standard measures to address habitat loss. As required by the HLIT Ordinance, all fuel modification brush management zones, required as a result of new development and as required by the City Fire Marshal, shall be located outside the Preserve.

**Table 5-15  
Impacts to Vegetation Communities and Land Covers  
Associated with Quarry Off-Site Development Impacts**

Vegetation Type	Off-Site Development Permanent Impacts (Acres)
<i>Sensitive Vegetation Communities</i>	
Coastal Sage Scrub	0.24
Non-native Grassland	1.47
Desert Saltbush Scrub	<0.01
<i>Sensitive Vegetation Communities Subtotal</i>	1.72
<i>Non-sensitive Vegetation Communities/Land Covers</i>	
Disturbed Habitat	0.05
Developed	0.19
<i>Non-sensitive Vegetation Communities/Land Covers Subtotal</i>	0.24
<b>Total</b>	<b>1.96</b>

Impacts to native upland vegetation communities are considered significant under the City’s HLIT Ordinance and require mitigation (City of Chula Vista 2003; Table 5-3). Vegetation communities

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considered sensitive under the City Subarea Plan are those listed as Tier I through Tier III (rare uplands to common uplands). Significant impacts include non-native grassland (Tier III), desert saltbush scrub (Tier II), and coastal sage scrub (Tier II). Impacts to vegetation communities that are not considered significant include impacts to Tier IV habitats (other uplands) consisting of disturbed habitat and developed land. Impacts to areas subject to HLIT are quantified in Table 5-15, and mitigated as described in Mitigation Measure BIO7, Table 6-2. Findings are required for the impacts within these off-site areas as provided in Appendix H.

No focused surveys were conducted in off-site areas of the Quarry due to access restrictions. Data collected by Dudek within the Quarry (Dudek 2011) was used to determine that there were no special-status plant or wildlife species observed in the off-site areas of the Quarry: therefore, impacts are not expected to occur to special-status species.

The proposed project will apply the HLIT Ordinance to those areas located outside of Otay Ranch, specifically within the Quarry. The proposed project will coordinate with the County for those areas located outside of Otay Ranch and within the County's jurisdiction. Mitigation for impacts to areas outside of the Otay Ranch boundary are described in Mitigation Measure BIO7.

## **5.2 Indirect Impacts**

The Chula Vista MSCP Subarea Plan includes a discussion of Preserve management and monitoring issues (Chapter 7.0), which identifies the proposed project site as within the Otay Ranch Preserve Management Area (see discussion in Section 7.4 of the Subarea Plan). Section 7.4 references Edge Plans required to be prepared for each SPA Plan within Otay Ranch. The Edge Plans are required to address measures included in the SPA Plans to control adverse edge effects (indirect impacts) on the Preserve. Guidance for development of these control measures can be found in the Subarea Plan in the discussion of the Central City Preserve Management Area. While the requirements outlined for the Central City Preserve Management Area (Section 7.5 of the Subarea Plan) are not directly applicable to areas within Otay Ranch, they are applicable to the areas outside of Otay Ranch, and the discussion of adjacency management issues in that section is useful in outlining the control mechanisms that will be required for the Village Four Edge Plan (to be prepared). Requirements for Edge Plan treatments are outlined in Section 6.0 of this report (Mitigation Measures BIO15 and BIO16).

### **5.2.1 Vegetation Communities**

Indirect impacts to vegetation communities would primarily result from adverse edge effects, as noted above. During construction of the project, edge effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. Long-term indirect impacts on vegetation communities would most likely occur as a result of trampling of vegetation by humans and domestic pets, invasion by exotic species, alteration of



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the natural fire regime, and exposure to urban pollutants (e.g., fertilizers, pesticides, herbicides, and other hazardous materials). Indirect impacts to vegetation communities are considered significant and are mitigated through Mitigation Measures BIO4, BIO5, BIO6, BIO15 and BIO16. Dust control will be implemented per the Air Quality Technical Report (Dudek 2016a) to limit impacts of fugitive dust on sensitive habitat and species (Mitigation Measure BIO6).

### **5.2.2 Special-Status Plant Species**

Most of the indirect impacts to vegetation communities noted above can also affect special-status plants. Of particular sensitivity is the population of Otay tarplant in Wolf Canyon adjacent to the project area to the west. During construction of the project, indirect effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. Long-term edge effects could include intrusions by humans and domestic pets and possible trampling of individual plants, invasion by exotic plant and wildlife species, exposure to urban pollutants, soil erosion, litter, fire, and hydrological changes (e.g., changes in surface and groundwater level and quality). Dust control will be implemented per the Air Quality Technical Report (Dudek 2016a) to limit impacts of fugitive dust on sensitive habitat and species. Indirect impacts to special-status plants are considered significant and are mitigated through Mitigation Measures BIO4, BIO5, BIO6, BIO15, and BIO16.

### **5.2.3 Special-Status Wildlife Species**

Short-term indirect impacts to special-status nesting bird species include construction noise impacts. Species potentially affected by such activities include, but are not limited to, coastal California gnatcatcher, coastal cactus wren, Southern California rufous-crowned sparrow, and nesting raptors. Indirect impacts to special-status bird species may occur if construction is conducted during the breeding season for coastal California gnatcatcher (February 15–August 15) and raptors (January 15–August 31) and would be mitigated through Mitigation Measure BIO9. While Quino checkerspot butterfly has not been recorded on site in the recent survey, it is known to be present nearby within the Salt Creek Preserve. Long-term indirect impacts to special-status wildlife species would also occur as a result of the project. Impacts would consist of lighting, human activity in the Preserve, noise, and predation by domestic animals. Indirect impacts to special-status wildlife species are considered significant (Mitigation Measures BIO15 and BIO16). Dust may result in indirect impacts to a number of special-status wildlife species. Dust control will be implemented per the Air Quality Technical Report (Dudek 2016a) to limit impacts of fugitive dust on sensitive habitat and species (Mitigation Measure BIO6).

Indirect impacts to wildlife may also occur as a result of the passive recreational uses of the trail located at the edges of development within the project site, including portions within 100 feet of the MSCP Preserve, intended to create a buffer zone between the proposed development and the

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Otay Ranch Preserve. Uses that are allowed within the 100-foot-wide buffer adjacent to the Preserve include trails, walls, and fences within perimeter slope areas. The Preserve Edge Plan prepared for Village Four (Atlantis Group 2017), addresses and describes avoidance of indirect effects to special-status species that occur along the Preserve/development interface (Mitigation Measures BIO15 and BIO16).

### **5.2.4 Jurisdictional Resources**

Indirect, adverse edge effects to jurisdictional waters and wetlands include potential runoff, sedimentation, erosion, exotics introduction, and habitat type conversion in the short and long term, particularly within the Wolf Canyon drainage. Indirect impacts to jurisdictional waters, without mitigation, are considered significant (Mitigation Measures BIO4, BIO5, BIO6, and BIO14).

Project drainage impacts will be minimized in compliance with the San Diego RWQCB Permit CAS0109266 by Order No. R9-2013-0001. Bioretention basins and on-site Low Impact Development measures are proposed to mitigate sediment and pollutants of concern associated with the proposed development in compliance with the current National Pollutant Discharge Elimination System permit. Outlet structures designed with energy dissipaters are proposed to reduce flows to non-erosive velocities at the Otay River outfalls to avoid indirect impacts.

The Preserve Edge Plan (Atlantis Group 2017) provides the description of and analysis for the storm drains, drainage outfalls, and drainage basins that are proposed within the project area (Mitigation Measures BIO15 and BIO16).

### **5.2.5 Habitat Linkages/Movement Corridors**

According to the wildlife corridor studies conducted by Ogden (1992), the University Villages project area does not support any existing wildlife corridors, but does serve as a local corridor for target mammal species. Potential indirect impacts to wildlife utilizing this local corridor are identified in Section 6.2.3. These impacts are considered significant, but are addressed with mitigation measures that define adjacency conditions (BIO15 and BIO16).

Sections 3.5.2 and 6.1.8 provides analysis of special-status wildlife, and both their use and movement within the Preserve and non-Preserve areas of Village Four and the off-site areas (Quarry and Village Three). This analysis also applies to habitat linkages/movement corridors.

## **5.3 Cumulative Impacts**

Implementation of the proposed project would contribute to the cumulative loss of biological resources within the Otay Ranch RMP and City of Chula Vista MSCP Subarea Plan. Compliance with the Subarea Plan conditions for coverage and the Otay Ranch RMP, conveyance of

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compensatory mitigation lands to the Preserve Owner/Manager, and compensatory wetland mitigation required by state and federal wetlands permitting agencies will ensure long-term sustainability of Covered Species and their associated habitats.

Both the RMP and the Chula Vista MSCP Subarea Plan provide consideration for and mitigation of cumulative impacts to biological resources. Although portions of the project would designate open space that is in addition to existing planned Preserves, encroachment into both the RMP and Subarea Plan Preserves requires a demonstration that the modified Preserve would provide for an equal or higher biological value. As noted in Section 4.0, the proposed reconfiguration of the Preserve provides for a relatively equal biological value to the original Preserve and therefore significant cumulative impacts related to losses to habitats and species would be avoided through the project's implementation of the Boundary Modification to the RMP and Boundary Adjustment to the Subarea Plan.

Cumulative impacts consider the potential regional effects of a project and how a project may affect an ecosystem or one of its members beyond the project limits and on a regional scale. The Otay Ranch GDP Program EIR analyzed the existing conditions, potential impacts, and mitigation measures related to biological resources for the entire Otay Ranch area, including the project area, which consists of approximately 23,000 acres in the County of San Diego, the City of Chula Vista, and the City of San Diego. The Otay Ranch GDP Program EIR identified significant unavoidable impacts to biological resources in Otay Ranch due to loss of raptor foraging habitat. Subsequent to the certification of the Program EIR and the adoption of the Otay Ranch GDP, the City adopted the Chula Vista MSCP Subarea Plan, which is described in more detail in Section 3.5 of this report. The MSCP planning program provided for mitigation of impacts on sensitive species and their habitats on a regional basis. Such mitigation was not available at the time the Otay Ranch GDP Program EIR was certified. Because of the level of conservation provided for habitats that support raptor foraging on a regional basis, new feasible mitigation for the impacts not identified in the Program EIR to raptor foraging habitat is now available to mitigate project-level impacts.

The Village Four project would also result in the loss of sensitive vegetation communities as itemized in Tables 5-1, 5-2, 5-5, and 5-6, which would be mitigated with conveyance of Preserve lands as required by the Otay Ranch RMP (Mitigation Measure BIO1). Planned and Future Facility construction areas will be revegetated with native vegetation (Mitigation Measure BIO3). Additional wetlands mitigation is also expected as a condition of wetlands permits (Mitigation Measure BIO13). The loss of sensitive plant species and vegetation communities would be mitigated through the conveyance of 1.188 acres of land to the City of Chula Vista for every developed acre impacted, along with habitat restoration of maritime succulent scrub at a 1:1 ratio, pursuant to the Otay Ranch RMP (Mitigation Measure BIO1). This conveyance program, coupled with the maritime succulent scrub restoration program (Mitigation Measure BIO2, Table 6-1), will adequately conserve a greater or equal amount of special-status vegetation types within Otay

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Ranch. Implementation of these measures and consistency with the Chula Vista Subarea Plan and Otay Ranch RMP mitigates cumulative biological impacts to MSCP Covered Species and their associated habitats.

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## **6 MITIGATION**

The following mitigation measures address the proposed project's significant effects on special-status species, special-status vegetation, and jurisdictional resources. With implementation of the proposed mitigation, the identified impacts will be reduced to less than significant. Impacts for biological resources inside the Preserve are addressed through the MSCP Preserve Boundary Line Adjustment, discussed in Section 4.0 of this report.

### **6.1 Sensitive Vegetation**

**BIO1 Preserve Conveyance.** Prior to the approval of the first final map for the project, the project Applicant shall coordinate with the City of Chula Vista (City) Engineer and annex the project area within the Otay Ranch Preserve Community Facilities District No. 97-2.

Prior to the recordation of each final map, the Applicant shall convey land within the Otay Ranch Preserve to the Otay Ranch Preserve Owner/Manager or its designee at a ratio of 1.188 acres for each "Developable Acre" as defined by the Resource Management Plan (RMP). Access for maintenance purposes shall also be conveyed to the satisfaction of the Preserve Owner/Manager. Each tentative map (TM) shall be subject to a condition that the Applicant shall execute a maintenance agreement with the Preserve Owner/Manager stating that it is the responsibility of the Applicant to maintain the conveyed parcel until the Preserve Community Facilities District has generated sufficient revenues to enable the Preserve Owner/Manager to assume maintenance responsibilities. The Applicant shall maintain and manage the offered conveyance property consistent with the Resource Management Plan (RMP) Phase 2 until the Preserve Community Facilities District has generated sufficient revenues to enable the Preserve Owner/Manager to assume maintenance and management responsibilities.

**BIO2 Mitigation for Maritime Succulent Scrub.** Prior to the issuance of any land development permits that impact maritime succulent scrub, including clearing and grubbing or grading permits, the project Applicant shall prepare a restoration plan to restore impacts to maritime succulent scrub at a 2:1 ratio pursuant to the Otay Ranch RMP. The 2:1 ratio is required due the proposed mitigation occurring within the City's Central City Preserve, which is currently conserved and managed by the City and incorporated in the Compensation Plan for the Boundary Adjustment. Impacts would include 0.20 acre from the proposed Preserve Boundary Adjustment and 0.52 acre from the Village Four

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Project (including 0.07 acre from the development area and 0.45 acre from Planned Facilities within the Preserve). Therefore, compensation of maritime succulent scrub loss associated with the Preserve Boundary Adjustment is discussed collectively with mitigation of maritime succulent scrub from the Village Four Project impacts as specified in Table 6-1.

**Table 6-1  
Compensation and Mitigation for Impacts to Maritime Succulent Scrub**

Vegetation Community	Permanent Impacts (acres)	Cause of Impact	Replacement Type	Mitigation Ratio	Mitigation Required (acres)
Maritime Succulent Scrub	0.20	Preserve Boundary Adjustment	Compensation	1:1	0.20
Maritime Succulent Scrub	0.07	Development Impacts - Outside Preserve	Mitigation	2:1	0.14
Maritime Succulent Scrub	0.45	Planned Facilities Impacts - Inside Preserve	Mitigation	2:1	0.90
<b>Total</b>	<b>0.72</b>	--	--	--	<b>1.24</b>

The maritime succulent scrub restoration shall be prepared by a City-approved biologist and to the satisfaction of the Development Services Director (or their designee) pursuant to the Otay Ranch RMP restoration requirements. The restoration plan shall include, at a minimum, an implementation strategy; species salvage and relocation; appropriate seed mixtures and planting method; irrigation; quantitative and qualitative success criteria; a maintenance, monitoring, and reporting program; an estimated completion time; and contingency measures. The project Applicant shall also be required to implement the revegetation plan subject to the oversight and approval of the Development Services Director (or their designee).

### **BIO3**

**On-site Restoration Plan.** Prior to issuance of land development permits, including clearing, grubbing, grading and construction permits, for the Future and Planned Facilities associated with Village Four, the project Applicant shall provide a restoration plan for any proposed give areas that are included within the Preserve and that might be impacted by the proposed road construction. The give areas will be restored to native habitat and monitored with a 5-year mitigation and monitoring program to verify meeting success criteria. These areas include the manufactured slopes adjacent to Main Street and are currently located within the Preserve. Additionally, the project Applicant shall provide a

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revegetation plan for the take area. Although it will be removed from the Preserve area, the take area will be a manufactured graded slope and will be landscaped with native species to provide a buffer for the Preserve. The revegetation plan must be prepared by a qualified City-approved biologist familiar with the City's MSCP Subarea Plan and must include, but not be limited to, an implementation plan; appropriate seed mixtures and planting method; an irrigation method; quantitative and qualitative success criteria; a maintenance, monitoring, and reporting program; an estimated completion time; and contingency measures. The project Applicant shall be required to prepare and implement the revegetation plan subject to the oversight and approval of the Development Services Director (or their designee). The slope areas of the take area will not be included in the preserve and will be managed by the City or the project HOA.

**BIO4**      **Biological Monitor.** Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, for any areas adjacent to the Preserve and the off-site facilities located within the Preserve, the project Applicant shall provide written confirmation that a City-approved biological monitor has been retained and shall be on site during clearing, grubbing, and/or grading activities. The biological monitor shall attend all pre-construction meetings and be present during the removal of any vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area including, but not limited to, trenches, stockpiles, storage areas, and protective fencing. The biological monitor shall be authorized to halt all associated project activities that may be in violation of the City's MSCP Subarea Plan and/or permits issued by any other agencies having jurisdictional authority over the project.

Before construction activities occur in areas containing sensitive biological resources within the off-site facilities area, all workers shall be educated by a City-approved biologist to recognize and avoid those areas that have been marked as sensitive biological resources.

**BIO5**      **Construction Fencing.** Prior to issuance of grading permits in portions of the Village Four Development Area that are adjacent to the Preserve, the project Applicant shall install fencing. Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, the project Applicant shall install fencing in accordance with Chula Vista Municipal Code 17.35.030. Prominently colored, well-installed fencing and signage shall be in place wherever the limits of grading are adjacent to sensitive vegetation

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communities or other biological resources, as identified by the qualified monitoring biologist. Fencing shall remain in place during all construction activities. All temporary fencing shall be shown on grading plans for areas adjacent to the Preserve and for all off-site facilities constructed within the Preserve. Prior to release of grading and/or improvement bonds, a qualified biologist shall provide evidence that work was conducted as authorized under the approved land development permit and associated plans.

**BIO6 Construction Plan Notes.** Prior to issuance of land development permits, including clearing, grubbing, grading, and construction permits, the following notes shall be included on the applicable construction plans to the satisfaction of the Development Services Director (or their designee):

- A qualified biologist shall be on site to monitor all vegetation clearing and periodically thereafter to ensure implementation of appropriate resource protection measures.
- Dewatering shall be conducted in accordance with standard regulations of the Regional Water Quality Control Board. A permit to discharge water from dewatering activities will be required. This will minimize erosion, siltation, and pollution within sensitive communities.
- During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This will protect sensitive vegetation from being inundated with sediment-laden runoff.
- Material stockpiles shall be covered when not in use. This will prevent fly-off that could damage nearby sensitive vegetation communities.
- Graded areas shall be periodically watered to minimize dust that may affect adjacent vegetation.

**BIO7 HLIT for Off-Site Areas.** Prior to issuance of any land development permits, including clearing or grubbing and grading and/or construction permits, the project will be required to obtain a Habitat Loss and Incidental Take (HLIT) Permit pursuant to Section 17.35 of the Chula Vista Municipal Code for impacts to Chula Vista MSCP Tier I, II, and III vegetation communities as shown below in Table 6-2 and in accordance with Table 5-3 of the Chula Vista MSCP Subarea Plan. These impacts are due to the Planned Facilities and fuel modification. Mitigation for off-site impacts outside of Otay Ranch will be in accordance with the Chula Vista MSCP Subarea Plan and the City's HLIT Ordinance and as provided in the HLIT Findings (Appendix H).



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Prior to issuance of any land development permits, the Applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City’s MSCP Subarea Plan. In compliance with the City’s Subarea Plan, the Applicant shall secure mitigation credits within a City- and wildlife agency-approved Conservation Bank or other approved location offering mitigation credits consistent with the ratios specified in Table 6-2 or pay into a City established mitigation fee program.

**Table 6-2  
Mitigation for Permanent Impacts to Upland Vegetation Outside of Otay Ranch (HLIT)**

Off-Site Area	Vegetation Community	Tier	Permanent Impacts (acres)	Location of Impact	Mitigation Ratio	Mitigation Required (acres)
Otay Quarry– Extension of Planned Facilities	Desert Saltbush Scrub	II	<0.01	Outside Preserve	1:1	<0.01
Otay Quarry–Fuel Modification Zone	Coastal sage scrub	II	0.24	Outside Preserve	1:1	0.24
	Non-native grassland	III	1.47	Outside Preserve	1:1	1.47
	<b>Total for Otay Quarry</b>					

**Note:** Tiers and mitigation ratios are in accordance with the Chula Vista MSCP Subarea Plan’s HLIT Upland Habitat Mitigation Ratios. No mitigation is required for Tier IV habitat types (i.e., non-sensitive vegetation communities and land covers including disturbed land, ornamental, or developed land). It is assumed that mitigation will be located inside the Preserve. Mitigation outside of the Preserve (i.e., Chula Vista MSCP Subarea Plan or MSCP Preserve boundary) will require increased mitigation per Table 5-3.

The Applicant shall be required to provide verification of purchase to the City prior to issuance of any land development permits.

In the event that the project Applicant is unable to secure mitigation through an established mitigation bank approved by the City and Wildlife Agencies, the project Applicant shall secure the required mitigation through the conservation of an area containing in-kind habitat within the City’s MSCP Subarea Plan or MSCP Preserve in accordance with the mitigation ratios contained in Table 5-3 of the City’s MSCP Subarea Plan and subject to wildlife agency concurrence.

Prior to issuance of any land development permit, and to the satisfaction and oversight of the City’s Development Services Director (or their designee), the Applicant shall secure the parcel(s) that will be permanently preserved for in-kind habitat impact mitigation, prepare a long-term management and monitoring plan for the mitigation area, secure an appropriate management entity to ensure that long-term biological resource management and monitoring of the mitigation area is implemented in perpetuity, and establish a long-term funding mechanism for the management and monitoring of the mitigation area in perpetuity.

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The long-term management and monitoring plan shall provide management measures to be implemented to sustain the viability of the preserved habitat and identify timing for implementing the measures prescribed in the management and monitoring plan. The mitigation parcel shall be restricted from future development and permanently preserved through the recordation of a conservation easement or other mechanism approved by the Wildlife Agencies as being sufficient to insure that the lands are protected in perpetuity. The conservation easement or other mechanism approved by the Wildlife Agencies shall be recorded prior to issuance of any land development permits.

The project Applicant shall be responsible for maintaining the biological integrity of the mitigation area and shall abide by all management and monitoring measures identified in the management and monitoring plan until such time as the established long-term funding mechanism has generated sufficient revenues to enable a City-approved management entity to assume the long-term maintenance and management responsibilities.

### **6.2 Special-Status Plant Species**

**BIO8 Resource Salvage Plan.** Prior to the issuance of land development permits, including clearing or grubbing and grading permits, for areas with salvageable sensitive biological resources, including Otay tarplant (*Deinandra conjugens*), variegated dudleya (*Dudleya variegata*), and San Diego barrel cactus (*Ferocactus viridescens*), (including plant materials and soils/seed bank), the project Applicant shall prepare a Resource Salvage Plan. The Resource Salvage Plan shall be written by a City-approved biologist to the satisfaction of the Development Services Director (or their designee).

The Resource Salvage Plan shall, at a minimum, evaluate options for plant salvage and relocation, including individual cactus salvage, native plant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within the Preserve. The Resource Salvage Plan shall include incorporation of relocation efforts for non-covered species, including singlewhorl burrobrush (*Ambrosia monogyra*), which is considered special status according to the California Environmental Quality Act and would be impacted with project implementation. Relocation efforts may include seed collection and/or transplantation to a suitable receptor site and will be based on the most reliable methods of successful relocation. The Resource Salvage Plan shall also contain a recommendation for method of salvage and relocation/application based on feasibility of implementation and likelihood of success. The Resource Salvage Plan

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shall include, at a minimum, an implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures. The Resource Salvage Plan shall also be subject to the oversight of the Development Services Director (or their designee).

### **6.3 Special-Status Wildlife Species**

**BIO9 Nesting Birds.** To avoid any direct impacts to raptors and/or any migratory birds protected under the Migratory Bird Treaty Act, removal of habitat that supports active nests on the proposed area of disturbance should occur outside of the breeding season for these species. The breeding season is defined as February 15–August 15 for coastal California gnatcatcher (*Polioptila californica californica*) and other non-raptor birds and January 15–August 31 for raptor species. If removal of habitat on the proposed area of disturbance must occur during the breeding season, the project Applicant shall retain a City-approved biologist to conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey must be conducted within 10 calendar days prior to the start of construction, and the results must be submitted to the City for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan, as deemed appropriate by the City, shall be prepared and include proposed measures to be implemented to ensure that disturbance of breeding activities are avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City’s mitigation monitor shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

**BIO10 Northern Harrier.** Prior to issuance of any land development permits, including clearing, grubbing, and grading permits, the project Applicant shall retain a City-approved biologist to conduct focused surveys for northern harrier (*Circus cyaneus*) to determine if the species is nesting within 900 feet of the construction area. The pre-construction survey must be conducted within 10 calendar days prior to the start of construction. The results of the survey must be submitted to the City for review and approval. If active nests are detected by the City-approved biologist, a bio-monitor shall be on site during construction to minimize construction impacts and ensure that no nests are removed or disturbed until all young have fledged.

**BIO11 Burrowing Owl.** Prior to issuance of any land development permits, including clearing, grubbing, and grading permits, the project Applicant shall retain a

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City-approved biologist to conduct focused pre-construction surveys for burrowing owl (*Athene cunicularia*). The surveys shall be performed no earlier than 30 days prior to the commencement of any clearing, grubbing, or grading activities. If occupied burrows are detected, the City-approved biologist shall prepare a passive relocation mitigation plan subject to review and approval by the wildlife agencies and the City, including any subsequent burrowing owl relocation plans to avoid impacts from construction-related activities.

### **6.4 Jurisdictional Resources**

**BIO12 Jurisdictional Resource Mitigation.** The City requires that impacts to wetlands be avoided to the maximum extent possible and where impacts are unavoidable, compensatory mitigation within the Chula Vista Subarea or Chula Vista Planning Area shall be required resulting in no overall net loss of wetlands. A total of 0.12 acre of California Department of Fish and Wildlife- (CDFW-) only jurisdictional wetland and 0.03 acre of waters of the United States/state within the project area may be impacted as a result of project implementation. Off-site areas may impact a total of 0.02 acre of permanent impacts to non-wetland waters/streambed under U.S. Army Corps of Engineers, Regional Water Quality Control Board, and CDFW jurisdiction. Prior to issuance of land development permits, including clearing, grubbing, and grading permits that impact jurisdictional waters, the project Applicant shall prepare a wetlands mitigation and monitoring plan to the satisfaction of the City and the resource agencies. This plan shall include, at a minimum, an implementation plan, a maintenance and monitoring program, an estimated completion time, and any relevant contingency measures. Mitigation areas shall occur within the Otay River watershed in accordance with the wetlands mitigation and monitoring plan to the satisfaction of the City and the resource agencies. The project Applicant shall also be required to implement the wetlands mitigation and monitoring plan subject to the oversight of the City and the resource agencies. Areas under the jurisdictional authority of all three resources agencies shall be delineated on all grading plans.

**BIO13 Resource Agency Permits.** Prior to issuance of land development permits, including clearing, grubbing, and grading permits, for areas that impact jurisdictional wetlands and waters, the project Applicant shall provide evidence that all required regulatory permits, such as those required under Section 404 of the federal Clean Water Act, Section 1600 of the California Fish and Game Code, and the Porter–Cologne Water Quality Control Act, have been obtained.

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**BIO14**      **SWPPP.** Prior to issuance of grading permits in portions of the Sectional Planning Area (SPA) Plan Areas that are adjacent to the Preserve, the project Applicant shall develop a stormwater pollution prevention plan (SWPPP). The SWPPP shall be developed, approved, and implemented during construction to control stormwater runoff such that erosion, sedimentation, pollution, and other adverse effects are minimized. The following performance measures contained in the Edge Plans shall be implemented to avoid the release of toxic substances associated with urban runoff:

- Sediment shall be retained on site by a system of sediment basins, traps, or other appropriate measures.
- Where deemed necessary, storm drains shall be equipped with silt and oil traps to remove oils, debris, and other pollutants. Storm drain inlets shall be labeled “No Dumping—Drains to Ocean.” Storm drains shall be regularly maintained to ensure their effectiveness.
- The parking lots shall be designed to allow stormwater runoff to be directed to vegetative filter strips and/or oil-water separators to control sediment, oil, and other contaminants.
- Permanent energy dissipaters shall be included for drainage outlets.
- The best management practices contained in the SWPPP shall include, but are not limited to, silt fences, fiber rolls, gravel bags, and soil stabilization measures such as erosion control mats and hydro-seeding.
- The project area drainage basins will be designed to provide effective water quality control measures, as outlined in the Water Quality Technical Reports (Dudek 2016b). Design and operational features of the drainage basins will include design features to provide maximum infiltration and maximum detention time for settling of fine particles; maximize the distance between basin inlets and outlets to reduce velocities; and establish maintenance schedules for periodic removal of sedimentation, excessive vegetation, and debris.

### **6.5      Preserve**

**BIO15**      **Preserve Edge Plan.** Prior to the issuance of grading permits, the project Applicant shall submit evidence, to the satisfaction of the Development Services Director (or their designee), showing that the following features of the Preserve Edge Plan (Atlantis Group 2017) have been incorporated into grading and landscaping plans:

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- Provide post markers and lodge pole railing and signage for sensitive habitat adjacent to trails. Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for the project, the project owner shall submit wall and fence plans depicting appropriate barriers to prevent unauthorized access to the Preserve. The wall and fence plans shall, at a minimum, illustrate the locations and cross-sections of proposed walls, fences, informational and directional signage, access controls, and/or boundary markers along the Preserve boundary and off-site pedestrian trails as conceptually described in the Preserve Edge Plan. The required wall and fence plan shall be subject to the approval of the Deputy City Manager/Development Services Director.
- Install storm drains, drainage outfalls, and drainage basins to prevent erosion of drainage and wetlands within the Preserve.
- Prevent release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem within the Preserve.
- Implement all necessary requirements for water quality as specified by the state and local agencies.
- No invasive, non-native plant species shall be introduced into areas immediately adjacent to, or within, the Preserve. All slopes immediately adjacent to, or within, the Preserve shall be planted with native species that reflect the adjacent native habitat, per the Preserve Edge Plan (Atlantis Group 2017). Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for (1) areas within the 100-foot-wide Preserve edge, and 2) infrastructure (e.g., roads, trails, utilities, etc.) sited within the Preserve, the Project Applicant shall prepare and submit to the satisfaction of the Development Services Director (or their designee) landscape plans to ensure that the proposed plant palette is consistent with the plant list contained in the Preserve Edge Plan (Atlantis Group 2017). The landscape plan shall also incorporate a manual weeding program for areas adjacent to the Preserve. The manual weeding program shall describe, at a minimum, the entity responsible for controlling invasive species, the maintenance activities and methods required to control invasive species, and a maintenance/monitoring schedule. Additionally, the landscaping plan will include the revegetation of the take area along the slope above the Preserve. Landscaping of the take area will include native species, and will be managed by the City or by the Home Owners Association.

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- Incorporate all fuel modification areas into development plans and do not include any areas within the Preserve.

### **BIO16**

**Indirect Impacts.** In accordance with the City's Adjacency Management Guidelines, the following mitigation measures shall be implemented to further reduce indirect impacts (from lighting, noise, invasive species, toxic substances, and public access) to sensitive biological resources located in the adjacent Preserve areas:

- **Lighting.** In compliance with the Chula Vista MSCP Subarea Plan, all lighting shall be shielded and directed away from the Preserve. Concurrent with design review and prior to issuance of a building permit for any development located adjacent to the Preserve, the project Applicant shall prepare a lighting plan and photometric analysis to the satisfaction of the Development Services Director (or their designee), for review and approval. The lighting plan shall illustrate the location of the proposed lighting standards and type of shielding measures. Low-pressure sodium lighting shall be used, if feasible, and shall be subject to the approval of the Development Services Director (or their designee).
- **Noise.** Noise impacts adjacent to the Preserve lands shall be minimized. Berms or walls shall be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Construction activities shall include noise reduction measures or be conducted outside the breeding season of special-status bird species.
- **Noise, Coastal California Gnatcatcher.** For any work proposed between February 15 and August 15, prior to issuance of any land development permits, including clearing, grubbing, grading, and construction permits, associated with the off-site facilities located within the Preserve, the project Applicant shall retain a City-approved biologist to conduct a pre-construction survey for the coastal California gnatcatcher to reaffirm the presence and extent of occupied habitat. The pre-construction survey area for the coastal California gnatcatcher shall encompass all habitats within the project work zone, as well as within a 300-foot-wide buffer. The survey shall be performed to the satisfaction of the Development Services Director (or their designee) by a qualified biologist familiar with the City's MSCP Subarea Plan. The results of the pre-construction survey must be submitted in a report to the Development Services Director (or their designee) for review and approval prior to the issuance of any land development permits and prior to initiating

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any construction activities. If the coastal California gnatcatcher is detected, a minimum 300-foot-wide buffer delineated by orange biological fencing shall be established around the detected birds to ensure that no work shall occur within the occupied habitat from February 15 through August 15, and on-site noise reduction techniques shall be implemented to ensure that construction noise levels do not exceed 60 A-weighted decibels  $L_{eq-h}$  at the location of any occupied sensitive habitat areas. The Development Services Director (or their designee) shall have the discretion to modify the buffer width depending on site-specific conditions. If the results of the pre-construction survey determine that the survey area is unoccupied, the work may commence at the discretion of the Development Services Director (or their designee) following the review and approval of the pre-construction report.

- **Invasive Species.** Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for (1) areas within the 100-foot-wide Preserve edge, and (2) infrastructure (e.g., roads, trails, utilities, etc.) sited within the Preserve, the project Applicant shall prepare and submit to the satisfaction of the Development Services Director (or their designee) landscape plans to ensure that the proposed plant palette is consistent with the plant list contained in the Preserve Edge Plan (Atlantis Group 2017). The landscape plan shall also incorporate a manual weeding program for areas adjacent to the Preserve. The manual weeding program shall describe, at a minimum, the entity responsible for controlling invasive species, the maintenance activities and methods required to control invasive species, and a maintenance/ monitoring schedule.
- **Toxic Substances.** See BIO4, BIO6, BIO12, and BIO14.
- **Public Access.** Prior to the issuance of grading permits, the project Applicant shall submit wall and fence plans depicting appropriate barriers to prevent unauthorized access to the Preserve. The wall and fence plans shall illustrate the locations and cross-sections of proposed walls and fences along the Preserve boundary, subject to the approval the City's Development Services Director (or their designee).



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## **7 ACKNOWLEDGMENTS**

This report was prepared by Dudek biologist Patricia Schuyler and Danielle Mullen with review by Anita Hayworth. Graphics and GIS mapping and analyses were provided by Lesley Terry. Amy Seals provided editorial review, and Devin Brookhart provided formatting support.

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# **APPENDIX A**

*Plant Species Observed on the Project Area*



# APPENDIX A

## Plant Species Observed on the Project Area

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### VASCULAR SPECIES

#### FERNS AND FERN ALLIES

##### ***SELAGINELLACEAE—SPIKE-MOSS FAMILY***

*Selaginella bigelovii*—bushy spikemoss

*Selaginella cinerascens*—mesa spikemoss

#### MONOCOTS

##### ***AGAVACEAE—AGAVE FAMILY***

*Chlorogalum parviflorum*—smallflower soap plant

*Yucca schidigera*—Mojave yucca

##### ***ALLIACEAE—ONION FAMILY***

*Allium praecox*—early onion

##### ***CYPERACEAE—SEDGE FAMILY***

*Schoenoplectus californicus*—California bulrush

##### ***IRIDACEAE—IRIS FAMILY***

*Sisyrinchium bellum*—western blue-eyed grass

##### ***LILIACEAE—LILY FAMILY***

*Calochortus splendens*—splendid mariposa lily

##### ***MELANTHIACEAE—FALSE HELLEBORE FAMILY***

*Toxicoscordion fremontii*—Fremont's deathcamas

##### ***POACEAE—GRASS FAMILY***

- \* *Avena barbata*—slender oat
- Festuca microstachys*—desert fescue
- Festuca octoflora*—sixweeks fescue
- Melica imperfecta*—smallflower melicgrass
- Stipa lepida*—foothill needlegrass
- Stipa pulchra*—purple needlegrass
- \* *Avena fatua*—wild oat
- \* *Brachypodium distachyon*—purple false brome
- \* *Bromus diandrus*—ripgut brome
- \* *Bromus hordeaceus*—soft brome

## APPENDIX A (Continued)

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- \* *Bromus madritensis* ssp. *madritensis*—compact brome
- \* *Bromus madritensis* ssp. *rubens*—red brome
- \* *Festuca bromoides*—brome fescue
- \* *Festuca perennis*—Italian ryegrass
- \* *Hordeum marinum* ssp. *gussoneanum*—Mediterranean barley
- \* *Hordeum murinum*—mouse barley
- \* *Lamarckia aurea*—goldentop grass
- \* *Schismus barbatus*—common Mediterranean grass

### **THEMIDACEAE—BRODIAEA FAMILY**

- Bloomeria crocea*—common goldenstar
- Dichelostemma capitatum* ssp. *capitatum*—bluedicks
- Dichelostemma capitatum*—bluedicks

## EUDICOTS

### **AIZOACEAE—FIG-MARIGOLD FAMILY**

- \* *Mesembryanthemum crystallinum*—common iceplant
- \* *Mesembryanthemum nodiflorum*—slenderleaf iceplant

### **ANACARDIACEAE—SUMAC OR CASHEW FAMILY**

- Malosma laurina*—laurel sumac
- Rhus integrifolia*—lemonade sumac
- \* *Schinus molle*—Peruvian peppertree

### **APIACEAE—CARROT FAMILY**

- Apiastrum angustifolium*—mock parsley
- Daucus pusillus*—American wild carrot
- \* *Foeniculum vulgare*—sweet fennel

### **ASTERACEAE—SUNFLOWER FAMILY**

- Ambrosia acanthicarpa*—flatspine bur ragweed
- Ambrosia monogyra*—singlewhorl burrobrush
- Ambrosia psilostachya*—Cuman ragweed
- Artemisia californica*—coastal sagebrush
- Baccharis salicina*—willow baccharis
- Baccharis sarothroides*—desertbroom
- Corethrogyne filaginifolia*—common sandaster
- Deinandra fasciculata*—clustered tarweed
- Encelia californica*—California brittlebush

## APPENDIX A (Continued)

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- Grindelia camporum*—Great Valley gumweed  
*Gutierrezia sarothrae*—broom snakeweed  
*Isocoma menziesii* var. *menziesii*—Menzies' goldenbush  
*Lasthenia gracilis*—needle goldfields  
*Logfia arizonica*—Arizona cottonrose  
*Microseris douglasii* ssp. *douglasii*—Douglas' silverpuffs  
*Pseudognaphalium californicum*—ladies' tobacco  
*Psilocarphus brevissimus* var. *brevissimus*—short woollyheads  
*Psilocarphus brevissimus*—short woollyheads  
*Stylocline gnaphaloides*—mountain neststraw  
*Uropappus lindleyi*—Lindley's silverpuffs  
*Baccharis salicifolia* ssp. *salicifolia*—mulefat  
*Deinandra conjugens*—Otay tarweed  
*Microseris douglasii* ssp. *platycarpha*—Douglas' silverpuffs  
*Viguiera laciniata*—San Diego County viguiera  
\* *Calendula arvensis*—field marigold  
\* *Centaurea melitensis*—Maltese star-thistle  
\* *Glebionis coronaria*—crowndaisy  
\* *Hedypnois rhagadioloides*—Crete weed  
\* *Hypochaeris glabra*—smooth cat's ear  
\* *Lactuca serriola*—prickly lettuce  
\* *Logfia gallica*—narrowleaf cottonrose  
\* *Oncosiphon piluliferum*—stinknet  
\* *Silybum marianum*—blessed milkthistle  
\* *Sonchus asper*—spiny sowthistle

### ***BORAGINACEAE—BORAGE FAMILY***

- Amsinckia menziesii*—Menzies' fiddleneck  
*Emmenanthe penduliflora* var. *penduliflora*—whisperingbells  
*Eucrypta chrysanthemifolia*—spotted hideseed  
*Harpagonella palmeri*—Palmer's grapplinghook  
*Phacelia cicutaria* var. *hispida*—caterpillar phacelia  
*Phacelia cicutaria*—caterpillar phacelia

### ***BRASSICACEAE—MUSTARD FAMILY***

- \* *Sisymbrium irio*—London rocket  
*Lepidium nitidum*—shining pepperweed  
\* *Brassica nigra*—black mustard  
\* *Hirschfeldia incana*—shortpod mustard

## APPENDIX A (Continued)

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- \* *Raphanus sativus*—cultivated radish
- \* *Sisymbrium altissimum*—tall tumbled mustard

### **CACTACEAE—CACTUS FAMILY**

- Cylindropuntia prolifera*—coastal cholla
- Mammillaria dioica*—strawberry cactus
- Opuntia littoralis*—coastal pricklypear
- Ferocactus viridescens*—San Diego barrel cactus

### **CARYOPHYLLACEAE—PINK FAMILY**

- \* *Silene gallica*—common catchfly

### **CHENOPODIACEAE—GOOSEFOOT FAMILY**

- Atriplex canescens*—fourwing saltbush
- Atriplex lentiformis*—big saltbush
- \* *Atriplex semibaccata*—Australian saltbush
- \* *Chenopodium album*—lambsquarters
- \* *Chenopodium murale*—nettleleaf goosefoot
- \* *Salsola tragus*—prickly Russian thistle

### **CLEOMACEAE—CLEOME FAMILY**

- Peritoma arborea* var. *arborea*—bladderpod spiderflower
- Peritoma arborea*—bladderpod spiderflower

### **CONVOLVULACEAE—MORNING-GLORY FAMILY**

- Calystegia macrostegia*—island false bindweed
- Convolvulus simulans*—small-flowered morning-glory
- Cuscuta californica*—chaparral dodder
- \* *Convolvulus arvensis*—field bindweed

### **CRASSULACEAE—STONECROP FAMILY**

- Crassula connata*—sand pygmyweed
- Dudleya pulverulenta*—chalk dudleya
- Dudleya variegata*—variegated dudleya

### **CUCURBITACEAE—GOURD FAMILY**

- Marah macrocarpa*—Cucamonga manroot

### **EUPHORBIACEAE—SPURGE FAMILY**

- Euphorbia polycarpa*—smallseed sandmat
- \* *Euphorbia peplus*—petty spurge

## APPENDIX A (Continued)

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*Chamaesyce platysperma*—flat-seeded spurge

### **FABACEAE—LEGUME FAMILY**

*Acmispon glaber* var. *glaber*—common deerweed

*Acmispon strigosus*—strigose bird's-foot trefoil

*Astragalus trichopodus* var. *lonchus*—Santa Barbara milkvetch

*Astragalus trichopodus*—Santa Barbara milkvetch

*Lathyrus vestitus* var. *vestitus*—Pacific pea

*Lathyrus vestitus*—Pacific pea

*Lupinus bicolor*—miniature lupine

*Lupinus succulentus*—hollowleaf annual lupine

\* *Medicago polymorpha*—burclover

\* *Melilotus indicus*—annual yellow sweetclover

\* *Vicia villosa*—winter vetch

\* *Vicia villosa* ssp. *villosa*—winter vetch

### **GERANIACEAE—GERANIUM FAMILY**

\* *Erodium cicutarium*—redstem stork's bill

\* *Erodium botrys*—longbeak stork's bill

\* *Erodium moschatum*—musky stork's bill

### **LAMIACEAE—MINT FAMILY**

*Salvia columbariae*—chia

\* *Marrubium vulgare*—horehound

### **LYTHRACEAE—LOOSESTRIFE FAMILY**

\* *Lythrum hyssopifolia*—hyssop loosestrife

### **MALVACEAE—MALLOW FAMILY**

\* *Malva parviflora*—cheeseweed mallow

### **NYCTAGINACEAE—FOUR O'CLOCK FAMILY**

*Mirabilis laevis* var. *crassifolia*—California four o'clock

*Mirabilis laevis*—desert wishbone-bush

### **OXALIDACEAE—OXALIS FAMILY**

*Oxalis californica*—California woodsorrel

### **PAPAVERACEAE—POPPY FAMILY**

*Eschscholzia californica*—California poppy

## APPENDIX A (Continued)

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### **PLANTAGINACEAE—PLANTAIN FAMILY**

