Appendix D
Biological Resources Reports

ESA

Appendix D1

Saddle Crest
Biological Resources Assessment

ESA

BIOLOGICAL RESOURCES ASSESSMENT

SADDLE CREST

ORANGE COUNTY, CALIFORNIA

PCR

MARCH 2012

BIOLOGICAL RESOURCES ASSESSMENT

SADDLE CREST

ORANGE COUNTY, CALIFORNIA

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MARCH 2012

Biological Resources Assessment

Saddle Crest
Orange County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a comprehensive biological assessment for the above-referenced project.

PCR Services Corporation

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March 2012

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EXECUTIVE SUMMARY

BACKGROUND

Rutter Santiago, LP (the "Applicant") is planning to build homes within the approximately 113.7-acre Saddle Crest property (study area) located in Orange County, California. The proposed project may also include a potential off-site water line which encompasses 0.8 acre. The study area is within the Central Subregion of the County of Orange Central & Coastal Subregion Natural Communities Conservation Plan and Habitat Conservation Plan (NCCP/HCP) area, as well as the Foothill/Trabuco Specific Plan (F/TSP) area. The majority of the study area also lies within the Congressional boundaries of the Cleveland National Forest; however, because the study area is a privately held property within the Congressional boundary, the property is not managed by the U.S. Forest Service and the regulations of the County prevail. Specifically, the study area is located northwest of the intersection of Live Oak Canyon Road and Santiago Canyon Road. The proposed development plan (Proposed Project) includes the construction of 65 residential lots on 62.2 acres of the 113.7-acre study area. Within the 62.2-acre area which will be developed (project development envelope), 58.0 acres are within the Proposed Project's limit of grading and 4.2 acres are within fuel modification areas outside of the limit of grading. Approximately 51.0 acres will be avoided (i.e., area outside of the project development envelope). A total of 79.8 acres will be preserved as open space, which includes 4.2 acres of fuel modification areas; 24.6 acres comprised of revegetated/graded open space, a water quality basin, and an equestrian trail; and 51.0 acres which will be avoided.

SCOPE AND METHODOLOGY

The scope of this assessment encompasses the comprehensive documentation of existing biological resources within the Saddle Crest study area for the purpose of complying with the California Environmental Quality Act (CEQA). The documentation of existing resources includes the findings of an extensive literature review which was updated in 2011 and field investigations conducted during 2007, 2008, 2009, 2010, and 2011. Previous surveys conducted in 2005 and earlier were utilized as appropriate, but generally have been updated for this assessment. The field investigations included the development of a detailed map of the plant communities, focused sensitive plant surveys, focused coastal California gnatcatcher surveys, and a jurisdictional delineation of drainages within the study area according to U.S. Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), and Regional Water Quality Control Board (RWQCB) regulations. An oak tree survey was performed by Dudek (Dudek 2011). This documentation is consistent with accepted scientific, technical, and professional standards pursuant to CEQA, U.S. Fish and Wildlife Service (USFWS), ACOE, and CDFG protocols and standards, where appropriate. While general biological resources are discussed in a comprehensive manner, the focus of this assessment is on those resources considered to be sensitive.

EXISTING CONDITIONS

The Saddle Crest study area lies in the foothills of the Santa Ana Mountains, partially within the Cleveland National Forest, within an unincorporated portion of Orange County. The study area is north of the community of Portola Hills, south of the rural canyon community of Modjeska, and adjacent to the Santiago Canyon Estates Development which is a 78-unit development situated on 113 acres.

Elevations on-site range from approximately 1,200 feet above mean sea level (MSL) in the southwestern portion of the study area to 1,800 feet in the northeastern portion of the study area. The study area contains one U.S. Geological Survey (USGS) blueline stream within the Aliso Creek watershed, and topography on-site is diverse, ranging from flat grasslands to steep, densely vegetated hills. Disturbance due to grazing is evident within lower elevations of the southern portion of the study area. Surrounding land use consists mostly of open space with some rural and suburban residential development. Preserved open space within close proximity of the study area includes the Cleveland National Forest and Limestone-Whiting Wilderness Park.

Sensitive plant communities within the study area include 0.8 acre of white sage scrub, 3.8 acres of sagebrush scrub, 0.2 acre of sagebrush scrub/southern mixed chaparral, 1.9 acres of sagebrush scrub/ruderal, 4.1 acres of needlegrass grassland, and 9.5 acres of coast live oak woodland. Three sensitive plant species, the Catalina mariposa lily (*Calochortus catalinae*), foothill (intermediate) mariposa lily (*Calochortus weedii* var. *intermedius*), and chaparral nolina (*Nolina cismontana*), were observed within the study area.

The coastal California gnatcatcher (*Polioptila californica californica*), a sensitive wildlife species, was observed near the eastern boundary of the study area. It should be noted that focused breeding season surveys for the coastal California gnatcatcher were conducted in 1999 and 2002; no coastal California gnatcatchers were detected on-site. During off-season surveys conducted in 2007, an observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community in the eastern portion of the study area. However, due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area. No other coastal California gnatcatchers were observed during the 2007-2008 surveys. Focused breeding season surveys for the coastal California gnatcatcher were conducted again in 2010; no coastal California gnatcatchers were detected on-site. Therefore, it is not believed that the study area is utilized for breeding habitat for this species.

Oak woodlands were delineated by Dudek. In addition, a wildlife corridor was delineated by PCR. The wildlife corridor connects the Cleveland National Forest and Limestone-Whiting Wilderness Park and passes through the westernmost portion of the study area.

The detailed Saddle Crest Oak Tree Management and Preservation Plan, prepared by Dudek (Dudek 2011, 2012), identified 151 coast live oak (*Quercus agrifolia*) trees and one blue gum tree (*Eucalyptus globulus*) within the Proposed Project's limit of grading and 46 coast live oak trees within the fuel modification areas outside of the limit of grading. Outside the project development envelope, which will be preserved open space, there are an estimated 422 coast live oak trees.

The study area contains a total of three drainage systems that support 8,342 linear feet over 0.28 acre of ACOE jurisdictional "waters of the U.S.," 9,402 linear feet over 0.31 acre of RWQCB jurisdictional "waters of the State," and 7.87 acres of CDFG jurisdictional streambed and associated riparian habitat.

IMPACTS

Potential impacts are assessed, in a comparative format, for implementing the "Proposed Plan," as well as a "Non-Clustered Scenario" which could be implemented on the 113.7-acre Saddle Crest project site without amendment(s) to the F/TSP.

Proposed Project

The Proposed Project, including fuel modification areas, would result in the loss of approximately 2.3 acres of coast live oak woodland, 3.8 acres of sagebrush scrub, 1.9 acres of sagebrush scrub/ruderal, 4.1 acres of needlegrass grassland, and 0.8 acre of white sage scrub. These communities are considered sensitive due to their decline in the region and/or their ability to support sensitive species.

Potentially significant impacts to sensitive plant species include impacts to approximately 200 foothill mariposa lily individuals [covering approximately 3.1 acres (of which a 0.1-acre area is within fuel modification zones)] and approximately 300 chaparral nolina individuals (covering approximately 5.3 acres) within the study area.

Potentially significant impacts may occur to dispersal habitat for the coastal California gnatcatcher as a result of project construction. Potentially significant impacts may occur to nesting birds as a result of project construction, which might conflict with the compliance to the federal Migratory Bird Treaty Act.

A total of 151 coast live oak trees and one blue gum tree will be impacted by the Proposed Project. In addition, 46 coast live oak trees are within the fuel modification area or at the edges of grading and may incur impacts in the form of irrigation or pruning; however, because the trees will not be removed, mitigation for trees within the fuel modification areas is not recommended.

Approximately 0.13 acre of ACOE jurisdictional "waters of the U.S." and 0.13 acre of RWQCB jurisdictional "waters of the State" comprising 3,405 linear feet of streambed, and 2.81 acres (including 0.08 acre due to fuel modification) of CDFG jurisdictional streambed and associated riparian habitat comprising 4,218 linear feet of streambed will be impacted by the Proposed Project.

Non-Clustered Scenario

The Non-Clustered Scenario, including fuel modification areas, would result in the loss of approximately 5.7 acres of coast live oak woodland, 3.8 acres of sagebrush scrub, 1.7 acres of sagebrush scrub/ruderal, 4.0 acres of needlegrass grassland, and 0.7 acre of white sage scrub. These communities are considered sensitive due to their decline in the region and/or their ability to support sensitive species.

Potentially significant impacts to sensitive plant species include impacts to approximately 200 foothill mariposa lily individuals [covering approximately 3.1 acres (of which 0.6 acre are within fuel modification)] and approximately 300 chaparral nolina individuals [covering approximately 5.3 acres (of which 1.8 acres are within fuel modification)] within the study area.

Potentially significant impacts may occur to dispersal habitat for the coastal California gnatcatcher as a result of project construction. Potentially significant impacts may occur to nesting birds as a result of project construction, which might conflict with the compliance to the federal Migratory Bird Treaty Act.

Approximately 249 coast live oak trees will be impacted by the Non-Clustered Scenario. In addition, 160 coast live oak trees are within the fuel modification area or at the edges of grading and may incur impacts in the form of pruning or irrigation; however, because the trees will not be removed, mitigation for trees within the fuel modification areas is not recommended. Outside the project development envelope, which will be preserved open space, there are an estimated 210 coast live oak trees.

Approximately 0.08 acre of ACOE jurisdictional "waters of the U.S." comprising 2,613 linear feet; 0.08 acre of RWQCB jurisdictional "waters of the State" comprising 3,593 linear feet; and 5.77 acres (including 3.07 acres due to fuel modification) of CDFG jurisdictional streambed and associated riparian habitat comprising 8,006 linear feet of streambed will be impacted by the Non-Clustered Scenario.

MITIGATION

Proposed Project

Measures to mitigate impacts to sagebrush scrub, sagebrush scrub/ruderal, and white sage scrub communities will include the preservation and/or restoration/enhancement of similar habitat at a ratio of at least 1:1, and mitigation for needlegrass grassland will include a ratio of at least 0.75:1.

A mitigation plan will be prepared to mitigate for impacts to populations of foothill mariposa lily and chaparral nolina within the study area. The plan will include the translocation of individual plants of these species to suitable habitat within areas on- and/or off-site that are to be preserved as permanent open space.

Impacts to coastal California gnatcatcher dispersal habitat[1] will be mitigated through the mitigation measures proposed for coastal sage scrub habitats which may include a combination of on-site and off-site preservation and/or restoration/enhancement of habitat suitable for dispersal by coastal California gnatcatcher at a minimum ratio of 1:1, or as directed by the lead agency. To ensure the protection of active nests and eggs, efforts will be made to schedule vegetation removal between September 1 and February 14 to avoid the nesting season. If clearing and/or grading activities cannot be avoided during the nesting season, all suitable habitat will be thoroughly surveyed for the presence of nesting birds by a qualified biologist prior to removal. If any active nests are detected, the area will be flagged, along with a 300-foot buffer (or appropriate buffer as determined by the monitoring biologist), and will be avoided until the nesting cycle is complete or it is determined by the monitoring biologist that the nest has failed.

Mitigation measures for impacts to coast live oak trees are outlined in the Saddle Crest Tree Management and Preservation Plan (Dudek 2011, 2012) and involve replanting replacement trees of different sizes as well as enhancement of the oak woodland areas on-site.

Mitigation measures for impacts to jurisdictional features will be subject to the regulations set forth by the agencies. On- and off-site replacement and/or restoration/enhancement of ACOE and RWQCB jurisdictional waters and CDFG jurisdictional streambed and associated riparian habitat shall be conducted at a ratio no less than 1.5:1. Off-site replacement may include mitigation on Saddle Creek North. It should be noted that the neighboring Saddle Creek North property, which was formerly owned by the Applicant, was transferred

[1] *Based on preliminary conversations with ACOE representative Jason Lambert (Lambert, pers. comm. 2011b) and USFWS representative Jonathan Snyder (Snyder, pers. comm. 2010), because a single gnatcatcher was observed within the study area and is believed to have been dispersing transient moving through the study area, it is likely only informal consultation with the USFWS will be necessary.*

for conservation. To the extent possible, off-site mitigation for impacts on the Saddle Crest property will be used to restore and enhance habitat within the Saddle Creek North property.

UNAVOIDABLE SIGNIFICANT IMPACTS

Proposed Project

The Proposed Project, inclusive of project design features and mitigation measures, will mitigate all potentially significant adverse impacts to sensitive plant communities, sensitive plant species, sensitive wildlife species, migratory or nesting birds, oak woodlands, and jurisdictional features.

Non-Clustered Scenario

The Non-Clustered Scenario, inclusive of project design features and mitigation measures, will mitigate all significant adverse impacts to sensitive plant communities, sensitive plant species, sensitive wildlife species, migratory or nesting birds, oak woodlands, and jurisdictional features.

CUMULATIVE IMPACTS

The Saddle Crest study area is within the Central Subregion of the Central/Coastal NCCP/HCP. The NCCP/HCP Reserve System design has set aside approximately 37,000 acres for long-term management. By preserving large habitat blocks and maintaining connectivity, the NCCP/HCP Reserve System has minimized the cumulative impacts of proposed projects within authorized take lands. Although the majority of the study area lies within the Congressional boundaries of the Cleveland National Forest and is therefore not covered under the NCCP/HCP, the Proposed Project is still within the Central/Coastal NCCP/HCP plan area and the 37,000-acre Reserve System mitigates for proposed development within its plan area such that cumulative impacts to biological resources are considered less than significant.

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This report presents the findings of an in-depth biological resources assessment, conducted by **PCR Services Corporation (PCR)**, within the approximately 113.7-acre Saddle Crest property located in Orange County, California (referred to as "the study area"). The proposed project may also include a potential off-site water line which encompasses 0.8 acre. The submittal of this report is intended to satisfy the biological resource information needs of the California Environmental Quality Act (CEQA) compliance process.

The study area is generally located in southern Orange County as shown in **Figure 1**, *Regional Map*. The study area is located within U.S. Geological Survey (USGS) 7.5' El Toro Quadrangle, T. 5 S., R. 7 W., Section 32 and an unsectioned portion; and USGS 7.5' Santiago Peak Quadrangle, T. 5 S., R. 7 W., Section 33 (**Figure 2**, *Vicinity Map*). The study area is located northwest of the intersection of Live Oak Canyon Road and Santiago Canyon Road and lies within the Central Subregion of the County of Orange Central & Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) area, Foothill/Trabuco Specific Plan (F/TSP), and a portion of the Cleveland National Forest, as shown in **Figure 3**, *Location within Local Area Plans and Cleveland National Forest*. Although lands within the Congressional boundary of a national forest are typically managed by the U.S. Forest Service, the study area is a privately held property and therefore no U.S. Forest Service management occurs; instead, the regulations of the County prevail.

Previous biological surveys performed by PCR on the Saddle Crest study area[2] included a jurisdictional delineation in 1999 as well as focused surveys for sensitive plants in 1999 and 2001; Quino checkerspot butterfly (*Euphydryas editha quino*) in 1999; and coastal California gnatcatcher (*Polioptila californica californica*) in 1999 and 2002. No Quino checkerspot butterflies were observed on-site. No coastal California gnatcatchers were observed on-site during the 1999 or 2002 focused breeding seasons surveys; however, coastal California gnatcatcher were observed within the vicinity of the study area on the nearby Watson parcel of the Saddle Creek property (approximately 2000 feet to the southeast of the study area). In addition, a few sensitive plant species, including Catalina mariposa lily (*Calochortus catalinae*), foothill (intermediate) mariposa lily (*Calochortus weedii* var. *intermedius*), and chaparral nolina (*Nolina cismontana*), were identified within the study area. The results of all biological surveys conducted were compiled into the 2000 *Biological Resources Assessment* and 2002 *Supplemental Biological Resources Assessment for the Saddle Creek and Saddle Crest Projects*, under separate cover (PCR 2000 and 2002) of which the relevant results are summarized herein.

In 2007 and 2008, the focused biological surveys previously conducted were updated, including sensitive plant surveys, coastal California gnatcatcher non-breeding season surveys, as well as verifications of the vegetation mapping and jurisdictional delineation. Coastal California gnatcatcher breeding season surveys

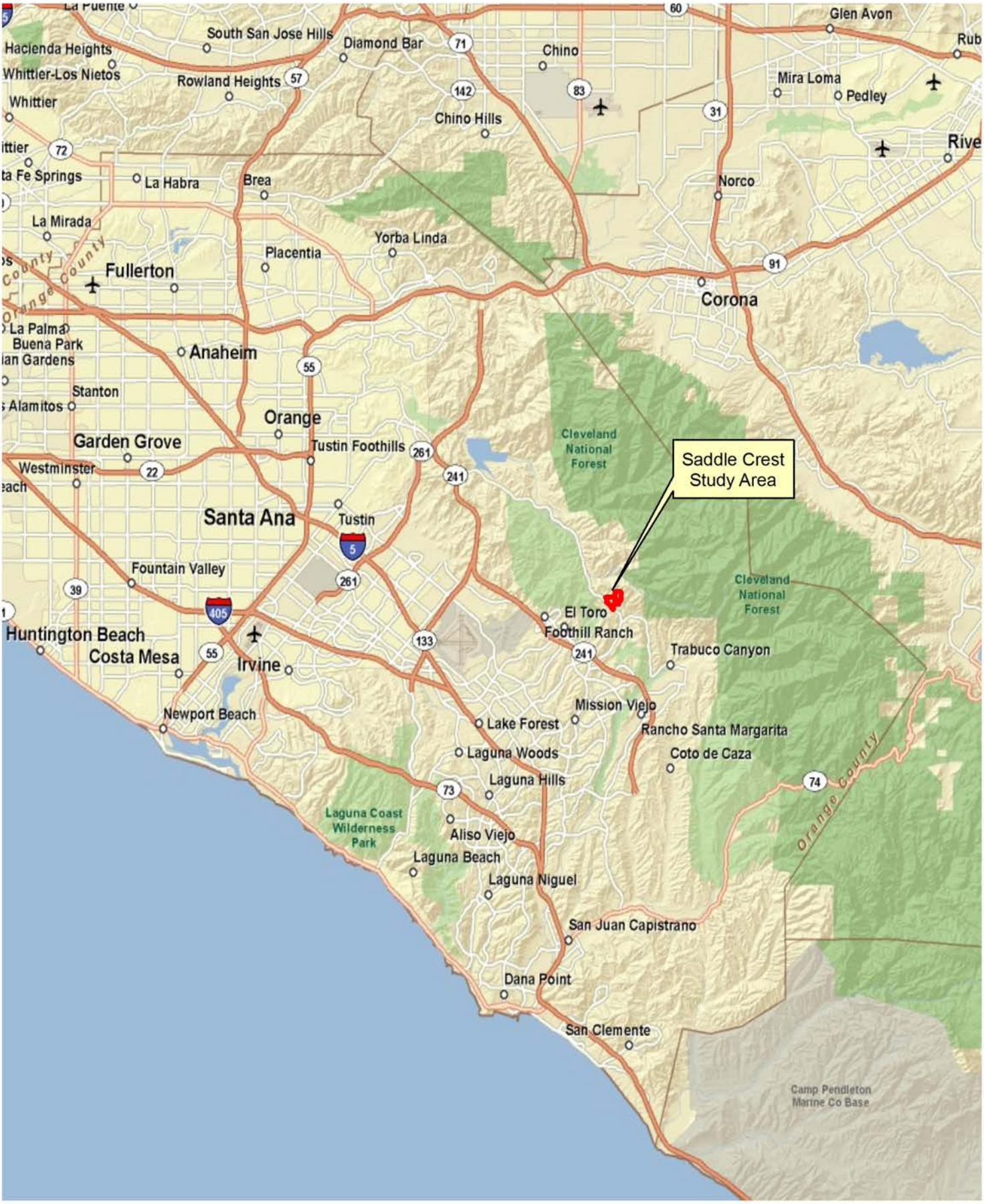
[2] *Previous biological surveys performed by PCR on the Saddle Crest property also encompassed the nearby Saddle Creek property as a part of the defined "study area" for those survey areas and associated reports. Therefore, for the majority of the previous biological documentation prepared, the results of both properties are included. However, for the purposes of this report, the focus of this assessment is for Saddle Crest; therefore, the "study area" refers to the Saddle Crest property only in this document. Prior to the preparation of this report, the potential off-site water line was not previously included as a part of the study area; no focused surveys were conducted on the potential off-site water line.*

were updated again in 2010, and the vegetation mapping was updated in 2011. In addition, a tree survey was conducted by Dudek (Dudek 2011). Although Quino checkerspot butterfly were historically known to occur in Orange County, this species is no longer thought to occur within the county and is currently only found in southwestern Riverside and San Diego counties. Therefore, no focused surveys for Quino checkerspot butterfly were conducted during the 2008 survey season or after. It should be noted that the majority of the study area was burned in the October 2007 Santiago Fire. Periodic wild fires are a part of the history of Southern California's foothill and mountain regions and have their origins in both natural (e.g., lightning strikes) and anthropomorphic (human error) causes. Although the fire resulted in a temporary elimination of much of the vegetation, plant communities are described both before and after the fire (as detailed in Section 3.2 below); however, for the purposes of this document, the vegetation mapping was updated in 2011 and impacts to biological resources are analyzed utilizing plant communities as they currently exist. A map delineating the approximate limits of the fire with respect to the plant communities is shown in **Figure 4**, *2007 Santiago Fire Limits*. It should also be noted that during off-season surveys conducted in 2007, an observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community in the eastern portion of the study area. However, due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area. No other coastal California gnatcatchers were observed during the 2007-2008 surveys. Focused breeding season surveys for the coastal California gnatcatcher were conducted again in 2010; no coastal California gnatcatchers were detected on-site.

1.2 RELATIONSHIP TO THE ORANGE COUNTY NCCP/HCP

The Natural Community Conservation Act (the Act), codified at Fish and Game Code Sections 2800-2840, authorizes the preparation of Natural Community Conservation Plans (NCCPs) to protect natural communities and species while allowing a reasonable amount of economic development. At the same time, the federal Endangered Species Act, Section 10, provides for the preparation of Habitat Conservation Plans (HCPs) to permit the taking of federally-listed threatened and endangered species. Under both State and federal statutes, joint planning processes result in the preparation and adoption of a NCCP/HCP. The study area is within the NCCP/HCP for the County of Orange Central & Coastal Subregion (**Figure 5**, *Relationship to the Orange County NCCP*). Specifically, the study area is within the Central Subregion of the NCCP/HCP. The NCCP/HCP was reviewed and approved by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) in 1996 to address protection and management of coastal sage scrub (CSS) habitat and CSS-obligate species, and other covered habitats and species, and mitigate anticipated impacts to those habitats and species, on a programmatic, sub-regional level, rather than on a project-by-project, single species basis. A habitat Reserve in excess of 37,000 acres was established for the protection of CSS, other upland habitats, the coastal California gnatcatcher, and other primarily CSS-dependent species identified in the NCCP/HCP. Specifically, the NCCP/HCP, the USFWS, and CDFG authorized "take" of 39 "Identified Species" of plants and wildlife (including "covered" and "conditionally covered"[3] species) as shown in **Table 1**, *Identified Species ("Covered" and "Conditionally Covered") Authorized for Take by the NCCP/HCP.* Further, the NCCP/HCP contains requirements for adaptive management, interim management,

[3] *Under the NCCP/HCP, ten of the 39 Identified Species receiving regulatory coverage under the NCCP/HCP are "conditionally covered" species that are subject to implementation of specific conditions to address potential impacts associated with implementation of the NCCP/HCP. These conditions are intended to assure that implementation of the NCCP/HCP would not contribute to the need to elevate the federal/state listing status of an unlisted species; implementation would not jeopardize the continued survival and recovery of already-listed species; and on-site impacts resulting from proposed uses would be minimized and mitigated to the greatest degree practicable. Conditionally covered species are listed in Table 1, Identified Species of this document.*



PCR

0 5 10 Miles

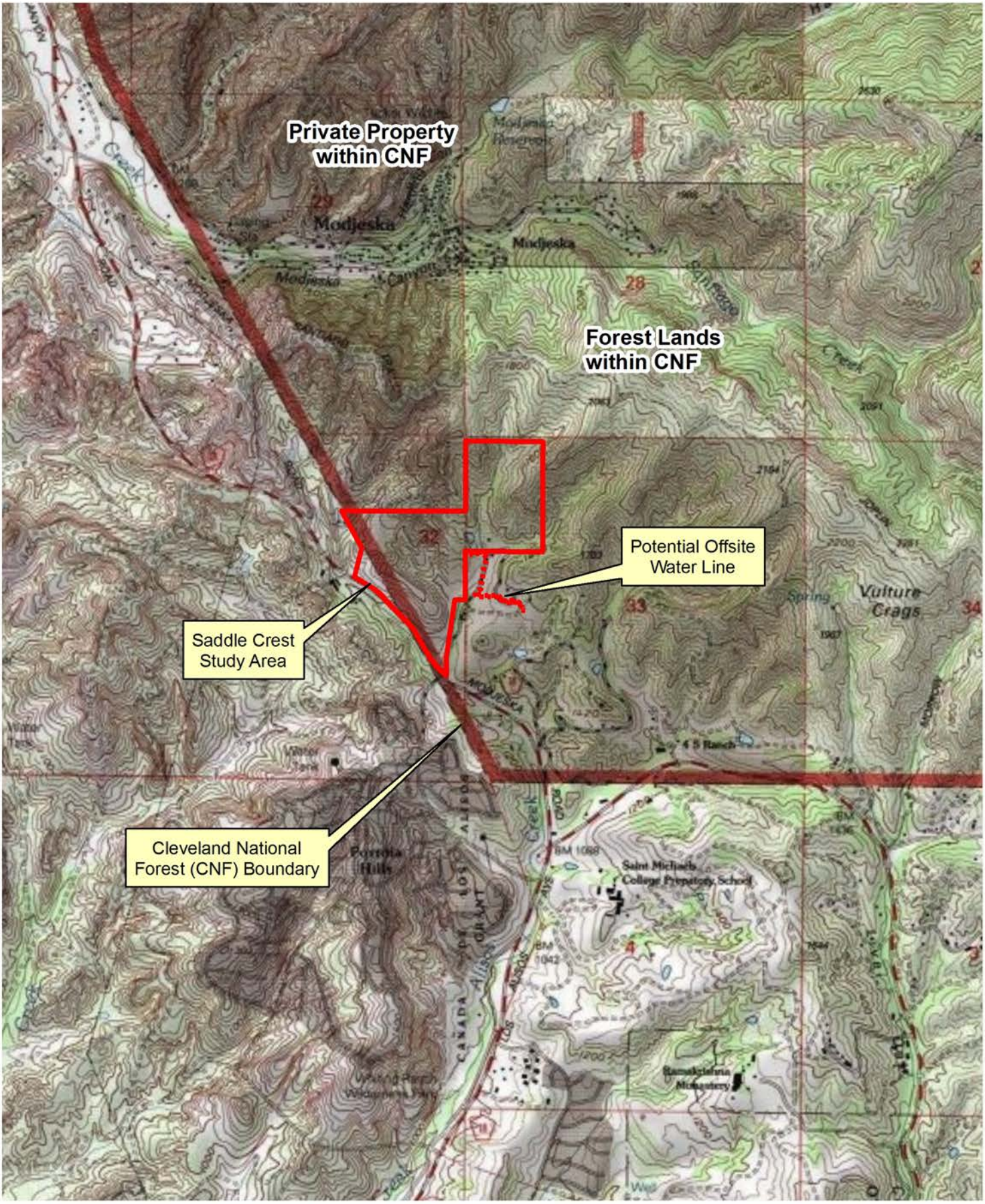
Regional Map

Saddle Crest

Source: ESRI Street Map, 2009; PCR Services Corporation, 2012.

FIGURE

1



PCR

N

0 2,000 4,000 Feet

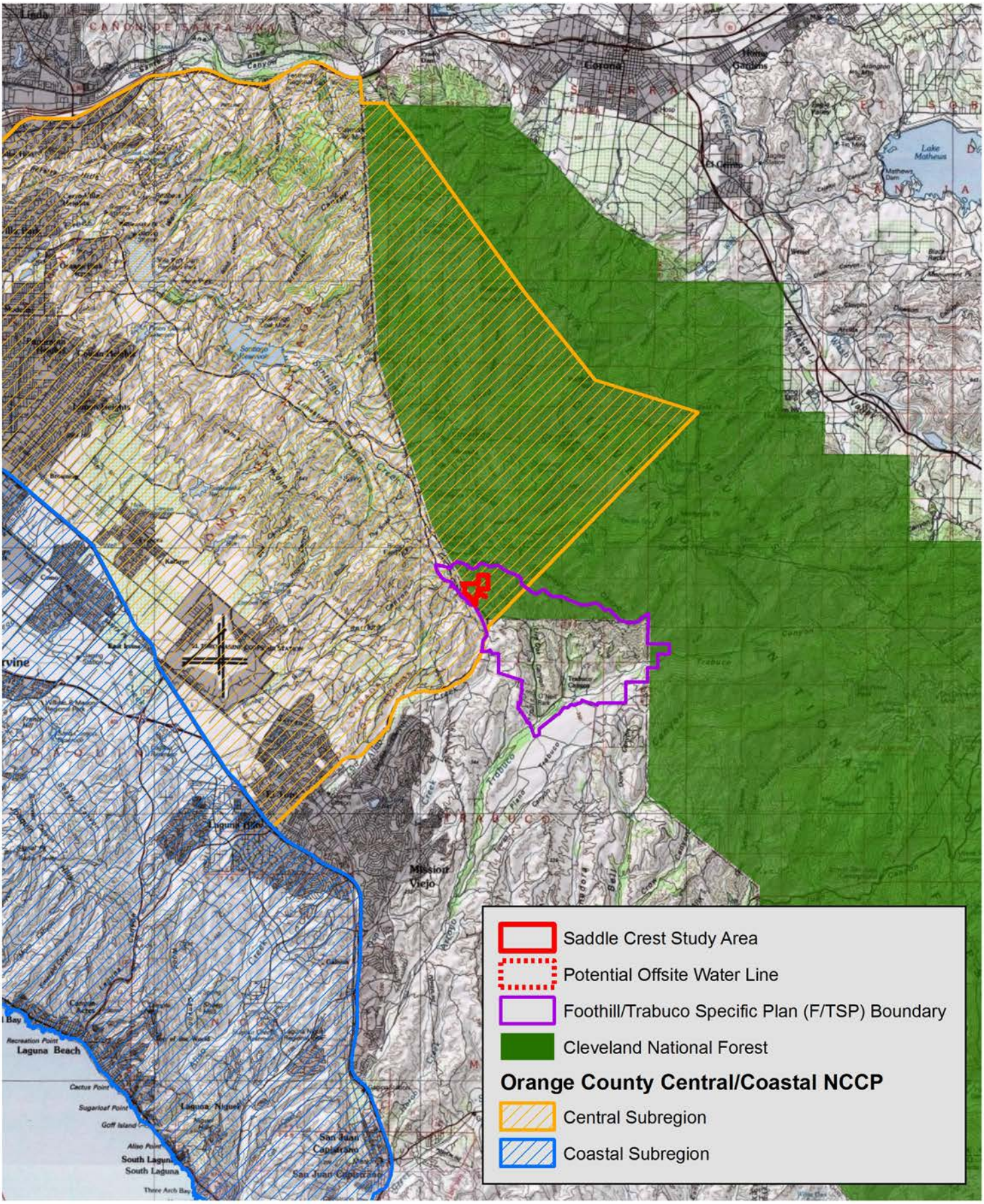
Vicinity Map

Saddle Crest

Source: USGS Topographic Series (El Toro, Santiago Peak, CA); PCR Services Corporation, 2012.

FIGURE

2



PCR

N

0 3 6 Miles

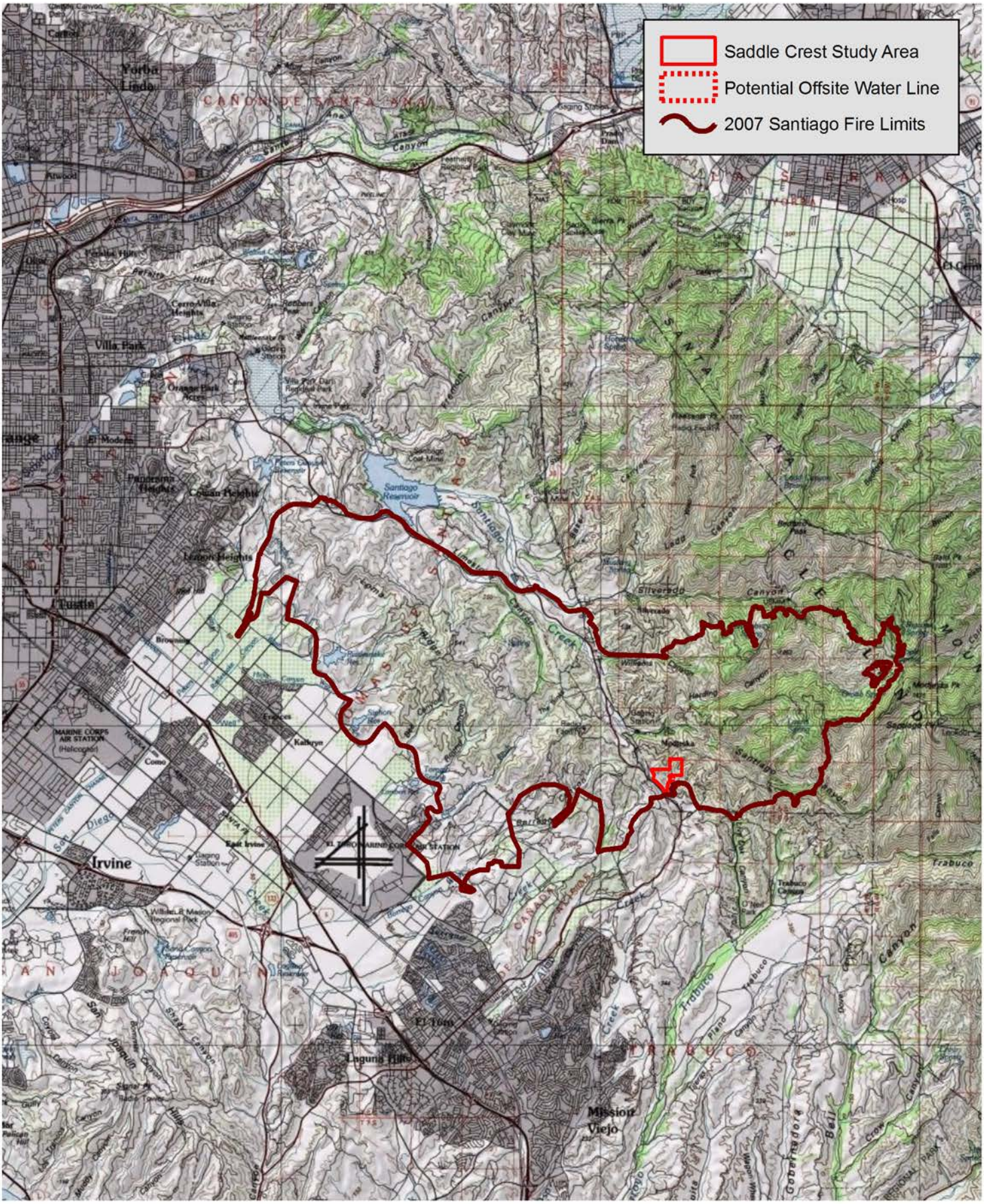
Location within Local Area Plans and Cleveland National Forest

Saddle Crest

Source: USGS 100K Topographic Series (Santa Ana, CA); F/TSP, 1991; USDA / FS - GSTC, 2000; NCCP & HCP, County of Orange, 1996; PCR Services Corporation, 2012.

FIGURE

3



PCR

N

0 2.5 5 Miles

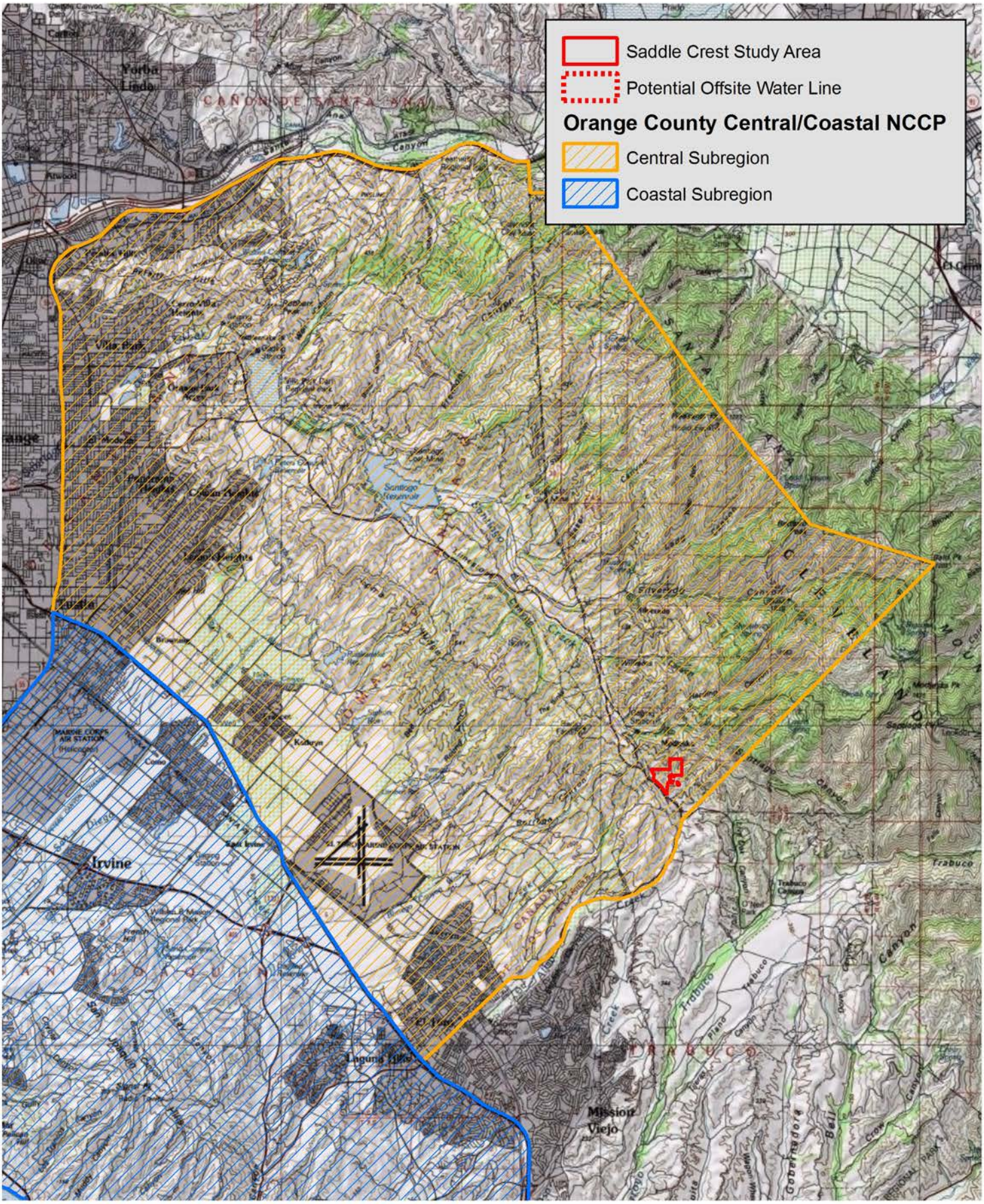
2007 Santiago Fire Limits

Saddle Crest

Source: USGS 100K Topographic Series (Santa Ana, CA); Geospatial Multi-Agency Coordination Group (GeoMAC), 2008 (Fire Limits); PCR Services Corporation, 2012.

FIGURE

4



PCR

N

0 2.5 Miles

Relationship to the Orange County NCCP

Saddle Crest

Source: USGS 100K Topographic Series (Santa Ana, CA); NCCP & HCP, County of Orange, 1996; PCR Services Corporation, 2012.

FIGURE

5

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Table 1
Identified Species ("Covered" and "Conditionally Covered") Authorized for Take by the NCCP/HCP

Common Name	Scientific Name
COVERED SPECIES	
Amphibians	
Western spadefoot (coastal subarea only)	*Spea hammondii*
Arboreal salamander	*Aneides lugubris*
Black-bellied slender salamander	*Batrachoseps nigirventris*
Reptiles	
Coastal rosy boa	*Charina (Lichanura) trivirgata roseofusca*
Coastal whiptail	*Cnemidophorus tigris stejnegeri*
Coronado skink	*Eumeces skiltonianus interparietalis*
Orange-throated whiptail	*Cnemidophorus hyperythrus*
Northern red-diamond rattlesnake	*Crotalus ruber ruber*
Ring-necked snake	*Diadophis punctatus*
Coast horned lizard	*Phrynosoma coronatum*
Avifauna	
California gnatcatcher	*Polioptila californica californica*
Coastal cactus wren	*Campylorhynchus brunneicapillus couesi*
Peregrine falcon	*Falco peregrinus*
Northern harrier	*Circus cyaneus*
Red-shouldered hawk	*Buteo lineatus*
Rough-legged hawk	*Buteo lagopus*
Sharp-shinned hawk	*Accipiter striatus*
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*
Mammals	
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*
San Diego desert woodrat	*Neotoma lepida intermedia*
Plants	
Catalina mariposa lily	*Calochortus catalinae*
Coulter's matilija poppy	*Romneya coulteri*
Heart-leaved pitcher sage	*Lepechinia cardiophylla*
Laguna Beach dudleya	*Dudleya stolonifera*
Nuttall's scrub oak	*Quercus dumosa*
Santa Monica Mountains dudleya	*Dudleya cymosa* ssp. *ovatifolia*
Small-flowered mountain mahogany	*Cercocarpus minutifolia*
Tecate cypress	*Cupressus forbesii*
CONDITIONALLY COVERED SPECIES	
Invertebrates	
Riverside fairy shrimp	*Streptocephalus woottoni*
San Diego fairy shrimp	*Branchinecta sandiegonensis*
Quino checkerspot butterfly	*Euphydryas editha quino*
Amphibians	
Arroyo toad	*Bufo californicus*
Avifauna	
Southwestern willow flycatcher	*Empidonax traillii extimus*
Least Bell's vireo	*Vireo bellii pusillus*
Golden eagle	*Aquila chrysaetos*
Prairie falcon	*Falco mexicanus*
Mammals	
Pacific pocket mouse	*Perognathus longimembris pacificus*
Plants	
Foothill mariposa lily	*Calochortus weedii* var. *intermedius*

Source: County of Orange, Natural Community Conservation Plan & Habitat Conservation Plan, 1996a.

and funding management for the Reserve, as well as procedures and minimization measures related to the "take" of "Identified Species" and habitat. Thus, the NCCP/HCP provides for the protection and management of a broad range of plant and wildlife populations, while providing certainty to the public and affected landowners with respect to the location of future development and open space in the subregion.

1.3 RELATIONSHIP TO THE FOOTHILL/TRABUCO SPECIFIC PLAN

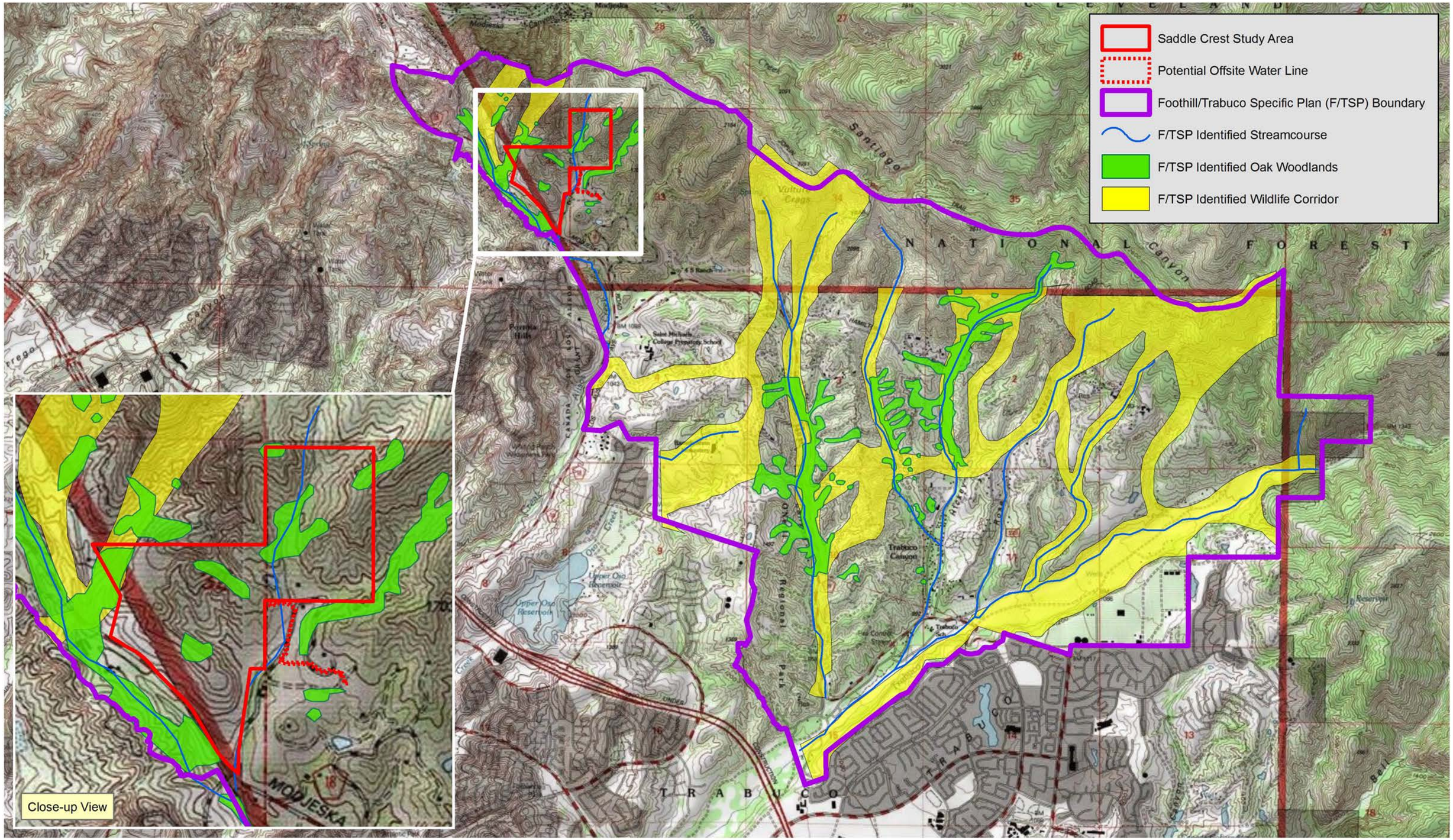
The F/TSP was adopted in 1991. In order to preserve the rural character of the F/TSP area and guide future development, a set of goals, guidelines, policies, and land use regulations were created. The F/TSP has identified significant wildlife corridors, oak woodlands, and streambeds with the purpose of preserving and minimizing impacts to these resources. A wildlife corridor and jurisdictional streambeds were delineated by PCR; oak woodlands were delineated by Dudek. A wildlife corridor, oak woodlands, and a streambed as identified in the F/TSP (refer to Exhibits II-3, II-4, and II-5 of the F/TSP, respectively) that occur within the study area are shown in **Figure 6**, *Relationship to the Foothill/Trabuco Specific Plan.*[4]

1.4 PROJECT HISTORY

The neighboring Saddle Creek North and South properties were formerly owned by the Applicant and were transferred for conservation (**Figure 7**, *Saddle Creek North and South*). The Saddle Creek North and South properties were originally a part of the defined "study area" for the 2000 *Biological Resources Assessment* and 2002 *Supplemental Biological Resources Assessment for the Saddle Creek and Saddle Crest Projects*, under separate cover. In 2007, the Applicant began discussions with USFWS, CDFG, Endangered Habitats League, The Conservation Fund, and the County of Orange about the possibilities of selling portions of the overall Saddle Creek property for conservation purposes. In 2008, The Conservation Fund, with funds from the State Wildlife Conservation Board and a Section 6 grant from USFWS, purchased over 300 acres of Saddle Creek North for permanent conservation. The USFWS, CDFG, and County of Orange, with additional support from environmental advocacy groups such as Endangered Habitats League, Sea & Sage Audubon Society, and the Irvine Ranch Conservancy, have acknowledged that the transfer of Saddle Creek North will have significant environmental benefits by preserving open space; preserving extensive oak woodlands, riparian habitat, and coastal sage scrub; and providing low elevation habitat connectivity for the federally threatened coastal California gnatcatcher within the region. Additionally, Saddle Creek North contributes valuable habitat for conservation and, because the property lies within both the Central/Coastal and Southern Subregions of the County of Orange NCCP/HCPs, Saddle Creek North provides connectivity between the Central and Southern Subregions. Assuring connectivity between the Central/Coastal and Southern Subregion, as well as between the respective Subregions and the Cleveland National Forest is a focus of the conservation strategies for these NCCP/HCPs.

Additionally, in May 2011, the 84-acre Saddle Creek South property was transferred for conservation to the Orange County Transportation Authority (OCTA). The transfer was first property acquisition by OCTA purchased by voter-approved Measure M2 funds to preserve and restore land within the county to offset effects of freeway improvement projects. The transfer of Saddle Creek South was in collaboration with community members, the environmental community, the Measure M2 Environmental Oversight Committee,

[4] *The F/TSP Wildlife Corridor, Oak Woodlands, and Streambeds were georeferenced and digitized by PCR based on the F/TSP Plan figures (Exhibits II-3, II-4, and II-5 of the F/TSP, respectively).*



PCR

0 0.5 1 Miles

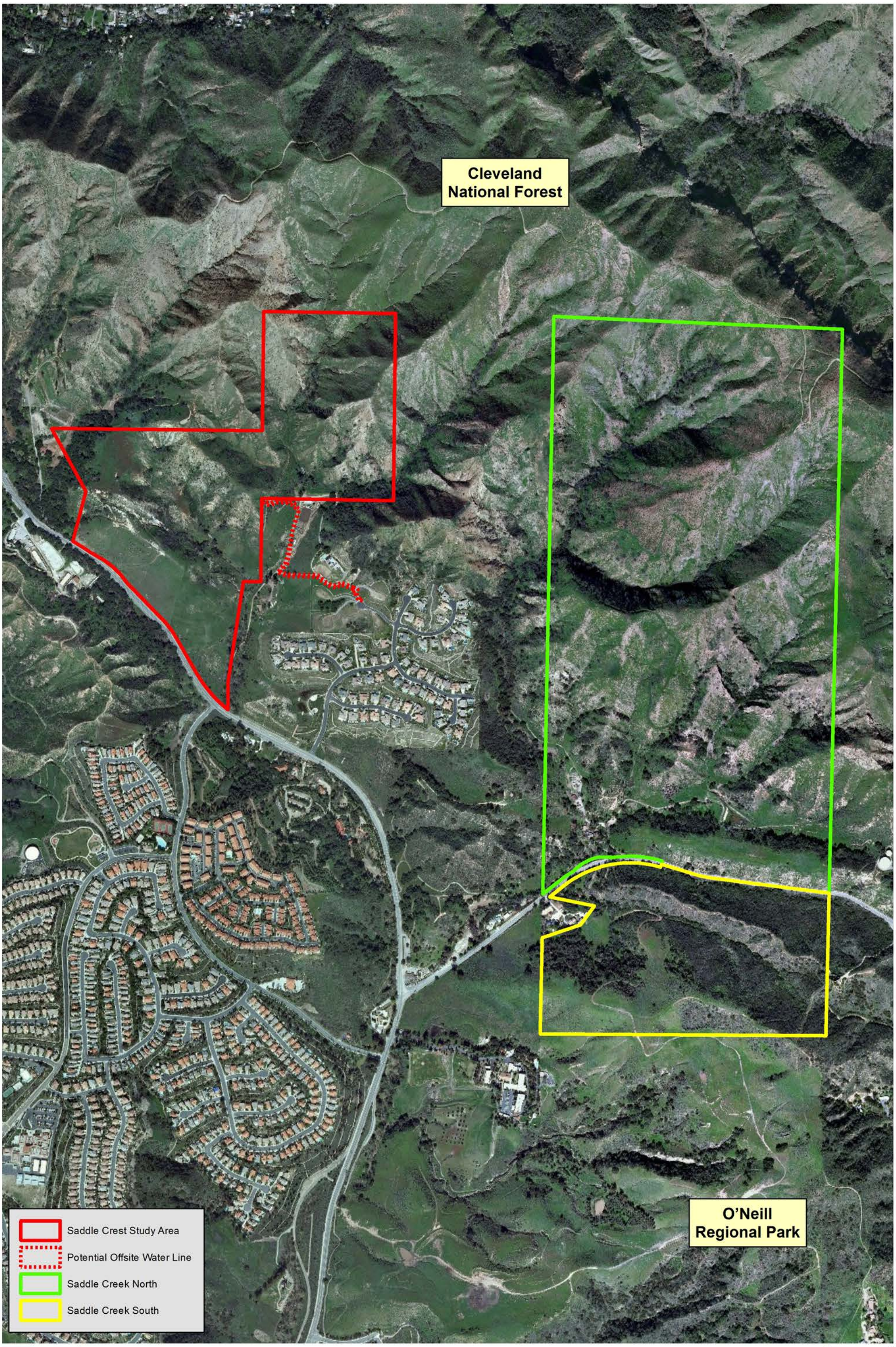
Relationship to Foothill/Trabuco Specific Plan

Saddle Crest

Source: USGS Topographic Series (El Toro, Santiago Peak, CA); Foothill/Trabuco Specific Plan (F/TSP), 1991; PCR Services Corporation, 2012.

FIGURE

6



PCR

N

0 800 1,600 Feet

Saddle Creek North and South

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

7

Caltrans, and officials from USFWS, CDFG, and other resource agencies. Rather than purchasing smaller plots of land near freeway projects, OCTA decided to buy larger open-space parcels with greater conservation value to help preserve habitat for endangered species. By preserving land adjacent to the protected Saddle Creek North property, Saddle Creek South bridges the gap between the O'Neill Regional Park and the Cleveland National Forest, which will offer a more extensively connected open space area to preserve habitat and promote wildlife movement through the areas (Molina 2011, OCTA 2011).

In discussions with the Applicant, the USFWS and CDFG voiced their support for the Applicant to cluster the proposed Saddle Crest development in order to minimize impacts to biological resources (Wilson, pers. comm. 2009). The Applicant retained rights to mitigate for impacts associated with the Saddle Crest project on Saddle Creek North. Thus, to the extent possible, off-site mitigation for impacts to biological resources on the Saddle Crest property will be used to restore and enhance habitat within the Saddle Creek North property.

1.5 SCOPE OF STUDY

The scope of this assessment encompasses the comprehensive documentation of existing biological resources within the Saddle Crest study area. The documentation of existing resources includes the findings of extensive field investigations and a literature review which was updated in 2011. Previous surveys conducted in 2005 and earlier were utilized as appropriate but generally have been updated for this assessment. The field investigations included the development of a detailed map of the plant communities, focused sensitive plant surveys, focused coastal California gnatcatcher surveys, and a jurisdictional delineation of drainages within the study area according to U.S. Army Corps of Engineers (ACOE), CDFG, and Regional Water Quality Control Board (RWQCB) regulations. In addition, an oak tree survey was conducted by Dudek. During these investigations, biologists and ecologists also assessed the potential for the study area to support additional sensitive species and/or habitats and regulated resources.

This document addresses impacts associated with the Proposed Project, as well as recommendations regarding measures to alleviate any resulting potentially significant adverse impacts to a level below significant. This documentation is consistent with accepted scientific, technical, and professional standards pursuant to CEQA, USFWS, ACOE, and CDFG protocols and standards, where appropriate. While general biological resources are discussed in a comprehensive manner, the focus of this assessment is on those resources considered to be sensitive.

2.0 METHODS OF STUDY

2.1 APPROACH

This assessment of biological resources is based upon information compiled through field investigations, focused surveys, previous documentation, and relevant reference materials. As part of the effort to update the status of existing biological resources within the study area, a team of PCR biologists spent two days in the fall of 2007 verifying and updating the plant communities previously mapped by PCR in 1999. Additional updated surveys conducted by PCR biologists during the 2007 to 2008 field season included focused sensitive plant surveys, and focused non-breeding season surveys for the coastal California gnatcatcher. In addition, a verification of the jurisdictional delineation was conducted by PCR in 2007. Focused breeding season surveys for the coastal California gnatcatcher were conducted in 2010 as well. A vegetation map verification and update was conducted in 2011. Dudek was consulted to assist with issues related to tree impacts including the preparation of a Saddle Crest Tree Management and Preservation Plan (Dudek 2011).

2.2 LITERATURE REVIEW

The study began with a review of relevant literature on the biological resources of the study area and vicinity. The current version of the California Natural Diversity Database (CNDDB) (CDFG 2011), a CDFG sensitive resources account database, was reviewed for all pertinent information regarding the locations of known observations of sensitive species and habitats in the vicinity of the study area. Federal Register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federally and State listed species potentially occurring within the vicinity. A number of primary and secondary sources were reviewed, including: the previous focused surveys conducted by PCR; government wildlife agencies' publications; and regional flora and fauna field guides. Additional sources used included the Orange County Central/Coastal NCCP Subregion (R.J. Meade Consulting Inc. 1996a) and the Foothill/Trabuco Specific Plan, as amended. All references used are listed in Section 7.0, References.

2.3 FIELD INVESTIGATIONS

Surveys conducted in 2007, 2008, 2009, and 2011 were performed on foot with the assistance of four-wheel-drive vehicles. The PCR survey team included Susan Anon, Linda Robb, Kristin Szabo, Jason Berkley, Chris Jones, Robert Freese, Crysta Dickson, Maile Tanaka, Erin Hardison, Richard Haywood, and Ezekiel Cooley. In addition, Dudek conducted an oak tree inventory (Dudek 2011).

Systematic survey coverage of the entire study area, with special attention to sensitive habitats or those areas potentially supporting sensitive flora or fauna, was verified using aerial photographs (1" = 200') and a USGS topographic map. In some areas of particularly steep terrain, binoculars were used to assist in the identification of resources.

2.3.1 Plant Community Mapping

Plant communities were initially mapped by PCR in 1999 with the aid of a 1" = 200' scale aerial photograph. The original plant community map was field-verified by PCR in 2007 and updated using Geographic Information System (GIS) technology to calculate acreage and maximize accuracy when calculating impacts. In addition, PCR field-verified the plant community map to address wildfire affects on coastal sage scrub communities on September 29, 2009. The plant community map was again verified and updated on July 6, 2011 to reflect the current conditions of the study area. Plant communities for the potential off-site water line were mapped by PCR biologist Maile Tanaka on November 9, 2011. Plant community names and hierarchical structure generally follows the Orange County Habitat Classification System (OCHCS) (Gray and Bramlet 1992). Plant community descriptions were based on PCR findings and descriptions contained in Sawyer and Keeler-Wolfe's *A Manual of California Vegetation* (1995) and Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986).

2.3.2 General Plant Inventory

All plant species observed during surveys were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy follows Hickman (1993). Common plant names were taken from Hickman (1993), Munz (1974), and/or McAuley (1996). Because common names vary significantly between references, scientific names are included upon initial mention of each species; common names consistent throughout the report are employed thereafter. All plant species observed are included in Appendix A, *Floral and Faunal Compendia*.

2.3.3 Sensitive Plant Surveys

Sensitive plants include those species listed as threatened, endangered, or otherwise considered sensitive by the USFWS and/or the CDFG and the California Native Plant Society (CNPS). State and federally-listed are afforded certain protections under State and federal endangered species laws. Otherwise sensitive species, or other species of concern, may be considered CEQA issues. A record search for sensitive plant species was conducted in the CNDDB and the CNPS on-line inventory for the El Toro and Santiago Peak quadrangles and vicinity (Orange, Black Star Canyon, Corona South, Lake Mathews, Tustin, Alberhill, Laguna Beach, San Juan Capistrano, Canada Gobernadora, and Sitton Peak quadrangles). In addition, because portions of the study area are within the National Forest boundary, plants considered sensitive by the U.S. Forest Service (USFS), Cleveland National Forest, were also considered and addressed.

Focused sensitive plant surveys for those species with potential to occur within the study area were conducted by PCR biologists in the spring and summer of 2008 as an update to the previous survey effort by PCR in 2001. Special attention was given to all potential habitat for the Catalina mariposa lily (CNPS List 4.2 - Species of limited distribution in California, but whose existence does not appear to be susceptible to threat; fairly endangered in California), the foothill mariposa lily (CNPS List 1B.2 - Rare, threatened, or endangered throughout their range; fairly endangered in California), and the chaparral nolina (CNPS List 1B.2 - Rare, threatened, or endangered throughout their range; fairly endangered in California). The CNPS listings are discussed in further detail in Section 3.6.1. Focused sensitive plant surveys were conducted by PCR biologists Robert Freese, Susan Anon, Linda Robb, and Chris Jones on April 16, 2008; Robert Freese, Susan Anon, Crysta Dickson, and Maile Tanaka on May 30, 2008; and Susan Anon and Maile Tanaka on June

5, 2008. Sensitive plant species observed or with the potential to occur within the Saddle Crest study area are discussed in Section 3.6.3, *Sensitive Plant Species*.

2.3.4 General Wildlife Inventory

All wildlife species observed during the field surveys by sight, call, tracks, nests, scat (fecal droppings), remains, or other sign were recorded. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. All wildlife species observed within the study area, as well as diagnostic sign, were recorded in field notes. In addition to species actually detected, expected use of the study area by other wildlife was derived from the analysis of habitats within the study area combined with known habitat preferences of regionally-occurring wildlife species.

Wildlife taxonomy follows Stebbins (2003) for amphibians and reptiles, the American Ornithologists' Union (1998) for birds, and Jameson and Peeters (1988) for mammals. Scientific names are used during the first mention of a species; common names only are used in the remainder of the text. A list of all wildlife species detected within the study area is included in Appendix A, *Floral and Faunal Compendia*. Sensitive wildlife species are discussed below in Section 2.3.5.

Amphibian Surveys

General surveys for amphibians were conducted in appropriate habitat only during diurnal activity periods. The intent of these surveys was not to extensively search for individual amphibians, but to ascertain the presence of potential amphibian habitat and the location of amphibians within the study area. The discussions in this document of amphibians potentially present within the study area are based on the habitats used by the species and their geographic ranges. Surveys were conducted on foot in suitable habitat types concurrently with all other surveys of the study area. Habitats were examined for diagnostic amphibian sign; such as egg masses, larvae, vocalizations, and direct observations. Surface litter, stones, fallen bark, tree branches, and cracks in mud were examined. Observed amphibian species, as well as diagnostic sign, were recorded in field notes.

Reptile Surveys

General surveys for reptiles were conducted in appropriate habitat only during diurnal activity periods. The intent of these surveys was not to extensively search for individual reptiles, but to ascertain the presence of potential reptile habitat and the location of reptiles within the study area. The discussions in this document of reptiles potentially present within the study area are based on the habitats used by the species and their geographic ranges. Surveys were conducted on foot in suitable habitat types concurrently with all other surveys of the study area. Habitats were examined for diagnostic reptile sign; such as eggs, shed skins, scat, tracks, snake prints, lizard tail drag marks, and direct observations. All areas containing potentially suitable habitat were surveyed. While searching for resting reptiles, surface litter, stones, fallen bark, tree branches, and cracks in mud were examined. Observed reptile species, as well as diagnostic sign, were recorded in field notes.

Avian Surveys

General surveys for birds were conducted in appropriate habitat only during diurnal activity periods. The intent of these surveys was not to extensively search for individual birds, but to ascertain the presence of potential bird habitat and the location of birds within the study area. The discussions in this document of birds potentially present within the study area are based on the habitats used by the species and their geographic ranges. Surveys were conducted on foot in suitable habitat types concurrently with all other surveys of the study area. Birds were detected both by direct observations and by vocalizations. All areas containing potentially suitable habitat were surveyed. Bird species observed were recorded in field notes. Special attention was made to identify any bands or markings on avian species.

Surveys for the presence of nesting raptors (birds of prey) within the study area and in the vicinity of the study area were conducted simultaneously with other field surveys. Such efforts included directed and incidental observation of raptor nests, owl pellets, and the identification of raptor species flying over the study area. Observed raptor species, as well as diagnostic sign, were recorded in field notes.

Mammal Surveys

General surveys for mammals were conducted in appropriate habitat only during diurnal activity periods. The intent of these surveys was not to extensively search for individual mammals, but to ascertain the presence of potential mammal habitat and the location of mammals within the study area. The discussions in this document of mammals potentially present within the study area are based on the habitats used by the species and their geographic ranges. Surveys were conducted on foot in suitable habitat types concurrently with all other surveys. Many mammals are nocturnal and secretive, making daytime observations difficult. Therefore, the majority of the information on mammals within the study area comes from diagnostic sign such as scat, burrows, tracks, dens, browsed vegetation or other feeding sign, hair, nests, bones, vocalizations, and direct observations. All areas containing potentially suitable habitat were surveyed. Methods employed while searching for mammals included searching the ground and adjacent vegetation, locating and following mammal trails, and surveying muddy banks of small streams and pools, and noting "road kill" while traveling to and from the study area. Observed or expected mammal species, as well as diagnostic sign, were recorded in field notes.

2.3.5 Sensitive Wildlife Surveys

Sensitive wildlife species include those listed by the USFWS, CDFG, and CDFG Species of Special Concern (SSC species). State and federally-listed are afforded certain protections under Federal State and endangered species laws. Species of Special Concern may be considered CEQA issues. Several sensitive wildlife species reported from the CNDDB from the El Toro and Santiago Peak quadrangles and vicinity (Orange, Black Star Canyon, Corona South, Lake Mathews, Tustin, Alberhill, Laguna Beach, San Juan Capistrano, Canada Gobernadora, and Sitton Peak quadrangles) were considered as well as USFS, Cleveland National Forest, sensitive species. Focused surveys were conducted for the coastal California gnatcatcher by PCR biologists in 2007-2008 and 2010 as an update to the previous survey effort by PCR in 1999 and 2002, as summarized below. Sensitive wildlife species observed or with the potential to occur within the Saddle Crest study area are discussed in Section 3.6.4, *Sensitive Wildlife Species*.

Coastal California Gnatcatcher

Due to the presence of suitable habitat, protocol non-breeding season surveys for the federally threatened coastal California gnatcatcher were conducted by PCR biologists Susan Anon (Permit No. TE085157-1), Linda Robb (Permit No. TE093591-0), Crysta Dickson (Permit No. TE067347-3), and Jason Berkley (Permit No. TE009015-2) and assisted by Maile Tanaka and Erin Hardison under direct supervision. Surveys were conducted on October 2, October 16, October 30, November 13, November 27, December 11, 2007, and January 8, January 30, and February 26, 2008. Methods employed were in conformance with the USFWS *Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, issued July 28, 1997.[5] Accordingly, nine surveys were performed at least two weeks apart, between 6:00 A.M. and 12:00 P.M., within all portions of the study area containing potentially suitable habitat. The field investigator slowly walked through all potentially suitable habitat, stopping at approximately 200-foot intervals, uttering pishing sounds, and playing a tape of recorded coastal California gnatcatcher vocalizations. The tape was played for several seconds at each interval, followed by a brief pause to listen for a response. To ensure coverage of adjacent areas, vocalizations were broadcast outside the boundaries where suitable coastal California gnatcatcher habitat exists. Temperatures during surveys ranged between 40 degrees Fahrenheit and 86 degrees Fahrenheit. Weather conditions were suitable for surveys, with skies ranging from clear to 100 percent overcast, and winds ranging from 0 to 6 miles per hour. The initial coastal California gnatcatcher survey area was 187.3 acres and the first two survey dates (October 2 and 16, 2007) were conducted by two permitted biologists. However, following the fires that removed a significant portion of the vegetation with the study area, the remaining scrub habitat areas (totaling 34.1 acres) could be covered by a single biologist during the subsequent seven surveys. Detailed methodology and results of the surveys are included in *Results of Focused Coastal California Gnatcatcher Surveys* under separate cover (PCR 2008b).

In 2010, protocol breeding season surveys for the coastal California gnatcatcher were conducted by PCR biologist Crysta Dickson (Permit No. TE067347-3). Surveys were conducted on April 20, 27, May 4, 11, 18, and 25, 2010. Methods employed were in conformance with the USFWS *Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, issued July 28, 1997.[6] Accordingly, six surveys were performed at least one week apart, between 6:00 A.M. and 12:00 P.M., within all portions of the study area containing potentially suitable habitat. Temperatures during surveys ranged between 45 degrees Fahrenheit and 72 degrees Fahrenheit. Weather conditions were suitable for surveys, with skies ranging from clear to 100 percent overcast, and winds ranging from 0 to 3 miles per hour. Detailed methodology and results of the surveys are included in *Results of Focused Coastal California Gnatcatcher Surveys* under separate cover (PCR 2010).

2.3.6 Regional Connectivity/Wildlife Movement Corridor Assessment

The analysis of wildlife movement corridors associated with the study area and its immediate vicinity is based on information compiled from the literature, input from wildlife agency personnel, observations made in the field during survey work for groundtruthing and fine-scale refinement, and analysis of aerial photographs and topographic maps. A literature review was conducted that included documents on island biogeography (studies of fragmented and isolated habitat "islands"), reports on wildlife home range sizes and migration patterns, and studies on wildlife dispersal. Wildlife movement studies conducted in southern

[5] *U.S. Fish and Wildlife Service. Department of the Interior. Coastal California Gnatcatcher (Polioptila californica californica): Presence/Absence Survey Guidelines. Unpublished paper. Sacramento, California.*

[6] *U.S. Fish and Wildlife Service. Department of the Interior. Coastal California Gnatcatcher (Polioptila californica californica): Presence/Absence Survey Guidelines. Unpublished paper. Sacramento, California.*

California were also reviewed including *Missing Linkages: Restoring Connectivity to the California Landscape* (South Coast Wildlands Project 2000). The relationship of the study area to large open space areas in the immediate vicinity (i.e., Santa Ana Mountains, Cleveland National Forest, O'Neill Regional Park) was also evaluated in terms of connectivity and habitat linkages.

Relative to corridor issues, the focus of this assessment was to determine if the alteration of current land use within the study area will have potentially significant impacts on the regional movement of wildlife. Notation was made during field visits of locations of animal sign and inspection of resource maps for the vicinity. Conclusions contained in the report are based on the knowledge of desired topography and resource requirements for wildlife potentially utilizing the study area and vicinity.

2.3.7 Tree Survey

A native oak tree survey was conducted by Dudek (Dudek 2011, 2012). Dudek mapped coast live oak (*Quercus agrifolia*) trees and one blue gum tree (*Eucalyptus globulus*) that would potentially be impacted using a Trimble Pathfinder Pro XH Global Positioning System (GPS) receiver. An electronic compass and reflectorless electronic distancing measuring (EDM) device was also used to map tree locations to account for the loss of satellites in dense tree canopies and steep canyons. The oak trees and blue gum tree were assessed and tagged with an aluminum tag bearing a unique identification number. Trunk diameter measurements were collected at 4.5 feet above the ground along the trunk axis in accordance with requirements specified in the F/TSP.

2.3.8 Jurisdictional Delineation/Verification

A jurisdictional delineation/verification was conducted by PCR biologists Richard Haywood, Maile Tanaka, and Ezekiel Cooley on October 8, 2007 to re-assess the extent and condition of all existing on-site drainage features and update the previous jurisdictional delineation assessment conducted by PCR in 1999 of ACOE, RWQCB, and/or CDFG jurisdictional "waters of the U.S."/"waters of the State," wetlands, and/or streambed and associated riparian habitat. Detailed methodology and results of the jurisdictional delineation verification are included in *Investigation of Jurisdictional Wetlands and Waters of the U.S. for Saddle Creek and Saddle Crest* under separate cover (PCR 2008c). On September 19, 2011, PCR regulatory scientist Beth Martinez and biologist Maile Tanaka met with ACOE representative Jason Lambert to verify the jurisdiction mapped on-site. Based on feedback from the meeting, a subsequent delineation of the on-site downstream portion of Drainage E1 was conducted on October 11, 2011 by Beth Martinez and Maile Tanaka. Upon revising the findings for Drainage E1 per the request of Mr. Lambert, and upon further coordination with ACOE, Mr. Lambert verbally confirmed the study area's jurisdictional delineation findings (Lambert, pers. comm. 2011a). The jurisdictional acreages presented in this document reflect the revisions requested by ACOE.

3.0 EXISTING CONDITIONS

3.1 CHARACTERISTICS OF THE STUDY AREA AND THE SURROUNDING AREA

The Saddle Crest study area lies in the foothills of the Santa Ana Mountains, adjacent to Cleveland National Forest, within an unincorporated portion of Orange County. The study area is north of the community of Portola Hills and south of the rural canyon community of Modjeska. Elevations on-site range from approximately 1,200 feet above MSL in the southwestern portion of the study area to 1,800 feet in the northeastern portion of the study area. The study area contains one USGS blueline stream within the Aliso Creek watershed, and topography on-site is diverse, ranging from flat grasslands to steep, densely vegetated hills. Disturbance due to grazing is evident within lower elevations of the southern portion of the study area.

Surrounding land use consists mostly of open space, including Saddle Creek North and South to the east of the study area, with some rural and suburban residential development. Preserved open space within close proximity of the study area includes the Cleveland National Forest and Limestone-Whiting Wilderness Park.

3.2 PLANT COMMUNITIES/HABITATS

Descriptions of the plant communities mapped within the study area in 2011 are provided below. In addition, the corresponding Orange County Habitat Classification System code is given in parentheses following the title. As previously mentioned, the majority of the study area was burned in the October 2007 Santiago Fire; however, much of the native vegetation has grown back since the fire. Although the fire resulted in a temporary elimination of much of the vegetation, these plant communities are well-adapted to fire and have already exhibited signs of recovery.

The vegetation map presented in the 2000 and 2002 Biological Resources Assessments was updated by PCR in 2007 prior to the fire and again in the winter of 2009 (post-fire). During the site visits conducted in 2009, changes in coastal sage scrub vegetation were noted as a result of the wildfire (the site visit focused on determining the status of the coastal sage scrub communities). Of note, communities mapped in 2009 included disturbed/Opuntia, which contained a predominance of ruderal vegetation and sparse coastal prickly pear (*Opuntia littoralis*), and giant wild rye grassland which contained a predominance of giant wild rye (*Leymus condensatus*). Locations of each of the plant communities prior to the October 2007 Santiago Fire are shown in **Figure 8A**, *Plant Communities 2007*. Plant communities mapped in 2009 are shown in **Figure 8B**, *Plant Communities 2009*. In 2011, the vegetation map was verified and updated to document the communities which have reestablished since the fire and reflect the current conditions of the study area, as shown in **Figure 8C**, *Plant Communities 2011*. In addition, plant communities for the potential off-site water line mapped in 2011 are included. Although the 2007 and 2009 vegetation maps are included to provide background on the study area, the 2011 vegetation map is analyzed within this document. **Table 2**, *Plant Communities* lists each of the plant communities observed and the acreage they cover within the study area for pre-fire conditions in 2007, post-fire conditions in 2009, and the currently existing conditions in 2011. Mixed plant communities (e.g., sagebrush scrub/ruderal) are named so that the more dominant or majority

community component occurs first and the minority component second. Representative photographs of the study area are shown in **Figures 9 and 10**, *Site Photographs.*

3.2.1 Deerweed

The deerweed community is dominated by deerweed (*Lotus scoparius*). These areas exhibited evidence of previous disturbance and are dominated by this pioneer species. A total of 1.2 acres of deerweed occur within the study area.

3.2.2 Sagebrush Scrub (OCHCS 2.3.6)

Sagebrush scrub is dominated by California sagebrush (*Artemisia californica*). Associated species within this community include black sage (*Salvia mellifera*), deerweed, orange-bush monkey flower (*Mimulus aurantiacus*), and laurel sumac (*Malosma laurina*) with an understory of non-native grasses. A total of 3.9 acres (3.8 acres on-site, 0.1 acre off-site) of sagebrush scrub occur within the study area.

Sagebrush scrub/southern mixed chaparral represents the intermingling or gradation of scrub and chaparral species. On-site, this community is dominated by sagebrush with California buckwheat (*Eriogonum fasciculatum*), laurel sumac, sugar bush (*Rhus ovata*), our Lord's candle (*Yucca whipplei*), and scrub oak (*Quercus berberidifolia*). A total of 0.2 acre of sagebrush scrub/southern mixed chaparral occur within the study area.

Sagebrush scrub/ruderal is dominated by California sagebrush with non-native, ruderal species comprising between 20 and 45 percent of the vegetative cover. Associated ruderal, weedy species observed within this community include tocalote (*Centaurea melitensis*) and artichoke thistle (*Cynara cardunculus*). This community totals 1.9 acres in two patches within the study area.

3.2.3 White Sage Scrub (OCHCS 2.3.5)

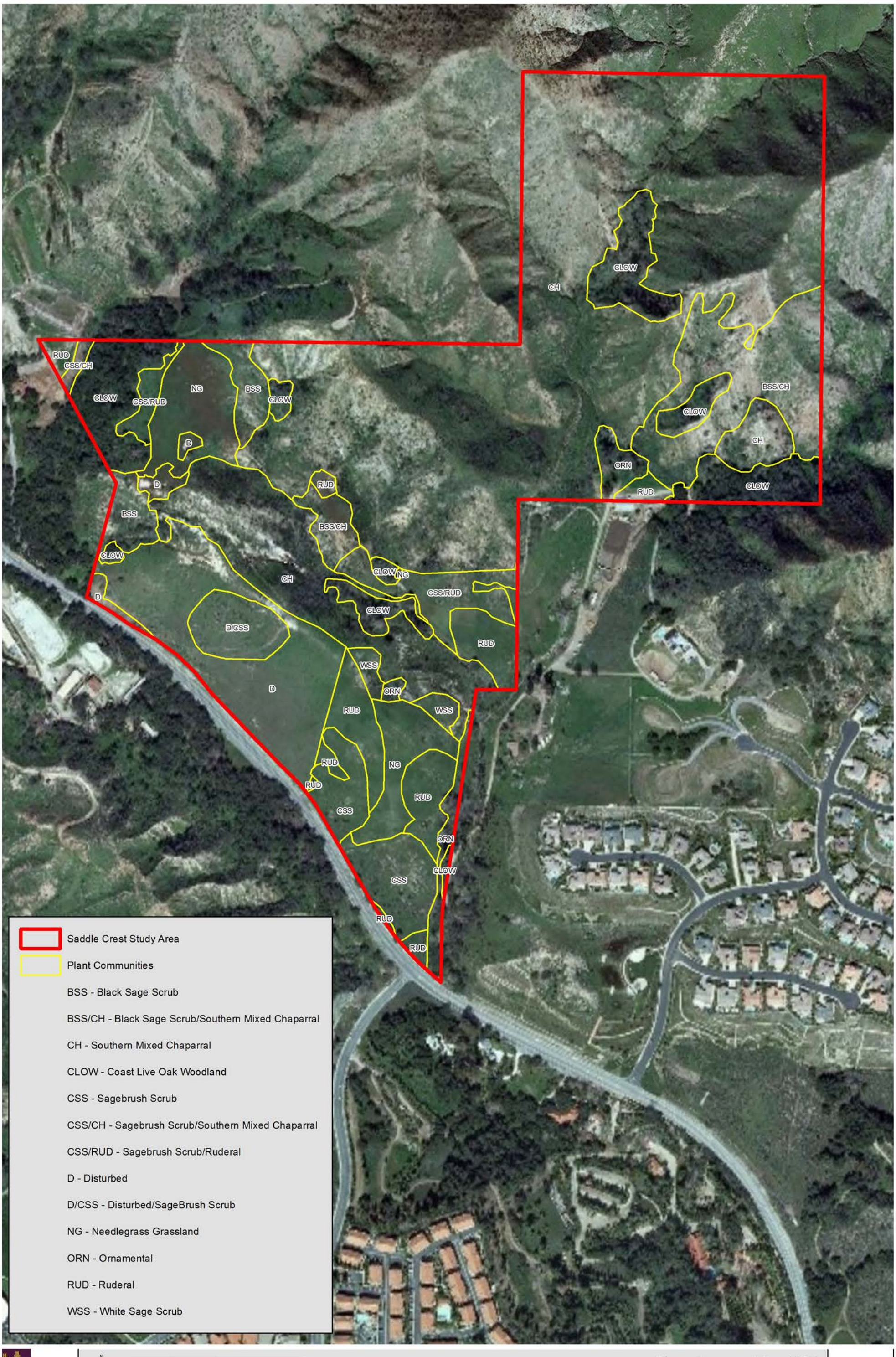
White sage scrub is dominated by white sage (*Salvia apiana*). Associated species include deerweed, California sagebrush, and laurel sumac with an understory composed mostly of California everlasting (*Gnaphalium californicum*). A total of 0.8 acre of white sage scrub occurs within the study area.

3.2.4 Southern Mixed Chaparral (OCHCS 3.2)

Southern mixed chaparral consists of a mix of dominant chaparral species including black sage, laurel sumac, sugar bush, our Lord's candle, and scrub oak. A total of 62.5 acres of southern mixed chaparral occur within the study area, mainly along the higher elevation slopes.

3.2.5 Black Sage Scrub/Southern Mixed Chaparral (OCHCS 2.3.4/3.2)

Black sage scrub/southern mixed chaparral is a type of ecotone/sere which represents the intermingling or gradation of scrub and chaparral species. On-site, this community is dominated by black sage with significant amounts of California sagebrush, California buckwheat, laurel sumac (*Malosma laurina*), sugar bush, our Lord's candle, and scrub oak. A total of 7.0 acres of black sage scrub/southern mixed chaparral occur within the northeastern portion of the study area.



PCR

N

0 350 700 Feet

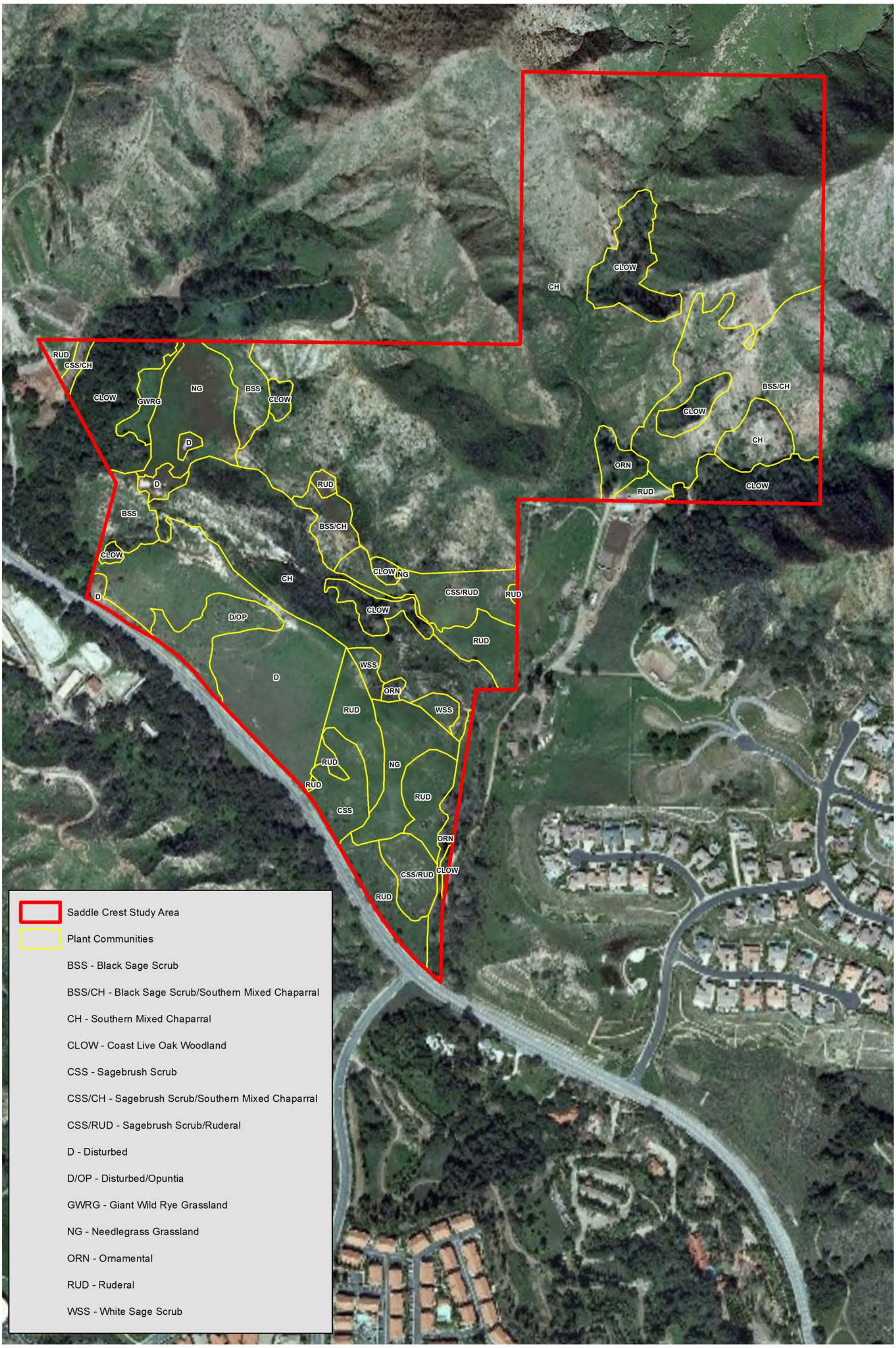
Plant Communities 2007

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

8A



PCR

N

0 350 700 Feet

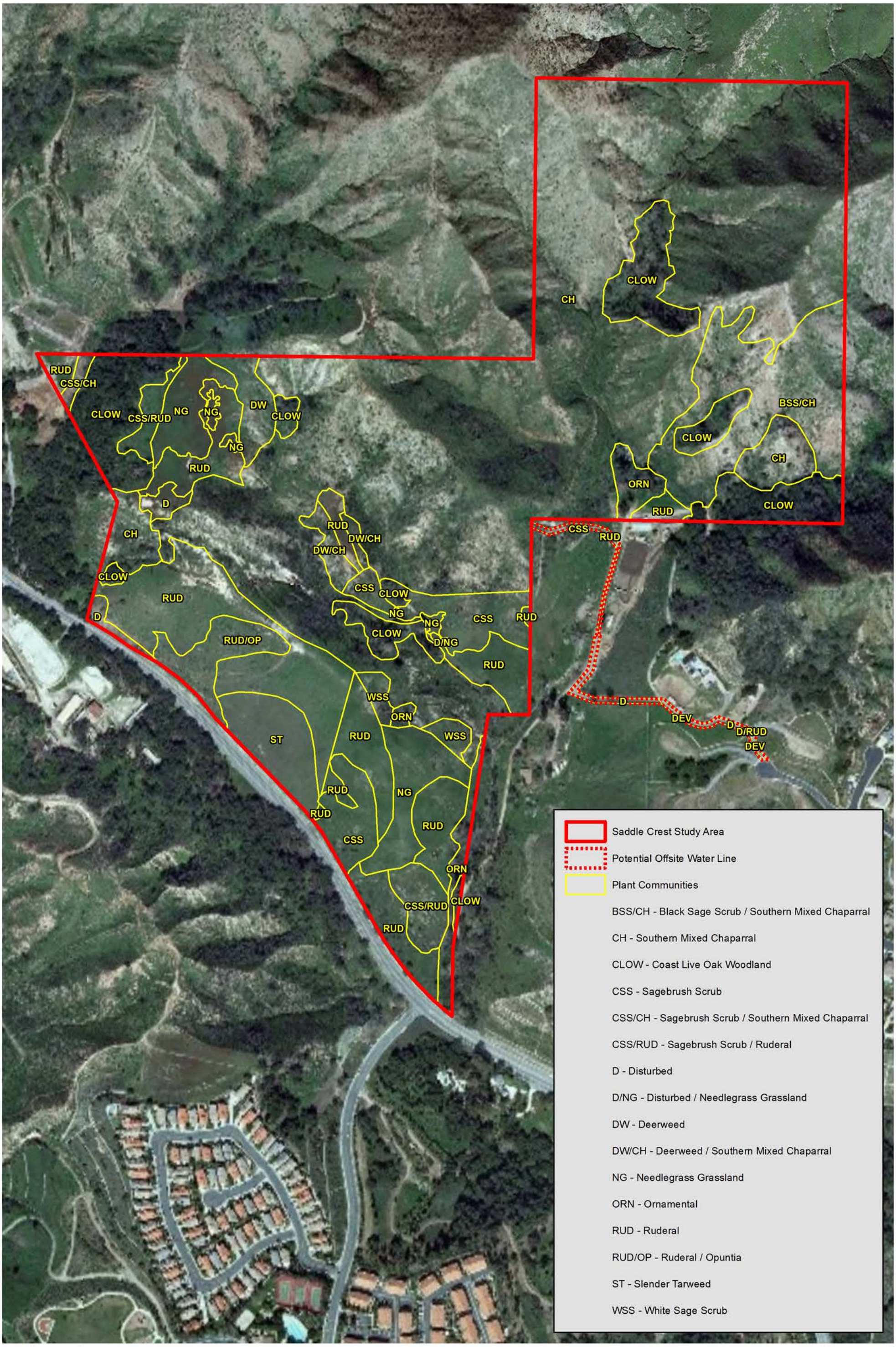
Plant Communities 2009

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

8B



PCR

0 350 700 Feet

Plant Communities 2011

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

8C

Photograph 1: View, looking northeast, of sagebrush scrub/ruderal area on hillside in the central-eastern portion of the study area prior to the Santiago fire (10/2/07).

Photograph 2: View, looking north of coast live oak woodland in the central portion of the study area prior to the Santiago fire (10/2/07).

Photograph 3:View of native grassland within the study area prior to the Santiago fire (10/2/07).

Photograph 4: View of disturbed area adjacent to Santiago Canyon Road with scattered coastal prickly pear (*Opuntia littoralis*) prior to the Santiago fire (10/2/07).

P C R

Site Photographs

Saddle Crest

Source: PCR Services Corporation, 2011.

FIGURE

9

Photograph 5: View, looking north of sagebrush scrub/ruderal on hillside (2009).

Photograph 6: View, looking northwest, of coast live oak woodland in the central portion of the study area (2009).

Photograph 7: View, looking west, of disturbed area actively grazed by horses in the southwestern portion of the study area (2009).

Photograph 8: View, looking north, of disturbed area with scattered coastal prickly pear (*Opuntia littoralis*) (2009).

PCR

Site Photographs

Saddle Crest

Source: PCR Services Corporation, 2011.

FIGURE

10

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Table 2

Plant Communities

Plant Community	OCHCS Code[a]	2007 (Pre-Fire) Acreage*	2009 (Post-Fire) Acreage*	2011 (Post-Fire) Acreage**
Black Sage Scrub	2.3.4	2.3	2.3	N/A
Deerweed	N/A	N/A	N/A	1.2
Sagebrush Scrub	2.3.6	3.9	1.5	3.8 (0.1)
Sagebrush Scrub/Ruderal	2.3.6/4.6	2.9	3.6	1.9
White Sage Scrub	2.3.5	0.8	0.8	0.8
Subtotal—Scrub Communities		***9.9***	***8.2***	***7.7 (0.1)***
Black Sage Scrub/Southern Mixed Chaparral	2.3.4/3.2	8.1	8.1	7.0
Deerweed/Southern Mixed Chaparral	N/A/3.2	N/A	N/A	0.8
Sagebrush Scrub/Southern Mixed Chaparral	2.3.6/3.2	0.2	0.2	0.2
Subtotal—Mixed Scrub Communities		***8.3***	***8.3***	***8.0***
Southern Mixed Chaparral	3.2	61.3	61.3	62.5
Subtotal—Chaparral Communities		***61.3***	***61.3***	***62.5***
Needlegrass Grassland	4.3	5.4	5.4	4.1
Subtotal—Grassland Communities		***5.4***	***5.4***	***4.1***
Coast Live Oak Woodland	8.1	9.5	9.5	9.5
Subtotal—Oak Woodland Communities		***9.5***	***9.5***	***9.5***
Slender Tarweed	N/A	N/A	N/A	2.4
Subtotal—Forbland Communities		***N/A***	***N/A***	***2.4***
Developed	15.2	N/A	N/A	(0.2)
Disturbed	16.1	9.5	9.7	0.7 (0.4)
Disturbed/Needlegrass Grassland	16.1/4.3	N/A	N/A	<0.1
Disturbed/Ruderal	16.1/4.6	N/A	N/A	<0.1
Disturbed/Sagebrush Scrub	16.1/2.3.6	1.9	N/A	N/A
Disturbed/Opuntia	16.1/2.4	N/A	1.8	N/A
Giant Wild Rye Grassland		N/A	0.6	N/A
Ornamental	15.5	1.9	1.9	1.9
Ruderal	4.6	5.9	6.9	15.1 (0.1)
Ruderal/Opuntia	4.6/2.4	N/A	N/A	1.8
Subtotal—Disturbed Communities		***19.2***	***20.9***	***19.5 (0.7)***
Total		113.7	**113.7**	**113.7 (0.8)**

[a] *Orange County Habitat Classification System Code.*

* *This information is provided as context for discussions of the effects of the 2007 Santiago fire on the Saddle Crest property. However, it should be noted that the all impact analyses are based on vegetation community acreages mapped in 2011 which reflect the currently existing conditions of the study area.*

** *Acreages in parentheses indicate off-site acreage.*

Source: PCR Services Corporation, 2011.

3.2.6 Needlegrass Grassland (OCHCS 4.3)

Needlegrass grassland is often associated with coastal sage scrub and is found in pockets in close proximity to coastal sage scrub and annual grassland. This community consists of at least 10 percent cover of native purple needlegrass (*Nassella pulchra*). The remaining vegetative cover is made up of non-native grasses found in annual grassland, such as wild oat (*Avena barbata*), slender wild oat (*Avena fatua*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), wild radish (*Raphanus sativus*), artichoke thistle, mustard (*Brassica* sp.), coyote melon (*Curburbita foetidissima*), red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*Erodium moschatum*), coastal goldenbush (*Isocoma menziesii* var. *menziesii*), mayweed (*Anthemis cotula*), and western ragweed (*Ambrosia psilostachya*), as well as a variety of annual, showy flowers including golden stars (*Bloomeria crocea*), purple owl's clover (*Castilleja exserta*), lilac mariposa lily (*Calochortus splendens*), and blue-eyed grass (*Sisyrinchium bellum*). A total of 4.1 acres of needlegrass grassland occur in patches within the study area.

3.2.7 Coast Live Oak Woodland (OCHCS 8.1)

Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*) in the tree canopy with individual western sycamores scattered throughout. The shrub layer is dominated by toyon (*Heteromeles arbutifolia*) and Mexican elderberry (*Sambucus mexicana*), while the forbs are dominated by poison oak (*Toxicodendron diversilobum*), wild rose (*Rosa californica*), nightshade (*Solanum* sp.), and several ferns where more mesic conditions persist. Coast live oak woodland totals 9.5 acres within the study area and is generally found along the larger drainages on-site.

3.2.8 Slender Tarweed

The slender tarweed community mapped on-site consists of a monotypic stand of slender tarweed (*Hemizonia fasciculata*) where a previously disturbed disked area occurred. A total of 2.4 acres of slender tarweed occur within the southwestern portion of the study area.

3.2.9 Disturbed (OCHCS 16.1)

Disturbed or barren areas either completely lack vegetation or contain a sparse cover of primarily ruderal species. Disturbed areas within the study area take the form of barren areas in proximity to development and barren areas due to other disturbances. Disturbed areas occupy 1.1 acres (0.7 acre on-site, 0.4 acre off-site) within the study area.

Disturbed/needlegrass grassland (OCHCS 16.1/4.3) exhibits evidence of disturbance with a subdominance of needlegrass. This community totals less than 0.1 acre.

Disturbed/ruderal (OCHCS 16.1/4.6) exhibits evidence of disturbance with a subdominance of weedy species. This community totals less than 0.1 acre.

3.2.10 Ornamental (OCHCS 15.5)

Ornamental landscaping consists of areas of introduced trees, shrubs, flowers, and turf grass associated with development. Representative ornamental species found on-site include eucalyptus stands (*Eucalyptus* sp.)

These areas are in close proximity to, and associated with, the rural residential development. Several areas, comprising a total of 1.9 acres within the study area, support ornamental plantings.

3.2.11 Ruderal (OCHCS 4.6)

Ruderal vegetation occurs in areas that are undergoing substantial and continual disturbance. This community is dominated by early successional, pioneering, herbaceous species that are adapted to readily colonize disturbed ground. Dominant species within this community on-site include artichoke thistle, mustard, red-stemmed filaree, and annual bur clover. Remnant patches of native species within these areas are indicative of the community that occurred in the area prior to the disturbance. A total of 15.2 acres (15.1 acres on-site, 0.1 acre off-site) of ruderal occur within the study area.

Ruderal/Opuntia (OCHCS 4.6/2.4) predominantly supports non-native, ruderal vegetation but supports remnant patches of coastal prickly pear indicating it formerly supported southern cactus scrub. A total of 1.8 acres of ruderal/Opuntia occurs within the southern portion of the study area along Santiago Canyon Road.

3.2.12 Developed (OCHCS 15.2)

Developed areas include rural residential areas which may include scattered buildings on the fringes of urban areas and throughout unincorporated portions of the County. Developed areas occupy 0.2 acre (all off-site) within the study area.

3.3 GENERAL PLANT INVENTORY

The plant communities discussed above are comprised of a variety of plant species. General plant species observations were completed during the 2007 and 2008 surveys of the study area. Plant species observed within the study area are indicated in Appendix A, *Floral and Faunal Compendia*. Sensitive plant species occurring or potentially occurring within the study area are discussed in Section 3.6.3, *Sensitive Plant Species*.

3.4 GENERAL WILDLIFE INVENTORY

The plant communities discussed above provide habitat for wildlife. While a few wildlife species are entirely dependent on a single natural community or on only a few of these communities, other wildlife species use most or all of the entire mosaic of plant communities within the study area and adjoining areas. Thus, the study area potentially constitutes functional habitat for a variety of wildlife species, both within the study area and within the context of regional biological systems. The following section discusses wildlife populations within the study area, segregated by taxonomic group. Representative examples of each taxonomic group either observed or expected within the study area are provided. Wildlife species observed, as well as those expected to occur, within the study area are indicated in Appendix A, *Floral and Faunal Compendia*. Sensitive wildlife species occurring or potentially occurring within the study area are discussed in Section 3.6.4, *Sensitive Wildlife Species*.

3.4.1 Amphibians

Terrestrial amphibian species may or may not require standing water for reproduction. Terrestrial species avoid desiccation by burrowing underground within crevices in trees, rocks, and logs and under stones and

surface litter during the day and dry seasons. Due to their secretive nature, terrestrial amphibians are infrequently observed, but may be quite abundant if conditions are favorable. Aquatic amphibians are dependent on standing or flowing water for reproduction. Such habitats include fresh water marshes and open water (reservoirs, permanent and temporary pools and ponds, and perennial streams). Most of the habitat within the study area is too dry to support amphibian species on a permanent basis; however, arboreal salamander (*Aneides lugubris)* has a potential to occur on-site.

3.4.2 Reptiles

Reptilian diversity and abundance typically varies with habitat type and character. Some species prefer only one or two natural communities; however, most will forage in a variety of communities. A number of reptile species prefer open habitats that allow free movement and high visibility. Most species occurring in open habitats rely on the presence of small mammal burrows for cover and escape from predators and extreme weather. Reptile species observed within the study area include the western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris multiscutatus*), and California whipsnake (*Masticophis laeralis*).

3.4.3 Avian

The habitat within the study area provides foraging and cover habitat for year-round and seasonal avian residents. Avian species observed within the study area include the turkey vulture (*Cathartes aura*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), rufous hummingbird (*Selasophorus rufus*), Allen's hummingbird (*Selasophorus sasin*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), ruby-crowned kinglet (*Regulus calendula*), coastal California gnatcatcher, wrentit (*Chamaea fasciata*), northern mockingbird (*Mimus polyglottos*), California thrasher (*Toxostoma redivivum*), phainopepla (*Phainopepla nitens*), European starling (*Sturnus vulgaris*), yellow-rumped warbler (*Dendroica coronata*), song sparrow (*Melospiza melodia*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculates*), golden-crowned sparrow (*Zonotrichia atricopilla*), white-crowned sparrow (*Zonotrichia leucophrys*), lazuli bunting (*Passerina amoena*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Carduelis psaltris*).

The habitats within the study area provide some foraging and breeding habitat for raptors. Raptors observed within the study area include the Cooper's hawk (*Accipiter cooperi*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and barn owl (*Tyto alba*).

3.4.4 Mammals

The study area provides foraging and cover habitat for mammal species. Mammals observed or otherwise detected within the study area include the desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), bobcat (*Felis rufus*), and mule deer (*Odocoileus hemionus*).

3.5 WILDLIFE MOVEMENT

3.5.1 Overview

Wildlife corridors link together areas of suitable habitat that are otherwise separated by factors such as rugged terrain, changes in vegetation, inhospitable environments, and human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas providing suitable habitat, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, are not likely to persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic material (MacArthur and Wilson 1967; Soulé 1987; Harris and Gallagher 1989; Bennett 1990). Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "metapopulation." The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increase overall genetic variability. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by: (1) allowing wildlife to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Fahrig and Merriam 1985, Simberloff and Cox 1987).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and, (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," and "wildlife crossing" to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

<u>Travel Route</u>: A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

<u>Wildlife Corridor</u>: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food,

and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

Wildlife Crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles.

Within a large open space area in which there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors as defined above may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these "local" routes while searching for food, water, shelter, and mates, and will not need to cross into other large open space areas. Based on their size, location, vegetative composition, and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water, and cover, particularly for small- and medium-sized mammals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles such as roads and highways, remaining landscape features or travel routes that connect the larger open space areas can "become" corridors as long as they provide adequate space, cover, food, and water, and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

3.5.2 Wildlife Movement Associated With the Study Area

As previously described, wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Although the nature of each of these types of movement is species specific, large open spaces will generally support a diverse wildlife community and will provide for all types of movement. Each type of movement may also be represented at a variety of scales from immobile plants and non-migratory movement of amphibians, reptiles, and some birds and small mammals on a "local" level, to many square-mile home ranges of large mammals, raptors, and migratory birds on a "regional" level. The resources available within the study area support all categories of movement on some scale.

Movement on a smaller or "local" scale occurs throughout the surrounding vicinity as well as within the study area itself. The study area contains natural communities and drainages which provide foraging habitat and a water supply for both herbivorous and carnivorous species. Data gathered from biological surveys indicate that the study area contains habitat that supports a variety of species of amphibians, reptiles, birds, and mammals. The home range and average dispersal distance of many of these species may be entirely contained within the study area and immediate vicinity. Populations of animals such as insects, amphibians, reptiles, small mammals, and a few bird species may find all their resource requirements without moving far or outside of the study area at all. Occasionally, individuals expanding their home range or dispersing from their parental range will attempt to move outside of the study area.

From a regional perspective, the study area is situated southwest and within the Congressional boundary of the Cleveland National Forest and northeast of Limestone-Whiting Wilderness Park. The study area is surrounded by open space to the north, east, and west, with some rural residences within Modjeska Canyon to the north, and adjacent to residential development to the south and southeast.

Cleveland National Forest, as well as several regional parks connecting to the forest (e.g., Limestone-Whiting Wilderness Park), provide core habitat for wildlife. This expanse of undisturbed open space harbors an abundance of wildlife which may, in turn, facilitate a substantial amount of wildlife movement within and through the study area. Overall, there are no physical barriers to the north, east, or west of the study area, with the exception of sparse rural residential development along Santiago Canyon Road and within the community of Modjeska approximately 0.5 mile to the north and northwest. The northernmost portion of the study area is relatively undisturbed and supports a variety of natural resources, since the habitat within these areas exists in a natural state and part of a functioning ecosystem which provides foraging habitat for both herbivorous and carnivorous species. There are also several areas on-site or in close proximity that are tributaries to Aliso Creek and support a water supply for wildlife during at least part of the year. The study area is likely utilized for regional movement in east-west and northeast-southwest directions, particularly for species such as larger mammals, that require larger home range areas and dispersal distances or dense vegetative cover (e.g., mountain lion and bobcat). The density of the suburban residential development of Portola Hills to the south of the study area and the recently developed Santiago Canyon Estates development to the southeast would inhibit regional wildlife movement through the study area in a southerly direction, with the exception of those wildlife species that are adapted to urban areas (e.g., raccoon, skunk, coyote, birds).

With the exception of Santiago Canyon Road, the study area is undeveloped and is mostly surrounded by open space; thus, wildlife moving through the area can move freely through the habitat on-site and likely do not follow any established corridors as of yet (other than through the oak woodland following a riparian corridor in the western portion of the study area), but rather have travel routes of concentrated use. Wildlife typically follow travel routes which provide the path of least resistance such as ridgelines, which may provide an easier travel route through steep terrain, and wooded drainages, which offer water, food, and cover. These ridgelines and drainages also provide access between higher and lower elevation communities within the study area and surrounding vicinity. Direct observations of deer during field surveys substantiates the fact that they are utilizing the hills within the study area. Additionally, evidence of large mammal usage has also been verified from field studies within the area. Large mammals, such as the mountain lion, live in several different habitat types that provide adequate cover and a plentiful source of prey, such as deer. Mountain lions serve as a good indicator species because they exist at low densities and require large areas of habitat for their home ranges and thus are sensitive to habitat fragmentation (Beier 1993). Additionally, urban areas do not offer habitat for this species since mountain lions tends to avoid areas of dense development (Dixon et al. 2005). Mountain lions within the Santa Ana Mountains were radio-tagged and several collared mountain lion home ranges were found to encompass the study area and surrounding vicinity (Beier 1993, Beier and Barret 1993).

However, as development within the area encroaches further into open space areas, wildlife movement will be constrained by barriers associated with development (i.e., buildings, roads) and travel routes of concentrated use will increasingly take on the characteristics of wildlife corridors, which will become more crucial to sustaining wildlife movement from one core habitat patch to another.

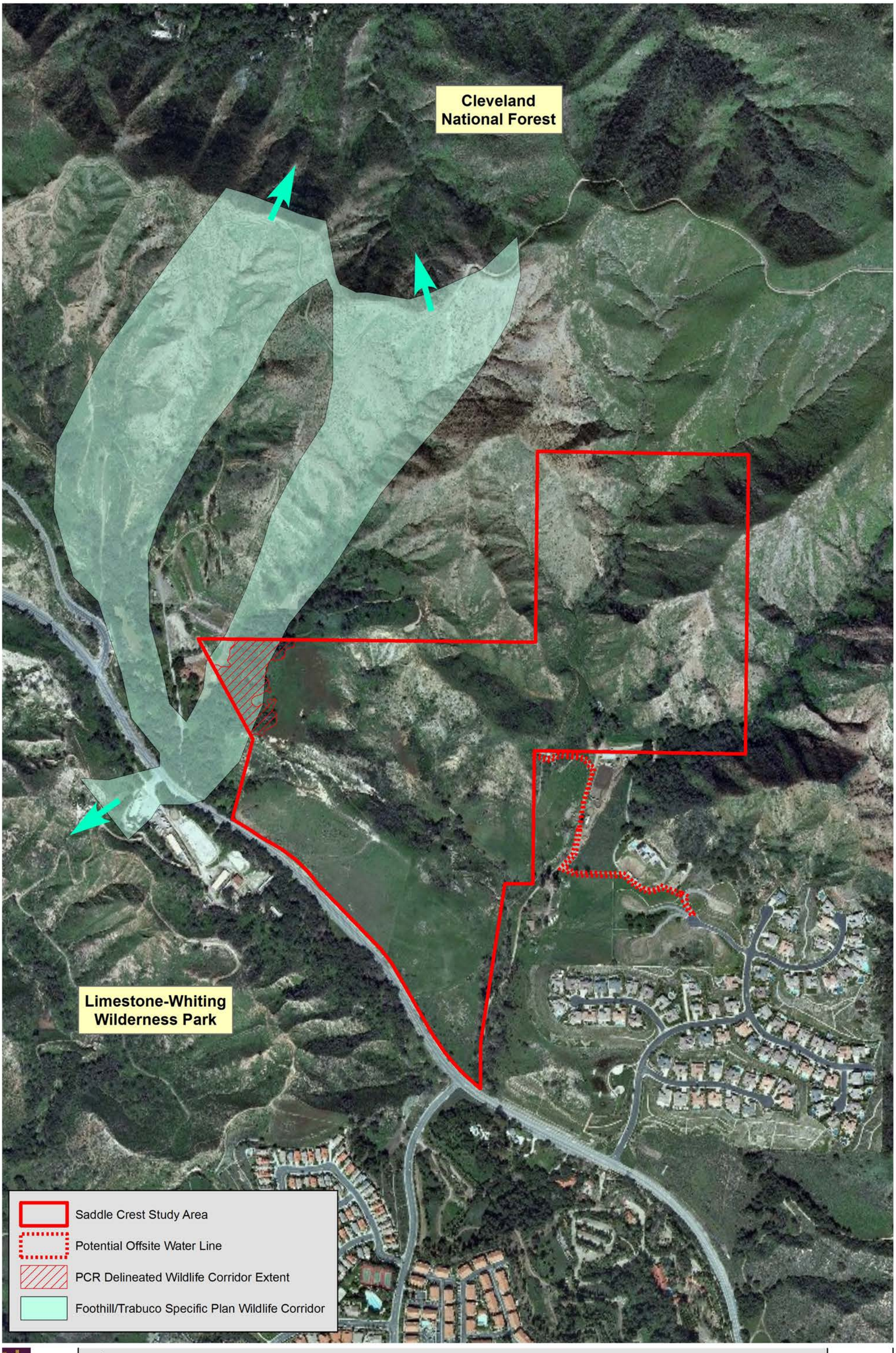
A wildlife corridor identified in Exhibit II-3 of the F/TSP[7] connects the Cleveland National Forest and Limestone-Whiting Wilderness Park and passes through the westernmost portion of the study area, as shown in **Figure 11**, *Wildlife Corridor.* Because this wildlife corridor was mapped on a broad scale, the edges of the corridor alignment were ground-truthed and delineated by PCR based on more detailed mapping of the habitat on-site from field verification. This wildlife corridor follows a drainage and is likely currently utilized as a preferred travel route since it provides a water source and dense canopy cover of coast live oak woodland, which provides added habitat value for wildlife. This wildlife corridor was also identified as the "Equestrian Corridor" by Paul Beier and Reginald Barrett and has been used by radio-tagged mountain lions on several occasions (Beier and Barrett 1993).