*Antirrhinum nuttallianum* ssp. *nuttallianum*—violet snapdragon

*Antirrhinum nuttallianum*—violet snapdragon

*Plantago erecta*—dotseed plantain

### **POLEMONIACEAE—PHLOX FAMILY**

*Gilia angelensis*—chaparral gilia

*Linanthus dianthiflorus*—fringed linanthus

### **POLYGONACEAE—BUCKWHEAT FAMILY**

*Eriogonum fasciculatum* var. *fasciculatum*—Eastern Mojave buckwheat

### **RUBIACEAE—MADDER FAMILY**

*Galium angustifolium*—narrowleaf bedstraw

### **SALICACEAE—WILLOW FAMILY**

*Salix tracyi*—Tracy's willow

### **SAXIFRAGACEAE—SAXIFRAGE FAMILY**

*Jepsonia parryi*—Parry's jepsonia

### **SCROPHULARIACEAE—FIGWORT FAMILY**

*Scrophularia californica*—California figwort

### **SIMMONDSIACEAE—JOJOBA FAMILY**

*Simmondsia chinensis*—jojoba

### **SOLANACEAE—NIGHTSHADE FAMILY**

*Datura wrightii*—sacred thorn-apple

*Nicotiana quadrivalvis*—Indian tobacco

*Lycium californicum*—California desert-thorn

\* *Nicotiana glauca*—tree tobacco

### **TAMARICACEAE—TAMARISK FAMILY**

\* *Tamarix chinensis*—five-stamen tamarisk

### **URTICACEAE—NETTLE FAMILY**

*Urtica dioica* ssp. *holosericea*—stinging nettle

\* signifies introduced (non-native) species



# **APPENDIX B**

*Wildlife Species Observed on the Project Area*



**APPENDIX B**  
**Wildlife Species Observed on the Project Area**

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**BIRD**

**BLACKBIRDS, ORIOLES, AND ALLIES**

***ICTERIDAE—BLACKBIRDS***

*Agelaius phoeniceus*—red-winged blackbird

*Sturnella neglecta*—western meadowlark

**BUSHTITS**

***AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS***

*Psaltriparus minimus*—bushtit

**CARDINALS, GROSBEAKS, AND ALLIES**

***CARDINALIDAE—CARDINALS AND ALLIES***

*Passerina caerulea*—blue grosbeak

**EMBERIZINES**

***EMBERIZIDAE—EMBERIZIDS***

*Ammodramus savannarum*—grasshopper sparrow

*Melospiza melodia*—song sparrow

*Melospiza crissalis*—California towhee

*Pipilo maculatus*—spotted towhee

*Zonotrichia leucophrys*—white-crowned sparrow

*Aimophila ruficeps canescens*—Southern California rufous-crowned sparrow

**FALCONS**

***FALCONIDAE—CARACARAS AND FALCONS***

*Falco sparverius*—American kestrel

**FINCHES**

***FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES***

*Carpodacus mexicanus*—house finch

*Spinus psaltria*—lesser goldfinch

## APPENDIX B (Continued)

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### FLYCATCHERS

#### ***TYRANNIDAE—TYRANT FLYCATCHERS***

- Myiarchus cinerascens*—ash-throated flycatcher
- Sayornis nigricans*—black phoebe
- Sayornis saya*—Say's phoebe
- Tyrannus vociferans*—Cassin's kingbird

### HAWKS

#### ***ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES***

- Accipiter cooperii*—Cooper's hawk
- Accipiter striatus*—sharp-shinned hawk
- Buteo jamaicensis*—red-tailed hawk
- Elanus leucurus*—white-tailed kite

### HUMMINGBIRDS

#### ***TROCHILIDAE—HUMMINGBIRDS***

- Calypte anna*—Anna's hummingbird
- Calypte costae*—Costa's hummingbird

### JAYS, MAGPIES, AND CROWS

#### ***CORVIDAE—CROWS AND JAYS***

- Aphelocoma californica*—western scrub-jay
- Corvus brachyrhynchos*—American crow
- Corvus corax*—common raven

### LARKS

#### ***ALAUDIDAE—LARKS***

- Eremophila alpestris actia*—California horned lark

### MOCKINGBIRDS AND THRASHERS

#### ***MIMIDAE—MOCKINGBIRDS AND THRASHERS***

- Mimus polyglottos*—northern mockingbird
- Toxostoma redivivum*—California thrasher

## APPENDIX B (Continued)

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### NEW WORLD QUAIL

#### ***ODONTOPHORIDAE—NEW WORLD QUAIL***

*Callipepla californica*—California quail

### NEW WORLD VULTURES

#### ***CATHARTIDAE—NEW WORLD VULTURES***

*Cathartes aura*—turkey vulture

### OLD WORLD WARBLERS AND GNATCATCHERS

#### ***SYLVIIDAE—SYLVIID WARBLERS***

*Polioptila californica californica*—coastal California gnatcatcher

### OWLS

#### ***TYTONIDAE—BARN OWLS***

*Tyto alba*—barn owl

### PIGEONS AND DOVES

#### ***COLUMBIDAE—PIGEONS AND DOVES***

*Zenaida macroura*—mourning dove

\* *Columba livia*—rock pigeon (rock dove)

### ROADRUNNERS AND CUCKOOS

#### ***CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS***

*Geococcyx californianus*—greater roadrunner

### SHRIKES

#### ***LANIIDAE—SHRIKES***

*Lanius ludovicianus*—loggerhead shrike

### SILKY FLYCATCHERS

#### ***PTILOGONATIDAE—SILKY-FLYCATCHERS***

*Phainopepla nitens*—phainopepla

## APPENDIX B (Continued)

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### SWALLOWS

#### ***HIRUNDINIDAE—SWALLOWS***

*Hirundo rustica*—barn swallow

*Petrochelidon pyrrhonota*—cliff swallow

*Riparia riparia*—bank swallow

*Stelgidopteryx serripennis*—northern rough-winged swallow

### SWIFTS

#### ***APODIDAE—SWIFTS***

*Aeronautes saxatalis*—white-throated swift

### TERNs AND GULLS

#### ***LARIDAE—GULLS, TERNS, AND SKIMMERS***

*Larus occidentalis*—western gull

### WATERFOWL

#### ***ANATIDAE—DUCKs, GEESE, AND SWANS***

*Anas platyrhynchos*—mallard

### WOOD WARBLERS AND ALLIES

#### ***PARULIDAE—WOOD-WARBLERS***

*Geothlypis trichas*—common yellowthroat

*Cardellina pusilla*—Wilson's warbler

*Setophaga coronata*—yellow-rumped warbler

### WRENS

#### ***TROGLODYTIDAE—WRENS***

*Salpinctes obsoletus*—rock wren

*Thryomanes bewickii*—Bewick's wren

*Troglodytes aedon*—house wren

*Campylorhynchus brunneicapillus sandiegensis*—Coastal cactus wren

### WRENTITS

#### ***TIMALIIDAE—BABBLERS***

*Chamaea fasciata*—wrentit

## APPENDIX B (Continued)

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### INVERTEBRATE

#### BUTTERFLIES

##### **LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS**

*Atlides halesus*—great purple hairstreak

*Brephidium exile*—western pygmy-blue

*Plebejus acmon*—Acmon blue

*Strymon melinus*—gray hairstreak

##### **NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES**

*Chlosyne californica*—California patch

*Coenonympha tullia californica*—common California ringlet

*Danaus plexippus*—monarch

*Junonia coenia*—common buckeye

*Vanessa annabella*—west coast lady

*Vanessa atalanta*—red admiral

*Vanessa cardui*—painted lady

##### **RIODINIDAE—METALMARKS**

*Apodemia mormo virgulti*—Behr's metalmark

##### **HESPERIIDAE—SKIPPERS**

*Erynnis funeralis*—funereal duskywing

*Pyrgus albescens*—white checkered-skipper

##### **PAPILIONIDAE—SWALLOWTAILS**

*Papilio eurymedon*—pale swallowtail

*Papilio rutulus*—western tiger swallowtail

*Papilio zelicaon*—anise swallowtail

##### **PIERIDAE—WHITES AND SULFURS**

*Anthocharis sara sara*—Pacific sara orangetip

*Colias eurydice*—California dogface

*Colias harfordii*—Harford's sulphur

*Phoebis sennae*—cloudless sulphur

*Pieris rapae*—cabbage white

*Pontia protodice*—checkered white

*Pontia sisymbrii*—spring white

## APPENDIX B (Continued)

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### MOTHS

#### ***SPHINGIDAE—HAWK MOTHS***

*Hyles lineata*—white-lined sphinx

### TARANTULA HAWKS

#### ***POMPILIDAE—SPIDER WASPS***

*Pepsis* sp.—Tarantula hawk

### MAMMAL

#### CANIDS

#### ***CANIDAE—WOLVES AND FOXES***

*Canis latrans*—coyote

#### HARES AND RABBITS

#### ***LEPORIDAE—HARES AND RABBITS***

*Lepus californicus bennettii*—San Diego black-tailed jackrabbit

*Sylvilagus bachmani*—brush rabbit

#### POCKET GOPHERS

#### ***GEOMYIDAE—POCKET GOPHERS***

*Thomomys bottae*—Botta's pocket gopher

#### RATS AND MICE

#### ***MURIDAE—RATS AND MICE***

*Neotoma lepida intermedia*—San Diego desert woodrat

#### SQUIRRELS

#### ***SCIURIDAE—SQUIRRELS***

*Spermophilus (Otospermophilus) beecheyi*—California ground squirrel

#### UNGULATES

#### ***CERVIDAE—DEERS***

*Odocoileus hemionus*—mule deer



## APPENDIX B (Continued)

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### REPTILE

#### LIZARDS

##### ***PHRYNOSOMATIDAE—IGUANID LIZARDS***

*Sceloporus occidentalis*—western fence lizard

*Uta stansburiana*—common side-blotched lizard

##### ***ANGUIDAE—ALLIGATOR LIZARDS***

*Elgaria multicarinata*—southern alligator lizard

##### ***SCINCIDAE—SKINKS***

*Plestiodon skiltonianus interparietalis*—Coronado Island skink

#### SNAKES

##### ***COLUBRIDAE—COLUBRID SNAKES***

*Coluber lateralis*—striped racer

*Pituophis catenifer*—gophersnake

##### ***VIPERIDAE—VIPERS***

*Crotalus oreganus*—western rattlesnake

\* signifies introduced (non-native) species

## APPENDIX B (Continued)

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# **APPENDIX C**

## *Data Station Forms*



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

Project/Site: Otay Ranch Village 4 City/County: San Diego Sampling Date: 12/19/14  
 Applicant/Owner: \_\_\_\_\_ State: CA Sampling Point: DS-1a  
 Investigator(s): Emily Wier, Erin Bergman Section, Township, Range: Section 16, Township 18 S, Range 1W  
 Landform (hillslope, terrace, etc.): Stream channel Local relief (concave, convex, none): Convex Slope (%): 0%  
 Subregion (LRR): C - Mediterranean California Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Data station located on bank of stream channel. Flowing water is present beneath matted Schoenoplectus. Pondered water is found just west of the data station. This data station is outside of the project area, but within the 100-foot project buffer.	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	2 (A)
2. _____				Total Number of Dominant Species Across All Strata:	2 (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 % (A/B)
4. _____				<b>Prevalence Index worksheet:</b>	
Total Cover: _____ %				Total % Cover of: _____ Multiply by: _____	
<u>Sapling/Shrub Stratum</u>				OBL species	80 x 1 = 80
1. <i>Schoenoplectus acutus</i>	45	Yes	OBL	FACW species	x 2 = 0
2. <i>Juncus acutus ssp. leopoldii</i>	5	No		FAC species	x 3 = 0
3. _____				FACU species	x 4 = 0
4. _____				UPL species	x 5 = 0
5. _____				Column Totals:	80 (A) 80 (B)
Total Cover: 50 %				Prevalence Index = B/A = 1.00	
<u>Herb Stratum</u>				<b>Hydrophytic Vegetation Indicators:</b>	
1. <i>Heliotropum curassivicum</i>	35	Yes	OBL	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Helminthotheca echioides</i>	<1	No		<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
3. _____				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
6. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>	
7. _____					
8. _____					
Total Cover: 35 %					
<u>Woody Vine Stratum</u>					
1. _____					
2. _____					
Total Cover: _____ %					
% Bare Ground in Herb Stratum <u>15 %</u>		% Cover of Biotic Crust <u>0 %</u>			

Remarks: Cismontane alkali marsh vegetation located within the stream channel.

**SOIL**

Sampling Point: DS-1a

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

Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	10YR 4/1	90	10 YR 6/8	10	D	M	Sandy Clay	Large and small cobbles in soil

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>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.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

**Indicators for Problematic Hydric Soils:<sup>4</sup>**

<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soil Present? Yes  No**

Remarks: 6" = bottom of pit - unable to dig deeper due to large cobbles. Redox features are present in the soil above the 2% threshold required by F3 (Depleted Matrix).

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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

**Secondary Indicators (2 or more required)**

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

**Field Observations:**

Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <u>3-6"</u>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____

**Wetland Hydrology Present? Yes  No**

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

Remarks: There is flowing water present within the stream channel, and ponding is evident downstream of the data station (approximately 15 feet downstream).

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

Project/Site: Otay Ranch Village 4 City/County: San Diego Sampling Date: 12/19/14  
 Applicant/Owner: \_\_\_\_\_ State: CA Sampling Point: DS-1b  
 Investigator(s): Emily Wier, Erin Bergman Section, Township, Range: Section 16, Township 18 S, Range 1W  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 60%  
 Subregion (LRR): C - Mediterranean California Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Data station located just upslope of DS-1a. The banks of the channel are steep and was only appropriate location to dig a pit. Data station located just above the OHWM, which extends up approximately 3-feet upslope from streambed.	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	0 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	3 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 % (A/B)
4. _____	_____	_____	_____		
Total Cover: _____ %					
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>	
1. <i>Malosma laurina</i>	5	Yes	UPL	Total % Cover of:	Multiply by:
2. <i>Foenicium vulgare</i>	5	Yes	FACU	OBL species	x 1 = 0
3. _____	_____	_____	_____	FACW species	x 2 = 0
4. _____	_____	_____	_____	FAC species	x 3 = 0
5. _____	_____	_____	_____	FACU species	5 x 4 = 20
Total Cover: 10 %			UPL species	35 x 5 = 175	
				Column Totals:	40 (A) 195 (B)
				Prevalence Index = B/A = 4.88	
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1. <i>Bromus madritensis ssp. rubens</i>	30	Yes	NI	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Helminthotheca echioides</i>	5	No	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
3. <i>Phacelia cicutaria</i>	5	No	_____	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: 40 %					
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____ %					
% Bare Ground in Herb Stratum <u>0 %</u>		% Cover of Biotic Crust <u>0 %</u>		<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>	

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

Remarks: Small seedlings present within the herb stratum, as well as dead *Foenicium vulgare*. This is a continuation of upland vegetation found on the hilltop.

**SOIL**

Sampling Point: DS-1b

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

Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10"	10YR 3/2	100					Sandy Clay	Large and small cobbles in soil
10-12"	10YR 3/2	95	10 YR 5/8	5	RM	M	Sandy Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>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.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

**Indicators for Problematic Hydric Soils:<sup>4</sup>**

<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soil Present?** Yes  No

Remarks: 12" = bottom of pit. Redox features are present in the soil above the 2% threshold required by F8 (Redox Depressions).

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

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

**Secondary Indicators (2 or more required)**

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

**Field Observations:**

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____

**Wetland Hydrology Present?** Yes  No

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

Remarks: No evidence of hydrology at the data station. It is located just upslope of DS-1a and the OHWM.



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

Project/Site: Otay Ranch Village 4 City/County: San Diego Sampling Date: 12/19/14  
 Applicant/Owner: \_\_\_\_\_ State: CA Sampling Point: DS-2a  
 Investigator(s): Emily Wier, Erin Bergman Section, Township, Range: Section 16, Township 18 S, Range 1W  
 Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): Convex Slope (%): 0%  
 Subregion (LRR): C - Mediterranean California Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>Data station located on terrace adjacent to flowing stream. Located approximately 2 feet above the stream.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <i>Tamarix ramosissima</i>	50	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																																
2. <i>Nicotiana glauca</i>	1	No																																		
3. _____																																				
4. _____																																				
Total Cover:	<u>51 %</u>			<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center"><u>  </u></td> <td align="center">x 1 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>FACW species</td> <td align="center"><u>71</u></td> <td align="center">x 2 =</td> <td align="center"><u>142</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>50</u></td> <td align="center">x 3 =</td> <td align="center"><u>150</u></td> </tr> <tr> <td>FACU species</td> <td align="center"><u>  </u></td> <td align="center">x 4 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>UPL species</td> <td align="center"><u>  </u></td> <td align="center">x 5 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>121</u></td> <td align="center">(A)</td> <td align="center"><u>292</u> (B)</td> </tr> <tr> <td align="center" colspan="2">Prevalence Index = B/A =</td> <td align="center" colspan="2"><u>2.41</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	<u>  </u>	x 1 =	<u>0</u>	FACW species	<u>71</u>	x 2 =	<u>142</u>	FAC species	<u>50</u>	x 3 =	<u>150</u>	FACU species	<u>  </u>	x 4 =	<u>0</u>	UPL species	<u>  </u>	x 5 =	<u>0</u>	Column Totals:	<u>121</u>	(A)	<u>292</u> (B)	Prevalence Index = B/A =		<u>2.41</u>	
Total % Cover of:		Multiply by:																																		
OBL species	<u>  </u>	x 1 =	<u>0</u>																																	
FACW species	<u>71</u>	x 2 =	<u>142</u>																																	
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FACU species	<u>  </u>	x 4 =	<u>0</u>																																	
UPL species	<u>  </u>	x 5 =	<u>0</u>																																	
Column Totals:	<u>121</u>	(A)	<u>292</u> (B)																																	
Prevalence Index = B/A =		<u>2.41</u>																																		
<b>Sapling/Shrub Stratum</b>																																				
1. <i>Juncus acutus ssp. leopoldii</i>	70	Yes	FACW																																	
2. <i>Baccharis sarothroides</i>	20	No																																		
3. _____																																				
4. _____																																				
5. _____																																				
Total Cover:	<u>90 %</u>																																			
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.																																
1. <i>Apiastrum graveolens</i>	1	Yes	FACW																																	
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
Total Cover:	<u>1 %</u>																																			
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																																
1. _____																																				
2. _____																																				
Total Cover:	<u>  </u> %																																			
% Bare Ground in Herb Stratum <u>10 %</u>		% Cover of Biotic Crust <u>0 %</u>																																		

Remarks: Vegetation (Tamarix, Juncus) is very dense within the narrow stream channel, which is very heavily incised. Data station is only spot in stream channel where a data station could be located.

**SOIL**

Sampling Point: DS-2a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	10YR 3/2	95	5 YR 5/8	1	D	M	Sandy Clay	Large and small cobbles in soil
0-6"	7.5 YR 7/2	4					Sandy Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils:<sup>4</sup></b> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
--	--	--

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?    Yes     No

Remarks: 6" = bottom of pit. Soils meet threshold required for Depleted Matrix (F3).

**HYDROLOGY**

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

Surface Water Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	<u>3-6"</u>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	_____

Wetland Hydrology Present?    Yes     No

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

Remarks: Flowing water is located approximately 3.5 feet north of data station. Stream is rock-lined. Vegetation shows signs of racking, drift deposits.

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

Project/Site: Otay Ranch Village 4 City/County: San Diego Sampling Date: 12/19/14  
 Applicant/Owner: \_\_\_\_\_ State: CA Sampling Point: DS-2b  
 Investigator(s): Emily Wier, Erin Bergman Section, Township, Range: Section 16, Township 18 S, Range 1W  
 Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Convex Slope (%): 3%  
 Subregion (LRR): C - Mediterranean California Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>Data station located in upland annual grassland above DS-2a. There is approximately 20 feet between the two paired data stations; could not be closer due to the steep (approx. 90%) slope.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____ %				
Sapling/Shrub Stratum				
1. <u>Foenicium vulgare</u>	10	Yes	FACU	
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: <u>10</u> %				
Herb Stratum				
1. <u>Bromus madritensis ssp. rubens</u>	65	Yes	NI	
2. <u>Bromus diandrus</u>	5	No		
3. <u>Carduus pycnocephalus</u>	1	No		
4. <u>Helminthotheca echioides</u>	1	No		
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>72</u> %				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____ %				
% Bare Ground in Herb Stratum <u>0</u> %		% Cover of Biotic Crust <u>0</u> %		

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>10</u>	x 4 =	<u>40</u>
UPL species	<u>65</u>	x 5 =	<u>325</u>
Column Totals:	<u>75</u> (A)		<u>365</u> (B)
Prevalence Index = B/A =			<u>4.87</u>

**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: Upland vegetation located on hilltop.

**SOIL**

Sampling Point: DS-2b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-7"	10YR 3/2	95				Sandy Clay	Large rocks present in soil.
0-7"	10YR 5/6	5				Sandy Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils:<sup>4</sup></b> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

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

Remarks: 7" = bottom of pit. No evidence of hydric soils present.

**HYDROLOGY**

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

<b>Field Observations:</b> Surface Water Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
--	---

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

Remarks: No evidence of hydrology present.

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

Project/Site: Otay Ranch Village 4 City/County: San Diego Sampling Date: 12/19/14  
 Applicant/Owner: \_\_\_\_\_ State: CA Sampling Point: DS-3  
 Investigator(s): Emily Wier, Erin Bergman Section, Township, Range: Section 16, Township 18 S, Range 1W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2%  
 Subregion (LRR): C - Mediterranean California Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>Data station located in sparse tamarix scrub along an unvegetated stream channel/swale that flows down hillside. The swale is adjacent to the data station.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____ %				
Sapling/Shrub Stratum				
1. <u>Tamarix ramosissima</u>	35	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: <u>35</u> %				
Herb Stratum				
1. <u>Erodium cicutarium</u>	35	Yes	UPL	
2. <u>Bromus madritensis ssp. rubens</u>	30	No	NI	
3. <u>Bromus diandrus</u>	10	No		
4. <u>Erodium botrys</u>	5	No		
5. <u>Hirschfeldia incana</u>	5	No		
6. <u>Dichelostemma capitatum</u>	1	No		
7. _____				
8. _____				
Total Cover: <u>86</u> %				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____ %				
% Bare Ground in Herb Stratum <u>2</u> %	%		% Cover of Biotic Crust <u>0</u> %	

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  
 Total Number of Dominant Species Across All Strata: 2 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
 OBL species \_\_\_\_\_ x 1 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC species 35 x 3 = 105  
 FACU species \_\_\_\_\_ x 4 = 0  
 UPL species 65 x 5 = 325  
 Column Totals: 100 (A) 430 (B)  
 Prevalence Index = B/A = 4.30

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

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: Sparse tamarix scrub located along swale.

**SOIL**

Sampling Point: DS-3

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

Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8"	10YR 3/2	90	5YR 4/6	10	RM	PL	Clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <b>(LRR C)</b> <input type="checkbox"/> 1 cm Muck (A9) <b>(LRR D)</b> <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p><b>Indicators for Problematic Hydric Soils:<sup>4</sup></b></p> <input type="checkbox"/> 1 cm Muck (A9) <b>(LRR C)</b> <input type="checkbox"/> 2 cm Muck (A10) <b>(LRR B)</b> <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input checked="" type="checkbox"/> Other (Explain in Remarks)
--	---	---

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**    Yes     No

Remarks: 8" = bottom of pit. Oxidized rhizospheres located at approximately 10% in the soil matrix. Located along living roots.

**HYDROLOGY**

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

**Field Observations:**

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____

**Wetland Hydrology Present?**    Yes     No

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

Remarks: No evidence of aboveground hydrology present but oxidized rhizospheres present. The swale is located approximately 3 feet north of DS-3.

# **APPENDIX D**

*2009 and 2015 Coastal California Gnatcatcher  
Focused Survey Reports*





September 9, 2009

6461-01

U.S. Fish and Wildlife Service  
Attn: Recovery Permit Coordinator  
6010 Hidden Valley Road  
Carlsbad, California 92011

***Subject: Focused Presence/Absence California Gnatcatcher Survey Report for the Otay Quarry Project, City of Chula Vista, San Diego County, California, Federal Permit Numbers TE-840619, TE-781084, and TE-051248***

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (*Polioptila californica californica*; CAGN) that were conducted by Dudek biologists within the Otay Quarry project site located within the City of Chula Vista, San Diego County, California. The surveys were conducted in all areas of suitable habitat within the project site.

The CAGN is a federally listed threatened species and a California Department of Fish and Game species of special concern. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet above mean sea level (amsl) and on slopes less than 40% (Atwood 1990), but CAGN have been observed at elevations greater than 2,000 feet amsl. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat and also is impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

## **LOCATION AND EXISTING CONDITIONS**

The Otay Quarry project is an approximately 518-acre area within Otay Ranch, City of Chula Vista, San Diego County, California (Figure 1). The area includes the Otay Quarry site and surrounding areas of Otay Ranch Village Four. The survey area is located immediately north of the Otay River, east of Wolf Canyon and includes Rock Mountain. The project area lies within the U.S. Geological Survey 7.5-minute map, Otay Mesa quadrangle; on non-sectioned lands; Township 18 South, Range 1 West; longitude 117° 28' 00" north and latitude 32° 36' 00" (Figure 2).

The primary surrounding land uses include the open space associated with the Otay River Valley and future development and open space areas within Otay Ranch. The study area is characterized by rolling hills, flats, drainages, and steep, rocky slopes. Elevations on site range from

approximately 161 feet amsl near the Otay River to approximately 669 feet amsl at the top of Rock Mountain.

## VEGETATION COMMUNITIES

Approximately 205.8 acres of habitat considered suitable for CAGN (i.e., Diegan coastal sage scrub (CSS) and subassociations, including disturbed forms of the vegetation and patches of maritime succulent scrub (MSS)) is currently present within the study area (Figure 3).

### Diegan Coastal Sage Scrub and Subassociations

According to Holland (1986), CSS vegetation is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). It typically develops on xeric slopes. Disturbed CSS is characterized by a lower percent cover of native species such as California sagebrush and flat-top buckwheat, and a higher percent cover of non-native forbs and grasses.

Maritime succulent scrub habitat is found on thin rocky or sandy soils, often on steep slopes, where there is a small amount of summer rainfall. It integrates with coastal sage scrub on better-developed soils away from the immediate coast. Maritime succulent scrub is a low, open (25% to 75% cover) scrub dominated plant community consisting of drought-deciduous shrubs and succulents. On-site maritime succulent scrub is composed of lemonadeberry, jojoba (*Simmondsia* sp.), cholla (*Opuntia* sp.), San Diego County viguiera (*Viguiera laciniata*), California sagebrush, and Mojave yucca (*Yucca schidigera*). These three vegetation communities and subassociations are considered suitable for CAGN.

## METHODS

The focused survey for CAGN followed the currently accepted survey protocol (U.S. Fish and Wildlife Service, *Coastal California Gnatcatcher (Polioptila californica californica) 1997 Presence/Absence Survey Protocol*), which states that a minimum of three survey visits is required within an Natural Community Conservation Planning (NCCP)-enrolled area and a minimum of six visits is required during the breeding season and nine visits during the non-breeding season for a non-NCCP-enrolled area. The project area is part of the City of Chula Vista Multiple Species Conservation Program; hence, only three survey visits are required.

*Recovery Permit Coordinator*

*Subject: Focused Presence/Absence California Gnatcatcher Survey Report for the Otay Quarry Project, City of Chula Vista, San Diego County, California, Federal Permit Numbers TE-840619, TE-781084, and TE-051248*

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The project area was divided into Survey Areas 1–3 (Figure 3), each of which was surveyed on three occasions by Dudek biologists Jeff Priest (Permit No. TE-840619), Anita Hayworth PhD (Permit No. TE-781084), Tricia Wotipka (Permit No. TE-840619), and Paul Lemons (Permit No. TE-051248). The survey areas were drawn in order to provide survey areas with less than 100 acres of CSS and also to be of such a configuration that they could be completed within approximately 6 hours. The size of the survey areas was: Survey Area 1 = 58 acres; Survey Area 2 = 68 acres; and Survey Area 3 = 84 acres. The three surveys consisted of walking a systematic, meandering transect within and adjacent to all suitable habitat on site (i.e., CSS and subassociations). The route was arranged to cover 100% of the suitable habitat within the project area (Figure 3). Aerial maps (scale 1 inch = 200 feet) of the project area were available to record any detected CAGN. Binoculars (10×42 or 10×50) were used to aid in detecting and identifying wildlife species.

Taped gnatcatcher vocalizations were used frequently within suitable habitat in order to elicit a response from the species, if present. The tape was played approximately every 50 to 100 feet within suitable habitat. When gnatcatchers were detected, playing of the tape ceased in order to avoid harassment. Weather conditions, time of day, and season were appropriate for the detection of CAGN (Table 1).

**Table 1**  
**2009 California Gnatcatcher Survey Conditions for the Otay Quarry Project Area**

Date	Survey Area	Time	Staff	Conditions
7/10/09	1	0605–1145	A. Hayworth	95%–0% cloud cover; 0–3 mph winds; 67°F–78°F
7/17/09	2	0740–1200	J. Priest	70%–5% cloud cover; 0–10 mph winds; 68°F–85°F
7/17/09	3	0745–1200	T. Wotipka	70%–5% cloud cover; 0–10 mph winds; 68°F–81°F
7/24/09	1	0800–1130	T. Wotipka	100%–5% cloud cover; 0–2 mph winds; 70°F–80°F
7/28/09	2	0815–1150	P. Lemons	0% cloud cover; 0–5 mph winds; 74°F–81°F
7/24/09	3	0710–1230	J. Priest	100%–5% cloud cover; 0–2 mph winds; 70°F–80°F
7/31/09	1	0830–1200	T. Wotipka	45%–0% cloud cover; 1–6 mph winds; 70°F–80°F
7/31/09	3	0800–1215	J. Priest	60%–0% cloud cover; 1–6 mph winds; 70°F–80°F
8/7/09	2	0645–1315	J. Priest	90%–10% cloud cover; 0–8 mph winds; 70°F–76°F

**RESULTS**

Four CAGN pairs were detected during the focused survey (Figures 2 and 3). Two pairs were observed in Survey Area 1 and two pairs were observed in Survey Area 3.

*Recovery Permit Coordinator*

*Subject: Focused Presence/Absence California Gnatcatcher Survey Report for the Otay Quarry Project, City of Chula Vista, San Diego County, California, Federal Permit Numbers TE-840619, TE-781084, and TE-051248*

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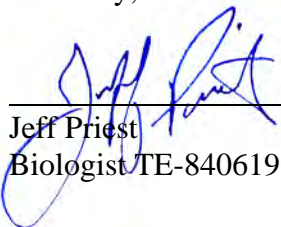
In Survey Area 1, a pair of CAGN was observed in the southern portion of the survey area. They were observed foraging in a patch of CSS habitat on a southwest facing slope. The habitat where they were observed is dominated by large shrubs, including lemonadeberry and jojoba. The second pair observed within Survey Area 1 was detected farther north and just west of the quarry area on a relatively flat area with sparse CSS. The pair was observed foraging with two fledglings. They were observed using an area composed of approximately 50% shrub cover with flat-topped buckwheat, jojoba, and California sagebrush as the dominant shrub species.

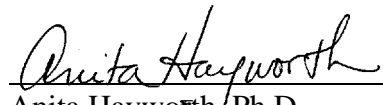
In Survey Area 3, a pair of CAGN was observed in the southern portion of the survey area at the eastern edge of the survey area. They were observed within sparse CSS with very low shrub cover. They were observed next to the access road into the area. The second CAGN pair observed in Survey Area 3 was detected foraging within coastal sage scrub habitat immediately east of the quarry area and adjacent to the Otay River. They were observed in a relatively flat and dense area of shrubs composed of buckwheat and California sagebrush and adjacent to a patch of mulefat scrub.

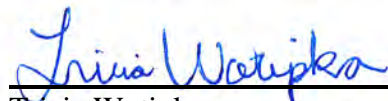
A total of 52 wildlife species (2 reptile, 40 bird, 6 mammal, and 4 butterfly species) were detected during the surveys. All species recorded are compiled in Appendix A.


I certify that the information in this survey report and attached exhibits fully and accurately represent my work. If you have any questions or require additional information please feel free to contact me at 760.942.5147.

Sincerely,

  
\_\_\_\_\_  
Jeff Priest  
Biologist TE-840619

  
\_\_\_\_\_  
Anita Hayworth, Ph.D.  
Senior Biologist TE-781084

  
\_\_\_\_\_  
Tricia Wotipka  
Biologist TE-840619

  
\_\_\_\_\_  
Paul Lemons  
Biologist TE-051248

*Att: Figures 1-3  
Appendix A: List of Species Detected at the Project Site*

*cc: Ranie Hunter, JPB Development  
Joe Monaco, Dudek*

*Recovery Permit Coordinator*

*Subject: Focused Presence/Absence California Gnatcatcher Survey Report for the Otay Quarry Project, City of Chula Vista, San Diego County, California, Federal Permit Numbers TE-840619, TE-781084, and TE-051248*

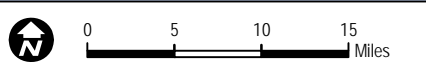
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## **REFERENCES**

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- Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. 156 pp.
- U.S. Fish and Wildlife Service. 1997. *Coastal California Gnatcatcher (Polioptila californica californica) 1997 Presence/Absence Survey Protocol*. July 28.



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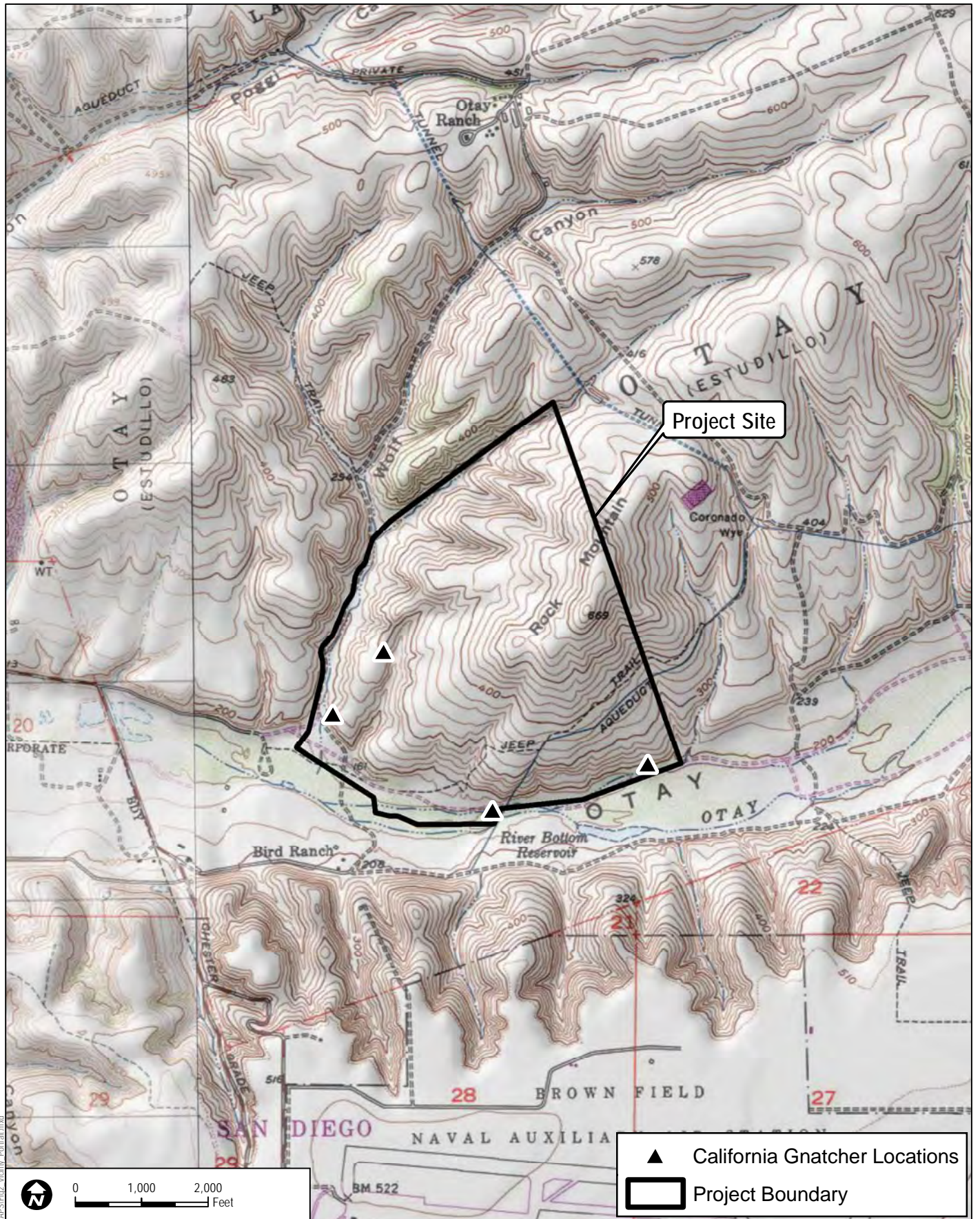
**DUDEK**

6461-01  
SEPTEMBER 2009

SOURCE: USGS 100k Series Quadrangle.

Otay Quarry Project - Focused California Gnatcatcher Survey

**FIGURE 1**  
**Regional Map**



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**DUDEK**

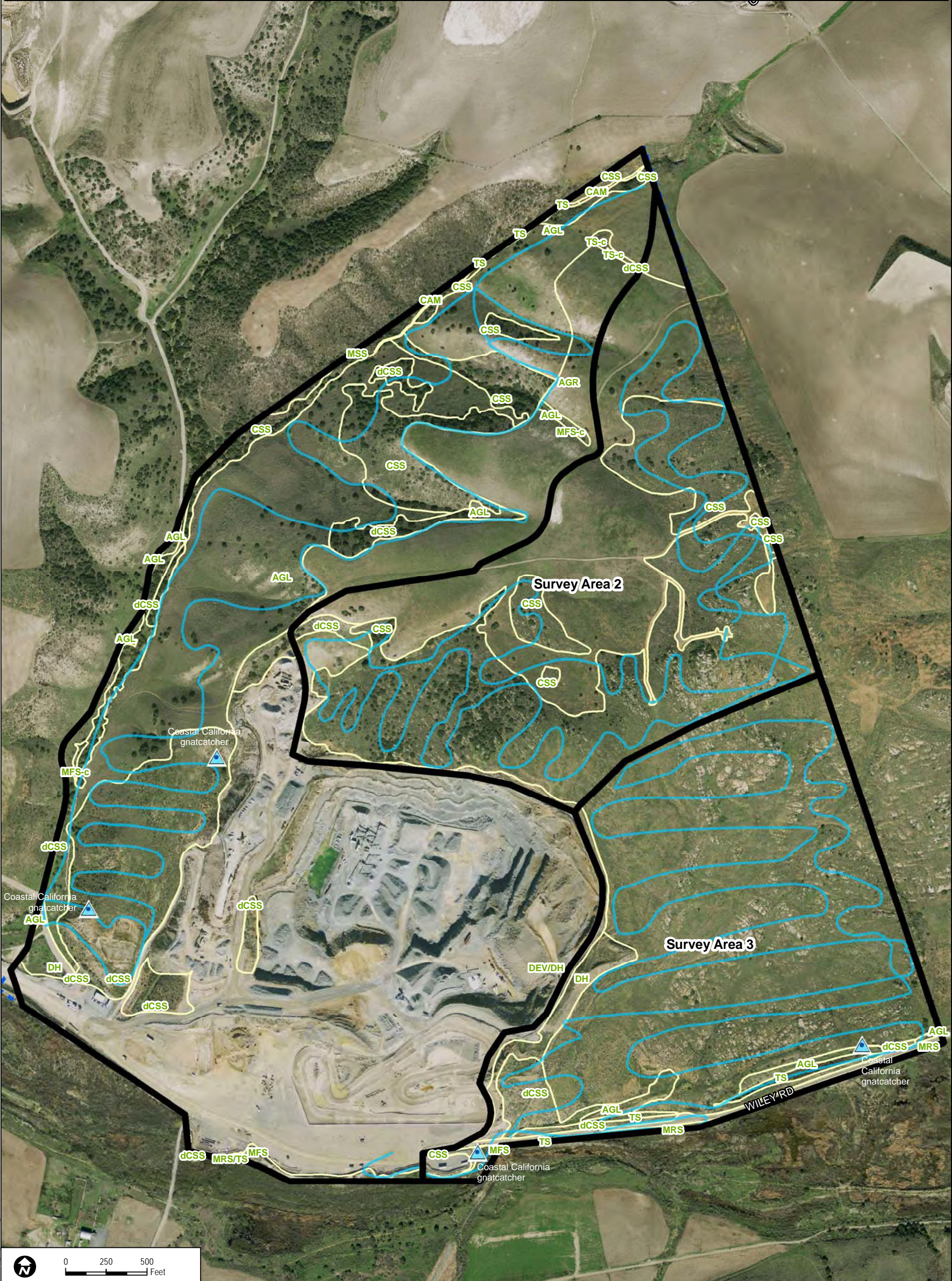
SOURCE: USGS 7.5 Minute Series Otay Mesa Quadrangle.