Based on an analysis of topography, vegetative cover, the presence of water sources, and field inspection, this assessment concurs with the findings of the F/TSP that the wildlife corridor identified along the westernmost portion of the study area has the greatest habitat value for wildlife movement. There are also additional areas of concentrated use that represent potential corridors, which consist of drainages generally oriented in a north-south direction providing access from lower elevations in the study area to the Santiago Truck Trail along the prominent east-west trending ridgeline just north of the study area. As with the corridor identified in the F/TSP, these travel routes provide the topography, vegetative cover, and seasonal water resources to foster wildlife movement. If widespread development were to occur within the area, they too would become important wildlife corridors for regional habitat connectivity.

Although there are additional areas of concentrated use within the study area that could represent potential corridors, they either are not as densely vegetated or not oriented in a direction in which regional wildlife movement is likely to take place and are somewhat constrained by surrounding disturbance or development, particularly in the southern portion of the study area where native vegetative cover has been removed by extensive grazing. Therefore, although other wildlife movement undoubtedly occurs elsewhere within the study area, it is not expected to be as concentrated or well-defined. Instead, a random movement pattern is expected to exist, which is not critical to maintaining regional habitat linkages.

Because the population of mountain lions in the Santa Ana Mountains is threatened and habitat loss increases the risk of local extinction to the mountain lion populations in the area, the need for corridors is even more crucial (Beier 1993, Beier and Barrett 1993). Wildlife corridors connect protected open space areas and would reduce the risk of local extinction by providing a passage for wildlife movement into and out of a core habitat area. The corridor identified within the study area is especially important for maintaining the connection between the Cleveland National Forest and Limestone-Whiting Wilderness Area to prevent isolation of those mountain lions which utilize Limestone-Whiting Wilderness Area by increased urbanization from surrounding developments and roads (Beier and Barrett 1993).

In summary, the study area is likely to function for both local and regional wildlife movement. However, habitat within the westernmost portion of the study area was identified as a wildlife corridor for having the greatest habitat value for wildlife movement, as well as providing a connection between the Cleveland National Forest and Limestone-Whiting Wilderness Area. Impacts to wildlife movement are discussed in Section 4.6.4.



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N

0 500 1,000 Feet

Wildlife Corridor

Saddle Crest

Source: Aerial Express, 2009; Foothill/Trabuco Specific Plan (F/TSP), 1991; PCR Services Corporation, 2012.

FIGURE

11

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3.6 SENSITIVE BIOLOGICAL RESOURCES

The following discussion describes the plant and wildlife species present, or potentially present, within the study area that have been given special recognition (as being rare, threatened, endangered or otherwise of concern) by USFWS, CDFG, or CNPS, principally due to the species' declining or limited population sizes. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected sensitive species are classified by either State or federal resource management agencies, or both, as threatened or endangered, under provisions of the state and federal Endangered Species Acts.

3.6.1 Sensitive Resource Classification

Federal Protection and Classifications

The Federal Endangered Species Act of 1973 (FESA) defines an "endangered" species as "any species which is in danger of extinction throughout all or a significant portion of its range". A "threatened" species is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range". Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA as to: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take". These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally-listed plant or animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

The USFWS instituted changes in the listing status of candidate species abandoning the "C1/C2 model". The outdated model ranked species that were candidates for listing according to two levels of priority for consideration. Former C1 candidate species (highest priority) are now considered federal candidate species (FC). Some of the USFWS field offices (e.g., Sacramento) maintain lists of federal Species of Concern (FSC). These species receive no legal protection and the use of the term FSC does not mean that they will eventually be proposed for listing (http://sacramento.fws.gov/es/spp_concern.htm). The Carlsbad Fish and Wildlife Office does not maintain such a list for their jurisdiction, which includes Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego counties. All references to federally-protected species in this report include the most current published status to which each species has been assigned by USFWS.

For purposes of this assessment, the following acronyms are used for federal status species:

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed for listing as Endangered
FPT	Federally proposed for listing as Threatened
FPD	Federally proposed for delisting
FC	Federal candidate species (former Category 1 candidates)

State of California Protection and Classifications

California's Endangered Species Act (CESA) defines an "endangered" species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease". The state defines a "threatened" species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a Threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of Endangered species or the list of Threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as Threatened or Endangered at the discretion of the Fish and Game Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of Threatened or Endangered 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." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill". Exceptions authorized by the state to allow the "take" of listed animal species require permits or memoranda of understanding and can be authorized for "Endangered species, Threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to ground disturbance that would result in the removal of threatened or endangered plant species.

Additionally, some sensitive mammals and birds are protected by the state as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. The CDFG maintains a Special Animals list that is updated bi-annually with the current status of sensitive wildlife species. This list is primarily a working document for the CDFG's CNDDB project. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biotic assessments for CEQA compliance and other purposes, such as Lake and Streambed Alteration Agreements. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For the purposes of this assessment, the following acronyms are used for state status species:

SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
SCE	State candidate for listing as Endangered
SCT	State candidate for listing as Threatened
SFP	State Fully Protected
SSC	California Species of Special Concern

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered plant species of California (CNPS 2001). CNPS has developed five categories of rarity:

List 1A Presumed extinct in California

List 1B Rare or Endangered in California and elsewhere

List 2 Rare or Endangered in California, more common elsewhere

List 3 Plants about which we need more information before rarity can be determined – Review list

List 4 Plants of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat – Watch list

In addition, the CNPS updated their Lists with Threat Codes. There are three Threat Code extensions that follow the List number as a decimal:

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

.2 Fairly endangered in California (20-80% of occurrences threatened)

.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

CNPS-listed species, particularly those on Lists 1A, 1B, and 2 are considered to be CEQA issues by the CDFG as a trustee agency. The identification of sensitive species in this biological resources assessment that occur or potentially could occur within the study area is based on one or more of the following: (1) the direct observation of the species within the study area during one of the biological surveys; (2) a record reported in the CNDDB; and (3) the study area is within the known distribution of a species and contains appropriate habitat.

3.6.2 Sensitive Plant Communities

As shown in **Figure 12**, *Sensitive Plant Communities,* the study area supports two plant communities that are CNDDB high inventory priority communities and are considered sensitive due to their decline in the region and/or their ability to support sensitive species: white sage scrub (CNDDB Code 32.030.00) and needlegrass grassland (CNDDB Code 41.150.00) (State of California Resources Agency 2003). The study area supports 0.8 acre of white sage scrub and 4.1 acres of needlegrass grassland in the southern portion of the study area.

The study area also supports 9.5 acres of coast live oak woodland in patches within the northeastern, western, and southern portions of the study area (this community is not a CNDDB sensitive community), as detailed in the Saddle Crest Tree Management and Preservation Plan, prepared by Dudek (2011).

In addition, the study area supports 5.9 acres of coastal sage scrub (consisting of 3.8 acres of sagebrush scrub, 0.2 acre of sagebrush scrub/southern mixed chaparral, and 1.9 acres of sagebrush scrub/ruderal), which is the focal community for conservation of the NCCP/HCP. Although not considered sensitive by the CNDDB, these communities are regulated under the NCCP/HCP and provide potential habitat for the coastal sage scrub associated species, such as the California gnatcatcher, and therefore, are considered sensitive communities for this analysis.

3.6.3 Sensitive Plant Species

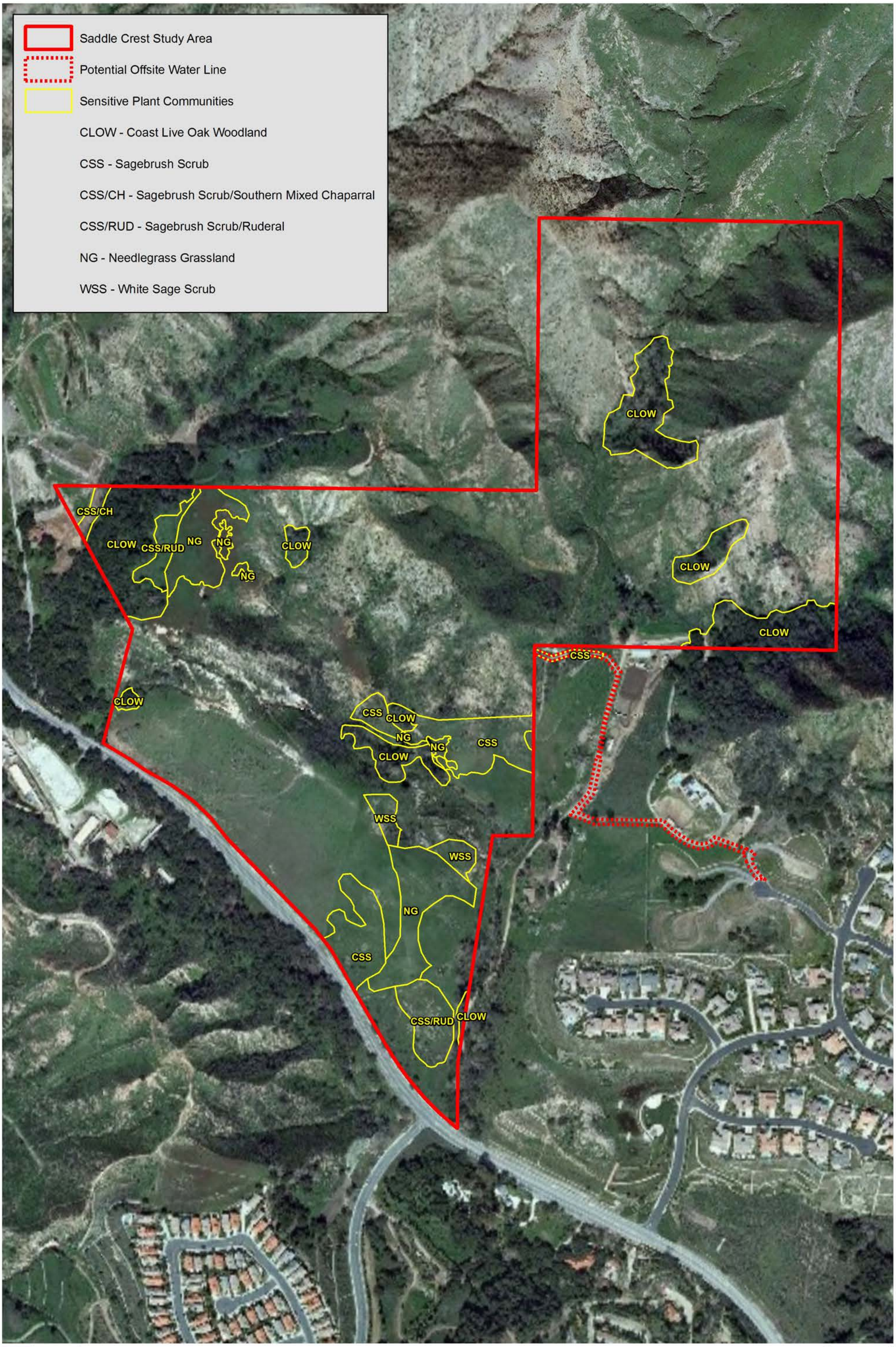
Sensitive plants include those listed, or candidates for listing, by the USFWS and CDFG as trustee agencies, and species considered sensitive by the CNPS (particularly Lists 1A, 1B, and 2 as defined above). A number of sensitive plant species were reported in the CNDDB from the El Toro and Santiago Peak quadrangles and vicinity (Orange, Black Star Canyon, Corona South, Lake Mathews, Tustin, Alberhill, Laguna Beach, San Juan Capistrano, Canada Gobernadora, and Sitton Peak quadrangles). A discussion of each sensitive plant species potentially present within the study area is presented in **Table 3**, *Sensitive Plant Species* and those species with which are not expected to occur are detailed in **Appendix B,** *Sensitive Plant Species.* All plant species observed within the study area were recorded and compiled and are included in Appendix A, *Floral and Faunal Compendia*.

Three sensitive species, the Catalina mariposa lily, foothill mariposa lily, and chaparral nolina, were observed within the study area, as shown in **Figure 13**, *Sensitive Species Occurrences.* These species and their status on-site are discussed below. No additional sensitive plant species were observed.

Catalina mariposa lily was observed within three locations along the southwestern portion of the study area. Catalina mariposa lily is a CNPS List 4.2 species [i.e., species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat; fairly endangered in California (20-80% occurrences threatened)] and is identified as a covered species under the NCCP/HCP. Approximately 100 individuals were observed.

Foothill mariposa lily was observed in several locations scattered around the central and eastern portions of the study area. Foothill mariposa lily is a CNPS List 1B.2 species [i.e., rare, threatened, or endangered throughout their range; fairly endangered in California (20-80% occurrences threatened)] and is conditionally covered under the NCCP/HCP. This species is also a USFS sensitive species (Cleveland National Forest). Approximately 200 individuals were observed within the Proposed Project's development envelope (within the limits of grading and fuel modification zones). Because this is a conditionally covered species, the NCCP/HCP requires that a mitigation plan be written for impacts to more than 20 individuals of this species.

Chaparral nolina was observed on a southwest-facing slope within the central portion of the study area. Chaparral nolina is a CNPS List 1B.2 species [i.e., rare, threatened, or endangered throughout their range; fairly endangered in California (20-80% occurrences threatened)] and USFS sensitive species (Cleveland National Forest). Approximately 300 individuals were observed within the Proposed Project's development envelope (within the limits of grading).



N

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Sensitive Plant Communities

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

12

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Table 3

Sensitive Plant Species

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
ANGIOSPERMS (MONOCOTYLEDONS)									
Liliaceae	**Lily Family**								
Calochortus catalinae	Catalina mariposa lily	(Feb.) Mar.-Jun.	None	None	4.2	IN	Openings in chaparral, valley and foothill grassland, cismontane woodland; heavy soils. Elevations from 15 to 700 m.	All coastal Cos. south of San Luis Obispo	OB
Comments: Catalina mariposa lily was observed on the Saddle Crest property. This species was concentrated within three locations and approximately 100 individuals were observed.									
Calochortus weedii var. *intermedius*	foothill mariposa lily	May-Jul.	None	None	1B.2	IN/CC/ USFS	Chaparral, coastal scrub, valley and foothill grasslands. Elevations from 105 to 855 m.	Los Angeles, Orange, and Riverside Cos.	OB
Comments: Approximately 200 individuals were observed within the proposed development envelope on the Saddle Crest property. The County of Orange, Central & Coastal Subregion NCCP requires a mitigation plan be written for impacts to more than 20 individuals of this species.									
Nolina cismontana	chaparral nolina	May-Jul.	None	None	1B.2	USFS	Chaparral, coastal sage scrub, sandstone or gabbro. Elevations from 140 to 1,275 m.	Ventura, Orange, and San Diego Cos.	OB
Comments: Approximately 300 individuals were observed within the proposed development envelope of the Saddle Crest property on a southwest-facing slope.									

OB= observed and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

Table 3 (Continued)

Sensitive Plant Species

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**

Key to Species Listing Status Codes

FE	*Federally Listed as Endangered*	*SE*	*State Listed as Endangered*	*CSC*	*California Special Concern Species*
FT	*Federally Listed as Threatened*	*ST*	*State Listed as Threatened*		
FPE	*Federally Proposed as Endangered*	*SCE*	*State Candidate for Endangered*		
FPT	*Federally Proposed as Threatened*	*SCT*	*State Candidate for Threatened*		
FPD	*Federally Proposed for Delisting*	*SR*	*State Rare*		
FC	*Federal Candidate Species*	*SFP*	*State Fully Protected*		

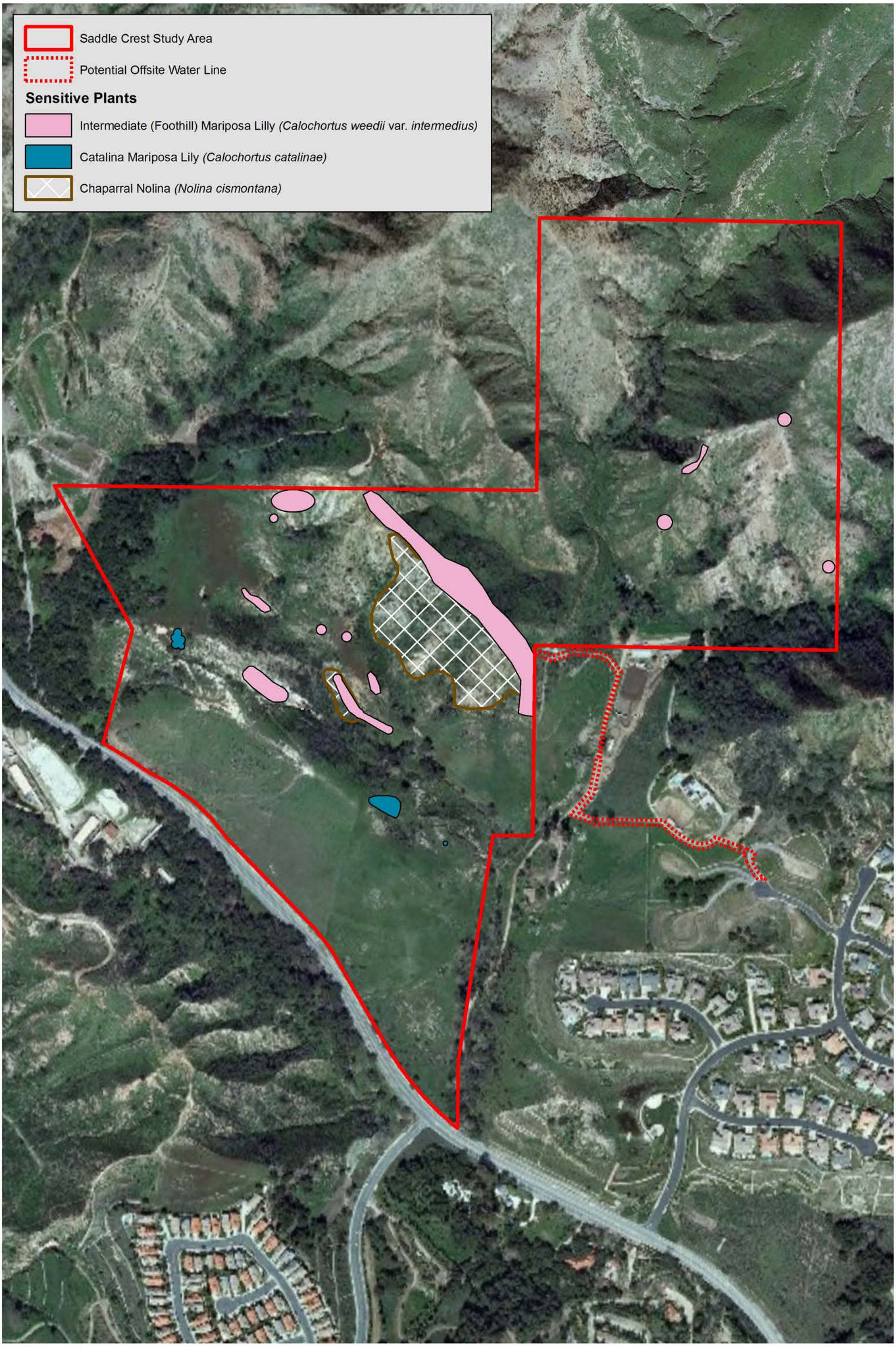
California Native Plant Society (CNPS)
List 1A: Presumed extinct in California.
List 1B: Rare, threatened, or endangered throughout their range.
List 2: Rare, threatened, or endangered in California, but more common in other states.
List 3: Plant species for which additional information is needed before rarity can be determined.
List 4: Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.
New CNPS Threat Code extensions and their meanings:
1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
2 Fairly endangered in California (20-80% occurrences threatened)
3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Natural Community Conservation Planning (NCCP)
IN Identified NCCP Species – Covered Species
IN/CC Identified NCCP Species – Conditionally Covered Species
IN/DP Identified NCCP Species – Receives regulatory coverage under the NCCP at the Dana Point Headlands only
TN Target NCCP Species – Covered Species

U.S. Forest Service, Cleveland National Forest
USFS Cleveland National Forest Sensitive Species

Source: PCR Services Corporation, 2011

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.



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Sensitive Species Occurrences

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2002/2012.

FIGURE

13

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3.6.4 Sensitive Wildlife Species

Sensitive wildlife species include those species listed as endangered or threatened under FESA or CESA, candidates for listing by USFWS or CDFG, and species of special concern to CDFG. In addition, the USFS maintains a list of sensitive wildlife species by forest. A discussion of each sensitive plant species potentially present within the study area is presented in **Table 4**, *Sensitive Wildlife Species* and those species which are not expected to occur are detailed in **Appendix C**, *Sensitive Wildlife Species.* All wildlife species observed within the study area were recorded and compiled and are included in Appendix A, *Floral and Faunal Compendia*.

The following sensitive wildlife species reported in the CNDDB as occurring within the vicinity of the study area are not expected to occur within the study area due to lack of suitable habitat or because the study area is outside the known distribution for this species: San Diego fairy shrimp (*Branchinecta sandiegoensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), Quino checkerspot butterfly, arroyo chub (*Gila orcuttii*), tidewater goby (*Eucyclogobius newberryi*), Santa Ana speckled dace (*Rhinichthys osculus* ssp. *3*), Santa Ana sucker (*Catostomus santaanae*), southern steelhead (*Onchorhynchus mykiss irideus*), coast range newt (*Taricha torosa torosa*), black-bellied slender salamander (*Batrachoseps nigriventris*), arroyo toad (*Bufo californicus*), western spadefoot (*Spea hammondii*), southwestern pond turtle (*Clemmys marmorata pallida*),

two-striped garter snake (*Thamnophis hammondii*), California least tern (*Sternula antillarum browni*), California black rail (*Laterallus jamaicensis coturniculus*), light-footed clapper rail (*Rallus longirostris levipes*), rough-legged hawk (*Buteo lagopus*), bald eagle (*Haliaeetus leucocephalus*), western snowy plover (*Charadrius alexandrinus nivosus*), burrowing owl (*Athene cunicularia*), willow flycatcher (*Empidonax traillii*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow-breasted chat (*Icteria virens*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), tricolored blackbird (*Agelaius tricolor*), Mexican long-tongued bat (*Choeronycteris mexicana*), western yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), Stephens' kangaroo rat (*Dipodomys stephensi*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), Pacific pocket mouse (*Perognathus longimembris pacificus*), southern California saltmarsh shrew (*Sorex ornatus salicornicus*), and American badger (*Taxidea taxus*).

In addition, USFS sensitive wildlife which are not expected to occur on-site due to lack of suitable habitat or because the known distribution does not include the study area include: yellow-blotched salamander (*Ensatina eschscholtzii croceater*), large-blotched salamander (*Ensantina eschscholtzii klauberi*), San Gabriel Mountain slender salamander (*Batrachoseps gabrieli*), mountain yellow-legged frog (*Rana muscosa*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), California spotted owl (*Strix occidentalis occidentalis*), and California leaf-nosed bat (*Macrotus californicus*).

Sensitive wildlife species observed within the study area include the coastal California gnatcatcher, which was observed during a non-breeding season survey in 2007; however, due to the negative results of focused breeding season surveys conducted in 1999, 2002, and 2010, this observation of a single coastal California gnatcatcher seen during the 2007 off-season surveys was likely a dispersing transient moving through the study area, as detailed below.

In addition, due to the presence of potentially suitable habitat, the following sensitive wildlife species have potential to occur on-site: arboreal salamander (*Aneides lugubris*), coast (San Diego) horned lizard (*Phrynosoma blainvillii*), Coronado skink (*Eumeces skiltonainus interparietalis*), orange-throated whiptail

Table 4

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
REPTILES							
Phryonosomatidae	**Iguanid Lizards**						
Phrynosoma coronatum (blainvillii)	coast (San Diego) horned lizard	None	SSC	IN/ USFS	Valley-foothill hardwood, conifer, and riparian habitats, pine-cypress, juniper and annual grassland habitats below 6,000 ft., open country, especially sandy areas, washes, flood plains, and windblown deposits.	Coastal ranges from south Ventura, Los Angeles, San Bernardino Cos., Orange, W Riverside, and W San Diego Cos.	P
Scincidae	**Skinks**						
Eumeces skiltonainus interparietalis	Coronado skink	None	SSC	IN	Grassland, woodland, and forest habitats with rocky patches near streams, also common on dry slopes.	S Orange, San Diego Cos., N Baja CA.	P
Teiidae	**Whiptails and Relatives**						
Aspidoscelis hyperythrus	orange-throated whiptail	None	SSC	TN	Gently sloping hillsides, ridges, and valleys supporting open coastal sage scrub, open chaparral, or sparse grasslands.	Extreme S Los Angeles Co., SW San Bernardino Co., Orange, Riverside, and San Diego Cos. west of the crest of the peninsular Ranges, and Baja CA.	P
Anniellidae	**Legless Lizards**						
Anniella pulchra	silvery legless lizard	None	SSC	None/ USFS	Several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub habitats.	Coastal ranges from San Francisco Bay into Baja CA.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Boidae	**Boas**						
Charina trivirgata roseofusca	coastal rosy boa	None	None	IN/ USFS	Desert and rocky areas in chaparral covered hillsides and canyons.	Throughout S CA, south of Los Angeles Co. in coastal ranges to N Baja CA.	P
Colubridae	**Colubrid Snakes**						
Diadophis punctatus modestus	San Bernardino ring-necked snake	None	None	IN/ USFS	Open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	San Bernardino, Riverside, and Orange Cos.	P
Diadophis punctatus similus	San Diego ring-necked snake	None	None	None/ USFS	Prefers moist habitats including woodland, forest, grassland, chaparral, farms, and gardens. Open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats. In arid parts of the southwest, it is restricted to mountains, springs, and watercourses where it may descend, in desert areas, to around 730 m.	San Bernardino, Riverside, and Orange Cos.	P
Lampropeltis zonata pulchra	San Diego mountain kingsnake	None	SSC	None/ USFS	Moist woods, coniferous forests, woodland, and chaparral.	Southern WA to northern Baja California. Mountains of coastal and interior California except deserts.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Salvadora hexalepis virgultea	coast patch-nosed snake	None	SSC	None	Coastal chaparral, desert scrub, washes, sandy flats, and rocky areas.	Point Conception south through Baja CA.	P
Viperidae	**Vipers**						
Crotalus ruber ruber	northern red-diamond rattlesnake	None	SSC	IN	Chaparral, woodland, and arid desert habitats in rocky areas with dense vegetation.	San Bernardino Co. to tip of Baja CA.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
BIRDS							
Accipitridae	**Hawks, Kites, Harriers, and Eagles**						
Aquila chrysaetos (nesting and wintering)	golden eagle	None	SFP	IN/CC	Mountains, deserts, and open country; prefer to forage over grasslands, deserts, savannahs and early successional stages of forest and shrub habitats. Nesting sites are usually located in secluded cliffs with overhanging ledges or in large trees. Nests on cliffs of all heights and in large trees in open areas. Alternative nest sites are maintained, and old nests are reused. Builds large platform nest, often 3 meters (10 feet) across and 1 meter (3 feet) high, of sticks, twigs, and greenery. Rugged, open habitats with canyons and escarpments used most frequently for nesting.	Throughout CA with the exception of the center of the central valley.	P, F
Comments: Because golden eagles prefer to nest in cliffs or in the largest trees of forested stands that often afford an unobstructed view of the surrounding habitat (Pagel 2012), this species is not expected to nest within the coast live oak woodland habitat on-site.							

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Circus cyaneus (nesting)	northern harrier	None	SSC	IN	Coastal salt marshes, freshwater marshes, grasslands, and agricultural fields; occasionally forages over open desert and brushlands.	Alaska, Canada, to S U.S.	P, F
Falconidae	**Falcons**						
Falco peregrinus anatum (nesting)	American peregrine falcon	Delisted	Delisted, SFP	IN	Open country, cliffs (mountains to coasts).	Occurs uncommonly throughout CA with the exception of the SE deserts.	P, F
Strigidae	**Owls**						
Asio otus (nesting)	long-eared owl	None	SSC	None	Dense riparian areas, thickets, woodlands, and forest.	Winter visitor in the Mojave Desert, rare winter migrant along S CA coastline.	P
Laniidae	**Shrikes**						
Lanius ludovicianus	loggerhead shrike	None	SSC	None	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Formerly a common resident throughout most of CA, becoming increasingly scarce in many areas in recent years.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Troglodytidae	**Wrens**						
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	SSC	TN	Coastal sage scrub, vegetation with thickets of prickly pear or cholla cactus.	S Ventura Co., southward through Los Angeles, Orange, Riverside, San Bernardino, San Diego, and south to NW Baja CA.	P
Comments: This species has been observed in the vicinity of the project site (PCR 2002).							
Sylviidae	**Gnatcatchers**						
Polioptila californica californica	coastal California gnatcatcher	FT	SSC	TN	Coastal sage scrub vegetation below 2,500 feet elevation in Riverside County and generally below 1,000 feet elevation along the coastal slope; generally avoids steep slopes and dense vegetation for nesting.	S Ventura Co., southward through Los Angeles, Orange, Riverside, San Bernardino Cos., and south through the coastal foothills of San Diego Co.	OB
Comments: Focused breeding season surveys conducted in 1999 did not detect the presence of this species on-site. Protocol breeding season surveys were repeated on Saddle Crest in 2002 to determine the current status of the species on-site; however, no coastal California gnatcatchers were observed on Saddle Crest during 2002 surveys. During off-season surveys conducted in 2007, an observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community in the eastern portion of the study area. It should be noted that due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area. No other coastal California gnatcatchers were observed during the 2007-2008 surveys. The study area is not within any critical habitat designated by the USFWS for the coastal California gnatcatcher; however, critical habitat for this species occurs across Santiago Canyon Road, approximately 75 feet south of the study area. Focused breeding season surveys for the coastal California gnatcatcher were conducted again in 2010; no coastal California gnatcatchers were detected on-site. For a more detailed discussion, refer to *Results of Focused Coastal California Gnatcatcher Surveys for Saddle Crest, Orange County, California* under separate cover (PCR 2010).							

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Emberizidae	**Sparrows, Buntings, Warblers, and Relatives**						
Ammodramus savannarum	grasshopper sparrow	None	SSC	None	Dense grasses for foraging and nesting cover. Upland meadows, pastures, hayfields, and croplands.	Throughout the United States and Mexico.	P
MAMMALS							
Vespertilionidae	**Evening Bats**						
Antrozous pallidus	pallid bat	None	SSC	None/ USFS	Nests in dry, rocky habitats/caves, crevices in rocks, arid habitats including deserts, chaparral, and scrublands.	Common in low elevations throughout CA except for the high Sierra Nevada from Shasta to Kern Co. and the NW corner of the state.	P
Corynorhinus townsendii townsendii	Townsend's big-eared bat	None	SSC	None/ USFS	Found in all but sub-alpine and alpine habitats.	Throughout CA.	P
Euderma maculatum	spotted bat	None	SSC	None	Arid deserts and grasslands through mixed conifer forests.	Foothill, mountain, and desert regions of S CA.	P
Lasiurus blossevillii	western red bat	None	SSC	None/ USFS	Roosts primarily in trees, 2 to 40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges with trees interspersed with open areas for foraging.	Southern British Columbia in Canada, through much of the western United States, through Mexico and Central America, to Argentina and Chile in South America.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Molossidae	**Free-tailed Bats**						
Eumops perotis californicus	western mastiff bat	None	SSC	None	Primarily arid lowlands, especially deserts. Open, semiarid to arid habitats including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban.	Uncommon resident of lower elevations in SE San Joaquin Valley and Coastal Ranges from Monterey Co. southward through S CA from the coast eastward to the Colorado desert.	P
Leporidae	**Rabbits and Hares**						
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	SSC	None	Open brushlands and scrub habitats between sea level and 4,000 feet elevation.	Coastal S CA from Ventura Co. into N Baja CA.	P
Heteromyidae	**Kangaroo Rats, Pocket Mice, and Kangaroo Mice**						
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	SSC	None	Sandy herbaceous areas, usually in association with rocks or coarse gravel, sagebrush, scrub, annual grassland, chaparral and desert scrubs.	Common resident in SW CA; arid coastal areas of Orange, San Bernardino, and Riverside Cos. extending south into Baja CA.	P
Cricetidae	**Mice, Rats, and Voles**						
Neotoma lepida intermedia	San Diego desert woodrat	None	SSC	IN	Chaparral, coastal sage scrub, and pinyon – juniper woodland.	Southern CA.	P
Onychomys torridus ramona	southern grasshopper mouse	None	SSC	None	Low arid and semi-scrub vegetation.	Coastal S CA.	P

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

Table 4 (Continued)

Sensitive Wildlife Species

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**

Key to Species Listing Status Codes

FE	*Federally Listed as Endangered*	*SE*	*State Listed as Endangered*
FT	*Federally Listed as Threatened*	*ST*	*State Listed as Threatened*
FPE	*Federally Proposed as Endangered*	*SCE*	*State Candidate for Endangered*
FPT	*Federally Proposed as Threatened*	*SCT*	*State Candidate for Threatened*
FPD	*Federally Proposed for Delisting*	*SR*	*State Rare*
FC	*Federal Candidate Species*	*SFP*	*State Fully Protected*
		SSC	*California Special Concern Species*

Natural Community Conservation Planning (NCCP)

IN *Identified NCCP Species – Covered Species*
IN/CC *Identified NCCP Species – Conditionally Covered Species*
TN *Target NCCP Species – Covered Species*

U.S. Forest Service, Cleveland National Forest

USFS *Cleveland National Forest Sensitive Species*

Source: PCR Services Corporation, 2011

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

(*Aspidoscelis hyperythrus*), silvery legless lizard (*Anniella pulchra*), coastal rosy boa (*Charina trivirgata roseofusca*), San Bernardino ring-necked snake (*Diadophis punctatus modestus*), San Diego ring-necked snake (*Diadophis punctatus similus*), San Diego mountain kingsnake (*Lampropeltis zonata (pulchra)*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), northern red-diamond rattlesnake (*Crotalus ruber ruber*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), loggerhead shrike (*Lanius ludovicianus*), long-eared owl (*Asio otus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), grasshopper sparrow (*Ammodramus savannarum*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), spotted bat (*Euderma maculatum*), western red bat (*Lasiurus blossevillii*), western mastiff bat (*Eumops perotis californicus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), San Diego desert woodrat (*Neotoma lepida intermedia*), and southern grasshopper mouse (*Onychomys torridus ramona*).

Coastal California Gnatcatcher

Focused surveys were conducted for the coastal California gnatcatcher. No coastal California gnatcatchers were observed within the study area during the 1999 or 2002 breeding season surveys. However, during the 2007-2008 non-breeding season surveys, an observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community in the eastern portion of the study area. It should be noted that due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area. No other coastal California gnatcatchers were observed during the 2007-2008 surveys. The study area is not within any critical habitat designated by the USFWS for the coastal California gnatcatcher; however, critical habitat for this species occurs across Santiago Canyon Road, approximately 75 feet south of the study area. Focused breeding season surveys for the coastal California gnatcatcher were conducted again in 2010; no coastal California gnatcatchers were detected on-site. For a more detailed discussion, refer to *Results of Focused Coastal California Gnatcatcher Surveys for Saddle Crest, Orange County, California* under separate cover (PCR 2010). Therefore, it is not believed that the study area is utilized for breeding habitat for this species.

3.6.5 Critical Habitat

The study area is not within any USFWS designated critical habitat for listed plant or wildlife species.

3.7 OAK TREES AND REGULATED TREES

The Saddle Crest Tree Management and Preservation Plan (Dudek 2011, 2012) identified 197 coast live oak trees within the proposed development envelope including the fuel modification areas (150 trees within the Proposed Project's limit of grading and 46 trees within the fuel modification areas outside of the limit of grading), as shown in **Figure 14**, Oak Trees. Outside the project development envelope, which will be preserved open space, there are an estimated 422 coast live oak trees. For the 422 trees outside of the project development envelope, the number of trees were quantified and overall quality of the coast live oak trees/oak woodlands within these areas were assessed; however, point locations and a full inventory of each tree were not conducted within these areas. In addition, one blue gum tree was identified within the Proposed Project's limit of grading; however, this blue gum tree has a 4-inch diameter and is therefore not regulated under the F/TSP (which regulates "any tree exceeding five inches in diameter", as detailed on

page III-76 of the F/TSP). Details of the location, size, and health of each tree identified within the project development envelope are included in the Saddle Crest Tree Management and Preservation Plan provided under separate cover (Dudek 2011, 2012).

3.8 JURISDICTIONAL FEATURES

The study area contains a total of three drainage systems that support 8,342 linear feet over 0.28 acre of ACOE jurisdictional "waters of the U.S.," 9,402 linear feet over 0.31 acre of RWQCB jurisdictional "waters of the State," and 7.87 acres of CDFG jurisdictional streambed and associated riparian habitat,[8] as shown in **Figure 15**, *Jurisdictional Features* and summarized in **Table 5**, *Jurisdictional Features.* Details of the jurisdictional delineation are included in *Investigation of Jurisdictional Wetlands and Waters of the U.S. for Saddle Creek and Saddle Crest*, under separate cover (PCR 2008c).

Table 5

Jurisdictional Features

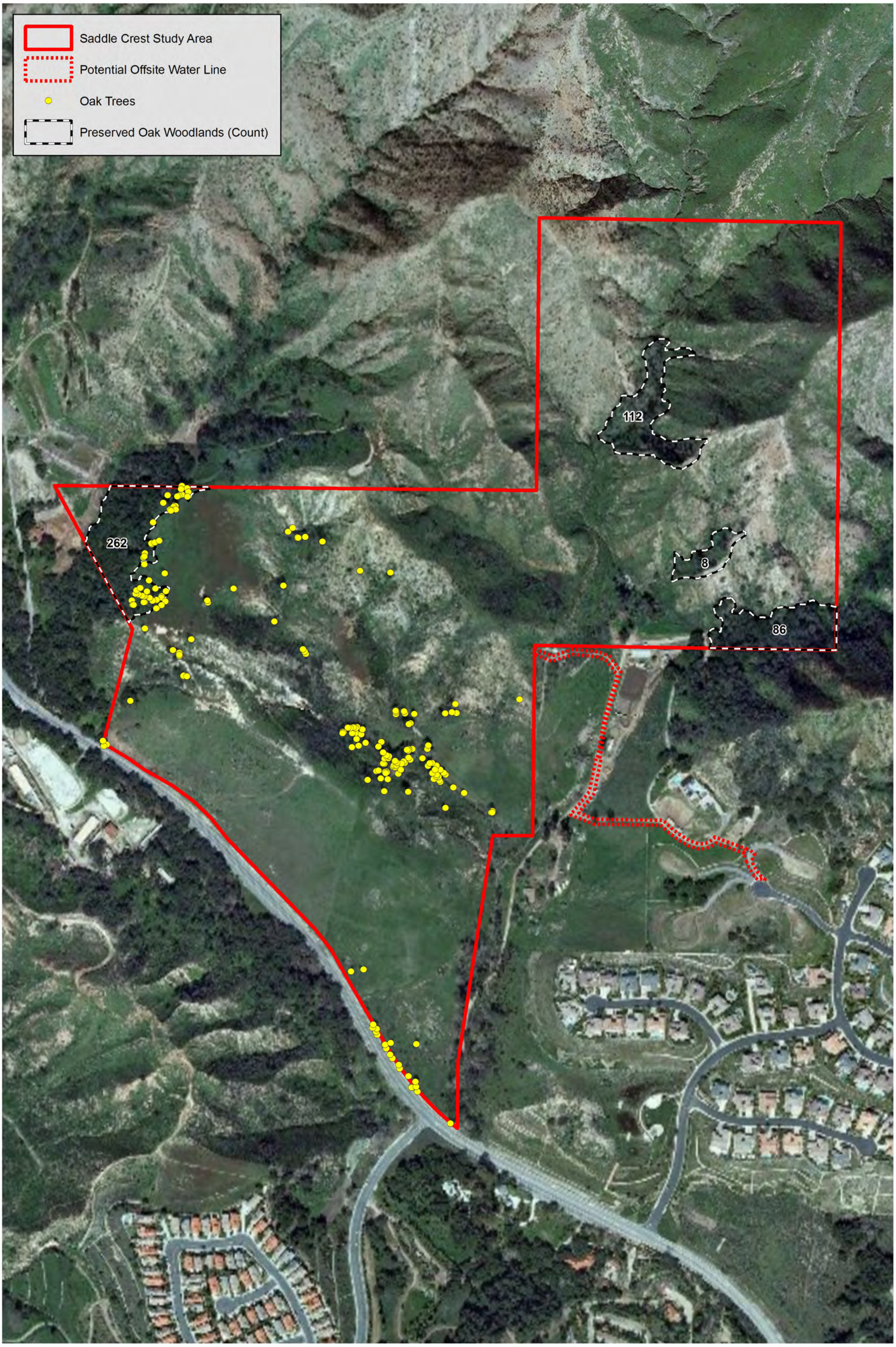
	Length (feet)		Area (acres)[b]		
Drainage Feature	**ACOE**	**RWQCB**	**ACOE**	**RWQCB**	**CDFG**
Drainage E	2,843	2,843	0.09	0.09	2.57
Tributary E1[a]	3,239	3,239	0.12	0.12	2.53
Tributary E2[a]	800	800	0.03	0.03	1.19
Tributary E3[a]	N/A	1,060	N/A	0.03	0.08
Tributary E4	400	400	0.01	0.01	0.02
Tributary E5	300	300	0.01	0.01	0.02
Tributary F	296	296	0.01	0.01	0.20
Tributary F1	84	84	<0.01	<0.01	<0.01
Tributary G	380	380	0.01	0.01	1.26
Total	**8,342**	**9,402**	**0.28**	**0.31**	**7.87**

[a] *The ACOE/RWQCB and CDFG acreages calculated for each tributary include the jurisdictional acreages for all sub-tributaries within that tributary system (e.g. jurisdictional acreages for Sub-tributary E3.2 are included as a part of Tributary E3).*

[b] *Jurisdictional acreages often overlap and are therefore not additive (e.g., ACOE acreages are often included in the total RWQCB and CDFG jurisdictional acreages).*

Source: PCR Services Corporation, 2011.

[8] *Acreages are subject to verification by the regulatory agencies. It should be noted that on September 19, 2011, PCR regulatory scientist Beth Martinez and biologist Maile Tanaka met with ACOE representative Jason Lambert to verify the jurisdiction mapped on-site. Based on feedback from the meeting, a subsequent delineation of the on-site downstream portion of Drainage E1 was conducted on October 11, 2011 by Beth Martinez and Maile Tanaka. Upon revising the findings for Drainage E1 per the request of Mr. Lambert, and upon further coordination with ACOE, Mr. Lambert verbally confirmed the study area's jurisdictional delineation findings (Lambert, pers. comm. 2011a). The jurisdictional acreages presented in this document reflect the revisions requested by ACOE.*



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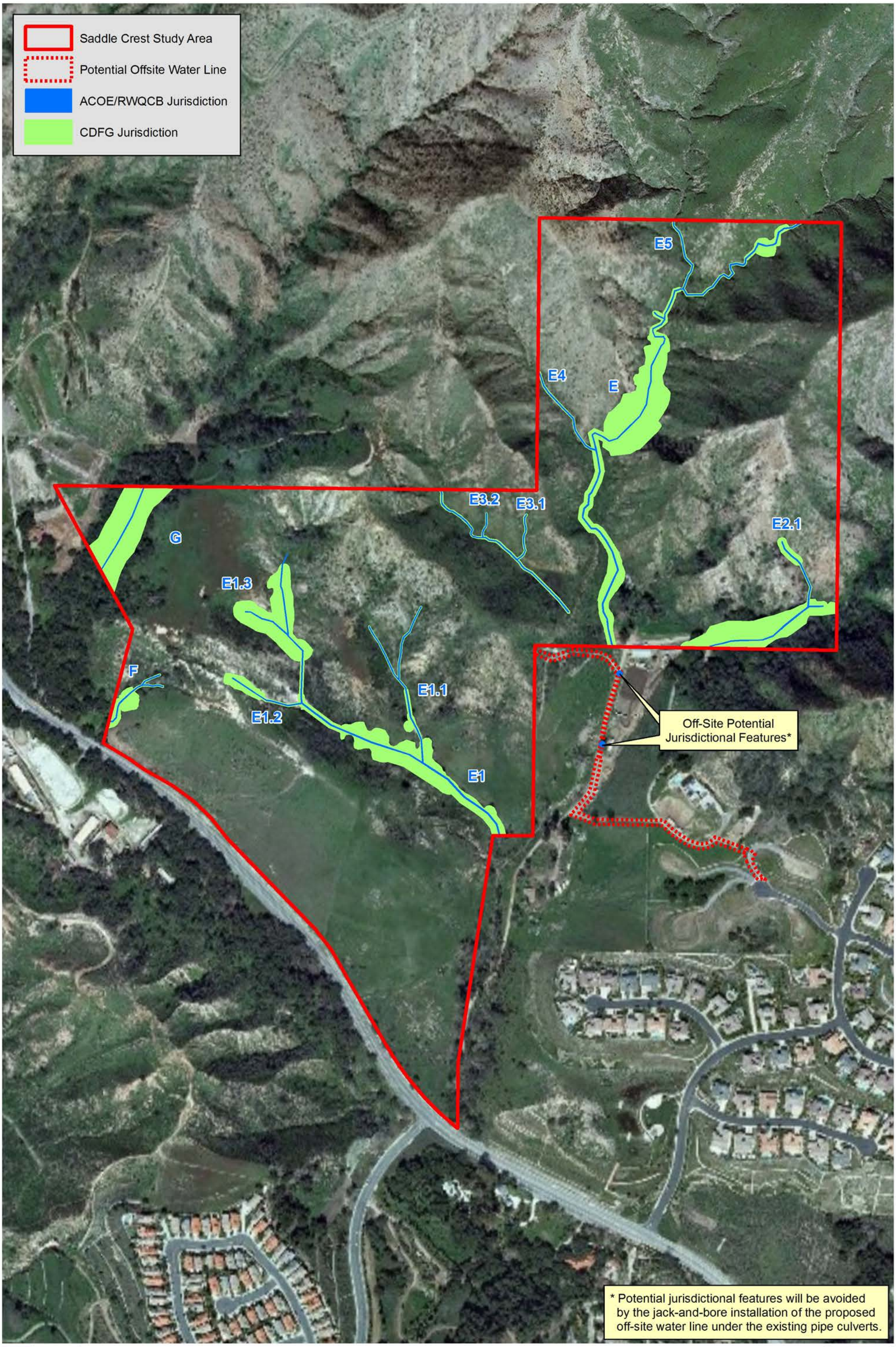
Oak Trees

Saddle Crest

Source: Aerial Express, 2009; Dudek, 2010; PCR Services Corporation, 2012.

FIGURE

14



PCR

0 350 700 Feet

Jurisdictional Features

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

15

4.0 PROJECT RELATED IMPACTS

4.1 APPROACH TO THE ANALYSIS

The following discussion analyzes the potential impacts to plant and wildlife resources that may occur as a result of implementation of the Proposed Project. The CEQA Guidelines recognize three forms of potential impacts that are addressed herein: direct, indirect, and cumulative. As defined in the CEQA Guidelines, direct impacts, or physical changes, in the environment are those which are caused by and are immediately related to a project. For purposes of this assessment, direct impacts are considered to be those that involve the physical loss, modification, or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals).

Indirect impacts, as defined in the CEQA Guidelines, are those impacts or physical changes which are not immediately related to a project, but which are caused indirectly by a project. For purposes of this assessment, indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may change the behavioral patterns of wildlife and reduce wildlife diversity and abundance in habitats adjacent to project sites. Cumulative impacts are discussed separately in Section 6.2.

The determination of impacts in this analysis is based on both the features of the Proposed Project and the biological values of the habitat and/or sensitivity of plant and wildlife species. Relevant project features (e.g., limits of grading) were supplied by the Applicant in digital format and impacts were calculated using GIS technology in order to maximize the accuracy and consistency of the assessment. Project design features that avoid, preserve, or restore biological resources are taken into consideration and specifically described below prior to the assessment of potential adverse impacts.

The biological values of resources within, adjacent to, and outside the area to be affected by the project were determined by consideration of several factors. These included: the overall size of habitats to be affected; the study area's previous land uses and disturbance history; the study area's surrounding environment and regional context; the on-site biological diversity and abundance; the presence of sensitive and special-status plant and wildlife species; the study area's importance to regional populations of these species; and the degree to which on-site habitats are limited or restricted in distribution on a regional basis and, therefore, are considered sensitive in themselves. Whereas this assessment is comprehensive, the focus is on sensitive plant communities/habitats, resources important to the regional biological systems, and special-status species.

In addition to assessing potential impacts from implementing the Proposed Project, this assessment also assesses potential impacts to the "Non-Clustered Scenario," in a comparative format. The Non-Clustered Scenario could be implemented on the Saddle Crest project site without amendment(s) to the F/TSP.

For this reason the assessment of impacts is organized by topical areas with both the Proposal Project and the Non-Clustered Scenario being addressed under each topic. For the comparative analysis, impacts from the Proposal Project and the Non-Clustered Scenario are quantitatively assessed to the extent practical. It should be noted, however, that impact quantification from the Non-Clustered Scenario as it relates to impacts to regulated coast live oak trees uses a logical interpretation since individual coast live oak trees outside of the Proposed Project's development envelope were not inventoried to the full level of detail as those within the development envelope, and thus, point locations were not recorded. Thus, the comparative analysis should be viewed as accurate (in terms of orders of magnitude), but not necessarily precise in its assessment.

4.2 THRESHOLDS OF SIGNIFICANCE

The environmental impacts relative to biological resources were assessed using impact significance threshold criteria which mirror the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the state to:

> "Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."

Determining whether a project may have a significant effect or impact plays a critical role in the CEQA process. According to CEQA, Section 15064.7, Thresholds of Significance, each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in determining the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental standard, the non-compliance of which will normally lead to a finding of significance by the agency. In the development of significance thresholds for impacts to biological resources, CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Appendix G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> "The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species."

Appendix G of the CEQA Guidelines is more specific in addressing biological resources and encompasses a broad range of resources to be considered, including: candidate, sensitive, or special status species; riparian habitat or other sensitive natural communities; federally-protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and, adopted Habitat Conservation Plans (HCPs). This is done in the form of a checklist of questions to be answered during the Initial Study leading to the preparation of the appropriate environmental documentation for a project (i.e., Negative Declaration, Mitigated Negative Declaration, or EIR). Because these questions are derived from standards in other laws, regulations, and other commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation

measures) if one or more of the following conditions would result from implementation of the Proposed Project.

1. A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

2. A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

3. A substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native nursery sites.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

For the purposes of this impact analysis the following definitions apply:

- "Substantial adverse effect" means loss or harm of a magnitude which, based on current scientific data and knowledge would: (1) significantly reduce population numbers of a listed, candidate, sensitive, rare, or otherwise special status species identified in local, regional, state, or federal plans, policies, or regulations; (2) significantly reduce the distribution of a sensitive natural community/habitat type identified in local, regional, state, or federal plans, policies, or regulations; or (3) eliminate or substantially impair the functions and values of a sensitive or protected biological resource (e.g., streams, wetlands, or oak woodlands) in a geographical area defined by interrelated biological components and systems. For purposes of this assessment, the region is defined as encompassing the region delineated by the Orange County Central NCCP/HCP.
- "Conflict" means contradiction of a magnitude, which based on foreseeable circumstances would preclude or prevent substantial compliance.
- "Rare" means: (1) that the species exists in such small numbers throughout all, or a significant portion of, its range that it may become endangered if its environment worsens; (2) the 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 FESA; or (3) the species is endangered, rare, or threatened as listed in Section 670.5, Title 14, California Code of Regulations or Title 50, Code of Federal Regulations Section 17.11 or 17.12 pursuant to the FESA as rare, threatened, or endangered (14 California Code of Regulations Section 15380 (b) – (c).).

4.3 PROJECT DESCRIPTION

Proposed Project

The proposed development plan for the Saddle Crest project includes the construction of 65 residential lots on 62.2 acres of the 113.7-acre study area, as shown in **Figure 16**, *Proposed Limits of Grading and Fuel Modification (Proposed Project).* Within the 62.2-acre area which will be developed (project development envelope), 58.0 acres are within the Proposed Project's limit of grading and 4.2 acres are within fuel modification areas outside of the limit of grading. The 4.2-acre fuel modification areas will include a number of native plant species within the plant palette for areas that will be replanted after initial clearing (i.e., Zone B). Approximately 51.0 acres will be avoided (i.e., area outside of the project development envelope). A total of 79.8 acres will be preserved as open space, which includes 4.2 acres of fuel modification areas; 24.6 acres comprised of revegetated/graded open space, a water quality basin, and an equestrian trail; and 51.0 acres which will be avoided. The acreages of the project development envelope, avoided area, as well as the total area to be preserved on-site as open space (i.e., fuel modification area; revegetated/graded open space, water quality basin, and equestrian trail; and avoided areas) are summarized in **Table 6**, *Proposed Project and Non-Clustered Scenario*.

Non-Clustered Scenario

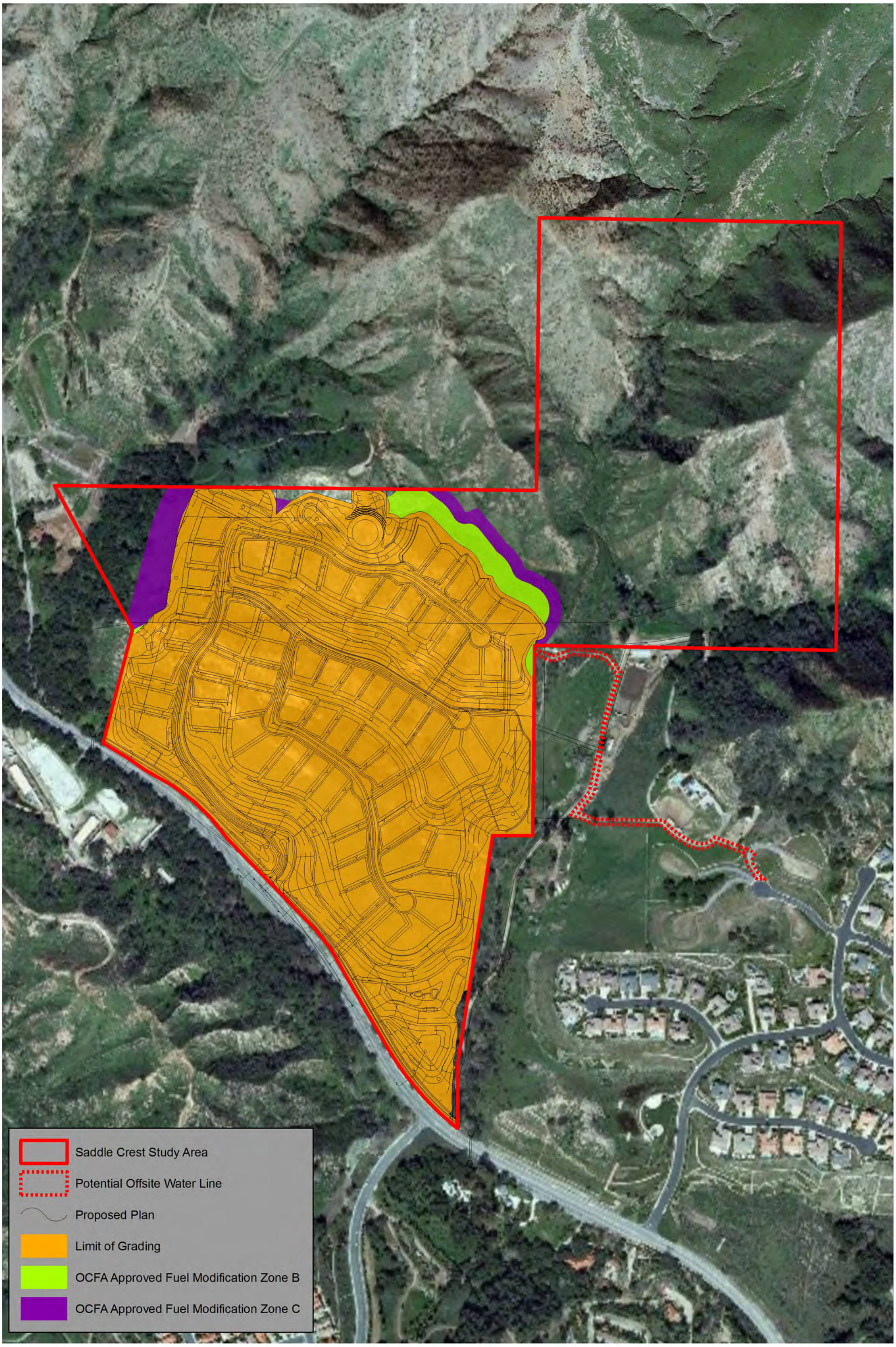
The Non-Clustered Scenario was designed to meet the requirements of the F/TSP. The Non-Clustered Scenario would spread development over a larger extent of the study area, as shown in **Figure 17**, *Proposed Limits of Grading and Fuel Modification (Non-Clustered Scenario).* Within the 84.8-acre project development envelope of the Non-Clustered Scenario, 46.6 acres are within the Non-Clustered Scenario's limit of grading and a total of 38.2 acres are within fuel modification areas outside of the limit of grading, which will include a number of native plant species within the plant palette for areas that will be replanted after initial clearing (i.e., Zone B). Approximately 28.4 acres will be avoided. A total of 75.3 acres will be preserved as open space, including 38.2 acres of fuel modification areas, approximately 8.7 acres of which will be comprised of revegetated/graded open space, and 28.4 acres of which are undisturbed open space which will be avoided.

4.4 PROJECT DESIGN FEATURES

Both the Proposed Project and the Non-Clustered Scenario includes a number of design features which were developed to avoid or minimize impacts to biological resources within the study area.

4.4.1 Avoidance Features

It should be noted that the Saddle Crest study area along with the neighboring Saddle Creek North and South properties, which were formerly owned by the Applicant, were originally a part of a larger "study area" considered for development. However, the Saddle Creek North property was transferred for conservation in 2008 and the Saddle Crest South property was transferred for conservation in 2011. The USFWS, CDFG, and County of Orange, as well as a number of environmental advocacy groups voiced their support of the transfer of Saddle Creek North and South, acknowledging the significant environmental benefits of preserving native habitat and providing connectivity between the County of Orange's Central/Coastal and Southern Subregions.



PCR

N

0 350 700 Feet

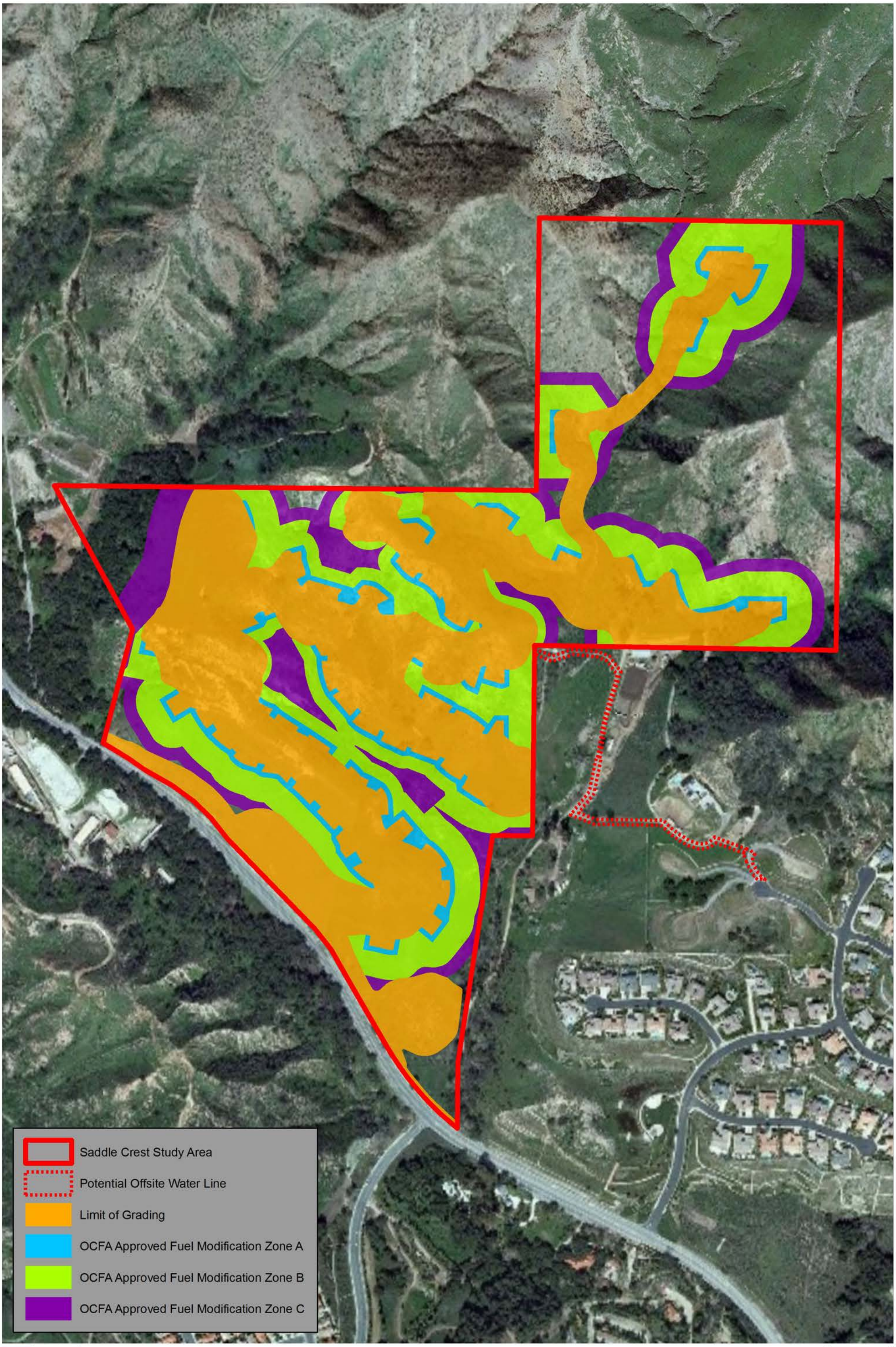
Proposed Limits of Grading and Fuel Modification (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

16



PCR

N

0 350 700 Feet

Proposed Limits of Grading and Fuel Modification (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

17

Table 6

Proposed Project and Non-Clustered Scenario

	Proposed Project (Acreage)	Non-Clustered Scenario (Acreage)
Project Development Envelope		
Limits of Grading (Excluding Fuel Modification)	58.0	46.6
Fuel Modification (Outside of Limits of Grading)	4.2	38.2
Subtotal	***62.2***	***84.8***
Easement (Not Impacted/Not Open Space)		
Subtotal	***0.5***	***0.5***
Avoided		
Subtotal	***51.0***	***28.4***
Total	**113.7**	**113.7**
Total Area to be Preserved as Open Space		
Fuel Modification (Outside of Limits of Grading)	4.2	38.2
Avoided	51.0	28.4
Revegetated/Graded Open Space, Water Quality Basin, and Equestrian Trail	24.6	8.7
Total	**79.8 (70%)**	**75.3 (66%)**

Source: PCR Services Corporation, 2011.

Proposed Project

The Proposed Project will avoid 51.0 acres (approximately 45 percent) which will be preserved as open space. An additional 28.8 acres will be preserved as open space in the fuel modification areas of the study area (4.2 acres) and revegetated/graded open space areas, the water quality basin, and equestrian trail (24.6 acres) for a total of 79.8 acres of open space (approximately 70 percent). The Proposed Project was designed to completely avoid the wildlife corridor (except for 0.8 acre of fuel modification zone C) along the western portion of the study area. In addition, the project was designed to comply with the required 50-foot setback zone surrounding the wildlife corridor, in accordance with the F/TSP, and all landscaping within a 25-foot buffer of the wildlife corridor will be planted with native plant species, as specified in the F/TSP.

The project will avoid impacts to 0.2 acre of sagebrush scrub/southern mixed chaparral, which is considered a sensitive plant community, and 7.2 acres of coast live oak woodland. The project will also completely avoid impacts to a major streambed designated herein as Drainage E, which is identified in Figure 15 of this assessment. Approximately 81 percent of the trees on-site are in areas that will be avoided by the Proposed Project (including 470 avoided trees and 50 within fuel modification zones) (Dudek 2011).

In addition, the Proposed Project is designed to cluster development along Santiago Canyon Road where suburban and rural development already exists to the south and southeast. Clustering will reduce the overall size of the project's development footprint, thereby minimizing more extensive impacts to areas which will instead be avoided and designated as open space, as well as minimizing greater fragmentation to the surrounding open space areas. Figure 17, *Proposed Limits of Grading and Fuel Modification (Non-*

Clustered Scenario) shows the Non-Clustered Scenario design which incorporated ranch-style homes. Note the larger area of disturbance associated with the development footprint of the Non-Clustered Scenario design as compared to the current proposed development plan [shown in Figure 16, *Proposed Limits of Grading and Fuel Modification (Proposed Project)*].

Non-Clustered Scenario

In the case of the Non-Clustered Scenario (Figure 17, *Non-Clustered Scenario and Fuel Modification Areas*), the ability to cluster development is limited and the development/disturbance footprint necessarily expands to accommodate ranch-style homes and lots, access roads and driveways, and fuel modification to comply with the grading standards outlined in the F/TSP. Although there are the same amount of lots, the overall impact area is larger. The fragmentation and isolation of preserved habitat areas is also more extensive than the Proposed Project.

4.4.2 Protection Elements

As previously mentioned, the Proposed Project was designed to avoid the wildlife corridors and minimize impacts to oak woodlands and streambeds.

Proposed Project

Wildlife Movement Corridors

Best management practices (BMPs) will be incorporated into the project to ensure that lighting is pointed away from the wildlife corridor and ambient light levels are minimized to the maximum extent practicable. Additionally, the project's Water Quality Management Plan and Stormwater Pollution Prevention Plan will ensure that project runoff will not adversely affect the drainage within the wildlife corridor. Noise standards will follow County Codes and General Plan Policies. In addition, exterior lighting shall not be used in the 50-foot setback area for the wildlife corridor and fencing shall be limited to open fencing that does not exceed 40 inches in height. Vegetation thinning within the fuel modification area that is encroaching into the corridor will only occur on occasion and during daylight hours.

Short-term construction-related noise impacts will be reduced by the implementation of a number of measures including the following:

- During all excavation and grading on-site, the construction contractors will equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards to reduce construction equipment noise to the maximum extent practicable. The construction contractor will place all stationary construction equipment so that emitted noise is directed away from the wildlife movement corridor and preserved habitat areas.
- The construction contractor will stage equipment in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors (the wildlife movement corridor and preserved habitat areas) during all project construction.

- All construction work will occur during the daylight hours. The construction contractor will limit all construction-related activities that would result in high noise levels according to the construction hours to be determined by the County.
- The construction contractor will limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes will not pass through sensitive land uses or residential dwellings.

The preliminary plant list was reviewed, and with the established plant palette, a native/partially native buffer will serve as a barrier to minimize the risk of introducing invasive, exotic species near the corridor. In addition, signs will be installed to educate future residents of the project about the wildlife corridor and ensure that trash, debris, and disturbance by trespassing or dogs are not permitted within or near the corridor.

Oak Trees and Oak Woodlands

Protection measures for oak trees include fencing and protection of oak trees adjacent to construction areas. In addition, placement of fill**,** storage of equipment, and grading shall be prohibited within the dripline of any tree proposed for preservation. Retaining walls shall be used to protect oaks proposed for preservation from surround cut and fill, and no surfaces shall be places within a six-foot radius of oak tree trunks (County of Orange, Environmental Management Agency 1991).

Approximately 76 percent of coast live oak trees will be preserved on-site (including 422 avoided trees and 46 within fuel modification zones) and those coast live oak trees which are impacted will be mitigated as detailed in the Saddle Crest Tree Management and Preservation Plan was prepared by Dudek, provided under separate cover (Dudek 2011, 2012).

Streambeds

The potential effects to the downstream hydrology of Aliso Creek were considered during the design of the Proposed Project. The Proposed Project incorporates a water quality basin, which would also function as a detention basin. With project build-out, there would be no increase in the 100-year peak discharge from existing conditions (Hunsaker 2011a and 2011b); thus, no additional scour or erosion are anticipated downstream as a result of implementation of the Proposed Project. Rather, there will be a slight decrease in the flow rate of 2.4 cfs based on the 100-year peak flow. However, the overall volume of water will remain significantly the same. Additionally, although there will be no dry weather discharges from the detention basin, the basin has been designed to allow for controlled releases of water during and after storm events. Further, the Proposed Project avoids the majority of the drainages on-site, and those avoided streambeds will remain unaltered in their currently existing state. Thus, it is anticipated that with project build-out, hydrology leaving the site will be similar to those currently existing conditions, and no significantly adverse effects to the downstream hydrology and habitat within Aliso Creek are expected to occur.

Non-Clustered Scenario

The Non-Clustered Scenario would incorporate many of the same protection elements as the Proposed Project, including avoidance and BMPs to protect the integrity of the wildlife movement corridor, as well as the water quality of downstream drainages through the use of detention facilities. In addition, the Non-Clustered Scenario would incorporate measures to protect oak trees in the same manner as the Proposed

Project. However, two key aspects of the Non-Clustered Scenario render it less capable of incorporating certain protection elements. First, by requiring a development layout that is more extensive on-site, there would be more extensive impacts to drainage features through the more dispersed building pads and access roads required to accommodate ranch-style lots and residences (some of which will cross drainages that will be completely avoided in the Proposed Project). Thus, the ability to maximize the retention of drainages is reduced. Second, and also related to the necessity for a more dispersed development footprint, more areas of existing oak woodland which are proposed to be avoided and preserved under the Proposed Project will be potentially affected. Both of these aspects of the Non-Clustered Scenario are discussed in more detail below.

4.4.3 Restoration Elements

Proposed Project

All slopes that are graded at the exterior edge of the development footprint will be revegetated for fuel modification purposes. In addition, revegetation will occur in specific areas of the development footprint. As specified by the F/TSP, plant species used for revegetation should consist of predominance of plant species native to the area as listed at Appendix E, Foothill/Trabuco Specific Plan Plant Palette, of the F/TSP and as approved in the Fuel Modification Plan. The plant palette developed for the study area was taken from a fire department list of approved species, and the majority of the species are listed in the Foothill/Trabuco Specific Plan Plant Pallette (Yamashita, pers. comm. 2009).

Non-Clustered Scenario

The Non-Clustered Scenario would also incorporate the revegetation of manufactured slopes for fuel modification purposes with the same F/TSP-specified palette as the Proposed Project. Areas of fuel modification are more extensive for the Non-Clustered Scenario due to the dispersed development footprint and, consequently, the decreased ability to overlap fuel modification zones for multiple residences. That is, fuel modification zones would increase in acreage on a per residence basis. Thus, greater conversion of native habitats would result.

4.5 STANDARD CONDITIONS

As part of the proposed project's review and approval, a number of performance criteria and standard conditions must be met. Among these are those that relate to Federal and State regulating agencies for impacts to wetlands, riparian habitats, and stream courses.

4.5.1 State of California Fish and Game Code, Section 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, it must first notify the CDFG of the proposed project. In the course of this notification process, the CDFG will review the proposed project as it affects streambed habitats within the project area. The CDFG may then place conditions on the Section 1602

clearance to avoid, minimize, and mitigate the potentially significant adverse impacts within CDFG jurisdictional limits.

4.5.2 Federal Clean Water Act (CWA), Section 404

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or excavation within "waters of the U.S." and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. "Waters of the U.S." are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The permit review process entails an assessment of potential adverse impacts to ACOE jurisdictional "waters of the U.S." and wetlands. In response to the permit application, the ACOE will also require conditions amounting to mitigation measures. Where a Federally listed species may be affected, they may also require Section 7 consultation with the USFWS under the FESA; however, informal consultation may also be feasible. Through this process, potentially significant adverse impacts within the Federal jurisdictional limits could be mitigated to a level that is less than significant.

Over the years, the ACOE has modified their regulations, typically due to evolving policy or judicial decisions, through the issuance of Regulatory Guidance Letters, memorandum, or more expansive instruction guidebooks. These guidance documents help to update and define how jurisdiction is claimed, and how these "waters of the U.S" will be regulated. The most recent modification occurred on June 5, 2007, when the ACOE and the U.S. Environmental Protection Agency (EPA) issued a series of guidance documents outlining the requirements and procedures, effective immediately, to establish jurisdiction under Section 404 of the CWA and the Section 10 of the Rivers and Harbors Act 1899 (ACOE and EPA 2006). These documents are intended to be used for all jurisdictional delineations but also provide specific guidance for the jurisdictional determination of potentially jurisdictional features affected by the United States Supreme Court rulings on *Rapanos v. the United States* and *Carabell v. the United States* 126 U.S. Ct. 2208 (2006) (jointly referred to as "Rapanos").

The Rapanos case outlines the conditions and criteria utilized by the ACOE to assess and claim jurisdiction over non-navigable, ephemeral tributaries. Under a plurality ruling, the Court noted that certain "not relatively permanent" (i.e. ephemeral), non-navigable tributaries must have a "significant nexus" to downstream traditional navigable waters to be jurisdictional. An ephemeral tributary has a significant nexus to a downstream navigable water when it has "more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a [traditional navigable water (TNW)]." A significant nexus, which determines whether a drainage feature is jurisdictional and regulated or isolated and not regulated, is established through the consideration of a variety of hydrologic, geologic and ecological factors specific to the particular drainage feature in question.

4.5.3 Federal Clean Water Act, Section 401

The mission of the California RWQCB is to develop and enforce water quality objectives and implement plans that will best protect the beneficial uses of the State's waters, recognizing local differences in climate, topography, geology, and hydrology. Section 401 of the CWA requires that:

> "any applicant for a Federal permit for activities that involve a discharge to waters of the State, shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act."

Therefore, before the ACOE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the RWQCB. A complete application for 401 Certification will include a detailed Water Quality Management Plan that will address the key water quality features of the project to ensure the integrity of water quality in the area during and post-construction.

Under separate authorities granted by State law (i.e., the Porter-Cologne Water Quality Control Act), a RWQCB may choose to regulate discharges of dredge or fill materials by issuing or waiving (with or without conditions) Waste Discharge Requirements (WDRs), a type of State discharge permit, instead of taking a water quality certification action. Processing of a WDR is similar to that of a Section 401 certification; however, the RWQCB has slightly more discretion to add conditions to a project under the Porter-Cologne Act than under the Federal CWA.

4.5.4 Natural Community Conservation Planning Program

As detailed previously in Section 1.2, the study area falls within the Central Subregion of the Orange County NCCP/HCP. The NCCP/HCP was analyzed in a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared under the auspices of the County of Orange Environmental Management Agency (EMA) as lead agency responsible for preparing the NCCP/HCP and the EIR and the USFWS as lead agency responsible for preparing the EIS. These agencies worked in cooperation with the CDFG. Following certification of the EIR/EIS and approval of the NCCP/HCP, the participating agencies, participating landowners, the USFWS, the CDFG, and the County of Orange signed an Implementation Agreement (IA). The IA sets forth the implementation requirements for the NCCP/HCP, including requirements related to dedication, creation, and management of the more than 37,000-acre Reserve System, interim management of the Reserve System, funding for Reserve System management, and procedures and minimization measures related to "take" of "Identified Species" and modification of habitat in those areas designated for development under the NCCP/HCP.

The IA specifically authorizes disturbance of CSS, other covered habitats, and "take" of Identified Species. The NCCP/HCP Reserve System adaptive management program and other measures of the NCCP/HCP were determined by the EIR/EIS to fully mitigate "take" of these species and habitats resulting from development projects in compliance with the IA. For "conditionally covered" species present on a particular project site, the measures of the NCCP/HCP were determined to fully mitigate take of these species so long as the additional mitigation measures specified in the IA (conditions) have been satisfied. In certain circumstances, consultation with the USFWS and CDFG is mandated and, at a minimum, a project-specific mitigation plan must be developed meeting the requirements of the NCCP/HCP. Thus with compliance with the conditions of the NCCP/HCP, all direct, indirect, and cumulative impacts under the CEQA and National Environmental Policy Act (NEPA) to the covered habitats and identified species (covered and conditionally covered) resulting from development are considered fully mitigated.

In addition to those species mentioned in Table 1, *Identified Species ("Covered" and "Conditionally Covered") Authorized for Take by the NCCP/HCP*, disturbance of the following habitats is specifically addressed in the NCCP/HCP, and these habitats are designated as "covered habitats:"

- Coastal sage scrub
- Oak woodlands
- Tecate cypress forest
- Cliff and rock

Although the Saddle Crest property falls within the approved Central/Coastal Subregion NCCP boundaries, the majority of the study area lies within the Congressional boundaries of the Cleveland National Forest. The Central/Coastal NCCP does not specifically address private landholdings that are within the Congressional boundaries of the Cleveland National Forest; therefore, impacts to federally or State protected species that occur on such properties were not authorized by the adoption of the Central/Coastal NCCP/HCP. Thus, project impacts in the portion of the Saddle Crest property that falls within the forest's boundaries that may result in the "take" of any federally or State listed species are not authorized under the Central/Coastal NCCP/HCP and must be analyzed under FESA, CESA, and CEQA. Those portions of the study area outside of the forest's boundaries, and within the NCCP/HCP in-lieu fee area, are covered by the NCCP/HCP.

In addition, the Southern Subregion NCCP's IA specifies that its Conservation Strategy within "Subarea 2" (i.e., the Foothill Trabuco Specific Plan Area) of the Southern NCCP focuses on "assuring connectivity between the Southern Subregion and the Central/Coastal NCCP Subregion and between the Southern Subregion and the Cleveland National Forest, as well as the protection of listed Covered Species." Although the study area does not lie within the Southern Subregion NCCP, as previously mentioned, the transfer of Saddle Creek North and South for conservation helped to attain this objective.

4.5.5 Foothill/Trabuco Specific Plan

As described previously, the F/TSP was adopted twenty years ago in 1991 by the Orange County Board of Supervisors. In order to preserve the rural character of the F/TSP area and guide future development, a set of goals, guidelines, policies, and land use regulations were created. Any proposed development must be consistent with these guidelines before approval of the project is granted. The F/TSP identified significant wildlife corridors, oak woodlands, and streambeds, which were mapped on a regional scale (1"=3,500'), with the purpose of preserving and minimizing impacts to these resources. Impacts related to the biological components of the F/TSP, such as wildlife movement, oak woodlands, and streambeds, are addressed and discussed in the impacts section below.

4.5.6 Cleveland National Forest Land and Resource Management Plan

The Cleveland National Forest Land and Resource Management Plan describes the strategic direction for managing forest service lands and its resources. Goals of the plan pertaining to biological resources, and therefore relevant to the Saddle Crest project, are to: increase habitat capability to provide for diverse and viable fish populations; protect and enhance riparian areas; maintain and enhance the viability of sensitive plant species; manage chaparral lands to meet resource program needs; manage coniferous forest and broadleaf woodland vegetation types to maintain and enhance the health of the trees and to provide suitable habitat for wildlife; provide for diverse and viable wildlife communities through increased habitat improvement; ensure threatened and endangered species reach recovery levels; achieve wildlife habitat diversity of chaparral through prescribed burns; and manage the Agua Tibia, San Mateo Canyon, Pine Creek, and Hauser wilderness areas (USFS Website 2009a). Although the study area lies within the Congressional boundaries of the Cleveland National Forest, the study area is a privately held property within the

Congressional boundary; therefore, the property is not managed by the U.S. Forest Service. However, the biological resources managed by the Cleveland National Forest Land and Resource Management Plan are analyzed within this document pursuant to CEQA standards.

4.6 IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

Those impacts determined to be less than significant include impacts to biological resources which do not meet or exceed the significance thresholds as outlined in Section 4.2. Conclusions are based on conditions of species ecology and the resource's regional distribution and status. Potential impacts found to be less than significant are discussed below.

4.6.1 Less than Significant Impacts to Plant Communities

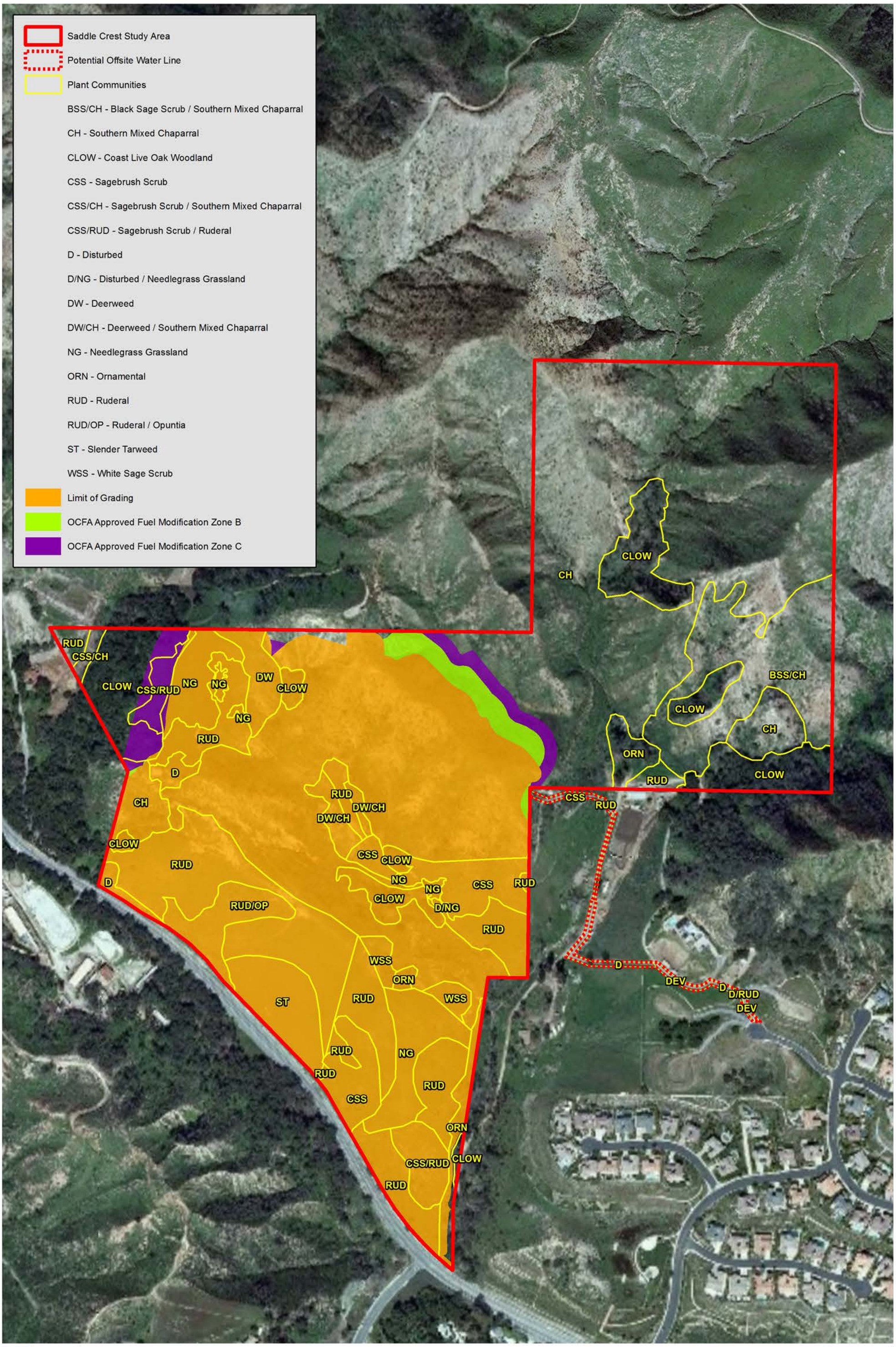
Proposed Project

As shown in **Figure 18**, *Impacts to Plant Communities (Proposed Project),* and summarized in **Table 7**, *Impacts to Plant Communities,* the Proposed Project would result in impacts to 62.2 acres of plant communities and disturbed areas. This includes 50.0 acres of impacts to non-sensitive plant communities/disturbed areas (including 2.7 acres due to fuel modification) comprised of the following communities: 1.1 acres of deerweed, 0.8 acre of deerweed/southern mixed chaparral, 27.2 acres of southern mixed chaparral, 2.4 acres of slender tarweed, 1.1 acre of disturbed areas (0.7 acre on-site, 0.4 acre off-site), less than 0.1 acre of disturbed/needlegrass grassland, less than 0.1 acre (all off-site) of disturbed/ruderal, 0.2 acre (all off-site) of developed, 0.9 acre of ornamental, 14.5 acres of ruderal (14.4 acres on-site, 0.1 acre off-site), and 1.8 acres of ruderal/Opuntia. These communities are not considered sensitive; therefore, impacts to these plant communities are considered less than significant under Threshold 2 (as referenced in Section 4.2).

Impacts to sensitive plant communities (i.e., white sage scrub, sagebrush scrub, sagebrush scrub/ruderal, needlegrass grassland, and coast live oak woodland) are considered potentially significant and are discussed in Section 4.7 below.

Non-Clustered Scenario

As shown in **Figure 18B**, *Impacts to Plant Communities (Non-Clustered Scenario)*, and summarized in Table 7, *Impacts to Plant Communities,* the Non-Clustered Scenario would result in impacts to 84.8 acres of plant communities and disturbed areas. This includes 68.9 acres of impacts to non-sensitive plant communities/disturbed areas (including 31.6 acres due to fuel modification) comprised of the following communities: 1.2 acres of deerweed, 1.9 acres of black sage scrub/southern mixed chaparral (1.8 acres on-site, 0.1 acre off-site), 0.8 acre of deerweed/southern mixed chaparral, 44.9 acres of southern mixed chaparral, 2.3 acres of slender tarweed, 0.2 acre (all off-site) of developed, 1.0 acre of disturbed areas (0.6 acre on-site, 0.4 acre off-site), less than 0.1 acre of disturbed/needlegrass grassland, less than 0.1 acre of disturbed/ruderal, 1.4 acres of ornamental, 14.2 acres of ruderal (14.1 acre on-site, 0.1 acre off-site), and 1.8 acres of ruderal/Opuntia. The implementation of the Non-Clustered Scenario would result in substantially larger impact area (21.4 acres) and greater habitat fragmentation. However, these communities are not considered sensitive; therefore, impacts to these plant communities are considered less than significant under Threshold 2 (as referenced in Section 4.2).



PCR

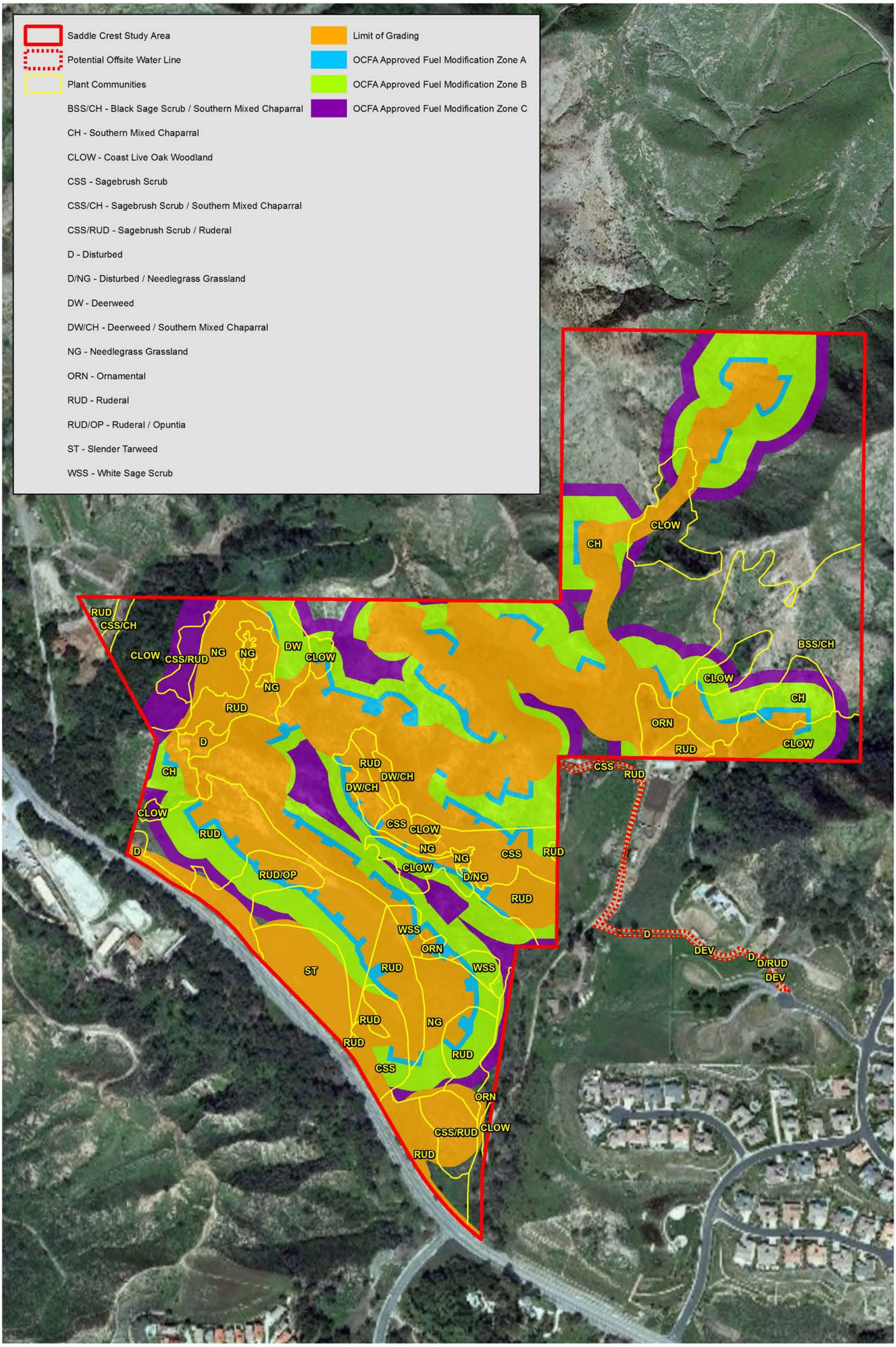
Impacts to Plant Communities (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

18A



PCR

Impacts to Plant Communities (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

18B

Table 7
Impacts to Plant Communities**

Plant Community	Existing (Acres)	Proposed Project: Impacts Due to Development (Acres)	Proposed Project: Impacts Due to Fuel Mod* (Acres)	Proposed Project: Proposed Project Total Impacts (Acres)	Non-Clustered Scenario: Impacts Due to Development (Acres)	Non-Clustered Scenario: Impacts Due to Fuel Mod* (Acres)	Non-Clustered Scenario: Non-Clustered Scenario Total Impacts (Acres)
Deerweed	1.2	1.1	0.0	1.1	0.3	0.8	1.2
Sagebrush Scrub	3.8 (0.1)	3.8 (0.1)	0.0	3.8 (0.1)	3.0 (0.1)	0.8	3.8 (0.1)
Sagebrush Scrub/Ruderal	1.9	1.3	0.6	1.9	1.1	0.6	1.7
White Sage Scrub	0.8	0.8	0.0	0.8	0.2	0.5	0.7
Subtotal—Scrub Communities	***7.7 (0.1)***	***7.0 (0.1)***	***0.6***	***7.6 (0.1)***	***4.6 (0.1)***	***2.7***	***7.4 (0.1)***
Black Sage Scrub/Southern Mixed Chaparral	7.0	0.0	0.0	0.0	0.7	1.2	1.9
Deerweed/Southern Mixed Chaparral	0.8	0.8	0.0	0.8	0.8	<0.1	0.8
Sagebrush Scrub/Southern Mixed Chaparral	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal—Mixed Scrub Communities	***8.0***	***0.8***	***0.0***	***0.8***	***1.5***	***1.2***	***2.7***
Southern Mixed Chaparral	62.5	25.1	2.5	27.6	21.0	23.9	44.9
Subtotal—Chaparral Communities	***62.5***	***25.1***	***2.5***	***27.6***	***21.0***	***23.9***	***44.9***
Needlegrass Grassland	4.1	4.0	0.1	4.1	3.1	0.9	4.0
Subtotal—Grassland Communities	***4.1***	***4.0***	***0.1***	***4.1***	***3.1***	***0.9***	***4.0***
Coast Live Oak Woodland	9.5	1.6	0.7	2.3	1.9	3.8	5.7
Subtotal—Oak Woodland Communities	***9.5***	***1.6***	***0.7***	***2.3***	***1.9***	***3.8***	***5.7***
Slender Tarweed	2.4	2.4	0.0	2.4	2.2	0.1	2.3
Subtotal—Forbland Communities	***2.4***	***2.4***	***0.0***	***2.4***	***2.2***	***0.1***	***2.3***
Developed	0.0 (0.2)	0.0 (0.2)	0.0	0.0 (0.2)	0.0 (0.2)	0.0	0.0 (0.2)
Disturbed	0.7 (0.4)	0.7 (0.4)	0.0	0.7 (0.4)	0.6 (0.4)	0.0	0.6 (0.4)
Disturbed/Needlegrass Grassland	<0.1	<0.1	0.0	<0.1	<0.1	0.0	<0.1
Disturbed/Ruderal	<0.1	<0.1	0.0	<0.1	<0.1	0.0	<0.1
Ornamental	1.9	1.0	0.0	1.0	1.0	0.4	1.4
Ruderal	15.1 (0.1)	14.4 (0.1)	0.0	14.4 (0.1)	9.5 (0.1)	4.6	14.1 (0.1)
Ruderal/Opuntia	1.8	1.8	0.0	1.8	1.2	0.6	1.8
Subtotal—Disturbed Communities	***19.5 (0.7)***	***17.9 (0.7)***	***0.0***	***17.9 (0.7)***	***12.3 (0.7)***	***5.6***	***17.9 (0.7)***
Total	**113.7**	**58.8**	**3.9**	**62.7**	**46.6**	**38.2**	**84.8**

** Fuel Modification includes Fuel Modification Zone B, which will be cleared and revegetated, and Fuel Modification Zone C, which will be subject only to the periodic thinning of vegetation; no tree canopy will be removed.*

*** Acreages in parentheses indicate off-site acreage.*

Source: PCR Services Corporation, 2011.

Impacts to sensitive plant communities (i.e., white sage scrub, sagebrush scrub, sagebrush scrub/ruderal, needlegrass grassland, and coast live oak woodland) are considered potentially significant and are discussed in Section 4.7 below.

4.6.2 Less than Significant Impacts to Common Plant Species

Proposed Project

Project implementation would result in the direct removal of numerous common plant species on-site, both native and non-native. It is reasonable to assume population losses for common plants will generally follow the losses of plant communities in which they occur in the region. Because common plant species present on-site are not considered to be sensitive and occur in large numbers throughout the region, impacts to these species are considered less than significant under Threshold 1 (as referenced in Section 4.2). In addition, common plant species existing within disturbed areas on-site are typically disturbance-tolerant, and would be expected to be found off-site in abundance and in suitable habitat throughout the region.

Non-Clustered Scenario

The Non-Clustered Scenario would result in direct removal of numerous common plant species on-site. Because the Non-Clustered Scenario will impact a larger area (an additional 21.4 acres), overall impacts to common plant species will be substantially greater than for the Proposed Project. However, the removal of habitat for common plant species represents an adverse but less than significant impact under Threshold 1 (as referenced in Section 4.2).

4.6.3 Less than Significant Impacts to Common Wildlife Species

Proposed Project

Impacts of the Proposed Project on wildlife resources include the removal and disruption of habitat and the resulting displacement of wildlife, resulting in a less diverse and abundant local faunal population. Population losses of common wildlife species will be correlated with the loss of the habitats they use. Adverse impacts on wildlife are generally associated with the degree of habitat loss from the standpoint of physical character, quality, diversity, and abundance of vegetation. Project implementation in the short- and long-term would result in direct removal of wildlife habitat and the potential mortality of common wildlife species existing on-site as well as the displacement of more mobile species to suitable habitat areas nearby. However, these impacts would not be expected to reduce general wildlife populations below self-sustaining levels within the region and impacts to common wildlife species are considered less than significant under Threshold 1 (as referenced in Section 4.2).

Potential adverse indirect impacts to vegetation and wildlife include: increased vehicular traffic and a corresponding increase in noise and threat of road kill by traffic; an increase in human intrusion, including hikers and bicyclists; an increase in predatory and feral pets; an increase in litter, pollutants, dust, oil, and other human debris; and an increase in nighttime lighting. Common wildlife species using habitats on-site would avoid habitats affected by these “spillover” impacts, thereby decreasing diversity beyond the actual development envelope. These indirect impacts would not be expected to reduce general wildlife populations

below self-sustaining levels within the region and are considered less than significant under Threshold 1 (as referenced in Section 4.2).

Non-Clustered Scenario

Similar to the Proposed Project, the Non-Clustered Scenario would result in the removal and disruption of habitat and the resulting displacement of wildlife. The Non-Clustered Scenario will impact a substantially larger area than the Proposed Project (22.6 acres), but density of residences will be more sparsely spaced resulting in greater habitat fragmentation. However, impacts to common wildlife species represent an adverse but less than significant impact under Threshold 1 (as referenced in Section 4.2).

4.6.4 Less than Significant Impacts to Sensitive Biological Resources

4.6.4.1 Less than Significant Impacts to Sensitive Plant Species

Proposed Project

With the exception of Catalina mariposa lily, foothill mariposa lily, and chaparral nolina which were observed on-site during focused sensitive plant surveys, the sensitive plant species previously mentioned in Section 3.6.3 may occur within the region but are not expected to occur within the study area due to the lack of suitable habitat, the study area being outside of the known elevation or distributional range for the species, or due to negative results of focused sensitive plant surveys, as summarized in Appendix B, *Sensitive Plant Species*. As such, no impacts are expected to occur to these species. Impacts to Catalina mariposa lily are summarized below, and impacts to foothill mariposa lily and chaparral nolina are summarized in Section 4.7.

Project implementation will impact approximately 100 Catalina mariposa lily individuals (covering approximately 0.4 acre) within the study area as shown in **Figure 19A**, *Impacts to Catalina Mariposa Lilies (Proposed Project).* Catalina mariposa lily is most common in the Santa Ana Mountains foothills where population numbers in the hundreds or low thousands are typical for extended populations. This species is more abundant following a fire when you can expect the populations to be one or two orders of magnitude larger than prior to the fire. The Limestone/Lomas Ridge and Wier Canyon populations (now part of the Irvine Ranch Conservancy) had recorded occurrences of 62,000 in 1999 and 2000 (16 occurrences) and 81,000 plants were recorded in 2008 (172 populations). Prior to a fire, it could be expected that these areas may support 5,000 to 10,000 plants. In 1994, numbers of Catalina mariposa lilies in the San Joaquin Hills area were estimated in the tens of thousands (Roberts, pers. comm. 2009).

Catalina mariposa lily is a CNPS List 4.2 species which is a “watch list” species and no official protection is provided under this listing. In addition, Catalina mariposa lily is also identified as a covered species under the NCCP/HCP. The project is expected to impact approximately 100 Catalina mariposa lily (post-fire count) which is a fraction of the number of individuals recorded in the vicinity. Therefore, impacts are considered adverse, but less than significant under Threshold 1 (as referenced in Section 4.2).

Non-Clustered Scenario

The Non-Clustered Scenario would also result in impacts to approximately 100 Catalina mariposa lily individuals [covering approximately 0.3 acre (of which less than 0.1 acre is within fuel modification)] within the study area as shown in **Figure 19B**, *Impacts to Catalina Mariposa Lilies (Non-Clustered Scenario)*; thus, impacts resulting from the Non-Clustered Scenario would be the same to that of the Proposed Project. However, because Catalina mariposa lily is a CNPS List 4.2 "watch list" species and no official protection is provided under this listing, and since the species is identified as a covered species under the NCCP/HCP, impacts are considered adverse, but less than significant under Threshold 1 (as referenced in Section 4.2).

4.6.4.2 Less than Significant Impacts to Sensitive Wildlife Species

Proposed Project

As previously mentioned in Section 3.6.4 and summarized in Table 4, *Sensitive Wildlife Species*, there are several sensitive wildlife species that occur within the region but are not expected to occur within the study area due to the lack of suitable habitat or because the study area is outside of the known range for the species. As such, no impacts are expected to occur to these species.

Several additional sensitive wildlife species (detailed by taxonomic group below) were observed or have potential to occur within the study area.

Sensitive Amphibians

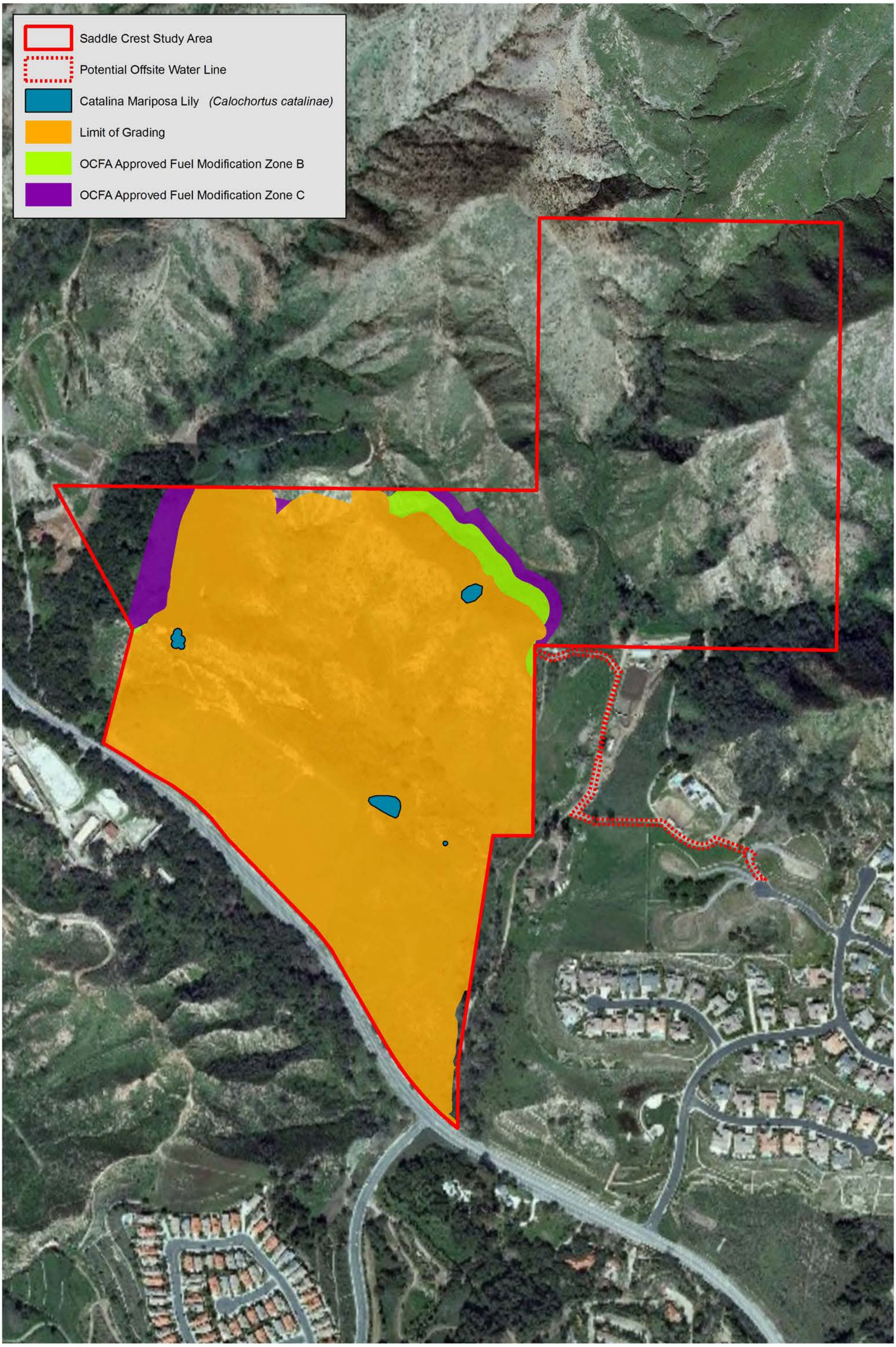
No sensitive amphibian species were observed on-site and none are expected to occur within the study area.

Sensitive Reptiles

Sensitive reptile species observed within the study area include the coastal western whiptail. In addition, due to the presence of potentially suitable habitat, the following sensitive wildlife species have potential to occur on-site: coast horned lizard, Coronado skink, orange-throated whiptail, silvery legless lizard, coastal rosy boa, San Bernardino ring-necked snake, San Diego ring-necked snake, San Diego mountain kingsnake, coast patch-nosed snake, and northern red-diamond rattlesnake. These species are designated CDFG SSC and/or USFS sensitive (Cleveland National Forest), and, therefore, warrant addressing under CEQA. However, they are not protected as threatened or endangered. In the case of these species, the loss of habitat on the scale proposed would not threaten the regional population numbers, and removal of their habitat represents an adverse but less than significant impact under Threshold 1 (as referenced in Section 4.2). Additionally, the orange-throated whiptail is a "Target Species" under the NCCP/HCP and the coast horned lizard, Coronado skink, coastal rosy boa, San Bernardino ring-necked snake, and northern red-diamond rattlesnake are covered as "Identified Species" under the NCCP/HCP and are therefore covered within the portion of the study area that lies within the NCCP/HCP's in-lieu fee area.

Sensitive Avifauna

Sensitive avian species observed within the study area include the coastal California gnatcatcher, which was observed during a non-breeding season survey in 2007; however, due to the negative results of focused



PCR

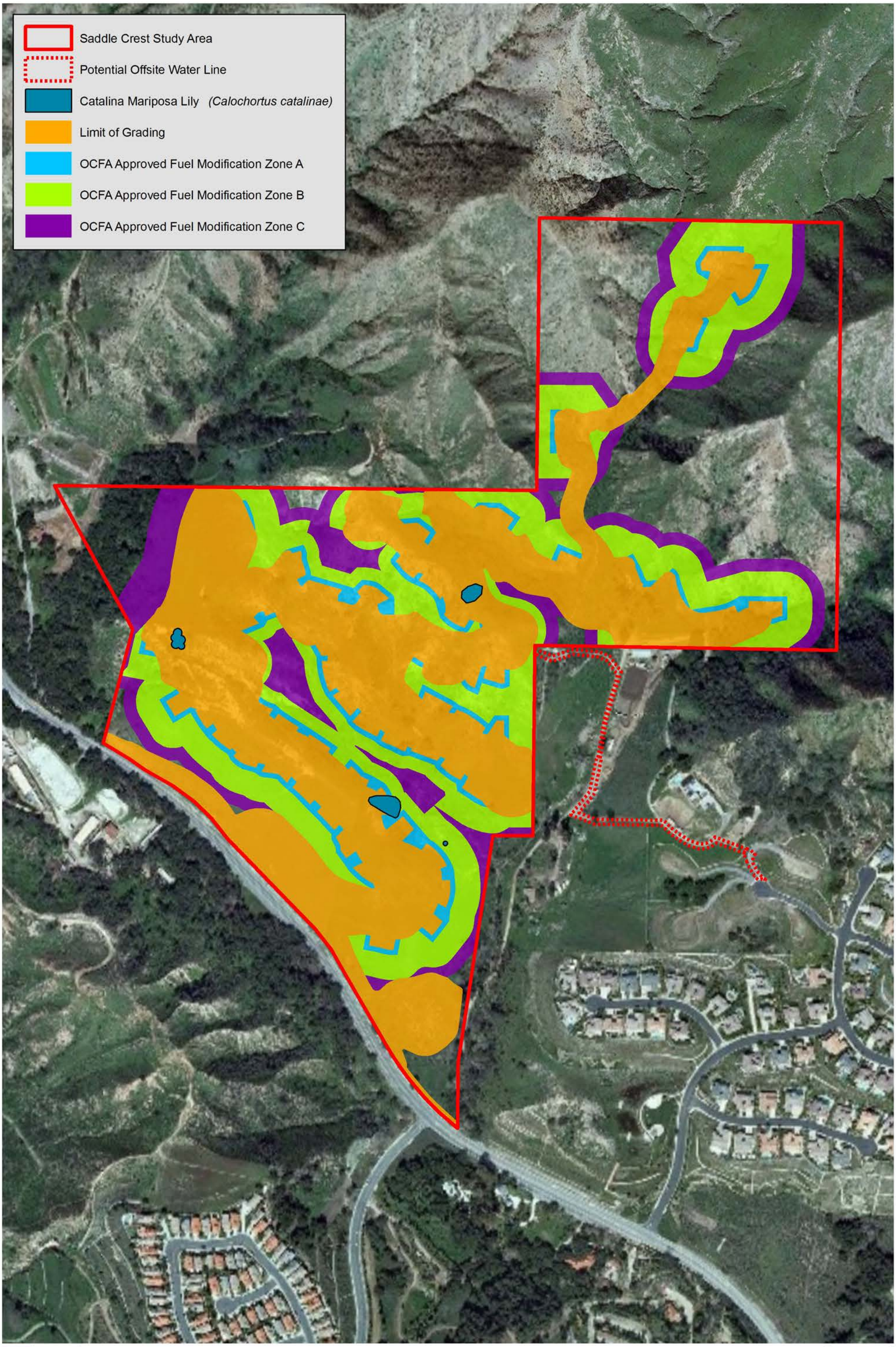
Impacts to Catalina Mariposa Lilies (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

19A



PCR

Impacts to Catalina Mariposa Lilies (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

19B

breeding season surveys conducted in 1999, 2002, and 2010, this observation of a single coastal California gnatcatcher seen during the 2007 off-season surveys was likely a dispersing transient moving through the study area, as detailed in Section 3.6.4. In addition, due to the presence of potentially suitable habitat, the following sensitive wildlife species have potential to occur on-site: golden eagle, northern harrier, American peregrine falcon, loggerhead shrike, coastal cactus wren, and grasshopper sparrow. A number of these species are SSC, including the coastal California gnatcatcher, northern harrier, loggerhead shrike, coastal cactus wren, and grasshopper sparrow. However, all of these sensitive avian species, with the exception of the coastal California gnatcatcher (which is also federally threatened), golden eagle (which is a State fully protected species), and American peregrine falcon (which is State endangered and State fully protected), are not protected as threatened or endangered. However, their designated status as being of concern by the Resource Agencies warrants addressing. In the case of these species, the loss of habitat on the scale proposed would not threaten the regional population numbers, and removal of their habitat represents an adverse but less than significant impact under Threshold 1 (as referenced in Section 4.2).