6461-01  
SEPTEMBER 2009

Otay Quarry Project - Focused California Gnatcatcher Survey

**FIGURE 2**  
**Vicinity Map**

 Coastal California Gnatcatcher Survey Areas	<b>Vegetation Communities</b>	Freshwater Marsh-CAM	Riparian Scrub-MRS
 Coastal California Gnatcatcher Sightings	Agriculture-AGR	Grassland-AGL	Riparian Scrub-MRS/TS
 Coastal California Gnatcatcher Survey Routes	Coastal Sage Scrub-CSS	Maritime Succulent Scrub-MSS	Riparian Scrub-TS
	Coastal Sage Scrub-dCSS	Riparian Scrub-MFS	Riparian Scrub-TS-c
	Disturbed Land-DH	Riparian Scrub-MFS-c	Urban/Developed-DEV/DH



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# **APPENDIX A**

*List of Species Detected at the Project Site*

**APPENDIX A**  
**List of Species Detected at the Project Site**

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**WILDLIFE SPECIES – VERTEBRATES**

**REPTILES**

**IGUANIDAE – IGUANID LIZARDS**

*Sceloporus occidentalis* – western fence lizard

*Uta stansburiana* – side-blotched lizard

**BIRDS**

**ANATIDAE – WATERFOWL**

*Anas platyrhynchos* – mallard

**ACCIPITRIDAE – HAWKS**

*Accipiter cooperii* – Cooper's hawk

*Buteo jamaicensis* – red-tailed hawk

*Circus cyaneus* – northern harrier

*Elanus leucurus* – white-tailed kite

**FALCONIDAE – FALCONS**

*Falco sparverius* – American kestrel

**PHASIANIDAE – PHEASANTS AND QUAILS**

*Callipepla californica* – California quail

**COLUMBIDAE – PIGEONS AND DOVES**

*Zenaida macroura* – mourning dove

**CUCULIDAE – CUCKOOS AND ROADRUNNERS**

*Geococcyx californianus* – greater roadrunner

**CAPRIMULGIDAE – GOATSUCKERS**

*Chordeiles acutipennis* – lesser nighthawk

**APODIDAE – SWIFTS**

*Aeronautes saxatalis* – white-throated swift

**TROCHILIDAE – HUMMINGBIRDS**

*Calypte anna* – Anna's hummingbird

*Calypte costae* – Costa's hummingbird

*Selasphorus sasi* – Allen's hummingbird

## APPENDIX A (Continued)

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### **TYRANNIDAE – TYRANT FLYCATCHERS**

*Myiarchus cinerascens* – ash-throated flycatcher

*Empidonax difficilis* – Pacific-slope flycatcher

*Sayornis saya* – Say's phoebe

### **HIRUNDINIDAE – SWALLOWS**

*Petrochelidon pyrrhonota* – cliff swallow

### **CORVIDAE – JAYS AND CROWS**

*Aphelocoma californica* – western scrub-jay

*Corvus brachyrhynchos* – American crow

*Corvus corax* – common raven

### **AEGITHALIDAE – BUSHTITS**

*Psaltriparus minimus* – bushtit

### **TROGLODYTIDAE – WRENS**

*Thryomanes bewickii* – Bewick's wren

*Salpinctes obsoletus* – rock wren

### **SYLVIIDAE – GNATCATCHERS**

*Poliotila californica californica* – coastal California gnatcatcher

### **TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT**

*Chamaea fasciata* – wrentit

### **MIMIDAE – THRASHERS**

*Mimus polyglottos* – northern mockingbird

*Toxostoma redivivum* – California thrasher

### **PARULIDAE – WOOD WARBLERS**

*Geothlypis trichas* – common yellowthroat

*Icteria virens* – yellow-breasted chat

### **EMBERIZIDAE – BUNTINGS AND SPARROWS**

*Aimophila ruficeps* – rufous-crowned sparrow

*Melospiza melodia* – song sparrow

*Pipilo crissalis* – California towhee

*Pipilo maculatus* – spotted towhee

### **CARDINALIDAE – CARDINALS AND GROSBEAKS**

*Passerina caerulea* – blue grosbeak

## APPENDIX A (Continued)

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### **ICTERIDAE – BLACKBIRDS AND ORIOLES**

*Sturnella neglecta* – western meadowlark

*Icterus cucullatus* – hooded oriole

*Molothrus ater* – brown-headed cowbird

### **FRINGILLIDAE – FINCHES**

*Carpodacus mexicanus* – house finch

*Carduelis psaltria* – lesser goldfinch

## MAMMALS

### **LEPORIDAE – HARES AND RABBITS**

*Lepus californicus* – black-tailed jackrabbit

*Sylvilagus bachmani* – brush rabbit

### **SCIURIDAE – SQUIRRELS**

*Spermophilus beecheyi* – California ground squirrel

### **GEOMYIDAE – POCKET GOPHERS**

*Thomomys bottae* – Botta's pocket gopher

### **MURIDAE – RATS AND MICE**

*Neotoma* sp. – woodrat (middens)

### **CANIDAE – WOLVES AND FOXES**

*Canis latrans* – coyote

## WILDLIFE SPECIES – INVERTEBRATES

### BUTTERFLIES AND MOTHS

#### **PAPILIONIDAE – SWALLOWTAILS**

*Papilio rutulus* – tiger swallowtail

*Papilio zelicaon lucas* – anise swallowtail

#### **PIERIDAE – WHITES AND SULFURS**

*Pieris rapae rapae* – cabbage butterfly

#### **RIODINIDAE – METALMARKS**

*Apodemia mormo virgulti* – Behr's metalmark

\* signifies introduced (non-native) species

August 27, 2015

8190-7

U.S. Fish and Wildlife Service  
Attention: Recovery Permit Coordinator  
2177 Salk Avenue #250  
Carlsbad, California 92008

***Subject: Focused California Gnatcatcher Survey, Otay Ranch Village Four Project, City of Chula Vista, San Diego County, California. Recovery Permit TE840619-5***

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (*Poliioptila californica californica*; gnatcatcher) that were conducted for the Otay Ranch Village Four by Dudek in 2015. The proposed project is located in the City of Chula Vista, and includes approximately 181 single-family low-medium density residential dwelling units and 215 multi-family high-density residential dwelling units within the approximately 166.02-acre project parcel, including 37.15 acres of gnatcatcher-suitable habitat surveyed in 2015.

The coastal California gnatcatcher is a federally listed threatened species and a California Department of Fish and Wildlife Species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below elevations of 950 feet above mean sea level (amsl) and on slopes less than 40%, but gnatcatchers have been observed at elevations greater than 2,000 feet amsl. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat; it is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

## **LOCATION AND EXISTING CONDITIONS**

The Otay Ranch Village Four project (project site) is located within the City of Chula Vista (City) in southwestern San Diego County, approximately 3.5 miles east of downtown Chula Vista and 13 miles southeast of Downtown San Diego (Figure 1). The project area occupies approximately 166.02 acres within the City, and is located on the U.S. Geological Survey (USGS) 7.5-minute series Otay Mesa quadrangle, on unsectioned lands north of Section 28, Township 18 South, and Range 1 West (Figure 2).

The project site surrounds Rock Mountain and topography consists of large, flat mesas, with slopes adjacent to and within Wolf Canyon. Wolf Canyon comprises the western and northern edge of the village. Village Four is located immediately west of Village Eight and north of the Otay River Valley. An existing rock and gravel extraction facility is located south and east of Village Four.

Elevations in the Project area range from approximately 610 feet above mean sea level (AMSL) along the southeastern boundary to approximately 165 feet AMSL at southwestern corner of the site.

## VEGETATION COMMUNITIES

As shown in Table 1, nine vegetation communities or land covers, including approximately 37.15 acres of coastal sage scrub (including disturbed) were mapped on the Project site according to Holland (1986) and Oberbauer (2008). A portion of the overall parcel area was not mapped during the initial vegetation mapping effort and was not included in the focused survey effort for the gnatcatcher, but is included in Table 1 below as ‘not mapped’. Habitat suitable for the gnatcatcher is described in detail below; vegetation acreages are presented in Table 1, and their spatial distributions are presented in Figure 3.

**Table 1. Vegetation Communities and Land Cover Types on the Village Four Project Site**

Vegetation Community/Land Cover	Acres
Cismontane Alkali Marsh	0.17
Coastal Sage Scrub	28.27
Disturbed Coastal Sage Scrub	8.88
Disturbed Habitat	1.16
Disturbed Habitat Rock Quarry	2.41
Desert Saltbush Scrub	0.04
Maritime Succulent Scrub	2.24
Non-native Grassland	67.16
Not Mapped	55.58
Tamarisk Scrub	0.12
<b>Grand Total*</b>	<b>166.02*</b>

\* Numbers do not sum precisely due to rounding.

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

Coastal sage scrub within the project site generally is dominated by lemonadeberry that occurs as a mosaic with non-native grassland. Other coastal sage scrub species present include California sagebrush and California buckwheat, however, these species occur in lower densities and there is overall lower species richness within this subtype of coastal sage scrub. This subtype of coastal sage scrub occurs on clay soils and so would also be expected to include a number of special status plant species such as Otay tarplant (*Deinandra conjugens*) and variegated dudleya (*Dudleya variegata*).

The disturbed coastal sage scrub community was identified in small patches throughout the Village Four Project site. Disturbed coastal sage scrub primarily occurs adjacent to coastal sage scrub and to non-native grassland. Floral species found in this area are characteristic of the coastal sage scrub community, but also include several non-native grasses: ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), and slender wild oat (*Avena barbata*).

## METHODS

Dudek wildlife biologist Jeff Priest (TE840619-5) surveyed suitable habitat within the study area three times (Table 2). Surveys were conducted in conformance with the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS) *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol* (USFWS 1997).

**Table 2**  
**Schedule of Surveys**

Date	Biologist	Time	Survey Conditions (temperature, skies, wind)
4/17/2015	J. Priest	0615-1015	55-78°F; 0% cloud cover; 0-4 mph winds
4/28/2015	J. Priest	0600-1000	60-84°F; 0% cloud cover; 1-4 mph winds
5/6/2015	J. Priest	0900-1200	67-69°F; 100% cloud cover; 0-3 mph winds

*Recovery Permit Coordinator*

*Subject: 2015 Focused California Gnatcatcher Survey Report for the Otay Ranch Village Four Project, City of Chula Vista, San Diego County, California*

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A tape of recorded gnatcatcher vocalizations was played approximately every 50 to 100 feet to induce responses from potentially present gnatcatchers. When gnatcatchers were detected, tape-playback was terminated to minimize potential for harassment. A 200-scale (1 inch = 200 feet) aerial photograph of the study area boundaries was used to conduct surveys. Binoculars (10×42 magnification) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of gnatcatchers. Survey routes are shown in Figure 3.

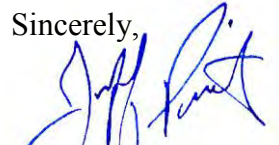
## **RESULTS**

Two CAGN pairs and one CAGN individual male were observed during focused surveys (Figure 3).

A full list of 44 wildlife species observed during the survey is included in Appendix A. Please feel free to contact me at 760.479.4287 with questions or if you require additional information.

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

Sincerely,



---

Jeff D. Priest  
Permit #TE840619-5

*Att: Figure 1, Regional Map  
Figure 2, Vicinity Map  
Figure 3, Bio Resources Map  
Appendix A, Faunal Compendium*

*Cc: Anita Hayworth, PhD, Dudek*



*Recovery Permit Coordinator*

*Subject: 2015 Focused California Gnatcatcher Survey Report for the Otay Ranch Village Four Project, City of Chula Vista, San Diego County, California*

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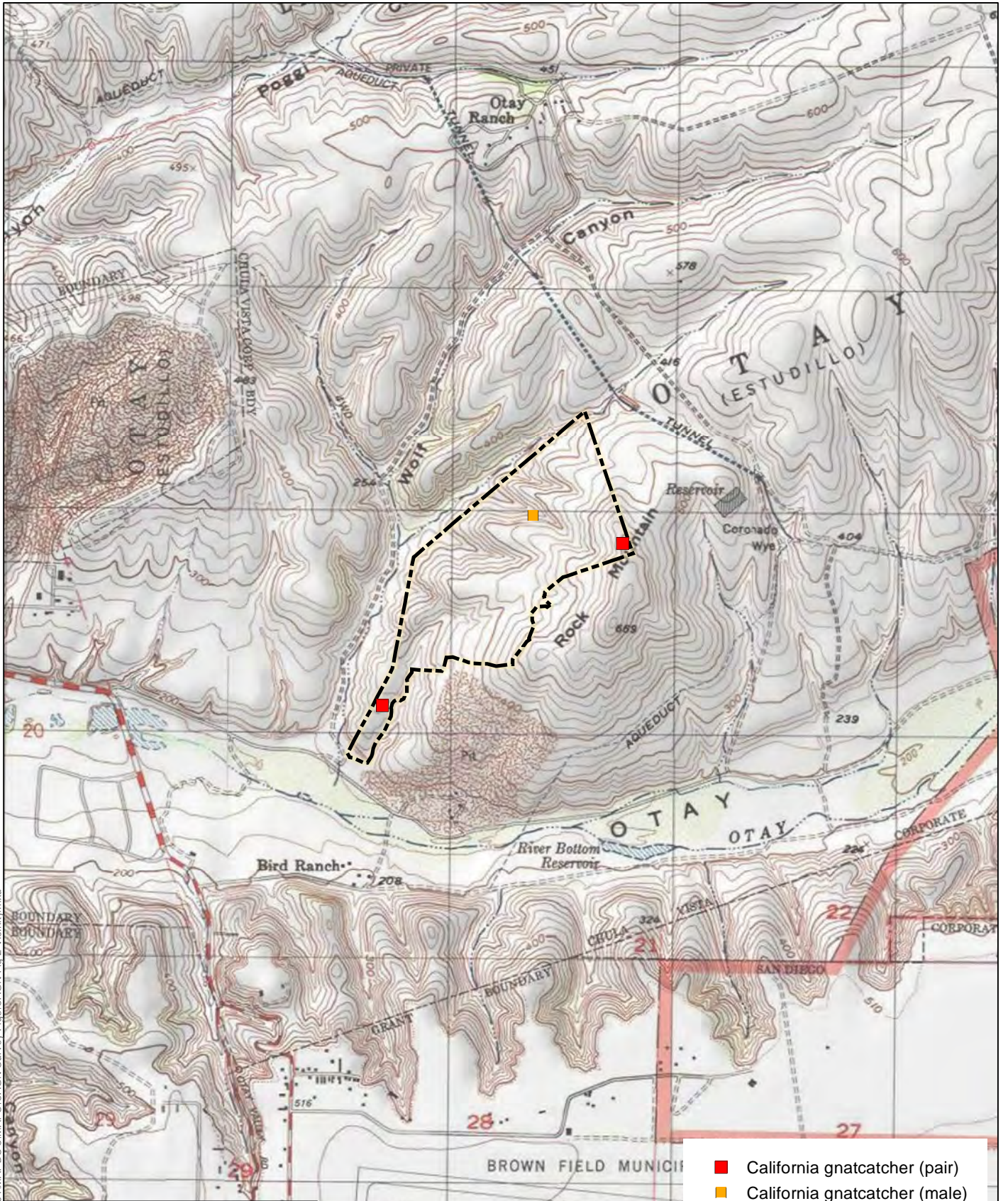
## **LITERATURE CITED**

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Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Based on “Preliminary Descriptions of the Terrestrial Natural Communities of California.” Robert F. Holland, Ph.D. (October 1986). March 2008.

USFWS (U.S. Fish and Wildlife Service). 1997. Coastal California Gnatcatcher (*Poliopitila californica californica*) Presence/Absence Survey Protocol.





- California gnatcatcher (pair)
- California gnatcatcher (male)
- Village 4 TM Boundary

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 Feet



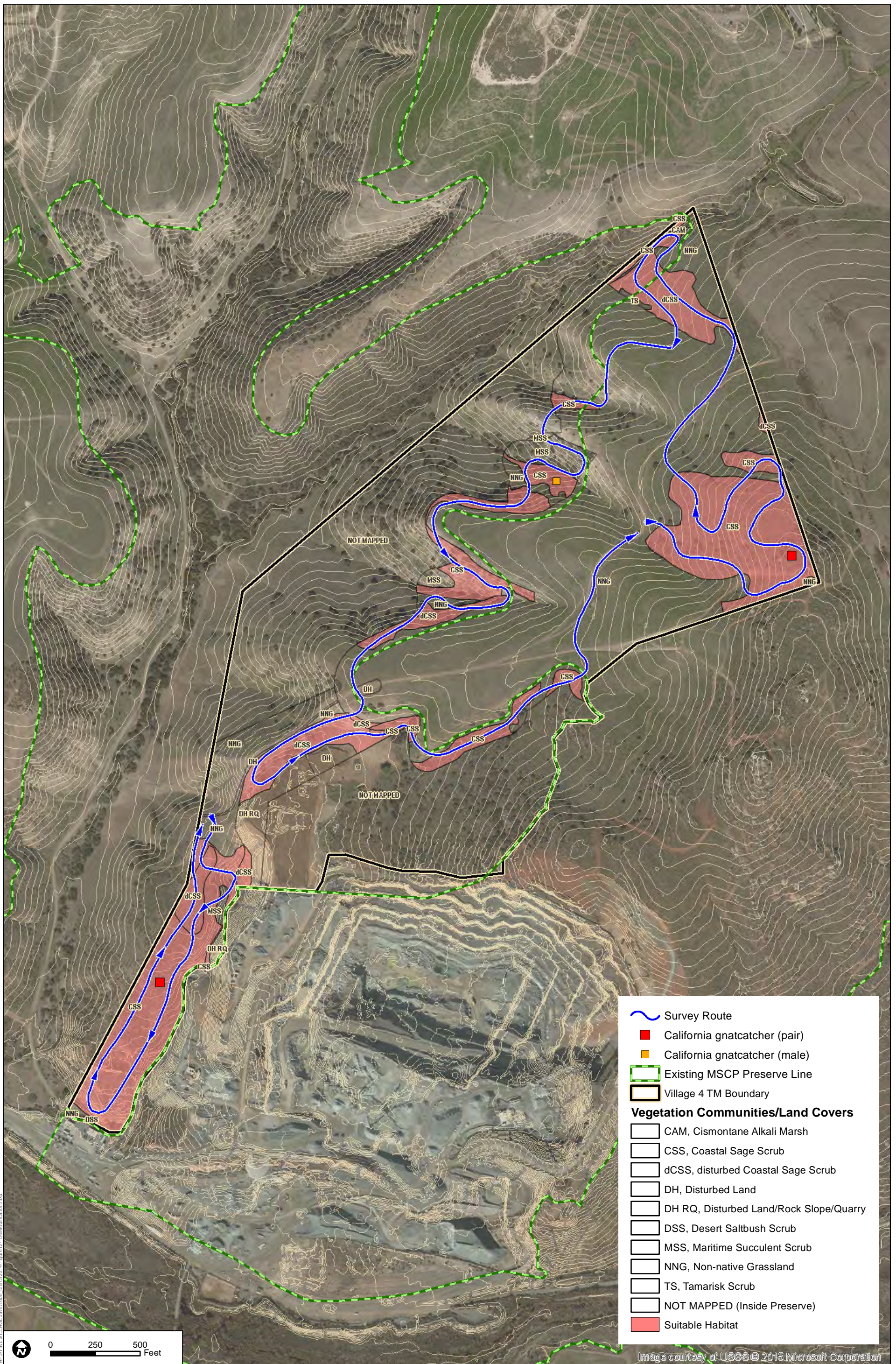
AERIAL SOURCE: BING MAPPING SERVICE

**FIGURE 2**  
**Vicinity Map**

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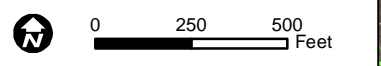
CAGN Focused Survey Report for Otay Ranch Village Four

Document Path: Z:\Projects\1819001\MAP\DOC\MAPS\CAGN Survey Figs\CAGN Fig 2 Vicinity.mxd



- Survey Route
  - California gnatcatcher (pair)
  - California gnatcatcher (male)
  - Existing MSCP Preserve Line
  - Village 4 TM Boundary
- Vegetation Communities/Land Covers**
- CAM, Cismontane Alkali Marsh
  - CSS, Coastal Sage Scrub
  - dCSS, disturbed Coastal Sage Scrub
  - DH, Disturbed Land
  - DH RQ, Disturbed Land/Rock Slope/Quarry
  - DSS, Desert Saltbush Scrub
  - MSS, Maritime Succulent Scrub
  - NNG, Non-native Grassland
  - TS, Tamarisk Scrub
  - NOT MAPPED (Inside Preserve)
  - Suitable Habitat

Image courtesy of USGS © 2015 Microsoft Corporation



**FIGURE 3**  
**CAGN Survey Route**

**APPENDIX A**  
*Faunal Compendium*

# APPENDIX A

## Faunal Compendium

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### WILDLIFE SPECIES – VERTEBRATES

#### BIRDS

##### **ACCIPITRIDAE – HAWKS**

*Buteo jamaicensis* – red-tailed hawk

##### **AEGITHALIDAE – BUSHTITS**

*Psaltriparus minimus* – bushtit

##### **APODIDAE – SWIFTS**

*Aeronauts saxatalis* – white-throated swift

#### OLD WORLD WARBLERS AND GNATCATCHERS

##### **SYLVIIDAE—SYLVIID WARBLERS**

*Polioptila californica*—California gnatcatcher

##### **COLUMBIDAE – PIGEONS AND DOVES**

\* *Columba livia*—Rock pigeon (rock dove)

*Zenaida macroura* – mourning dove

##### **CORVIDAE – JAYS AND CROWS**

*Apelocoma californica* – western scrub-jay

*Corvus brachyrhynchos* – American crow

*Corvus corax* – common raven

##### **CUCULIDAE—CUCKOOS, ROADRUNNERS & ANIS**

*Geococcyx californianus* – greater roadrunner

##### **EMBERIZIDAE – BUNTINGS AND SPARROWS**

*Melospiza melodia*—Song sparrow

*Pipilo crissalis* – California towhee

*Pipilo maculatus*—Spotted towhee

#### FALCONS

##### **FALCONIDAE—CARACARAS AND FALCONS**

*Falco sparverius*—American kestrel

## APPENDIX A (Continued)

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### CARDINALS, GROSBEEKS AND ALLIES

#### CARDINALIDAE—CARDINALS AND ALLIES

*Passerina caerulea*—Blue grosbeak

#### CATHARTIDAE—CARDINALS & ALLIES

*Cathartes aura*—Turkey vulture

#### FRINGILLIDAE – FINCHES

*Carpodacus mexicanus* – house finch

*Spinus psaltria* – lesser goldfinch

#### HIRUNDINIDAE – SWALLOWS

*Petrochelidon pyrrhonota* - cliff swallow

#### ICTERIDAE – BLACKBIRDS AND ORIOLES

*Sturnella neglecta*—Western meadowlark

#### MIMIDAE – THRASHERS

*Mimus polyglottos* – northern mockingbird

*Toxostoma redivivum*—California thrasher

### NEW WORLD QUAIL

#### ODONTOPHORIDAE—NEW WORLD QUAIL

*Callipepla californica*—California quail

#### PTILOGONATIDAE– SILKY FLYCATCHERS

*Myiarchus cinerascens*—Ash-throated flycatcher

*Phainopepla nitens* – phainopepla

#### TIMALIIDAE – BABBLERS

*Chamaea fasciata* – wrenit

#### TROCHILIDAE – HUMMINGBIRDS

*Calypte anna* – Anna’s hummingbird

*Calypte costae* – Costa’s hummingbird

#### TROGLODYTIDAE – WRENS

*Salpinctes obsoletus*—Rock wren

*Thryomanes bewickii* – Bewick’s wren

*Troglodytes aedon*—House wren

## APPENDIX A (Continued)

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### **TYRANNIDAE – TYRANT FLYCATCHERS**

- Sayornis nigricans* – black phoebe
- Sayornis saya* – Say’s phoebe
- Tyrannus vociferans* – Cassin’s kingbird

### **MAMMALS**

### **CANIDAE – WOLVES AND FOXES**

- Canis latrans* – coyote (scat)

### **LEPORIDAE – HARES AND RABBITS**

- Sylvilagus bachmani* – brush rabbit

### **MURIDAE—RATS & MICE**

- Neotoma* sp. - woodrat (middens)

### **SCIURIDAE—SQUIRRELS**

- Spermophilus (Otospermophilus) beecheyi*—California ground squirrel

### **REPTILES**

### **PHRYNOSOMATIDAE—IGUANID LIZARDS**

- Sceloporus occidentalis*—western fence lizard
- Uta stansburiana*—side-blotched lizard

### **COLUBRIDAE—COLUBRID SNAKES**

- Pituophis catenifer*—Gophersnake

### **WILDLIFE SPECIES – INVERTEBRATES**

### **BUTTERFLIES AND MOTHS**

### **PAPILIONIDAE—SWALLOWTAILS**

- Papilio zelicaon*—Anise swallowtail

### **PIERIDAE—WHITES & SULFURS**

- Pieris rapae* – cabbage white
- Pontia protodice* - checkered white

\* signifies introduced (non-native) species



# **APPENDIX E**

*2015 Focused Quino Checkerspot Butterfly  
Focused Survey Report*



September 22, 2015

8190-7

U.S. Fish and Wildlife Service  
Attention: Recovery Permit Coordinator  
2177 Salk Avenue #250  
Carlsbad, California 92008

***Subject: 2015 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Otay Ranch Village Four Project, City of Chula Vista San Diego County, California. Permit Numbers: TE813545-5; TE840619-3 and TE051248-4***

Dear Ms. Love:

This letter report documents the spring 2015 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino). This survey was conducted in support of the Otay Ranch Village Four project, located in the City of Chula Vista, California. The proposed project includes approximately 181 single-family low-medium density residential dwelling units and 215 multi-family high-density residential dwelling units within the approximately 166.02-acre project parcel, including 93.73 acres of Quino-suitable habitat surveyed in 2015.

This report is intended to satisfy reporting requirements for the following Quino-permitted biologists: Erin Bergman (TE813545-5); Jeff D. Priest (TE840619-3); and Paul M. Lemons (TE051248-5).

## **PROJECT LOCATION AND EXISTING CONDITIONS**

The Otay Ranch Village Four project (project site) is located within the City of Chula Vista (City) in southwestern San Diego County, approximately 3.5 miles east of downtown Chula Vista and 13 miles southeast of Downtown San Diego (Figure 1). The project area occupies approximately 166.02 acres within the City, and is located on the U.S. Geological Survey (USGS) 7.5-minute series Otay Mesa quadrangle, on unsectioned lands north of Section 28, Township 18 South, and Range 1 West (Figure 2).

The project site surrounds Rock Mountain and topography consists of large, flat mesas, with slopes adjacent to and within Wolf Canyon. Wolf Canyon comprises the western and northern edge of the village. Village Four is located immediately west of Village Eight and north of the Otay River Valley. An existing rock and gravel extraction facility is located south and east of Village Four.

*Recovery Permit Coordinator*

*Subject: 2015 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Otay Ranch Village Four Project, City of Chula Vista San Diego County, California. Permit Numbers: TE813545-5; TE840619-3 and TE051248-4*

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Elevations in the Project area range from approximately 610 feet above mean sea level (AMSL) along the southeastern boundary to approximately 165 feet AMSL at southwestern corner of the site.

Soils on site consist of Diablo clays, gravel pits, Linne clay loams, Las Posas stony fine sandy loam, Olivenhain cobbly loam, and Salinas clay loam, (Bowman 1973). Village Four soils are dominated by the Diablo clays and Linne clay loam. Geotechnical surveys confirmed some unconsolidated fill in the western portion of the site with the soil characterized as sandy clay to clayey sand with gravel and cobble (Geocon 2014a).

Former land uses on site were farming and cattle grazing. The project area is currently undeveloped. There are a number of dirt roads traversing the project area.

## **VEGETATION COMMUNITIES**

As shown in Table 1, nine vegetation communities or land covers, including approximately 93.73 acres of Quino-suitable habitat were mapped on the Project site according to Holland (1986) and Oberbauer (2008). A portion of the overall parcel area was not mapped during the initial vegetation mapping effort, but is included in Table 1 as ‘not mapped. Habitat suitable for the Quino is described in detail below; vegetation acreages are presented in Table 1, and their spatial distributions are presented in Figure 3.

**Table 1**  
**Vegetation Communities and Land Cover Types on the Village Four Project Site**

<b>Vegetation Community/Land Cover</b>	<b>Acres</b>
Cismontane Alkali Marsh	0.05
Coastal Sage Scrub	23.38
Disturbed Coastal Sage Scrub	7.59
Disturbed Habitat	1.00
Disturbed Habitat Rock Quarry	0.56
Desert Saltbush Scrub	0.04
Maritime Succulent Scrub	0.98
Non-native Grassland	59.73
Mixed Riparian	0.19
Tamarisk Scrub	0.12
Not Mapped	0.08
<b>Grand Total*</b>	<b>93.73*</b>

\* Numbers do not sum precisely due to rounding.

## **Cismontane Alkali Marsh**

According to Holland (1986), cismontane alkali marsh typically occurs in areas that are wet or inundated throughout most to all of the year. Dominant species include rushes (*Juncus* spp.), saltgrass (*Distichlis spicata*), sedges (*Carex* spp.), yerba mansa (*Anemopsis californica*), and alkali heath (*Frankenia grandifolia*). This community occurs in lake beds and floodplains below 1,000 feet amsl and is characterized by higher levels of salts than are found in the freshwater marsh community. It differs from coastal saltmarsh primarily in that it is not subject to tidal inundation. Cismontane alkali marsh supports many of the same wildlife species found in coastal and valley freshwater marsh.

On site, the cismontane alkali marsh is dominated by spiny rush (*Juncus acutus*) and bulrush (*Schoenoplectus* spp.). There is cismontane alkali marsh along the northeastern corner of the Village Four Project site. This area is considered riparian habitat under the jurisdiction of the CDFW, and wetlands under the jurisdiction of the ACOE, and RWQCB. In addition, cismontane alkali marsh is considered to be a wetland as defined in the Chula Vista MSCP Subarea Plan.

## **Coastal Sage Scrub**

Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs. This vegetation community is characteristically dominated by drought-deciduous species, such as California sagebrush, California buckwheat, and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*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 within the Village Four Project site, and the Quarry. Coastal sage scrub is generally dominated by lemonadeberry that occurs as a mosaic with non-native grassland. Other coastal sage scrub species present include California sagebrush and California buckwheat, however, these species occur in lower densities and there is overall lower species richness within this subtype of coastal sage scrub. This subtype of coastal sage scrub occurs on clay soils and so would also be expected to include a number of special status plant species such as Otay tarplant (*Deinandra conjugens*) and variegated dudleya (*Dudleya variegata*). In addition, the open grassland patches in between the shrubs also could provide foraging opportunities for raptors.

## **Disturbed Coastal Sage Scrub**

Disturbed coastal sage scrub is similar in species composition to coastal sage scrub but has higher cover of bare ground or non-native shrubs, forbs and grasses. Disturbed coastal sage scrub

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intergrades with annual grassland and disturbed habitat depending on the abundance of annual grasses or non-native forbs.

The disturbed coastal sage scrub community was identified in small patches throughout the Village Four Project site. Disturbed coastal sage scrub primarily occurs adjacent to coastal sage scrub and to non-native grassland. Floral species found in this area are characteristic of the coastal sage scrub community, but also include several non-native grasses: ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), and slender wild oat (*Avena barbata*).

### **Desert Saltbush Scrub**

Desert saltbush scrub occurs on poorly drained soils with high alkalinity or salinity, often on slightly higher ground surrounding playas. Desert saltbush scrub is typically comprised of low, microphyllous shrubs, with occasional succulent shrubs. This community is dominated by *Atriplex* species with open grassland patches in between the shrubs. Desert saltbush scrub represents the smallest community on site (<1 acre) and occurs along the southern boundary between Village Four and the quarry.

### **Maritime Succulent Scrub**

The maritime succulent scrub community is found on thin, rocky or sandy soils, often on steep slopes, where there is a small amount of summer rainfall. It integrates with coastal sage scrub on better-developed soils away from the immediate coast. Maritime succulent scrub is a low, open (25% to 75% cover), scrub-dominated plant community consisting of drought-deciduous shrubs and succulents.

On site, maritime succulent scrub occurs exclusively within Village Four and is dominated by San Diego County viguiera (*Bahiopsis laciniata*), California buckwheat (*Eriogonum fasciculatum*), coast cholla (*Cylindropuntia prolifera*), San Diego barrel cactus (*Ferocactus viridescens*), California box-thorn (*Lycium californicum*), California bush sunflower (*Encelia californica*), purple needlegrass (*Stipa pulchra*) and chalk dudleya (*Dudleya pulverulenta*).

### **Non-Native Grassland**

Where the native vegetation has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community usually is incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, include slender wild oat (*Avena barbata*), bromes (*Bromus* spp.), and mustards (*Brassica* and *Sisymbrium* spp.). The non-

native grassland on site was formerly agriculture land but has recovered to a non-native grassland. The non-native grassland community occupies the largest acreage on site and is found in Village Four Project site. It is dominated by non-native grass species and includes slender wild oat and a lower cover of forbs.

### **Tamarisk Scrub**

Tamarisk scrub is a non-native riparian community dominated by stands of tamarisk usually supplanting native vegetation following a major disturbance. This habitat is usually found in sandy or gravelly braided washes or intermittent streams. Common species include narrowleaf willow (*Salix exigua*), big saltbush (*Atriplex lentiformis*), salt grass (*Distichlis spicata*), tamarisk (*Tamarix* sp.), and arrowweed (*Pluchea sericea*). Other species commonly associated with this community include Bermuda grass (*Cynodon dactylon*), mulefat, and San Diego marsh-elder (*Iva hayesiana*).

Tamarisk scrub occurs in two relatively small, separate patches within Village Four and the quarry. Although the tamarisk scrub in Village Four is associated with an unvegetated stream channel, the area lacks enough hydrophytic vegetation to be considered jurisdictional under ACOE, or RWQCB but would be considered riparian habitat under the jurisdiction of CDFW. The tamarisk scrub located within the quarry is associated with a depression however a formal jurisdictional delineation has not been conducted for this off-site area however this area is likely considered jurisdictional under CDFW.

### **Mixed Riparian**

Mixed riparian is a community characterized by a heterogeneous mix of riparian scrub species, primarily mulefat, arroyo willow, and salt cedar (*Tamarix ramosissima*). This community was mapped in the Otay River riparian corridor south of the rock quarry. This area would be considered jurisdictional wetlands by the ACOE, CDFG, and RWQCB.

### **Disturbed Habitat/Disturbed Habitat – Rock Quarry**

For the purposes of this document, disturbed land includes all dirt roads, graded areas, and other places that lack vegetation. In general, these areas have been subjected to mechanical perturbations that have greatly limited the growth of any vegetation. In addition, portions of the steep slope associated with the adjacent rock quarry have been mapped as disturbed habitat.

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## QUINO CHECKERSPOT BUTTERFLY SURVEY

### Background Information

The Quino was added to the federal Endangered Species List by USFWS on January 16, 1997 (USFWS 1997). The species (*E. editha*) has a range extending from British Columbia and Alberta, Canada, south through Colorado and Utah, and west along the coast to northern Baja California. It is divided into 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986). Three other subspecies of *E. editha* are currently known to occur in Southern California. The Quino is the southwestern most subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet). The plant communities include clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub (Ballmer et al. 2001). The Quino is also associated with clay soils that possess cryptogamic crusts and vernal pools (USFWS 2002).

The Quino is a medium-sized butterfly (approximately 0.8-to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and have black markings on the dorsal wing surface. They are active primarily in March and April. This active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Cryptantha* spp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia intermedia*), chia (*Salvia columbariae*), and blue dicks (*Dichelostemma capitatum*), among others.

Adult males and virgin females sometimes “hilltop,” or travel to elevated locations to find mates. While waiting for females to arrive, the males will often exhibit “territorial behavior” and will chase other butterflies that approach them. Frequently, the butterflies are observed in meadows or clearings where their host plants occur (Ballmer et al. 2001).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. The eggs hatch in approximately 10 days under favorable weather conditions and the young larvae will immediately begin to feed upon a host plant. The feeding larvae use the dot-seed plantain (*Plantago erecta*), Patagonia plantain (*Plantago patagonica*), white snapdragon (*Antirrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) as their host plants (Pratt



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2009). Dark-tipped bird's-beak (*Cordylanthus rigidus*) and owl's clover (*Castilleja exserta*) are considered secondary hosts (USFWS 2002).

After feeding, the early larva enters an obligatory aestival diapause (dormant stage), which may be broken after fall or winter rains (Murphy and White 1984; Osborne 1998). If adverse weather conditions occur, the emergent larva may reenter a diapause stage repeatedly, for up to 5 or 6 years, until favorable weather conditions permit sufficient growth of the host plant to allow the larva to complete its development.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, it is known to occur only in a few, probably isolated, colonies in southwestern Riverside County, San Diego County, and northern Baja California.

Reasons for the butterfly's reduction in population are not well understood. Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road-vehicular use, the invasion of nonnative plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (USFWS 1997).

According to the 2014 USFWS protocol, the first weekly survey shall begin during the third week of February. The survey season will end the second Saturday in May. Surveys shall be conducted weekly and spaced no closer than 4 days apart. At a minimum, surveys shall be conducted for 5 continuous weeks. If no Quino are detected during the first 5 weeks, surveys will continue to the end of the season or until a Quino is detected. If a Quino is detected during any survey within the first 5 weeks, surveys do not need to be conducted after the fifth week (USFWS 2014).

## **Methods**

Focused Quino surveys were conducted over 12 surveys within a 12-week period between February 15, 2015 and May 14, 2015 per the Quino Checkerspot butterfly Survey Guidelines published on December 15, 2014.

Surveys were conducted by quino-permitted biologists Erin Bergman (TE813545-5); Jeff D. Priest (TE840619-2); and Paul M. Lemons (TE051248-5). Dudek biologists Callie J. Ford, Danielle A. Mullen, and Marshall Paymard accompanied quino-permitted biologists during some

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visits. Surveys were conducted in accordance with current U.S. Fish and Wildlife Service (USFWS) protocol (USFWS 2014).

The site was divided into three survey polygons for weeks 1 through 7 (Figure 3), then amended to two survey polygons for weeks 8 through 12 (Figure 4), each representing a single-day survey effort at a rate no greater than 5 to 10 acres per hour (i.e., in accordance with USFWS protocol) (see Table 2, 2015 Quino Checkerspot Butterfly Survey Polygons). These survey areas were numbered and assigned to Dudek’s permitted biologists and independent investigators. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping host plant populations and Quino, if observed. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. GPS units also were available for recording locations of host plant populations.

**Table 2**  
**2015 Quino Checkerspot Butterfly Survey Polygons**

Survey Area	Survey Weeks	Acreage of Survey Area
1	1 through 7	47.3
2	1 through 7	32.6
3	1 through 7	13.8
1	8 through 12	46.5
2	8 through 12	47.3

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all habitats within the 93.73 acre survey area. Survey routes were arranged to thoroughly cover the survey area at a rate of approximately 5-10 acres per person hour.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4–6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day. Survey times, personnel, and conditions during the Quino survey are shown in Table 3, Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions. Photocopies of the surveyor’s field notes are included as Appendix B.

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**Table 3**  
**Schedule of Surveys**

Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
2/15/15	0930-1400	EJB, PCS	Pass 1- Survey Area 1	62-80°F, 0-5% cc, 1-4 mph winds
2/20/15	0930-1530	JDP	Pass 1- Survey Area 2	70-82°F, 0% cc, 0-8 mph winds
2/20/15	1050-1435	EJB, PCS	Pass 1- Survey Area 3	76-82°F, 100-70% cc, 1-5 mph winds
2/25/15	1000-1630	EJB, PCS	Pass 2- Survey Area 1	70-80°F, 0-5% cc, 1-5 mph winds
2/26/15	1055-1530	EJB, CJF	Pass 2- Survey Area 3	70-81°F, 5-30% cc, 0-5 mph winds
2/26/15	1000-1500	PML	Pass 2- Survey Area 2	64-65°F, 50% cc, 3-8mph winds
3/4/2015	0910-1345	EJB, PCS	Pass 3- Survey Area 3	70-83°F, 0-3% cc, 0-3 mph winds
3/5/2015	0930-1625	EJB, PCS	Pass 3- Survey Area 1	74-87°F, 0% cc, 1-2 mph winds
3/5/2015	0900-1415	JDP	Pass 3- Survey Area 2	64-86°F, 0% cc, 0-6 mph winds
3/9/2015	1115-1630	EJB, MP	Pass 4- Survey Area 3	80-75°F, 0% cc, 1 mph winds
3/10/2015	1000-1515	PML	Pass 4- Survey Area 2	72-80°F, 5-10% cc, 0-5mph winds, 6-8 mph gusts
3/13/2015	0940-1545	EJB, DAM	Pass 4- Survey Area 1	73-86°F, 0% cc, 1-3 mph winds
3/18/2015	0950-1515	JDP	Pass 5- Survey Area 3	75-85°F, 30-75% cc, 0-8 mph winds with 10 mph gusts
3/20/2015	0845-1400	JDP	Pass 5- Survey Area 2	70-84°F, 20-0% cc, 0-10 mph winds with 15 mph gusts
3/23/2015	0900-1600	EJB, CJF	Pass 5- Survey Area 1	68-77°F, 5-50% cc, 0-5 mph winds
3/26/2015	0940-1400	PML	Pass 6- Survey Area 3	83-90°F, 0% cc, 1-5 mph winds with 6-9 mph gusts
3/27/2015	0945-1340	EJB, CJF	Pass 6- Survey Area 1	83-100°F, 0% cc, 1-3 mph winds
3/27/2015	0940-1330	PML	Pass 6- Survey Area 2	74-78°F, 30-20% cc, 2-6 mph winds with 7-12 mph gusts
4/2/2015	0930-1330	JDP	Pass 7- Survey Area 3	73-84°F, 75-25% cc, 0-9 mph winds
4/2/2015	1330-1530	JDP	Pass 7- Survey Area 2 (partial)	84-81°F, 25-35% cc, 4-10 mph winds
4/3/2015	0935-1540	EJB, CJF	Pass 7- Survey Area 1	71-79°F, 0-10% cc, 1-3 mph winds
4/3/2015	1200-1445	JDP	Pass 7- Survey Area 2 (remainder)	94-92°F, 5% cc, 4-8mph winds, gusts to 12 mph
<i>Survey Areas revised to 2 survey areas</i>				
4/8/2015	1230-1430	JDP	Pass 8- Survey Area 1 (partial)	72-78°F, 0% cc, 3-10 with gusts to 15mph
4/9/2015	0930-1500	PML	Pass 8- Survey Area 2	68-75°F, 0% cc, 2-6 with gusts to 15 mph
4/10/2015	1000-1515	EJB	Pass 8- Survey Area 1 (partial)	63-73°F, 0% cc, 1-3 mph winds
4/16/2015	1050-1515	EJB	Pass 9- Survey Area 1	76-82°F, 0% cc, 1-2 mph winds
4/17/2015	1015-1500	JDP	Pass 9- Survey Area 2	82-95°F, 0% cc, 2-10mph winds with gusts to 12 mph

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**Table 3**  
**Schedule of Surveys**

Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
Survey Areas revised to 2 survey areas				
4/21/2015	0820-1550	EJB	Pass 10- Survey Area 1	66-76°F, 10-35% cc, 1-3 mph winds
4/22/2015	0940-1500	PML	Pass 10- Survey Area 2 and 3	66-74°F, 10-0% cc, 2-10 with gusts to 20 mph
4/28/2015	1000-1450	JDP	Pass 11- Survey Area 2 and 3	88-96°F, 0% cc, 1-9mph winds with gusts to 12 mph
4/29/2015	0740-1400	EJB	Pass 11- Survey Area 1	71-95°F, 0% cc, 1-2 mph winds
5/6/2015	1000-1130	EJB	Pass 12- Survey Area 1 (partial)	71-72°F, 80-100% cc, 2-4 mph winds
5/11/2015	0930-1500	PML	Pass 12- Survey Area 2 and 3	70-77°F, 50-0% cc, 1-5 mph winds with gusts to 8mph
5/14/2015	0950-1500	EJB	Pass 12- Survey Area 1 (remainder)	68-71°F, 20-35% cc, 2-4 mph winds

EJB = Erin J. Bergman (TE-813545-5); JDP = Jeffrey D. Priest (TE-840619-3); PML = Paul M. Lemons (TE-051248-5); CJF = Callie J. Ford ; DAM = Danielle A. Mullen ; MP = Marshall Paymard

## RESULTS

No Quino were observed during the 2015 focused survey. Twenty-four butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Tables 4A and 4B, Butterflies Observed on Site.