Although the golden eagle is State fully protected species and the American peregrine falcon is State endangered and State fully protected species, both of which have potential to utilize the study area due to the presence of suitable foraging habitat, direct impacts to nesting sites would not occur due to the lack of suitable nesting habitat within the study area. Therefore, the Proposed Project would not result in a significant impact on these species under Threshold 1 (as referenced in Section 4.2).

Additionally, the coastal California gnatcatcher and coastal cactus wren are "Target Species" under the NCCP/HCP. Potential impacts for the coastal California gnatcatcher and coastal cactus wren within the portion of the study area that lies within the NCCP/HCP's in-lieu fee area are considered adequately mitigated for through implementation of the NCCP/HCP. The coastal California gnatcatcher is addressed in greater detail in Section 4.7.3 below. Other sensitive species covered as "Identified Species" under NCCP/HCP include the American peregrine falcon and northern harrier.

The golden eagle is a conditionally covered species under the NCCP/HCP that requires additional mitigation measures to be satisfied under the NCCP/HCP for impacts to be considered less than significant. Planned activities that would affect golden eagle habitat are authorized if the habitat is more than one-half mile from an active or historically active nesting site. If the habitat is within one-half mile of an active or historically active nesting site, planned activities shall be sited in such a way that the activity has minimal potential to cause abandonment of the nesting site. If the activity is sited in such a way as to have more than minimal potential to cause abandonment, the activity shall be consistent with a mitigation plan that: (1) addresses design modifications or other on-site measures that are consistent with the project's purposes, minimizes impacts to nest sites, and provides appropriate protections for nest sites; (2) provides for compensatory restoration/creation (normally ledge enhancement) of nesting habitat at an appropriate location (which may include land in the NCCP/HCP's Reserve System or other open space), and (3) provides for monitoring and adaptive management of cliff-nesting raptors consistent with Chapter 5 of the NCCP/HCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the NCCP Non-profit Corporation and approved by the USFWS.

An active golden eagle nesting area exists on the cliffs of the Santiago Truck Trail, southeast of Modjeska. The golden eagle nest is greater than approximately 0.5 mile northeast of the northeastern corner of the study

area (Pete Bloom, pers. comm. 2012).[9] The Proposed Project's limits of grading (i.e., planned activities) for the Saddle Crest project are greater than approximately 0.8 mile from the golden eagle nest. The Non-Clustered Scenario's limits of grading are greater than approximately 0.5 mile from the golden eagle nest. Additionally, the golden eagle nest is on the far side of the ridgeline adjacent to the study area's northern boundary; thus, the ridgeline provides a barrier between the nest and the Proposed Project/Non-Clustered Scenario, and the project is out of the line of sight of the golden eagle nest. Based on the results of the noise analysis conducted for the Proposed Project, the projected noise levels near the golden eagle nest are estimated to be approximately 40 dBA (Kim, pers. comm. 2012). A maximum noise level of 60 dBA is typically recommended to avoid indirect impacts associated with noise disturbances for sensitive avian species due to construction activities (e.g., coastal California gnatcatcher, least Bell's vireo), therefore, the noise associated with construction activities for the Proposed Project which may carry over the ridgeline would be less. In addition, although golden eagles have been noted to be sensitive to human presence near their nests, golden eagles were rarely flushed from their nests during close approaches by aerial helicopter surveys (Pagel 2010, Bittner 2012), and therefore seem somewhat tolerable of noise disturbances. Therefore, no impacts to the golden eagle nest are anticipated. In addition, this species is only expected to utilize the site for foraging and direct impacts to nesting sites would not occur due to the lack of suitable nesting habitat within the study area. Therefore, the Proposed Project would not result in a significant impact to this species under Threshold 1 (as referenced in Section 4.2).

Sensitive Mammals

Due to the presence of potentially suitable habitat, the following sensitive wildlife species have potential to occur on-site: pallid bat, Townsend's big-eared bat, spotted bat, western red bat, western mastiff bat, San Diego black-tailed jackrabbit, northwestern San Diego pocket mouse, San Diego desert woodrat, and southern grasshopper mouse. Although these species are SSC and/or USFS sensitive, they are not protected as threatened or endangered; therefore, a loss of individuals would not threaten the regional populations of these species, and removal of their habitat represents an adverse but less than significant impact under Threshold 1 (as referenced in Section 4.2). Additionally, the San Diego desert woodrat is an "Identified Species" that is covered under the NCCP/HCP.

Non-Clustered Scenario

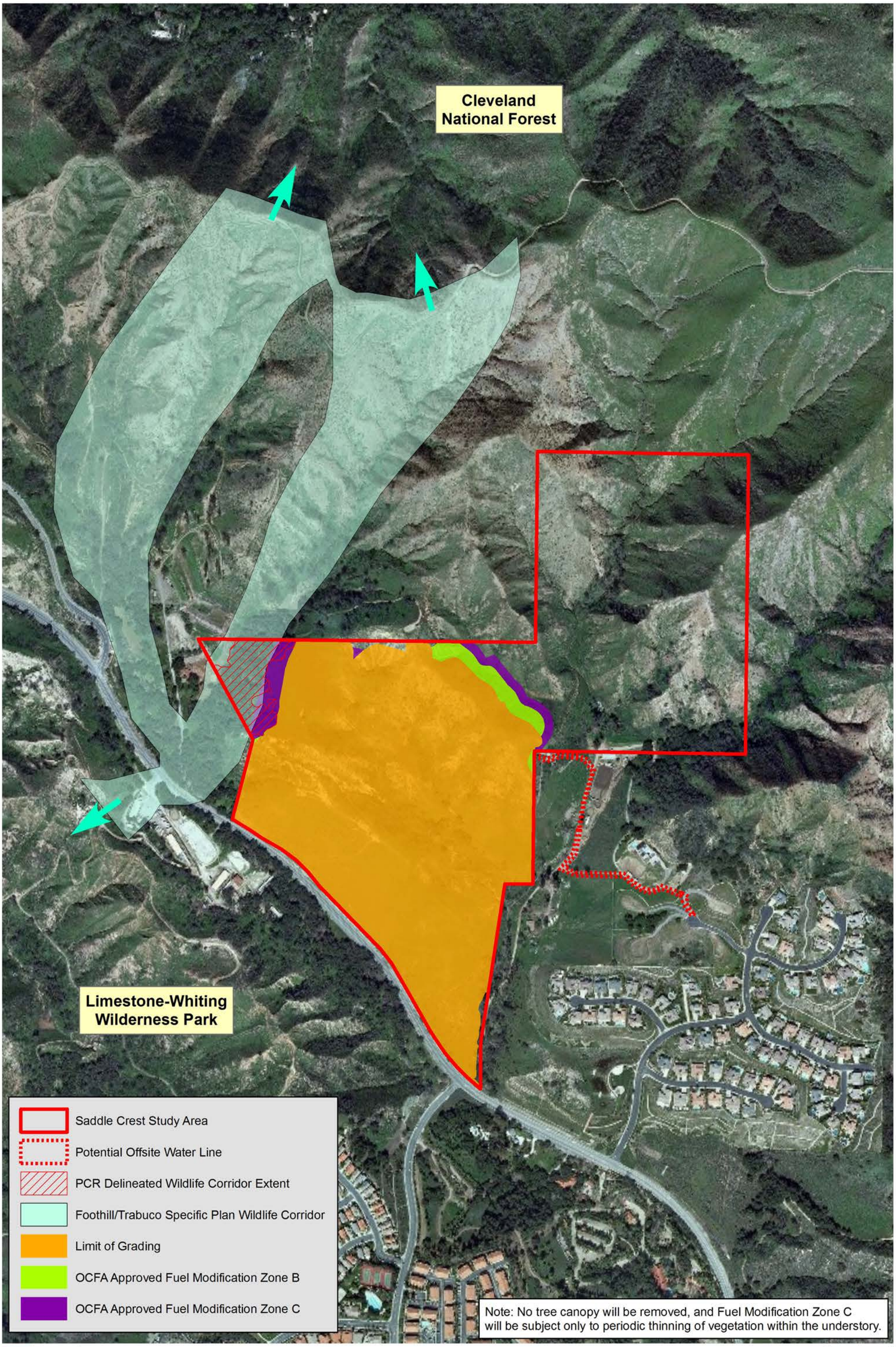
The analysis for the Non-Clustered Scenario on less than significant impacts to sensitive wildlife species is the same as that presented above for the Proposed Project. However, impacts would be substantially larger due to the larger area of impact associated with the Non-Clustered Scenario (an additional 22.2 acres).

4.6.4.3 Less than Significant Impacts to Wildlife Movement

Proposed Project

PCR conducted a site specific analysis of the wildlife movement corridor identified in the F/TSP that is present within the study area. As a result of this analysis, the wildlife movement corridor was extrapolated out to encompass all areas of the oak woodland that are associated with the drainage along the western edge of the study area that is providing cover for wildlife movement. As shown in **Figure 20A**, *Impacts to Wildlife Corridor (Proposed Project)*, the development footprint [which includes the limit of grading (which includes

[9] *Due to the sensitivity of this species, the exact nest location information is not disclosed in this document.*



PCR

N

0 500 1,000 Feet

Impacts to Wildlife Corridor (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Foothill/Trabuco Specific Plan (F/TSP), 1991; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

20A

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fuel modification zone A) and fuel modification zone B (irrigation and vegetation clearing zone)] for the Proposed Project are outside of the wildlife movement corridor identified in the F/TSP and refined by PCR. A small portion (0.8 acre) of fuel modification zone C is present within the wildlife movement corridor; however, this area will be subject only to the periodic thinning of vegetation and no tree canopy will be removed. The project's development footprint is clustered adjacent to Santiago Canyon Road and within an area that is near the existing development of Santiago Canyon Estates to the east/southeast.

The corridor was mapped by PCR based on ground-truthing and fine-scale mapping of vegetation cover provided by the coast live oak woodland canopy. This map was compared to the F/TSP GIS layers of the wildlife corridor provided. At its narrowest point, the corridor is approximately 250 feet in width. In accordance with the F/TSP, the desired corridor width is a minimum of 400 feet. However, Beier and Barrett (1993) suggest that, although it is difficult to specify a minimum width for a corridor since there are a variety of factors that influence a corridor's success (e.g., location, cover, lighting, roads, frequency of use, disturbance), for corridors that cover a span of approximately 0.5 miles (800 meters) or less, corridor width should be at least 300 feet (100 meters) wide provided that other conditions for the corridor are favorable (e.g., good location, sufficient woody cover, no lighting, few disturbances). If conditions are not favorable, the width should be increased as corridor length increases. In an effort to minimize edge effects to the wildlife corridor, the Proposed Project and Non-Clustered Scenario avoid a total width of 400 feet, including and surrounding the wildlife corridor. Thus, the corridor width meets and exceeds the width recommended in the literature by corridor experts (Beier and Barrett 1993).

As currently proposed, the project's fuel modification zone C will potentially impact the corridor by requiring some thinning of 0.8 acre of the understory of the coast live oak woodland community that comprises the corridor. Fuel modification impacts would create a long-term indirect impact to the wildlife movement corridor due to the increased presence of human activity to consistently maintain the fuel modification zone; however, this impact is not expected to be significant since thinning would only occur periodically and likely during the day when mule deer and mountain lion are less active.

Other indirect impacts of the project, such as lighting, roads and other disturbances, may collectively deter wildlife from using a corridor. Indirect impacts include an increase in the ambient lighting within the area due to higher nighttime light levels from the adjacent roads and development. As the natural habitats within the area are further constrained, increased development can pose additional threats to the corridor. The density of the proposed development would be a deterrent to more secretive wildlife species that avoid areas of development, such as mountain lions. Although there is little development to the west of the F/TSP corridor, there is a single ranch on an adjacent property that would somewhat constrain the corridor's western boundary. Additionally, Santiago Canyon Road intersects the corridor to the south and the road serves as a barrier to wildlife movement due to the increased risk of mortality from wildlife being hit by passing cars. As development within the area increases, an increased amount of traffic is anticipated, which in turn will increase the risk of wildlife-vehicle collisions.

Although these indirect impacts may be a deterrent, secretive species such as the mountain lion are still expected to use this corridor since it is an established corridor providing them access from wilderness areas to the north to Limestone-Whiting Wilderness Area to the south. This species is known to travel through unfavorable habitats; however, it has been documented that mountain lions move faster through areas that are less suitable (Dickson, Jenness, and Beier 2005).

Although these indirect impacts may be a nuisance to wildlife species using the corridor, development for the Proposed Project is not encroaching within the boundaries of the wildlife movement corridor or 50-foot setback. In addition, no lighting and only open fencing will be used within the 50-foot setback area. Vegetation thinning within the small fuel modification area that is encroaching into the corridor will only occur on occasion and during daylight hours. Since no direct impacts to the wildlife movement corridor are anticipated as a result of the Proposed Project and potential indirect impacts are not expected to deter wildlife species from using the corridor, impacts are considered less than significant under Threshold 4 (as referenced in Section 4.2).

Non-Clustered Scenario

As shown in **Figure 20B**, *Impacts to Wildlife Corridor (Non-Clustered Scenario)*, impacts to the F/TSP wildlife corridor are the same for the Non-Clustered Scenario as for the Proposed Project. Therefore, the analysis mentioned above for the Proposed Project addresses the Non-Clustered Scenario as well. Since no direct impacts to the wildlife movement corridor are anticipated as a result of the Non-Clustered Scenario and potential indirect impacts are not expected to deter wildlife species from using the corridor, impacts are considered less than significant under Threshold 4 (as referenced in Section 4.2).

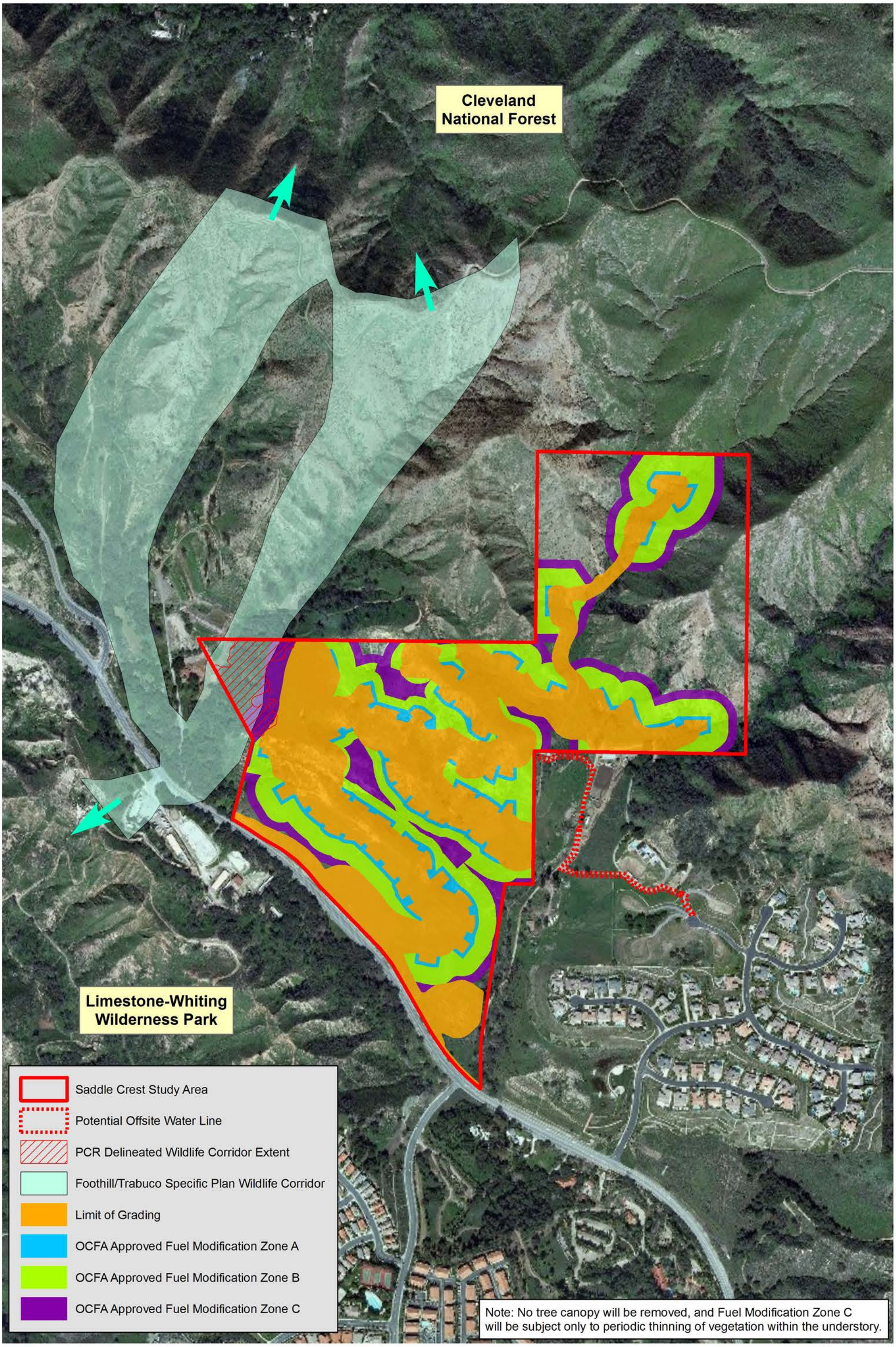
4.7 IMPACTS FOUND TO BE POTENTIALLY SIGNIFICANT

The following is a discussion of impacts to biological resources which meet or exceed the thresholds of significance outlined above in Section 4.2 and, therefore, are considered to be potentially significant impacts.

4.7.1 Potentially Significant Impacts to Sensitive Plant Communities

Proposed Project

As previously mentioned, the Proposed Project would result in impacts to 62.2 acres of plant communities and other areas, of which 12.9 acres are sensitive (refer to **Figure 21A**, *Impacts to Sensitive Plant Communities (Proposed Project)* and Table 7, *Impacts to Plant Communities*). Impacts to sensitive plant communities includes 2.3 acres of coast live oak woodland (including 0.8 acre due to fuel modification), 3.8 acres of sagebrush scrub, 1.9 acres of sagebrush scrub/ruderal (including 0.6 acre due to fuel modification), 4.1 acres of needlegrass grassland (including 0.1 acre due to fuel modification), and 0.8 acre of white sage scrub. White sage scrub and needlegrass grassland are CNDDB high inventory priority communities and are considered sensitive due to their decline in the region and/or their ability to support sensitive species; therefore, impacts to these communities are considered potentially significant. Coast live oak woodland is not a CNDDB sensitive community; however, it is analyzed because of its significance as a resource under the F/TSP. Sagebrush scrub and sagebrush scrub/ruderal are habitats of concern because they are regulated communities under the NCCP/HCP and support the coastal California gnatcatcher, as well as other sensitive species of plants and wildlife. Impacts to these habitats are considered potentially significant under Threshold 2 (as referenced in Section 4.2). Mitigation provided in Section 5.2.1 below would reduce these impacts to a less than significant level.



PCR

N

0 500 1,000 Feet

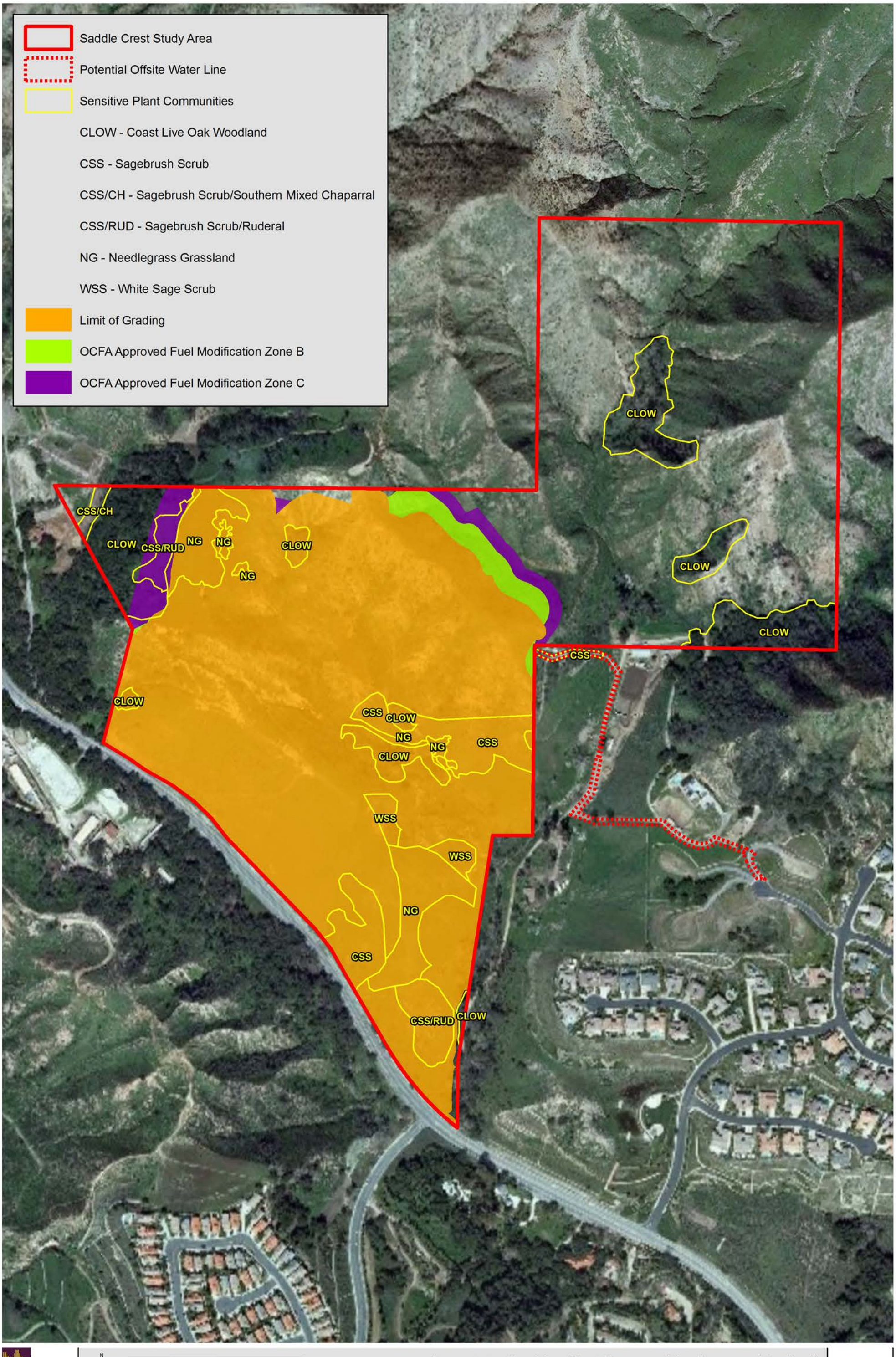
Impacts to Wildlife Corridor (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Foothill/Trabuco Specific Plan (F/TSP), 1991; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

20B



PCR

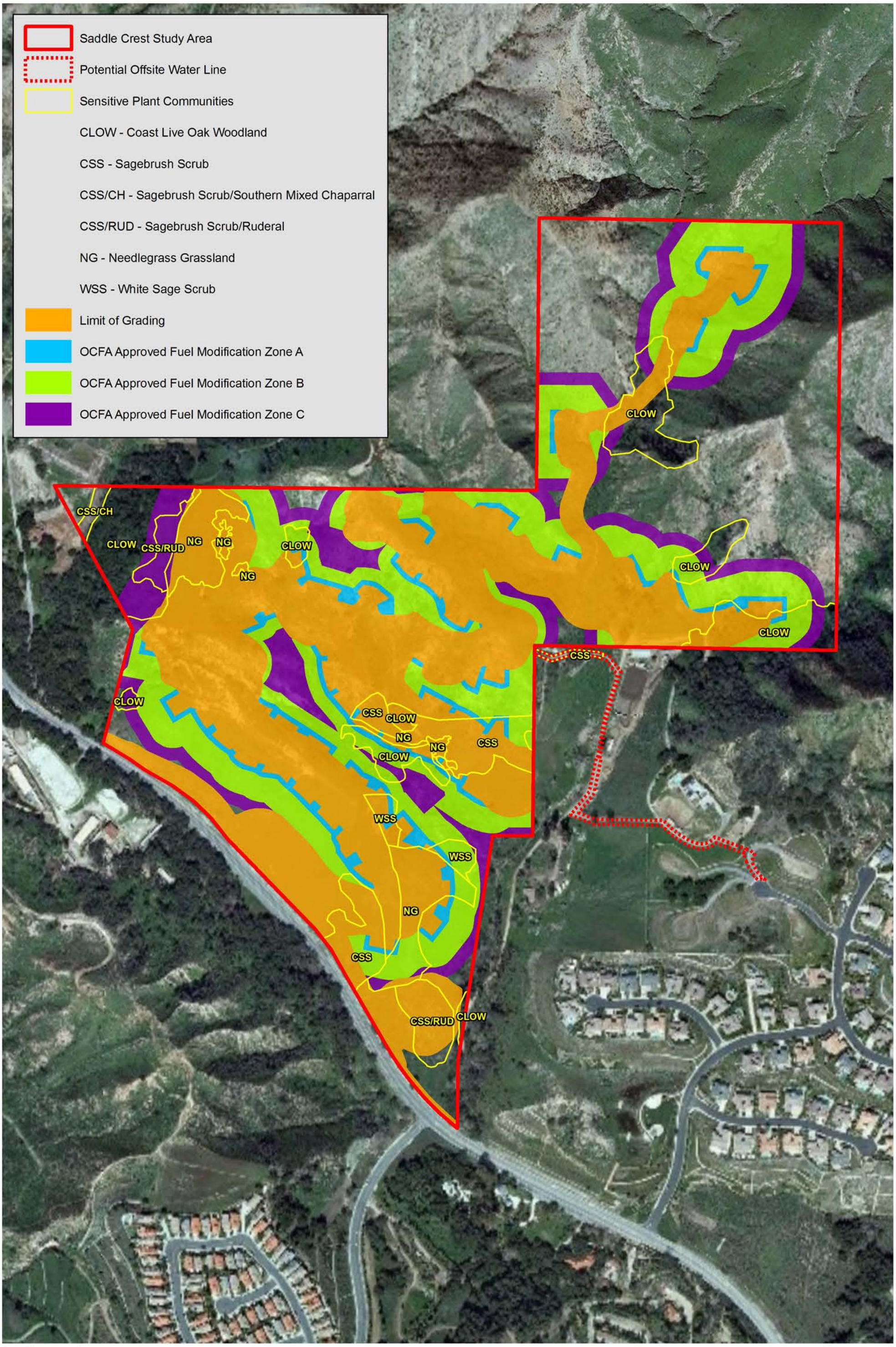
Impacts to Sensitive Plant Communities (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

21A



PCR

N

0 350 700 Feet

Impacts to Sensitive Plant Communities (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

21B

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Non-Clustered Scenario

The Non-Clustered Scenario would result in impacts to 84.8 acres of plant communities and other areas, of which 15.9 acres are sensitive [refer to **Figure 21B**, *Impacts to Sensitive Plant Communities (Non-Clustered Scenario)*, and Table 7, *Impacts to Plant Communities*]; thus, impacts associated with implementation of the Non-Clustered Scenario are incrementally larger than the Proposed Project. Impacts to sensitive plant communities includes 5.7 acres of coast live oak woodland (including 3.8 acres due to fuel modification), 3.8 acres of sagebrush scrub (including 0.8 acre due to fuel modification), 1.7 acres of sagebrush scrub/ruderal (including 0.6 acre due to fuel modification), 4.0 acres of needlegrass grassland (including 0.9 acre due to fuel modification), and 0.7 acre of white sage scrub (including 0.5 acre due to fuel modification). Under the Non-Clustered Scenario, impacts will occur to oak woodlands in the northeastern portion of the study area, which are avoided and preserved under the Proposed Project. Impacts to these habitats are considered potentially significant under Threshold 2 (as referenced in Section 4.2). Mitigation provided in Section 5.2.1 below would reduce these impacts to a less than significant level.

4.7.2 Potentially Significant Impacts to Sensitive Plant Species

Proposed Project

Impacts to two sensitive plant species, foothill mariposa lily and chaparral nolina, may result in a potentially significant impact as a result of the Proposed Project. Impacts to these species are shown in **Figure 22A**, *Impacts to Sensitive Species (Proposed Project)*.

Project implementation will impact approximately 200 foothill mariposa lily individuals [covering approximately 3.1 acres (of which 0.1 acre are within fuel modification)] within the study area. As previously mentioned, foothill mariposa lily is a CNPS List 1B.2 species. Since the loss of 200 individuals represents a substantial number of this subspecies, whose population numbers are relatively low on the southern flank of the Santa Ana Mountains, impacts to foothill mariposa lily are considered potentially significant under Threshold 1 (as referenced in Section 4.2). The foothill mariposa lily is a conditionally covered species under the NCCP/HCP, which requires that a mitigation plan be written for impacts to more than 20 individuals of this species. However, the majority of the study area (including the on-site populations of this species) is within the Congressional boundaries of the Cleveland National Forest and outside of the in-lieu fee area. Therefore, because foothill mariposa lily are outside of the NCCP in-lieu fee boundary, the NCCP cannot be used for mitigation for conditionally covered species under the NCCP such as the foothill mariposa lily (Snyder, per. comm. 2009). Mitigation for foothill mariposa lily provided in Section 5.2.2 and would reduce this impact to a less than significant level.

Project implementation will impact approximately 300 chaparral nolina individuals (covering approximately 5.3 acres) within the study area. As previously mentioned, chaparral nolina is a CNPS List 1B.2 species and USFS sensitive species. Due to the limited distribution for this species in Orange County, the removal of 300 individuals is considered potentially significant under Threshold 1 (as referenced in Section 4.2). Mitigation provided in Section 5.2.2 below would reduce this impact to a less than significant level.

Non-Clustered Scenario

Impacts to foothill mariposa lily and chaparral nolina are shown in **Figure 22B**, *Impacts to Sensitive Species (Non-Clustered Scenario)*, and are similar to those impacts for the Proposed Project. Project implementation of the Non-Clustered Scenario will impact approximately 200 foothill mariposa lily individuals [covering approximately 3.1 acres (of which 0.6 acre are within fuel modification)] within the study area. Since the loss of 200 individuals represents a substantial number of this subspecies, impacts to foothill mariposa lily are considered potentially significant under Threshold 1 (as referenced in Section 4.2). Mitigation for foothill mariposa lily provided in Section 5.2.2 and would reduce this impact to a less than significant level. Project implementation will impact approximately 300 chaparral nolina individuals [covering approximately 5.3 acres (of which 1.8 acres are within fuel modification)] within the study area. Due to the limited distribution for this species, the removal of 300 individuals is considered potentially significant under Threshold 1 (as referenced in Section 4.2). Mitigation provided in Section 5.2.2 below would reduce this impact to a less than significant level.

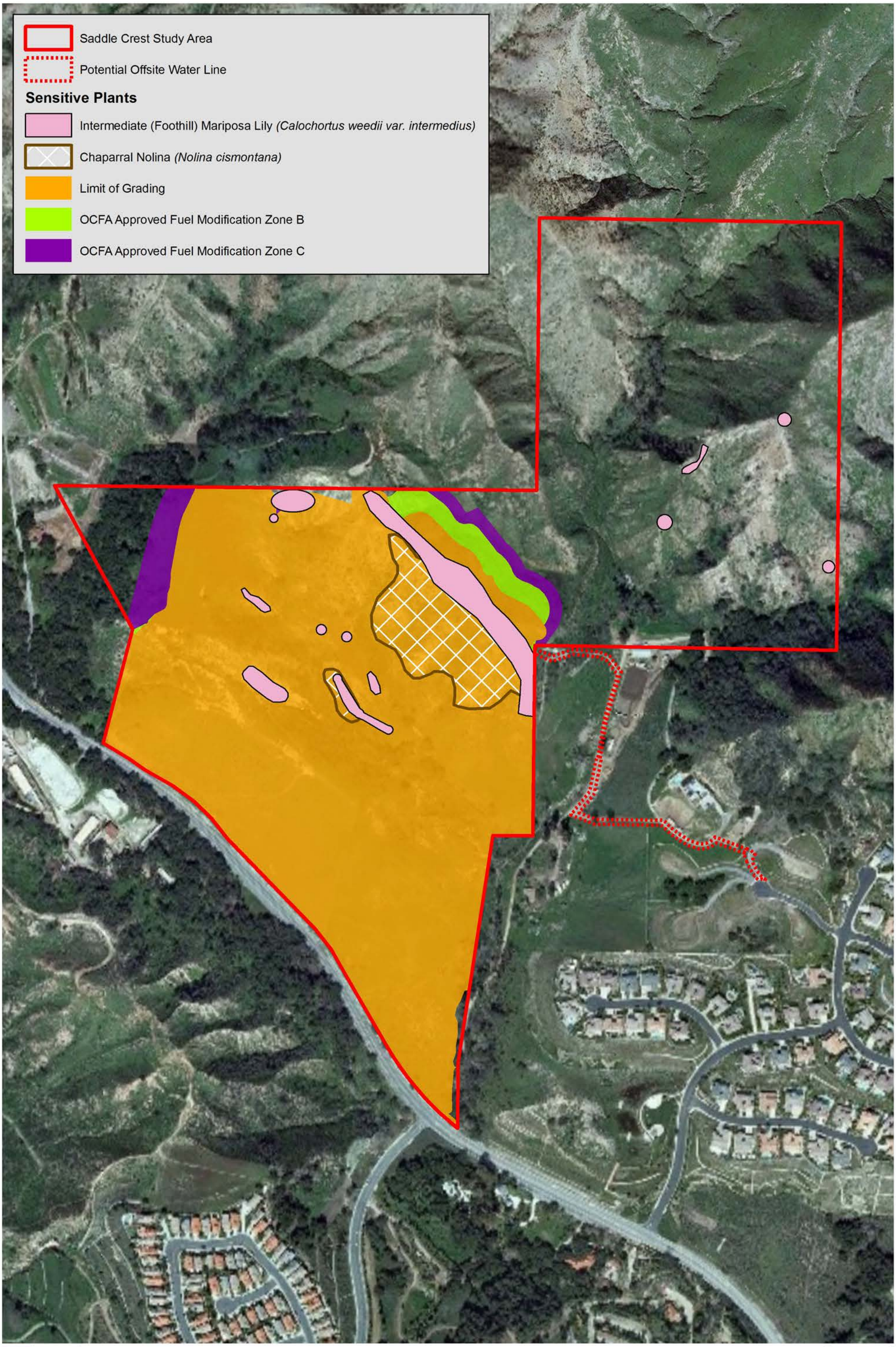
4.7.3 Potentially Significant Impacts to Sensitive Wildlife Species

Proposed Project

An observation of a single coastal California gnatcatcher was recorded within the sagebrush scrub/ruderal community in the extreme eastern portion of the study area during off-season (i.e., not within breeding season) focused surveys in 2007. It should be noted that focused breeding season surveys for the coastal California gnatcatcher were conducted in 1999 and 2002; no coastal California gnatcatchers were detected on-site. During off-season surveys conducted in 2007, an observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community in the eastern portion of the study area. However, due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area. No other coastal California gnatcatchers were observed during the 2007-2008 surveys. Focused breeding season surveys for the coastal California gnatcatcher were conducted again in 2010; no coastal California gnatcatchers were detected on-site [refer to *Results of Focused Coastal California Gnatcatcher Surveys for Saddle Crest, Orange County, California* under separate cover (PCR 2010)]. The study area is not within any critical habitat designated by the USFWS for the coastal California gnatcatcher; however, critical habitat for this species occurs across Santiago Canyon Road approximately 75 feet to the south. Nonetheless, coastal California gnatcatcher was not observed as a breeding resident during any focused breeding season surveys conducted, both pre-fire (conducted in 1999 and 2002) and post-fire (conducted in 2010). Therefore, it is not believed that the study area is utilized for breeding habitat for this species.

Although the study area is not believed to be utilized for breeding, suitable coastal sage scrub habitat within the study area may be utilized for dispersal; thus potentially significant impacts may occur to dispersal habitat for the coastal California gnatcatcher as a result of project construction. Because the coastal California gnatcatcher is a federally-threatened species, any impacts to this species or its habitat would exceed the threshold of significance. Impacts to coastal California gnatcatcher dispersal habitat are potentially significant under Threshold 1 (as referenced in Section 4.2).

The coastal California gnatcatcher is a "Target Species" of the NCCP/HCP and therefore, for those portions of the study area that are outside of the Congressional boundaries of the Cleveland National Forest and within



PCR

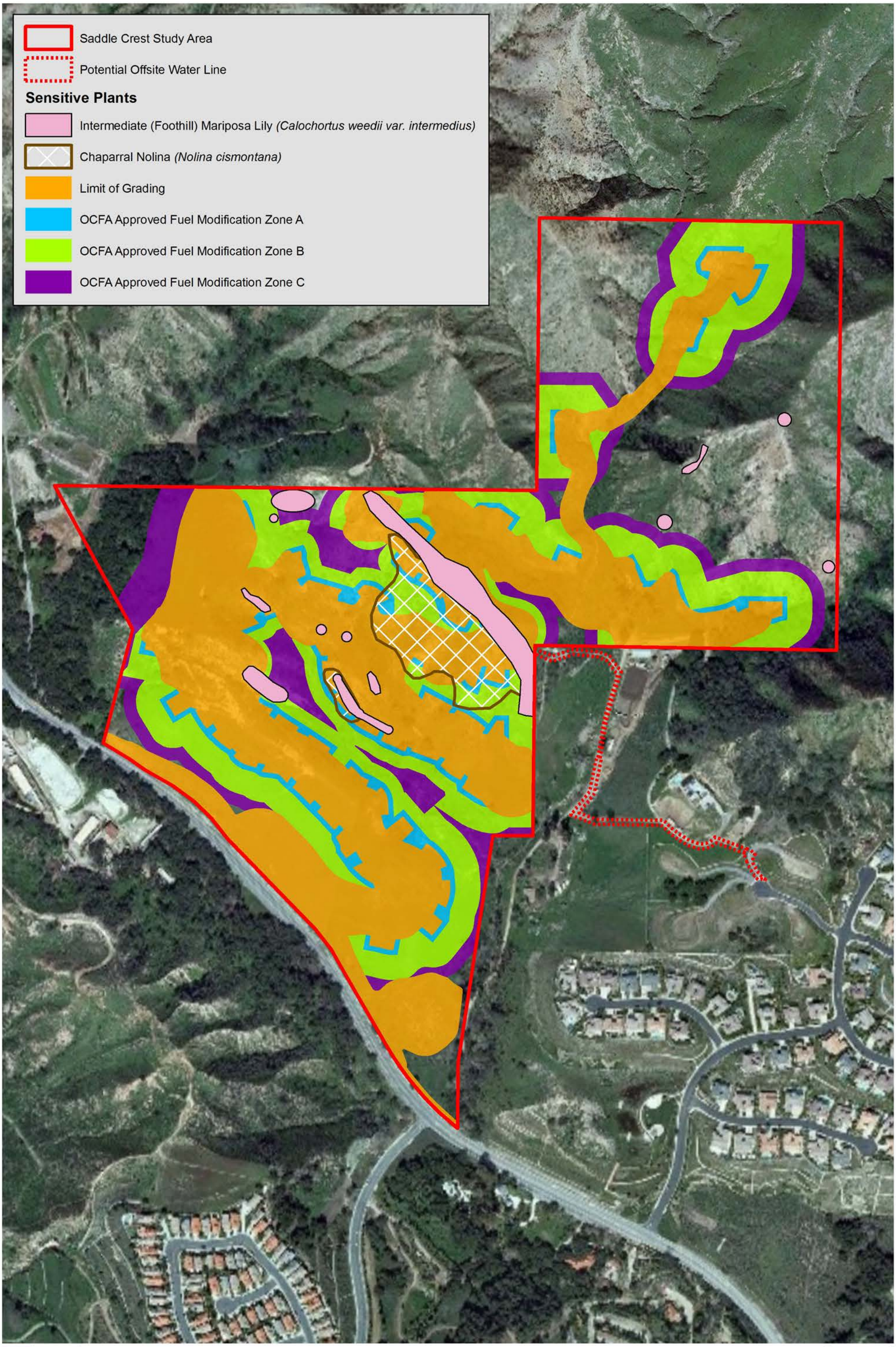
Impacts to Sensitive Species (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2002/2012.

FIGURE

22A



PCR

Impacts to Sensitive Species (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2002/2012.

FIGURE

22B

the NCCP/HCP in-lieu fee area, this is a covered species considered adequately mitigated for through implementation of the NCCP/HCP. Impacts to habitat that supports this species (coastal sage scrub) would allow mitigation through payment of an in-lieu fee for projects that lie within the in-lieu fee area. Although the southwestern portion of the study area is within the NCCP/HCP in-lieu fee area, the majority of the study area is within the Cleveland National Forest and outside the in-lieu fee area. Impacts to this species are considered potentially significant under Threshold 1 (as referenced in Section 4.2), and mitigation provided in Section 5.2.3 below would reduce this impact to a less than significant level.

Non-Clustered Scenario

Impacts are similar to the Proposed Project, and the Non-Clustered Scenario will also impact coastal sage scrub habitats that can be utilized by the coastal California gnatcatcher for dispersal. Therefore, impacts to coastal California gnatcatcher dispersal habitat are potentially significant under Threshold 1 (as referenced in Section 4.2). Mitigation provided in Section 5.2.3 below would reduce this impact to a less than significant level.

4.7.4 Potentially Significant Impacts to Nesting Birds

Proposed Project

The study area supports trees, shrubs, and ground cover which could be used by breeding raptors and songbirds. Nesting activity typically occurs from February 15 to August 31. Disturbing or destroying active nests is a violation of the Migratory Bird Treaty Act. In addition, nests and eggs are protected by Fish and Game Code, Section 3503. The removal of vegetation is considered a potentially significant impact under Threshold 4 (as referenced in Section 4.2). Mitigation provided in Section 5.2.4 below would reduce this impact to a less than significant level.

Non-Clustered Scenario

The analysis for the Non-Clustered Scenario on potentially significant impacts to nesting birds is the same as that presented above for the Proposed Project. The removal of vegetation is considered a potentially significant impact under Threshold 4 (as referenced in Section 4.2). Mitigation provided in Section 5.2.4 below would reduce this impact to a less than significant level.

4.7.5 Potentially Significant Impacts to Oak Trees and Regulated Trees

Proposed Project

A total of 151 coast live oak trees will be impacted by the Proposed Project, as shown in **Figure 23A**, *Impacts to Oak Trees (Proposed Project)*. Additionally, 46 coast live oaks within the fuel modification area may be impacted through irrigation or pruning; however, because the trees will not be removed, mitigation for trees within the fuel modification areas is not recommended. A total of 422 coast live oak trees will be avoided. In total, approximately 468 coast live oak trees (76 percent) will be preserved on-site (including 422 avoided trees and 46 trees within the fuel modification area). In addition, one blue gum tree was identified within the Proposed Project's limit of grading; however, this blue gum tree has a 4-inch diameter and is therefore

not regulated under the F/TSP (which regulates "any tree exceeding five inches in diameter", as detailed on page III-76 of the F/TSP).

Because the coast live oaks are regulated under the F/TSP (identified in Exhibit II-4 of the F/TSP), impacts are considered potentially significant under Threshold 5 (as referenced in Section 4.2). In accordance with the F/TSP, a Saddle Crest Tree Management and Preservation Plan has been prepared by certified arborists at Dudek (Dudek 2011, 2012). Implementation of the Tree Management and Preservation Plan, which is detailed in Section 5.2.5 below, will reduce this impact to a less than significant level.

Because it will be several years before the newly planted trees reach the maturity and stature of the trees currently within the study area, there would be temporary impacts associated with the removal of the existing mature trees. However, this would be a temporary impact to common wildlife species by removing habitat (i.e., a mature oak woodland canopy) that can be utilized by wildlife for cover, and as mentioned in Section 4.6.3 above, impacts to common wildlife species are considered less than significant under Threshold 1 (as referenced in Section 4.2).

Non-Clustered Scenario

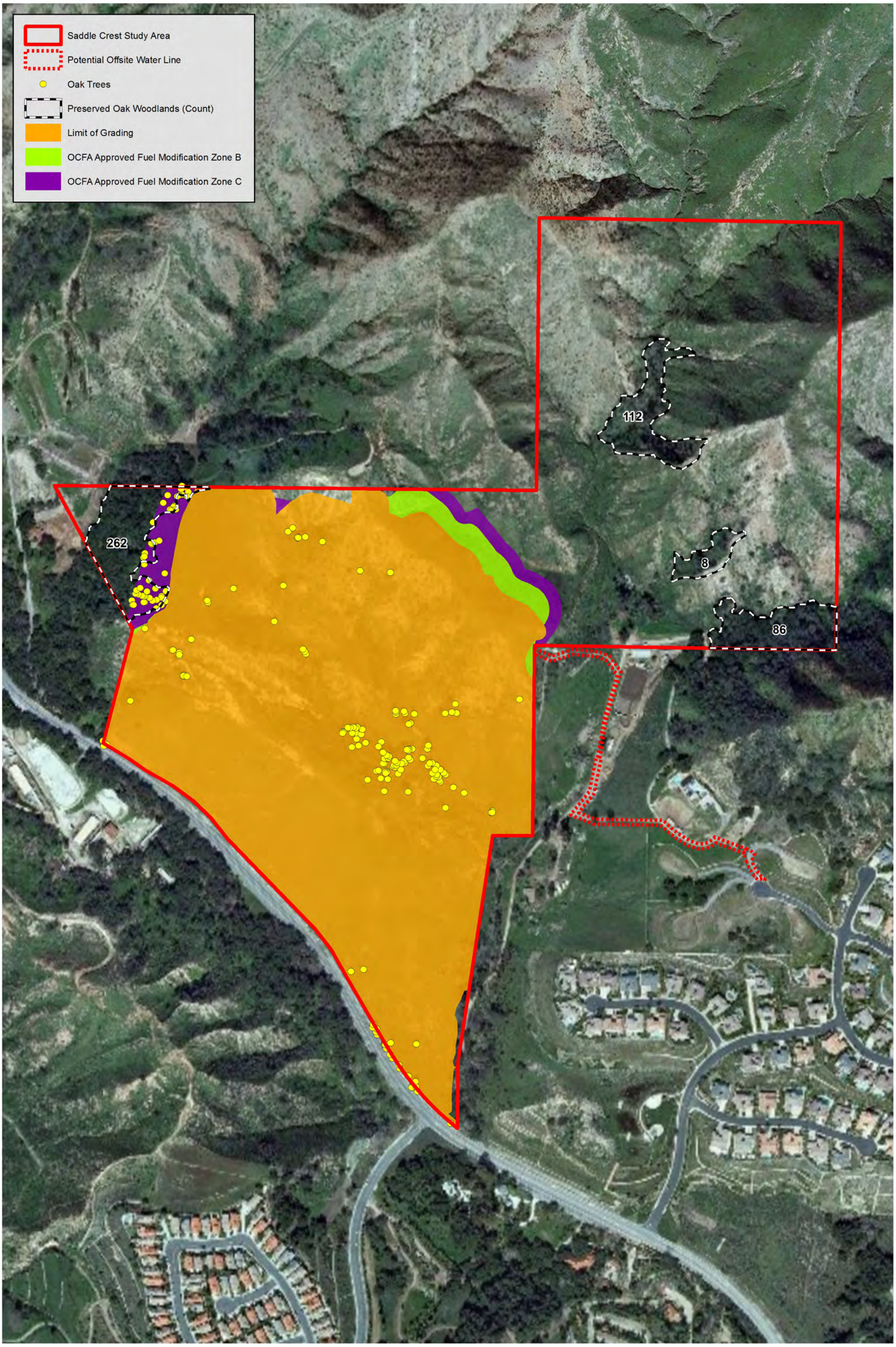
As shown in **Figure 23B**, *Impacts to Oak Trees (Non-Clustered Scenario)*, a total of 249 coast live oak trees will be impacted by the Non-Clustered Scenario. In addition, 160 coast live oak trees are within the fuel modification area or at the edges of grading and may incur impacts in the form of pruning or irrigation; however, because the trees will not be removed, mitigation for trees within the fuel modification areas is not recommended. A total of 370 coast live oak trees (60 percent) will be preserved on-site, including 210 trees which will be avoided and 160 trees within the fuel modification areas that may be impacted through irrigation or pruning; however, because the trees will not be removed, mitigation for trees within the fuel modification areas is not recommended.

Because the coast live oaks are regulated under the F/TSP (identified in Exhibit II-4 of the F/TSP), impacts are considered potentially significant under Threshold 5 (as referenced in Section 4.2). Should this Non-Clustered Scenario be implemented, a Tree Management and Preservation Plan specific to the Non-Clustered Scenario would be prepared. Additionally, these oak woodlands are identified as "receiver areas" for the proposed mitigation outlined in the Saddle Crest Tree Management and Preservation Plan prepared by Dudek (Dudek 2011, 2012). Thus, impacts to these oak woodlands may reduce the amount of on-site mitigation area available for the overall impacts to oak trees. In accordance with the F/TSP, a Tree Management and Preservation Plan specific to the Non-Clustered Scenario would be warranted to address the impacts and propose alternative locations for mitigation off-site, if needed, to meet an acceptable mitigation ratio in order to reduce this impact to a less than significant level.

4.7.6 Potentially Significant Impacts to Jurisdictional Features

Proposed Project

Approximately 0.13 acre of ACOE jurisdictional "waters of the U.S." and 0.13 acre of RWQCB jurisdictional "waters of the State" comprising 3,405 linear feet of streambed, and 2.81 acres (including 0.08 acre due to fuel modification) of CDFG jurisdictional streambed and associated riparian habitat comprising 4,218 linear



PCR

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0 350 700 Feet

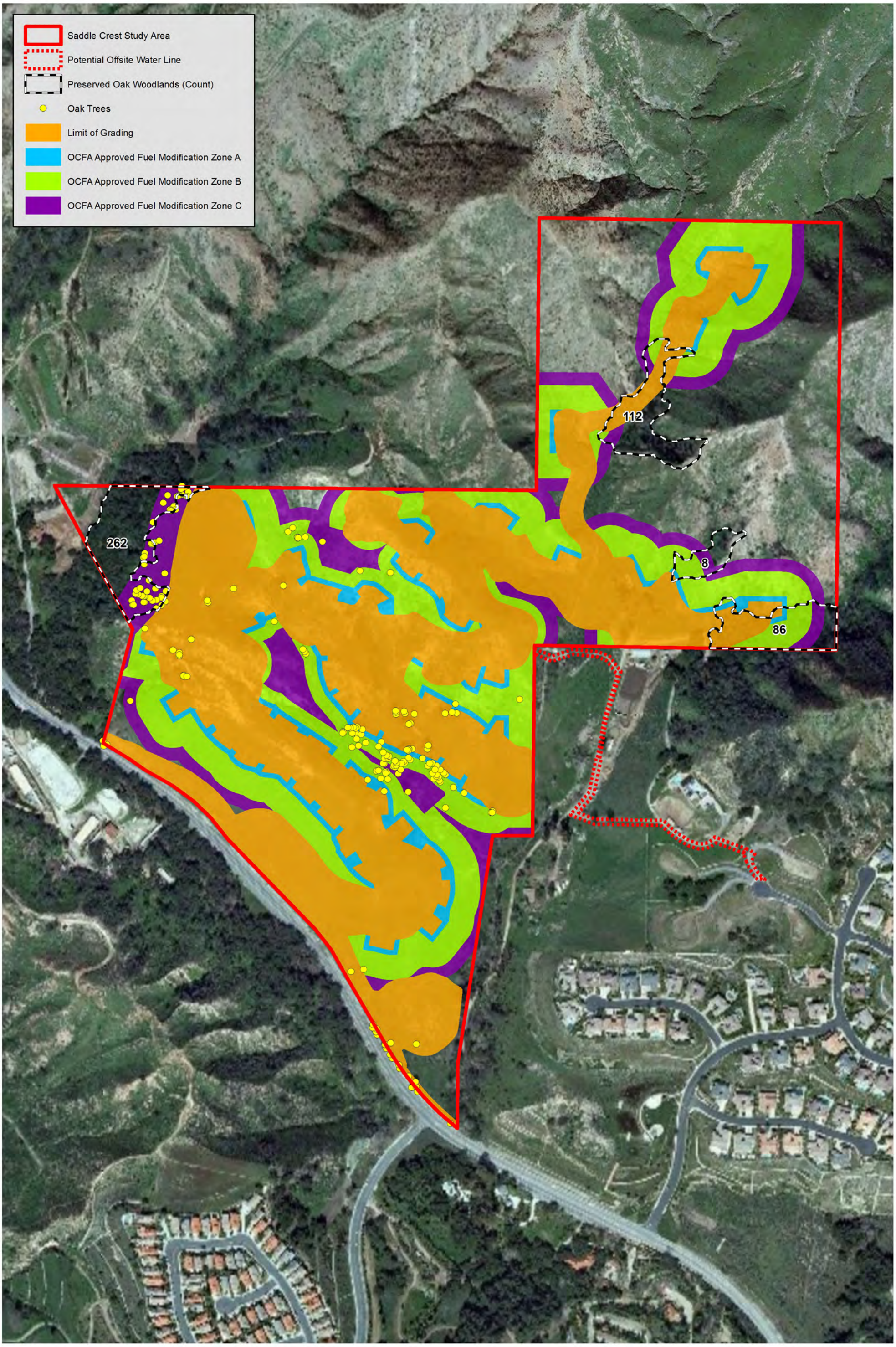
Impacts to Oak Trees (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Dudek, 2010; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

23A



PCR

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0 350 700 Feet

Impacts to Oak Trees (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Dudek, 2010; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

23B

feet of streambed will be impacted by the Proposed Project, as shown in **Figure 24A**, *Impacts to Jurisdictional Features (Proposed Project).* A total of 4,937 linear feet of ACOE/RWQCB and 5,184 linear feet of CDFG jurisdictional streambed will be avoided. Impacts to jurisdictional features are considered potentially significant under Thresholds 2 and 3 (as referenced in Section 4.2). Mitigation provided in Section 5.2.6 below would reduce this impact to a less than significant level.

Non-Clustered Scenario

With implementation of the Non-Clustered Scenario, impacts will occur to Drainage E. In addition, approximately 0.08 acre of ACOE jurisdictional "waters of the U.S." comprising 2,613 linear feet; 0.08 acre of RWQCB jurisdictional "waters of the State" comprising 3,593 linear feet; and 5.77 acres (including 3.07 acres due to fuel modification) of CDFG jurisdictional streambed and associated riparian habitat comprising 8,006 linear feet of streambed will be impacted by the Non-Clustered Scenario, as shown in **Figure 24B**, *Impacts to Jurisdictional Features (Non-Clustered Scenario)*. A total of 1,396 linear feet of streambed will be avoided. Impacts to jurisdictional features are considered potentially significant under Thresholds 2 and 3 (as referenced in Section 4.2). Mitigation provided in Section 5.2.6 below would reduce this impact to a less than significant level.

4.8 CONSISTENCY WITH LOCAL POLICIES

The Proposed Project is subject to the goals and requirements outlined in the Central/Coastal NCCP/HCP, F/TSP, and Cleveland National Forest Land and Resource Management Plan. Section 4 of this document analyzes impacts associated with the Proposed Project on sensitive species and biological resources within the study area pursuant to CEQA standards, which also addresses the requirements of the NCCP/HCP and Cleveland National Forest Land and Resource Management Plan. Additional requirements specific to consistency with the F/TSP are addressed below.

Proposed Project

The goals of the F/TSP are to preserve the rural character of the area and provide a buffer between urban development and the Cleveland National Forest; to preserve significant landform, biological and scenic resources; to ensure at least some development potential on each individual property; to provide for a circulation system and other infrastructure adequate to serve the ultimate level of development permitted; and to provide equestrian and other recreational opportunities (County of Orange 1991). Specific to the analysis of biological resources, the F/TSP's intent is to provide a buffer between urban development and the Cleveland National Forest, as well as preserve significant landform, biological and scenic resources, particularly significant oak woodlands, riparian areas, and wildlife corridors. As shown through the analysis of impacts to biological resources, the proposed development plan clusters residential structures adjacent to existing roads and development in order to minimize the overall extent of grading and fuel modification area impacts, as well as reduce overall fragmentation of surrounding open space areas.

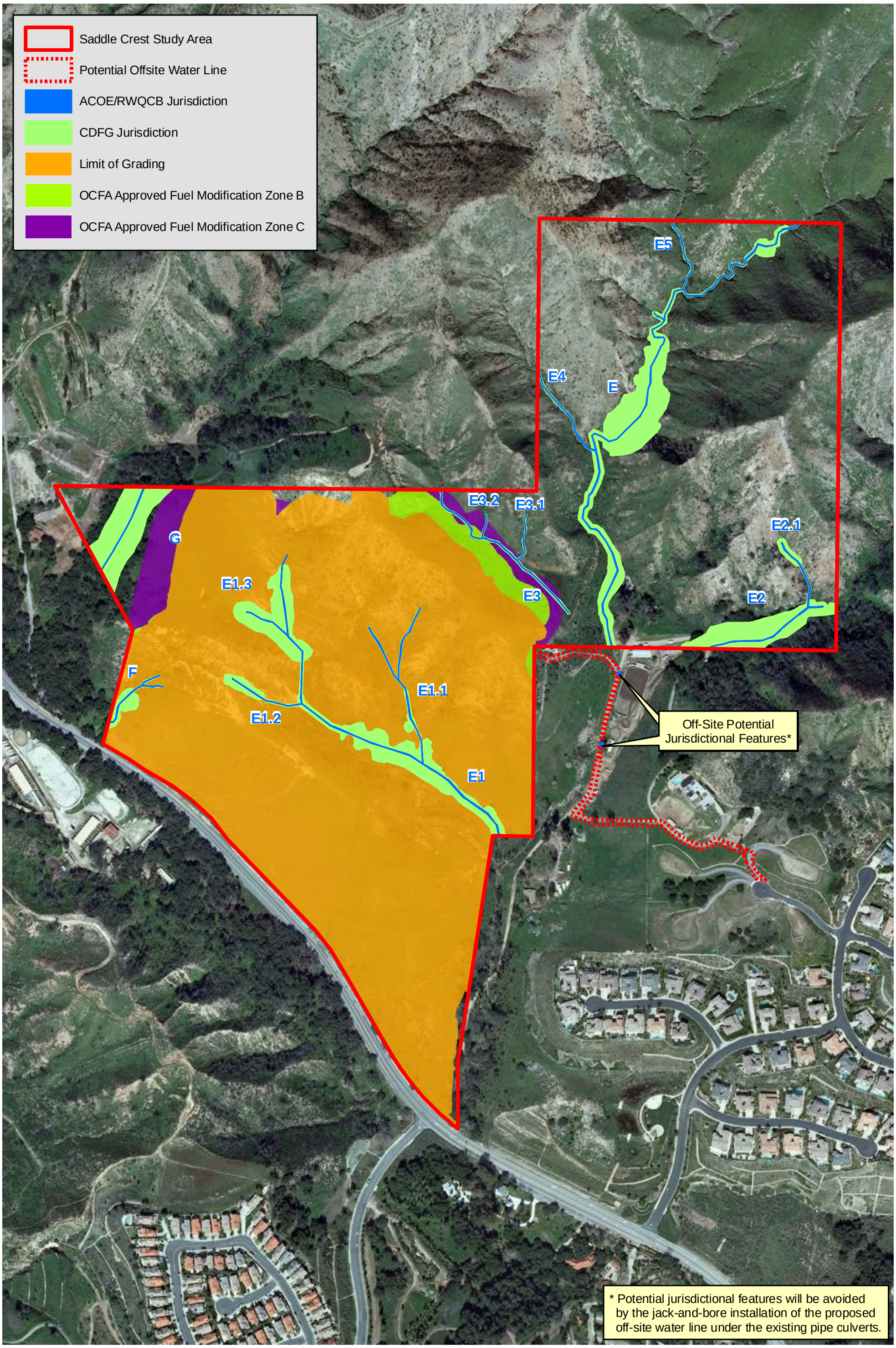
The proposed development plan will result in a total of 79.8 acres of open space (70 percent), including 4.2 acres of which are fuel modification areas; 24.6 acres of which will be comprised of revegetated/graded open space areas, the water quality basin, and equestrian trail; and 51.0 acres of which are undisturbed open space which will be avoided. The Proposed Project was designed to completely avoid the wildlife corridor (except for 0.8 acre of fuel modification zone C) along the western portion of the study area. Fuel

modification impacts would create a long-term indirect impact to the wildlife movement corridor due to the increased presence of human activity to consistently maintain the fuel modification zone; however, this impact is not expected to be significant since thinning would only occur periodically and likely during the day when wildlife are less active. Additionally, the F/TSP states that "the primary intended uses of the designated wildlife corridors shall be wildlife movement and provision of habitat. Other permitted uses…shall be allowed only if they are not detrimental to the primary use." Although fuel modification is not specified in the F/TSP as a permitted use, it would have a similar or lesser impact than those permitted uses that are provided for (e.g., passive recreation, roads, recreational trails, utilities/pipelines, etc.), and is not anticipated to conflict with the primary use. In addition, the project was designed to comply with the required 50-foot setback zone surrounding the wildlife corridor, in accordance with the F/TSP, and all landscaping within a 25-foot buffer of the wildlife corridor will be planted with native plant species, as specified in the F/TSP. Approximately 79 percent of coast live oak trees will be preserved on-site Project (including 425 avoided trees and 46 within fuel modification zones) and those coast live oak trees which are impacted will be mitigated as detailed in the Saddle Crest Tree Management and Preservation Plan prepared by Dudek, provided under separate cover (Dudek 2011), as a part of the Proposed Project's Protection Elements. The project will also completely avoid impacts to a major streambed (Drainage E). In addition, implementation of the Proposed Project would provide a larger open space buffer between the proposed development and the Cleveland National Forest.

This approach also takes into consideration the focus on the preservation of biological diversity that is consistent with current biological resource planning and conservation, as well as the biological goals and objectives of the F/TSP to preserve and minimize impacts on significant regional resources (i.e., wildlife corridors, oak woodlands, and streambeds).

Non-Clustered Scenario

The Non-Clustered Scenario follows the F/TSP guidelines of conforming to the rural character of the area with sprawling ranch-style homes with a greater overall impact area for grading and fuel modification areas. In comparison, the Non-Clustered Scenario will result in a total of 75.3 acres of open space (66 percent), including 38.2 acres of which are fuel modification areas, approximately 8.7 acres of which will be comprised of revegetated/graded open space, and 28.4 acres of which are undisturbed open space which will be avoided. The amount of undisturbed open space is substantially reduced with the Non-Clustered Scenario, and the overall development footprint associated with the Non-Clustered Scenario is greater than the Proposed Project due to a much larger fuel modification zone and sprawling development plan; thus, overall impacts to biological resources are greater than the Proposed Project.



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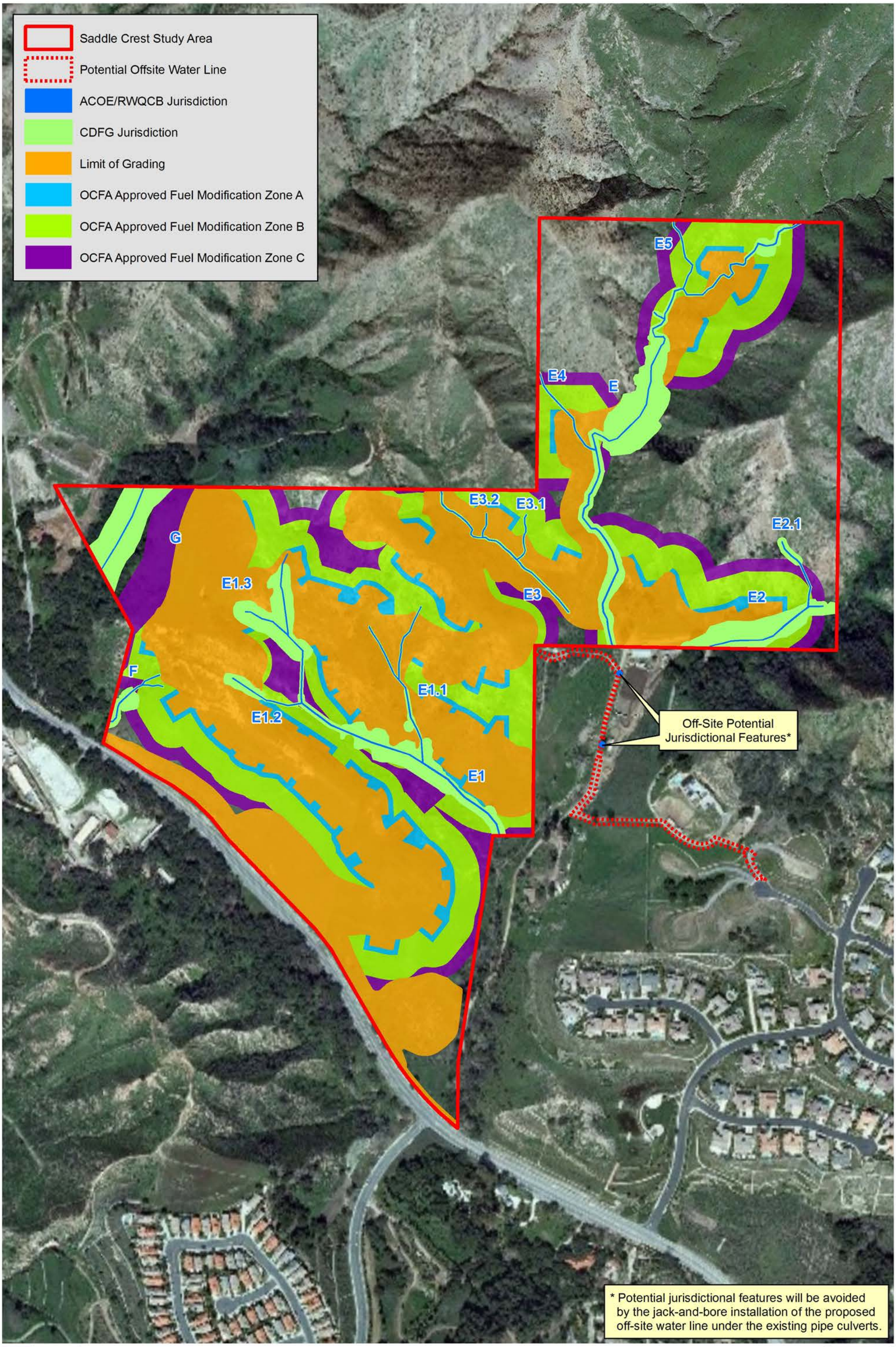
Impacts to Jurisdictional Features (Proposed Project)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

24A



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Impacts to Jurisdictional Features (Non-Clustered Scenario)

Saddle Crest

Source: Aerial Express, 2009; Hunsaker, 2012; PCR Services Corporation, 2012.

FIGURE

24B

5.0 MITIGATION MEASURES

5.1 APPROACH

Mitigation measures are recommended for those impacts determined to be significant to sensitive biological resources. Mitigation measures for impacts considered to be "significant" were developed to reduce such impacts to a level of "insignificance." As stated in CEQA Guidelines Section 15370 mitigation includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Although the Saddle Creek North and South properties were formerly owned by the Applicant and originally a part of the defined "study area" for the 2000 *Biological Resources Assessment* and 2002 *Supplemental Biological Resources Assessment for the Saddle Creek and Saddle Crest Projects* (under separate cover), the properties were transferred for conservation. The transfer of Saddle Creek North and South for conservation contributed valuable habitat which provides connectivity between the Central/Coastal and Southern Subregions of the County of Orange NCCP/HCP, as well as the Cleveland National Forest and O'Neill Regional Park.

It should be noted that as part of the transfer of the Saddle Creek North property for conservation, the Applicant retained rights to mitigate on the Saddle Creek North property for impacts associated with the Saddle Crest project. In discussions with the USFWS and CDFG, potentially suitable areas for mitigation opportunities were identified; thus, it is the intent of the Applicant to implement all off-site mitigation for the Saddle Crest project within suitable habitat on Saddle Creek North.

The southwestern portion of the study area is within the NCCP/HCP in-lieu fee area (see **Figure 25**, *Relationship to the In Lieu Fee Area of the Orange County NCCP*). Projects within the in-lieu fee area of the Orange County NCCP can mitigate for losses to coastal sage scrub habitat with the payment of a $65,000 fee per acre to the Nature Reserve of Orange County (McAfee 2006). In addition, project applicants using the in-lieu fee program to mitigation for impacts to coastal sage scrub can utilize the mitigation opportunities provided through the NCCP (i.e., impacts to any number of Catalina mariposa lilies are covered and impacts to less than 20 foothill mariposa lilies are covered). The majority of the study area is located outside of the in-lieu fee area and within the boundaries of the Cleveland National Forest; therefore, the in-lieu fee program cannot be used to mitigate for all impacts to coastal sage scrub on-site. However, the in-lieu fee program can be applied towards those areas of the property within the in-lieu fee boundary. Mitigation will follow guidelines outlined by CEQA as described in the following sections.

5.2 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS

The following mitigation measures address potentially significant impacts from implementation of the Proposed Project.

5.2.1 Measures to Mitigate Potentially Significant Impacts to Sensitive Plant Communities

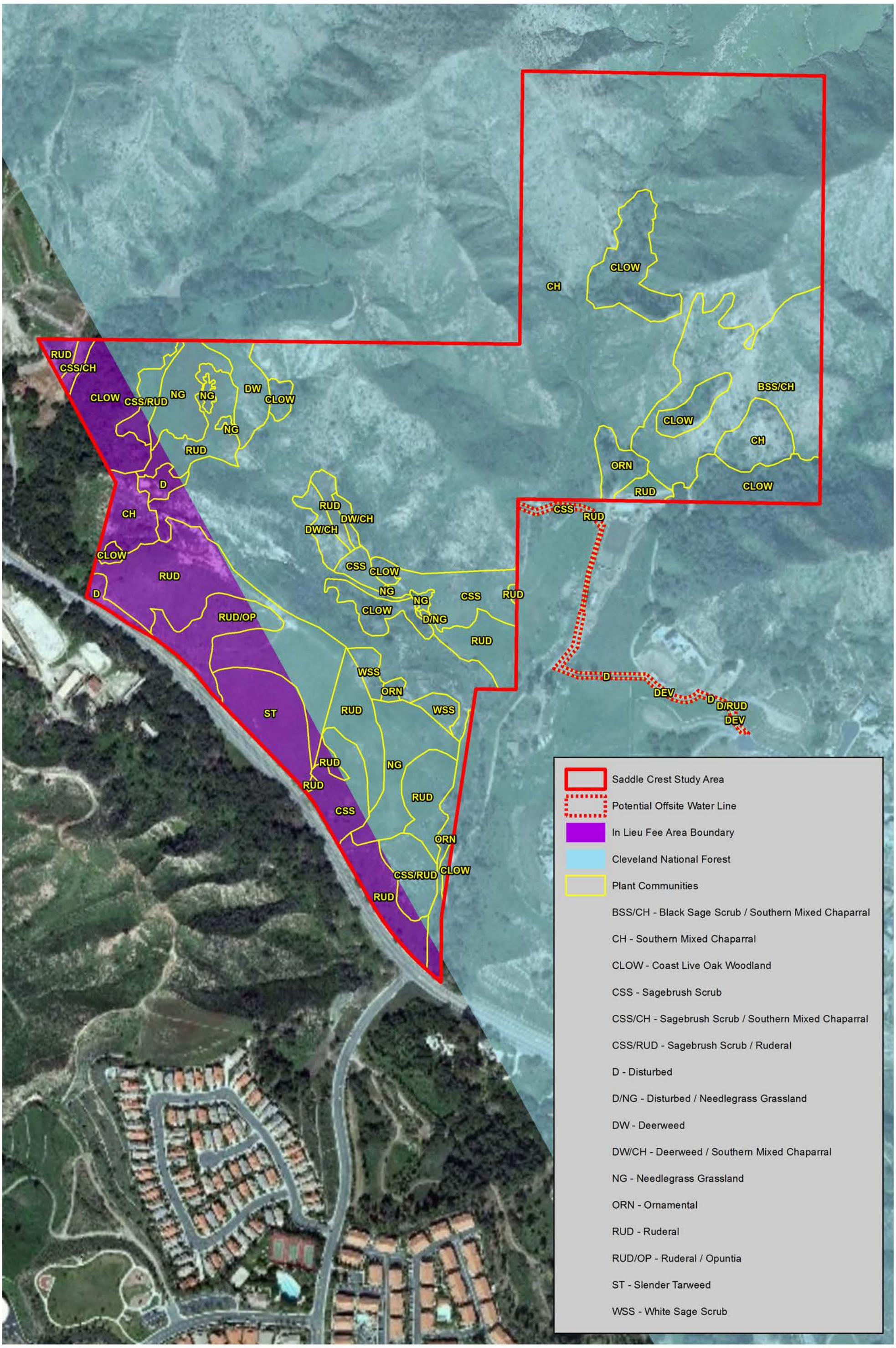
Proposed Project

Because the Applicant is not able to use the in-lieu fee to offset all impacts to coastal sage scrub, measures to mitigate impacts to 3.8 acres of sagebrush scrub and 1.9 acres of sagebrush scrub/ruderal communities will include the off-site acquisition and preservation and/or restoration/enhancement of similar habitat at a ratio of at least 1:1 or re-vegetation in a suitable area on-site also at a minimum 1:1 ratio. Measures to mitigate impacts to 0.8 acre of white sage scrub and 4.1 acres of needlegrass grassland will include the off-site acquisition and preservation and/or restoration/enhancement of similar habitat at a ratio of at least 1:1 (0.75:1 ratio for needlegrass grassland) or re-vegetation in a suitable area on-site also at a minimum 1:1 ratio (0.75:1 ratio for needlegrass grassland). Measures to mitigate impacts to coast live oak woodland are outlined below in Section 5.2.5. Off-site mitigation for impacts to sensitive plant communities may include mitigation opportunities on Saddle Creek North.

A small amount of coastal sage scrub habitat is within the in-lieu fee area of the NCCP (1.3 acres, including 0.9 acre of sagebrush scrub and 0.4 acre of sagebrush scrub/ruderal); however, this coastal sage scrub is not presumed to be occupied and would not be mitigated through the payment of the in-lieu fee. The coastal California gnatcatcher observed during the 2007-2008 off-season surveys was located in a sagebrush scrub/ruderal area in the eastern portion of the study area (these areas are entirely within the Cleveland National Forest) which is approximately 375 feet from the Cleveland National Forest/in-lieu fee area boundary. The small amount of coastal sage scrub within the in-lieu fee area is not presumed to be occupied because it occurs within two small areas, is close to Santiago Canyon Road, and is not contiguous with the polygon of coastal sage scrub where the coastal California gnatcatcher was observed. Nevertheless, impacts to all coastal sage scrub habitats will be mitigated for through CEQA as described above.

Non-Clustered Scenario

Measures to mitigate impacts to 3.8 acres of sagebrush scrub and 1.7 acres of sagebrush scrub/ruderal communities will include the off-site acquisition and preservation and/or restoration/enhancement of similar habitat at a ratio of at least 1:1 or re-vegetation of a similar amount in a suitable area on-site. Measures to mitigate impacts to 0.7 acre of white sage scrub and 4.0 acres of needlegrass grassland will include the off-site acquisition and preservation and/or restoration/enhancement of similar habitat at a ratio of at least 1:1 (0.75:1 ratio for needlegrass grassland)or re-vegetation in suitable area on-site also at a minimum 1:1 ratio (0.75:1 ratio for needlegrass grassland). Measures to mitigate impacts to coast live oak woodland are outlined below in Section 5.2.5 and would warrant and updated Tree Management and Preservation Plan. Off-site mitigation for impacts to sensitive plant communities may include mitigation opportunities on Saddle Creek North.



PCR

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0 350 700 Feet

Relationship to the In Lieu Fee Area of the Orange County NCCP

Saddle Crest

Source: Aerial Express, 2009; USDA Forest Service - Geospatial Service and Technology Center (GSTC), 2000; PCR Services Corporation, 2012.

FIGURE

25

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5.2.2 Measures to Mitigate Potentially Significant Impacts to Sensitive Plant Species

Proposed Project

Because the majority of the property is outside of the in-lieu fee area, the $65,000 per acre fee for impacts to coastal sage scrub habitat cannot being used to mitigate for all losses to coastal sage scrub. Mitigation will be accomplished through CEQA. Additionally, because foothill mariposa lily and chaparral nolina are outside of the NCCP in-lieu fee boundary, the NCCP cannot be used for mitigation for conditionally covered species under the NCCP such as the foothill mariposa lily (Snyder, per. comm. 2009).

Mitigation for impacts to foothill mariposa lily and chaparral nolina will include off-site translocation and/or seed collection/off-site seeding onto the Saddle Creek North property. Measures to mitigate impacts to foothill mariposa lily and chaparral nolina will be in consultation with the CDFG.

Non-Clustered Scenario

For potential impacts to foothill mariposa lily and chaparral nolina associated with the Non-Clustered Scenario, off-site mitigation will be implemented via transplantation and/or seed collection/off-site seeding onto Saddle Creek North, as outline above.

5.2.3 Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species

Proposed Project

Impacts to coastal California gnatcatcher dispersal habitat[10] will be mitigated through the mitigation measures proposed for coastal sage scrub communities (i.e., sagebrush scrub and sagebrush scrub/ruderal communities). Mitigation measures may include, but not be limited to, a combination of on-site and off-site preservation and/or restoration/enhancement of habitat suitable for dispersal by coastal California gnatcatcher at a minimum ratio of 1:1, or as directed by the lead agency, and in coordination with the USFWS, if warranted.

Additionally, the $65,000 per acre fee for impacts to coastal sage scrub habitat can being used to mitigate for losses to coastal sage scrub communities that lie within the in-lieu fee area.

Non-Clustered Scenario

As described above, potential impacts to coastal California gnatcatcher will be mitigated through the mitigation measures proposed for coastal sage scrub communities (i.e., sagebrush scrub and sagebrush scrub/ruderal communities). Mitigation measures may include, but not be limited to, a combination of on-site and off-site preservation and/or restoration/enhancement of habitat suitable for dispersal by coastal California gnatcatcher at a minimum ratio of 1:1, or as directed by the lead agency, and coordination with the USFWS, if warranted.

[10] *Based on preliminary conversations with ACOE representative Jason Lambert (Lambert, pers. comm. 2011b) and USFWS representative Jonathan Snyder (Snyder, pers. comm. 2010), because a single gnatcatcher was observed within the study area and is believed to have been dispersing transient moving through the study area, it is likely only informal consultation with the USFWS will be necessary.*

Additionally, the $65,000 per acre fee for impacts to coastal sage scrub habitat can being used to mitigate for losses to coastal sage scrub communities that lie within the in-lieu fee area.

5.2.4 Measures to Mitigate Potentially Significant Impacts to Migratory or Nesting Birds

Proposed Project

To ensure the protection of active nests and eggs, efforts will be made to schedule vegetation removal between September 1 and February 14 (fall and winter) to avoid the nesting season. This would ensure that no active nests would be disturbed. If clearing and/or grading activities cannot be avoided during the nesting season, all suitable habitat will be thoroughly surveyed for the presence of nesting birds by a qualified biologist prior to removal. If any active nests are detected, the area will be flagged, along with a 300-foot buffer (or appropriate buffer as determined by the monitoring biologist), and will be avoided until the nesting cycle is complete or it is determined by the monitoring biologist that the nest has failed. In addition, a biologist will be present on-site to monitor any vegetation removal to ensure that nests not detected during the initial survey are not disturbed.

Non-Clustered Scenario

As described above, for potential impacts to migratory or nesting birds associated with the Non-Clustered Scenario, vegetation removal will be scheduled to avoid the nesting season, or nesting bird surveys will be conducted prior to clearing and/or grading activities.

5.2.5 Measures to Mitigate Potentially Significant Impacts to Oak Trees

Proposed Project

Mitigation measures for impacts to 151 coast live oak are outlined in the Saddle Crest Tree Management and Preservation Plan (Dudek 2011). The F/TSP (Section III E, Landscaping and Fuel Modification Regulations) specifies that all oak trees exceeding five inches in diameter at 4.5 feet above the existing grade to be removed shall be transplanted if possible. Trees that would not survive transplantation shall be replaced with minimum 15-gallon trees at a 5:1, 8:1, 10:1, 12:1, or 15:1 replacement ratio depending on the size of the tree. In contrast to the F/TSP, the proposed mitigation program focuses on the preservation of approximately 76 percent of the oaks on-site (including 422 avoided trees and 46 within fuel modification zones), restoration and enhancement of preserved oak woodlands through sustainable tree planting, and planting of native trees throughout the Proposed Project rather than transplantation.

According to Dudek, none of the 151 oak trees within the impact area are considered candidates for relocation due to their health and/or structural conditions. Thus, the required mitigation per the F/TSP's tree replacement mitigation sliding scale would require 1,180 trees (commonly 15-gallon size) to mitigate impacts to the 151 trees on-site. However, as detailed in the Saddle Crest Tree Management and Preservation Plan, Dudek recommends an alternative site-specific mitigation plan as being biologically superior. The mitigation plan proposes to plant various sized trees, seedlings, and site-collected acorns within the landscaped portion of the proposed development as well as within the oak woodlands to be preserved on-site to restore/enhance these "receiver areas." The planting of 15-gallon oak trees along with a variety of other sized oak trees will add diversity to the restoration areas and improve the health and

sustainability of all trees in the mitigation program. Approximately 12 to 30 percent of the mitigation tree planting (a minimum of 250 trees and a maximum of 300 trees) is recommended to occur in transition areas, such as the perimeter areas of the development and within the fuel modification areas. The remaining 70 to 88 percent of the mitigation trees are proposed to be planted within receiver areas within and around the oak woodlands that are to be preserved on-site. This proposed mitigation will have that added benefits of restoring degraded woodlands, utilizing site-collected acorns, providing protection for developing seedlings and saplings, and including a natural buffer between developed areas and native habitats within the transition areas. Additionally, this plan is preferable for improving diversity, density, and wildlife habitat value benefits. The mitigation proposes a total of 2,281 trees, including up to 2,000 acorns and 281 saplings and young trees ranging in size from 1-gallon containers to 66-inch boxes. Additional details can be found in the Saddle Crest Tree Management and Preservation Plan, provided under separate cover (Dudek 2011, 2012).

Coast live oak trees located within the fuel modification zones that require pruning to comply with Orange County Fire Authority requirements shall be pruned by a qualified arborist specializing in the management and care of this tree species in consultation with the County Biological Resources Monitor.

Non-Clustered Scenario

With implementation of the Non-Clustered Scenario, mitigation measures for impacts to 249 coast live oaks would require 1,938 replacement trees per the F/TSP's tree replacement mitigation sliding scale. However, as detailed in the Saddle Crest Tree Management and Preservation Plan, Dudek recommends an alternative site-specific mitigation plan as being biologically superior, utilizing various sized trees, seedlings, and site-collected acorns. Should this Non-Clustered Scenario be implemented, a Tree Management and Preservation Plan specific to the Non-Clustered Scenario would be prepared. Because portions of these oak woodlands are identified as "receiver areas" for the proposed mitigation for the Proposed Project outlined in the Saddle Crest Tree Management and Preservation Plan prepared by Dudek (Dudek 2011, 2012), alternative locations for mitigation off-site would likely be necessary for the Non-Clustered Scenario.

5.2.6 Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features

Proposed Project

Mitigation measures for impacts to jurisdictional features will be subject to the regulations set forth by the agencies. The ACOE and the CDFG will require the project proponent to explore alternatives to reduce impacts and will require mitigation for all unavoidable impacts. The ACOE has a "no net loss" policy, which requires that any unavoidable impacts to wetland functions and values be replaced. The ACOE will also require inclusion of appropriate buffers. The CDFG will require mitigation for impacts to riparian resources, including some outside of ACOE jurisdiction. In addition, the RWQCB will add restrictions to control runoff from the site, require on-site treatment of runoff to improve water quality, and impose BMPs on the construction. All of the features of the project that will address water quality issues will be explained within the Water Quality Management Plan (for post-construction BMPs) and Stormwater Pollution Prevention Plan (for construction-related BMPs).

The following measures would reduce impacts to ACOE, CDFG, and RWQCB jurisdictional areas to below a level of significance:

- On- and off-site replacement and/or restoration/enhancement of ACOE and RWQCB jurisdictional waters and wetlands at a ratio no less than 1.5:1. Off-site replacement may include mitigation on Saddle Creek North and/or include the purchase of mitigation credits at an agency-approved off-site mitigation bank.
- On- and off-site replacement and/or restoration/enhancement of CDFG jurisdictional streambed and associated riparian habitat at a ratio no less than 1.5:1. Off-site replacement may include mitigation on Saddle Creek North and/or include the purchase of mitigation credits at an agency-approved off-site mitigation bank.

In addition, the mitigation for oak woodland within the drainages would follow the mitigation outlined in the Tree Management and Preservation Plan, detailed above.

Non-Clustered Scenario

As described above, for potential impacts to jurisdictional features associated with the Non-Clustered Scenario, on- and off-site replacement and/or restoration/enhancement of ACOE and RWQCB jurisdictional waters and wetlands and CDFG jurisdictional streambed and associated riparian habitat will take place at a mitigation ratio no less than 1.5:1. Off-site replacement may include mitigation on Saddle Creek North and/or include the purchase of mitigation credits at an agency-approved off-site mitigation bank.

5.3 CONSTRUCTION RELATED MINIMIZATION/MITIGATION MEASURES

Although portions of the study area are within the Congressional boundaries of the Cleveland National Forest and therefore are not covered under the NCCP/HCP, the removal of coastal sage scrub communities will be conducted in compliance with the Construction Minimization Measures identified in the NCCP/HCP. The NCCP/HCP requires that certain construction-related mitigation measures be included to minimize impacts to the coastal California gnatcatcher and other CSS species. Prior to approval of grading plans, the project biologist shall review the contract specifications to verify that the following measures to minimize impacts to the coastal California gnatcatcher and other CSS species have been included on the specifications. The project biologist shall provide written evidence to the Department of Public Works in the form of a note on the grading plans that this condition has been completed.

- To the maximum extent practicable, no grading of CSS habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15). It is expressly understood that this provision and the remaining provisions of these "construction-related minimization measures" are subject to public health and safety considerations. These considerations include unexpected slope stabilization, erosion control measures, and emergency facility repairs. In the event of such public health and safety circumstances, landowners or public agencies/utilities will provide USFWS/CDFG with the maximum practicable notice (or such notice as is specified in the NCCP/HCP to allow for capture of coastal California gnatcatchers, cactus wrens, and any other CSS Identified Species that are not otherwise flushed) and will carry out the following measures only to the extent as practicable in the context of the public health and safety considerations.
- Prior to the commencement of grading operations or other activities involving significant soil disturbance, all areas of coastal sage scrub habitat to be avoided under the provisions of the NCCP/HCP shall be identified with temporary fencing or other markers clearly visible to construction

personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of coastal sage scrub, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species shall be clearly marked and identified on the construction/grading plans.

- A monitoring biologist, acceptable to USFWS/CDFG will be on-site during any clearing of CSS. The landowner or relevant public agency/utility will advise USFWS/CDFG at least seven (7) calendar days [and preferably fourteen (14) calendar days] prior to the clearing of any habitat occupied by Identified Species to allow USFWS/CDFG to work with the monitoring biologist in connection with bird flushing/capture activities. The monitoring biologist will flush Identified Species (avian or other mobile Identified Species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. If birds cannot be flushed, they will be captured in mist nets, if feasible, and relocated to areas of the site to be protected or to the NCCP/HCP Reserve System. It will be the responsibility of the monitoring biologist to assure that Identified bird species will not be directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities on a timely basis.
- Following the completion of initial grading/earth moving activities, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel will be marked with temporary fencing and other appropriate markers clearly visible to construction personnel. No construction access, parking, or storage of equipment or materials will be permitted within such marked areas.
- In areas bordering the NCCP Reserve System or Special Linkage/Special Management areas containing significant coastal sage scrub identified in the NCCP/HCP for protection, vehicle transportation routes between cut-and-fill locations will be restricted to a minimum number during construction consisted with project construction requirements. Waste dirt or rubble will not be deposited on adjacent coastal sage scrub identified in the NCCP/HCP for protection. Pre-construction meetings involving the monitoring biologist, construction supervisors, and equipment operator swill be conducted and documented to ensure maximum practicable adherence to these measures.
- Coastal sage scrub identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring biologist.

6.0 IMPACTS AFTER MITIGATION

6.1 UNAVOIDABLE SIGNIFICANT IMPACTS

Proposed Project

The Proposed Project, inclusive of project design features and mitigation measures will mitigate all significant adverse impacts to sensitive plant communities, sensitive plant species, sensitive wildlife species, migratory or nesting birds, oak trees and oak woodlands, and jurisdictional features.

Non-Clustered Scenario

The Non-Clustered Scenario, inclusive of project design features and mitigation measures will mitigate all significant adverse impacts to sensitive plant communities, sensitive plant species, sensitive wildlife species, migratory or nesting birds, oak trees, and jurisdictional features.

6.2 CUMULATIVE IMPACTS

Cumulative impacts are defined as the direct and indirect effects of a Proposed Project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered significant. "Related projects" refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the Proposed Project. CEQA deems a cumulative impact analysis to be adequate if a list of "related projects" is included in the EIR or the Proposed Project is consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(b)(1)(B)]. CEQA also states that no further cumulative impact analysis is necessary for impacts of a Proposed Project consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(d)].

In light of these guidelines, the Saddle Crest study area is within the Central Subregion of the Central/Coastal NCCP/HCP. The NCCP/HCP Reserve System design has set aside approximately 37,000 acres for long-term management. By preserving large habitat blocks and maintaining connectivity, the NCCP/HCP Reserve System has minimized the cumulative impacts of proposed projects within authorized take lands. Although the majority of the study area lies within the Congressional boundaries of the Cleveland National Forest and is not covered under the NCCP/HCP, the Proposed Project is still within the NCCP/HCP plan area and the 37,000-acre Reserve System accounts for proposed development within its plan area.

An Implementing Agreement (IA) was executed between the resources agencies (USFWS and CDFG), participating entities, and participating landowners. The IA specifically authorizes disturbance of covered habitats and "take" of Identified Species (listed in Table 1) within the NCCP/HCP areas. The NCCP/HCP Reserve System, adaptive management program and other measures of the NCCP/HCP were determined to fully mitigate "take" of these species and habitats. Conditionally covered species are also authorized for "take" so long as the specific conditions (mitigation measures) outlined in the NCCP/HCP are implemented. In certain circumstances, a project-specific mitigation plan must be developed meeting the requirements of the NCCP/HCP, which is why the project's proposed mitigation is similar to the NCCP/HCP requirements,

even for portions of the study area that lie within the forest's boundary and are not covered under the NCCP/HCP. In accordance with the NCCP/HCP IA, the Proposed Project and Non-Clustered Scenario will comply with all of the provisions of the NCCP/HCP including the requirements to satisfy conditions of coverage. Thus, all direct, indirect, and cumulative impacts under CEQA and NEPA to the covered habitats and Identified Species resulting from development are fully mitigated.

Proposed Project

As shown through the analysis of impacts to biological resources, the proposed development plan clusters residential structures adjacent to existing roads and development in order to minimize the overall extent of grading and fuel modification area impacts as well as reducing fragmentation to surrounding open space areas. The proposed development plan will result in a total of 79.8 acres of open space (70 percent), including 4.2 acres of which are fuel modification areas; 24.6 acres of which will be comprised of revegetated/graded open space areas, the water quality basin, and equestrian trail; and 51.0 acres of which are undisturbed open space which will be avoided. In addition, implementation of the Proposed Project would provide a larger open space buffer between the proposed development and the Cleveland National Forest consistent with the F/TSP goals and objectives. The Proposed Project also takes into consideration the focus on the preservation of biological diversity that is consistent with current biological resource planning and conservation.

Non-Clustered Scenario

The Non-Clustered Scenario would result in a greater overall impact area for grading and fuel modification areas. In comparison, the Non-Clustered Scenario will result in a total of 75.3 acres of open space (66 percent), including 38.2 acres of which are fuel modification areas, approximately 8.7 acres of which will be comprised of revegetated/graded open space, and 28.4 acres of which are undisturbed open space which will be avoided. The amount of undisturbed open space is substantially reduced with the Non-Clustered Scenario, and the overall development footprint associated with the Non-Clustered Scenario is greater than the Proposed Project due to a much larger fuel modification zone and sprawling development plan. Thus, the overall fragmentation of the surrounding open space is increased and overall impacts to biological resources are greater than the Proposed Project (i.e., particularly associated with Drainage E and oak woodlands which are avoided by the Proposed Project).

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Appendix A – Floral and Faunal Compendium

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Anacardiaceae	**Sumac or Cashew Family**
Malosma laurina	laurel sumac
Rhus integrifolia	lemonadeberry
Rhus ovata	sugar bush
Toxicodendron diversilobum	poison oak
Apiaceae	**Carrot Family**
Foeniculum vulgure	fennel
Asteraceae	**Sunflower Family**
Artemisia californica	California sagebrush
Baccharis pilularis	coyote brush
* *Centaurea melitensis*	tocalote
* *Cirsium vulgare*	bull thistle
* *Conyza canadensis*	horseweed
* *Cynara cardunculus*	cardoon
Encelia californica	California bush sunflower
Filago californica	California fluffweed
Gnaphalium bicolor	bicolored cudweed
Gnaphalium californicum	California everlasting
Gutierrezia californica	California matchweed
Hazardia squarrosa	saw-toothed goldenbush
Heterotheca grandiflora	telegraph weed
Hypochaeris glabra	smooth cat's-ear
Isocoma menziesii var. *menziesii*	coastal goldenbush
* *Lactuca serriola*	prickly lettuce
Lessingia filaginifolia	California aster
Silybum marianum	milk thistle
* *Sonchus asper* ssp. *asper*	prickly sow thistle
Xanthium strumarium	cocklebur
Boraginaceae	**Borage Family**
Amsinckia menziesii	common fiddleneck
Brassicaceae	**Mustard Family**
Brassica sp.	mustard
* *Brassica nigra*	black mustard
* *Capsella bursa-pastoris*	sheperd's purse

? = *Potentially Present*

* = *Non-native Species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
* *Raphanus sativus*	radish
Cactaceae	**Cactus Family**
Opuntia littoralis	coastal prickly pear
Chenopodiaceae	**Goosefoot Family**
* *Chenopodium album*	lamb's quarters
* *Salsola tragus*	Russian thistle
Crassulaceae	**Stonecrop Family**
Dudleya pulverulenta	chalk dudleya
Cucurbitaceae	**Gourd Family**
Cucurbita foetidissima	calabazilla
Marah macrocarpus	wild cucumber
Euphorbiaceae	**Spurge Family**
Eremocarpus setigerus	dove weed
* *Ricinus communis*	castor bean
Fabaceae	**Legume Family**
Lotus purshianus	Spanish clover
Lotus scoparius	deerweed
Lotus strigosus	strigose lotus
Lupinus sp.	lupine
* *Medicago polymorpha*	California bur clover
* *Melilotus alba*	white sweetclover
* *Melilotus indica*	sourclover
* *Melilotus officinalis*	yellow sweet clover
Fagaceae	**Oak Family**
Quercus agrifolia	coast live oak
Quercus berberidifolia	scrub oak
Geraniaceae	**Geranium Family**
* *Erodium cicutarium*	red-stemmed filaree
Hydrophyllaceae	**Waterleaf Family**
Phacelia sp.	caterpillar phacelia
Phacelia minor	wild canterbury-bell
Lamiaceae	**Mint Family**
* *Marrubium vulgare*	horehound
Salvia apiana	white sage
Salvia mellifera	black sage
Malvaceae	**Mallow Family**

? = *Potentially Present*

* = *Non-native Species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Malacothamnus fasciculatus	mesa bushmallow
Malva parviflora	cheeseweed
Myrtaceae	**Myrtle Family**
* *Eucalyptus* sp.	gum tree
Nyctaginaceae	**Four O'Clock Family**
Mirabilis californica	California wishbone bush
Platanaceae	**Sycamore Family**
Platanus racemosa	western sycamore
Polygonaceae	**Buckwheat Family**
Chorizanthe staticoides	turkish rugging
Eriogonum fasciculatum	California buckwheat
Primulaceae	**Primrose Family**
* *Anagallis arvensis*	scarlet pimpernel
Rhamnaceae	**Buckthorn Family**
Ceanothus sp.	ceanothus
Rhamnus crocea	spiny redberry
Rhamnus ilicifolia	holly-leaf redberry
Rosaceae	**Rose Family**
Adenostoma fasciculatum	chamise
Cercocarpus betuloides	birch-leaf mountain-mahogany
Heteromeles arbutifolia	toyon
Rosa californica	California wild rose
Rubiaceae	**Madder Family**
Galium angustifolium	narrow-leaved bedstraw
* *Galium aparine*	goose grass
Scrophulariaceae	**Figwort Family**
Castilleja exserta	purple owl's-clover
Mimulus aurantiacus	orange bush monkey-flower
Scrophularia californica	California figwort
Solanaceae	**Nightshade Family**
Datura wrightii	jimson weed
* *Nicotiana glauca*	tree tobacco
Solanum sp.	nightshade
Viscaceae	**Mistletoe Family**
Phoradendron villosum	oak mistletoe
Vitaceae	**Grape Family**

? = *Potentially Present*

* = *Non-native Species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Vitis girdiana	desert wild grape

? = *Potentially Present*

* = *Non-native Species*

ANGIOSPERMS (MONOCOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Iridacea	**Iris Family**
Sisyrinchium bellum	blue-eyed-grass
Liliaceae	**Lily Family**
Bloomeria crocea	common goldenstar
Calochortus catalinae	Catalina mariposa lily
Calochortus splendens	lilac mariposa lily
Calochortus weedii var. weedii	foothill (intermediate) mariposa lily
Nolina cismontana	chaparral nolina
Yucca whipplei	Our Lord's candle
Poaceae	**Grass Family**
* *Avena barbata*	slender wild oat
* *Avena fatua*	wild oat
* *Bromus diandrus*	ripgut grass
* *Bromus hordeaceus*	soft chess
* *Bromus madritensis* ssp. *rubens*	foxtail chess
Hordeum vulgare	barley
Leymus condensatus	giant wild rye
* *Lolium multiflorum*	Italian ryegrass
Melica imperfecta	coast range melic
Nassella pulchra	purple needlegrass
* *Vulpia myuros*	fescue

? = *Potentially Present*

* = *Non-native Species*

INVERTEBRATES

Acrididae — **Short-Horned Grasshoppers**

Sisyrinchium bellum — grasshopper

Gryllidae — **Crickets**

Gryllus sp. — field cricket

Pieridae — **Whites, Sulphurs, and Orangetips**

Artogeia rapae — cabbage white

Pontia protodice — common white

Apidae — **Honey Bees and Bumble Bees**

Apis mellifera — honey bee

Bombus sonorous — bumble bee

? = *Potentially Present*

* = *Non-native Species*

AMPHIBIANS

SCIENTIFIC NAME	COMMON NAME
? *Aneides lugubris*	arboreal salamander

? = *Potentially Present*

* = *Non-native Species*

REPTILES

SCIENTIFIC NAME	COMMON NAME
Iguanidae	**Iguanid Lizards**
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
? *Phrynosoma coronatum (blainvillii)*	coast (San Diego) horned lizard
Scincidae	**Skinks**
? *Eumeces skiltonianus*	western skink
Teiidae	**Whiptail Lizards**
? *Aspidoscelis hyperythrus*	orange-throated whiptail
Aspidoscelis tigris	coastal western whiptail
Anguidae	**Alligator Lizards**
? *Gerrhonotus multicarinatus*	San Diego alligator lizard
Anniellidae	**California Legless Lizards**
? *Anniella pulchra pulchra*	silvery legless lizard
Leptotyphlopidae	**Slender Blind Snakes**
? *Leptotyphlops humilis*	western blind snake
Boidae	**Boas**
? *Lichanura trivirgata roseofusca*	coastal rosy boa
Colubridae	**Colubrid Snakes**
? *Arizona elegans occidentalis*	California glossy snake
? *Diadophis punctatus modestus*	San Bernardino ring-necked snake
? *Diadophis punctatus similes*	San Diego ring-necked snake
? *Hypsiglena torquata*	night snake
? *Lampropeltis getula californiae*	California kingsnake
? *Lampropeltis zonata pulchra*	San Diego mountain kingsnake
? *Masticophis flagellum piceus*	red coachwhip
Masticophis larealis	California whipsnake
? *Pituophis catenifer annecteus*	San Diego gopher snake
? *Salvadora hexalepis virgultea*	coast patch-nosed snake
Viperidae	**Vipers**
? *Crotalus ruber ruber*	northern red diamond rattlesnake
? *Crotalus mitchellii*	speckled rattlesnake
? *Crotalus viridis*	western rattlesnake

? = *Potentially Present*

* = *Non-native Species*

BIRDS

SCIENTIFIC NAME	COMMON NAME
Cathartidae	**New World Vultures**
Cathartes aura	turkey vulture
Accipitridae	**Hawks**
Accipiter cooperii	Cooper's hawk
? *Aquila chrsaetos*	golden eagle
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
? *Buteo regalis*	ferruginous hawk
? *Circus cyaneus*	northern harrier
Falconidae	**Falcons**
? *Falco mexicanus*	prairie falcon
? *Falco peregrines anatum*	American peregrine falcon
Falco sparverius	American kestrel
Phasianidae	**Pheasants and Quails**
Callipepla californica	California quail
Charadriidae	**Plovers**
Charadrius vociferous	killdeer
Columbidae	**Pigeons and Doves**
? * *Columba livia*	rock dove
Zenaida macroura	mourning dove
Cuculidae	**Cuckoos and Roadrunners**
Geococcyx californianus	greater roadrunner
Tytonidae	**Barn Owls**
Tyto alba	barn owl
Strigidae	**True Owls**
? *Bubo virginianus*	great horned owl
Caprimulgidae	**Goatsuckers**
? *Phalaenoptilus nuttallii*	common poorwill
Trochilidae	**Hummingbirds**
? *Archilochus alexandri*	black-chinned hummingbird
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
Selasophorus rufus	rufous hummingbird
Selasophorus sasin	Allen's hummingbird
Picidae	**Woodpeckers**
Melanerpes formicivorus	acorn woodpecker

? = *Potentially Present*

* = *Non-native Species*

BIRDS

SCIENTIFIC NAME	COMMON NAME
Picoides nuttallii	Nuttall's woodpecker
Colaptes auratus	northern flicker
Tyrannidae	**Tyrant Flycatchers**
? *Contopus cooperi*	olive-sided flycatcher
Sayornis nigricans	black pheobe
? *Sayornis saya*	Say's phoebe
? *Myarchus cinerascens*	ash-throated flycatcher
? *Tyrannus vociferans*	Cassin's kingbird
? *Tyrannus verticalis*	western kingbird
Hirundinidae	**Swallows**
? *Stelgidopteryx serripennis*	northern rough-winged swallow
? *Petrochelidon pyrrhonota*	cliff swallow
Corvidae	**Jays and Crows**
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Paridae	**Titmice**
Baeolophus inornatus	oak titmouse
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Troglodytidae	**Wrens**
? *Campylorhynchus brunneicapillus couesi*	coastal cactus wren
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Muscicapidae	**Kinglets, Gnatcatchers, Thrushes, and Babblers**
Regulus calendula	ruby-crowned kinglet
? *Polioptila caerulea*	blue-gray gnatcatcher
Polioptila californica californica	coastal California gnatcatcher
Turdidae	**Thrushes**
Chamaea fasciata	wrentit
? *Sialia mexicana*	western bluebird
Mimidae	**Thrashers**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Bombycillidae	**Waxwings**
? *Bombycilla cedrorum*	cedar waxwing

? = *Potentially Present*

* = *Non-native Species*

BIRDS

	Scientific Name	Common Name
	Ptilogonatidae	**Silky Flycatchers**
	Phainopepla nitens	phainopepla
	Laniidae	**Shrikes**
?	*Lanius ludovicianus*	loggerhead shrike
	Sturnidae	**Starlings**
*	*Sturnus vulgaris*	European starling
	Vireonidae	**Vireos**
?	*Vireo huttoni*	Hutton's vireo
	Parulidae	**Wood Warblers**
	Dendroica coronata	yellow-rumped warbler
	Thraupidae	**Tanagers**
?	*Piranga ludoviciana*	western tanager
	Emberizidae	**Emberizids**
?	*Aimophilia ruficeps canescens*	Southern California rufous-crowned sparrow
?	*Ammodramus savannarum*	grasshopper sparrow
?	*Amphispiza belli belli*	Bell's sage sparrow
?	*Chondestes grammacus*	lark sparrow
?	*Melospiza lincolnii*	Lincoln's sparrow
	Melospiza melodia	song sparrow
	Pipilo crissalis	California towhee
	Pipilo maculates	spotted towhee
?	*Spizella atrogularis*	black-chinned sparrow
?	*Spizella passerina*	chipping sparrow
	Zonotrichia atricopilla	golden-crowned sparrow
	Zonotrichia leucophrys	white-crowned sparrow
	Cardinalidae	**Cardinals**
	Passerina amoena	lazuli bunting
	Icteridae	**Blackbirds**
?	*Euphagus cyanocephalus*	Brewer's blackbird
?	*Molothrus ater*	brown-headed cowbird
?	*Sturnella neglecta*	western meadowlark
	Fringillidae	**Finches**
	Carduelis psaltria	lesser goldfinch
?	*Carduelis tristis*	American goldfinch
	Carpodacus mexicanus	house finch

? = *Potentially Present*

* = *Non-native Species*

BIRDS

SCIENTIFIC NAME	COMMON NAME
Passeridae	**Old World Sparrows**
? * *Passer domesticus*	house sparrow

? = *Potentially Present*

* = *Non-native Species*

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Didelphidae	**New World Opossums**
*? *Didelphis virginiana*	Virginia opossum
Talpidae	**Moles**
? *Scapanus latimanus*	broad-footed mole
Vespertilionidae	**Evening Bats**
? *Antrozous pallidus*	pallid bat
? *Corynorhinus townsendii townsendii*	Townsend's big-eared bat
? *Euderma maculatum*	spotted bat
? *Lasiurus blossevillii*	western red bat
? *Myotis californicus*	California myotis
? *Pipistrellus hesperus*	western pipistrelle
Molossidae	**Free-Tailed Bats**
? *Eumops perotis*	western mastiff bat
Leporidae	**Hares and Rabbits**
? *Lepus californicus*	black-tailed jackrabbit
Sylvilagus audubonii	desert cottontail
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
? *Scriurus griseus*	western gray squirrel
Geomyidae	**Pocket Gophers**
? *Thomomys bottae*	Botta's pocket gopher
Heteromyidae	**Pocket Mice and Kangaroo Rats**
? *Chaetodipus californicus*	California pocket mouse
? *Chaetodipus fallax fallax*	northwestern San Diego pocket mouse
? *Dipodomys agilis*	Pacific kangaroo rat
Muridae	**Mice, Rats, and Voles**
? *Peromyscus boylii*	brush mouse
? *Peromyscus californicus*	California mouse
? *Reithrodontomys megalotis*	western harvest mouse
? *Peromyscus eremicus*	cactus mouse
? *Peromyscus maniculatus*	deer mouse
? *Onychomys torridus ramona*	southern grasshopper mouse
? *Neotoma fuscipes*	dusky-footed woodrat
? *Neotoma lepida intermedia*	San Diego desert woodrat
? * *Mus musculus*	house mouse
? *Microtus californicus*	California vole
Canidae	**Wolves and Foxes**

? = *Potentially Present*

* = *Non-native Species*

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Canis latrans	coyote
? *Urocyon cinereoargenteus*	gray fox
Procyonidae	**Raccoons**
? *Brassariscus astutus*	ringtail
Procyon lotor	raccoon
Mustelidae	**Weasels, Skunks, and Otters**
? *Mustela frenata*	long-tailed weasel
? *Mephitis mephitis*	striped skunk
Felidae	**Cats**
? *Felis concolor*	mountain lion
Lynx rufus	bobcat
Equidae	**Horses and Burros**
* *Equus caballus*	horse
Cervidae	**Deer**
Odocoileus hemionus	mule deer

? = *Potentially Present*

* = *Non-native Species*

Appendix B – Sensitive Plant Species

NON-VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP/ USFS**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
BRYOPHYTES									
Pottiaceae	**Moss Family**								
Tortula californica	California screw-moss	N/A	None	None	1B.2	None	Chenopod scrub and valley and foothill grassland in sandy soil. Elevations from 10 to 1,460 m.	Kern, Monterey, Modoc, Riverside, and Santa Barbara Cos., CA; Santa Rosa Island.	NE

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
GYMNOSPERMS									
Cupressaceae	**Cypress Family**								
Hesperocyparis forbesii	Tecate cypress	N/A	None	None	1B.1	IN/ USFS	Chaparral, closed cone coniferous forest. Elevations from 255 to 1,500 m.	Orange and San Diego Cos., Baja CA.	NE
ANGIOSPERMS (DICOTYLEDONS)									
Asteraceae	**Sunflower Family**								
Ambrosia pumila	San Diego ambrosia	Apr.-Oct.	None	None	1B.1	None	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools, often in disturbed and alkaline areas. Elevations from 20 to 415 m.	Riverside and San Diego Cos., CA; Baja California.	NE
Baccharis malibuensis	Malibu baccharis	Aug.	None	None	1B.1	None	Chaparral, cismontane woodland, coastal scrub, and riparian woodland. Elevations from 150 to 305 m.	Los Angeles and Orange Cos., CA.	NE

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Centromadia parryi ssp. *australis*	southern tarplant	May-Nov.	None	None	1B.1	None	Marshes and swamps, valley and foothill grassland, and vernal pools. Elevations from zero to 427 m.	Los Angeles, San Diego, Orange, and Ventura Cos., Baja CA.	NE
Centromadia pungens ssp. *laevis*	smooth tarplant	Apr.-Sept.	None	None	1B.1	None	Chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland on alkaline soil. Elevations from zero to 640 m.	Riverside, San Bernardino, and San Diego Cos., CA.	NE
Comments: Additional research was conducted in response to a comment received on the DEIR regarding the inclusion of common spikeweed (*Centromadia pungens*) in the compendium of the 2000 Bio Report. The inclusion of common spikeweed in the compendium of the 2000 Bio Report is most certainly an error. The biologists who worked on this project were contacted and all field notes were reviewed. This species is not listed in the field notes and the biologists do not recall collecting or keying this species. In addition, the presence of this species on-site is unlikely since it is not known to occur in Orange County (Roberts, 1998). Similarly southern tarplant has not been reported in the FoothilI/Trabuco area and occurs in vernal pools and other alkali depressions which do not naturally occur on the subject property; therefore, it is unlikely that southern tarplant occurs on-site.									
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Jan.-Aug.	None	None	1B.1	None	Coastal bluff scrub and coastal dunes. Elevations from 3 to 100 m.	Los Angeles, Orange, San Diego, and Ventura Cos., CA; Baja California.	NE
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	Aug.-Oct.	None	None	1A	None	Marshes and swamps (coastal salt and freshwater). Elevations from 10 to 1,675 m.	Los Angeles, Orange, and San Bernardino Cos. CA.	NE
Isocoma menziesii var. *decumbens*	decumbent goldenbush	Apr.-Nov.	None	None	1B.2	None	Chaparral and coastal scrub, often in disturbed, sandy areas. Elevations from 10 to 135 m.	Orange and San Diego Cos., CA; Channel Islands; and Baja California.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Feb.-Jun.	None	None	1B.1	None	Marshes and swamps, playas, and vernal pools. Elevations from one to 1,220 m.	Colusa, Kern, Los Angeles, Merced, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Tulare, and Ventura Cos., CA; Channel Islands; Baja California.	NE
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	Mar.-Jun.	None	None	1B.1	None	Coastal scrub (openings) and valley and foothill grassland. Elevations from 75 to 520 m.	Orange County, CA.	NE
Pseudognaphalium leucocephalum	white rabbit-tobacco	(Jul.) Aug.-Nov. (Dec.)	None	None	2.2	None	Chaparral, cismontane woodland, coastal scrub, riparian woodland, sandy, gravelly. On sandy terraces in alluvial areas. Elevations from zero to 2,100 m.	Los Angeles, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Ventura Cos; Baja CA	NE
Senecio aphanactis	chaparral ragwort	Jan.-Apr.	None	None	2.2	None	Chaparral, cismontane woodland, and coastal scrub, sometimes in alkaline areas. Elevations from 15 to 800 m.	Throughout the western portion of central and southern California; Channel Islands; and Baja California.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Symphyotrichum defoliatum	San Bernardino aster	Jul.-Nov.	None	None	1B.2	None	Marshes and swamps and valley and foothill grassland in vernally mesic areas near ditches, streams, and springs. Elevations from two to 2,040 m.	Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Cos.	NE
Verbesina dissita	big-leaved crownbeard	Apr.-Jul.	None	None	1B.1	None	Chaparral (maritime) and coastal scrub. Elevations from 45 to 205 m.	Orange County, California and Baja California.	NE
Viguiera purisimae	La Purisima viguiera	Apr.-Sep.	None	None	2.3	None	Coastal bluff scrub and chaparral. Elevations from 365 to 425 m.	San Diego County, California and Baja California.	NE
Boraginaceae	**Borage Family**								
Harpogonella palmeri	Palmer's grapplinghook	Mar.-May	None	None	4.2	IN/DP	Chaparral, coastal scrub, and valley and foothill grassland on clay soils. Elevations from 20 to 955 m.	Los Angeles, Orange, Riverside, and San Diego Cos., CA; Channel Islands; AZ; Baja California; Sonora, Mexico.	NE
Brassicaceae	**Mustard Family**								
Caulanthus simulans	Payson's jewel-flower	(Feb) Mar.-May (Jun.)	None	None	4.2	USFS	Chaparral and coastal scrub on sandy, granitic soil. Elevations from 90 to 2,200 m.	Riverside and San Diego Cos., CA.	NE
Lepidium virginicum var. *robinsonii*	Robinson's pepper grass	Jan.-Jul.	None	None	1B.2	None	Chaparral, coastal scrub. Elevations from 1 to 885 m.	San Diego, Orange, SE Los Angeles, SW San Bernardino, and western Riverside Cos.	NE
Comments: Due to a comment received on the DEIR, surveys were repeated for Robinson's pepper-grass. Focused sensitive plant surveys during spring 2001 did not detect this species within the proposed development envelope.									