**Table 4A**  
**Butterflies Observed on Site Weeks 1-6**

Scientific Name	Common Name	Week					
		1	2	3	4	5	6
<i>Hesperiidae</i> – Skippers							
<i>Erynnis funeralis</i>	Funeral duskywing	X	X	X	X	X	X
<i>Pyrgus albescens</i>	Checkered skipper	—	—	—	—	X	—
<i>Nymphalidae</i> – Brush-Footed Butterflies							
<i>Chlosyne californica</i>	California patch	—	—	—	—	—	—
<i>Danaus plexippus</i>	Monarch	—	X	—	—	X	—
<i>Junonia coenia</i>	Common buckeye	—	—	X	—	—	—
<i>Vanessa annabella</i>	West coast lady	X	X	X	X	X	X
<i>Vanessa atalanta</i>	Red admiral	—	—	X	—	—	—
<i>Vanessa cardui</i>	Painted lady	X	X	X	X	X	X

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**Table 4A**  
**Butterflies Observed on Site Weeks 1-6**

Scientific Name	Common Name	Week					
		1	2	3	4	5	6
<i>Lycaenidae</i> – Blues and Hairstreaks							
<i>Atlides halesus</i>	Great purple hairstreak	—	—	—	—	—	—
<i>Brephidium exile</i>	Western pygmy blue	—	—	—	—	—	X
<i>Leptotes marina</i>	Marine blue	—	—	—	—	—	—
<i>Strymon melinus</i>	Gray hairstreak	—	X	X	X	—	—
<i>Papilionidae</i> – Swallowtails							
<i>Papilio eurymedon</i>	Pale swallowtail	—	—	X	—	—	—
<i>Papilio rutulus</i>	Western tiger swallowtail	—	—	—	—	X	—
<i>Papilio zelicaon</i>	Anise swallowtail	X	X	X	X	X	X
<i>Peiridae</i> – Whites and Sulfurs							
<i>Anthocharis sara</i>	Sara orangetip	X	X	X	X	X	X
<i>Colias eurydice</i>	California dogface	—	—	—	—	—	—
<i>Colias harfordi</i>	Harford's Sulfur	—	X	X	X	—	—
<i>Pontia protodice</i>	Common white	—	X	X	X	X	X
<i>Pontia sisymbrii</i>	Spring white	—	—	X	—	—	—
<i>Phoebis sennae</i>	Cloudless Sulphur	X	—	X	—	—	—
<i>Pieris rapae rapae</i>	Cabbage white	X	X	X	X	X	X
<i>Riodinidae</i> – Metalmarks							
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X	X
<i>Satyridae</i> – Satyrs							
<i>Coenonympha tullia californica</i>	California Ringlet	X	—	X	X	X	—

**Table 4B**  
**Butterflies Observed on Site Weeks 7-12**

Scientific Name	Common Name	Week					
		7	8	9	10	11	12
<i>Hesperiidae</i> – Skippers							
<i>Erynnis funeralis</i>	Funeral duskywing	X	X	X	X	X	—
<i>Pyrgus albescens</i>	Checkered skipper	X	—	X	—	—	—
<i>Nymphalidae</i> – Brush-Footed Butterflies							
<i>Chlosyne californica</i>	California patch	X	—	—	—	—	—
<i>Danaus plexippus</i>	Monarch	—	—	X	—	—	—

**Table 4B**  
**Butterflies Observed on Site Weeks 7-12**

Scientific Name	Common Name	Week					
		7	8	9	10	11	12
<i>Nymphalidae</i> – Brush-Footed Butterflies							
<i>Junonia coenia</i>	Common buckeye	—	X	X	X	X	—
<i>Vanessa annabella</i>	West coast lady	X	—	—	X	—	—
<i>Vanessa atalanta</i>	Red admiral	X	—	—	—	—	—
<i>Vanessa cardui</i>	Painted lady	X	—	X	X	X	X
<i>Lycaenidae</i> – Blues and Hairstreaks							
<i>Atlides halesus</i>	Great purple hairstreak	—	—	—	—	X	—
<i>Brephidium exile</i>	Western pygmy blue	—	—	—	—	X	—
<i>Leptotes marina</i>	Marine blue	—	—	—	—	—	X
<i>Strymon melinus</i>	Gray hairstreak	—	—	—	X	X	X
<i>Papilionidae</i> – Swallowtails							
<i>Papilio eurymedon</i>	Pale swallowtail	—	—	—	—	—	—
<i>Papilio rutulus</i>	Western tiger swallowtail	X	—	X	—	—	—
<i>Papilio zelicaon</i>	Anise swallowtail	X	X	X	X	X	X
<i>Peiridae</i> – Whites and Sulfurs							
<i>Anthocharis sara</i>	Sara orangetip	X	X	X	—	—	—
<i>Colias eurydice</i>	California dogface	—	—	X	—	X	—
<i>Colias harfordi</i>	Harford's Sulfur	—	—	—	—	—	—
<i>Pontia protodice</i>	Common white	X	X	X	X	X	X
<i>Pontia sisymbrii</i>	Spring white	—	—	—	—	—	—
<i>Phoebis sennae</i>	Cloudless Sulphur	—	—	—	—	—	—
<i>Pieris rapae rapae</i>	Cabbage white	X	X	X	—	X	—
<i>Riodinidae</i> – Metalmarks							
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X	—
<i>Satyridae</i> – Satyrs							
<i>Coenonympha tullia californica</i>	California Ringlet	X	—	—	X	—	—

One quino larval host plant, dotseed pliantain (*Plantago erecta*) was observed within the study area during focused surveys (Figures 3 and 4). Table 5, Quino Larval Food and Adult Nectar Plants, includes the known and observed adult Quino nectar plants (according to Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395). Larval host plants are also included in Table 5 and are in bold print. All plant species that were in bloom were documented in the field notes.

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**Table 5**  
**Quino Larval Food and Adult Nectar Plants<sup>1</sup>**

Scientific Name	Common Name	Observed During Focused Survey
<i>Apiaceae</i> – Carrot Family		
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	woolly-fruit lomatium	—
<i>Lomatium utriculatum</i>	common lomatium	—
<i>Asteraceae</i> – Sunflower Family		
<i>Achillea millefolium</i>	yarrow, milfoil	—
<i>Lasthenia californica</i> or <i>Lasthenia gracilis</i>	common goldfields	X
<i>Lasthenia coronaria</i>	southern goldfields	—
<i>Layia platyglossa</i>	common tidy tips	—
<i>Boraginaceae</i> – Borage Family		
<i>Amsinckia menziesii</i>	rancher's fireweed	X
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	rancher's fiddleneck	—
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rigid fiddleneck	—
<i>Cryptantha</i> spp. or <i>Plagiobothrys</i> spp.	popcorn flower	—
<i>Fabaceae</i> – Pea Family		
<i>Lotus</i> spp.	deerweed, spanishclover, lotus	X
<i>Hydrophyllaceae</i> – Waterleaf Family		
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	thickleaf yerba santa	—
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>	hairy yerba santa	—
<i>Phacelia distans</i>	wild-heliotrope	—
<i>Lamiaceae</i> – Mint Family		
<i>Salvia columbariae</i>	Chia	—
<i>Plantaginaceae</i> – Plantain Family		
<b><i>Plantago erecta</i><sup>2</sup></b>	<b>dot-seed plantain</b>	X
<b><i>Plantago patagonica</i></b>	<b>woolly plantain</b>	—
<i>Polemoniaceae</i> – Phlox Family		
<i>Gilia angelensis</i>	grassland gilia	—
<i>Gilia capitata</i> ssp. <i>abrotanifolia</i>	ball gilia	—
<i>Linanthus</i> spp.	ground pink	—
<i>Polygonaceae</i> – Buckwheat Family		
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	California buckwheat	X
<i>Scrophulariaceae</i> – Figwort Family		
<b><i>Antirrhinum coulterianum</i></b>	<b>Coulter's snapdragon</b>	—
<b><i>Castilleja exserta</i></b>	<b>common owl's-clover</b>	—
<b><i>Collinsia heterophylla</i></b>	<b>purple Chinese houses</b>	—
<b><i>Cordylanthus rigidus</i></b>	<b>dark-tipped bird's-beak</b>	—
<i>Keckiella antirrhinoides</i> var. <i>antirrhinoides</i>	yellow bush-penstemon	—

Recovery Permit Coordinator

Subject: 2015 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Otay Ranch Village Four Project, City of Chula Vista San Diego County, California. Permit Numbers: TE813545-5; TE840619-3 and TE051248-4

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**Table 5**  
**Quino Larval Food and Adult Nectar Plants<sup>1</sup>**

Scientific Name	Common Name	Observed During Focused Survey
<i>Keckiella cordifolia</i>	climbing bush penstemon	—
<i>Liliaceae</i> – Lily Family		
<i>Allium haematochiton</i>	red-skin onion	—
<i>Allium peninsulare</i>	red-flower onion	—
<i>Allium praecox</i>	early onion	X
<i>Dichelostemma capitatum</i>	blue dicks	X
<i>Muilla clevelandii</i>	San Diego goldenstar	—
<i>Muilla maritima</i>	common muilla	X

<sup>1</sup> List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).

<sup>2</sup> Plants listed in **bold** print are known Quino larval host plant species.

Seventy-six wildlife species were recorded during this survey effort and are included in Appendix A. Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey. Please feel free to contact me or Anita Hayworth, PhD at ahayworth@dudek.com if you have any questions regarding the contents of this report.

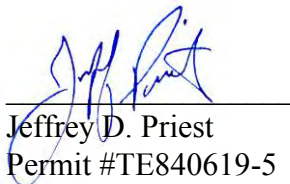
Sincerely,



Paul M. Lemons  
Permit #TE051248-4



Erin Bergman  
Permit #TE813545-5



Jeffrey D. Priest  
Permit #TE840619-5

Att: *Figure 1, Regional Map*  
*Figure 2, Vicinity Map*  
*Figure 3, Quino Checkerspot Butterfly Observations, Host Plant Locations and Three Survey Areas Configuration*  
*Figure 4, Quino Checkerspot Butterfly Observations, Host Plant Locations and Two Survey Areas Configuration*  
*Appendix A, List of Wildlife Species Observed during the 2015 Village Four Quino Survey*  
*Appendix B, 2015 Village Four Quino Survey Field Notes*

cc: Anita Hayworth PhD, Dudek



Recovery Permit Coordinator

Subject: 2015 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Otay Ranch Village Four Project, City of Chula Vista San Diego County, California. Permit Numbers: TE813545-5; TE840619-3 and TE051248-4

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*Recovery Permit Coordinator*

*Subject: 2015 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Otay Ranch Village Four Project, City of Chula Vista San Diego County, California. Permit Numbers: TE813545-5; TE840619-3 and TE051248-4*

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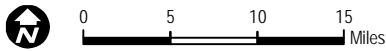
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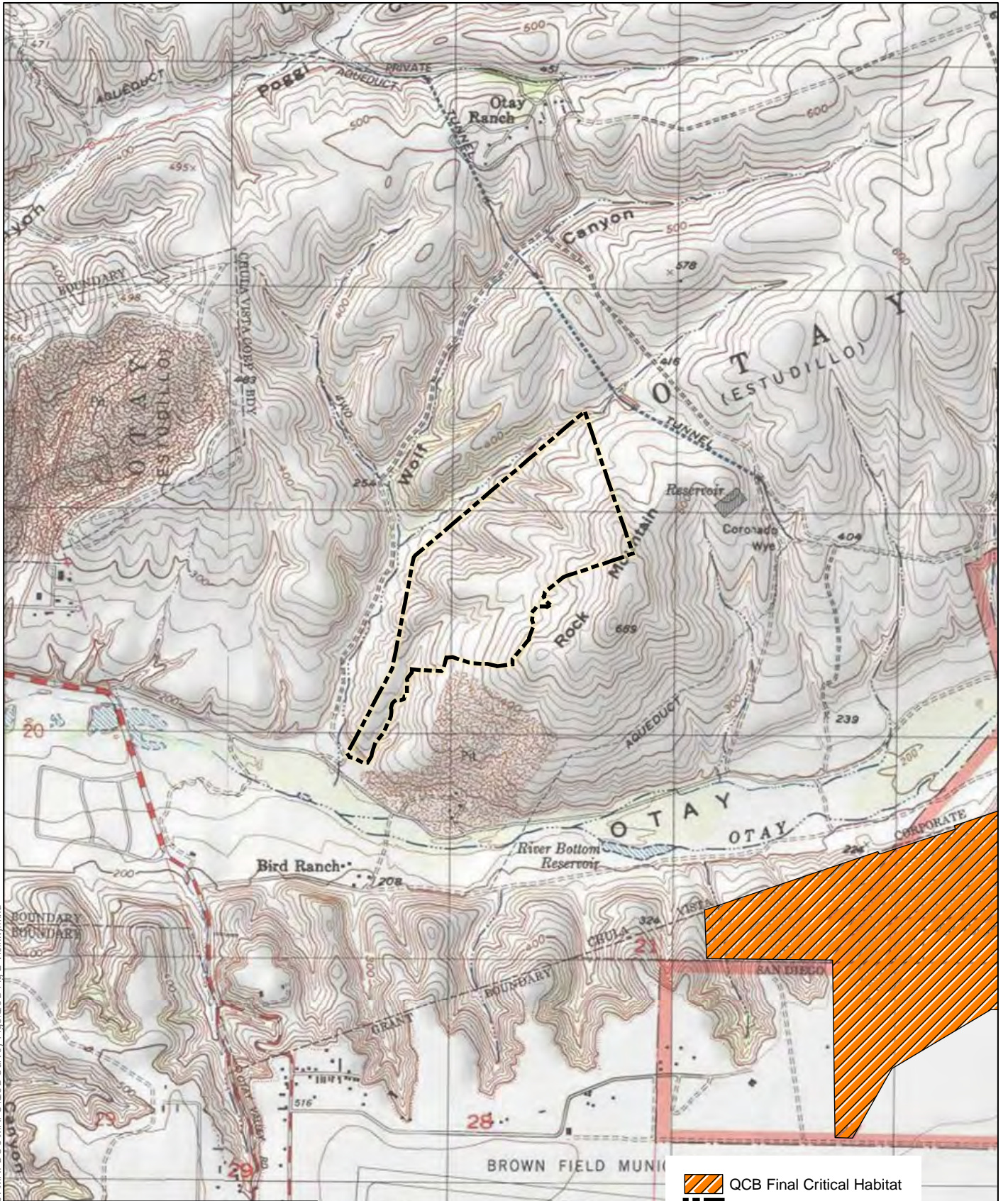
**DUDEK**

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Quino Checkerspot Butterfly Survey Report for Otay Ranch Village Four



**FIGURE 1  
Regional Map**





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0 5001,000 Feet

 QCB Final Critical Habitat  
 Village 4 TM Boundary

**DUDEK**

AERIAL SOURCE: BING MAPPING SERVICE

**FIGURE 2**  
**Vicinity Map**

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Quino Checkerspot Butterfly Survey Report for Otay Ranch Village Four



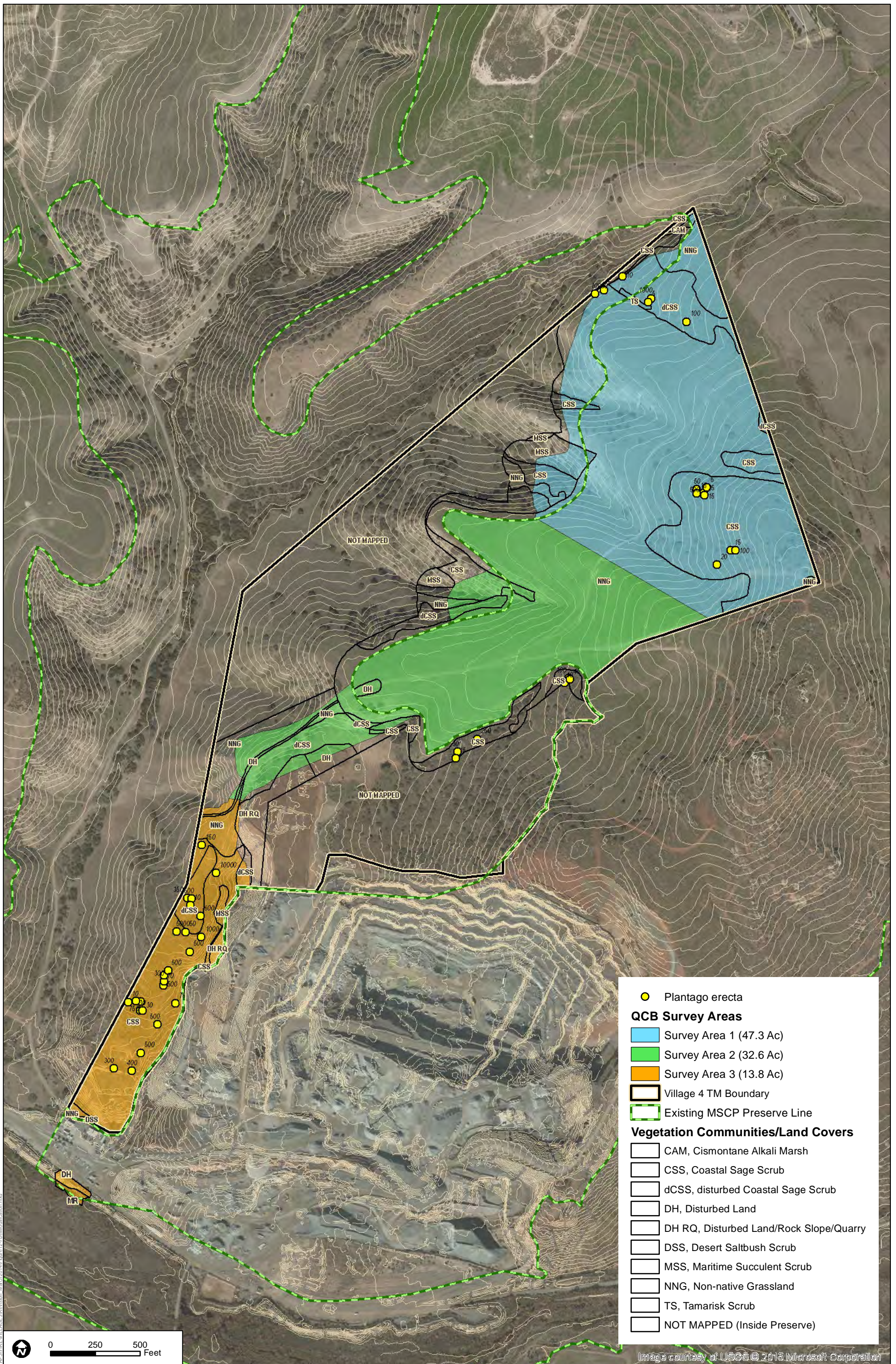
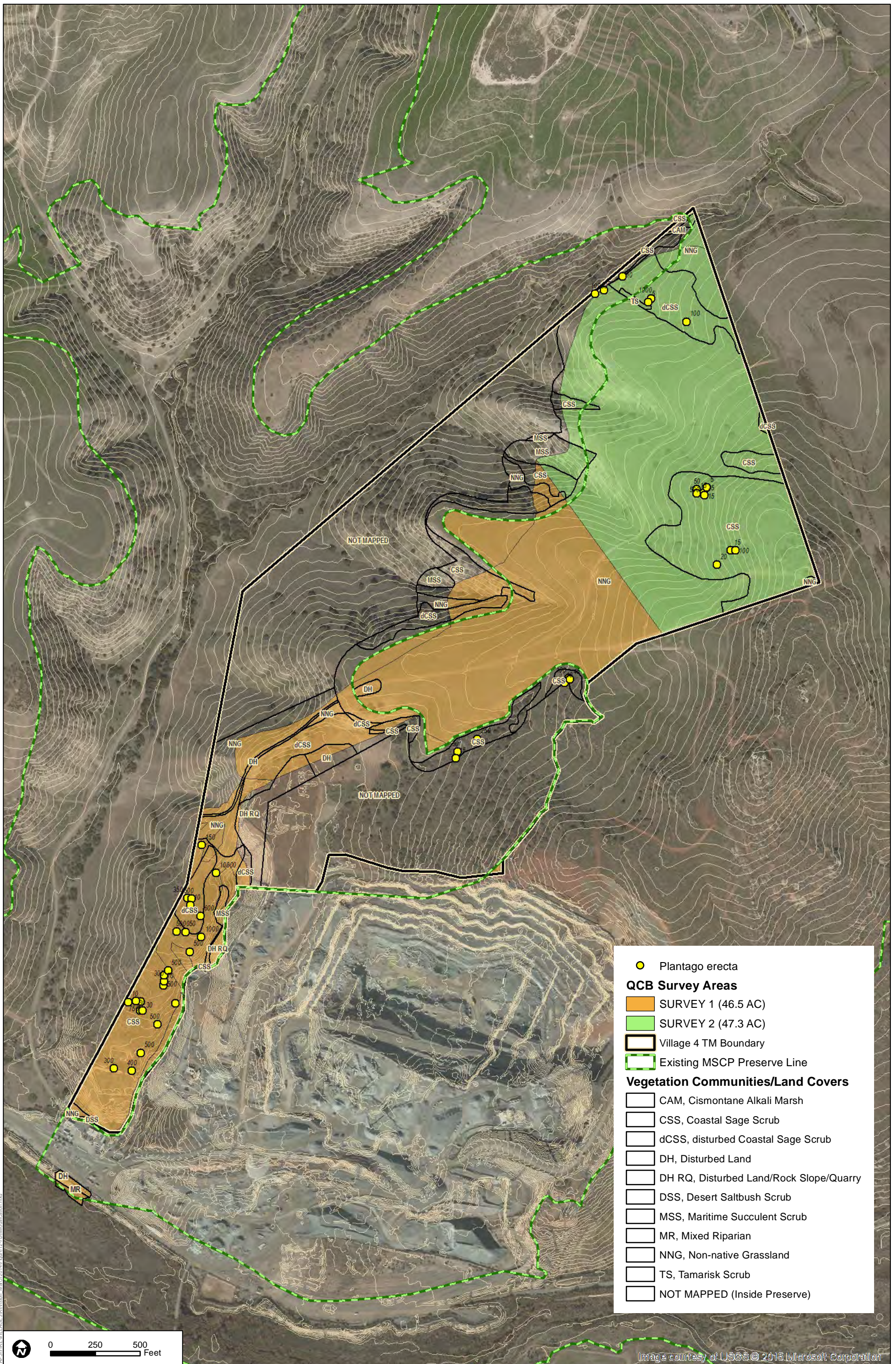


FIGURE 3

Quino Checkerspot Butterfly Observations, Host Plant Locations and Three Survey Areas Configuration







- Plantago erecta
- QCB Survey Areas**
- SURVEY 1 (46.5 AC)
- SURVEY 2 (47.3 AC)
- Village 4 TM Boundary
- Existing MSCP Preserve Line
- Vegetation Communities/Land Covers**
- CAM, Cismontane Alkali Marsh
- CSS, Coastal Sage Scrub
- dCSS, disturbed Coastal Sage Scrub
- DH, Disturbed Land
- DH RQ, Disturbed Land/Rock Slope/Quarry
- DSS, Desert Saltbush Scrub
- MSS, Maritime Succulent Scrub
- MR, Mixed Riparian
- NNG, Non-native Grassland
- TS, Tamarisk Scrub
- NOT MAPPED (Inside Preserve)

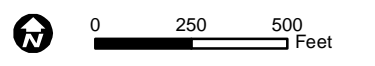


Image courtesy of USGS © 2015 Microsoft Corporation

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# **APPENDIX A**

*List of Wildlife Species Observed  
during the 2015 Village Four Quino Survey*



**APPENDIX A**  
**List of Wildlife Species Observed**  
**during the 2015 Village Four Quino Survey**

---

**BIRD**

**BLACKBIRDS, ORIOLES AND ALLIES**

***ICTERIDAE—BLACKBIRDS***

*Agelaius phoeniceus*—red-winged blackbird

*Sturnella neglecta*—western meadowlark

**BUSHTITS**

***AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS***

*Psaltriparus minimus*—bushtit

**CARDINALS, GROSBEAKS AND ALLIES**

***CARDINALIDAE—CARDINALS AND ALLIES***

*Passerina caerulea*—blue grosbeak

**EMBERIZINES**

***EMBERIZIDAE—EMBERIZIDS***

*Melospiza melodia*—song sparrow

*Melospiza crissalis*—California towhee

*Pipilo maculatus*—spotted towhee

*Zonotrichia leucophrys*—white-crowned sparrow

*Aimophila ruficeps*—rufous-crowned sparrow

**FALCONS**

***FALCONIDAE—CARACARAS AND FALCONS***

*Falco sparverius*—American kestrel

**FINCHES**

***FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES***

*Spinus psaltria*—lesser goldfinch

*Haemorhous mexicanus*—house finch

## APPENDIX A (Continued)

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### FLYCATCHERS

#### ***TYRANNIDAE—TYRANT FLYCATCHERS***

- Myiarchus cinerascens*—ash-throated flycatcher
- Sayornis nigricans*—black phoebe
- Sayornis saya*—Say's phoebe
- Tyrannus vociferans*—Cassin's kingbird

### 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
- Calypte costae*—Costa's hummingbird

### JAYS, MAGPIES AND CROWS

#### ***CORVIDAE—CROWS AND JAYS***

- Aphelocoma californica*—western scrub-jay
- Corvus brachyrhynchos*—American crow
- Corvus corax*—common raven

### LARKS

#### ***ALAUDIDAE—LARKS***

- Eremophila alpestris*—horned lark

### MOCKINGBIRDS AND THRASHERS

#### ***MIMIDAE—MOCKINGBIRDS AND THRASHERS***

- Mimus polyglottos*—northern mockingbird
- Toxostoma redivivum*—California thrasher

### NEW WORLD QUAIL

#### ***ODONTOPHORIDAE—NEW WORLD QUAIL***

- Callipepla californica*—California quail

## APPENDIX A (Continued)

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### NEW WORLD VULTURES

#### ***CATHARTIDAE—CARDINALS AND ALLIES***

*Cathartes aura*—turkey vulture

### OLD WORLD WARBLERS AND GNATCATCHERS

#### ***SYLVIIDAE—SYLVIID WARBLERS***

*Polioptila californica californica*—coastal California gnatcatcher

### PIGEONS AND DOVES

#### ***COLUMBIDAE—PIGEONS AND DOVES***

*Zenaida macroura*—mourning dove

\* *Columba livia*—rock pigeon (rock dove)

### ROADRUNNERS AND CUCKOOS

#### ***CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS***

*Geococcyx californianus*—greater roadrunner

### SILKY FLYCATCHERS

#### ***PTILOGONATIDAE—SILKY-FLYCATCHERS***

*Phainopepla nitens*—phainopepla

### SWALLOWS

#### ***HIRUNDINIDAE—SWALLOWS***

*Petrochelidon pyrrhonota*—cliff swallow

### SWIFTS

#### ***APODIDAE—SWIFTS***

*Aeronautes saxatalis*—white-throated swift

### TERNS AND GULLS

#### ***LARIDAE—GULLS, TERNS, AND SKIMMERS***

*Larus occidentalis*—western gull

## APPENDIX A (Continued)

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### WOOD WARBLERS AND ALLIES

#### **PARULIDAE—WOOD-WARBLERS**

*Geothlypis trichas*—common yellowthroat

*Setophaga coronata*—yellow-rumped warbler

#### WRENS

#### **TROGLODYTIDAE—WRENS**

*Salpinctes obsoletus*—rock wren

*Campylorhynchus brunneicapillus*—cactus wren

#### WRENTITS

#### **TIMALIIDAE—BABBLERS**

*Chamaea fasciata*—wrentit

### INVERTEBRATE

#### BUTTERFLIES

#### **LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS**

*Atlides halesus*—great purple hairstreak

*Leptotes marina*—marine blue

*Strymon melinus*—gray hairstreak

*Brephidium exile*—western pygmy-blue

#### **NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES**

*Chlosyne californica*—California patch

*Coenonympha tullia californica*—common california ringlet

*Junonia coenia*—common buckeye

*Vanessa annabella*—west coast lady

*Vanessa atalanta*—red admiral

*Vanessa cardui*—painted lady

*Danaus plexippus*—monarch

#### **RIODINIDAE—METALMARKS**

*Apodemia mormo virgulti*—Behr's metalmark

#### **HESPERIIDAE—SKIPPERS**

*Erynnis funeralis*—funereal duskywing

*Pyrgus albescens*—white checkered-skipper



## APPENDIX A (Continued)

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### **PAPILIONIDAE—SWALLOWTAILS**

- Papilio eurymedon*—pale swallowtail
- Papilio rutulus*—western tiger swallowtail
- Papilio zelicaon*—anise swallowtail

### **PIERIDAE—WHITES AND SULFURS**

- Anthocharis sara sara*—Pacific sara orangetip
- Colias eurydice*—California dogface
- Colias harfordii*—Harford's sulphur
- Phoebis sennae*—cloudless sulphur
- Pieris rapae*—cabbage white
- Pontia protodice*—checkered white
- Pontia sisymbrii*—spring white

## MAMMAL

### CANIDS

### **CANIDAE—WOLVES AND FOXES**

- Canis latrans*—coyote

### HARES AND RABBITS

### **LEPORIDAE—HARES AND RABBITS**

- Lepus californicus bennettii*—San Diego black-tailed jackrabbit
- Sylvilagus audubonii*—desert cottontail
- Sylvilagus bachmani*—brush rabbit

### POCKET GOPHERS

### **GEOMYIDAE—POCKET GOPHERS**

- Thomomys bottae*—Botta's pocket gopher

### RATS AND MICE

### **MURIDAE—RATS AND MICE**

- Neotoma fuscipes*—dusky-footed woodrat

### SQUIRRELS

### **SCIURIDAE—SQUIRRELS**

- Spermophilus (Otospermophilus) beecheyi*—California ground squirrel

## APPENDIX A (Continued)

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### REPTILE

#### LIZARDS

##### ***PHRYNOSOMATIDAE—IGUANID LIZARDS***

*Sceloporus occidentalis*—western fence lizard

*Uta stansburiana*—common side-blotched lizard

##### ***SCINCIDAE—SKINKS***

*Plestiodon skiltonianus*—western skink

#### SNAKES

##### ***COLUBRIDAE—COLUBRID SNAKES***

*Coluber lateralis*—striped racer

\* signifies introduced (non-native) species

# **APPENDIX B**

*2015 Village Four Quino Survey Field Notes*



Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Tish Schuyler Date: 2/15/2015 GPS Unit: Dadok Triple 4  
 Project: Otag Map #: NA Survey Sxn: Village 4 (Area 1) QCB Protocol Survey # 1 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 8:40 (out of range)	58°	1.3	0%	clear	patchy	overcast	drizzle	shower
9:00	62°	2.4	0%	clear	patchy	overcast	drizzle	shower
9:20	80°	2.4	0%	clear	patchy	overcast	drizzle	shower
10:34	77.2	3.1	5%	clear	patchy	overcast	drizzle	shower
12:00	77.7	3.2	5%	clear	patchy	overcast	drizzle	shower
1:18	76.3	3.8	5%	clear	patchy	overcast	drizzle	shower
End 2:00	76.9	3.4	5%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle) open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady) IIII IIII IIII IIII III	23	<b>Other Butterflies:</b>
<i>Vanessa virginiensis</i> (Virginia Lady)		<i>Papilio zelicaon</i> (Anise Swallowtail) 1
<i>Nymphalis californica</i> (California Tortoiseshell)		<i>Phoebus sennae marcelinae</i> (Cloudless Sulphur) 1
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White) IIII	4	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip) II	2	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		<del>CAET</del>
<i>Papilio eurymedon</i> (Pale swallowtail)		<del>SPID</del>
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		<del>WATE</del>
<b>Riodinidae (Metalmarks)</b>		<del>CORA</del> ✓
<i>Apodemia mormo</i> (Behr's Metalmark)	2	<del>BUSH</del> ✓
<b>Lycaenidae (Hairstreaks and Blues)</b>		CAGN female, 1 pair ✓
<i>Celastrina ladon</i> (Spring Azure)		BUSH ✓
<i>Leptotes marina</i> (Marine Blue)		RTHA ✓
<i>Brephidium exile</i> (Western Pygmy Blue)		ANHU ✓
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		WREN ✓
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		

lots of patches of both *Selaginella anarkiscans* and *Selaginella bigelovii* (seems to be lots of plantago within *Selaginella* patches)  
*Dichelostemma* dominant nectar plant on-site

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Erin Bergman Add'l Person: Tish Schuyler Date: 2/15/2015  
 Project: OTAG Survey Sxn: Village 4 Map #:

Host Plants Present	
<i>Plantago erecta</i> (100's) onsite	for QCB
Nectar Plants Present	
in bloom	
<i>Encelia californica</i>	
<i>Brassica nuda</i>	
<i>Erodium cicutarium</i>	
<i>Lactuca scariola</i>	
<i>Ghiopsis laciniata</i>	
<i>Rhus integrifolia</i>	
<i>Peritoma arborea</i>	
<i>Pithecolobium capitatum</i>	
<i>Calystegia macrostegia</i>	
<i>Loasium gallica</i>	
<i>Cytisula canariata</i>	
<i>Erodium botrys</i>	
<i>Allium praecox</i>	
<i>Sunrichium bellum</i>	
<i>Mitabilis laevis</i>	
<i>Phacelia cicutaria</i>	
<i>Lathyrus vestitus</i>	
<i>Silene gallica</i>	
<i>Manis macrocarpa</i>	
<i>Acmispon glaber</i>	
<i>Centauria melitensis</i>	
<i>Chenopodium album</i>	
<i>Aletris indica</i>	
<i>Toxicoscordion fremontii</i>	
Plant Communities and Habitat Information	
PSS, maritime Succulent, upland mustard, NNG with patches of native grassland, wildflower fields	
Other Wildlife Species	
see notes	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Priest Add'l Person: N/A Date: 2-20-15 GPS Unit: \_\_\_\_\_  
 Project: Village 4 Map #: North AZ Survey Sxn: North AZ QCB Protocol Survey # 1 of 12

TIME (24-hour)	(Ground) Temp (F)	Wind (avg/max)	% CC	Sky				
Start 0900	68°F	< 1	100	clear	patchy	overcast	drizzle	shower
protocol= 0930	70°F	< 1	100	clear	patchy	overcast	drizzle	shower
1000	75°F	0-1	100	clear	patchy	overcast	drizzle	shower
1242	82°F	0-2	95	clear	patchy	overcast	drizzle	shower
1330	80°F	2-8	100	clear	patchy	overcast	drizzle	shower
End 1530	78°F	5-8/12	95	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): Open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		
<i>Euphydryas editha</i> (Quino Checkerspot)		
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		
<i>Thessalia leanira</i> (Wright's Checkerspot)		
<i>Chlosyne californica</i> (California Patch)		
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		
<i>Phycodes mylitta</i> (Mylitta Crescent)		
<i>Junonia coenia</i> (Common Buckeye)		
<i>Vanessa annabella</i> (West Coast Lady)		
<i>Vanessa atalanta</i> (Red Admiral)		
<i>Vanessa cardui</i> (Painted Lady) ☒		
<i>Vanessa virginiensis</i> (Virginia Lady)		
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White) ☒		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		
<b>Hesperiidae (Skippers)</b>		
<i>Erynnis funeralis</i> (Funereal Duskywing) ☒		
<i>Erynnis tristis</i> (Sad Duskywing)		
<i>Erynnis propertius</i> (Propertius Duskywing)		
<i>Erynnis brizo</i> (Sleepy Duskywing)		
<i>Pyrgus albescens</i> (Checkered Skipper)		
<i>Hesperia jubia</i> (Jubia Skipper)		
<i>Polites sabuleti</i> (Sandhill Skipper)		
<b>Megathymidae (Giant Skippers)</b>		
<i>Megathymus yuccae</i> (Yucca Giant Skipper)		
<b>Other Butterflies:</b>		
<b>Notes:</b>		





Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Tish Schuyler Date: 2/20/15 GPS Unit: Trimble 4  
 Project: Village 4 off site Map #: added area Survey Sxn: 3 & (3) now QCB Protocol Survey # 1 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 9:10 poor weather	67	.7	100	clear	patchy	overcast	drizzle	shower
10:10 poor weather	68	1.2	100	clear	patchy	overcast	drizzle	shower
10:50 (start)	76.4	1.5	100	clear	patchy	overcast	drizzle	shower
12:20	76.0	2.0	70	clear	patchy	overcast	drizzle	shower
1:15	82.1	5.1	70	clear	patchy	overcast	drizzle	shower
2:15	76.8	5.4	70	clear	patchy	overcast	drizzle	shower
End 2:35	77.8	5.0	70	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)	3	<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)	1	
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodiniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark) HHT HHT	10	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Elin Bergman Add'l Person: Tish Schuyler Date: Feb. 20, 2015  
 Project: Village 4 offsite Survey Sxn: 1 Map #: added to map for Village 4

Host Plants Present	
<i>Plantago erecta</i>	
Nectar Plants Present	
<i>Brassica nigra</i>	
<i>Lactuca complanata</i>	
<i>Pentstemon melitensis</i>	
<i>Heinandra fasciculata</i>	
<i>Convolvulus simulans</i>	
<i>Nichelostema caputatum</i>	
<i>Logfia gallica</i>	
* <i>Arabis montana</i>	
<i>Crucifera connata</i>	
<i>Zigadenus fremontii</i>	
<i>Eriogonum fasciculatum</i>	
<i>Simmondsia chinensis</i>	
<i>Thlaspi racemosa</i>	
<i>Mirabilis jalapa</i>	
<i>Merah maculocarpa</i>	
<i>Ambrosia monogyra</i>	
<i>Hirschfeldia incana</i>	
<i>Sisymbrium irio</i>	
<i>Rapchens salicifolia</i>	
<i>Eriogonum cicutarium</i>	
<i>Ambrosia acanthocarpa</i>	
<i>Nicotiana glauca</i>	
<i>Rhus integrifolia</i>	
<i>Melilotus albus</i>	
<i>Munibium vulgare</i>	
Plant Communities and Habitat Information	
really nice soil just throughout the site (lots of <i>Plantago</i> everywhere) a lot of <i>Salsignella</i> throughout site not a lot of weeds, some vernal pools onsite	
Other Wildlife Species	
CART ✓	
CATH ✓	
SPTD ✓	
RTHH ✓	
HOPI ✓	
BUSH ✓	
SOOP ✓	
WREN ✓	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Trimble

Recorder: Erin Bergman Add'l Person: Patricia Schuyler Date: Feb. 25, 2015 GPS Unit: 4  
 Project: Village 4 QCB Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 2 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 10:00	75.8	1.1	<5%	clear	patchy	overcast	drizzle	shower
10:15	71.8	4.8	5%	clear	patchy	overcast	drizzle	shower
2:20	79.7	5.3	0%	clear	patchy	overcast	drizzle	shower
3:40	72.4	4.3	0%	clear	patchy	overcast	drizzle	shower
4:30	69.4	0.6	0%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle) open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		
<i>Euphydryas editha</i> (Quino Checkerspot)		
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		
<i>Thessalia leanira</i> (Wright's Checkerspot)		
<i>Chlosyne californica</i> (California Patch)		
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		
<i>Phyciodes mylitta</i> (Mylitta Crescent)		
<i>Junonia coenia</i> (Common Buckeye)		
<i>Vanessa annabella</i> (West Coast Lady) IIII IIII IIII	16	
<i>Vanessa atalanta</i> (Red Admiral)		
<i>Vanessa cardui</i> (Painted Lady) IIII IIII IIII	17	
<i>Vanessa virginiensis</i> (Virginia Lady)		
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White) II	2	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckeri</i> (Beker's White)		
<i>Pontia protodice</i> (Common White) IIII I	6	
<i>Anthocharis sara</i> (Sara Orangetip) IIII	5	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur) II	2	
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark) IIII III	8	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak) IIII	4	
<i>Atlides halesus</i> (Great Purple Hairstreak)		
		<b>Notes:</b> ✓ CATH ✓ WEST ✓ CALT ✓ SAPP ✓ CAEN ✓ INKEN ✓ SPTO ✓ AN HV ✓ MOD ✓ CAQM ✓ CORA ✓ AMKE ✓ HOPI ✓ AMCR ✓ CAWR* (Preserve) ✓ WEME ✓ BUSH
		Dudleya just coming up on site ranging from 2mm - 4mm in height

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Eun Bergman Add'l Person: Tish Schuyler Date: Feb. 25, 2015  
 Project: Village 4 Survey Sxn: Area 1 Map #: 1

Host Plants Present	
Plantago erecta (5 new populations) (in bloom)	
Nectar Plants Present	
Dichelostemma capitatum	Silene gallica
Sisymbrium altissimum	Antirrhinum nuttallianum
Erodium cicutarium	Chenopodium album
Eriogonum fasciculatum	Artemisia glabra
Rhus integrifolia	Convolvulus simulans
Eriogonum fasciculatum	Peritoma arborea
Calystegia macrostegia	Eschschoria californica
Lathyrus vestitus	Crocidium betony
Brassica nigra	Deinandra fasciculata
Malosma laurina	Lupinus succulentus
Marah malacardus	Simmondsia chinensis
Encelia californica	Sisymbrium irio
Sarcophytum californica	Artemisia glabra
Mirabilis laevis	Salsola tridens
Crassula connata	Atriplex semibaccata
Allium praecox	Pulsatia californica
High fieldia incana	Panicum pusillus
Sisyrinchium bellum	Hesperis matronalis
Medicago polymorpha	Euphorbia peplois
Conium maculatum	
Chlorogalum parviflorum	
Vicia villosa	
Toxicum scorodion fremontii	
Convolvulus arvensis	
Ambrosia psilostachya	
Eucrypta chrysanthemifolia	
Lactuca grandis	
	Dudleya is about 2mm - 4mm in height on average
	took GPS points
	checked reference site for Bloomer's checkerspot. It has not emerged.
Plant Communities and Habitat Information	
Great rhizomatous crusts, lots of open soils filled with sections of Saliznella (tons of nectar - see above list)	
Some old roads and trails go through the site	
Other Wildlife Species	
Portion of site near channel full of interesting clay soils (lots of Lupinus-succulentus coming up with abundant Plantago 2-4 inches in height and Hapagarella abundant in open areas)	
really great host plants + nectar for QCB	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Colin Ford Date: Feb 26, 2015 GPS Unit: 4  
 Project: Olaj Village 4 Map #: 3 Survey Sxn: 3 <sup>800 site</sup> QCB Protocol Survey # 2 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 8:50 (out of 86)	59.4	0 mph	75%	clear	patchy	overcast	drizzle	shower
9:45 (out of 86)	65	0.6 mph	100%	clear	patchy	overcast	drizzle	shower
10:55	70.1	1.6	30%	clear	patchy	overcast	drizzle	shower
12:11	80.5	2.1	40%	clear	patchy	overcast	drizzle	shower
1:00	76.4	2.4	50%	clear	patchy	overcast	drizzle	shower
2:29	72.9	4.9	52%	clear	patchy	overcast	drizzle	shower
End 3:30	70.5	2.1	5%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)	7	<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)	5	
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)	1	
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)	3	
<i>Anthocharis sara</i> (Sara Orangetip)	2	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)	36	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)	2	
<i>Atlides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Ann Bergman Add'l Person: Feb 26, 2015 Date: Feb 26, 2015  
 Project: Village 10 Survey Sxn: off site Map #: 3

Host Plants Present	
Plantago serotina (In Bloom)	
Nectar Plants Present	
Brassica nigra Simmondsia chinensis Logfia gallica Oenothera biennis capitata Desmodium fasciculata Centaurea melitensis Crassula carnata Bahiopsis parviflora Smogonium fasciculatum Galium angustifolium Jussiaea parviflora Danthonia pulchella Mirabilis laevis Antirrhinum nuttallianum Coscata californica Cylindropuntia prolifera Eriogonum cicutifolium March magnum Hrost laticornis Eriodictyon latifolium Cryptantha sp. Plagiobotrys sp. Salvia columbiana Phacelia acuminata Eriogonum crinitifolium Menyanthes triflorata Dudleya pulchella Salsola tragus Sonchus oleraceus Calochortus splendens Nicotiana glauca	Amaranthus glaber Lycopodium lucidum Hesperis matronalis Psilocarphus brevissimus Anasalis acris Malvastrum glabra Melilotus indicus Luthrum hirsutum Crassula arborescens Amplex leafy stems Psilocarphus californicus Sistrichia bellum Silene gallica Chieropendium album Eriogonum succulentum Sonchus asper Sonchus oleraceus Senecio vulgaris Eriodictyon lasiocarpum Sistrichia iria Antirrhinum californicum Calceolaria californica Penstemon arborea Ambrosia monogyna Rhus integrifolia Sambucus nigra Parthenocissus vitacea Asplenium platyneuron Asplenium platyneuron
Plant Communities and Habitat Information	
Very abundant patches of both <i>Sphaeralcea coccinea</i> + <i>Selagin</i> <i>bulbosum</i> - great cryptogamic cover	
Maritime succulent scrub throughout most of the edges dominated by <i>Simmondsia chinensis</i> , <i>Ferocactus wislizeni</i> , <i>Cylindropuntia</i> <i>prolifera</i> , <i>Ail. cal.</i> , <i>Bahiopsis laevis</i> also <i>Smogonium fasciculatum</i> , <i>Less</i>	
Other Wildlife Species	
✓ CACT ✓ CORA ✓ SAPH ✓ ADPI ✓ RTIA ✓ CAEN (pair) ✓ ANPA ✓ PRSP ✓ WEST	✓ Audubon cottontail ✓ Fence lizard ✓ Black tailed jack rabbit ✓ RCSP ✓ WEST
really nice vernal pools full of <i>Psilocarphus brevissimus</i>	

2/26/15  
2 of 12 (44.7 acres)

OTAY - Village 4 QCB - Area 2

Onsite

1000

Sky: 50%cc

Wind: 3-5 mph

Temp: 64°F

CORA ✓

WEME ✓

Painted lady HHHH

✓ RTHA 7r.

Fun. duskywing LHH

✓ BEWR

✓ MODO

Behr mm HHH II

Ero Cabbage white HHH

Sarab OT LHH LHH

West coast lady III

Offsite

1500

50%cc

4-8 mph

65°F

Nectar/Host

Blue dicks

S.D. sunflower

Brassica nig.

\* P. erecta

(see map)

Blue-eyed gr.

Erodium cic.

Deinandra fos.

Bladderpod

Allium sp.

**Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet**

Recorder: Erin Bergman Add'l Person: Tish Schuyler Date: March 4, 2015 GPS Unit: Trimble 4  
 Project: Village 4 QCR Map #: 3 Survey Sxn: 3 QCB Protocol Survey # 3 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 9:10	69.9	0.6 mph	0	clear	patchy	overcast	drizzle	shower
9:45	74.2	0.0 mph	0	clear	patchy	overcast	drizzle	shower
10:50	81.4	0.9 mph	0	clear	patchy	overcast	drizzle	shower
11:21	83.4	1.2 mph	0	clear	patchy	overcast	drizzle	shower
11:50	82.3	0.8 mph	3%	clear	patchy	overcast	drizzle	shower
1:45	73.9	2.7 mph	0%	clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>	
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)	3
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)	
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)	
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)	
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)	
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)	
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)	
<i>Vanessa annabella</i> (West Coast Lady)	5	<b>Megathymidae (Giant Skippers)</b>	
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)	
<i>Vanessa cardui</i> (Painted Lady)	6	<b>Other Butterflies:</b>	
<i>Vanessa virginiensis</i> (Virginia Lady)			
<i>Nymphalis californica</i> (California Tortoiseshell)			
<b>Danaidae (Milkweed Butterflies)</b>			
<i>Danaus plexippus</i> (Monarch)		<i>Phoebis sennae</i> 1	1
<i>Danaus gilippus</i> (Queen)		Monarch caterpillar - Cassia nearby planted as ornamentals likely why it is on site	
<b>Satyridae (Satyrs)</b>			
<i>Coenonympha californica</i> (Common California Ringlet)			
<b>Pieridae (Whites, Sulphurs)</b>			
<i>Pieris rapae</i> (Cabbage White)			
<i>Pontia sisymbrii</i> (Spring White)	1	White Sp. 1	1
<i>Pontia beckerii</i> (Baker's White)			
<i>Pontia protodice</i> (Common White)	11		
<i>Anthocharis sara</i> (Sara Orangetip)	5		
<i>Anthocharis cethura</i> (Felder's Orangetip)			
<i>Euchloe hyantis</i> (Desert Pearly Marble)			
<i>Colias eurytheme</i> (Orange Sulphur)			
<i>Colias harfordii</i> (Harford's Sulphur)	2		
<i>Nathalis iole</i> (Dainty Sulphur)			
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>	
<i>Papilio polyxenes</i> (Desert Black Swallowtail)			
<i>Papilio eurymedon</i> (Pale swallowtail)			
<i>Papilio rutulus</i> (Western Tiger Swallowtail)			
<b>Riodinidae (Metalmarks)</b>			
<i>Apodemia mormo</i> (Behr's Metalmark)	52		
<b>Lycaenidae (Hairstreaks and Blues)</b>			
<i>Celastrina ladon</i> (Spring Azure)			
<i>Leptotes marina</i> (Marine Blue)			
<i>Brephidium exile</i> (Western Pygmy Blue)			
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)			
<i>Hemiargus ceraunus</i> (Edward's Blue)			
<i>Icaria acmon</i> (Acmon Blue)			
<i>Philotes sonorensis</i> (Sonoran Blue)			
<i>Callophrys augustinus</i> (Brown Elf)			
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)			
<i>Strymon melinus</i> (Gray Hairstreak)	6		
<i>Atides halesus</i> (Great Purple Hairstreak)			



Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Erin Bergman Add'l Person: Tish Schuyler Date: March 4, 2015  
 Project: Village 4 Survey Sxn: 3 Map #: 3

Host Plants Present	
<i>Plantago erecta</i> (full bloom)	2.5 inches tall w/c

Nectar Plants Present	
<i>Brassica nara</i>	<i>Anagalis arvensis</i>
<i>Atriplex lentiginosa</i>	<i>Hypochaeris glabra</i>
<i>Amelanchier alnifolia</i>	<i>Dichelostemma caryophyllum</i>
<i>Atriplex semibaccata</i>	<i>Nicotiana glauca</i>
<i>Erodium cicutarium</i>	<i>Daucus pusillus</i>
<i>Hirschfeldia incana</i>	<i>Phacelia cicutaria</i>
<i>Sambucus nigra cerulea</i>	<i>Antennaria Nuttalliana</i>
<i>Sisymbrium altissimum</i>	<i>Salvia columbiana</i>
<i>Glebionis corinthium</i>	<i>Rhaphanus sativus</i>
<i>Sonchus asper</i>	<i>Lactuca gracilis</i>
<i>Sonchus oleraceus</i>	<i>Paltochloa glandaris</i>
<i>Eriogonum fasciculatum</i>	<i>Chenopodium album</i>
<i>Sisymbrium chinensis</i>	<i>Galinsoga macrostachya</i>
<i>Zizia aurea</i>	<i>Sisymbrium 1010</i>
<i>Delandria fasciculatum</i>	<i>Glenc gallea</i>
<i>Cerastium albidum</i>	<i>Salvia mellifera</i>
<i>Mirabilis laevis</i>	<i>Erodium moschatum</i>
<i>Tamarix ramosissima (chinensis)</i>	<i>Festuca arborosa</i>
<i>Erodium botrys</i>	<i>Marah macrocarpa</i>
<i>Melilotus indicus</i>	<i>Nicotiana glauca</i>
<i>Polemonium purpureum</i>	<i>Allium procyon</i>
<i>Crucifera conata</i>	<i>Lithospermum</i>
<i>Urtica dioica</i>	<i>Rafinesquina sp.</i>
<i>Dudleya pulcherrima</i>	
<i>Acmelton glabra</i>	
<i>Rhynchosia barbata</i>	
<i>Rhus integrifolia</i>	
<i>Mammillaria davisii</i>	
<i>Harpagophora palmieri</i>	
<i>Lactuca scariola</i>	

Plant Communities and Habitat Information	

Other Wildlife Species	
<ul style="list-style-type: none"> <li>✓ FENCE</li> <li>✓ ANHU</li> <li>✓ CALT</li> <li>✓ BORA</li> <li>✓ BUSH</li> <li>✓ CAG</li> <li>✓ SPTD</li> <li>✓ WEGU</li> <li>✓ SAPH</li> <li>✓ WREN</li> <li>✓ BIPH</li> </ul>	<ul style="list-style-type: none"> <li>WEST</li> <li>AMCR</li> <li>RESP</li> <li>VXIMO</li> <li>✓ CARU</li> <li>✓ GRBO</li> </ul>
<ul style="list-style-type: none"> <li>non nectar</li> <li><i>Chionus barbata</i></li> <li><i>Aurea barbata</i></li> <li><i>Lixia pasha</i></li> <li><i>Bombus madritensis rubens</i></li> <li><i>Festuca californica</i></li> <li><i>Chlorogalum parviflorum</i></li> <li><i>Lycaeus californicus</i></li> <li><i>Stipa pulchra</i></li> <li><i>Bombus diadems</i></li> <li><i>Bombus maculatus</i></li> <li><i>Festuca perennis</i></li> <li><i>Isocoma menziesii</i></li> <li><i>Baccharis sandwicensis</i></li> <li><i>Mimulus pulchellus</i></li> <li><i>Mosses</i></li> <li><i>brachyotum</i></li> <li><i>node plant</i></li> <li><i>11/12/15</i></li> </ul>	



Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Eiri Bergman Add'l Person: Callie Ford/Tish Schuler Date: March 5, 2015  
 Project: Village 4 Survey Sxn: 1 Map #: 1

Host Plants Present	

Nectar Plants Present	
<i>Calystegia macrostegia</i>	<i>Arctostaphylos</i>
<i>Berberis laurifolia</i>	<i>Loasia gallica</i>
<i>Lathyrus vestitus</i>	<i>Loasia arvensis</i>
<i>Dichaloctenium capitatum</i>	
<i>Hemiphragma</i>	
<i>Crassula coccinea</i>	
<i>Mirabilis laevis</i>	
<i>Rhynchospora</i>	
<i>Eriogonum fasciculatum</i>	
<i>Erodium cicutarium</i>	
<i>Eucalyptus crassifolia</i>	
<i>Manisuris</i>	
<i>Brassica mara</i>	
<i>Malosma laevis</i>	
<i>Silene gallica</i>	
<i>Antennaria nuttalliana</i>	
<i>Calochortus sphaeranthus</i>	
<i>Lathyrus griseus</i>	
<i>Allium pyracox</i>	
<i>Loasia gallica</i>	
<i>Yucca villosa</i>	
<i>Medicago polymorpha</i>	
<i>Hedysarum creolicum</i>	
<i>Lactuca scariola</i>	
<i>Nicotiana glauca</i>	
<i>Syntherisma bellum</i>	
<i>Phacelia acuminata</i>	
<i>Desmodium illinoense</i>	
<i>Chenopodium album</i>	
<i>Lespedeza bicolor</i>	
<i>Eriogonum californicum</i>	

Plant Communities and Habitat Information	

Other Wildlife Species		
✓ ANHU	<i>Audubon cotton-tail</i>	<i>Melba imperfecta</i>
✓ CAGN	<i>Junco hyemalis</i>	<i>Heteromela rubra</i>
✓ NEMT	<i>DOCA</i>	<i>Hazardia squamata</i>
✓ HBEI	<i>RTHA</i>	
✓ CAIT	<i>Black jack</i>	
✓ WREN	<i>WCSP</i>	
✓ NOMO		
✓ Gold finch		
✓ CATH		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Krivent Add'l Person: N/A Date: 3-5-15 GPS Unit: \_\_\_\_\_

Project: Village 4 QCB Map #: \_\_\_\_\_ Survey Sxn: #2/middle QCB Protocol Survey # 3 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start	(Ground)	(MPH)		clear	patchy	overcast	drizzle	shower
0900	64F	2-5	0%	clear	patchy	overcast	drizzle	shower
1154 (ass. slope)	84F	2-6	0%	clear	patchy	overcast	drizzle	shower
1308	86F	0-3	0%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End 1415	76°	0-2	0%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open solar, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propretius</i> (Propretius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia juba</i> (Juba Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Baker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		Highly disturbed survey area.
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atlides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Jeff Frost Add'l Person: N/A Date: 3-5-15  
 Project: Village 4 DCB Survey Sxn: Middle Map #: Middle / Area 2

Host Plants Present		
<u>Plantago erecta</u>	<u>45, 20, 100, 30, 15</u>	
Nectar Plants Present		
<u>Blue dials</u>		
<u>Snailflower</u>		
<u>Amaretto</u>		
<u>Wimbomb</u>		
<u>Buckwheat</u>		
<u>Morn. glan</u>		
<u>Lion's tail</u>		
<u>Bladder pod.</u>		
<u>Quin</u>		
<u>Lemonade berry</u>		
<u>Blue eyed grass</u>		
Plant Communities and Habitat Information		
<u>AGE, DH, MSS, CSS (edges), DCSS</u>		
* <u>NUG: Dominates Survey Area</u>		
Other Wildlife Species		
<input checked="" type="checkbox"/> B-CRRR	<input checked="" type="checkbox"/> B-KOBR	<input checked="" type="checkbox"/> B-BLPH
<input checked="" type="checkbox"/> B-WFME	<input checked="" type="checkbox"/> B-KWA	<input checked="" type="checkbox"/> B-WTSH I-velvet ant
<input checked="" type="checkbox"/> B-ANM	<input checked="" type="checkbox"/> M-B-CAB	<input checked="" type="checkbox"/> B-TUVU
<input checked="" type="checkbox"/> M-B-po-go	<input checked="" type="checkbox"/> M-CAGS	<input checked="" type="checkbox"/> B-MAD
<input checked="" type="checkbox"/> M-Cand (3c)	<input checked="" type="checkbox"/> B-LEGO	<input checked="" type="checkbox"/> B-CATH
<input checked="" type="checkbox"/> B-CAB	<input checked="" type="checkbox"/> B-BUSH	
<input checked="" type="checkbox"/> B-DEWILL	<input checked="" type="checkbox"/> B-HOPE	
<input checked="" type="checkbox"/> B-TAKA	<input checked="" type="checkbox"/> R-WF-LIZ	
<input checked="" type="checkbox"/> B-RINA	<input checked="" type="checkbox"/> B-SAPH	
<input checked="" type="checkbox"/> B-AMCR	<input checked="" type="checkbox"/> B-UTA St.	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

frumble

Recorder: Ann Bergman Add'l Person: Marshall Pymard Date: March 9, 2015 GPS Unit: 4

Project: Village 4 QCB Map #: 3 Survey Sxn: 3 QCB Protocol Survey # 4 of 12

TIME (24-hour)	Temp (F°)	Wind (mph)	% CC	Sky
Start 9:00 <i>ow sb protocol</i>	58.4°	5 mph	75%	clear patchy <u>overcast</u> drizzle shower
10:00 <i>ow sb protocol</i>	62.1	3 mph	65%	clear patchy <u>overcast</u> drizzle shower
Start: 11:15	80.2°	1 mph	0%	clear patchy overcast drizzle shower
12:30	75.4°	0.7 mph	0%	clear patchy overcast drizzle shower
1:21	74.9°	0.4 mph	0%	clear patchy overcast drizzle shower
2:15	82.6°	0.6 mph	0%	clear patchy overcast drizzle shower
End 4:30	74.5	1.2 mph	0%	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		
<i>Euphydryas editha</i> (Quino Checkerspot)		
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		
<i>Thessalia leanira</i> (Wright's Checkerspot)		
<i>Chlosyne californica</i> (California Patch)		
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		
<i>Phyciodes mylitta</i> (Mylitta Crescent)		
<i>Junonia coenia</i> (Common Buckeye)		
<i>Vanessa annabella</i> (West Coast Lady)	4	
<i>Vanessa atalanta</i> (Red Admiral)		
<i>Vanessa cardui</i> (Painted Lady)	1	
<i>Vanessa virginiensis</i> (Virginia Lady)		
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)	1	
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)	1	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)	7	
<i>Anthocharis sara</i> (Sara Orangetip)	7	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)	3	
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodiniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)	28	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)	3	
<i>Atides halesus</i> (Great Purple Hairstreak)		

Notes:  
lots of *Selenia*  
seeing more funereal duskywings

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Erin Bergman Add'l Person: Marshall Raymond Date: March 9, 2015  
 Project: Village 4 Survey Sxn: 3 Map #: 3

Host Plants Present	
<i>Plantago erecta</i> (2-3 inch)	
Nectar Plants Present	
<i>Brassica nigra</i>	<i>Lesqueris gracilis</i>
<i>Erodium cicutarium</i>	<i>Menath macrocarpus</i>
<i>Dichlosterema capitatum</i>	
<i>Crassula connata</i>	
<i>Layha gallica</i>	
<i>Callitropis macrostegia</i>	
<i>Bahipisis laevigata</i>	
<i>Laduca ferricola</i>	
<i>Lupinus bicolor</i>	
<i>Lepidium nitidum</i>	
<i>Simonsia chinensis</i>	
<i>Demaria fasciculata</i>	
<i>Prishfeldtia incana</i>	
<i>Penstemon melanocentrus</i>	
<i>Colochortus splendens</i>	
<i>Allium praeiox</i>	
<i>Melilotus indicus</i>	
<i>Erodium moschatum</i>	
<i>Mammillaria dioica</i>	
<i>Harpeganella pedunculata</i>	
<i>Melilotus indicus</i>	
<i>Psilocarphus brevissimus</i>	
<i>Anagallis arvensis</i>	
<i>Mirabilis laciniosa</i>	
<i>Dianthus pusillus</i>	
<i>Encelia californica</i>	
<i>Silene gallica</i>	
<i>Nicotiana glauca</i>	
<i>Eucrypta dyanthemifolia</i>	
<i>Phacelia acuminata</i>	
Plant Communities and Habitat Information	
really nice QCB habitat (lots of host plants)	
Other Wildlife Species	
✓ CALT	
✓ CDRA	
✓ HOFT	
✓ ANHU	
✓ RTHA	
✓ MODO	
✓ NDMD	
✓ WEME	
✓ CAPN	
✓ ACSP	
✓ SPTD	

3/10/15

4 of 12 (44.7%)

Village 4 QCB - Area 2

Onsite

1000

Stress: 5%cc

Wind: 0-2 mph

Temp: 72°F  
(shade/grass)

1215

5%cc

3-5, 6-8 gusts

75°F

Offsite

1515

10%cc

2-4, 5-8 g.

80°F

✓ WENE

✓ CORA

Bear's man III

✓ NOMO

Euro cabbage III III

Sara's OT III III III

✓ WTSW

✓ CATH

✓ ANHU

✓ Br. rabbit

✓ W. fence liz

Host/Nectar

Mustard

Blue dicks

Morning glory

SD sunflower

Buckwheat

~~Erodium cic.~~

3 ~~Calceolaria~~

Blue-eyed grass

Allium sp.

Bladderpod

(over)



Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Danielle Mallow Date: March 13, 2015 GPS Unit: 12nd 9

Project: Village 4 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 4 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 9:40	74.2	1.2	0	clear	patchy	overcast	drizzle	shower
10:20	73.0	0.6	0	clear	patchy	overcast	drizzle	shower
12:00	83.10	0.6	0	clear	patchy	overcast	drizzle	shower
12:58	84.2	2.3	0	clear	patchy	overcast	drizzle	shower
2:30	85.9	3.0	0	clear	patchy	overcast	drizzle	shower
3:45	81.2	3.0	0	clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing) <u>    </u>
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		<i>Anise Swallowtail</i>
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White) <u>     </u>		
<i>Anthocharis sara</i> (Sara Orangetip) <u>     </u>		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		✓ NMD
<i>Papilio eurymedon</i> (Pale swallowtail)		✓ ALT
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		✓ RTHA
<b>Riodinidae (Metalmarks)</b>		✓ BSWR
<i>Apodemia mormo</i> (Behr's Metalmark)		✓ CAEN
<b>Lycaenidae (Hairstreaks and Blues)</b>		✓ Audubon's rather-fair
<i>Celastrina ladon</i> (Spring Azure)		✓ CAPH
<i>Leptotes marina</i> (Marine Blue)		✓ SPTD
<i>Brephidium exile</i> (Western Pygmy Blue)		✓ CAQU
<i>Glaucopteryx lygdarmus</i> (Southern Blue/Silvery blue)		✓ Side blue check
<i>Hemiargus ceraunus</i> (Edward's Blue)		✓ WREN
<i>Icaria acmon</i> (Acmon Blue)		✓ WTSW
<i>Philotes sonorensis</i> (Sonoran Blue)		✓ WPEME
<i>Callophrys augustinus</i> (Brown Elf)		✓ COBA
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		✓ ANHU
<i>Strymon melinus</i> (Gray Hairstreak)		✓ WCSP
<i>Allides halesus</i> (Great Purple Hairstreak)		✓ CATH

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Evan Bergman Add'l Person: \_\_\_\_\_ Date: March 13, 2015  
 Project: Village 4 Survey Sxn: 1 Map #: 1

Host Plants Present	
<u>Plantago erecta 7-8 inches still</u>	<u>blooming</u>
Nectar Plants Present	
<u>Dichelostemma capitatum</u>	<u>Vicia villosa</u>
<u>Rhynchospora laciniata</u>	<u>Simonsia chinensis</u>
<u>Lepidium nitidum</u>	<u>Acmispon striosus</u>
<u>Brassica napa</u>	<u>Convolvulus simulans</u>
<u>Modium cucullatum</u>	<u>Logfia gallica</u>
<u>Lactuca scariola</u>	<u>Logfia arizonica</u>
<u>Canthalegia macrostegia</u>	
<u>Eriogonum fasciculatum var fascic</u>	
<u>Centrosema melitensis</u>	
<u>Logfia gallica</u>	
<u>Redgula conata</u>	
<u>Mirabilis laevis</u>	
<u>Manis manisopus</u>	
<u>Calochortus splendens</u>	
<u>Leontodon asotus</u>	
<u>Nicotiana glauca</u>	
<u>Euclyptus crinitus</u>	
<u>Phacelia acuminata</u>	
<u>Desmodium fasciculatum</u>	
<u>Lathyrus villosus</u>	
<u>Silene gallica</u>	
<u>Artemisia tridentata</u>	
<u>Acmispon glaber</u>	
<u>Lupinus succulentus</u>	
<u>Lathyrus gracilis</u>	
<u>Cryptantha sp</u>	
<u>Sisyrinchium bellum</u>	
<u>Tridax aspera</u>	
<u>Phlox strobilata</u>	
Plant Communities and Habitat Information	
Other Wildlife Species	



Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Jeff Add'l Person: N/A Date: 3-18-15  
 Project: Village 4 Survey Sxn: Southern Map #:

Host Plants Present  
 RP: 150, 10K, 500, 600, 10, 350, 50, 5000, 1000, 500, 500, 70, 300, 500  
 30, 30, 10, 1000  
 checked all mapped locations  
 RP: 150, 100, 4, 22, 5

Nectar Plants Present

- Mustard
- Amelanchier
- Blue-eyed grass
- Erigeron
- Swain
- Witchhazel
- Sumac
- Blue Dicks
- Morn. Glory
- Phacelia (?)
- Jasmin (sp)
- Paperblossom
- Tom plant (sp)
- Jojoba
- Lupin
- A. poppy
- Melilotus
- Spring cucumber
- Star thistle
- Tree tobacco
- Mex. Elderberry
- Mud flat
- Drumstick
- Wild radish (?)
- Lemonade berry

Plant Communities and Habitat Information  
 NNG, CSS, bare soils DH, MSS, dCSS, DSBS, DH RR,

Other Wildlife Species

B-CATO ✓	B-LEGO ✓	B-WTSW ✓	M-Neotoma sp. (found) ✓
B-WEME ✓	B-SOTO ✓	B-Gold (sp) ✓	B-CATH ✓
B-THAN ✓	M-AGS ✓	B-CAGU ✓	B-HORR ✓
B-COLA ✓	B-GENR ✓	B-WREN ✓	B-NOMO ✓
B-RTNA ✓	M-Lone/sc ✓	B-TUUL ✓	
B-BUSH ✓	M-B. rabbit ✓	B-BLPH ✓	
B-WFLIZ ✓	L-s-b. liz. ✓	B-SOSP ✓	
B-MOJO ✓	M-B. sp. go. (me) ✓	B-CAKI ✓	
B-HOFL ✓	B-ANHU ✓	B-AMCR ✓	
B-AMCR ✓	B-CLSW ✓	B-ATFL ✓	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Frost Add'l Person: N/A Date: 3/20/15 GPS Unit: \_\_\_\_\_  
 Project: Village 4 Map #: \_\_\_\_\_ Survey Sxn: middle QCB Protocol Survey # 5 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky					
Start	(Ground)	(mph)		clear	patchy	overcast	drizzle	shower	
0845	70°F	6-1	20%	clear	patchy	overcast	drizzle	shower	
0940	75°	0-4	5%	clear	patchy	overcast	drizzle	shower	
1035	80°F	0-3	0%	clear	patchy	overcast	drizzle	shower	
1215	84°F	4-8 gusts 10-12	0%	clear	patchy	overcast	drizzle	shower	
End	1400	83°F	5-10, gusts 10-15	0%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funerals</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		<i>Anise Swallowtail</i>
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		



# Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Borgman Add'l Person: Callie Ford Date: March 23, 2015 GPS Unit: Trimble 4

Project: Village 4 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 5 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 9:00	67.7	3.0	5%	Clear	patchy	overcast	drizzle	shower
12:15	76.8	3.2	5%	clear	patchy	overcast	drizzle	shower
12:53	76.7	1.5	15%	clear	patchy	overcast	drizzle	shower
13:33	74.4	5.4	50%	clear	patchy	overcast	drizzle	shower
14:03	74.6	0.6	30%	clear	patchy	overcast	drizzle	shower
15:25	75.2	0.2	15%	clear	patchy	overcast	drizzle	shower
End 16:00	75.2	1.2	20%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis proterpius</i> (Proterpius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady) IIII	8	<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady) IIII IIII	10	<b>Other Butterflies:</b>
<i>Vanessa virginiensis</i> (Virginia Lady)		<i>Amuse spallantia</i> 1
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White) IIII IIII IIII	16	
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		✓ WEME
<i>Papilio eurymedon</i> (Pale swallowtail)		✓ CALT
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		✓ CAGN
<b>Riodinidae (Metalmarks)</b>		✓ AMUR
<i>Apodemia mormo</i> (Behr's Metalmark) IIII IIII IIII	12	✓ CORA
<b>Lycaenidae (Hairstreaks and Blues)</b>		✓ SPHYNX morph = calidomera: stripe = 100%
<i>Celastrina ladon</i> (Spring Azure)		✓ RTHA
<i>Leptotes marina</i> (Marine Blue)		✓ WREN
<i>Brephidium exile</i> (Western Pygmy Blue)		✓ MODO
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		✓ HOPI
<i>Hemiargus ceraunus</i> (Edward's Blue)		✓ CAQU
<i>Icaria acmon</i> (Acmon Blue)		✓ SOSY
<i>Philotes sonorensis</i> (Sonoran Blue)		✓ CATH
<i>Callophrys augustinus</i> (Brown Elfyn)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Erin Bergman Add'l Person: Callie Ford Date: March 23, 2015  
 Project: Village 40 Survey Sxn: 1 Map #: 1

Host Plants Present	
<i>Plantago erecta</i> ~1.5" tall	
Nectar Plants Present	
<i>Batrachium laciniata</i>	<i>Desmodium fasciculatum</i>
<i>Calochortus splendens</i>	<i>Lupinus galii</i>
<i>Rhus integrifolia</i>	<i>Lupinus albus</i>
<i>Hirschfeldia glaciosa</i>	<i>Sonchus asper</i>
<i>Dichelostemma capitatum</i>	<i>Sonchus oleraceus</i>
<i>Lathyrus vestitus</i>	<i>Lupinus siccus</i>
<i>Achillea scapania</i>	<i>Sim chi</i>
<i>Antennaria natthaliana</i>	<i>Foe vul</i>
<i>Mirabilis laevis</i>	* <i>Lathyrus gracilis</i>
<i>Silene gallica</i>	<i>Baucus pusillus</i>
<i>Crassula connata</i>	<i>Astragalus triphopodus</i> var. <i>longulus</i>
<i>Centauria melitensis</i>	<i>Mar vul</i>
<i>Centauria melitensis</i>	<i>Melilotus indicus</i>
<i>Phacelia circumscissa</i>	<i>Encelia californica</i>
<i>Hedysarum creticum</i>	<i>Cham polycarpa</i>
<i>Hypericum glabrum</i>	<i>Oxalis californica</i>
<i>Erodium cicutarium</i>	
<i>Lactuca scariola</i>	
<i>Eriogonum fasciculatum</i> var. <i>griseum</i>	
<i>March macranthum</i>	
<i>Schrophularia californica</i>	
<i>Eriogonum fasciculatum</i> folia	
<i>Brassica nigra</i>	
<i>Achillea glabra</i>	
<i>Convolvulus dimidiatus</i>	
<i>Vicia villosa</i> var. <i>villosa</i>	
<i>Sisyrinchium bellum</i>	
<i>Callitriche</i>	
<i>Lep nit</i>	
<i>Pteris</i>	
<i>Zig tre</i>	
Plant Communities and Habitat Information	
Other Wildlife Species	



3/26/15

6 of 12

Village 4 - QCB - Area 3 (35.5 acres)

Onsite

6946

Skus: 0%cc

Wind: 1-3 mph

Temp: 83°F (ground/shade)

Offsite

1400

0%cc

3-5, 6-9 gusts

90°F

Fun duskywing III

✓ Host

✓ NDMO

✓ Sara's OT III III I

✓ Behar's MM III III I

✓ CoRA

✓ Euro cabbage III III

✓ P green hairstreak II

✓ RTHA

✓ WTSW

✓ Painted lady III

✓ Pearly Blue III II (Atrioles)

Nectar/Host

Buckwheat

Erodium

Star thistle

SD Sunflower

Brassica

Tarplant (5 petals)

Calceolus spl.

Blue dicks

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Callie Ford Date: 3/27/15 GPS Unit: Trimble 4

Project: Village 4 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 6 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 9:45	82.9	3.2	0	clear	patchy	overcast	drizzle	shower
11:38	98.1	1.2	0	clear	patchy	overcast	drizzle	shower
1:47	99.9	1.8	0	clear	patchy	overcast	drizzle	shower
2:52	97.2	2.2	0	clear	patchy	overcast	drizzle	shower
3:40	91.6	2.1	0	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing) IIII IIII
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady) IIII	4	<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady) III	3	
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		Anise Swallowtail IIII II
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White) IIII I	6	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White) IIII IIII IIII IIII	19	
<i>Anthocharis sara</i> (Sara Orangetip) IIII IIII IIII	13	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark) IIII	4	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atlides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Evan Bergman  
 Project: Village 4

Add'l Person: Callie Ford  
 Survey Sxn: 1

Date: March 27, 2015  
 Map #: 1

Host Plants Present	
<i>Plantago erecta</i> (still looks good) 3 inches ave. height	
Nectar Plants Present	
<i>Lathyrus vestitus</i>	<i>Acrocomia glabra</i>
<i>Sidalopsis laciniata</i>	<i>Desmodium fasciculata</i>
<i>Dichelostemma capitatum</i>	<i>Mimulus</i> (unclear)
<i>Eriogonum fasciculatum</i>	<i>Pentstemon arboreus</i>
<i>Brassica nigra</i>	<i>Grindelia camporum</i>
<i>Hirschfeldia incana</i>	
<i>Mirabilis laevis</i>	
<i>Phacelia cicutaria</i>	
<i>Scrophularia californica</i>	
<i>Erodium californicum</i>	
<i>Calystegia macrostegia</i>	
<i>Calochortus splendens</i>	
<i>Rhus integrifolia</i>	
<i>Antennaria multiflorum</i>	
<i>Lepidium nitidum</i>	
<i>Bibomera cracea</i>	
<i>Convolvulus arvensis</i>	
<i>Sisyrinchium bellum</i>	
<i>Vicia villosa</i>	
<i>Hedysarum creticum</i>	
<i>Centauria melitensis</i>	
<i>Hesperis matronalis</i>	
<i>Lupinus succulentus</i>	
<i>Nicotiana glauca</i>	
<i>Microseris douglasii platycarpa</i>	
<i>Asragalus micranthus</i>	
<i>Taraxacum officinale</i>	
Plant Communities and Habitat Information	
Other Wildlife Species	
✓ CALT ✓ WEME ✓ NOMO ✓ CORA ✓ CAGN ✓ WREN ✓ HDPI ✓ MODO	✓ COYE ✓ BUSH ✓ SDSP ✓ PLSN ✓ WWRP ✓ LEGD CACW cactus wREN (not sure dudek code) (AWR?)
<i>Brachypodium distachyon</i> is everywhere (not sure we got this grass)	

3/27/15

6 of 12

Village 4 QCB - Area 2 (44.7N)

Onsite

0945

Skies: 30%cc

Wind: 2-3 mph

Temp: 74°F

Offsite

1530

20%cc

3 clouds, 7-12g.

78°F

✓HOLA

✓CATH

✓Common white III III III III III 30+

✓WEME

Painted lady III III 20+

✓LEGO Fun. daisy King III

✓HOFI

Euro cabbage IIII

✓ANHU

✓CORB

✓W. fence liz ✓RTHA

✓Striped racer / CA whipsnake

✓NOMO

✓Br rabbit

✓MODO

✓Nectar/Host

✓Erdum civi

✓Buckwheat

✓Bl. mustard

\* ✓P. creta

✓Bladderpod

✓Calochortis sp.

✓SD sunflower

✓Blue dicks

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Ruest Add'l Person: N/A Date: 4-2-15 GPS Unit: \_\_\_\_\_

Project: Village 4 Map #: \_\_\_\_\_ Survey Sxn: South QCB Protocol Survey # 7 of 12

TIME (24-hour)	Temp (F°): (Ground)	Wind (avg/max) (mph)	% CC	Sky				
Start				clear	patchy	overcast	drizzle	shower
<u>0930</u>	<u>73°F</u>	<u>0-3</u>	<u>75%</u>	clear	<u>patchy</u>	overcast	drizzle	shower
<u>1130</u>	<u>82°F</u>	<u>2-4</u>	<u>10%</u>	<u>clear</u>	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End				<u>clear</u>	patchy	overcast	drizzle	shower
<u>1330</u>	<u>84°F</u>	<u>4-9</u>	<u>25%</u>					

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing) *
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch) *		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checked Skipper) *
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady) *		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet) *		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White) * *		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Baker's White)		
<i>Pontia protodice</i> (Common White) * * *		
<i>Anthocharis sara</i> (Sara Orangetip) *		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail) *		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark) *		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Jeff Priest Add'l Person: N/A Date: 4-2-15  
 Project: Village 4 Survey Sxn: South Map #: (South)

Host Plants Present	
<p>PC: 150, 10,000, 350, 500, 10, 1000, 1,000, 50, 5,000, 500                      500, 70, 300, 500, 10, 30, 30, 400, 300</p> <p>Hf: 150, 100, 4, 22.5</p>	
Nectar Plants Present	
<p>Popcorn Flower                      Mustard                      Buckwheat                      Mex. Elderberry                      Tar plant (SD)                      Calceolarius sp. (?)                      Star Thistle                      CA poppy                      Blue Dick                      Sunflower</p>	
Plant Communities and Habitat Information	
<p>CSS, dSBS, NNG, NH, dCSS, MSS, VGL, MFS</p>	
Other Wildlife Species	
<p>✓ B-PRIN ✓ B-AMCR ✓ B-WF L2                      ✓ B-CATO ✓ A-LEGO ✓ B-RCSE                      ✓ B-WEME ✓ B-WREN ✓ B-NOMO                      ✓ B-LOPA ✓ B-SPTD                      ✓ B-ANHU ✓ B-ATFL                      ✓ B-MOND ✓ B-TUYA                      ✓ B-AMCR ✓ M-BO ab.                      ✓ B-BJLT ✓ M-D. pa. g. (mo)                      ✓ B-BTNA ✓ B-NOMP                      ✓ B-COHU ✓ M-CAGS</p>	

## Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Brest Add'l Person: N/A Date: 4-2-15 GPS Unit: \_\_\_\_\_

Project: Village 4 Map #: \_\_\_\_\_ Survey Sxn: Middle QCB Protocol Survey # 7 of 12

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
Start	(Ground)	(mph)		clear	patchy	overcast	drizzle	shower
1330	84°F	4-9	25%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower
1530	87°F	5-10	35%					

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>	
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)	
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)	
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)	
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)	
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)	
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)	
<i>Junonia coenia</i> (Common Buckeye)		<i>Poites sabuleti</i> (Sandhill Skipper)	
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>	
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)	
<i>Vanessa cardui</i> (Painted Lady)			
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>	
<i>Nymphalis californica</i> (California Tortoiseshell)			
<b>Danaidae (Milkweed Butterflies)</b>			
<i>Danaus plexippus</i> (Monarch)			
<i>Danaus gilippus</i> (Queen)			
<b>Satyridae (Satyrs)</b>			
<i>Coenonympha californica</i> (Common California Ringlet)			
<b>Pieridae (Whites, Sulphurs)</b>			
<i>Pieris rapae</i> (Cabbage White)			
<i>Pontia sisymbrii</i> (Spring White)			
<i>Pontia beckerii</i> (Beker's White)			
<i>Pontia protodice</i> (Common White)			
<i>Anthocharis sara</i> (Sara Orangetip)			
<i>Anthocharis cethura</i> (Felder's Orangetip)			
<i>Euchloe hyantis</i> (Desert Pearly Marble)			
<i>Colias eurytheme</i> (Orange Sulphur)			
<i>Colias harfordii</i> (Harford's Sulphur)			
<i>Nathalis iole</i> (Dainty Sulphur)			
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>	
<i>Papilio polyxenes</i> (Desert Black Swallowtail)			
<i>Papilio eurymedon</i> (Pale swallowtail)			
<i>Papilio rutulus</i> (Western Tiger Swallowtail)			
<b>Riodinidae (Metalmarks)</b>			
<i>Apodemia mormo</i> (Behr's Metalmark)			
<b>Lycaenidae (Hairstreaks and Blues)</b>			
<i>Celastrina ladon</i> (Spring Azure)			
<i>Leptotes marina</i> (Marine Blue)			
<i>Brephidium exile</i> (Western Pygmy Blue)			
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)			
<i>Hemiargus ceraunus</i> (Edward's Blue)			
<i>Icaria acmon</i> (Acmon Blue)			
<i>Philotis sonorensis</i> (Sonoran Blue)			
<i>Callophrys augustinus</i> (Brown Elfin)			
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)			
<i>Strymon melinus</i> (Gray Hairstreak)			
<i>Atides halesus</i> (Great Purple Hairstreak)			





Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: NA Date: 4/3/2015 GPS Unit: 4

Project: Village 4 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 7 of 12

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
Start 9:35	71.3	2.8	10	(clear)	patchy	overcast	drizzle	shower
10:42	75.8	1.2	15	(clear)	patchy	overcast	drizzle	shower
1:25	75.1	1.8	25	(clear)	patchy	overcast	drizzle	shower
2:15	79.2	1.1	25	(clear)	patchy	overcast	drizzle	shower
3:15	78.4	1.8	25	(clear)	patchy	overcast	drizzle	shower
3:40	78.2	1.8	25	(clear)	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia juba</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)	2	<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)	1	<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)	12	<b>Other Butterflies:</b>
<i>Vanessa virginiensis</i> (Virginia Lady)		
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		<i>(use small standard)         </i>
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet) }		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)	3	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)	8	
<i>Anthocharis sara</i> (Sara Orangetip)	13	
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)	1	
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopteryx lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atlides halesus</i> (Great Purple Hairstreak)		



Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

(remainder from 4/2/15)

Recorder: Jeff Priest Add'l Person: N/A Date: 4/3/15 GPS Unit: \_\_\_\_\_

Project: Village 4 Map #: \_\_\_\_\_ Survey Sxn: Middle QCB Protocol Survey # 7 of 12

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
Start	Ground			clear	patchy	overcast	drizzle	shower
1200	94°F	4-8 gusts to 10	5%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End	92°F	4-8 gusts to 12	5%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops/ridges/rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funerals</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus aibescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodiniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		

1 of 2



Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Priest Add'l Person: N/A Date: 4-8-15 GPS Unit: \_\_\_\_\_  
 Project: Village 4 Map #: \_\_\_\_\_ Survey Sxn: South (portion) QCB Protocol Survey # 8 of 12

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CG	Sky				
Start	(Ground)	(mph)		clear	patchy	overcast	drizzle	shower
1230	72°F	3-8	0%	clear	patchy	overcast	drizzle	shower
1330	74°F	4-7 gust to 10	0%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End 1430	78°F	6-10 gust to 15	0%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyriidae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)		
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckeri</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		Notes:
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodinidae (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atides halesus</i> (Great Purple Hairstreak)		



4/9/15 8 a 12

47.3 acres

Village 4 QCB - Area 2 (North)

Onsite

Offsite

CRSD

1500

Skies: 0%cc

0%cc

Wind: 2-4 mph

2-6, 7-15 gusts

Temp: 68°F (ground, shade) 75°F

Nectar/host

RTHA ✓

Brassica

Saras OT 1

Calceolites splend.

CORA ✓

Buckwheat

Euro cabbage II

Blue dicks

WEME ✓

↙ P. protuberans

tarplant

Common white III III

SP sunflower

Anise Swallowtail IIII

Star thistle

Br. rabbit ✓

CATO ✓

WTS ✓

Behr's mm II

AMKE ✓







4/16 Areal 9 of 12

Recorder: Evin Bergman Add'l Person: NA Date: April 17, 2012 GPS Unit: \_\_\_\_\_

Project: Village of Olay Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 9 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 10:40	76.4	7.2	0	clear	patchy	overcast	drizzle	shower
11:42	79.2	2.1	0	clear	patchy	overcast	drizzle	shower
12:28	79.9	2.0	0	clear	patchy	overcast	drizzle	shower
1:49	82.1	1.3	0	clear	patchy	overcast	drizzle	shower
2:50	80.3	1.8	0	clear	patchy	overcast	drizzle	shower
3:15	80.4	1.4	0	clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>	
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)	
<i>Euphydryas chalcedona</i> (Honne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)	
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)	
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)	
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)	
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)	
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)	
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>	
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)	
<i>Vanessa cardui</i> (Painted Lady)		<b>Other Butterflies:</b>	
<i>Vanessa virginiensis</i> (Virginia Lady)			
<i>Nymphalis californica</i> (California Tortoiseshell)			
<b>Danaidae (Milkweed Butterflies)</b>		<i>Anise Swallowtail</i> IIII I	6
<i>Danaus plexippus</i> (Monarch)			
<i>Danaus gilippus</i> (Queen)			
<b>Satyridae (Satyrs)</b>			
<i>Coenonympha californica</i> (Common California Ringlet)			
<b>Pieridae (Whites, Sulphurs)</b>			
<i>Pieris rapae</i> (Cabbage White) II			
<i>Pontia sisymbrii</i> (Spring White)			
<i>Pontia beckerii</i> (Baker's White)			
<i>Pontia protodice</i> (Common White) IIII IIII IIII II	17		
<i>Anthocharis sara</i> (Sara Orangetip) IIII IIII II	12		
<i>Anthocharis cethura</i> (Felder's Orangetip)			
<i>Euchloe hyantis</i> (Desert Pearly Marble)			
<i>Colias eurytheme</i> (Orange Sulphur)			
<i>Colias harfordii</i> (Harford's Sulphur)			
<i>Nathalis iole</i> (Dainty Sulphur)			
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>	
<i>Papilio polyxenes</i> (Desert Black Swallowtail)			
<i>Papilio eurymedon</i> (Pale swallowtail)			
<i>Papilio rutulus</i> (Western Tiger Swallowtail)			
<b>Riodiniade (Metalmarks)</b>			
<i>Apodemia mormo</i> (Behr's Metalmark)			
<b>Lycaenidae (Hairstreaks and Blues)</b>			
<i>Celastrina ladon</i> (Spring Azure)			
<i>Leptotes marina</i> (Marine Blue)			
<i>Brephidium exile</i> (Western Pygmy Blue)			
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)			
<i>Hemiargus ceraunus</i> (Edward's Blue)			
<i>Icaria acmon</i> (Acmon Blue)			
<i>Philotes sonorensis</i> (Sonoran Blue)			
<i>Callophrys augustinus</i> (Brown Elfin)			
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)			
<i>Strymon melinus</i> (Gray Hairstreak)			
<i>Atides halesus</i> (Great Purple Hairstreak)			





Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Jeff Piest Add'l Person: NA Date: 4-17-15  
 Project: Village 4 Survey Sxn: NorFla Map #:

Host Plants Present	
Re (mixed up)	150, 10,000, 350, 10, 600, 50, 5000, 1000, 500, 500
	500, 500, 30, 30, 10

Nectar Plants Present	
Buckwheat	
Mulla sp.	
Bladderpod	
Mustard	
Blue Dicks - Eryngium	
Tarweed (sp)	
Star Thistle	
Calochortus 3 sp.	
Mora: Glossy	

Plant Communities and Habitat Information	
NNG, CSS, DCSS, DH.	