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Chenopodiaceae	**Goosefoot Family**								
Aphanisma blitoides	aphanisma	Mar.-Jun.	None	None	1B.2	None	Coastal bluff scrub, coastal dunes, and coastal scrub on sandy soils. Elevations from one to 305 m.	Santa Barbara, Ventura, Los Angeles, Orange, San Diego Cos., CA; Baja California.	NE
Atriplex coulteri	Coulter's saltbush	Mar.-Oct.	None	None	1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland on alkaline or clay soils. Elevations from three to 460 m.	Coastal southern California; Channel Islands; Baja California.	NE
Atriplex pacifica	South Coast saltscale	Mar.-Oct.	None	None	1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, playas. Elevations from zero to 140 m.	Coastal southern California; Channel Islands; Baja California; and Sonora Mexico.	NE
Atriplex parishii	Parish's brittlescale	Jun.-Oct.	None	None	1B.1	None	Chenopod scrub, playas, and vernal pools on alkaline soils. Elevations from 25 to 1,900 m.	Los Angeles, Orange, Riverside, San Bernardino, and San Diego Cos., CA; Baja California.	NE
Atriplex serenana var. *davidsonii*	Davidson's saltscale	Apr.-Oct.	None	None	1B.2	None	Coastal bluff scrub and coastal scrub on alkaline soils. Elevations from 10 to 200 m.	Los Angeles, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura Cos., CA; Channel Islands; Baja California.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Suaeda esteroa	estuary seablite	May-Oct.	None	None	1B.2	None	Marshes and swamps (coastal salt). Elevations from zero to 5 m.	Los Angeles, Orange, Santa Barbara, San Diego, and Ventura Cos., CA; Baja California.	NE
Convovulaceae	**Morning Glory Family**								
Dichondra occidentalis	western dichondra	(Jan.) Mar.-Jul.	None	None	4.2	IN/DP	Chaparral, coastal scrub, valley and foothill grassland. Elevations from 50 to 500 m.	Santa Barbara, Ventura, and Orange Cos; channel Islands; and Baja CA.	NE
Crassulaceae	**Stonecrop Family**								
Dudleya cymosa ssp. *ovatifolia*	Santa Monica Mountains dudleya	Mar.-Jun.	FT	None	1B.2	IN/ USFS	Chaparral, coastal scrub, volcanic, rocky soils. Elevations from 150 to 1,675 m.	Orange and Los Angeles Cos.	NE
Comments: Three records occur in the CNDDB from the vicinity of Modjeska Canyon and Modjeska Peak.									
Dudleya multicaulis	many-stemmed dudleya	Apr.-Jul.	None	None	1B.2	None/ USFS	Coastal scrub, chaparral, valley and foothill grassland; heavy clay soils or rock outcrops. Elevations from 15 to 790 m.	Los Angeles Co. to San Onofre Mt. in San Diego Co.	NE
Dudleya stolonifera	Laguna Beach dudleya	May-Jul.	FT	ST	1B.1	IN	Coastal scrub, cismontane woodland, chaparral, and valley and foothill grassland. Elevations from 10 to 260 m.	Orange Co.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Dudleya viscida	sticky dudleya	May-Jun.	None	None	1B.2	USFS	Coastal bluff scrub, chaparral, coastal scrub , rocky. Elevations from 10 to 550m.	Orange, Riverside, and San Diego Cos.	NE
Ericaceae	**Heath Family**								
Arctostaphylos rainbowensis	rainbow manzanita	Dec.-Mar.	None	None	1B.1	None	Chaparral. Elevations from 225 to 670 m.	Riverside and San Diego Cos., CA	NE
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	Apr.-Jun.	None	None	1B.2	None	Chaparral and cismontane woodland . Elevations from 30 to 550 m.	Orange, Riverside, and San Diego Cos.; Baja CA.	NE
Euphorbiaceae	**Spurge Family**								
Euphorbia misera	cliff spurge	Dec.-Aug.	None	None	2.2	IN/DP	Coastal bluff scrub, coastal scrub, and Mojavean desert scrub on rocky soil. Elevations from 10 to 500 m.	Los Angeles, Orange, Riverside, Santa Barbara, and San Diego Cos., CA; Channel Islands; Baja California.	NE
Tetracoccus dioicus	Parry's tetracoccus	Apr.-May	None	None	1B.2	USFS	Chaparral and coastal sage scrub. Elevations from 165 to 1,000 m.	Orange, Riverside, and San Diego Cos., CA; Baja California.	NE
Fabaceae	**Legume Family**								
Astragalus brauntonii	Braunton's milk-vetch	Jan.-Aug.	FE	None	1B.1	USFS	Sage scrub, chaparral, valley and foothill grass-land, closed cone coniferous forest; carbonate soils, recent burns and disturbed areas. Elevations from 4 to 640 m.	Ventura, Los Angeles and Orange Cos.	NE
Comments: This species is a fire follower; however, due to the negative results of focused sensitive plant surveys conducted in spring of 2008 after the 2007 Santiago Fire, this species is not expected to occur on-site.									

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Fagaceae	**Oak Family**								
Quercus dumosa	Nuttall's scrub oak	Feb.-Apr.	None	None	1B.1	IN	Sage scrub, chaparral; sandy clay loam or sandstone. Elevations from 15 to 400 m.	Orange, San Bernardino, and San Diego Cos., Baja CA.	NE
Geraniaceae	**Geranium Family**								
California macrophylla	round-leaved filaree	Mar.-May	None	None	1B.1	None	Cismontane woodland and valley and foothill grassland on clay soils.	Throughout the western portion of California; Channel Islands; Baja California; OR.	NE
Hydrophyllaceae	**Waterleaf Family**								
Nama stenocarpum	mud nama	Jan.-Jul.	None	None	2.2	None	Marshes and swamps, lake margins, and riverbanks. Elevations from 5 to 500 m.	Imperial, Los Angeles, Orange, Riverside, and San Diego Cos., CA; San Clemente Island; AZ; and Baja California.	NE
Phacelia keckii	Santiago Peak phacelia	May-Jun.	None	None	1B.3	USFS	Chaparral, closed-cone coniferous forests. Elevations from 545 to 1,600 m.	Orange and Riverside Cos.	NE
Comments: This species occurs at elevations over 3,000 feet above sea level and is, therefore, not expected to occur on-site.									

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Lamiaceae	**Mint Family**								
Lepechinia cardiophylla	heart-leaved pitcher sage	Apr.-Jul.	None	None	1B.2	IN/ USFS	Open areas (esp. slopes) in chaparral, sage scrub, valley and foothill grasslands; vernal pools, topographic depressions; heavy clay soils. Elevations from 520 to 1,370 m.	Orange, Riverside, and San Diego Cos., Baja CA.	NE
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	Jun.-Aug.	None	None	1B.2	USFS	Chaparral, cismontane woodland. Elevations from 300 to 1,575 m.	Orange and San Diego Cos.; Baja CA.	NE
Monardella macrantha ssp. *hallii*	Hall's monardella	Jun.-Oct.	None	None	1B.3	None	Lower montane coniferous forest, valley and foothill grassland, broadleaf upland forest, chaparral, cismontane woodland. Elevations from 730 to 2195 m.	Orange, Riverside, San Bernardino, and San Diego Cos.	NE
Comments: This species is known in the CNDDB from the vicinity of Modjeska and Santiago Peaks.									
Satureja chandleri	San Miguel savory	Mar.-Jul.	None	None	1B.2	USFS	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Rocky, gabbroic, or metavolcanic. Elevations from 120 to 1075 m.	Orange, Riverside, and San Diego Cos.; Baja CA.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Malvaceae	**Mallow Family**								
Sidalcea neomexicana	salt spring checkerbloom	Mar.-June.	None	None	2.2	None	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas on alkaline, mesic soils. Elevations from 15 to 1530 m.	Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Cos., CA; AZ; Baja California; NM; NV; UT; and Sonora, Mexico.	NE
Nyctaginaceae	**Four O'Clock Family**								
Abronia villosa var. *aurita*	chaparral sand-verbena	Jan.-Sep.	None	None	1B.1	None	Chaparral, coastal scrub, and desert dunes on sandy soils. Elevations between 80 and 1600 m.	Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Cos., CA; AZ; Baja California.	NE
Onagraceae	**Evening Primrose Family**								

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Camissonia lewisii	Lewis' evening primrose	Mar.-May (Jun.)	None	None	3	None	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland on sandy or clay soils. Elevations from zero to 300 m.	Los Angeles, Orange, San Diego, Baja California	NE
Papaveraceae	**Poppy Family**								
Romneya coulteri	Coulter's matilija poppy	Mar-Jul.	None	None	4.2	IN	Dry washes and canyons in sage scrub and chaparral. Elevations from 20 to 1,200 m.	Santa Ana Mtns. to San Diego Co.	NE
Comments: Several individuals of Coulter's matilija poppy were observed scattered throughout several areas in the higher elevations of a property in the vicinity north of Live Oak Canyon Road However, site-specific surveys revealed that this species does not occur in the study area.									
Polemoniaceae	**Phox Family**								
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	May-Sep.	FE	SE	1B.1	None	Chaparral and coastal scrub in alluvial fans on sandy or gravelly soils. Elevations from 91 to 610 m.	Orange, Riverside, and San Bernardino Cos., CA.	NE
Polygonaceae	**Buckwheat Family**								
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Apr.-Jul.	FC	SE	1B.1	None	Coastal scrub and valley and foothill grassland. Elevations from 150 to 1,220 m.	Los Angeles, Orange, and Ventura Cos., CA.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Chorizanthe parryi var. *parryi*	Parry's spineflower	Apr.-Jun.	NONE	NONE	1B.1	None	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland on sandy or rocky soils in openings. Elevations from 275 to 1,220 m.	Los Angeles, Riverside, and San Bernardino Cos., CA.	NE
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	Apr.-Jul.	None	None	1B.2	USFS	Variety of so. Cal. plant communities, including sage scrub; gabbroic clay soils. Elevations from 30 to 1,530 m.	Riverside and San Diego Cos., Baja CA.	NE
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	Apr.-Jun.	None	None	1B.2	None	Mojavean desert scrub and pinyon and juniper woodland on sandy or gravelly soils. Elevations from 300 to 1,200 m.	Los Angeles, Riverside, and San Bernardino Cos. CA.	NE
Dodecahema leptoceras	slender-horned spineflower	Apr.-Jun.	FE	SE	1B.1	USFS	Chaparral, cismontane woodland, and coastal scrub in sandy soils and alluvial fans. Elevations from 200 to 760 m.	Los Angeles, Riverside, and San Bernardino Cos. CA.	NE
Nemacaulis denudata var. denudata	Coast woolly-heads	Apr.-Sep.	None	None	1B.2	None	Coastal dunes. Elevations from zero to 100 m.	Los Angeles, Orange, and San Diego Cos., CA; Santa Catalina Island; Baja California.	NE

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VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Rosaceae	**Rose Family**								
Horkelia cuneata ssp. *puberula*	mesa horkelia	Feb.-Jul. (Sep.)	None	None	1B.1	None	Chaparral, cismontane woodland, coast scrub: sandy or gravelly. Elevations from 70 to 810 m.	Los Angeles and Orange counties. May be extirpated from Riverside and San Diego counties.	NE
Scrophulariaceae	**Figwort Family**								
Penstemon californicus	California beardtongue	May-Jun. (Aug.)	None	None	1B.2	USFS	Chaparral, lower montane coniferous forest, and pinyon and juniper woodland on sandy soils. Elevations from 1,170 to 2,300 m.	Orange and Riverside Cos., CA; Baja California.	NE
ANGIOSPERMS (MONOCOTYLEDONS)									
Liliaceae	**Lily Family**								
Allium munzii	Munz's onion	Mar.-May	FT	SE	1B.1	USFS	Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland on mesic, clay soils. Elevations from 297 to 1,070 m.	Riverside County, CA.	NE
Brodiaea filifolia	thread-leaved brodiaea	Mar.-Jun.	FT	SE	1B.1	USFS	Sage scrub, valley and foothill grassland, cismontane woodland; vernal pools (clay soils). Elevations from 25 to 1,219 m.	Los Angeles, Orange, Riverside, San Bernardino, San Diego Cos.	NE
Comments: A population of thread-leaved brodiaea was visited at Aliso and Wood Canyons Park in south Orange County and was observed blooming on May 8, 2001. Sensitive plant surveys commenced at Saddle Crest on April 23 and continued through June 18. If this species is present on-site it is very likely that it would have been observed. As such, this species is not expected to occur on-site.									

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Brodiaea orcuttii	Orcutt's brodiaea	May-Jul.	None	None	1B.1	USFS	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools on mesic, clay, and sometimes serpentine soil. Elevations from 30 to 1,692 m.	Riverside and San Diego Cos.; Baja California.	NE
Brodiaea santarosae	Santa Rosa basalt brodiaea	May-Jun.	None	None	3	None	Valley and foothill grassland on basaltic soils. Elevations from 580 to 1,045 m.	Riverside and San Diego Cos., CA.	NE
Calochortus plummerae	Plummer's mariposa lily	May-Jul.	None	None	1B.2	None	Variety of so. Cal. plant communities, including sage scrub, valley and foothill grassland, yellow pine forest; dry, rocky or sandy sites, granitic or alluvial soil. Elevations from 100 to 1,700 m.	Ventura, Los Angeles, Riverside, and San Bernardino Cos.	NE
Lilium parryi	lemon lily	Jul.-Aug.	None	None	1B.2	USFS	Lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest. Elevations from 1,220 to 2,745 m.	Los Angeles, Riverside, San Bernardino, and San Diego Cos., CA; AZ; and Sonora, Mexico.	NE

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Poaceae	**Grass Family**								
Hordeum intercedens	vernal barley	Mar-Jun	None	None	3.2	None	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools. Elevations from 5 to 1,000 m.	All coastal Cos. south of San Luis Obispo, San Benito, Fresno	NE
Imperata brevifolia	California satintail	Sep.-May	None	None	2.1	None	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub, often in alkali areas. Elevations from zero to 500 m.	Throughout CA; AZ; Baja California; NM, NV; TX; and UT.	NE

Key to Species Listing Status Codes

FE	*Federally Listed as Endangered*	*SE*	*State Listed as Endangered*	*CSC*	*California Special Concern Species*
FT	*Federally Listed as Threatened*	*ST*	*State Listed as Threatened*		
FPE	*Federally Proposed as Endangered*	*SCE*	*State Candidate for Endangered*		
FPT	*Federally Proposed as Threatened*	*SCT*	*State Candidate for Threatened*		
FPD	*Federally Proposed for Delisting*	*SR*	*State Rare*		
FC	*Federal Candidate Species*	*SFP*	*State Fully Protected*		

California Native Plant Society (CNPS)

List 1A: Presumed extinct in California.
List 1B: Rare, threatened, or endangered throughout their range.
List 2: Rare, threatened, or endangered in California, but more common in other states.
List 3: Plant species for which additional information is needed before rarity can be determined.
List 4: Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.
New CNPS Threat Code extensions and their meanings:
1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
2 Fairly endangered in California (20-80% occurrences threatened)
3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Natural Community Conservation Planning (NCCP)

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

VASCULAR PLANTS									
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**NCCP**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**

IN Identified NCCP Species – Covered Species
IN/CC Identified NCCP Species – Conditionally Covered Species
IN/DP Identified NCCP Species – Receives regulatory coverage under the NCCP at the Dana Point Headlands only
TN Target NCCP Species – Covered Species

U.S. Forest Service, Cleveland National Forest
USFS Cleveland National Forest Sensitive Species

Source: PCR Services Corporation, 2011

OB= observed; P= potential to occur; and NE=not expected due to lack of suitable habitat or the negative results of focused surveys.

Appendix C – Sensitive Wildlife Species

INVERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
CRUSTACEA	**CRUSTACEANS**						
Anostraca	**Fairy Shrimp**						
Branchinecta sandiegonensis	San Diego fairy shrimp	FE	None	IN/CC	Vernal pools in areas of shallow depressions that have a clay hardpan soil layer that inhibits percolation.	Known populations in Santa Barbara and San Diego Cos. and NW Baja CA.	NE
Streptocephalus woottoni	Riverside fairy shrimp	FE	None	IN/CC	Vernal pools/swales; apparently prefers deeper pools through the warm weather of late Apr. and May.	Riverside, Orange and San Diego Cos. and N Baja CA.	NE
INSECTA	**GRASSHOPPERS, KATYDIDS, CRICKETS, BEETLES, FLIES, BUTTERFLIES, MOTHS**						
Lepidoptera	**Butterflies and Moths**						
Euphydryas editha quino	quino checkerspot butterfly	FE	None	IN/CC	Grassland and open areas in sage scrub, chaparral, and sparse native woodlands. Low levels of invasive, nonnative vegetation and soil with a cryptogamic crust. Associated with host plant species dwarf plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta*).	Orange, San Diego and W Riverside Cos. extending south into N Baja CA.	NE
Comments: Focused surveys were conducted in the spring of 1999 as detailed in the 2000 Bio Report. Quino checkerspot butterfly was not observed on-site and is not expected to occur. Although Quino checkerspot butterfly were historically known to occur in Orange County, this species is no longer thought to occur within the county and is currently only found in southwestern Riverside and San Diego counties. Therefore, no focused surveys for Quino checkerspot butterfly were conducted during the 2008 survey season.							

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
FISHES							
Cyprinidae	**Minnows and Carp**						
Gila orcuttii	arroyo chub	None	SSC	None/ USFS	Slow water sections of streams with mud or sand substrates; spawns in pools.	Larger rivers of S CA; declining due to the introduction of non-native species and the degradation of urbanized streams.	NE
Eucyclogobius newberryi	tidewater goby	FE	SSC	None	Shallow lagoons, lower stream reaches where water is brackish to fresh and slow-moving or fairly still but not stagnant.	Del Norte County south to Del Mar, California.	NE
Rhinichthys osculus ssp. *3*	Santa Ana speckled dace	None	SSC	None/ USFS	Permanent flowing streams with summer water temperatures from 17 to 20° C. Inhabit shallow cobble and gravel riffles.	Headwaters of the Santa Ana and San Gabriel Rivers.	NE
Catostomidae	**Suckers**						
Catostomus santaanae	Santa Ana sucker	FT	SSC	None/ USFS	Prefer sand-rubble-boulder bottoms, cool, clear water and algae. Streams of varying width and depth with appropriate substrate (mix of sand, gravel, cobble, and boulder).	Larger stream sections in headwaters of Los Angeles and San Gabriel Rivers. Lower portions of Santa Ana River. Throughout Santa Clara River.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Salmonidae	**Trout and Salmon**						
Onchorhynchus mykiss irideus	southern steelhead – southern California ESU	FE	SSC	None	Tolerances to warmer water and more variable conditions.	Federal listing refers to populations from Santa Maria River south to the southern extent of its range in San Mateo Creek, San Diego Co.	NE
AMPHIBIANS							
Salamandridae	**Newts**						
Taricha torosa torosa	coast range newt	None	SSC	None	A variety of terrestrial habitats with ponds or slow streams nearby.	Coastal drainages from Mendocino Co. south to San Diego Co.	NE
Ranidae	**Frogs**						
Lithobates pipiens	northern leopard frog	None	SSC	None	Occur in or near quiet, permanent and semi-permanent water in many habitats.	Occurs along the Colorado River, and in irrigated portions of Imperial, Tulare and Kern Cos.	NE
Pelobatidae	**Spadefoot Toads**						
Spea hammondii	western spadefoot	None	SSC	IN	Prefer burrow sites within relatively open areas in lowland grasslands, chaparral, and pine-oak woodlands, areas of sandy or gravelly soil in alluvial fans, washes, and floodplains. Requires temporary pools for reproduction.	Coastal ranges from Point Conception, Santa Barbara Co., south to the Mexican border throughout Central Valley and adjacent foothills.	NE

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Bufonidae	**True Toads**						
Bufo californicus	arroyo toad	FE	SSC	IN/CC	Washes and streams with sandy banks, willows, cottonwoods, or sycamores; riparian habitats of semiarid areas, small cobbly streambeds. Requires clear, standing water for reproduction.	Southern part of the Coast Range from N San Luis Obispo Co. south to Baja CA.	NE
Comments: Due to the lack of suitable habitat, the arroyo toad is not expected on-site. A habitat suitability assessment of was conducted within Aliso Creek, adjacent to and just downstream of the project site, on March 30, 2001 by biologist Ruben Ramirez (as referenced in the 2002 Supplemental Biological Resources Assessment (PCR 2002)). The reach of Aliso Creek extending from approximately 500 feet upstream of Live Oak Canyon Road to the northern extent of the project site was dry and at the time represented breeding habitat for the arroyo toad. The reach of Aliso Creek extending downstream from the point approximately 500 feet upstream from Live Oak Canyon Road did have scattered pools. These pools have been disturbed by "dumping" and overall water quality appeared to be poor due to urban runoff. This entire reach was surveyed for arroyo toad egg clutches and larvae. None were observed. Based on arroyo toad breeding observations by Mr. Ramirez (egg clutches, larvae, amplexing pairs) within San Juan Creek, similar activity in Aliso Creek would be expected if arroyo toads were present. Thus, it was determined that this reach of Aliso Creek, at best, could be characterized as low quality.							
REPTILES							
Emydidae	**Box and Water Turtles**						
Emmys marmorata pallida	southwestern pond turtle	None	SSC	None/ USFS	Ponds, marshes, rivers, streams, irrigation ditches.	San Francisco Bay south to Baja California and west of the Sierra-Cascade crest.	NE
Colubridae	**Colubrid Snakes**						
Thamnophis hammondii	two-striped garter snake	None	SSC	None/ USFS	Found in or near permanent freshwater, often along streams with rocky beds and riparian growth.	Coastal CA from Salinas to NW Baja, CA.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
BIRDS							
Laridae	**Gulls and Terns**						
Sternula antillarum browni	California least tern	FE	SE	None	Nests along the coast. Colonial breeder on bare or sparsely vegetated, flat substrates, sandy beaches, alkali flats, landfills, or paved areas.	San Francisco Bay south to northern Baja, CA.	NE
Rallidae	**Rails and Gallinules**						
Laterallus jamaicensis coturniculus	California black rail	None	ST	None	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	Imperial, Orange, Riverside, and San Bernardino Cos. in S CA; San Luis Obispo Co.; and N CA.	NE
Rallus longirostris levipes	light-footed clapper rail	FE	SE	None	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation, which it uses for nesting or escape cover.	Orange, San Diego, Santa Barbara, Ventura Cos.	NE
Accipitridae	**Hawks, Kites, Harriers, and Eagles**						
Haliaeetus leucocephalus	bald eagle	FD	SE	None	Found near water.	Throughout U.S. and Canada.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Charadriidae	**Plovers and Relatives**						
Charadrius alexandrinus nivosus	western snowy plover	FT	SSC	None	Shores, peninsulas, offshore islands, bays, estuaries, and rivers.	United States' Pacific Coast in winter; summer in Great Basin desert areas of Nevada and surrounding States and the south-central United States.	NE
Strigidae	**Owls**						
Athene cunicularia (burrow sites)	burrowing owl	None	SSC	None	Dry grasslands, desert habitats, and open pinyon-juniper and ponderosa pine woodlands below 5,300 feet elevation. Prefers berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas.	Year-round resident of lowlands of S CA.	NE
Comments: A habitat assessment was conducted for burrowing owl on December 18, 2009 by PCR biologist Maile Tanaka. It was determined that suitable habitat for this species is not present on-site due to the topography, lack of burrows, and disturbance due to horse grazing.							
Cuculidae	**Cuckoos and Relatives**						
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FC	SE	None	Valley foothill and desert riparian habitats in scattered locations in California.	Along the South Fork of the Kern River, Kern Co.; along the Santa Ana River, Riverside Co.; and along the Amargosa River, Inyo and San Bernardino cos. Also may nest along San Luis Rey River, San Diego Co.	NE

OB = observed; P = Species has the potential to occur on-site; NE = Species not expected to occur on-site; F = For raptor species: if present, would utilize the site for foraging; B = For raptor species: if present, would utilize the site for breeding

VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Tyrannidae	**Tyrant Flycatchers**						
Empidonax traillii (nesting)	willow flycatcher	None	SE	None	Willows, alders, brushy swamps, swales.	Breed in North America but winter in Mexico, Central America, and N South America.	NE
Comments: Based on willow flycatcher migration patterns and periods, at least two subspecies (*E.t. brewsteri* and *E.t. extimus*) may potentially utilize the site as a stopover point during migration; however, neither would be expected to be resident on-site or utilize the site for breeding due to the lack of suitable breeding habitat.							
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE	SE	IN/CC	Low elevational sites; riparian woodlands that contain water and low growing willow thickets. High elevational sites; large, flat, wet meadows that contain patches of willow trees.	S CA, from the Santa Ynez River south.	NE
Vireonidae	**Vireos**						
Vireo bellii pusillus (nesting)	least Bell's vireo	FE	SE	IN/CC	Perennial and intermittent streams with low, dense riparian scrub and riparian woodland habitats below 2,000 feet elevation; nests primarily in willows and forages in the riparian and occasionally in adjoining upland habitats. Associated with willow, cottonwood, and mule fat.	A patchily distributed summer resident across S CA.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Troglodytidae	**Wrens**						
Parulidae	**Wood-Warblers**						
Icteria virens (nesting)	yellow-breasted chat	None	SSC	None	Riparian woodlands with a thick understory.	Uncommon summer resident and migrant in coastal CA and in foothills of the Sierra Nevada.	NE
Emberizidae	**Sparrows, Buntings, Warblers, and Relatives**						
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	SE	None	Inhabits coastal salt marshes. Nests in *Salicornia* on and about margins of tidal flats.	Santa Barbara south through San Diego Co.	NE
Icteridae	**Blackbirds**						
Agelaius tricolor	tricolored blackbird	None	SSC	None	Marshes dominated by cattails or bulrushes; upland or agricultural areas;stands of blackberries, giant cane, tamarisk, and river-bottom trees like willow and cottonwood.	Throughout the Central Valley and some coastal regions of California.	NE
MAMMALS							
Phyllostomidae	**Leaf-nosed bats**						
Choereonycteris mexicana	Mexican long-tongued bat	None	SSC	None	Occurs in a variety of habitats, including thorn scrub, palo verde-saguaro desert, semidesert grassland, oak woodland and tropical deciduous forests. Although most frequently found in desert canyons, they	Southern California (the San Diego area); southern Arizona; southwestern New Mexico; southern tip of Texas; northern Arizona; Las Vegas, Nevada. South to to Honduras.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
					have been observed in oak and ponderosa pine habitat.		
Vespertilionidae	**Evening Bats**						
Lasiurus xanthinus	western yellow bat	None	SSC	None	Roosts in valley foothill riparian, desert riparian, desert wash, and palm oasis habitat. Roosts in trees, particularly palms. Forages over water and among trees.	Found in the extreme southwestern deserts of California, north to Los Angeles and Riverside counties, east to Arizona; its range extends south to Argentina and Uruguay.	NE
Molossidae	**Free-tailed Bats**						
Nyctinomops femorosaccus	pocketed free-tailed bat	None	SSC	None	Variety of arid areas in southern California; pin-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian. Rocky areas with high cliffs.	Orange, Riverside, San Bernardino, San Diego, and Imperial Cos.	NE
Nyctinomops macrotis	big free-tailed bat	None	SSC	None	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites.	SW San DiegoCo.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Heteromyidae	**Kangaroo Rats, Pocket Mice, and Kangaroo Mice**						
Dipodomys stephensi	Stephen's kangaroo rat	FE	FT	None	Primarily in annual and perennial grassland habitats, but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas. Preferred perennials are buckwheat and chamise; preferred annuals are brome grass and filaree.	San Jacinto Valley from Riverside, Riverside Co., south to vicinity of Vista, San Diego Co.	NE
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	SSC	None/ USFS	Coastal sage scrub and grasslands; desert cactus, creosote bush, and sagebrush habitat.	Records exist from Burbank and San Fernando, Los Angeles Co. east to the City of San Bernardino, San Bernardino Co. south through western Riverside Co.	NE
Perognathus longimembris pacificus	Pacific pocket mouse	FE	SSC	IN/CC	Sandy herbaceous areas, usually in association with rocks or coarse gravel, sagebrush, scrub, annual grassland, chaparral and desert scrubs.	Los Angeles Co. to extreme SW San Diego Co. Farthest known occurrences are within 3 miles of the coast.	NE

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VERTEBRATES							
Scientific Name	**Common Name**	**Federal**	**State**	**NCCP/Other**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Cricetidae	**Mice, Rats, and Voles**						
Soricidae	**Shrews**						
Sorex ornatus salicornicus	southern California saltmarsh shrew	None	SSC	None	Coastal marshes. Requires dense vegetation and woody debris for cover.	Los Angeles, Orange, and Ventura Cos.	NE
Mustelidae	**Weasels, Skunks, and Otters Family**						
Taxidea taxus	American badger	None	SSC	None	Drier, open stages of shrubland, forest, and herbaceous habitats with friable soils.	Throughout most CA Counties.	NE

Key to Species Listing Status Codes

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Natural Community Conservation Planning (NCCP)

IN *Identified NCCP Species – Covered Species*
IN/CC *Identified NCCP Species – Conditionally Covered Species*
TN *Target NCCP Species – Covered Species*

U.S. Forest Service, Cleveland National Forest

USFS *Cleveland National Forest Sensitive Species*

Source: PCR Services Corporation, 2011

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Appendix D2

Saddle Crest Tree Management and Preservation Plan and Addendum

ESA

ADDENDUM

Saddle Crest
Tree Management
and Preservation Plan

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ADDENDUM
Saddle Crest Tree Management and Preservation Plan

1.0 PURPOSE

Dudek's initial tree inventory focused on trees within the project boundaries. Specifically, tree-by-tree focus was on trees located within the project footprint. Digital files used by Dudek did not originally include disturbance areas associated with road widening and horse trail placement along Santiago Canyon Road, within the area just outside the property boundary in the adjacent right-of-way. This addendum to the Saddle Crest TMPP provides updated tree information including the trees within this right-of-way area and amending the Final TMPP tree impact and mitigation totals. All other components of the Final TMPP remain valid and readers are referred to that report for more detailed information.

1.1 Summary

In summary, the right-of-way area includes 24 trees, of which, 20 are native coast live oak (*Quercus agrifolia*) with trunk diameters of 5 inches or larger, 3 are coast live oak with trunk diameters between 3 inches and 5 inches, and the remaining tree is a 4-inch diameter, non-native blue gum eucalyptus (*Eucalyptus globulus*). The trees are scattered along the alignment within an approximately 600 foot long span of Santiago Canyon Road. The trees range from saplings to semi-mature trees. Fire damage was experienced by, and is visible on, many of the trees.

The Final TMPP indicates impacts to 128 oak trees. The new impact total is 151 oak trees. The eucalyptus is below the 4-inch diameter FTSP minimum, so is not included in the mitigation calculations herein, but will be mitigated through ornamental tree plantings on private properties. The 151 impacted oak trees includes the original 128 along with 20 oak trees meeting FTSP tree definition and 3 additional trees meeting the state mitigation law, as described below.

2.0 METHODS

2.1 Tree Inventory and Assessment for the Right-of-Way Area

Dudek mapped and evaluated all oak tree locations within the proposed right-of-way project development area following the same procedures as detailed in the Final TMPP. The site was visited on February 29, 2012 by a certified arborist and tree attribute data was collected for inclusion in the project's tree data set and impact analysis.

3.0 OBSERVATIONS

3.1 Characteristics of Trees within the Project Footprint Area

Within the road-widening and trail footprint area, there are 20 native oak trees that meet the FTSP requirements for oak tree inventory; namely, minimum trunk diameters of five inches (at 4.5 feet above grade). Smaller oak saplings, down to 3 inches trunk diameter, were inventoried and totaled three trees. These trees are included in the impact analysis for this project since they meet the state oak mitigation law, Public Resources Code 21083.4.

The FTSP requires an inventory for trees over 5 inches trunk diameter at 4.5 feet above grade. For purposes of illustrating the size and health of the trees, Tables 1 through 5 summarize the revised Saddle Crest impacted tree totals and tree characteristic attributes by trunk diameter, height, canopy spread, health, and structure, respectively. In all, there are 151 native oak tree impacts associated with the project's footprint.

Table 1
Trunk Diameter of Saddle Crest Impacted Trees

Trunk Diameter at 4.5 feet above grade (inches)	Number of Native Trees Impacted*
5–11	43
12–17	66
18–23	26
24–35	11
36+	2
Total	**151***

*There were 3 trees in the 3 to 4.9 inches trunk diameter range included within the project footprint. These trees are considered impacted based on state oak mitigation requirements.

Table 2
Height of Saddle Crest Impacted Trees

Height (feet)	Number of Native Trees Impacted
<10	4
10–20	97
21–30	48
31–40	2
Total	**151**

Table 3
Canopy Size of Saddle Crest Impacted Trees

Crown Width (feet)	Number of Native Trees Impacted
<10	44
10–20	73
21–30	25
31–40	9
41–	0
Total	**151**

Table 4
Health Condition of Saddle Crest Impacted Trees

Health Condition	Number of Native Impacted
Good	13
Fair	84
Poor	20
Dead	34
Total	**151**

Table 5
Structural Condition of Saddle Crest Impacted Trees

Structural Condition	Number of Native Impacted
Good	9
Fair	80
Poor	28
Dead	34
Total	**151**

4.0 FOOTHILL/TRABUCO SPECIFIC PLAN MITIGATION

4.1 Amended Saddle Crest Mitigation per the FTSP

According to the FTSP, and the trunk diameters of the 151 trees requiring removal, a total of 1,180 trees would be required as mitigation. Accordingly, the average number of mitigation trees planted for each removal tree is just over eight trees. Table 6 summarizes the tree replacements according to the FTSP mitigation ratios.

Table 6
Tree Replacement Calculation according to FTSP

	Trees Impacted		
Trunk Diameter	Inside Grading	Replacement Ratio	Replacement Trees
5–11 inches	46	5:1	230
12–17 inches	66	8:1	528
18–23 inches	26	10:1	260
24–35 inches	11	12:1	132
36 inches and above	2	15:1	30
Total	**151**	**N/A**	**1,180**
Average per Impacted Tree	N/A	N/A	7.8

*3 trees measuring smaller than 5 inches trunk diameter occur in the road right-of-way and are included in the 5-11 inch category.

5.0 SADDLE CREST PROPOSED MITIGATION

The Final TMPP includes a detailed discussion of the proposed mitigation plan. The following section provides an updated program based on the additional 23 oak tree impacts.

5.1 Proposed Mitigation Program Details

The proposed mitigation program defined herein has been designed to provide mitigation for likely impacts to 151 oak trees on the Saddle Crest property. The proposed mitigation program is presented to provide a way to mitigate the potential loss of tree resources in a manner that includes significant preservation of oak resources on site (nearly 80% are preserved), enhancement of existing on-site oak groves, improved seedling/tree establishment success, improved age-diversity, significant tree planting, and long-term monitoring that is responsive to PRC 21083.4 oak mitigation requirements while satisfying the intent of the FTSP.

The goal of the proposed mitigation program is to offset tree impacts through a sustainable, customized plan that is suitable for the site's unique opportunities for oak tree preservation, enhancement, and establishment.

Dudek recommends that the mitigation plan focuses on replanting the designated tree planting receiver sites (Appendix D of Final TMPP) with various sized oak trees and enhance, restore, or establish oak dominated habitats outside the development footprints, primarily in existing oak groves that will be preserved. These strategies will be described in more detail in the project's

Restoration and Monitoring Plan[1] that will be prepared prior to grading and that will be used for procuring bids for the oak and other restoration/mitigation work on the project.

The project Restoration and Monitoring Plan shall be approved by the County, prior to the issuance of grading permits. The plan shall specify oak planting details, locations, and long-term maintenance and monitoring for trees planted within and directly adjacent to the project site and will be a biddable specification for installation of the oak mitigation planting. This plan shall require that the Homeowners Association contract an ISA-certified arborist for a period of 7 years. The contracted arborist shall provide monitoring and reports throughout the year and will have authority in decisions regarding tree care and maintenance. The plan will also address requirements for replacement tree planting procedures.

5.1.1 Proposed Mitigation within Development Grading Limits

This section is consistent with Section 6.2.1 of the Final TMPP. In summary, we recommend approximately 12% to 30% of the mitigation tree planting occur in the transition areas, such as fuel modification zones and perimeter areas of the development. Utilizing native coast live oak species within these transition areas of the development will soften the edge from natural areas to the built environment and will contribute positively to the overall mitigation program. This native tree planting within landscaped areas will require that the trees are provided growing environments that are conducive to their establishment and long-term health. Therefore, irrigation, fertilization, pruning, and other maintenance that regularly is provided to landscape trees will be highly managed and controlled for these oak trees. To ensure that a substantial number of trees are planted to replace the removed trees, yet not too many for the site to sustain, a minimum of 250 and a maximum of 300 trees is recommended for the transition areas. This number of trees allows for adequate tree spacing in landscaped areas, fuel modification areas, and manufactured slopes.

The remaining 70% to 88% of the mitigation tree planting should occur in the oak tree planting receiver areas illustrated in Appendix D and described in Section 6.2.2 of the Final TMPP. These areas would receive primarily site-collected acorn plantings and where appropriate, seedlings with protective root and shoot cages would be utilized in the reforestation planting.

1 NOTE: This TMPP addresses oak tree impact replacements with oak trees only. Other tree and/or shrub species that may occur in and around the oak woodland associations include, Sycamore (*Platanus racemosa*) Mexican elderberry (*Sambucus mexicana*), toyon (*Heteromeles arbutifolia*), and hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*). These trees/shrubs would enhance diversity within the development, while retaining the native species common to the area. These species will be considered for inclusion in the project's Restoration and Monitoring Plan in addition to the oaks.

The planting ratios for each tree size presented in Table 7 are recommended to provide a healthy diversity of tree ages and sizes that also provide many other benefits to the landscape in which they are planted. This overall ratio is slightly higher than the FTSP ratio and includes many wildlife and long-term, sustainable advantages and benefits over the FTSP mitigation method.

Table 7
Recommended Tree Planting Ratio for Replacement Oak Trees Within and Outside Development Areas

Tree Size/Age	Number of Trees	Percent of Population
Planting Inside Development Area (Entry, Yards, Manufactured Slope)		
1-gallon	94	33.6
5-gallon	65	23.3
15-gallon	30	10.7
24-inch box	73	26.2
36-inch box	10	3.7
48-inch box	5	1.8
66-inch box	4	0.7
Total	**281**	**100**
Planting Outside Development Area		
Acorns	up to 2000*	100
Grand Total	**2,281**	**100.0**

* Assumes: 3 acorns/planting site and local collection, storage, and planting/protection cages.

As indicated in Table 8, the total number of plantings under the proposed mitigation program is nearly double that of the FTSP requirements. However, the acorn planting success ratios cannot be precisely determined at this time. Conservative estimates of acorn establishment success result in a 30% to 75% success ratio for a project of this scale. At a 30% success ratio, the tree planting totals 881 trees or roughly 7 replacement trees for every impacted tree (roughly equivalent to the FTSP tree requirement). At 60% success, the replacement to impacted ratio is 9.5 to 1[2], higher than the FTSP ratio.

The oak woodland areas outside the project footprint would be the receiver areas for oak acorn and seedling plantings, as detailed in the Final TMPP. Please refer to the Final TMPP for related oak impact analysis and mitigation discussion.

[2] Note: Although it cannot be guaranteed that the replacement ratios will be 9.5 to 1, our conservative analysis results in a ratio that exceeds the FTSP.

ATTACHMENT 1

Right-of-Way Tree Information Matrix

Attachment 1 - Saddle Crest Tree Management and Preservation Plan

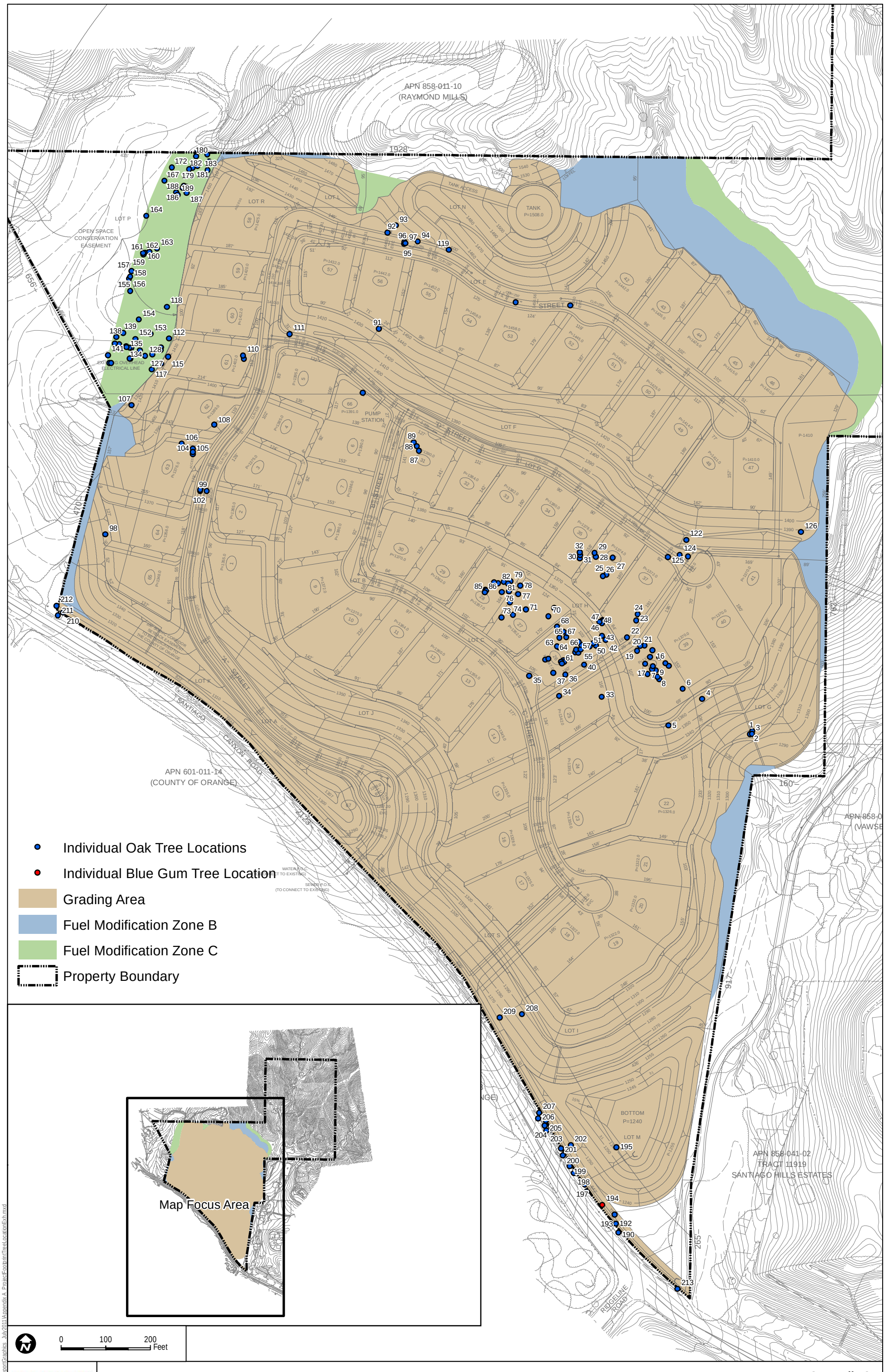
Individual Oak Tree Information Matrix - Santiago Canyon Road Alignment

Tree Number	Species	Stems	Diameter at Breast Height (D.B.H) Stem #						Composite Trunk Diameter* (inches)	Height (ft.)	Crown (ft.)	Health	Structure	Location	Notes	Map Coordinates (Northing/Easting)	
			1	2	3	4	5	6									
190	*Quercus agrifolia*	1	8						8.0	20	22	Fair	Fair	Grading Edge		6142975.21	2197779.44
191	*Quercus agrifolia*	2	13	5					13.9	25	25	Fair	Poor	Grading	Fire Damaged	6142952.47	2197796.12
192	*Quercus agrifolia*	1	4						4.0	15	8	Fair	Good	Grading Edge	State Oak Mitigation Law	6142969.15	2197799.16
193	*Quercus agrifolia*	4	10	10	12	8			20.2	30	30	Fair	Fair	Grading		6142966.87	2197819.63
194	*Eucalyptus globulus*	1	4						4.0	32	8	Fair	Fair	Grading	Not covered under FTSP	6142939.57	2197841.62
195	*Quercus agrifolia*	4	6	6	4	4			10.2	15	18	Poor	Poor	Grading	Fire Damaged	6142970.67	2197970.53
196	*Quercus agrifolia*	1	8						8.0	18	20	Fair	Good	Grading Edge		6142904.02	2197871.51
197	*Quercus agrifolia*	2	10	8					12.8	25	22	Good	Fair	Grading		6142900.14	2197887.12
198	*Quercus agrifolia*	5	4	3	1	1	1		5.3	12	15	Good	Poor	Grading Edge		6142875.12	2197912.90
199	*Quercus agrifolia*	2	8	8					11.3	18	15	Dead	Dead	Grading Edge	Fire Killed	6142866.02	2197928.07
200	*Quercus agrifolia*	9	4	3	3	2	1	1	6.3	13	15	Fair	Poor	Grading Edge		6142850.85	2197952.33
201	*Quercus agrifolia*	2	4	3					5.0	12	8	Fair	Fair	Grading Edge		6142846.30	2197968.26
202	*Quercus agrifolia*	3	4	4	1				5.7	20	16	Fair	Good	Grading		6142868.30	2197975.08
203	*Quercus agrifolia*	2	11	6					12.5	30	15	Fair	Good	Grading Edge		6142813.88	2198007.69
204	*Quercus agrifolia*	2	4	2					4.5	10	8	Fair	Poor	Grading Edge	State Oak Mitigation Law	6142810.08	2198019.06
205	*Quercus agrifolia*	1	9						9.0	26	10	Fair	Fair	Grading		6142812.28	2198030.33
206	*Quercus agrifolia*	1	4						4.0	10	6	Fair	Poor	Grading Edge	State Oak Mitigation Law	6142795.54	2198035.30
207	*Quercus agrifolia*	3	14	4	4				15.1	30	30	Fair	Fair	Grading Edge		6142797.77	2198047.88
208	*Quercus agrifolia*	4	4	4	3	3			7.1	18	18	Fair	Fair	Grading		6142759.10	2198268.54
209	*Quercus agrifolia*	2	6	3					6.7	25	14	Good	Fair	Grading		6142709.05	2198260.96
210	*Quercus agrifolia*	2	10	8					12.8	22	20	Fair	Fair	Grading		6141731.34	2199168.55
211	*Quercus agrifolia*	1	8						8.0	18	15	Poor	Poor	Grading Edge		6141720.06	2199162.12
212	*Quercus agrifolia*	1	9						9.0	22	12	Fair	Poor	Grading Edge		6141716.74	2199183.42
213	*Quercus agrifolia*	1	18						18.0	25	22	Fair	Fair	Grading Edge		6143107.47	2197653.03

* Composite trunk diameter represents the sum of the cross sectional square inch area for each trunk stem converted to representative diameter.

ATTACHMENT 2

Right-of-Way Oak Tree Location Exhibit



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Appendix A

Project Footprint Tree Location Exhibit

Sadldle Crest Tree Management and Preservation Plan

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Saddle Crest Tree Management and Preservation Plan

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JULY 2011

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1.0 INTRODUCTION

Dudek evaluated and recorded information about native oak trees and prepared this Tree Management and Preservation Plan (TMPP) for the proposed Saddle Crest project in 2009 and provided review in July 2011. Primary topics of this TMPP include evaluations of project-related impacts and recommendations for tree protection, relocation, removal, and mitigation. The project site is located in Trabuco Canyon, Orange County, California, adjacent to Santiago Canyon Road in the Foothill/Trabuco Specific Plan (FTSP) Area.

The tree inventory and related impact analysis and mitigation measure development that forms the basis of this TMPP was completed in 2009. In 2011, Dudek evaluated the tree inventory and resulting impact analysis. Following review of the inventory data, the FTSP requirements and considering the lack of disturbance at the site and the relatively slow rate of change for native oaks during a two-year period, the 2009 tree inventory is considered appropriate and valid. As such, the TMPP's tree data remains unedited and the conclusions remain valid.

This Tree Management and Preservation Plan provides a summary of Dudek's inventory and evaluation of individual native oak trees located within the proposed development area on the Saddle Crest property, as well as quantifications of preserved trees located outside project development limits. There are no native tree species other than coast live oak (*Quercus agrifolia*) on the site. Individual tree inventory and assessment protocols for impacted trees within the proposed project area are consistent with FTSP requirements, as described in Section 4.0. This TMPP also provides an evaluation of oak mitigation requirements included in the FTSP, as well as State-level requirements outlined in Public Resources Code 21083.4. Based on an evaluation of site-specific tree resources and conditions, coupled with an understanding of effective native tree mitigation planting standards, Dudek developed a mitigation program that provides for a more ecologically beneficial and sustainable program than would be realized if the FTSP requirements were implemented.

Dudek's International Society of Arboriculture (ISA) certified arborists performed various functions associated with surveying, inventorying and evaluating the condition of trees on the Saddle Crest property, as described in the following sections. The purpose of this TMPP is to present the physical characteristics, mapped locations, impact and preservation totals, and appropriate mitigation for impacts to native oaks on the site. The tree quantities and related project impacts have been analyzed and are reported in the following sections.

In summary, the Saddle Crest property exhibits both scattered individual oak trees and more concentrated stands along or within the property's drainage network. Many of the oaks on site suffered damage during the 2007 Santiago Fire; however, damage across the property is non-uniform. Some oak stands have been denuded by repeated wildfires over the last decade while

other, mature oak woodlands are largely in good condition. Additionally, oak stands and woodlands on site exhibit limited seedling recruitment, a condition that threatens the longevity of woodlands due to lack of available replacement trees as older trees are lost. There are approximately 596 oak trees on the Saddle Crest property. Of these, 128 trees (21%) are expected to be impacted by the proposed project and thus subject to replacement by mitigation planting. None of the impacted trees are considered appropriate for boxing and relocation due to their current health, inferiorities, or other maladies that will make them susceptible to failure following transplant.

1.1 Project Location and Description

The Saddle Crest property is located in Trabuco Canyon, Orange County, California (Figure 1). The property is bounded on the south by Santiago Canyon Road, on the southeast by an existing residential development, on the northeast and west by undeveloped land, and on the north by the Cleveland National Forest (Figure 2). The site currently supports grazing in the disturbed, non-native annual grasslands that dominate the site. Small oak stands are scattered across the site, while larger woodlands are situated in the northern and eastern portions of the property, concentrated within the property's drainages. The property encompasses approximately 114 acres and is situated in Sections 32 and 33, Township 5 South, Range 7 West, San Bernardino Baseline and Meridian.

2.0 METHODS

2.1 Tree Inventory and Assessment for the Development Footprint Area

Dudek mapped all oak tree locations within proposed project development areas using a Trimble Pathfinder Pro XH Global Positioning System (GPS) receiver on September 28 and 29, 2009. The Pathfinder has a horizontal accuracy of 1-meter (1-sigma) using differential code positioning techniques. Since tree canopies and steep canyons can sometimes cause loss of satellite lock by blocking the line-of-sight to satellites, an electronic compass and reflectorless electronic distance measuring (EDM) device was also used in mapping tree locations. The EDM/compass combination operates in concert with the Pathfinder system to position offsets, and offset information is automatically attached to the GPS position data string. The electronic tree locations were post-processed using GPS Pathfinder Office (v 3.10), and then evaluated using ArcGIS (v 9.3) software to determine the position of the trees related to the proposed project development areas.