Other Wildlife Species	
✓ B-CORA	✓ B-WTSL ✓
✓ B-HOF1	✓ M-Cande (SC) ✓
✓ B-ANNU	✓ B-CLEW ✓
✓ B-LEGO	
✓ B-PHIN	
✓ B-NOMO	
✓ M-CAGS	
✓ B-RTNA	
✓ B-KOPI	
✓ B-CATH	

Recorder: Erin Mayman Add'l Person: \_\_\_\_\_ Date: April 21, 2015 GPS Unit: Trimble

Project: Village 4 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 10 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 8:20	65.6	2.5	35	clear	patchy	overcast	drizzle	shower
10:15	73.1	1.6	20	clear	patchy	overcast	drizzle	shower
12:07	74.2	2.1	10	clear	patchy	overcast	drizzle	shower
2:05	76.4	1.4	15	clear	patchy	overcast	drizzle	shower
3:48	76.1	1.2	25	clear	patchy	overcast	drizzle	shower
5:58	74.2	1.4	20	clear	patchy	overcast	drizzle	shower
End				clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>	
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)	1
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)	
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)	
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)	
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)	
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)	
<i>Junonia coenia</i> (Common Buckeye)	1	<i>Polites sabuleti</i> (Sandhill Skipper)	
<i>Vanessa annabella</i> (West Coast Lady)	1	<b>Megathymidae (Giant Skippers)</b>	
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)	
<i>Vanessa cardui</i> (Painted Lady)		<b>Other Butterflies:</b>	
<i>Vanessa virginiensis</i> (Virginia Lady)			
<i>Nymphalis californica</i> (California Tortoiseshell)			
<b>Danaidae (Milkweed Butterflies)</b>		<i>Danaus plexippus</i> (Monarch)	4
<i>Danaus plexippus</i> (Monarch)			
<i>Danaus gilippus</i> (Queen)			
<b>Satyridae (Satyrs)</b>			
<i>Coenonympha californica</i> (Common California Ringlet)	1		
<b>Pieridae (Whites, Sulphurs)</b>			
<i>Pieris rapae</i> (Cabbage White)			
<i>Pontia sisymbrii</i> (Spring White)			
<i>Pontia beckerii</i> (Beker's White)			
<i>Pontia protodice</i> (Common White)	35		
<i>Anthocharis sara</i> (Sara Orangetip)			
<i>Anthocharis cethura</i> (Felder's Orangetip)			
<i>Euchloe hyantis</i> (Desert Pearly Marble)			
<i>Colias eurytheme</i> (Orange Sulphur)			
<i>Colias harfordii</i> (Harford's Sulphur)			
<i>Nathalis iole</i> (Dainty Sulphur)			
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>	
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		✓ BUSH	✓ COPIA - 100%
<i>Papilio eurymedon</i> (Pale swallowtail)		✓ KTHA	✓ BEND
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		✓ CORA	✓ MATH
<b>Riodiniade (Metalmarks)</b>		✓ WEME	✓ CAQU
<i>Apodemia mormo</i> (Behr's Metalmark)		✓ NORA	✓ HDEF
<b>Lycaenidae (Hairstreaks and Blues)</b>		✓ CALT	✓ WRFN
<i>Celastrina ladon</i> (Spring Azure)		✓ LEGO	✓ ALPH
<i>Leptotes marina</i> (Marine Blue)		✓ ATFL	✓ ROWR
<i>Brephidium exile</i> (Western Pygmy Blue)			
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)			
<i>Hemiargus ceraunus</i> (Edward's Blue)			
<i>Icaria acmon</i> (Acmon Blue)			
<i>Philotes sonorensis</i> (Sonoran Blue)			
<i>Callophrys augustinus</i> (Brown Elfin)			
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)			
<i>Strymon melinus</i> (Gray Hairstreak)	4		
<i>Atlides halesus</i> (Great Purple Hairstreak)	1		



4/22/15

10 of 12 (47.3 ac)

Village 4 - QCB: Area 2 (North)

Onsite

Offsite

3240

1500

Skies: 10% cc

windy

0% cc

Wind: 2-4 mph

5-10, 11-20 gusts

Temp: 66°F

ground/shade 74°F

HOFI ✓

Br rabbit ✓

Common white HT HT 11

Behr's min 1

WEME ✓

MODD ✓

CORA ✓

RTHA ✓

CATO ✓

Amere swallowtail HT

BEWR ✓

Painted lady 1 1

Host/Nectar

Dem. fasc.

Buckwheat

SD sunflower

Eradium

Blue Ricks



Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Jeff Priest Add'l Person: N/A Date: 4-28-15 GPS Unit: \_\_\_\_\_

Project: V114 QCB Map #: \_\_\_\_\_ Survey Sxn: North (2) QCB Protocol Survey # 11 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start	Ground	mph	cloud	clear	patchy	overcast	drizzle	shower
1000	88°F	1-4	0%	clear	patchy	overcast	drizzle	shower
1235	94°F	3-9	0%	clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
				clear	patchy	overcast	drizzle	shower
End	96°F	4-9, gusts to 12	0%	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checked Skipper)
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		<b>Other Butterflies:</b>
<i>Nymphalis californica</i> (California Tortoiseshell)		<i>Anise Swallowtail</i>
<b>Danaidae (Milkweed Butterflies)</b>		<i>CA Dogface</i>
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pteridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)	<del>50+</del> 50+	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Baker's White)		
<i>Pontia protodice</i> (Common White)	<del>50+</del> 50+	
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodiniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)		
<i>Atlides halesus</i> (Great Purple Hairstreak)		



Area 11 of 12

Quino Checkerspot butterfly & Proteus survey

Recorder: Ann Bergman Add'l Person: \_\_\_\_\_ Date: April 2, 2015 GPS Unit: \_\_\_\_\_

Project: Village 11 Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 11 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start 7:40	71.2	2.1	0	clear patchy overcast drizzle shower
8:04	76.4	1.2	0	clear patchy overcast drizzle shower
9:42	88.2	2.1	0	clear patchy overcast drizzle shower
11:08	90.1	1.1	0	clear patchy overcast drizzle shower
12:03	93.8	1.6	0	clear patchy overcast drizzle shower
1:18	94.8	1.1	0	clear patchy overcast drizzle shower
End 2:01	95.8	1.1	0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total	Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		
<i>Euphydryas editha</i> (Quino Checkerspot)		
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		
<i>Thessalia leanira</i> (Wright's Checkerspot)		
<i>Chlosyne californica</i> (California Patch)		
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		
<i>Phyciodes mylitta</i> (Mylitta Crescent)		
<i>Junonia coenia</i> (Common Buckeye)		
<i>Vanessa annabella</i> (West Coast Lady)		
<i>Vanessa atalanta</i> (Red Admiral)		
<i>Vanessa cardui</i> (Painted Lady)		
<i>Vanessa virginiensis</i> (Virginia Lady)		
<i>Nymphalis californica</i> (California Tortoiseshell)		
<b>Danaidae (Milkweed Butterflies)</b>		
<i>Danaus plexippus</i> (Monarch)		
<i>Danaus gilippus</i> (Queen)		
<b>Satyridae (Satyrs)</b>		
<i>Coenonympha californica</i> (Common California Ringlet)		
<b>Pieridae (Whites, Sulphurs)</b>		
<i>Pieris rapae</i> (Cabbage White)	1	
<i>Pontia sisymbrii</i> (Spring White)		
<i>Pontia beckerii</i> (Beker's White)		
<i>Pontia protodice</i> (Common White)		
<i>Anthocharis sara</i> (Sara Orangetip)		
<i>Anthocharis cethura</i> (Felder's Orangetip)		
<i>Euchloe hyantis</i> (Desert Pearly Marble)		
<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Nathalis iole</i> (Dainty Sulphur)		
<b>Papilionidae (Swallowtails)</b>		
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		
<i>Papilio eurymedon</i> (Pale swallowtail)		
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<b>Riodiniade (Metalmarks)</b>		
<i>Apodemia mormo</i> (Behr's Metalmark)		
<b>Lycaenidae (Hairstreaks and Blues)</b>		
<i>Celastrina ladon</i> (Spring Azure)		
<i>Leptotes marina</i> (Marine Blue)		
<i>Brephidium exile</i> (Western Pygmy Blue)		
<i>Glaucopteryx lygdamus</i> (Southern Blue/Silvery blue)		
<i>Hemiargus ceraunus</i> (Edward's Blue)		
<i>Icaria acmon</i> (Acmon Blue)		
<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Callophrys augustinus</i> (Brown Elfin)		
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)		
<i>Strymon melinus</i> (Gray Hairstreak)	1	
<i>Atides halesus</i> (Great Purple Hairstreak)		
<b>Hesperiidae (Skippers)</b>		
<i>Erynnis funeralis</i> (Funereal Duskywing)		
<i>Erynnis tristis</i> (Sad Duskywing)		
<i>Erynnis propertius</i> (Propertius Duskywing)		
<i>Erynnis brizo</i> (Sleepy Duskywing)		
<i>Pyrgus albescens</i> (Checkered Skipper)		
<i>Hesperia jubia</i> (Jubia Skipper)		
<i>Polites sabuleti</i> (Sandhill Skipper)		
<b>Megathymidae (Giant Skippers)</b>		
<i>Megathymus yuccae</i> (Yucca Giant Skipper)		
<b>Other Butterflies:</b>		
<i>Silphium</i> spp. II		2
<i>Onyx</i> spp. III		3

Notes: /NOMO /ATHA /ANHU  
 /CAGN /MOT /MUT  
 /BI WRE /BLPH /GKA  
 /WEME /LWU  
 /SPT  
 surveyed for road plants  
 after DCR coming  
 start 2:01  
 end 4:10  
 clear sky 0% CC



Area 1 12 of 12

Recorder: Rich Bergman Add'l Person: NA Date: May 6, 2015 GPS Unit: 1

Project: Village 4 WMA Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 12 of 12

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky				
Start 8:00	63.2	2.1	100	clear	patchy	overcast	drizzle	shower
9:00	63.8	2.2	80	clear	patchy	overcast	drizzle	shower
9:50	68.2	1.1	80	clear	patchy	overcast	drizzle	shower
10:00	71.2	1.8	80	clear	patchy	overcast	drizzle	shower
11:34	71.8	0.		clear	patchy	overcast	drizzle	shower
12:00	68.7	1.2	100	clear	patchy	overcast	drizzle	shower
End 12:10	68.1	1.4	100	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
<b>Nymphalidae (Brushfooted Butterflies)</b>		<b>Hesperiidae (Skippers)</b>	
<i>Euphydryas editha</i> (Quino Checkerspot)		<i>Erynnis funeralis</i> (Funereal Duskywing)	
<i>Euphydryas chalcedona</i> (Henne's Checkerspot)		<i>Erynnis tristis</i> (Sad Duskywing)	
<i>Thessalia leanira</i> (Wright's Checkerspot)		<i>Erynnis propertius</i> (Propertius Duskywing)	
<i>Chlosyne californica</i> (California Patch)		<i>Erynnis brizo</i> (Sleepy Duskywing)	
<i>Chlosyne gabbii</i> (Gabb's Checkerspot)		<i>Pyrgus albescens</i> (Checkered Skipper)	
<i>Phyciodes mylitta</i> (Mylitta Crescent)		<i>Hesperia jubia</i> (Jubia Skipper)	
<i>Junonia coenia</i> (Common Buckeye)		<i>Polites sabuleti</i> (Sandhill Skipper)	
<i>Vanessa annabella</i> (West Coast Lady)		<b>Megathymidae (Giant Skippers)</b>	
<i>Vanessa atalanta</i> (Red Admiral)		<i>Megathymus yuccae</i> (Yucca Giant Skipper)	
<i>Vanessa cardui</i> (Painted Lady)		Other Butterflies:	
<i>Vanessa virginiensis</i> (Virginia Lady)			
<i>Nymphalis californica</i> (California Tortoiseshell)			
<b>Danaidae (Milkweed Butterflies)</b>		<i>Amox serrulata</i> 1	1
<i>Danaus plexippus</i> (Monarch)			
<i>Danaus gilippus</i> (Queen)			
<b>Satyridae (Satyrs)</b>			
<i>Coenonympha californica</i> (Common California Ringlet)			
<b>Pieridae (Whites, Sulphurs)</b>			
<i>Pieris rapae</i> (Cabbage White)			
<i>Pontia sisymbrii</i> (Spring White)			
<i>Pontia beckerii</i> (Beker's White)			
<i>Pontia protodice</i> (Common White) 11	7	Black-throated Blue (Cal. Ringlet)	
<i>Anthocharis sara</i> (Sara Orangetip)			
<i>Anthocharis cethura</i> (Felder's Orangetip)			
<i>Euchloe hyantis</i> (Desert Pearly Marble)			
<i>Colias eurytheme</i> (Orange Sulphur)			
<i>Colias harfordii</i> (Harford's Sulphur)			
<i>Nathalis iole</i> (Dainty Sulphur)			
<b>Papilionidae (Swallowtails)</b>		<b>Notes:</b>	
<i>Papilio polyxenes</i> (Desert Black Swallowtail)		only saw a few near	
<i>Papilio eurymedon</i> (Pale swallowtail)		in open area / the cloud cover	
<i>Papilio rutulus</i> (Western Tiger Swallowtail)		was too high	
<b>Riodiniade (Metalmarks)</b>			
<i>Apodemia mormo</i> (Behr's Metalmark)		spent time looking for	
<b>Lycanidae (Hairstreaks and Blues)</b>		plants. Demandia feeding	
<i>Celastrina ladon</i> (Spring Azure)		but to cover patch	
<i>Leptotes marina</i> (Marine Blue)		yellow for the rest of	
<i>Brephidium exile</i> (Western Pygmy Blue)		day. Blue 1 white 1	
<i>Glaucopsyche lygdamus</i> (Southern Blue/Silvery blue)		are 0	
<i>Hemiargus ceraunus</i> (Edward's Blue)			
<i>Icaria acmon</i> (Acmon Blue)			
<i>Philotes sonorensis</i> (Sonoran Blue)		I will complete later this	
<i>Callophrys augustinus</i> (Brown Elfin)		week depending on weather	
<i>Callophrys perplexa</i> (Perplexing Green Hairstreak)			
<i>Strymon melinus</i> (Gray Hairstreak) 1	1	at least carried some of	
<i>Atides halesus</i> (Great Purple Hairstreak)		area 1	
		carried all other in area 2	

Need to complete survey w/ better weather →

Quino Checkerspot Butterfly Protocol Surveys (cont.)

Recorder: Eric Rasmussen Add'l Person: NA Date: May  
 Project: Olney village 7 Survey Sxn: 1 Map #:

**Host Plants Present**

none (dead)

**Nectar Plants Present**

Desmodium illinoense  
Phacelia grandiflora  
Desmodium fasciculatum  
Erigeron fasciculatum

**Plant Communities and Habitat Information**

**Other Wildlife Species**

<input checked="" type="checkbox"/> RTHA	<input checked="" type="checkbox"/> REWR	<input checked="" type="checkbox"/> CATH
<input checked="" type="checkbox"/> COBA	<input checked="" type="checkbox"/> CLSN	<input checked="" type="checkbox"/> ATFL
<input checked="" type="checkbox"/> CAGI	<input checked="" type="checkbox"/> TUVI	<input checked="" type="checkbox"/> WEME
<input checked="" type="checkbox"/> CALT	<input checked="" type="checkbox"/> AKRT	
<input checked="" type="checkbox"/> WREN		

5/11/15

Make-up - Bad weather  
last week

Village 4 QCB - Area 2 - 12 of 12

Observer

0930

Stress: 50%cc

Wind: 1-3 mph

Temp: 70°F *grnd/shade*

Observer

1500

0%cc

3-5, 6-8 quats

77°F

✓ BLGR

✓ WEME

✓ Br rabbit (scat)

Amisc swallowtail HIT 11

Common whitec HIT HIT 3st

Painted lady HIT 1

✓ CORA

✓ WTSW

✓ CATH

✓ ANHV

✓ MODO

✓ CATO

Host/Nectar

Buckwheat

~~Flowering~~

Demandra

face.

Erin Bergman need to cover 30 acres temp Wind cc

Survey 12 of 12 May 14, 2015 9:50 - 68.2 3.2 30

Survey area 1 continued 11:50 - 70.3 1.8 25

Start 9:50 end: 2:59 12:16 - 71.1 2.9 30

2:50 70.8 3.5 30

2:59 70.4 3.8 35

Common white HHT 1/1

Behr's metamark 1

Cabbage white 1

Maine blue 1

first maine blue observed.  
Saw an Eriogonum fasc.

Plants in bloom

- Dudleya pulverulenta
- Eriogonum fasciculatum
- Desmodium illinoense
- Desmodium illinoense

getting dry (not much in bloom)  
Desmodium illinoense  
is looking good  
first bloom still

- ✓BEWR
- ✓RTUR
- ✓TORP
- ✓CALT
- ✓CAGN
- ✓XO
- ✓GRRO
- ✓QSW
- ✓ATFL
- ✓ROWR



# **APPENDIX F**

*Special-Status Plant Species Potential to Occur  
within the Project Area*



**APPENDIX F**  
**Special-Status Plant Species Potential to Occur within the Project Area**

**Table F-1**  
**Special-Status Plants Observed or with Moderate or High Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Ambrosia monogyra</i>	singlewhorl burrobrush	None/None/2B.2	None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/33–1,640	Observed	Observed within the Village Three Preserve during 2010 surveys. Moderate potential to occur on Village Four due to wind dispersal from nearby locations. Moderate potential for disturbance related to site access. Singlewhorl burrobrush is abundant around the outside of the site within and around washes just outside of the boundary. It was not found within Village Four but found while trying to access the site. According to collections referenced by the San Diego plant Atlas, singlewhorl burrobrush was collected abundantly throughout Otay.
<i>Bloomeria clevelandii</i>	San Diego goldenstar	None/None/1B.1	Covered	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1,526	None	Moderate potential to occur. Even though rare plant surveys were performed and San Diego goldenstar was not observed, the bloom period for San Diego goldenstar is short and many other plants within this genus were found to be abundant. <i>Bloomeria crocea</i> plants were present in large numbers. <i>Bloomeria</i> spp. were constantly checked for taxonomic characteristics but due to the large population size, it was not possible to observe individual plants within the short bloom time considering the quantity of <i>Bloomeria</i> spp. and inability to observe for the entire 2 months of bloom. Additionally,

## APPENDIX F (Continued)

**Table F-1  
Special-Status Plants Observed or with Moderate or High Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						due to drought like conditions, some of the Bloomeria may not have come up. Clearly, the soil and habitat is high quality for this genus and <i>Bloomeria clevelandii</i> is documented near the site.
<i>Calandrinia breweri</i>	Brewer's calandrinia	None/None/4.2	None	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/ annual herb/Mar–Jun/33–4,003	None	High potential to occur. Brewer's calandrinia is observed only after fires within coastal sage scrub and is scattered throughout the county. Due to the high quality coastal sage scrub observed on site, a likely seedbank exists. According to collections referenced by the San Diego plant Atlas, Brewer's calandrinia is scattered abundantly throughout western San Diego county.
<i>Convolvulus simulans</i>	small-flowered morning-glory	None/None/4.2	None	Chaparral(openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–Jul/98–2,297	Observed	Small flowered morning glory was abundant on the boundary of the site in highly compacted soils and found scattered on site within populations of Otay tarplant.
<i>Deinandra conjugens</i>	Otay tarplant	FT/CE/1B.1	Covered, NE	Coastal scrub, valley and foothill grassland; clay/annual herb/May–June/82–984	Observed	This species was abundant on site.
<i>Dichondra occidentalis</i>	western dichondra	None/None/4.2	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan) Mar–July/164–1,640	None	Moderate potential to occur. Western dichondra is observed usually after fires but can be seen without fire within coastal sage scrub and habitat with rocky outcrops. Due to the high quality habitat and rocky outcrops observed on site, a likely seedbank exists. According to the

## APPENDIX F (Continued)

**Table F-1**  
**Special-Status Plants Observed or with Moderate or High Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Reiser, "Western dichondra utilizes numerous soil types." According to collections referenced by the San Diego plant Atlas, western dichondra is scattered throughout western San Diego county.
<i>Dudleya variegata</i>	variegated dudleya	None/None/1B.2	Covered, NE	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/10–1,903	Observed	This species was found in 2 areas on site.
<i>Ferocactus viridescens</i>	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	Observed	This species was abundant on hillsides on site.
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	None/None/4.2	None	Chaparral, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–May/66–3,133	Observed	This species was abundant throughout the entire site.
<i>Iva hayesiana</i>	San Diego marsh-elder	None/None/2B.2	None	Marshes and swamps, playas/perennial herb/Apr–Oct/33–1,640	None	High potential to occur. This species was found off site near the riparian areas.
<i>Juncus acutus</i> ssp. <i>leopoldii</i>	southwestern spiny rush	None/None/4.2	None	Coastal dunes(mesic), Meadows and seeps(alkaline seeps), Marshes and swamps(coastal salt)/ perennial rhizomatous herb/ (Mar),May-Jun/ 10-2953	None	High potential to occur. This species was found off site in the riparian areas.
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	None/None/4.3	None	Chaparral, coastal scrub/annual herb/Jan–July/3–2,904	None	Moderate potential to occur. Numerous <i>Lepidium</i> plants were found on site. Populations were dense and some were collected and identified as <i>Lepidium nitidum</i> . It is presumed that most of the <i>Lepidium</i> was of the more common species but because of the lower rarity

## APPENDIX F (Continued)

**Table F-1  
Special-Status Plants Observed or with Moderate or High Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						status a true focused survey for this species did not occur. According to collections referenced by the San Diego plant Atlas, Robinson's peppergrass has been documented next to the site in the 1970's.
<i>Lycium californicum</i>	California box-thorn	None/None/4.2	None	Coastal bluff scrub, coastal scrub/perennial shrub/(Dec) Mar–Aug/16–492	Observed	This species was observed where San Diego barrel cactus was abundant.
<i>Microseris douglasii</i> ssp. <i>platycarpa</i>	small-flowered microseris	None/None/4.2	None	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/49–3,510	Observed	This species was observed on site within the Preserve just above the vernal pools.
<i>Navarretia fossalis</i>	spreading navarretia	FT/None/1B.1	Covered	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/98–2,149	None	Moderate potential to occur. Spreading navarretia is associated with <i>Psilocarphus brevissimus</i> which was observed on site in dense populations and those areas were thoroughly surveyed for spreading navarretia but due to high levels of drought it may not have come up this season. Nearby Dennerly Canyon was studied this season for spreading navarretia and it only had a few plants come up. Normally, many come up each year in a decent rain year at Dennerly. According to Reiser, "Depth of pool appears to be a significant factor as this annual is rarely found in the shallow pools. Spreading navarretia uses Huerhuero loam." According to collections referenced by the San Diego plant Atlas,

## APPENDIX F (Continued)

**Table F-1  
Special-Status Plants Observed or with Moderate or High Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						collections of spreading navarretia are found throughout the Otay area.
<i>Selaginella cinerascens</i>	ashy spike-moss	None/None/4.1	None	Chaparral, coastal scrub/perennial rhizomatous herb/NA/66–2,100	Observed	This species was observed abundantly on site.
<i>Viguiera laciniata</i>	San Diego County viguiera	None/None/4.2	None	Chaparral, coastal scrub/perennial shrub/Feb–June (Aug)/197–2,461	Observed	This species was observed abundantly throughout the site.

**Status Designations:**

**Federal:** FC = Candidate for federal listing as threatened or endangered

FE = Federally listed Endangered

FT = Federally listed as Threatened

**State:** CE = State-listed as Endangered

**California Rare Plant Rank (CRPR):**

CBR: Considered But Rejected

1A (formerly List 1A): Plants Presumed Extinct in California

1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere

2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3 (formerly List 3): Plants About Which We Need More Information – A Review List

4 (formerly List 4): Plants of Limited Distribution – A Watch List

**Threat Rank:**

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

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

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

**County Designations:**

Covered: Covered Species under the San Diego MSCP

NE: Narrow Endemic Species within the Chula Vista Subarea

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Abronia maritima</i>	red sand-verbena	None/None/4.2	None	Coastal dunes/perennial herb/Feb–Nov/0–328	None	Not expected to occur. No suitable vegetation is present.
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	FT/CE/1B.1	Covered, NE	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3,150	None	Low potential to occur. San Diego thorn-mint would have been observed during rare plant surveys and is more likely to be associated with <i>Sisyrinchium bellum</i> , <i>Bloomeria crocea</i> and <i>Convolvulus simulans</i> . All of these associates were observed on site in with non-native populations or highly compacted soils. Special attention was made to search for San Diego thorn mint in these locations. San Diego thorn mint is found within grassy openings within chaparral or sage scrub with friable or broken clay soils. Soils are deeply fissured. Areas on site with friable soils where highly disturbed. According to Reiser, “These small clay lenses may be associated with Las Posas or San Miguel-Exchequer soils. Typically, the microhabitat favored by San Diego Thorn Mint is quite distinctive. Only spring annuals, bulbous perennials, and a few herbaceous elements are found with this small annual.” This was not observed on site. According to collections referenced by the San Diego plant Atlas, San Diego thorn mint was collected over 1 mile from the site off of Olympic Parkway in 1987. This area is now developed.



## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Acmispon prostratus</i>	Nuttall's acmispon	None/None/1B.1	Covered	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June (July)/0–33	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Adolphia californica</i>	California adolphia	None/None/2B.1	None	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/Dec–May/148–2,428	None	Low potential to occur. California adolphia would have been observed on site during rare plant surveys. It is a spiny shrub seen year round, often intermixed with Diegan Coastal Sage Scrub and associated with <i>Ferocactus viridescens</i> , <i>Artemisia californica</i> which were abundant on site and searched with careful attention. According to Reiser, "San Miguel and Friant soils are both quite amenable to California Adolphia. Presence of California Adolphia strongly correlates with presence of the Federally Threatened California Gnatcatcher ( <i>Polioptila californica</i> ) so long as a suitable tract of sage scrub is present to comprise a breeding territory." According to collections referenced by the San Diego plant Atlas, populations within Otay were documented in the 1930's but have been developed since that time. In general, California adolphia is more likely to occur closer to the coast.
<i>Agave shawii</i> var. <i>shawii</i>	Shaw's agave	None/None/2B.1	Covered, NE	Coastal bluff scrub, coastal scrub/perennial leaf succulent/Sep–May/33–394	None	Low potential to occur. Shaw's agave would have been observed during rare plant surveys. Shaw's agave is associated with <i>Bergerocactus ermoryi</i> , <i>Coreopsis maritima</i> and <i>Euphorbia misera</i> . None of these species were observed on site.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Coastal Diegan Sage Scrub and Maritime Succulent Scrub are the two habitats utilized by this agave which were not found on site. Shaw's agave has a much more coastal distribution. According to Reiser, "Marina coarse loamy sand is the soil utilized by Shaw's agave." According to collections referenced by the San Diego plant Atlas, Shaw's agave is found only on the San Diego coast line.
<i>Ambrosia chenopodiifolia</i>	San Diego bur-sage	None/None/2B.1	None	Coastal scrub/perennial shrub/Apr-Jun/180-509	None	Low potential to occur. San Diego bur-sage would have been observed on site during rare plant surveys as it is a large year round perennial. San Diego bur-sage is associated with <i>Simmondsia chinensis</i> , <i>Opuntia prolifera</i> and <i>Artemisia californica</i> which were observed on site. Special attention was taken to search areas with these associates. According to Reiser, "an arid phase of Diegan coastal sage scrub (DCSS) is the preferred habitat of San Diego bursage in typically open sage scrub. Olivenhain cobbly loam is a more likely soil type of San Diego bur-sage." Areas on site with the arid phase of DCSS where did not include San Diego bur-sage. According to collections referenced by the San Diego plant Atlas, San Diego bur-sage is more likely to be distributed on or near the U.S./Mexico border.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Ambrosia pumila</i>	San Diego ambrosia	FE/None/1B.1	Covered, NE	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	None	Low potential to occur. San Diego ambrosia would have been observed on site during rare plant surveys. According to Reiser, “San Diego Ambrosia is found in creek beds, dry drainages and floodplains,” which were not found on site. Additionally, it is associated with <i>Heliotropium curvassavicum</i> , <i>Juncus mexicanus</i> , <i>Anemopsis californica</i> which were not found on site due to lack of washes. According to Reiser, “Usually a protective tree canopy is absent and San Diego ambrosia is growing on the periphery of willow woodland. Riverwash and sandy alluvium may underlie these locales. Some anomalous populations of this small herbaceous perennial are found in semi-urban locales in National City.” According to collections referenced by the San Diego plant Atlas, all populations collected after the 1930’s of San Diego Ambrosia are north of Jamul, CA.
<i>Aphanisma blitoides</i>	aphanisma	None/None/1B.2	Covered	Sandy or gravelly coastal bluff scrub, coastal dunes, coastal scrub; sandy/annual herb/Mar–June/3–1,001	None	Low potential to occur. Aphanisma would have been observed during rare plant surveys. Additionally, aphanisma is associated with <i>Eriogonum parvifolium</i> , <i>Atriplex californica</i> , <i>Calandrinia maritima</i> which are coastal species not found on site. Aphanisma is found on coastal bluffs near the ocean and beach dunes. According the Reiser “Soils are mapped as

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Myford and Cieneba sandy loams." According to collections referenced by the San Diego plant Atlas, aphanisma occurs only on the coastline.
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	Del Mar manzanita	FE/None/1B.1	Covered	Chaparral(maritime, sandy)/ perennial evergreen shrub/ Dec-Jun/ 0-1198	None	Low potential to occur. This perennial evergreen shrub species would have been observed during rare plant surveys.
<i>Arctostaphylos otayensis</i>	Otay manzanita	None/None/1B.2	Covered	Chaparral, cismontane woodland; metavolcanic/perennial evergreen shrub/Jan-Apr/902-5,577	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Artemisia palmeri</i>	San Diego sagewort	None/None/4.2	None	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb) May-Sep/ 49-3,002	None	Low potential to occur. San Diego sagewort would have been observed during rare plant surveys. San Diego Sagewort is primarily found along creeks and is associated with riparian species such as <i>Platanus racemosa</i> , <i>Artemisia douglasiana</i> , <i>Salix lasiolepis</i> . These species were not observed on site. San Diego Sagewort grows within a shaded understory beneath riparian woodland. According to Reiser, "San Diego sagewort can occasionally be seen beneath <i>Quercus agrifolia</i> , but in decidedly mesic circumstances." According to collections referenced by the San Diego plant Atlas, San Diego sagewort is found scattered throughout western San Diego county in mesic areas.
<i>Asplenium vespertinum</i>	western spleenwort	None/None/4.2	None	Chaparral, cismontane woodland, coastal scrub; rocky/perennial	None	Low potential to occur. Western spleenwort would have been observed during rare

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				rhizomatous herb/Feb–June/591–3,281		plant surveys. The microhabitat for this fern is found in moist shaded areas that are seasonally arid underneath boulders. Boulders were searched for fern species. According to Reiser, “soils associated with western spleenwort include, San Miguel-Exchequer rocky silt loam.” According to collections referenced by the San Diego plant Atlas, western spleenwort is found throughout central San Diego county.
<i>Astragalus deanei</i>	Dean’s milk-vetch	None/None/1B.1	None	Chaparral, cismontane woodland, coastal scrub, riparian forest/perennial herb/Feb–May/246–2,280	None	Low potential to occur. Dean’s milk-vetch would have been observed during rare plant surveys. According to Reiser, “coastal sage scrub and sandy washes are reported habitats for this very rare, herbaceous perennial. The few extant locales examined indicate this species utilizes the partial shade of low-growing shrubs. Cieneba-Fallbrook rocky sandy loam is the soil type mapped for the Tecate population.” According to collections referenced by the San Diego plant Atlas, distributions of Dean’s milk-vetch are all east of Hwy 94, far outside of the Otay area. Many of the collections were made in the 1930’s and 1940’s east of Hwy 94.
<i>Astragalus oocarpus</i>	San Diego milk-vetch	None/None/1B.2	None	Chaparral(openings), cismontane woodland/perennial herb/May–Aug/1,001–5,000	None	Not expected to occur. The site is outside the species’ known elevation range.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Astragalus tener</i> var. <i>titi</i>	coastal dunes milk-vetch	FE/CE/1B.1	Covered	Coastal bluff scrub(sandy), Coastal dunes, Coastal prairie(mesic)/often vernal mesic areas/ annual herb/ Mar-May/ 3-164	None	Low potential to occur. This species would have been observed during rare plant surveys.
<i>Atriplex coulteri</i>	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	None	Low potential to occur. Coulter's saltbush would have been observed during rare plant surveys. According to Reiser, "Historical records indicate sea-bluff habitat is preferred." Additionally, Coulter's saltbush is associated with other coastal bluff plants like <i>Atriplex pacifica</i> , <i>Eriogonum parvifolium</i> and <i>Amblyopappus pusillus</i> . Within grassland communities alkaline soils are present. According to collections referenced by the San Diego plant Atlas, coastal habitat is preferred but some plants were documented inland.
<i>Atriplex pacifica</i>	south coast saltscale	None/None/1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/ Mar–Oct/0–459	None	Low potential to occur. South coast saltscale would have been observed during rare plant surveys and is more likely to be associated with <i>Filago californica</i> , <i>Ferocactus viridescens</i> or <i>Stylocline gnaphalioides</i> . According to Reiser, "Soils are mapped as Linne clay loam within Rice canyon and Huerhuero-urban land complex in Imperial beach. Areas on site with potential for south coast saltscale having were in most cases invaded by non-native grasses. According to collections referenced by the San Diego plant Atlas, populations of south coast saltscale are

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						close to Otay river and run south to the border.
<i>Baccharis vanessae</i>	Encinitas baccharis	FT/CE/1B.1	Covered, NE	Chaparral(maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2,362	None	Low potential to occur. Due to the perennial nature of Encinitas Baccharis, it would have been observed during rare plant surveys. Encinitas Baccharis is found in relatively low-growing chaparral associated with the Encinitas region and <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> and <i>Yucca schidigera</i> . Given the limited range of this species, edaphic requirements may significantly restrict dispersal. According to Reiser “Encinitas Baccharis uses Corralitos loamy sand and Cienega rocky coarse sandy loam.” At inland locales Encinitas Baccharis may be associated with large granitic boulders. According to collections referenced by the San Diego plant Atlas, all plants are documented north of the 56 freeway far from the Otay region. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).
<i>Berberis nevinii</i>	Nevin's barberry	FE/ CE/ 1B.1	Covered, NE	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub/sandy or gravelly/ perennial evergreen shrub/ Mar-Jun/ 230-2707	None	Low potential to occur. Due to the perennial nature of Nevin's Baccharis, it would have been observed during rare plant surveys. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Bergerocactus emoryi</i>	golden-spined cereus	None/None/2B.2	None	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1,296	None	Low potential to occur. Due to the perennial nature of golden-spined cereus, it would have been observed during rare plant surveys. Golden-spined cereus is found within maritime succulent scrub and is associated with <i>Euphorbia misera</i> , <i>Agave shawii</i> which were not found on site. According to collections referenced by the San Diego plant Atlas, golden spined cereus is found only on the coastline and close to the border of the U.S. and Mexico. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	FT/ CE/ 1B.1	Covered, NE	Chaparral(openings),Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools/often clay/ perennial bulbiferous herb/ Mar-Jun/ 82-3675	None	Low potential to occur. Thread-leaved brodiaea would have been observed during rare plant surveys but it is more likely to be found in the vernal moist grasslands with mima mound topography or near vernal pools. On site most of the grassland habitat was highly invaded by non-native grasses and were not moist. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	None/None/1B.1	Covered, NE	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/perennial bulbiferous	None	Low potential to occur. Orcutt's brodiaea would have been observed during rare plant surveys but it is more likely to be found in the vernal moist grasslands with mima mound topography or near vernal pools. On site most of the grassland habitat was highly invaded by non-native grasses



## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				herb/May–July/98–5,551		and were not moist. Areas with vernal pools were thoroughly searched but dominated by <i>Psilocarphus brevissimus</i> . Orcutt's brodiaea is associated with <i>Deschampsia danthonioides</i> , <i>Bloomeria crocea</i> , <i>Dichelostemma capitatum</i> which were abundant on site excluding an abundance of <i>Deschampsia danthonioides</i> . According to Reiser, "Orcutt's brodiaea prefers Stockpen gravelly loam on Otay Mesa. According to collections referenced by the San Diego plant Atlas, the closest population is in Otay county open space preserve.
<i>Calamagrostis koelerioides</i>	fire reedgrass	None/ None/CBR	Covered	Yellow pine forest, chaparral (many plant communities)/ perennial grass/ Jul-Aug	None	Low potential to occur. This perennial grass species would have been observed during rare plant surveys.
<i>California macrophylla</i>	round-leaved filaree	None/None/1B.2	None	Cismontane woodland, valley and foothill grassland; clay/annual herb/Mar–May/49–3,937	None	Low potential to occur. This species would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, the closest known location from the site is near Otay River.
<i>Calochortus dunnii</i>	Dunn's mariposa lily	None/CR/1B.2	Covered, NE	Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/(Feb) Apr–June/607–6,004	None	Low potential to occur. This species would have been observed during rare plant surveys. According to Resiser, "Dunn's Mariposa Lily seems restricted to metavolcanic and gabbroic derived soils and possible associates include <i>Ceanothus tomentosus</i> , <i>Chlorogalum parviflorus</i> and

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						<i>Satureja chandleri</i> . None of these species were observed on site. According to collections referenced by the San Diego plant Atlas, Dunn's mariposa lily has been collected only within preserve lands. According to the CNDDDB, the closest occurrence is approximately 4.2 miles east of project site in the northern peaks of San Ysidro Mountains. This species is included in the Chula Vista MSCP Subarea Plan as "not likely to occur" (Table 5-4).
<i>Camissoniopsis lewisii</i>	Lewis' evening-primrose	None/None/3	None	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/annual herb/Mar–May (June)/0–984	None	Low potential to occur. This annual would have been observed during rare plant surveys and is more typically found on very sandy substrates near the beach. According to Reiser, "Lewis' evening primrose is found in Chino fine sandy loams and is associated with <i>Nemacaulis denudata</i> , <i>Lotus nuttallianus</i> and <i>Camissonia cheiranthifolia</i> ." According to collections referenced by the San Diego plant Atlas, a general coastal distribution exists but historical records from the 1960's have collected Lewis's evening primrose off of Otay Lakes road near Bonita Vista middle school now a developed area.
<i>Carex obispoensis</i>	San Luis Obispo sedge	None/None/1B.2	None	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite seeps, sometimes gabbro; often on clay soils/perennial	None	Low potential to occur. San Luis Obispo sedge would have been observed during surveys and very limited habitat on site exists for this species. According to collections referenced by the San Diego

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				rhizomatous herb/Apr–June/33–2,690		plant Atlas, all populations are documented north of Hwy 94.
<i>Caulanthus heterophyllus</i> (=stenocarpus)	San Diego wild cabbage	None/None/CBR	Covered	Chaparral, Coastal scrub/disturbed/annual herb/ (Feb),Mar-May(Jun)	None	Low potential to occur. This species would have been observed during rare plant surveys.
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	None/None/1B.2	Covered, NE	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2,477	None	Not expected to occur. The site is outside the species' known elevation range. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).
<i>Ceanothus otayensis</i>	Otay Mountain ceanothus	None/None/1B.2	None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1,969–3,609	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Ceanothus verrucosus</i>	wart-stemmed ceanothus	None/None/2B.2	Covered	Chaparral/perennial evergreen shrub/Dec–May/3–1,247	None	Low potential to occur. Due to the perennial nature of this shrub, wart stemmed ceanothus would have been observed during rare plant surveys. Coastal Chaparral intermixed with Chamise and Mission Manzanita is the preferred habitat for this species. According the Reiser, “Typically, the Wart-stemmed Ceanothus is a dominant shrub within the vegetation community where it occurs. It may be particularly vigorous on north-facing slopes, but can accommodate more xeric aspects. Exchequer rocky silt loams and San Miguel-Exchequer rocky silt loams are utilized by the dense populations of this ceanothus in the Mount Whitney ( <i>i.e.</i> northern coastal San Diego County) area.

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Terrace Escarpments are the soil type mapped for this shrub at Torrey Pines, while Gaviota fine sand loams are found at the Point Loma populations." No <i>Ceanothus</i> spp. were found on site. According to collections referenced by the San Diego plant Atlas, wart stemmed ceanothus is only found along the coastline.
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	Orcutt's pincushion	None/None/1B.1	None	Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–328	None	Not expected to occur. No suitable vegetation is present.
<i>Chamaebatia australis</i>	southern mountain misery	None/None/4.2	None	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/984–3,346	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	salt marsh bird's-beak	FE/CE/1B.2	Covered, NE	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct/0–98	None	Not expected to occur. The site is outside the species' known elevation range. Closest occurrence is approximately 7.0 miles west of the project site along Silver Strand State Beach and east San Diego Bay.
<i>Chorizanthe leptotheca</i>	Peninsular spineflower	None/None/4.2	None	Chaparral, coastal scrub, lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/ 984–6,234	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	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	None	Low potential to occur. Long spined spineflower is more likely to be found on clay lenses that are devoid of shrubs and is likely associated with <i>Chorizanthe fimbriata</i> , <i>Navarettia atractyloides</i> and

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						<i>Chorizanthe procumbens</i> . According to Reiser, "Long spined spineflower can be occasionally seen on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Long spined spineflower grows on Boomer stony loams and Redding gravelly loams." According to collections referenced by the San Diego plant Atlas, all populations of long-spined spineflower are found north of Hwy 94.
<i>Cistanthe maritima</i>	seaside cistanthe	None/None/4.2	None	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb) Mar–June (Aug)/16–984	None	Low potential to occur. Seaside cistanthe would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, all populations of seaside cistanthe run along the coastline or are south of the 805 freeway.
<i>Clarkia delicata</i>	delicate clarkia	None/None/1B.2	None	Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/771–3,281	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Clinopodium chandleri</i>	San Miguel savory	None/None/1B.2	Covered	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/394–3,527	None	Low potential to occur. San Miguel savory would have been mapped during rare plant surveys. According to collections referenced by the San Diego plant Atlas, San Miguel savory has only been mapped north of Jamul, CA.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	summer holly	None/None/1B.2	None	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–Jun/98–2,592	None	Low potential to occur. Due to the perennial nature of summer holly, it would have easily been observed during rare

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						plant surveys and is more likely to be found with <i>Ceanothus verrucosus</i> or <i>Xylococcus bicolor</i> which were not observed on site. Summer holly is more likely to be found within southern mixed chaparral. According the Reiser, "Rugged steep drainages seem to be a preferred location for these isolated shrubs." According to collections referenced by the San Diego plant Atlas, a few populations have been found within preserved near the site including Otay county open space preserve and the San Diego national wildlife refuge.
<i>Corethrogyne filaginifolia</i> var. <i>incana</i>	San Diego sand aster	None/None/1B.1	None	Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377	None	Low potential to occur. <i>Corethrogyne filaginifolia</i> was found on site but not this rare variety. According to the current Jepson Manual for the vascular plants of California, all varieties have been dropped and only <i>Corethrogyne filaginifolia</i> exist but this rare variety could still be considered unique genetically on the coastline. According to collections referenced by the San Diego plant Atlas, San Diego sand aster only occurs on the coastline.
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>	Del Mar Mesa sand aster	None/None/1B.1	Covered	Coastal bluff scrub, Chaparral(maritime, openings), Coastal scrub/sandy/ perennial herb/ May-Sep/ 49-492	None	Low potential to occur. This perennial species would have been observed during rare plant surveys.
<i>Cylindropuntia californica</i> var.	snake cholla	None/None/1B.1	Covered, NE	Chaparral, coastal scrub/perennial stem succulent/Apr–May/98–492	None	Low potential to occur. Snake cholla would have easily been observed during rare

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>californica</i>						plant surveys. According to collections referenced by the San Diego plant Atlas, snake cholla is generally north of Telegraph canyon road.
<i>Deinandra floribunda</i>	Tecate tarplant	None/None/1B.2	None	Chaparral, coastal scrub/annual herb/Aug–Oct/230–4,003	None	Low potential to occur. Late season surveys were performed on site for late bloomers. Tecate tarplant was not found. It may be associated with <i>Asclepias erosa</i> and <i>Salvia carduacea</i> both of which do not occur on site. It is more likely to occur in Sandy washes within high deserts which the site does not have. According to Reiser, “Carrizo gravelly loam and deep sandy alluvium with limited shrub cover are the preferred soils of tecate tarplant. Tecate tarplant is well adapted to grow unencumbered by substantial vegetation competition.” No washes occur within the site boundaries with the required habitat for Tecate tarplant. According to collections referenced by the San Diego plant Atlas, Tecate tarplant is only found east of Dulzura, CA.
<i>Deinandra paniculata</i>	paniculate tarplant	None/None/4.2	None	Coastal scrub, valley and foothill grassland, vernal pools; usually vernal mesic, sometimes sandy/ annual herb/Apr–Nov/82–3,084	None	Low potential to occur. Late season surveys were performed on site for late bloomers. Tecate tarplant was not found. The paniculate tarplant found in open sparsely vegetated native grasslands like those of Camp Pendleton. On site, non-native bromes dominated the grasslands. According to Reiser, “The Paniculate

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Tarplant occurs on Cajalco fine sandy loams in the northern Gavilan Hills. It grows on hard packed soils unlike the friable, cracked clay soils favored by the related <i>Deinandra conjugens</i> ." According to collections referenced by the San Diego plant Atlas, paniculate tarplant is found north of Vista, CA.
<i>Dendromecon harfordii</i> var. <i>harfordii</i>	north island bush-poppy	None/None/3.2	None	Closed-cone coniferous forest, chaparral; rocky/perennial evergreen shrub/Mar–Nov/49–1,378	None	Low potential to occur. Due to the perennial nature of north island bush-poppy, it would have easily been observed during rare plant surveys. North-island bush poppy is more likely to be found in closed cone coniferous forests.
<i>Dicranostegia orcuttiana</i>	Orcutt's bird's-beak	None/None/2B.1	Covered	Coastal scrub/annual herb (hemiparasitic)/(Mar) Apr–July (Sep)/33–1,148	None	Low potential to occur. Orcutt's bird's beak would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, Orcutt's bird's beak is more likely to be found closer to Dennery Canyon.
<i>Diplacus clevelandii</i>	Cleveland's bush monkeyflower	None/None/4.2	None	Chaparral, cismontane woodland, lower montane coniferous forest; gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/Apr–July/1,476–6,562	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Dudleya attenuata</i> ssp. <i>attenuata</i>	Orcutt's dudleya	None/None/2B.1	None	Coastal bluff scrub, chaparral, coastal scrub; rocky or gravelly/perennial herb/May–July/10–164	None	Low potential to occur. Orcutt's Dudleya would have been observed during rare plant surveys. According to Reiser, "Orcutt's dudleya utilizes marina loamy



## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						coarse sand. In Baja California, the proximity to moist ocean breezes seems to be a significant factor in the abundance of this succulent perennial." According to collections referenced by the San Diego plant Atlas, Orcutt's dudleya is only found near the Mexico border on coastal bluff scrub. Records indicate that it was found in the 1930's.
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Blochman's dudleya	None/None/1B.1	None	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr-June/16-1,476	None	Low potential to occur. Blochman's dudleya would have been observed during rare plant surveys. It is found in sandy openings near the coast. Coastal influence is critical for the survival of Blochman's dudleya. According to Reiser, "Blochman's dudleya uses Las Flores loamy fine sand and Terrace Escarpments." According to collections referenced by the San Diego plant Atlas, Blochman's dudleya occurs only on the coastline.
<i>Dudleya brevifolia</i>	short-leaved dudleya	None/ CE/1B.1	Covered, NE	Chaparral(maritime, openings), Coastal scrub/Torrey sandstone/ perennial herb/ Apr-May/ 98-820	None	Low potential to occur. Short-leaved dudleya would have been observed during rare plant surveys. This species is included in the Chula Vista MSCP Subarea Plan as "not likely to occur" (Table 5-4).
<i>Dudleya viscida</i>	sticky dudleya	None/ None/1B.2	Covered	Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub/rocky/ perennial herb/ May-Jun/ 33-1804	None	Low potential to occur. Sticky dudleya would have been observed during rare plant surveys.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Ericameria palmeri</i> var. <i>palmeri</i>	Palmer's goldenbush	None/None/1B.1	Covered, NE	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(Jul) Sep–Nov/98–1,969	None	Low potential to occur. Due to the perennial nature of Palmer's goldenbush, it would have easily been observed during rare plant surveys and is associated with Willow species which were not found on site. This large shrub is found along drainages and areas with mesic conditions. According to Reiser, "Palmer's goldenbush is found in Las Posas fine sandy loam and coarse sandy loam." According to collections referenced by the San Diego plant Atlas, most of Palmer's goldenbush is north of highway 94.
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	FE/CE/1B.1	Covered	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual–perennial herb/Apr–June/66–2,034	None	Low potential to occur. San Diego button celery would have been observed within the vernal pools found on site. It is likely to be found within areas of mina mounds and vernal moist habitat. San Diego button celery is associated with <i>Brodiaea orcuttii</i> and <i>Psilocarphus brevissimus</i> According to Reiser, "Redding gravelly loams appear to provide optimal soils." According to the CNDDDB, the closest occurrence is approximately 1.1 miles southeast and southwest of the project site along the flatter south-facing slopes of Dennery Canyon in Otay Mesa and Johnson Canyon near Brown Field Municipal Airport.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Erysimum ammophilum</i>	sand-loving wallflower	None/None/1B.2	Covered	Chaparral(maritime), Coastal dunes, Coastal scrub/sandy, openings/ perennial herb/ Feb-Jun/ 0-197	None	Low potential to occur. This perennial species would have been observed during rare plant surveys.
<i>Euphorbia misera</i>	cliff spurge	None/None/2B.2	None	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/ perennial shrub/Dec-Aug (Oct)/ 33-1,640	None	Low potential to occur. Due to the perennial nature of cliff spurge, it would have easily been observed during rare plant surveys. It is associated with maritime succulent scrub and a high incidence of cactus species of which one small area on site consisted of this community. According to Reiser, cliff spurge is found in Olivenhain cobbly loam is utilized on Otay Mesa." According to collections referenced by the San Diego plant Atlas, cliff spurge occurs mostly on the coastline.
<i>Frankenia palmeri</i>	Palmer's frankenia	None/None/2B.1	None	Coastal dunes, marshes and swamps (coastal salt), playas/ perennial herb/May-July/0-33	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Fraxinus parryi</i>	chaparral ash	None/None/2B.2	None	Chaparral/perennial shrub/Mar-May/699-2,034	None	Low potential to occur. Due to the perennial nature of chaparral ash, it would have easily been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, chaparral ash occurs north of the skyline truck trail.
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	FE/CR/1B.1	None	Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar-June/33-2,349	None	Low potential to occur. Due to the perennial nature of Mexican flannelbush, it would have easily been observed during rare plant surveys. According to the CNDDDB, the closest occurrence is

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						approximately 5.8 miles southwest and northeast of the project site on Spooners Mesa at the U.S. and Mexico border and along the east-facing slopes of Jamul Mountains.
<i>Galium proliferum</i>	desert bedstraw	None/None/2B.2	None	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; rocky, carbonate/annual herb/Mar–June/3,904–5,348	None	Not expected to occur. The site is outside the species' known elevation range and there is no suitable vegetation present.
<i>Grindelia hallii</i>	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	None	Low potential to occur. During rare plant surveys, a few <i>Grindelia</i> spp. were found on site. All <i>Grindelia</i> was identified as <i>Grindelia camphorum</i> . According to collections referenced by the San Diego plant Atlas, San Diego gumplant is more likely to be found in the Cuyamaca mountains and at higher elevation.
<i>Hesperocyparis forbesii</i>	Tecate cypress	None/None/1B.1	Covered	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/NA/262–4,921	None	Low potential to occur. Due to the perennial nature of tecate cypress, it would have easily been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, along the border or in Guatay, CA.
<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i>	beach goldenaster	None/None/1B.1	None	Chaparral(coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4,019	None	Low potential to occur. Due to the perennial nature of beach goldenaster, it would have easily been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, beach golden aster occurs only on the coast.

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Holocarpa virgata</i> ssp. <i>elongata</i>	graceful tarplant	None/None/4.2	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/197–3,609	None	Low potential to occur. Graceful tarplant would have been observed during rare plant surveys. It is associated with <i>Lessingia flaginifolia</i> which was not found on site. According to collections referenced by the San Diego plant Atlas graceful tarplant is found within preserves north and east of the site.
<i>Hordeum intercedens</i>	vernal barley	None/None/3.2	None	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools/annual herb/Mar–June/16–3,281	None	Low potential to occur. Vernal barley is more likely to be found in saline flats which were not found on site. Vernal barley may be associated with <i>Brodiaea</i> species, <i>Lythrum hyssopifolium</i> and <i>Eryngium aristulatum</i> which were not found on site. According to collections referenced by the San Diego plant Atlas, vernal barley was collected approximately 2 miles from the site in the 1930's.
<i>Horkelia truncata</i>	Ramona horkelia	None/None/1B.3	None	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1,312–4,265	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Hosackia crassifolia</i> var. <i>otayensis</i>	Otay Mountain lotus	None/None/1B.1	None	Chaparral (metavolcanic, often in disturbed areas)/perennial herb/May–Aug/1,247–3,297	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Isocoma menziesii</i> var. <i>decumbens</i>	decumbent goldenbush	None/None/1B.2	None	Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–443	None	Low potential to occur. Decumbent goldenbush would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, it is more likely to be found closer to the coast with a few outliers as the exception.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	None/None/1B.1	None	Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/3–4,003	None	Low potential to occur. Coulter's goldfields are more likely to be found in moist conditions. According to collections referenced by the San Diego plant Atlas, it is more likely to be found closer to the coast with a few outliers as the exception. The closest population was collected in the 1880's near Bonita.
<i>Lepechinia cardiophylla</i>	heart-leaf pitcher sage	None/None/1B.2	Covered	Closed-cone coniferous forest, Chaparral, Cismontane woodland/ perennial shrub/ Apr-Jul/ 1706-4495	None	Low potential to occur. This perennial shrub would have been observed during rare plant surveys.
<i>Lepechinia ganderi</i>	Gander's pitcher sage	None/None/1B.3	Covered, NE	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metavolcanic/perennial shrub/June–July/1,001–3,297	None	Not expected to occur. The site is outside the species' known elevation range. This species is included in the Chula Vista MSCP Subarea Plan as "not likely to occur" (Table 5-4).
<i>Leptosyne maritima</i>	sea dahlia	None/None/2B.2	None	Coastal bluff scrub, coastal scrub/ perennial herb/Mar–May/16–492	None	Low potential to occur. Sea dahlia would have been observed during rare plant surveys and it requires sandy soils. According to collections referenced by the San Diego plant Atlas, sea dahlia occurs only along the coastline.
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	ocellated Humboldt lily	None/None/4.2	None	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; openings/perennial bulbiferous herb/Mar–July (Aug)/98–5,906	None	Low potential to occur. Ocellated Humboldt lily is more likely to be found in the mountains. According to collections referenced by the San Diego plant Atlas, it generally occurs much further north above the 8 freeway. One collection was made near the Otay county open space preserve in the 1930's.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	felt-leaved monardella	None/None/1B.2	Covered, NE	Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/984–5,167	None	Not expected to occur. The site is outside the species' known elevation range. This species is included in the Chula Vista MSCP Subarea Plan as "not likely to occur" (Table 5-4).
<i>Monardella stoneana</i>	Jennifer's monardella	None/None/1B.2	None	Closed-cone coniferous forest, chaparral, coastal scrub, riparian scrub; usually rocky intermittent streambeds/perennial herb/June–Sep/33–2,592	None	Low potential to occur. Jennifer's monardella would have been observed during rare plant surveys. It is more likely to be found within streambeds which did not occur on site. According to collections referenced by the San Diego plant Atlas, Jennifer's monardella occurs within Otay county open space preserve and much further east of the preserve.
<i>Monardella viminea</i>	willowy monardella	FE/CE/1B.1	Covered, NE	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738	None	Low potential to occur. Willowy monardella would have been observed during rare plant surveys. It is found within San Diego county in conditions with moisture and within rocky washes known at Miramar. According to collections referenced by the San Diego plant Atlas, all documented collections are in and around Miramar. This species is included in the Chula Vista MSCP Subarea Plan as "not likely to occur" (Table 5-4).
<i>Mucronea californica</i>	California spineflower	None/None/4.2	None	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy/annual herb/Mar–July (Aug)/0–4,593	None	Low potential to occur. California spineflower would have been observed during rare plant surveys. It is located along the coast only and is likely associated with <i>Polycarpon depressum</i> and <i>Cardionema ramosissimum</i> which

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						were not found on site. California spineflower requires sandy soils. According to collections referenced by the San Diego plant Atlas, California spineflower is located only along the coastline and collections date from the 1800's to the 1930's of which many of these areas are likely developed. One collection was made within Torrey Pines in 2010.
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail	None/None/3.1	None	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2,100	None	Low potential to occur. Little mousetail would have been observed within deeper portions of vernal pool basins. Little mousetail is associated with <i>Centunculus minimus</i> , <i>Crassula aquatica</i> , <i>Isoetes orcuttii</i> which were not found on site. According to Reiser, little mousetail requires, huerhuero loam and bosanko clays. According to collections referenced by the San Diego plant Atlas, all collections are south of the Otay River.
<i>Nama stenocarpa</i>	mud nama	None/None/2B.2	None	Marshes and swamps (lake margins, riverbanks)/annual–perennial herb/Jan–July/16–1,640	None	Low potential to occur. Mud nama would have been observed during rare plant surveys. It may be associated with <i>Petunia parviflora</i> , <i>Ammannia coccinea</i> , <i>Callitriche</i> species which were not found on site. Additionally, it occurs in wet conditions such as those of marshes, lakes and rivers which were not found on site. According to collections referenced by the San Diego plant Atlas, all collections have been documented north of Bonita, CA.



## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Navarretia prostrata</i>	prostrate vernal pool navarretia	None/None/1B.1	None	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools; mesic/annual herb/Apr–July/10–3,970	None	Low potential to occur. Prostrate vernal pool navarretia is restricted to vernal pools of which a thorough rare plant survey was conducted. Prostrate vernal pool navarretia is associated with <i>Eryngium aristulatum</i> ssp. <i>parishii</i> , <i>Crassula aquatic</i> and <i>Myosurus mimimus</i> var <i>apus</i> which were not observed within the vernal pools on site. According to collections referenced by the San Diego plant Atlas, all the collections are near Miramar.
<i>Nemacaulis denudata</i> var. <i>denudata</i>	coast woolly-heads	None/None/1B.2	None	Coastal dunes/annual herb/Apr–Sep/0–328	None	Not expected to occur. No suitable vegetation is present.
<i>Nemacaulis denudata</i> var. <i>gracilis</i>	slender cottonheads	None/None/2B.2	None	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/ (Mar) Apr–May/–164–1,312	None	Not expected to occur. No suitable vegetation is present.
<i>Nolina interrata</i>	Dehesa nolina	None/CE/1B.1	Covered, NE	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/607–2,805	None	Low potential to occur. Dehesa nolina would have been observed during rare plant surveys but are known to occur in a particularly rare habitat off of Dehesa road. According to Reiser, “Most populations apparently occur on Las Posas stony fine sandy loams.” Dehesa nolina is associated with <i>Tetracoccus dioicus</i> which was not found on site. According to collections referenced by the San Diego plant Atlas, all the collections are north of Highway 94 near Dehesa road. This species is included in the Chula Vista MSCP Subarea Plan as “not likely to occur” (Table 5-4).

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Ophioglossum californicum</i>	California adder's-tongue	None/None/4.2	None	Chaparral, valley and foothill grassland, vernal pools (margins); mesic/perennial rhizomatous herb/ (Dec) Jan–June/197–1,722	None	Low potential to occur. California adder's tongue would have been observed during rare plant surveys along the edges of the vernal pools on site. It is associated with <i>Selaginella cinerascens</i> , <i>Juncus bufonius</i> , <i>Adenostoma fasciculatum</i> . <i>Adenostoma</i> was not found on site. According to Reiser, "On Mira Mesa this plant is found in an unusual, very open Chamise Chaparral (Redding cobbly loam), on flatlands which have unusually mesic conditions for brief periods in the spring. Olivenhain cobbly loam is mapped for the Proctor Valley road site, at the edge of a vernal pool." According to collections referenced by the San Diego plant Atlas, the closest occurrence is east of the 125 freeway in the Otay County Open Space Preserve.
<i>Orcuttia californica</i>	California Orcutt grass	FE/CE/1B.1	Covered	Vernal pools/annual herb/Apr–Aug/49–2,165	None	Low potential to occur. Vernal Pools are the preferred habitat of this prostrate grass. California orcutt grass is associated with higher quality vernal pools that have mima mounds. The vernal pools on site did not consist of mima mounds and were of moderate quality. California orcutt grass is associated with <i>Psilocarphus brevissimus</i> , <i>Navarretia fossalis</i> and <i>Myosurus minimus</i> var. <i>apus</i> . <i>Psilocarphus brevissimus</i> was abundant within the vernal pools. According to Reiser, "Stockpen gravelly clay loam and sandy loam are the

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						preferred soils for California orcutt grass." According to the CNDDDB, the closest occurrence is approximately 1.4 miles southeast and southwest of the project site on the flat terrain south of Johnson Mountains and Dennery Canyon in Otay Mesa near the Brown Field Municipal Airport
<i>Ornithostaphylos oppositifolia</i>	Baja California birdbush	None/CE/2B.1	None	Chaparral/perennial evergreen shrub/Jan–Apr/180–2,625	None	Low potential to occur. Baja California birdbush would have been observed on site due to the perennial nature of this species. It is a very large shrub in the Ericaceae family. According to collections referenced by the San Diego plant Atlas, Baja California birdbush occurs only within the Tijuana river valley closer to the ocean. According to the CNDDDB, the closest occurrence is approximately 5.9 miles southwest of the project site on flat terrain east of the Smuggler Gulch north of the U.S. and Mexico border.
<i>Orobanche parishii</i> ssp. <i>brachyloba</i>	short-lobed broomrape	None/None/4.2	None	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/perennial herb (parasitic)/Apr–Oct/10–1,001	None	Low potential to occur. Short-lobed broomrape would have been observed during rare plant surveys. The required sandy soils and habitat were not found on site. According to collections referenced by the San Diego plant Atlas, short lobed broomrape occurs only on the coast.
<i>Packera ganderi</i>	Gander's ragwort	None/CR/1B.2	Covered	Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–Jun/	None	Not expected to occur. The site is outside the species' known elevation range.

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				1,312–3,937		According to the CNDDDB, the closest occurrence is approximately 17.3 miles east of the project site on the north slope of Tecate Peak south of Potrero Creek
<i>Pentachaeta aurea</i> ssp. <i>aurea</i>	golden-rayed pentachaeta	None/None/4.2	None	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/annual herb/Mar–July/262–6,070	None	Low potential to occur. Golden-rayed pentachaeta would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, all collections of golden-rayed pentachaeta are north of Hwy 94.
<i>Phacelia stellaris</i>	Brand's star phacelia	None/None/1B.1	None	Coastal dunes, coastal scrub/annual herb/Mar–June/3–1,312	None	Low potential to occur. According to collections referenced by the San Diego plant Atlas, all collections of Brand's star phacelia occur along the coast. According to the CNDDDB, the closest occurrence is approximately 8.7 miles northwest of the project site along the Silver Strand State Beach.
<i>Pickeringia montana</i> var. <i>tomentosa</i>	woolly chaparral-pea	None/None/4.3	None	Chaparral; gabbroic, granitic, clay/ evergreen shrub/May–Aug/0–5,577	None	Low potential to occur. Due to the perennial nature of woolly chaparral pea, it would have easily been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, populations of woolly chaparral pea are all found east of Otay ranch.
<i>Pinus torreyana</i> ssp. <i>torreyana</i>	Torrey pine	None/None/1B.2	Covered	Closed-cone coniferous forest, Chaparral/Sandstone/ perennial evergreen tree/ N.A./ 246-525	None	Low potential to occur. This perennial evergreen tree would have been observed during rare plant surveys.
<i>Piperia cooperi</i>	chaparral rein orchid	None/None/4.2	None	Chaparral, cismontane woodland, valley and foothill grassland/	None	Low potential to occur. Due to the perennial nature of chaparral rein orchid, it

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				perennial herb/Mar–June/49–5,200		would have easily been observed during rare plant surveys. It is likely associated with <i>Jepsonia parryi</i> , <i>Saxifraga californica</i> and <i>Dudleya lanceolata</i> . <i>Jepsonia parryi</i> was observed on site but chaparral rein orchid is usually found in a more mesic conditions. According to Reiser, “Soils at population sites on Point Loma are mapped as Gaviota fine sandy loams.” According to collections referenced by the San Diego plant Atlas, populations of chaparral rein orchid occur scattered throughout the county.
<i>Pogogyne abramsii</i>	San Diego mesa mint	FE/CE/ 1B.1	Covered	Vernal pools/ annual herb/ Mar-Jul/ 295-656	None	Low potential to occur. This annual would have easily been observed within the vernal pools found on site during rare plant surveys.
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	FE/CE/1B.1	Covered	Vernal pools/annual herb/May– July/295–820	None	Low potential to occur. This annual would have easily been observed within the vernal pools found on site during rare plant surveys. Otay mesa mint is restricted to vernal pools and is associated with other vernal pool species like <i>Crassula aquatic</i> and <i>Eryngium aristulatum</i> . According to Reiser, “Otay mesa mint prefers Stockpen gravelly clay loam. Some Chamise Chaparral is associated with Otay Mesa Mint in the extreme northeastern corner of Otay Mesa, most of the colonies occur in open grasslands with Mima Mound topography.” According to the CNDDb, the

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						closest occurrence is approximately 1.3 miles southeast and southwest of the project site on the flat terrain south of Johnson Mountains and Dennery Canyon in Otay Mesa near the Brown Field Municipal Airport. According to collections referenced by the San Diego plant Atlas, all populations of Otay Mesa mint occur south of the Otay River.
<i>Polygala cornuta</i> var. <i>fishiae</i>	Fish's milkwort	None/None/4.3	None	Chaparral, cismontane woodland, riparian woodland/perennial deciduous shrub/May–Aug/328–3,281	None	Low potential to occur. This species would have been observed during rare plant surveys. According to collections referenced by the San Diego plant atlas, all populations occur east of the 125 freeway past the Otay county open space preserve.
<i>Quercus cedrosensis</i>	Cedros Island oak	None/None/2B.2	None	Closed-cone coniferous forest, chaparral, coastal scrub/perennial evergreen tree/Apr–May/837–3,150	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Quercus dumosa</i>	Nuttall's scrub oak	None/None/1B.1	None	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr (Aug)/49–1,312	None	Low potential to occur. Nuttall's scrub oak was not observed during rare plants surveys and is associated with <i>Ceanothus verrucosus</i> , <i>Xylococcus bicolor</i> and <i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> which were not found on site. According to Reiser, "Coastal chaparral with a relatively open canopy cover is the preferred habitat in flat terrain; on north-facing slopes this shrub may grow in dense monotypic stands. Chesterton fine sandy loams are mapped for the Miramar Marine Airbase population." According to collections

## APPENDIX F (Continued)

**Table F-2**  
**Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						referenced by the San Diego plant atlas, Nuttall's scrub oak is more likely to occur near the coast and just in from the coast.
<i>Quercus engelmannii</i>	Engelmann oak	None/None/4.2	None	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/164–4,265	None	Low potential to occur. Due to the perennial nature of Engelmann oak, it would have easily been observed during rare plant surveys and is more likely to be found within woodland. No woodland habitat was found on site. According to collections referenced by the San Diego plant Atlas, all collections are further east of the site.
<i>Ribes canthariforme</i>	Moreno currant	None/None/1B.3	None	Chaparral, riparian scrub/perennial deciduous shrub/Feb–Apr/1,115–3,937	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Ribes viburnifolium</i>	Santa Catalina Island currant	None/None/1B.2	None	Chaparral, cismontane woodland/perennial evergreen shrub/Feb–Apr/98–1,148	None	Low potential to occur. Due to the perennial nature of Santa Catalina island current, it would have easily been observed during rare plant surveys. No <i>Ribes</i> spp. were found on site. According to collections referenced by the San Diego plant Atlas, the closest collection was in 1990 near Border Field State Park.
<i>Romneya coulteri</i>	Coulter's matilija poppy	None/None/4.2	None	Chaparral, coastal scrub; often in burns/perennial rhizomatous herb/Mar–July/66–3,937	None	Low potential to occur. Due to the perennial nature of coulter's matilija poppy, it would have easily been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, the closest collection is near the city of Bonita, CA.

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Rosa minutifolia</i>	small-leaved rose	None/CE/2B.1	Covered	Chaparral, coastal scrub/perennial deciduous shrub/Jan–June/492–525	None	Low potential to occur. This perennial species would have been observed during rare plant surveys. According to the CNDDDB, the closest occurrence is approximately 1.1 miles from the southwest boundary of the project site on the flat terrain south of Dennerly Canyon on the Otay Mesa
<i>Salvia munzii</i>	Munz's sage	None/None/2B.2	None	Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/377–3,494	None	Low potential to occur. Munz's sage would have been observed during rare plant surveys. According to collections referenced by the San Diego plant Atlas, large populations of Munz's sage occur within Otay county open space preserve.
<i>Senecio aphanactis</i>	chaparral ragwort	None/None/2B.2	None	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/ annual herb/Jan–Apr/49–2,625	None	Low potential to occur. Chaparral ragwort would have been observed during rare plant surveys. Chaparral ragwort is associated with <i>Dudleya edulis</i> . According to Reiser, "Soils are mapped as Stockpen gravelly clay loam." According to collections referenced by the San Diego plant Atlas, the closest population is east of the 125 freeway in Otay County open space preserve.
<i>Solanum xanti</i>	chaparral nightshade	None/None/CBR	Covered	Yellow Pine Forest, Red Fir Forest, Lodgepole Forest, Northern Oak Woodland, Southern Oak Woodland, Foothill Woodland, Chaparral/ perennial herb or shrub/ Feb-Jul	None	Low potential to occur. This perennial shrub species would have been observed during rare plant surveys.



## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Stemodia durantifolia</i>	purple stemodia	None/None/2B.1	None	Sonoran desert scrub (often mesic, sandy)/perennial herb/Jan–Dec/591–984	None	Not expected to occur. No suitable vegetation is present.
<i>Stipa diegoensis</i>	San Diego County needle grass	None/None/4.2	None	Chaparral, coastal scrub; rocky, often mesic/perennial herb/Feb–June/33–2,625	None	Low potential to occur. During rare plant surveys, sections with <i>Stipa</i> spp. were examined and keyed out. No San Diego needlegrass was found. According to collections referenced by the San Diego plant Atlas, the closest San Diego needle grass population is near the Brown Field airport.
<i>Streptanthus bernardinus</i>	Laguna Mountains jewel-flower	None/None/4.3	None	Chaparral, lower montane coniferous forest/perennial herb/May–Aug/2,198–8,202	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Stylocline citroleum</i>	oil neststraw	None/None/1B.1	None	Chenopod scrub, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–Apr/164–1,312	None	Low potential to occur. According to Reiser, "This annual is reported from coastal scrub and clay soils in the vicinity of oilfields." According to collections referenced by the San Diego plant Atlas, no collections within San Diego county have been documented. It is more likely to be found in Kern county. According to Calflora oil neststraw only occurs within Kern county.
<i>Suaeda esteroa</i>	estuary seablite	None/None/1B.2	None	Marshes and swamps (coastal salt)/perennial herb/May–Oct (Jan)/0–16	None	Not expected to occur. The site is outside the species' known elevation range.
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	None/None/1B.2	Covered	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/541–3,281	None	Low potential to occur. Parry's tetracoccus would have been observed during rare plants surveys. It is associated with <i>Nolina</i>

## APPENDIX F (Continued)

**Table F-2  
Special-Status Plants with Low Potential or Not Expected to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State/CRPR)	Chula Vista Subarea Plan	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						<i>cismontane</i> and <i>Adenostoma fasciculatum</i> . Conditions for Parry's tetraococcus are xeric. According to Reiser, "This species shows a preference for Las Posas soils." According to collections referenced by the San Diego plant Atlas, Parry's tetraococcus is found north of Hwy 94.
<i>Tortula californica</i>	California screw-moss	None/None/1B.2	None	Chenopod scrub, valley and foothill grassland; sandy, soil/moss/NA/33–4,790	None	Low potential to occur. Sandy soils and Chenopod scrub were not found on site which are required for California screw moss.
<i>Xanthisma junceum</i>	rush-like bristleweed	None/None/4.3	None	Chaparral, coastal scrub/perennial herb/June–Jan/787–3,281	None	Not expected to occur. The site is outside the species' known elevation range.

**Status Designations:**

**Federal:** FE = Federally listed Endangered FT = Federally listed as Threatened

**State:** CE = State-listed as Endangered CT = State-listed as Threatened CR = State-listed as Rare

**California Rare Plant Rank (CRPR):**

CBR: Considered But Rejected

1A (formerly List 1A): Plants Presumed Extinct in California

1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere

2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3 (formerly List 3): Plants About Which We Need More Information – A Review List

4 (formerly List 4): Plants of Limited Distribution – A Watch List

**Threat Rank:**

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

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

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

**County Designations:** Covered: Covered Species under the San Diego MSCP NE: Narrow Endemic Species within the Chula Vista Subarea

# **APPENDIX G**

*Special-Status Wildlife Species Potential to Occur  
within the Project Area*



## APPENDIX G

### Special-Status Wildlife Species Potential to Occur within the Project Area

**Table G-1**  
**Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Amphibians</i>						
<i>Spea hammondi</i>	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	No.	High potential to occur. Grassland and coastal scrub habitat are present and suitable clay soils for ephemeral pools are present within the Preserve. CNDDDB records include occurrences approximately 3.9 miles north of the project area on the south side of Proctor Valley south of Sweetwater Reservoir (CDFW 2016).
<i>Reptiles</i>						
<i>Anniella pulchra pulchra</i>	silvery legless lizard	None/SSC	None	Stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	No.	Moderate potential to occur. Scrub habitat and suitable soils are present on site and riparian habitat is present within the Preserve associated with the proposed sewer line. CNDDDB records include occurrences approximately 6.9 miles southwest of the project area on the Tijuana River south of the Imperial Beach Naval Air Station (CDFW 2016).
<i>Aspidoscelis hyperythra</i>	orange-throated whiptail	None/WL	Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	No.	High potential to occur. Suitable habitat is present on site. CNDDDB records include occurrences along the northern border of the project area on the slopes of Wolf Canyon (CDFW 2016).
<i>Aspidoscelis tigris stejnegeri</i>	San Diegan tiger whiptail	None/SSC	None	Open areas in semiarid grasslands, scrublands, and woodlands	No.	High potential to occur. Suitable habitat is present on site. CNDDDB records include occurrences within the vicinity <sup>3</sup> (CDFW 2016).

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Crotalus ruber</i>	red diamondback rattlesnake	None/SSC	None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	No.	High potential to occur. Suitable scrub and grassland habitat is present. CNDDDB records include occurrences approximately 1.8 miles northwest of the project area within Poggi Canyon east of I-805 (CDFW 2016).
<i>Diadophis punctatus similis</i>	San Diego ring-necked snake	None/None	None	Moist habitats including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed conifer forest, and woodland habitats	No.	Moderate potential to occur. Limited suitable moist habitat is within the Preserve, however grassland is present. CNDDDB records include occurrences within the vicinity <sup>3</sup> (CDFW 2016).
<i>Phrynosoma blainvillii</i>	Blainville's horned lizard	None/SSC	Covered	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	No.	High potential to occur. Suitable habitat and soils are present. Species is present within the vicinity <sup>3</sup> . CNDDDB records include occurrences approximately 2.9 miles southwest of the project area in Moody Canyon southeast of the I-905 and I-805 junction (CDFW 2016).
<i>Plestiodon skiltonianus interparietalis</i>	Coronado Island skink	None/WL	None	Woodlands, grasslands, pine forests, chaparral; rocky areas near water	Observed	Species occurs on site. Coronado Island skink was observed in the project area on multiple occasions. One occurrence was mapped within the Village Four Development. Suitable grassland habitat is present and riparian is present within the Preserve in association with the proposed sewer line. CNDDDB records include occurrences approximately 5.8 miles southwest of the project area north of the Tijuana River and west of Hollister Street (CDFW 2016).

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Salvadora hexalepis virgulata</i>	coast patch-nosed snake	None/SSC	None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	No.	Moderate potential to occur. Suitable vegetation and small mammal burrows are present. CNDDDB records include occurrences approximately 5.2 miles southeast of the project area in the southern peaks of San Ysidro Mountains east of the San Diego National Wildlife Refuge (Otay-Sweetwater Unit) (CDFW 2016).
<i>Birds</i>						
<i>Accipiter cooperii</i> (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 foraging over the site, but was not mapped. There is suitable foraging habitat throughout the project area, but nesting habitat does not readily occur in the project area. High potential to nest in the Otay River, which is part of the Quarry off-site area. Low potential to nest in Village Four or the Village Three off-site area. CNDDDB records include occurrences approximately 5.2 miles northeast of the project area in Mother Miguel Mountains south of San Miguel Mountains and Sweetwater Reservoir (CDFW 2016).
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow	None/WL	Covered	Nests and forages open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Observed	Observed in the Village Four Development and Preserve. High potential to occur in other portions of the project area. Suitable habitat is present. CNDDDB records include occurrences approximately 0.2 miles from the

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						northern boundary of the project area ranging from Poggi Canyon floor to Wolf Canyon floor (CDFW 2016).
<i>Ammodramus savannarum</i> (nesting)	grasshopper sparrow	None/SSC	None	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Observed	Species observed on site. There is one observation in the Village Four Development Suitable habitat is present. This species was observed in the adjacent Otay Ranch University Villages site (Dudek 2014).
<i>Aquila chrysaetos</i> (nesting and wintering)	golden eagle	BCC/FP, WL	Covered	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	No.	High potential to occur for foraging. No nesting habitat is present. No large trees or cliffs for nesting, open grassland habitat present for foraging. CNDDDB records include occurrences within the vicinity <sup>3</sup> (CDFW 2016).
<i>Artemisiospiza belli belli</i>	Bell's sage sparrow	BCC/WL	None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise ( <i>Adenostoma fasciculatum</i> ); nests in denser patches but uses more open habitat in winter	No.	Moderate potential to occur. Coastal scrub is present, although the species was not observed during 2015 surveys. CNDDDB records include occurrences approximately 4.7 miles northeast of the project area in the southeastern region of the Mother Miguel Mountains and southwestern region of the San Miguel Mountains south of Sweetwater Reservoir (CDFW 2016).
<i>Athene cunicularia</i> (burrow sites and some wintering)	burrowing owl	BCC/SSC	Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel ( <i>Spermophilus</i> spp.) burrows.	No.	Moderate potential to occur. Suitable habitat is present, however focused surveys conducted in 2015 were negative. CNDDDB records include two



## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
sites)						occurrences (presumed extant) approximately 0.5 mile and 1 mile from the eastern boundary of the project area (CDFW 2016).
<i>Campylorhynchus brunneicapillus sandiegensis</i> (San Diego and Orange Counties only)	coastal cactus wren	BCC/SSC	Covered	Southern cactus scrub patches	Observed.	Species observed on site in the Village Four Preserve. Cactus patches are present within maritime succulent scrub and portions of the Preserve that were not mapped. CNDDDB records include occurrences within the vicinity <sup>3</sup> (CDFW 2016).
<i>Circus cyaneus</i> (nesting)	northern harrier	None/SSC	Covered	Nests in open wetlands including marshy meadows; wet, lightly-grazed pastures; old fields; and freshwater and brackish marshes, but also in drier habitats such as grassland and grain fields; forages in variety of habitats, including grassland, scrubs, rangelands, emergent wetlands, and other open habitats	No.	Observed in the Village Four Development and Preserve (Dudek 2011); species not observed during recent 2015 surveys. Suitable grassland habitat for foraging is present; however, this species has not been observed nesting on site. There is moderate potential for the species to nest on site.
<i>Elanus leucurus</i> (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	No.	Species observed foraging within the Village Three Preserve during 2011 surveys; species not observed during recent 2015 surveys. One individual was recorded in the Village Three Preserve during surveys for University Villages (Dudek 2011), and one individual was recorded foraging adjacent to the Village Four Preserve boundary (Dudek 2011). Not expected to nest in the project area.

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						High potential to nest in the riparian forest in the Otay River and Wolf Canyon.
<i>Eremophila alpestris actia</i>	California horned lark	None/WL	None	Nests and forages in grasslands disturbed lands, agriculture, and beaches; nests in alpine fell fields of the high Sierra	Observed.	Observed in the Village Four Development. Suitable nesting and foraging habitat is present in the project area.
<i>Falco peregrinus anatum</i> (nesting)	American peregrine falcon	FDL, BCC/SDL, FP	Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, and croplands, especially where waterfowl are present	No.	High potential to forage in the project area. Observed foraging at the adjacent University Villages project site (Dudek 2014). Not expected to nest in the project area due to lack of cliffs present and riparian woodland on site. The portion of the Otay River in the Quarry off-site area is limited to tamarisk scrub and not suitable for peregrine falcon. CNDDDB records include occurrences approximately 2.1 miles east of the project area along the Otay River in the eastern region of the Otay Valley (CDFW 2016).
<i>Lanius ludovicianus</i> (nesting)	loggerhead shrike	BCC/SSC	None	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Observed	Observed in the Village Four Development. Suitable habitat is present within the project area. Could forage within all habitats in the project area and could nest within any of the large shrubs present.
<i>Polioptila californica californica</i>	coastal California gnatcatcher	FT/SSC	Covered	Nests and forages in various sage scrub communities, often dominated by coastal sagebrush ( <i>Artemisia californica</i> ) and buckwheat	Observed.	Observed in the Village Four Development (one pair), Village Four Preserve (one pair; one male), and near the Village Three off-site area (one pair)

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				( <i>Eriogonum</i> spp.); generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet amsl		(Dudek 2011). Suitable habitat is present in coastal sage scrub in the project area.
<i>Mammals</i>						
<i>Antrozous pallidus</i>	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	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 4.2 miles southwest of the project area northeast of the I-5 and I-905 junction in downtown San Diego (CDFW 2016).
<i>Chaetodipus californicus femoralis</i>	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	No.	High potential to occur. Suitable coastal scrub and disturbed habitat is present. CNDDDB records include occurrences approximately 11.0 miles northeast of the project area east of Sycamore Canyon and northeast of San Ysidro Mountains (CDFW 2016).
<i>Chaetodipus fallax fallax</i>	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	No.	High potential to occur. Suitable coastal scrub and disturbed habitat is present. Species is present within the vicinity <sup>3</sup> . CNDDDB records include occurrences approximately 0.4 mile from the southwestern boundary of the project area in Dennery Canyon and Otay Mesa (CDFW 2016).
<i>Choeronycteris mexicana</i>	Mexican long-tongued	None/SSC	None	Desert and montane riparian, desert succulent scrub, desert scrub, and	No.	Not expected to roost; moderate potential to forage. No suitable roosting

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
	bat			pinyon–juniper woodland; roosts in caves, mines, and buildings		habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 5.9 miles southwest of the project area south of San Diego Bay in downtown Imperial Beach (CDFW 2016).
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/SC, SSC	None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes; also roosts in man-made structures and tunnels	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 6.3 miles northeast of the project area ranging from northern peaks of San Ysidro Mountains to southern McGinty Mountains and from eastern Jamul Mountains to Lyons Valley (CDFW 2016).
<i>Eumops perotis californicus</i>	western mastiff bat	None/SSC	None	Chaparral, coastal and desert scrub, and coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, as well as in trees and tunnels	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 3.0 miles west of the project area along the Otay River in the Otay Valley south of Lower Otay Reservoir (CDFW 2016).
<i>Lasiurus blossevillii</i>	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	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 3.1

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						miles west of the project area along the Otay River in the Otay Valley south of Lower Otay Reservoir (CDFW 2016).
<i>Lasiurus xanthinus</i>	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 areas and palms	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 9.5 miles north of the project area near the intersection of SR-94 and SR-125 in Spring Valley east of downtown San Diego (CDFW 2016).
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	None/SSC	None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Observed.	Observed in the Village Four Development. Suitable habitat is present in the project area.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	None/SSC	None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Observed	Observed in the project area but the location was not mapped. Suitable habitat is present in the project area.
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	None/SSC	None	Pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oases; roosts in high cliffs or rock outcrops with dropoffs, caverns, and buildings	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records include occurrences approximately 2.9 miles west of project area along the Otay River in the Otay Valley south of Lower Otay Reservoir (CDFW 2016).
<i>Nyctinomops macrotis</i>	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	No.	Not expected to roost; moderate potential to forage. No suitable roosting habitat is present, but species could forage over the site. CNDDDB records

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						include occurrences approximately 8.1 miles northeast of the project area in the Sweetwater River east of the Sweetwater Reservoir and north of the San Miguel Mountains (CDFW 2016).
<i>Odocoileus hemionus</i>	mule deer	None/None	Covered	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Observed.	Observed in the project area but the location was not mapped. Suitable habitat is present in the project area.
<i>Puma concolor</i>	cougar	None/None	Covered	Scrubs, chaparral, riparian, woodland, forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	No.	Moderate potential to occur. Suitable habitat is present that provides cover, however the habitat is limited in size, and there are no ledges, cliffs or rocky areas occur on site.
<i>Taxidea taxus</i>	American badger	None/SSC	Covered	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	No.	Moderate potential to occur. Suitable habitat is present, however limited friable soils occur on site. CNDDDB records include occurrences approximately 1.2 miles north of the project area in Poggi Canyon in La Nacion (CDFW 2016).
<i>Invertebrates</i>						
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	FE/None	Covered	Vernal pools, non-vegetated ephemeral pools	No.	Moderate potential to occur in the vernal pools mapped in the Village Four Preserve where there are suitable clay soils for ephemeral pools present. USFWS and CNDDDB records include occurrences approximately 0.6 mile from the southwestern boundary of the project

## APPENDIX G (Continued)

**Table G-1  
Special-Status Wildlife Species Observed or High and Moderate Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						area on the bottom south-facing slopes outside Otay Valley near Brown Field Municipal Airport (CDFW 2016; USFWS 2015).
<i>Euphydryas editha quino</i>	Quino checkerspot	FE/None	Covered	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include dotseed plantain ( <i>Plantago erecta</i> ), Coulter's snapdragon ( <i>Antirrhinum coulterianum</i> ), and woolly plantain ( <i>Plantago patagonica</i> ) (Silverado Occurrence Complex)	No.	Low potential to occur. Host plants and suitable habitat present however, focused surveys conducted in 2015 were negative. USFWS and CNDDDB records include occurrences approximately 0.5 mile from the western boundary of the project area along the Otay River in the Otay Valley south of Lower Otay Reservoir (CDFW 2016; USFWS 2015).
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE/None	Covered	Vernal pools, non-vegetated ephemeral pools	No.	Moderate potential to occur in the vernal pools mapped in the Village Four Preserve where there are suitable clay soils for ephemeral pools present. USFWS and CNDDDB records include occurrences approximately 1.0 mile from the southwestern boundary of the project area on the flat eastern region of Dennery Canyon in Otay Mesa (CDFW 2016; USFWS 2015).

List based on a search of all wildlife species found in the CNDDDB database for the Otay Mesa quadrangle and the five surrounding U.S. Geological Service (USGS) quadrangles conducted in November 2016 and the USFWS.

<sup>1</sup> **Status Designations:**

**Federal**

BCC: U.S. Fish and Wildlife Service: Birds of Conservation Concern

FC: Candidate for federal listing as threatened or endangered

FE: Federally listed Endangered

FT: Federally listed as Threatened

## APPENDIX G (Continued)

FSS: U.S. Forest Service Sensitive

FDL: Federally Delisted

**State Designations:**

SSC: California Special Concern Species

FP: California Department of Fish and Game Fully Protected Species

WL: California Department of Fish and Game Watch List Species

SE: State-listed as Endangered

ST: State-listed as Threatened

<sup>2</sup> **County Designations:**

Chula Vista MSCP Subarea Plan

Covered: Covered Species under the Chula Vista MSCP Subarea Plan

<sup>3</sup> **Vicinity:** CNDDDB database species found within the Otay Mesa quadrangle.

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Amphibians</i>						
<i>Anaxyrus californicus</i>	arroyo toad	FE/SSC	Covered	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	No.	Not expected to occur in Village Four or the Village Three off-site area. The Quarry off-site area includes a small portion of the Otay River; however, there are no records of arroyo toad in the Otay River or the same watershed as the project area, and the closest occurrence is approximately 7.3 miles northeast of the project area in the northeastern foothills of San Miguel Mountains in the channel east of the Sweetwater Reservoir (CDFW 2016).
<i>Rana draytonii</i>	California red-legged frog	FT/SSC	Covered	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	No.	Not expected to occur in Village Four or the Village Three off-site area. The Quarry off-site area includes a small portion of the Otay River; however, there are no records of California red-legged frog in the Otay River or the same watershed as the project area, and the closest occurrence is



## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						approximately 45.2 miles northeast of the project area along the San Felipe Creek south of Grapevine Mountains in Anza Borrego Desert (USFWS 2015; CDFW 2016). The MSCP Subarea Plan also indicates this species is not likely to be found in the Subarea (City of Chula Vista 2003).
<i>Reptiles</i>						
<i>Actinemys marmorata</i>	western pond turtle	None/SSC	Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	No.	Low potential to occur in the Quarry off-site area that includes a small portion of the Otay River. The site is outside the species' known geographic range. CNDDDB records include occurrences approximately 14.5 miles northeast of the project area in Lyons Valley along Wilson Creek in Hollenback Canyon (CDFW 2016). Not expected to occur in Village Four or Village Three off-site area.
<i>Chelonia mydas</i>	green turtle	FT/None	None	Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass, and seaweed beds	No.	Not expected to occur. No suitable lagoon or similar habitat is present. CNDDDB records include occurrences approximately 6.1 miles northwest of the project area in the southern area of San Diego Bay (CDFW 2016).
<i>Lichanura trivirgata</i>	rosy boa	None/None	None	Desert and chaparral habitats with rocky soils in coastal canyons and hillsides, desert canyons, washes, and mountains	No.	Low potential to occur. No chaparral or desert habitat is present. CNDDDB records include occurrences within the vicinity <sup>3</sup> (CDFW 2016); however, the site is outside the species' known geographic range.

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Thamnophis hammondi</i>	two-striped gartersnake	None/SSC	None	Found in or near permanent fresh water such as streams, creeks, pools, streams with rocky beds, ponds, lakes,	No.	Not expected to occur. Project area does not contain permanent streams or aquatic areas. Moderate potential to occur within adjacent areas such as the Otay River; and in Village Three adjacent to Wolf Canyon. CNDDDB records include occurrences approximately 2.4 miles northeast of the project area along Salt Creek west of Lower Otay Reservoir (CDFW 2016).
<i>Birds</i>						
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	BCC/SSC	Covered	Nests near fresh water, emergent wetland with cattails (Typhaceae) or tule ( <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> ), but also in Himalayan blackberry ( <i>Rubus armeniacus</i> ); forages in grasslands, woodland, and agriculture	No.	Low potential to nest or forage. Cismontane alkali marsh is present on site, however very limited in size (0.17 acres). Suitable grasslands for foraging are present. CNDDDB records include occurrences approximately 1.0 mile from the southeastern boundary of the project area along the Otay River in the Otay Valley
<i>Branta canadensis</i>	Canada goose	None/None	Covered	Lakes, rivers, ponds, and other bodies of water; yards, park lawns, and agricultural fields	No.	Low potential to occur based on lack of suitable habitat. The portion of Otay River in the off-site Quarry area is not suitable for this species. Additionally, there are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Buteo regalis</i> (wintering)	ferruginous hawk	BCC/WL	Covered	Winters and forages in open, dry country, grasslands, open fields, agriculture	No.	Low potential to occur for foraging; does not breed in the region. Suitable foraging/wintering grassland habitat is present, however the species is not recorded in the vicinity <sup>3</sup> . CNDDDB records include occurrences approximately 62.1 miles north of the project area in Pauba Valley along the Temecula Creek in Riverside County (CDFW 2016).
<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	BCC/ST	Covered	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	No.	Low potential to occur for foraging; does not breed in the region. Suitable foraging grassland habitat is present for wintering and migration. Not expected to nest on site due to lack of nesting habitat and lack of known nesting in the region. CNDDDB records include occurrences approximately 5.2 miles north of the project area along the Sweetwater River and western Sweetwater Reservoir (CDFW 2016).
<i>Charadrius alexandrinus nivosus</i> (nesting)	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	No.	Not expected to occur. No suitable coastal habitat; and site does not contain reservoirs or lakes. CNDDDB records include occurrences approximately 5.6 miles west of the project area in the San Diego National Wildlife Refuge Salt Evaporators south of San Diego Bay (CDFW 2016).
<i>Charadrius montanus</i>	mountain plover	BCC/SSC	Covered	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	No.	Low potential to occur. No prairie, extensive grassland, or sandy deserts are

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
(wintering)						present. There are no CNDDDB records in the vicinity <sup>3</sup> ; CNDDDB records include occurrences approximately 74.5 miles northwest of the project area west of the New River and south of I-8 in the eastern region of Yuha Desert; (CDFW 2016).
<i>Coccyzus americanus occidentalis</i> (nesting)	western yellow-billed cuckoo	FT, BCC/SE	None	Nests in dense, wide riparian woodlands and forest with well-developed understories	No.	Not expected to occur in Village Four or the Village Three off-site area. Low potential to occur in the Quarry off-site area, which includes a small portion of the Otay River with tamarisk scrub and riparian woodland and scrub nearby. CNDDDB records include occurrences approximately 2.8 miles east of the project area along the Otay River south of Lower Otay Reservoir (CDFW 2016).
<i>Egretta rufescens</i>	reddish egret	None/None	Covered	Freshwater marsh with emergent vegetation; in the Central Valley, primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	No.	Not expected to occur. The site is outside the species' known geographic range. There are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).
<i>Empidonax traillii extimus</i> (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	No.	Not expected to occur in Village Four or the Village Three off-site area. Low potential to occur in the Quarry off-site area, which includes a small portion of the Otay River with tamarisk scrub and riparian woodland and scrub nearby. CNDDDB records include occurrences approximately 7.0 miles northeast of the project area on the eastern edge of the

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						Sweetwater Reservoir along the Sweetwater River northwest of San Miguel Mountains (CDFW 2016).
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	bald eagle	FDL, BCC/SE, FP	Covered	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	No.	Low potential to occur in the project area and not expected to nest. No lakes or large bodies of water are present and the species is not recorded within the vicinity <sup>3</sup> (CDFW 2016). CNDDDB records include occurrences approximately 67.3 miles north of the project area south of Skinner Reservoir and north of Buck Mesa in Pauba (CDFW 2016).
<i>Icteria virens</i> (nesting)	yellow-breasted chat	None/SSC	None	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows ( <i>Salix</i> spp.), vine tangles and dense brush	No.	Low potential to occur. Project area does not contain dense, wide riparian woodlands or thickets. CNDDDB records include occurrences approximately 0.3 mile from the southern boundary of the project area along the Otay River in the Otay Valley (CDFW 2016).
<i>Laterallus jamaicensis coturniculus</i>	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 foothill populations	No.	Not expected to occur. No coastal habitat present on site and extirpated in San Diego County (Unitt 2004). CNDDDB records include occurrences approximately 6.5 miles southwest of the project area along the Border Field State Park and Imperial Beach Naval Air Station south of San Diego Bay (CDFW 2016).
<i>Numenius americanus</i> (nesting)	long-billed curlew	BCC/WL	Covered	Nests in grazed, mixed grass, and shortgrass prairies. Localized nesting along the California coast; winters and	No.	Potential to forage over site during winter or migration. This species does not nest in San Diego County (Unitt 2004).

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				forages in coastal estuaries, mudflats, open grassland, and cropland		
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	None/SE	Covered	Nests and forages in coastal saltmarsh dominated by pickleweed ( <i>Salicornia</i> spp.)	No.	Not expected to occur. No saltmarsh containing pickleweed is present. CNDDDB records include occurrences approximately 5.6 miles west of the project area in the San Diego National Wildlife Refuge Salt Evaporators south of San Diego Bay (CDFW 2016).
<i>Passerculus sandwichensis rostratus</i> (wintering)	large-billed savannah sparrow	None/SSC	Covered	Nests and forages in open, low saltmarsh vegetation including low halophytic scrub	No.	Not expected to occur. No saltmarsh vegetation is present and there are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).
<i>Pelecanus occidentalis californicus</i> (nesting colonies and communal roosts)	California brown pelican	FDL/SDL, FP	Covered	Forage in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	No.	Not expected to occur. No suitable coastal marine habitat is present. Closest occurrence is approximately 14.2 miles northwest of the project area on the North Island U.S. Naval Air Station in the northern San Diego Bay; there are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).
<i>Phalacrocorax auritus</i> (nesting colony)	double-crested cormorant	None/WL	None	Nests in riparian trees near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines; winter habitat includes lakes, rivers, and coastal areas	No.	Not expected to occur. No large bodies of water are present. CNDDDB records include occurrences approximately 6.8 miles north of the project area east of the Sweetwater Reservoir along the Sweetwater River northwest of the San Miguel Mountains (CDFW 2016).
<i>Plegadis chihi</i> (nesting colony)	white-faced ibis	None/WL	Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in	No.	Low to occur in the winter. No shallow marshes, ponds or lakes are present. The

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
				shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries		site is outside the species' known geographic range for nesting. CNDDDB records include occurrences approximately 34.9 miles north of the project area east of the I-15 and SR-78 junction in downtown Escondido; there are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).
<i>Rallus obsoletus levipes</i>	Ridgway's rail	FE/SE, FP	Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	No.	Not expected to occur. No coastal wetlands or brackish emergent vegetation is present. There are no CNDDDB or USFWS records in the vicinity <sup>3</sup> (CDFW 2016; USFWS 2015).
<i>Setophaga petechia</i> (nesting)	yellow warbler	BCC/SSC	None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed conifer habitats	No.	Low potential to occur. Project area does not contain suitable riparian habitat. CNDDDB records include occurrences approximately 6.8 miles north of the project area east of the Sweetwater Reservoir along the Sweetwater River northwest of the San Miguel Mountains (CDFW 2016).
<i>Sialia mexicana</i>	western bluebird	None/None	Covered	Nests in old-growth red fir, mixed conifer, and lodgepole pine habitats near wet meadows used for foraging	No.	Low potential to nest, moderate potential to forage. No suitable nesting habitat is present, limited suitable foraging habitat is present.
<i>Sternula antillarum browni</i> (nesting colony)	California least tern	FE/SE, FP	Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	No.	Not expected to occur. No suitable vegetation or coastal flats are present and the project area is not within a tidal influence. CNDDDB records include occurrences approximately 6.3 miles west

## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
						of the project area in the San Diego National Wildlife Refuge Salt Evaporators south of the San Diego Bay (CDFW 2016).
<i>Thalasseus elegans</i> (nesting colony)	elegant tern	None/WL	Covered	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	No.	Not expected to occur. No suitable vegetation is present and the site is not located within a coastal region. There are no CNDDDB records in the vicinity <sup>3</sup> (CDFW 2016).
<i>Vireo bellii pusillus</i> (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	No.	Low potential to occur. Project area does not contain suitable dense riparian habitat. USFWS and CNDDDB records include occurrences approximately 0.2 mile from the southern boundary of the project area ranging along the Otay River within the Otay Valley (CDFW 2016; USFWS 2015).
<i>Mammals</i>						
<i>Macrotus californicus</i>	California leaf-nosed bat	None/SSC	None	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, and occasionally in buildings	No.	Not expected to occur. Does not occur in the region (Zeiner et al. 1990).
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	FE/SSC	None	Fine-grain sandy substrates in open coastal strands, coastal dunes, and river alluvium	No.	Low potential to occur. Site is not located along the immediate coastline. CNDDDB records include occurrences approximately 6.5 miles southwest of the project area along the Pacific coast by Border Field State Park and in Imperial Beach Naval Air Station south of San Diego Bay (CDFW 2016).



## APPENDIX G (Continued)

**Table G-2  
Special-Status Wildlife Species Not Expected or Low Potential to Occur in the Project Area**

Scientific Name	Common Name	Status (Federal/State) <sup>1</sup>	Chula Vista MSCP <sup>2</sup>	Habitat	Verified on Site (Direct/Indirect Evidence)	Potential to Occur
<i>Invertebrates</i>						
<i>Callophrys thornei</i>	Thorne's hairstreak	None/None	Covered	Interior cypress woodland dominated by host plant Tecate cypress ( <i>Hesperocyparis forbesii</i> )	No.	Not expected to occur. No suitable vegetation is present. CNDDDB records include occurrences within the vicinity <sup>3</sup> .
<i>Lycaena hermes</i>	Hermes copper	FC/None	None	Mixed woodlands, chaparral, and coastal scrub	No.	Low potential to occur in the project area. The species host plant ( <i>Rhamnus crocea</i> ) was not observed on site. CNDDDB records include occurrences approximately 6.1 miles northeast of the project area on the lower eastern slopes of Mother Miguel Mountains and lower western slopes of San Miguel (CDFW 2016).
<i>Panoquina errans</i>	wandering skipper	None/None	Covered	Salt marsh	No.	Not expected to occur. No salt marsh present in the project area.

List based on a search of all wildlife species found in the CNDDDB database for the Otay Mesa quadrangle and the five surrounding U.S. Geological Service (USGS) quadrangles conducted in November 2016 and the USFWS.

<sup>1</sup> **Status Designations:**

**Federal**

BCC: U.S. Fish and Wildlife Service: Birds of Conservation Concern

FC: Candidate for federal listing as threatened or endangered

FE: Federally listed Endangered

FT: Federally listed as Threatened

FSS: U.S. Forest Service Sensitive

FDL: Federally Delisted

**State Designations:**

SSC: California Special Concern Species

FP: California Department of Fish and Game Fully Protected Species

WL: California Department of Fish and Game Watch List Species

SE: State-listed as Endangered

ST: State-listed as Threatened

## APPENDIX G (Continued)

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<sup>2</sup> **County Designations:**

*Chula Vista MSCP Subarea Plan*

Covered: Covered Species under the Chula Vista MSCP Subarea Plan

<sup>3</sup> **Vicinity:** CNDDDB database species found within the Otay Mesa quadrangle.

# **APPENDIX H**

## *Habitat Loss and Incidental Take Ordinance Findings*



## **APPENDIX H**

### **Habitat Loss and Incidental Take Ordinance Findings**

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The purpose of the Habitat Loss and Incidental Take (HLIT) regulations is to protect and conserve native habitat within the City of Chula Vista and the viability of the species supported by those habitats. HLIT regulations are intended to implement the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan (City 2003) and ensure that development occurs in a manner that protects the overall quality of the habitat resources, encourages a sensitive form of development, and retains biodiversity and interconnected habitats. HLIT regulations also intend to protect public health, safety, and welfare (Chula Vista Municipal Code [CVMC] 17.35 et seq.).

Projects within the City of Chula Vista's jurisdiction are required to comply with the City of Chula Vista's MSCP Subarea Plan. This includes obtaining a HLIT permit pursuant to the HLIT Ordinance. The Otay Ranch Village Four Project is subject to this ordinance because, as stated in Section 5.2.2 Habitat Loss and Incidental Take Ordinance (City 2003), the Subarea Plan requires issuance of an HLIT permit for "all development within the City's jurisdiction which is not located within the Development Areas of Covered Projects prior to issuance of any land development permit". The HLIT regulations apply to the earliest decision on any entitlement related to a Project Area located within the following mapped areas identified in the Chula Vista MSCP Subarea Plan (unless exempt as noted): (1) 100% Conservation Areas, (2) 75-100% Conservation Areas, and (3) Development Areas outside of Covered Projects.

The following are exempt from the requirements of the HLIT Ordinance:

1. Development of a Project Area that is one acre or less in size and located entirely in a mapped Development Area outside of Covered Projects.
2. Development of a Project Area which is located entirely within the mapped Development Area outside Covered Projects, and where it has been demonstrated to the satisfaction of the Director of Planning and Building, or his/her designee, that no Sensitive Biological Resources exist on the Project Area.
3. Development that is limited to interior modifications or repairs and any exterior repairs, alterations or maintenance that does not increase the footprint of an existing building or accessory structure, which will not encroach into identified Sensitive Biological Resources during or after construction.
4. Any project within the Development Area of a Covered Project.
5. Any project that has an effective incidental take permit from the Wildlife Agencies.
6. Continuance of Agricultural Operations.

## APPENDIX H (Continued)

### Proposed Project Areas

Proposed Project Areas located offsite of the Otay Ranch (i.e., off-site areas within the Quarry for the Extension of the Planned Facilities and Fuel Modification Zone) are within the City’s jurisdiction (outside the Preserve) and are not “covered projects.” In addition, exemption status for the Proposed Project Areas (off-site areas within the Quarry for the extension of the Planned Facilities and Fuel Modification Zone) does not apply. The Proposed Project Areas are also not located within lands designated as the Minor or Major Amendment Areas. As such, a Subarea Plan Amendment is not required.

The HLIT Ordinance requires biological evaluation of all resources on site for project areas within Development Areas outside of Otay Ranch that contain sensitive biological resources. The off-site areas within the Quarry contain sensitive biological resources.

Pursuant to the City’s HLIT Ordinance, Section 17.35.080 – Required Findings for Issuance of an HLIT Permit, written findings need to be prepared and submitted to the City for review and approval prior to issuance of any land development permits, including clearing and grubbing or grading permits. Table H-1 and Table H-2 summarize the project’s conformity to the Required Findings and General MSCP Development Regulations for the HLIT Ordinance.

**Table H-1  
Required Findings for Issuance of an HLIT Permit  
(Chula Vista Municipal Code 17.35.080)**

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
<p>The proposed development in the Project Area and associated mitigation are consistent with the Chula Vista MSCP Subarea Plan as adopted on May 13, 2003, and as may be amended from time to time, the MSCP Implementation Guidelines, and the development standards set forth in Section 17.35.100 of the Municipal Code.</p>	<p>Section 5.2.2 HLIT Ordinance of the Subarea Plan (City 2003) requires issuance of an HLIT permit for “all development within the City’s jurisdiction which is not located within the Development Areas of Covered Projects prior to issuance of any land development permit.” The portions of the project area which would require issuance of an HLIT permit include off-site areas of the Quarry for the extension of the Planned Facilities and Fuel Modification Zone. The extension of the Planned Facilities is located along the southern border of Village Four and the Fuel Modification Zone is located along the northeastern border of Village Four (Figure 1-4).</p> <p>The Project would impact sensitive biological resources within the off-site areas of the Quarry (described in Table 5-2). Mitigation for these impacts has been established in accordance with the ratios in the Subarea Plan. Mitigation measures have been incorporated into the project to compensate for direct and indirect impacts to sensitive vegetation communities (i.e., coastal sage scrub, desert saltbush scrub and non-native grassland). Mitigation for impacts to offsite areas within the Quarry are described in Mitigation Measure BIO 7. Additional Mitigation Measures that apply include clearing and grubbing or grading measures (BIO 4 and BIO 6); migratory and</p>	<p>Consistent</p>

## APPENDIX H (Continued)

**Table H-1  
Required Findings for Issuance of an HLIT Permit  
(Chula Vista Municipal Code 17.35.080)**

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
	<p>nesting bird measures (BIO 09, BIO 10, and BIO 11); Preserve measures (BIO 15, BIO 16); narrow endemic species and sensitive plant species salvage (BIO 08).</p> <p>Mitigation for these off-site impacts will be in accordance with the City of Chula Vista MSCP Subarea Plan (HLIT). Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City's MSCP Subarea Plan (City 2003). In compliance with the City's Subarea Plan, the applicant shall secure mitigation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the ratios specified in Table 6-1 (upland) which are in accordance with the ratios set forth in the Subarea Plan. Additional measures will be included in the event that a project applicant is unable to secure mitigation through an established mitigation bank approved by the City and Wildlife Agencies (BIO 7).</p>	
The nature and extent of mitigation required as a condition of the permit is reasonably related to and calculated to alleviate negative impacts created in the Project Area.	Appropriate mitigation measures, consistent with the MSCP, have been proposed and will be implemented for this project and are provided within the Biological Technical Report.	Consistent
Narrow Endemic Findings	No narrow endemic species have been documented within the off-site impact area, however if narrow endemic species (Otay tarplant, variegated dudleya and San Diego barrel cactus) were to occur within the offsite of the Quarry the species will be avoided to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts within the area will be limited to 20% of the total population within the area. Findings of equivalency, as defined in Section 5.2.3.6 of the Subarea Plan (City 2003), will be made by the City for such Take authorization of the covered narrow endemic species.	Consistent
Wetland Findings	Wetlands impacts are not anticipated as a result of the proposed project. See descriptions below.	
Prior to the issuance of a Land Development Permit or Clearing and Grubbing Permit, the project proponent will be required to obtain any applicable state and federal permits, with copies provided to the Director of Planning and Building or his/her designee.	<p>The Proposed Project Areas will incorporate the removal of vegetation identified as Tier II on Table 5-3 of the Chula Vista MSCP Subarea Plan (City 2003). The areas require a permit issued pursuant to Section 17.35 of the Municipal Code (the HLIT Ordinance). The HLIT Ordinance includes a provision for issuance of a Clearing and Grubbing Permit that allows removal of vegetation, including removal of root systems, which is not in association with other Land Development Work.</p> <p>Wetland delineations have been conducted for the offsite areas within the Quarry and no jurisdictional waters or wetlands have been identified within the Proposed Project Areas.</p>	Consistent

## APPENDIX H (Continued)

**Table H-1  
Required Findings for Issuance of an HLIT Permit  
(Chula Vista Municipal Code 17.35.080)**

Required Findings for Issuance of an HLIT Permit (Section 17.35.080):	Analysis	Consistency
Impacts to wetlands have been avoided and/or minimized to the maximum extent practicable, consistent with the City of Chula Vista MSCP Subarea Plan Section 5.2.4.	Impacts to wetlands within the City’s future jurisdiction have been avoided and minimized to the maximum extent possible. No impacts to wetlands will occur as a result of the Project.	Consistent
Unavoidable impacts to wetlands have been mitigated pursuant to Section 17.35.110.	No impacts to wetlands will occur as a result of the Project.	Consistent

**Table H-2  
General MSCP Development Regulations (CVMC 17.35.090).**

General MSCP Development Requirements (Section 17.35.090)	Analysis	Consistency
Overall development within the Project Area including public facilities and circulation shall be located to minimize impacts to Sensitive Biological Resources in accordance with this chapter of the Chula Vista MSCP Subarea Plan and the MSCP Implementation Guidelines.	<p>As described in Section 5.1.9.3 HLIT Ordinance, compliance with several standard measures will be required to address habitat loss. Impacts to native upland vegetation communities are considered significant under the City’s HLIT Ordinance and require mitigation (Subarea Plan Tables 5-3 and 5-6; City 2003). Impacts to vegetation communities in offsite areas within the Quarry are provided in Table 5-2. Mitigation for impacts are described in Mitigation BIO 7. Mitigation will be in accordance with the HLIT Ordinance as described in Table 6-1.</p> <p>No narrow endemics for Chula Vista Subarea (Table 5-11) have been documented to occur within the off-site Quarry areas.</p> <p>Prior to issuance of any land development permits, the applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City’s MSCP Subarea Plan. In compliance with the City’s Subarea Plan, the applicant shall secure mitigation credits within a City/Wildlife Agency-approved Conservation Bank or other approved location offering such credits consistent with the upland and wetland ratios specified in Tables 18 and 19, respectively (City 2003).</p>	Consistent



## APPENDIX H (Continued)

**Table H-2  
General MSCP Development Regulations (CVMC 17.35.090).**

General MSCP Development Requirements (Section 17.35.090)	Analysis	Consistency
Pursuant to Chapter 15.04 of the Chula Vista Municipal Code, no Land Development or Clearing and Grubbing Permit that allows clearing, grubbing, or grading of Natural Vegetation shall be issued on any portion of a Project Area where impacts are proposed to Wetlands or Listed Non-covered Species until all applicable federal and state permits have been issued.	No impacts to wetlands or Listed Non-covered Species are anticipated with project implementation.	Consistent
Impacts to Wetlands shall be avoided to the maximum extent practicable. Where impacts to Wetlands are not avoided, impacts shall be minimized and mitigated pursuant to Section 17.35.110 of the Municipal Code.	Impacts to wetlands within the City's future jurisdiction have been avoided and minimized to the maximum extent possible. No impacts to wetlands will occur with project implementation.	Consistent
No temporary disturbance or storage of material or equipment is permitted in Sensitive Biological Resources unless the disturbance or storage occurs within an area approved by the City for development or unless it can be demonstrated that the disturbance or storage will not cause permanent habitat loss and the land will be revegetated and restored in accordance with the MSCP Implementation Guidelines.	The project does not propose any temporary disturbance or storage of material or equipment in Sensitive Biological Resource Areas.	Consistent
Grading during wildlife breeding seasons shall be avoided or modified consistent with the requirements of the Chula Vista MSCP Subarea Plan and in accordance with the MSCP Implementation Guidelines.	To avoid any direct impacts associated with construction activities, Mitigation Measure BIO 09 (as well as BIO 10 and BIO 11 for specific species) is proposed to encourage construction outside of the breeding season (January 15 through August 31). If construction does occur during the breeding season, specific actions would be taken to avoid impacts consistent with the requirements of the Chula Vista MSCP Subarea Plan and in accordance with the MSCP Implementation Guidelines (see Mitigation Measure BIO 09).	Consistent
All fuel modification brush management zones required as a result of new development and as required by the City Fire Marshal shall be located outside the Preserve.	All fuel modification shall be incorporated into development plans and shall not include any areas within the Preserve (see Mitigation Measure BIO 16).	Consistent

## APPENDIX H (Continued)

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### MITIGATION

The mitigation measures included in Table H-1 and Table H-2 are from the Biological Technical Report for the Otay Ranch Village Four Project and address the proposed project's significant effects on special-status species and vegetation within off-site areas. With implementation of the proposed mitigation, the identified impacts will be reduced to less than significant and maintain the project's conformity to the Required Findings and General MSCP Development Regulations for the HLIT Ordinance.

### Sensitive Vegetation

**BIO4**      **Biological Monitor.** Prior to issuance of land development permits, including clearing, grubbing, grading, and/or construction permits, for any areas adjacent to the Preserve and the off-site facilities located within the Preserve, the project Applicant shall provide written confirmation that a City-approved biological monitor has been retained and shall be on site during clearing, grubbing, and/or grading activities. The biological monitor shall attend all pre-construction meetings and be present during the removal of any vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area including, but not limited to, trenches, stockpiles, storage areas, and protective fencing. The biological monitor shall be authorized to halt all associated project activities that may be in violation of the City's MSCP Subarea Plan and/or permits issued by any other agencies having jurisdictional authority over the project.

Before construction activities occur in areas containing sensitive biological resources within the off-site facilities area, all workers shall be educated by a City-approved biologist to recognize and avoid those areas that have been marked as sensitive biological resources.

**BIO6**      Prior to issuance of land development permits, including clearing, grubbing, grading, and construction permits, the following notes shall be included on the applicable construction plans to the satisfaction of the Development Services Director (or their designee):

- A qualified biologist shall be on site to monitor all vegetation clearing and periodically thereafter to ensure implementation of appropriate resource protection measures.
- Dewatering shall be conducted in accordance with standard regulations of the Regional Water Quality Control Board. A permit to discharge water from

## APPENDIX H (Continued)

dewatering activities will be required. This will minimize erosion, siltation, and pollution within sensitive communities.

- During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This will protect sensitive vegetation from being inundated with sediment-laden runoff.
- Material stockpiles shall be covered when not in use. This will prevent fly-off that could damage nearby sensitive vegetation communities.
- Graded areas shall be periodically watered to minimize dust that may affect adjacent vegetation.

**BIO7 Off-Site Areas.** Prior to issuance of any land development permits, including clearing or grubbing and grading and/or construction permits, the project will be required to obtain a Habitat Loss and Incidental Take (HLIT) Permit pursuant to Section 17.35 of the Chula Vista Municipal Code for impacts to Chula Vista MSCP Tier I, II, and III vegetation communities as shown below in Table 6-2 and in accordance with Table 5-3 of the Chula Vista MSCP Subarea Plan. These impacts are due to the Planned Facilities and fuel modification. Mitigation for off-site impacts outside of Otay Ranch will be in accordance with the Chula Vista MSCP Subarea Plan and the City’s HLIT Ordinance and as provided in the HLIT Findings (Appendix H).

Prior to issuance of any land development permits, the Applicant shall mitigate for direct impacts pursuant to Section 5.2.2 of the City’s MSCP Subarea Plan. In compliance with the City’s Subarea Plan, the Applicant shall secure mitigation credits within a City- and wildlife agency-approved Conservation Bank or other approved location offering mitigation credits consistent with the ratios specified in Table 6-2 or pay into a City established mitigation fee program.

**Table 6-2  
Mitigation for Permanent Impacts to Upland Vegetation Outside of Otay Ranch (HLIT)**

Off-Site Area	Vegetation Community	Tier	Permanent Impacts (acres)	Location of Impact	Mitigation Ratio	Mitigation Required (acres)
Otay Quarry– Extension of Planned Facilities	Desert Saltbush Scrub	II	<0.01	Outside Preserve	1:1	<0.01
Otay Quarry–Fuel Modification Zone	Coastal sage scrub	II	0.24	Outside Preserve	1:1	0.24
	Non-native grassland	III	1.47	Outside Preserve	1:1	1.47
	<b>Total for Otay Quarry</b>					

**Note:** Tiers and mitigation ratios are in accordance with the Chula Vista MSCP Subarea Plan’s HLIT Upland Habitat Mitigation Ratios. No mitigation is required for Tier IV habitat types (i.e., non-sensitive vegetation communities and land covers including disturbed land, ornamental,

## APPENDIX H (Continued)

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or developed land). It is assumed that mitigation will be located inside the Preserve. Mitigation outside of the Preserve (i.e., Chula Vista MSCP Subarea Plan or MSCP Preserve boundary) will require increased mitigation per Table 5-3.

The Applicant shall be required to provide verification of purchase to the City prior to issuance of any land development permits.

In the event that the project Applicant is unable to secure mitigation through an established mitigation bank approved by the City and Wildlife Agencies, the project Applicant shall secure the required mitigation through the conservation of an area containing in-kind habitat within the City's MSCP Subarea Plan or MSCP Preserve in accordance with the mitigation ratios contained in Table 5-3 of the City's MSCP Subarea Plan and subject to wildlife agency concurrence.

Prior to issuance of any land development permit, and to the satisfaction and oversight of the City's Development Services Director (or their designee), the Applicant shall secure the parcel(s) that will be permanently preserved for in-kind habitat impact mitigation, prepare a long-term management and monitoring plan for the mitigation area, secure an appropriate management entity to ensure that long-term biological resource management and monitoring of the mitigation area is implemented in perpetuity, and establish a long-term funding mechanism for the management and monitoring of the mitigation area in perpetuity.

The long-term management and monitoring plan shall provide management measures to be implemented to sustain the viability of the preserved habitat and identify timing for implementing the measures prescribed in the management and monitoring plan. The mitigation parcel shall be restricted from future development and permanently preserved through the recordation of a conservation easement or other mechanism approved by the Wildlife Agencies as being sufficient to insure that the lands are protected in perpetuity. The conservation easement or other mechanism approved by the Wildlife Agencies shall be recorded prior to issuance of any land development permits.

The project Applicant shall be responsible for maintaining the biological integrity of the mitigation area and shall abide by all management and monitoring measures identified in the management and monitoring plan until such time as the established long-term funding mechanism has generated sufficient revenues to enable a City-approved management entity to assume the long-term maintenance and management responsibilities.

## APPENDIX H (Continued)

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### Special-Status Plant Species

**BIO8** Prior to the issuance of land development permits, including clearing or grubbing and grading permits, for areas with salvageable sensitive biological resources, including Otay tarplant (*Deinandra conjugens*), variegated dudleya (*Dudleya variegata*), and San Diego barrel cactus (*Ferocactus viridescens*), (including plant materials and soils/seed bank), the project Applicant shall prepare a Resource Salvage Plan. The Resource Salvage Plan shall be written by a City-approved biologist to the satisfaction of the Development Services Director (or their designee).

The Resource Salvage Plan shall, at a minimum, evaluate options for plant salvage and relocation, including individual cactus salvage, native plant mulching, selective soil salvaging, application of plant materials on manufactured slopes, and application/relocation of resources within the Preserve. The Resource Salvage Plan shall include incorporation of relocation efforts for non-covered species, including singlewhorl burrobrush (*Ambrosia monogyra*), which is considered special status according to the California Environmental Quality Act and would be impacted with project implementation. Relocation efforts may include seed collection and/or transplantation to a suitable receptor site and will be based on the most reliable methods of successful relocation. The Resource Salvage Plan shall also contain a recommendation for method of salvage and relocation/application based on feasibility of implementation and likelihood of success. The Resource Salvage Plan shall include, at a minimum, an implementation plan, maintenance and monitoring program, estimated completion time, and any relevant contingency measures. The Resource Salvage Plan shall also be subject to the oversight of the Development Services Director (or their designee).

### Special-Status Wildlife Species

**BIO9** **Nesting Birds.** To avoid any direct impacts to raptors and/or any migratory birds protected under the Migratory Bird Treaty Act, removal of habitat that supports active nests on the proposed area of disturbance should occur outside of the breeding season for these species. The breeding season is defined as February 15–August 15 for coastal California gnatcatcher (*Polioptila californica californica*) and other non-raptor birds and January 15–August 31 for raptor species. If removal of habitat on the proposed area of disturbance must occur during the breeding season, the project Applicant shall retain a City-approved biologist to conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-

## APPENDIX H (Continued)

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construction survey must be conducted within 10 calendar days prior to the start of construction, and the results must be submitted to the City for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan, as deemed appropriate by the City, shall be prepared and include proposed measures to be implemented to ensure that disturbance of breeding activities are avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's mitigation monitor shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

**BIO10 Northern Harrier.** Prior to issuance of any land development permits, including clearing, grubbing, and grading permits, the project Applicant shall retain a City-approved biologist to conduct focused surveys for northern harrier (*Circus cyaneus*) to determine if the species is nesting within 900 feet of the construction area. The pre-construction survey must be conducted within 10 calendar days prior to the start of construction. The results of the survey must be submitted to the City for review and approval. If active nests are detected by the City-approved biologist, a bio-monitor shall be on site during construction to minimize construction impacts and ensure that no nests are removed or disturbed until all young have fledged.

**BIO11 Burrowing Owl.** Prior to issuance of any land development permits, including clearing, grubbing, and grading permits, the project Applicant shall retain a City-approved biologist to conduct focused pre-construction surveys for burrowing owl (*Athene cunicularia*). The surveys shall be performed no earlier than 30 days prior to the commencement of any clearing, grubbing, or grading activities. If occupied burrows are detected, the City-approved biologist shall prepare a passive relocation mitigation plan subject to review and approval by the wildlife agencies and the City, including any subsequent burrowing owl relocation plans to avoid impacts from construction-related activities.

### Preserve

**BIO15** Prior to the issuance of grading permits, the project Applicant shall submit evidence, to the satisfaction of the Development Services Director (or their designee), showing that the following features of the Draft Preserve Edge Plan (Atlantis Group, expected publication January 2017) have been incorporated into grading and landscaping plans:

## APPENDIX H (Continued)

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- Provide post markers and lodge pole railing and signage for sensitive habitat adjacent to trails. Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for the project, the project owner shall submit wall and fence plans depicting appropriate barriers to prevent unauthorized access to the Preserve. The wall and fence plans shall, at a minimum, illustrate the locations and cross-sections of proposed walls, fences, informational and directional signage, access controls, and/or boundary markers along the Preserve boundary and off-site pedestrian trails as conceptually described in the Draft Preserve Edge Plan. The required wall and fence plan shall be subject to the approval of the Deputy City Manager/Development Services Director.
- Install storm drains, drainage outfalls, and drainage basins to prevent erosion of drainage and wetlands within the Preserve.
- Prevent release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem within the Preserve.
- Implement all necessary requirements for water quality as specified by the state and local agencies.
- No invasive, non-native plant species shall be introduced into areas immediately adjacent to, or within, the Preserve. All slopes immediately adjacent to, or within, the Preserve shall be planted with native species that reflect the adjacent native habitat, per the Draft Preserve Edge Plan (Atlantis Group, expected publication January 2017). Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for (1) areas within the 100-foot-wide Preserve edge, and 2) infrastructure (e.g., roads, trails, utilities, etc.) sited within the Preserve, the Project Applicant shall prepare and submit to the satisfaction of the Development Services Director (or their designee) landscape plans to ensure that the proposed plant palette is consistent with the plant list contained in the Draft Preserve Edge Plan (Atlantis Group, expected publication January 2017). The landscape plan shall also incorporate a manual weeding program for areas adjacent to the Preserve. The manual weeding program shall describe, at a minimum, the entity responsible for controlling invasive species, the maintenance activities and methods required to control invasive species, and a maintenance/monitoring schedule.
- Incorporate all fuel modification areas into development plans and do not include any areas within the Preserve.

## APPENDIX H (Continued)

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**BIO16** In accordance with the City’s Adjacency Management Guidelines, the following mitigation measures shall be implemented to further reduce indirect impacts (from lighting, noise, invasive species, toxic substances, and public access) to sensitive biological resources located in the adjacent Preserve areas:

- **Lighting.** In compliance with the Chula Vista MSCP Subarea Plan, all lighting shall be shielded and directed away from the Preserve. Concurrent with design review and prior to issuance of a building permit for any development located adjacent to the Preserve, the project Applicant shall prepare a lighting plan and photometric analysis to the satisfaction of the Development Services Director (or their designee), for review and approval. The lighting plan shall illustrate the location of the proposed lighting standards and type of shielding measures. Low-pressure sodium lighting shall be used, if feasible, and shall be subject to the approval of the Development Services Director (or their designee).
- **Noise.** Noise impacts adjacent to the Preserve lands shall be minimized. Berms or walls shall be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Construction activities shall include noise reduction measures or be conducted outside the breeding season of special-status bird species.
- **Noise, Coastal California Gnatcatcher.** For any work proposed between February 15 and August 15, prior to issuance of any land development permits, including clearing, grubbing, grading, and construction permits, associated with the off-site facilities located within the Preserve, the project Applicant shall retain a City-approved biologist to conduct a pre-construction survey for the coastal California gnatcatcher to reaffirm the presence and extent of occupied habitat. The pre-construction survey area for the coastal California gnatcatcher shall encompass all habitats within the project work zone, as well as within a 300-foot-wide buffer. The survey shall be performed to the satisfaction of the Development Services Director (or their designee) by a qualified biologist familiar with the City’s MSCP Subarea Plan. The results of the pre-construction survey must be submitted in a report to the Development Services Director (or their designee) for review and approval prior to the issuance of any land development permits and prior to initiating any construction activities. If the coastal California gnatcatcher is detected, a minimum 300-foot-wide buffer delineated by orange biological fencing shall be established around the detected birds to ensure that no work shall occur



## APPENDIX H (Continued)

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within the occupied habitat from February 15 through August 15, and on-site noise reduction techniques shall be implemented to ensure that construction noise levels do not exceed 60 A-weighted decibels  $L_{eq-h}$  at the location of any occupied sensitive habitat areas. The Development Services Director (or their designee) shall have the discretion to modify the buffer width depending on site-specific conditions. If the results of the pre-construction survey determine that the survey area is unoccupied, the work may commence at the discretion of the Development Services Director (or their designee) following the review and approval of the pre-construction report.

- **Invasive Species.** Prior to the issuance of land development permits, including clearing or grubbing and grading and/or construction permits, for (1) areas within the 100-foot-wide Preserve edge, and (2) infrastructure (e.g., roads, trails, utilities, etc.) sited within the Preserve, the project Applicant shall prepare and submit to the satisfaction of the Development Services Director (or their designee) landscape plans to ensure that the proposed plant palette is consistent with the plant list contained in the Draft Preserve Edge Plan (Atlantis Group, expected publication January 2017). The landscape plan shall also incorporate a manual weeding program for areas adjacent to the Preserve. The manual weeding program shall describe, at a minimum, the entity responsible for controlling invasive species, the maintenance activities and methods required to control invasive species, and a maintenance/monitoring schedule.
- **Toxic Substances.** See BIO4, BIO6, BIO12, and BIO14.
- **Public Access.** Prior to the issuance of grading permits, the project Applicant shall submit wall and fence plans depicting appropriate barriers to prevent unauthorized access to the Preserve. The wall and fence plans shall illustrate the locations and cross-sections of proposed walls and fences along the Preserve boundary, subject to the approval the City's Development Services Director (or their designee).

## APPENDIX H (Continued)

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