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FIGURE 1

Regional Map

Saddle Crest Tree Management and Preservation Plan

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FIGURE 2

Vicinity Map

Saddle Crest Tree Management and Preservation Plan

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Each mapped tree was tagged with an aluminum tree tag bearing a unique identification number. The tags were placed on the trunk of each inventoried tree and tag numbers correspond with the tree locations presented in Appendix A and the individual tree data presented in Appendix B. Tree trunk diameter for each tree was measured using a diameter tape providing adjusted figures[1] for diameter measurements when wrapping the tape around the tree's circumference. Diameter measurements were collected using standard protocol described by the Council of Tree and Landscape Appraisers in the Guide for Plant Appraisal, published by the International Society of Arboriculture (ISA 2000).

Individual trunk diameters were measured at 4.5 feet above grade (54 inches), consistent with FTSP guidelines for determining the number of replacement trees required for each impacted tree. Many of the trees on site have more than one trunk, which is typical of coast live oak growth form and structure. Typical trunk form varies from standard (single trunk) to forked (branching between 2 and 4.5 feet) to multi-stemmed (branching below 2 feet). In cases of forked or multi-stemmed trees, the diameter of each individual trunk is recorded and the representative diameter at 4.5 feet (DBH) value is calculated based on International Society of Arboriculture (ISA) standards (ISA 2000). Specifically, a diameter value calculated from the sum of each individual trunk area (square inches) is used to calculate the DBH values, which are ultimately utilized in determining the mitigation quantities set forth in the FTSP guidelines. Tree height measurements were based on ocular estimates by experienced field arborists. Tree canopy diameters were typically estimated by "pacing-off" the measurement based on the investigator's knowledge of his stride length or by visually estimating the canopy width. The tree crown diameter measurements were made along an imaginary line intersecting the tree trunk that best approximated the average canopy diameter.

Pursuant to the Guide for Plant Appraisal (ISA 2000), tree health and structure were evaluated with respect to five distinct tree components: roots, trunk(s), scaffold branches, small branches, and foliage. Each component of the tree was assessed with regard to health factors such as insect, fungal or pathogen damage, fire damage, mechanical damage, presence of decay, presence of wilted or dead leaves, and wound closure. Components were graded as *good*, *fair*, *poor*, and *dead* with 'good' representing no apparent problems, and 'dead' representing a dying and/or dead tree. This method of tree condition rating is comprehensive and results in ratings that are useful for determining the status of trees based on common standards. Trees in natural settings have important habitat value, as evidenced by numerous cavity nesters and insects that thrive on and within oak trees, even when they are considered in poor structural or health condition. However, this assessment focuses on tree condition with regards to health and structure for purposes of analyzing potential project impacts and where necessary, providing recommendations for mitigating potential tree hazards, such as trees with weak limb attachments,

[1] Circumference measurement (inches) divided by 3.14 (π) provides diameter measurement in inches

cavities and rot, or excessive lean. Because the property burned recently during the 2007 Santiago Fire, the impacts of fire on oak tree health was evaluated using post-fire oak damage assessment protocols established by Plumb and Gomez (1983) to determine the extent of damage and the likelihood of survival.

2.2 Tree Quantification for the Non-Project Footprint Area

The oak tree resources outside of the project footprint area include a significant number of individual trees located within four oak stands. Trees within each of the four individual oak stands that were not included in the GPS inventory were quantified in the field on September 28, 2009. Rather than tagging each individual tree and recording size and condition data, as was completed for the trees within the proposed project footprint, trees in non-impacted stands were tallied such that 1) an understanding of the overall project oak tree impact and preservation levels could be determined, 2) grove density and overall health could be assessed, and 3) opportunities for restoration among the oak groves could be evaluated. Stands of oaks were delineated on 200-scale aerial photograph maps and individual trees within each of the four stands were counted in the field. Tree stand densities are displayed in Appendix C.

3.0 OBSERVATIONS

3.1 Characteristics of Trees within the Project Footprint Area

Within the project development footprint area, there are 128 native oak trees that meet the FTSP requirements for oak tree inventory; namely, minimum trunk diameters of five inches (at 4.5 feet above grade). Smaller oaks, down to 3 inches trunk diameter were inventoried, but there were none observed on site indicating that sustainability is affected by the lack of regeneration.

Individual trunk diameters were measured at 4.5 feet above grade (54 inches), consistent with FTSP guidelines for determining the number of replacement trees required for each impacted tree. Many of the trees on site have more than one trunk, as is typical for coast live oaks. For multi-trunked trees, trunk diameter measurements included in this TMPP were calculated by using the protocol outlined in the Guide for Plant Appraisal (ISA 2000). This protocol specifies that each individual trunk which contributes to tree canopy be measured and the sum the square inch areas for each trunk be calculated. For the purposes of this TMPP, DBH values represent a diameter value which was calculated from the sum of each individual trunk area (square inches). Typically, trunk form varies from standard (single trunk) to forked (branching between 2 and 4.5 feet) to multi-stemmed (branching below 2 feet). However, the majority of the trees on Saddle Crest, approximately 60%, have standard, single trunk form.

Many of the trees sustained damage from multiple wildfires in the area, the latest of which occurred in 2007. Most of the fire damaged oak trees show signs of recovery, as is typical of the

species following fire. However, many of the trees exhibit basal trunk wounds, scorched bark, and reduced canopies. These wounds may lead to internal decay or susceptibility to insect and disease attack that can eventually lead to pre-mature tree decline and death (Plumb and Gomez 1983, Steinberg 2002).

The FTSP requires an inventory for trees over 5 inches trunk diameter at 4.5 feet above grade. For purposes of illustrating the size and health of the trees, Tables 1 through 5 summarize the Saddle Crest impacted trees' characteristic attributes by trunk diameter, height, canopy spread, health, and structure, respectively.

Table 1
Trunk Diameter of Saddle Crest Impacted Trees

Trunk Diameter at 4.5 feet above grade (inches)	Number of Native Trees Impacted*
5–11	30
12–17	61
18–23	24
24–35	11
36+	2
Total	**128**

*There were no trees in the 3 to 4.9 inches trunk diameter range included within the project footprint. These trees would be considered impacted based on state oak mitigation requirements, but were not present on the site and therefore, are not included in these summaries.

Table 2
Height of Saddle Crest Impacted Trees

Height (feet)	Number of Native Trees Impacted
<10	2
10–20	86
21–30	38
31–40	2
Total	**128**

Table 3
Canopy Size of Saddle Crest Impacted Trees

Crown Width (feet)	Number of Native Trees Impacted
<10	41
10–20	59
21–30	19
31–40	9
41–	0
Total	**128**

Table 4
Health Condition of Saddle Crest Impacted Trees

Health Condition	Number of Native Impacted
Good	10
Fair	67
Poor	18
Dead	33
Total	**128**

Table 5
Structural Condition of Saddle Crest Impacted Trees

Structural Condition	Number of Native Impacted
Good	5
Fair	70
Poor	20
Dead	33
Total	**128**

3.2 Characteristics of Trees Outside of Project Footprint Area

Tree inventory outside the project grading limits resulted in a tally of an estimated 468 trees with trunk diameters of at least 5 inches. This is a substantial number of trees, 79% of the total trees on site, and includes the most established and mature oak groves/woodlands (7.13 acres in total) on the property. The oaks occur primarily in woodlands located in ravines and drainage bottoms along the northwestern boundary (2.7 acres) and preserved and avoided northeastern boundary (4.43 acres). Most of the trees are in good condition. A few small pockets of oaks display damage from fire, but most of the damaged trees are experiencing new growth from re-sprouting. It was noted on the property that seedling establishment is poor and non-existent in some areas that are currently, or have been previously grazed, thus contributing to the degraded quality of those areas. The tree densities for stands and open spaces (all referred to as stands for presentation clarity) are summarized in Appendix C. A “stand” is group of trees of sufficiently uniform species composition, age, and condition to be considered a homogeneous unit for management purposes.

4.0 TREE PRESERVATION

4.1 Jurisdiction and Regulatory Definitions for Tree Inventory

The FTSP regulates the preservation for and mitigation of native trees in the Trabuco Canyon area of Orange County. The following sections detail the regulatory definitions and requirements as they are stated within the FTSP.

In addition to the tree related regulations applicable to this site, the Migratory Bird Treaty Act (MBTA 1918) requires tree removal and potentially disturbing construction activities to occur during certain time periods to avoid harassment of nesting birds. The MBTA also requires pre-work bird surveys and clearing to be performed and buffer zone establishment around occupied nests. The MBTA will be applicable and followed during site grubbing and tree removals.

4.1.1 Foothill/Trabuco Specific Plan – Oak Woodlands

According to the FTSP Oak Woodlands Section, "the purpose and intent of the oak woodlands designation is to ensure preservation of significant stands of oak woodlands". The FTSP pertinent oak woodlands regulations are:

1. Oak woodlands shall be preserved in an undisturbed state to the greatest extent possible while still allowing for reasonable development. The site-specific analysis shall identify the level of impact of the proposed project and methods of reducing or avoiding adverse impacts of the project. The impact analysis shall consider all forms of disturbance resulting from development, including changes in runoff, impacts within the dripline of trees, etc. If oak trees are proposed to be transplanted, the analysis shall identify suitable locations for the transplantation of oak trees.
2. Prior to recordation of a final tract /parcel map or the issuance of grading permits, each affected applicant shall offer for dedication in fee or preservation easements to the County of Orange…areas containing oak woodlands, as identified for preservation in an approved Tree Management/Preservation Plan.
3. A Tree Management and Preservation Plan shall identify those trees exceeding five inches in diameter that are proposed for removal and the proposed location of replacement trees. Also, each tree meeting this requirement shall be mapped.
4. Any oak tree removed which is greater than five inches in diameter at 4.5 feet above the existing grade shall be transplanted, unless a certified arborist confirms that the tree would not survive transplantation. Trees that cannot be successfully transplanted are to be replaced according to a provided replacement ratio scale. Any trees that die within a 5-year timeframe (monitoring period) shall be replaced according to the scale.

5. Tree protection measures will be provided for all trees preserved on the site during grading and construction operations.

4.1.2 Public Resources Code 21083.4 – Oak Woodlands Conservation

California Public Resource Code (PRC) 21083.4 includes several important mitigation components that apply where a County determines there may be a significant effect to oak woodlands and where an existing mitigation program does not exist. Based on our understanding of the state oak requirements, it does not apply to this project based on the existence of a local oak mitigation regulation. We are including both FTSP and PRC 21083.4 requirements as the state law includes important concepts that are focused on oak impact mitigation in an ecologically based manner. Among the mitigation options identified in the PRC are:

- Conserve oak woodlands through the use of conservation easements.
- Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
    - The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.
    - Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirements for the project.
    - The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.
- Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.
- Other mitigation measures developed by the county.

4.2 Site Tree Inventory and Assessment Results

4.2.1 Oaks within Project Footprint Area

The proposed development footprint includes a total of 128 native oak trees that are located within the proposed project disturbance areas. These trees meet the FTSP trunk diameter minimum requirements of 5 inches or greater. All of these trees are expected to be directly impacted and require mitigation according to the FTSP.

In addition, while on site, Dudek arborists surveyed for trees in the 3- to 4.9-inch-diameter category. These trees are not required to be inventoried under the FTSP requirements. They are, however, trees that may reach the FTSP (and state PRC 21083.4) size criteria over the course of project entitlement and were, therefore, included in the inventory. However, there were no trees in that size category observed within the development footprint. On-going grazing and the recent (2007) wildfire on the property are believed to be the primary reason for the lack of small trees.

4.2.2 Oaks outside Project Footprint Area

The remaining 468 oak trees are located within four separate oak groves on the property. This is a substantial number of preserved trees, nearly four times the number of impacted trees, and includes the most established and mature oak woodlands on the property. The oaks occur primarily in ravines and drainage bottoms. Most of the trees are in good health and structural condition. These trees are not expected to be impacted (either directly or indirectly) and are, therefore, not included in impact and mitigation totals presented in this TMPP. These trees will be provided protection in the form of standard measures applied on construction sites and will be provided long-term preservation. Where appropriate, such as areas that are lacking understory trees, tree planting will occur to augment the existing populations, provide for the next generation of trees, and fill in gaps or connect tree clusters.

4.3 Impacts

Impacts discussed below are based on proposed grading limits, fuel modification zones, and development plans as of the date of this TMPP. As such, the actual number of trees that are subject to direct and indirect impacts may change as the detailed site planning process proceeds. Direct and indirect tree impacts are discussed in the following sections.

4.3.1 Definition of Potential Direct Impacts

Direct impacts are those associated with:

- tree removal
- tree encroachment within the protected zone (drip line plus 5 feet or 15 feet from trunk, whichever is greater)
- soil and root disturbance from trenching or cut and fill
- crown raising
- compaction associated grading and vehicular traffic.

4.3.2 Potential Indirect Impacts

Indirect impacts to trees are the result of changes to the site that may cause tree decline, even when the tree is not directly injured. Site-wide changes affecting trees include (Matheny and Clark 1998):

- diverting runoff and storm water
- creating retention and detention ponds
- relocating streams or making improvements to streams
- lowering or raising water tables
- altering the capacity for soil moisture recharge
- removing vegetation
- damming underground water flow.

Based on available project information and engineering plans, it is estimated that 128 (21%) of the trees on site will experience direct impacts in the form of removal or will be significantly encroached upon, while the remaining 468 (79%) trees will be preserved in place. The removal of 128 trees is considered a significant impact, but is mitigated to a less than significant level through measures outlined in this TMPP (Section 6.2). This TMPP utilizes a conservative, overly aggressive approach to defining tree impacts from grading. The actual number of tree impacts will be tallied at time of grading. It may be possible to reduce the total number of trees impacted through minor grading adjustments in the field.

Tree Impact Analysis Methods

Tree impacts were determined through the use of GIS technology. Tree locations were compared with the proposed disturbance limits and trees within or adjacent to the limits were considered impacted because they would be encroached upon and would require removal or experience root disturbance. The resulting GIS data files were used in generating a comprehensive tree location exhibit illustrating the mapped locations of each tree within the project area. Impacts were further determined based on Dudek's experience with native trees and their typical reactions to disturbances such as soil and root damage, compaction, or branch removal. In general, there is a great deal of variation in tolerance to construction impacts among tree species, ages, and conditions. It is important to know how a certain tree based on its species, age, and condition would respond to different types of disturbance. The native trees in the proposed Project area are of varying ages and conditions. Mature specimens are typical more sensitive to root disturbance and grade changes. In general, healthy trees will respond better to changes in their growing

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

The impact analysis results were utilized for developing appropriate mitigation measures.

4.3.3 Definition of Potential Direct Impacts

Direct construction impacts are expected for all trees located within or adjacent to (encroachment) the project grading limits. As such, none of these trees will incur indirect impacts. These direct impacts will be associated with the removal of 95 trees in poor, fair, or good condition and the removal of an additional 33 trees that are dead or dying. Table 6 details impacted tree condition ratings. Retained trees near the grading line may be impacted, and will require protection and monitoring. Dead trees are included in the impact totals because in this case, the trees were top-killed from the 2007 Santiago Fire, but are expected to re-sprout from below ground root systems that were not excessively damaged (conservative approach).

A total of 43 oak trees occur outside the grading limits but within proposed fuel modification zones. The trees primarily are located in the northwest portion of the site. These trees are located in zones that will require very little disturbance. For purposes of this TMPP, the trees are considered preserved and will be provided protective measures including, fencing during construction, minimal pruning, if any, and will not be subject to irrigation. As a precautionary measure, should any of these trees decline due to construction related activities during the proposed monitoring period, they will be replaced according to the proposed mitigation plan described in Section 6.0.

Table 6
Summary of Tree Impacts

Condition/Disposition	Grading Impacts Oaks	Fuel Modification Zone Trees /Not Impacted)
Good	9	16
Fair	66	17
Poor or Dead	53	10
Total	**128**	**43**

4.3.4 Potential Indirect Impacts

Potential indirect impacts to trees near proposed development include hydrological and human-caused alterations. Project engineers can design systems to promote sound oak grove management including drainage systems, de-silting basins, culverts, and piping to minimize

indirect impacts to preserved trees and groves by maintaining soil moisture and runoff at levels consistent with those found on site today.

Other potential indirect impacts may include firewood harvesting, hiking/recreational use, littering, vandalism, and deliberate or accidental wildfire ignition in oak woodland areas. These potential indirect impacts can be minimized by implementing woodland management and protection measures, including educational material provided to homeowners and long-term management of oak-dominated habitat on the site.

4.3.5 Non-Impacted Trees outside Project Footprint

The remaining 468 native oak trees located on the Saddle Crest property are not considered impacted and are located in potential restoration areas (Appendix D). These trees will be provided standard tree protection measures as detailed in Appendix E. These measures minimize the possibility that potential indirect impacts are realized during construction. These trees are located within four separate oak stands/woodlands in the undeveloped northeastern portion of the property and along the northwestern corner, as illustrated in Appendix C. Combined, the preserved oak stands/woodlands encompass 7.13 acres and contain 79% of the native oaks on site. Tree protection measures for preserved trees adjacent to the proposed development area are presented in Appendix E.

5.0 FOOTHILL/TRABUCO SPECIFIC PLAN MITIGATION

5.1 Mitigation Definition

The FTSP provides requirements for tree impact mitigation for this project. Saddle Crest has been planned around the existing native trees to the extent feasible, as evidenced by the fact that nearly 80% are preserved in place.

According to the FTSP, if tree impacts are unavoidable, then they are to be fully mitigated, with priority given to on-site mitigation:

> "…Any oak tree removed which is greater than (5) inches in diameter at 4.5 feet above the existing grade shall be transplanted. If any oak tree over 5 inches in diameter is in poor health and would not survive transplantation, as certified by an arborist, said tree shall be replaced according to the replacement scale …."

The FTSP mitigation for impacted trees occurs in two forms: 1) relocation and monitoring or 2) replacement according to the FTSP sliding mitigation scale. In addition, protection and retention of native oaks (*Quercus* spp.), is required, to the maximum extent feasible. The Project Footprint Tree Location Exhibit in Appendix A presents the location of native trees that are within the

proposed project areas and will require removal. Appendix C illustrates the oak stands/woodlands on site that will be preserved and enhanced. The following sections address tree mitigation planting, monitoring activities and site-specific tree protection standards designed to minimize impacts to retained trees for Saddle Crest.

5.2 Saddle Crest Mitigation per the FTSP

Tree relocation, the primary mitigation measure under the FTSP, is not recommended for any of the trees located within the project footprint due to their health and/or structural conditions. Since relocation is not an option based on the site's tree health, replacement according to the FTSP tree replacement mitigation sliding scale is the only mitigation measure directed by the FTSP. The sliding scale, summarized in Table 7, requires replacement tree planting proportional to the diameter of the tree removed. For example, trees with diameters between 5 and 11 inches require five replacement trees for each removal and trees that are 36 inches diameter or larger require fifteen replacement trees. According to the FTSP, and the trunk diameters of the 128 trees requiring removal, a total of 1,040 trees would be required as mitigation. Accordingly, the average number of mitigation trees planted for each removal tree is just over eight trees. Table 7 summarizes the tree replacements according to the FTSP mitigation ratios.

Table 7
Tree Replacement Calculation according to FTSP

	Trees Impacted		
Trunk Diameter	**Inside Grading**	**Replacement Ratio**	**Replacement Trees**
5–11 inches	30	5:1	150
12–17 inches	61	8:1	488
18–23 inches	24	10:1	240
24–35 inches	11	12:1	132
36 inches and above	2	15:1	30
Total	**128**	**N/A**	**1,040**
Average per Impacted Tree	N/A	N/A	8.13

When tree relocation is not recommended by an arborist, as is the case with this project's impacted trees, the FTSP requires planting trees (commonly 15-gallon size) for mitigation planting. In order to support long-term survival of 15-gallon container-sized trees, the replacement trees would need to be located in accessible areas where consistent irrigation could be provided or in maintained and irrigated areas such as parks, fuel modification zones, or along streets, where the wildlife habitat value is typically lower. It is Dudek's assessment that the site could support the calculated 1,040 containerized trees, but it is Dudek's opinion that this would not be the most ecologically appropriate form of mitigation tree planting. In order to support this

number of trees, many of them would need to be planted within the development footprint as landscape trees and on the periphery of the development areas. Trees in these areas can be important contributors to softening the transition from natural oak groves and oak woodlands to urbanized areas and providing positively to some wildlife species, but would not be considered the most beneficial form of mitigation.

Dudek proposes an alternative replanting plan that would provide additional benefits by planting the trees in preserved oak woodlands as an enhancement or restoration program in these more remote, preserved woodlands. With this scientifically based approach, this TMPP provides details for an alternative mitigation program that would amend the FTSP for this site, customizing the mitigation program based on the site-specific impacts, tree attributes, preservation areas, and long-term sustainability of the planted trees, which would result in a biologically superior mitigation program.

6.0 SADDLE CREST PROPOSED MITIGATION

The FTSP's focus on mitigating oak impacts by planting numerous container-sized trees (when transplanting is not possible) for the removal of every oak larger than 5 inches in diameter is not considered to achieve the best ecological mitigation for this site. The replacement of impacted oak trees by planting multiple trees is a valid method of impact mitigation, but must be implemented in a sustainable way that focuses on oak habitat preservation and restoration. Planting containerized trees is commonly required in older tree preservation ordinances and is based on formulas that attempt to account for mitigation tree mortality or lack of establishment and habitat losses associated with the removed native oak(s).

Although this is a useful mitigation in some situations, it is not applicable in all situations. The science of native tree establishment and reforestation has improved over the last 20 years. Many aspects of oak woodland ecology are now comprehended much better than they were a decade or more ago. Considerations must be given to ecological and wildlife issues, forest health and diversity, plantable space, quality of receiver sites, and aesthetics, amongst others. The use of multiple 15-gallon trees, as required in the FTSP, can be one component of mitigating the removal of mature trees. However, using multiple 15-gallon trees along with both larger and smaller trees will add diversity to the areas that can be successfully restored, the sizes and ages of the tree replacement plantings and will improve the overall health and sustainability of the trees within the overall mitigation program.

The proposed Saddle Crest oak tree mitigation program, in contrast to the FTSP, does not focus on tree relocation as the primary type of mitigation for tree impacts. Tree relocation may have been a valid form of "mitigation" for tree impacts 20 years ago, but several studies including Dagit and Downer (1997) along with numerous examples throughout Orange County, indicate

that native oak tree relocation is a difficult process that is usually not in the trees' best interest. Further, Public Resources Code 21083.4 (State of California Oak Mitigation Requirements) does not recognize oak transplanting as a feasible or proportional mitigation measure. Rather, the proposed mitigation program focuses on preservation (the project will preserve nearly 80% of the oaks on site) and restoration and enhancement of preserved oak groves through sustainable tree plantings, as well as native tree planting in the transition area between open space and developed areas throughout the proposed project.

6.1 Oak Relocation

As mentioned, relocation of impacted oak trees was analyzed during our tree assessments, but the result of our evaluations is that none of the 128 impacted trees are considered candidates for relocation. Many factors influence the likelihood of long-term survival of oak transplants. Tree size, age, and health conditions along with accessibility and subsurface planting restrictions, such as rockbound roots, are critical in determining the success of a relocation effort. Often, the large efforts required to transplant mature oaks would be better used in establishment of younger trees that are better equipped to adapt to a new location.

The success rates for transplanting large oak trees are relatively low (personal observation and Dagit and Downer 1997). Transplanting large oak trees places a great deal of stress on the trees due to difficulties that mature oaks have adapting to a new site after losing a minimum of 75% of their root mass. These additional stresses make oak trees more vulnerable to pests and diseases. Although they may live for a long time, large, transplanted oaks typically do not reach equilibrium health and vitality needed for long-term survival. The trees will exist in a declining spiral. A great deal of care, time, and attention is required during boxing, moving, storing, and transplanting to increase survival probability. Just as important, they require diligent and regular monitoring and maintenance for the rest of their existence.

6.2 Proposed Mitigation Program Details

The proposed mitigation program defined herein has been designed to provide mitigation for likely impacts to 128 oak trees on the Saddle Crest property. The proposed mitigation program is presented to provide a way to mitigate the potential loss of tree resources in a manner that includes significant preservation of oak resources on site (nearly 80% are preserved), enhancement of existing on-site oak groves, improved seedling/tree establishment success, improved age-diversity, less than 50% of the mitigation requirement met through planting, and long-term monitoring that is responsive to PRC 21083.4 oak mitigation requirements.

The goal of the proposed mitigation program is to offset tree impacts through a sustainable, customized plan that is suitable for the site's unique opportunities for oak tree preservation, enhancement, and establishment.

Dudek recommends that the mitigation plan focuses on replanting the designated tree planting receiver sites (Appendix D) with various sized oak trees and enhance, restore, or establish oak dominated habitats outside the development footprints, primarily in existing oak groves that will be preserved. These strategies will be described in more detail in the project's Restoration and Monitoring Plan[2] that will be prepared prior to grading and that will be used for procuring bids for the oak and other restoration/mitigation work on the project.

The project Restoration and Monitoring Plan shall be approved by the County, prior to the issuance of grading permits. The plan shall specify oak planting details, locations, and long-term maintenance and monitoring for trees planted within and directly adjacent to the project site and will be a biddable specification for installation of the oak mitigation planting. This plan shall require that the Homeowners Association contract an ISA-certified arborist for a period of 7 years. The contracted arborist shall provide monitoring and reports throughout the year and will have authority in decisions regarding tree care and maintenance. The plan will also address requirements for replacement tree planting procedures.

6.2.1 Proposed Mitigation within Development Grading Limits

We recommend approximately 12% to 30% of the mitigation tree planting occur in the transition areas, such as fuel modification zones and perimeter areas of the development. Utilizing native coast live oak species within these transition areas of the development will soften the edge from natural areas to the built environment and will contribute positively to the overall mitigation program. This native tree planting within landscaped areas will require that the trees are provided growing environments that are conducive to their establishment and long-term health. Therefore, irrigation, fertilization, pruning, and other maintenance that regularly is provided to landscape trees will be highly managed and controlled for these oak trees. To ensure that a substantial number of trees are planted to replace the removed trees, yet not too many for the site to sustain, a minimum of 250 and a maximum of 300 trees is recommended for the transition areas. This number of trees allows for adequate tree spacing in landscaped areas, fuel modification areas, and manufactured slopes.

[2] Note: This TMPP addresses oak tree impact replacements with oak trees only. Other tree and/or shrub species that may occur in and around the oak woodland associations include, Sycamore (*Platanus racemosa*) Mexican elderberry (*Sambucus mexicana*), toyon (*Heteromeles arbutifolia*), and hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*). These trees/shrubs would enhance diversity within the development, while retaining the native species common to the area. These species will be considered for inclusion in the project's Restoration and Monitoring Plan in addition to the oaks.

The remaining 70% to 88% of the mitigation tree planting should occur in the oak tree planting receiver areas illustrated in Appendix D and described in Section 6.2.2 of this TMPP. These areas would receive primarily site-collected acorn plantings and where appropriate, seedlings with protective root and shoot cages would be utilized in the reforestation planting.

The planting ratios for each tree size presented in Table 8 are recommended to provide a healthy diversity of tree ages and sizes that also provide many other benefits to the landscape in which they are planted. This overall ratio is slightly higher than the FTSP ratio and includes many wildlife and long-term, sustainable advantages and benefits over the FTSP mitigation method.

Table 8
Recommended Tree Planting Ratio for Replacement Oak Trees Within and Outside Development Areas

Tree Size/Age	Number of Trees	Percent of Population
Planting Inside Development Area (Entry, Yards, Manufactured Slope)		
1-gallon	94	33.6
5-gallon	65	23.3
15-gallon	30	10.7
24-inch box	73	26.2
36-inch box	10	3.7
48-inch box	5	1.8
66-inch box	4	0.7
Total	**281**	**100**
Planting Outside Development Area		
Acorns	up to 2000*	100
Grand Total	**2,281**	**100.0**

* Assumes: 3 Acorns/planting site and local collection, storage, and planting/protection cages.

As indicated in Table 8, the total number of plantings under the proposed mitigation program is more than double that of the FTSP requirements. However, the acorn planting success ratios cannot be precisely determined at this time. Conservative estimates of acorn establishment success result in a 30% to 75% success ratio for a project of this scale. At a 30% success ratio, the tree planting totals 881 trees or roughly 7 replacement trees for every impacted tree. At 60% success, the replacement to impacted ratio is 9.5 to 1[3], higher than the FTSP ratio.

Planting acorns has long been considered the most simple, economical, and successful way of establishing healthy oak trees. They do not require long-term supplemental water (following watering for up to 5 years and during drought years and generally naturalize, outperform larger

[3] Note: Although it cannot be guaranteed that the replacement ratios will be 9.5 to 1, our conservative analysis results in a ratio that exceeds the FTSP.

trees, and produce superior trees. Direct seeding of acorns is often discouraged because growers expect poor germination rates and a high loss of planted acorns to rodents. These problems are minimized with careful selection and storage of acorns and the use of newly available, low-cost tree shelters to protect the seed and growing seedling in the ground. Proper seed handling methods have been shown in numerous settings to produce germination rates greater than 60th percentile. New technology, such as planting hole preparation, amendments, watering techniques, and protective cages, allows experienced restoration specialists to prepare a planting site to enhance the likelihood of successful germination and survival. The proposed mitigation program overplants acorns such that only a 31% success rate is necessary to achieve tree establishment goals.

Acorns require harvesting from local trees generally during early fall. The restoration specialist should develop an acorn collection and storage plan that allows the acorns to be planted at the most advantageous time, generally between early November and early March. The acorns could be contract grown for this project and planted along with nursery stock. Costs associated with acorn collection have been included in the restoration plant material costs estimated in this TMPP.

6.2.2 Proposed Mitigation outside Development Grading Limits

Three priority mitigation planting receiver areas with potential for establishment and restoration of oak dominated habitats have been identified on the Saddle Crest property. These priority areas are located outside the proposed development footprint and currently include degraded oak habitat (Appendix D). These natural receiver areas include:

- **Natural Receiver Area 1** – 5.6 acres, northeast facing slope, native and non-native grassland, scattered damaged oaks
- **Natural Receiver Area 2** – 0.64 acre, east facing slope, native and non-native grasslands with remnant oaks
- **Natural Receiver Area 3** – 0.70 acres easterly facing slope, scattered coast live oaks, and native/non-native grasslands.

Under this proposed mitigation program, acorns, and propagated seedlings, where appropriate, will be used to restore, enhance, and rehabilitate the fire damaged receiver areas. Accessible locations will be provided temporary, supplemental irrigation via above ground water line or hand watering. Plant success and performance standards, along with monitoring requirements, will be identified in the Restoration and Monitoring Plan prepared for this project. Performance standards will ensure that predetermined levels of restoration success are accomplished in each target area throughout the monitoring period.

6.2.2.1 Replacement Tree Planting Outside Project Grading Limits

In natural oak woodlands, it is common to find tree spacing that varies considerably. Generally, however, competition among trees naturally produces spacing averages of more than 20 feet. The trees often occur in scattered groups with dominant trees flanked by co-dominants, secondary and understory trees. These trees are often within a few feet of each other but are spaced further from neighboring tree groups. Three priority receiver areas on the Saddle Crest project site provide up to 6.9 acres for oak tree planting (Appendix D). These areas have supported oak groves and were damaged by recent wildfires. They would facilitate enhancement and restoration activities based on their favorable aspect, soils, and historical oak tree habitat. Additionally there are three established oak groves totaling 2.69 acres (1.94 acres and 1.89 acres, respectively) that currently exists to the west and east of the planned project and one smaller area (0.64 acre) to the northeast. These three areas are not proposed for additional planting, but will receive protections in the form of shoot cages or temporary fencing for naturally establishing seedlings and saplings, as outlined in this TMPP proposed mitigation program, improving the age diversity within the largely mature tree groves, and providing for the tree recruitment necessary to sustain these groves.

Table 9 presents the acreage and approximate capacity of each of the proposed receiver sites.

Table 9
Potential Mitigation Planting Receiver Sites

Site Type	Site Number	Acres	Potential Plantings
Post-Development Manufactured Slope	1	2.7	189 Trees
Natural Receiver Area	2	5.6	504 Trees
Natural Receiver Area	3	0.6	54 Trees
Natural Receiver Area	4	0.7	63 Trees
Preservation/ Enhancement	1	2.7	N/A*
Preservation/ Enhancement	2	1.9	N/A*
Preservation/ Enhancement	3	1.9	N/A*
Preservation/ Enhancement	4	0.7	N/A*
Development Area Landscape Plantings	N/A	N/A	90 Trees
Total	**N/A**	**16.8**	**900 Trees****
Average Planting per Impacted Tree	**N/A**	**N/A**	**at least 7****

* Although these areas will not receive acorn or tree planting, they will be part of a restoration program that will provide protective cages for seedlings as part of this mitigation program. The anticipated result is an increase in the number of trees per acre that could double the number of trees currently in these groves.
** To achieve the established trees in the natural receiver areas, acorns will be planted and provided protective measures. Approximately 2,000 acorns will be planted with a goal of establishing at least 600 trees (a very conservative 30% success rate) and an achievable higher percentage that may approach 60% success (1,200 trees) based on similar projects of this manageable size.

Each of these areas is a likely receiver site for a sustainable number of oak trees. As presented in Table 9, Dudek has estimated that the three natural receiver areas outside of the development

footprint can accommodate 620 to 800 trees, with a majority of the trees occurring within Natural Receiver Area 2, the largest of the planting areas. Additional restoration planting, tree establishment on the interface slopes, and landscape planting, results in approximately 900 trees that will be established on the property as mitigation for 128 tree impacts. In addition, protection will be provided for establishing natural seedlings in preserved areas. The result is anticipated to be a much higher tree per acre total as a higher percentage of seedlings which are now browsed, will establish and contribute to the intent of the proposed mitigation program, which is to improve the condition and sustainability of the site's oak woodlands. At least seven trees per each impacted tree will be established, and that mitigation ratio could be much higher based on acorn germination success and provided protection measures.

Natural Receiver Area Planting

The planting of these natural areas will be defined in the project Restoration and Monitoring Plan[4]. In summary, it should be completed according to accepted practices (McCreary 1989, McCreary 2001, Adams et. al. 1987, Bernhardt and Swiecki 2001, Borchert et. al. 1989, Callaway and D'Antonio 1991, Giusti and Tinnin 1993, Light and Buckner 1999, and Light and Pedroni 2002). The trees placed in the canyons should be over-planted in clusters of three to four seedlings or acorns. When planting the trees, the first step is to ensure that the planting location is suitable to oak establishment and growth. Slope, aspect, proximity to stream courses, proximity to developments, shade, drainage, soil type, and presence of other healthy oaks are all factors that will be considered in the Restoration and Monitoring Plan.

7.0 CONCLUSIONS

The Saddle Crest oak trees and groves are characterized as scattered individual trees that have been damaged by recent wildfire, grazing (trampling and consuming); concentrated oak groves that also have been denuded by repeated wildfires over the last decade, and established, mature oak woodlands which are largely in good condition, but with very little recruitment of younger trees and an aging population that may be in jeopardy over the long-term due to lack of replacement trees as older trees are lost. There are roughly 596 oak trees on the Saddle Crest property, of which, 128 (21%) are expected to be impacted by the proposed project. All of these trees will require removal and replacement by mitigation planting based on the proposed project footprint. Approximately 40% (51 trees) are dead or in poor condition. None of the trees are

[4] Note: The mitigation requirement as well as the approved tree replacement mitigation ratio is at the discretion of the County and subject to final tree impact analysis. As such, the final tree numbers and costs associated with tree replacement, transplant and other mitigation components may vary from that presented in this proposed TMPP but are to be consistent with its ratios and intent.

considered appropriate for boxing and relocation due to their current health, inferiorities, or other maladies that will make them susceptible to failure following transplant.

The remaining nearly 80% of the trees on site are in areas that will be avoided by the project. As such, these areas are preserved and will be enhanced and restored through acorn planting and protection measures designed to increase establishment, consistent with oak habitat mitigation goals outlined in the State of California's Public Resources Code (PRC 21083.4) - "County Oak Mitigation Requirements".

Mitigation planting, according to the FTSP, requires replacement of the 128 impacted oak trees with 1,040 containerized trees. Establishing this many containerized trees is possible on this site, but would require that nearly all of the trees be planted in irrigated, maintained areas. This would not provide proportional mitigation for the lost trees and would result in lower tree size and age diversity and would likely require very high planting densities that would not likely be sustainable.

This proposed mitigation program presents an alternative that provides a sustainable and site-customized oak restoration program. This biologically superior mitigation program includes planting acorns and seedlings in the preserved oak woodlands on the property, and various sized trees in the landscaped portion of the proposed development.

Approximately 900 trees are proposed for planting within and outside project grading limits on the property. In addition, four preservation groves/woodlands will receive enhancement through protection and facilitation of seedling establishment and growth. The anticipated result is a significant increase in the number of trees per acre over existing conditions and provision for the next generation of oaks. The proposed mitigation program is considered preferable to the FTSP mitigation requirements because it provides many benefits besides simply planting containerized replacement trees including focusing restoration on degraded woodlands, utilizing site collected acorns, providing protection for developing seedlings and saplings, including planting in the transition areas of the development to soften the edge between wildland and developed areas, and integrating the oak mitigation with mitigation for other plant communities, as possible.

The proposed mitigation program results in increased establishment success over what is occurring naturally, suitable planting size for the various planting locations, improved diversity, density, and wildlife habitat value benefits, reduced susceptibility to large-scale pest and disease attack, increased soil stabilization and erosion control, improved noise and pollution control, better growing conditions for smaller trees, and significant aesthetic benefits. It also uses proven techniques and oak tree growing knowledge to enhance the survival of planted trees and provide a more ecologically sound planting plan than the FTSP. Seedling protection and restoration and enhancement projects are also included with the proposed mitigation program.

7.1 Arborist's Statement

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

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

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

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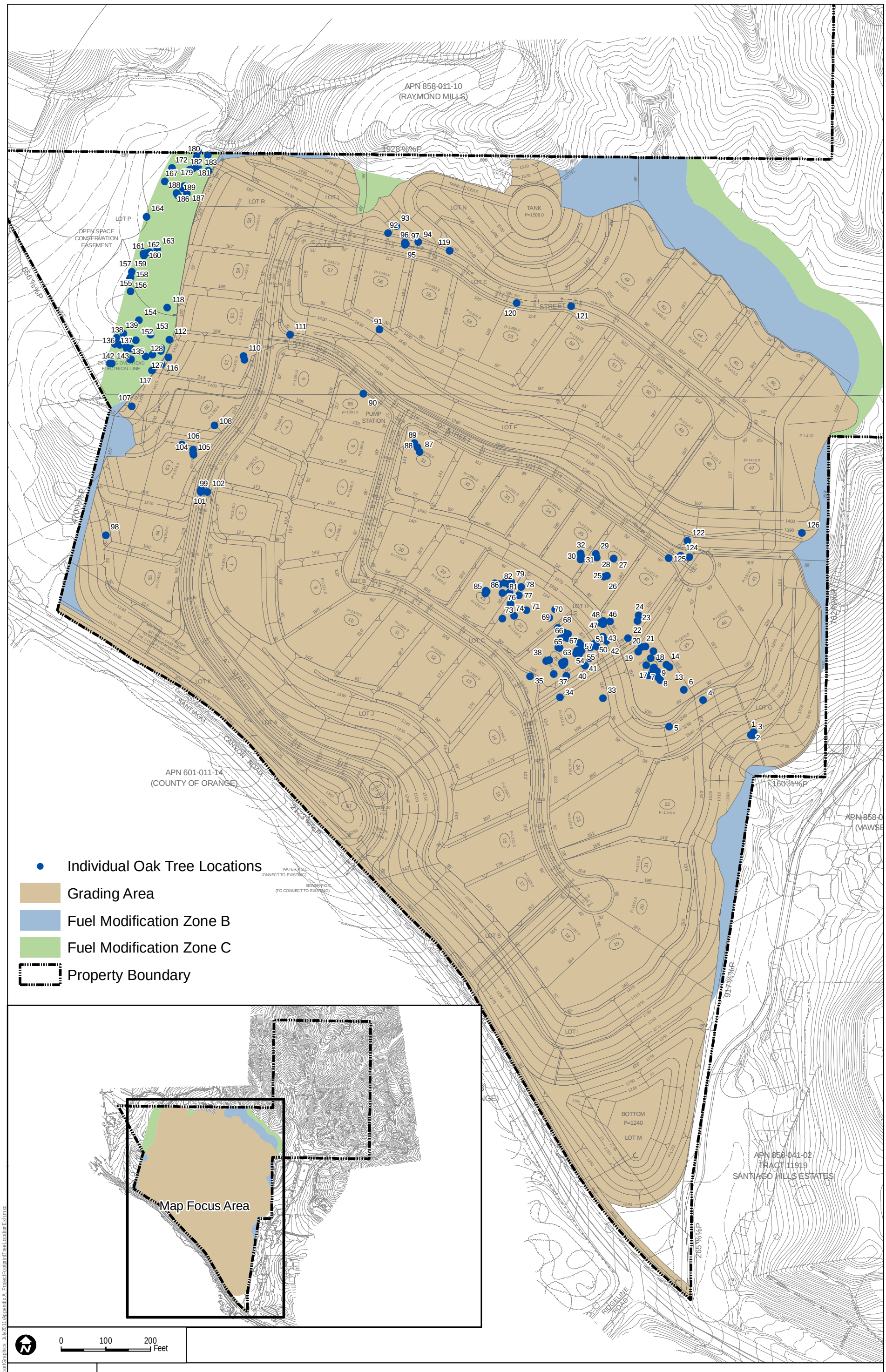
APPENDIX A

Project Footprint Tree Location Exhibit



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July 2011

Appendix A

Project Footprint Tree Location Exhibit

Sadldle Crest Tree Management and Preservation Plan

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APPENDIX B

Individual Oak Tree Information Matrix

Appendix B - Saddle Crest Tree Management and Preservation Plan

Individual Oak Tree Information Matrix

Tree Number	Species	Stems	Diameter at Breast Height (D.B.H) Stem #						Composite Trunk Diameter* (inches)	Height (ft.)	Crown (ft.)	Health	Structure	Location**	Notes	Map Coordinates (Northing/Easting)	
			1	2	3	4	5	6									
1	*Quercus agrifolia*	1	35						35.0	22	25	Poor	Poor	Grading		6143275.557	2198902.561
2	*Quercus agrifolia*	1	6						6.0	14	0	Dead	Dead	Grading	Dead - Fire Related	6143270.068	2198895.811
3	*Quercus agrifolia*	1	15						15.0	22	28	Fair	Fair	Grading	Fire Damage	6143274.340	2198896.696
4	*Quercus agrifolia*	3	10	8	8				15.1	19	17	Fair	Poor	Grading	Fire Damage	6143162.624	2198974.621
5	*Quercus agrifolia*	6	10	8	4	4	3	2	14.5	16	12	Fair	Poor	Grading		6143086.970	2198915.419
6	*Quercus agrifolia*	2	8	7					10.6	10	8	Fair	Fair	Grading		6143119.285	2198996.976
7	*Quercus agrifolia*	1	17						17.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6143066.263	2199019.351
8	*Quercus agrifolia*	1	10						10.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6143062.663	2199024.304
9	*Quercus agrifolia*	1	18						18.0	10	10	Poor	Poor	Grading		6143059.137	2199038.821
10	*Quercus agrifolia*	1	12						12.0	16	16	Fair	Fair	Grading		6143040.840	2199030.437
11	*Quercus agrifolia*	1	24						24.0	22	28	Fair	Fair	Grading		6143050.917	2199041.213
12	*Quercus agrifolia*	1	28						28.0	30	35	Fair	Fair	Grading		6143052.644	2199047.629
13	*Quercus agrifolia*	1	6						6.0	15	10	Fair	Fair	Grading		6143087.728	2199048.394
14	*Quercus agrifolia*	2	12	7					13.9	20	16	Fair	Fair	Grading	Fire Damage	6143080.304	2199054.608
15	*Quercus agrifolia*	1	8						8.0	17	2	Poor	Poor	Grading	Fire Damage	6143066.908	2199067.892
16	*Quercus agrifolia*	1	12						12.0	15	6	Poor	Poor	Grading	Fire Damage	6143051.529	2199084.055
17	*Quercus agrifolia*	1	12						12.0	20	18	Fair	Fair	Grading	Fire Damage	6143035.099	2199053.251
18	*Quercus agrifolia*	1	17						17.0	26	16	Poor	Fair	Grading	Fire Damage	6143045.874	2199068.353
19	*Quercus agrifolia*	1	36						36.0	25	30	Poor	Fair	Grading	Fire Damage	6143017.539	2199082.859
20	*Quercus agrifolia*	2	12	8					14.4	18	0	Dead	Dead	Grading	Dead - Fire Related	6143034.014	2199094.637
21	*Quercus agrifolia*	1	7						7.0	18	0	Dead	Dead	Grading	Dead - Fire Related	6143024.250	2199093.684
22	*Quercus agrifolia*	2	11	8					13.6	16	0	Poor	Poor	Grading		6142994.715	2199112.826
23	*Quercus agrifolia*	1	23						23.0	22	35	Fair	Fair	Grading		6143015.310	2199150.932
24	*Quercus agrifolia*	2	19	17					25.5	28	28	Fair	Fair	Grading		6143018.363	2199164.523
25	*Quercus agrifolia*	2	15	7					16.6	17	0	Dead	Dead	Grading	Dead - Fire Related	6142947.634	2199253.283
26	*Quercus agrifolia*	1	21						21.0	23	26	Fair	Fair	Grading		6142940.369	2199250.204
27	*Quercus agrifolia*	1	12						12.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6142962.901	2199291.101
28	*Quercus agrifolia*	1	10						10.0	17	0	Dead	Dead	Grading	Dead - Fire Related	6142924.712	2199293.417
29	*Quercus agrifolia*	2	7	5					8.6	17	0	Dead	Dead	Grading	Dead - Fire Related	6142922.201	2199301.626
30	*Quercus agrifolia*	2	12	12					17.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6142888.787	2199289.402
31	*Quercus agrifolia*	3	10	8	8				15.1	18	0	Dead	Dead	Grading	Dead - Fire Related	6142889.248	2199297.311
32	*Quercus agrifolia*	1	16						16.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6142888.462	2199303.313
33	*Quercus agrifolia*	2	21	15					25.8	22	32	Fair	Fair	Grading		6142938.159	2198979.218
34	*Quercus agrifolia*	2	8	7					10.6	11	0	Dead	Dead	Grading	Dead - Fire Related	6142842.575	2198981.445
35	*Quercus agrifolia*	3	12	11	10				19.1	15	15	Fair	Fair	Grading		6142775.469	2199026.917
36	*Quercus agrifolia*	2	9	8					12.0	15	0	Dead	Dead	Grading	Dead - Fire Related	6142856.354	2199029.496
37	*Quercus agrifolia*	1	5						5.0	15	6	Fair	Poor	Grading		6142828.970	2199033.242
38	*Quercus agrifolia*	1	5						5.0	15	6	Dead	Dead	Grading	Dead - Fire Related	6142811.112	2199062.425
39	*Quercus agrifolia*	2	8	6					10.0	12	12	Fair	Fair	Grading		6142818.488	2199064.713
40	*Quercus agrifolia*	2	14	15					20.5	20	0	Dead	Dead	Grading	Dead - Fire Related	6142898.270	2199051.057
41	*Quercus agrifolia*	2	12	8					14.4	17	0	Dead	Dead	Grading	Dead - Fire Related	6142908.811	2199068.361
42	*Quercus agrifolia*	1	18						18.0	22	17	Fair	Poor	Grading		6142946.324	2199107.204
43	*Quercus agrifolia*	1	14						14.0	22	18	Fair	Fair	Grading		6142938.850	2199115.852
43	*Quercus agrifolia*	2	10	9					13.5	20	10	Poor	Poor	Grading		6142954.829	2199150.437
45	*Quercus agrifolia*	1	8						8.0	20	6	Poor	Poor	Grading		6142939.997	2199151.020
46	*Quercus agrifolia*	1	9						9.0	20	10	Fair	Fair	Grading		6142940.410	2199148.641
47	*Quercus agrifolia*	1	10						10.0	20	20	Fair	Fair	Grading		6142938.376	2199143.834
48	*Quercus agrifolia*	2	15	10					18.0	28	12	Fair	Fair	Grading		6142932.822	2199147.572
49	*Quercus agrifolia*	1	9						9.0	12	0	Dead	Dead	Grading	Dead - Fire Related	6142924.474	2199094.446
50	*Quercus agrifolia*	1	26						26.0	30	30	Fair	Fair	Grading		6142919.152	2199100.018
51	*Quercus agrifolia*	1	7						7.0	15	0	Dead	Dead	Grading	Dead - Fire Related	6142910.914	2199092.589

Appendix B - Saddle Crest Tree Management and Preservation Plan

Individual Oak Tree Information Matrix

Tree Number	Species	Stems	Diameter at Breast Height (D.B.H) Stem #						Composite Trunk Diameter* (inches)	Height (ft.)	Crown (ft.)	Health	Structure	Location**	Notes	Map Coordinates (Northing/Easting)	
			1	2	3	4	5	6									
52	*Quercus agrifolia*	1	16						16.0	20	18	Fair	Poor	Grading		6142878.263	2199079.337
53	*Quercus agrifolia*	1	12						12.0	18	10	Fair	Poor	Grading		6142885.395	2199077.646
54	*Quercus agrifolia*	3	19	10	7				22.6	28	28	Fair	Fair	Grading		6142880.437	2199085.275
55	*Quercus agrifolia*	1	12						12.0	18	14	Fair	Fair	Grading		6142890.650	2199085.665
56	*Quercus agrifolia*	1	14						14.0	32	18	Fair	Fair	Grading		6142892.010	2199095.687
57	*Quercus agrifolia*	1	14						14.0	32	18	Fair	Fair	Grading		6142886.074	2199102.508
58	*Quercus agrifolia*	1	13						13.0	21	0	Dead	Dead	Grading	Dead - Fire Related	6142852.176	2199061.155
59	*Quercus agrifolia*	1	13						13.0	21	0	Dead	Dead	Grading	Dead - Fire Related	6142853.082	2199057.099
60	*Quercus agrifolia*	1	9						9.0	18	16	Fair	Fair	Grading		6142846.293	2199058.072
61	*Quercus agrifolia*	2	9	9					12.7	20	15	Fair	Fair	Grading		6142848.558	2199053.695
62	*Quercus agrifolia*	2	12	8					14.4	20	17	Fair	Fair	Grading		6142841.991	2199090.864
63	*Quercus agrifolia*	3	9	6	6				12.4	20	16	Fair	Fair	Grading		6142838.137	2199092.464
64	*Quercus agrifolia*	1	14						14.0	25	18	Fair	Fair	Grading		6142843.357	2199111.945
65	*Quercus agrifolia*	5	15	12	9	8	7		23.7	23	35	Fair	Fair	Grading		6142858.842	2199113.223
66	*Quercus agrifolia*	1	10						10.0	14	13	Fair	Fair	Grading		6142860.859	2199122.022
67	*Quercus agrifolia*	1	18						18.0	22	16	Fair	Fair	Grading		6142851.988	2199125.306
68	*Quercus agrifolia*	1	35						35.0	25	35	Fair	Fair	Grading		6142837.772	2199136.500
69	*Quercus agrifolia*	1	14						14.0	14	0	Dead	Dead	Grading	Dead - Fire Related	6142831.294	2199178.490
70	*Quercus agrifolia*	1	18						18.0	26	35	Fair	Fair	Grading		6142818.723	2199159.774
71	*Quercus agrifolia*	2	17	14					22.0	28	32	Poor	Fair	Grading		6142767.918	2199175.431
72	*Quercus agrifolia*	1	14						14.0	22	18	Poor	Fair	Grading		6142739.194	2199163.454
73	*Quercus agrifolia*	1	14						14.0	18	16	Fair	Fair	Grading		6142713.219	2199157.554
74	*Quercus agrifolia*	1	9						9.0	18	12	Fair	Fair	Grading		6142731.857	2199190.444
75	*Quercus agrifolia*	1	16						16.0	22	21	Fair	Fair	Grading		6142729.640	2199215.153
76	*Quercus agrifolia*	5	12	12	9	8	8		22.3	20	23	Fair	Fair	Grading		6142713.945	2199214.125
77	*Quercus agrifolia*	1	15						15.0	20	28	Fair	Fair	Grading		6142750.686	2199209.002
78	*Quercus agrifolia*	1	15						15.0	16	15	Poor	Poor	Grading		6142755.093	2199228.396
79	*Quercus agrifolia*	1	14						14.0	21	18	Fair	Poor	Grading		6142733.575	2199238.493
80	*Quercus agrifolia*	1	14						14.0	21	18	Fair	Good	Grading		6142728.249	2199233.232
81	*Quercus agrifolia*	1	14						14.0	23	15	Good	Fair	Grading		6142718.539	2199237.039
82	*Quercus agrifolia*	1	14						14.0	18	15	Good	Fair	Grading		6142706.125	2199234.226
83	*Quercus agrifolia*	1	15						15.0	20	25	Good	Fair	Grading		6142696.556	2199236.083
84	*Quercus agrifolia*	1	6						6.0	13	10	Fair	Fair	Grading		6142677.089	2199219.323
85	*Quercus agrifolia*	1	9						9.0	17	13	Fair	Fair	Grading		6142678.769	2199217.068
86	*Quercus agrifolia*	1	16						16.0	20	18	Fair	Fair	Grading		6142675.969	2199213.446
87	*Quercus agrifolia*	4	12	9	5	5			16.6	17	0	Dead	Dead	Grading	Dead - Fire Related	6142528.579	2199530.468
88	*Quercus agrifolia*	1	8						8.0	8	0	Dead	Dead	Grading	Dead - Fire Related	6142523.733	2199540.718
89	*Quercus agrifolia*	1	15						15.0	20	0	Dead	Dead	Grading	Dead - Fire Related	6142516.533	2199549.582
90	*Quercus agrifolia*	2	28	16					32.2	22	30	Fair	Poor	Grading		6142402.877	2199660.728
91	*Quercus agrifolia*	1	18						18.0	30	25	Fair	Good	Grading		6142438.571	2199803.957
92	*Quercus agrifolia*	1	13						13.0	18	16	Fair	Fair	Grading		6142457.868	2200019.216
93	*Quercus agrifolia*	1	13						13.0	16	12	Fair	Fair	Grading		6142476.538	2200035.251
94	*Quercus agrifolia*	1	16						16.0	23	28	Fair	Fair	Grading		6142525.945	2199999.190
95	*Quercus agrifolia*	2	12	14					18.4	23	28	Fair	Fair	Grading		6142495.343	2199993.641
96	*Quercus agrifolia*	1	10						10.0	6	0	Dead	Dead	Grading	Dead - Fire Related	6142496.005	2199998.065
97	*Quercus agrifolia*	4	15	13	11	11			25.2	18	16	Fair	Fair	Grading		6142497.760	2199995.129
98	*Quercus agrifolia*	1	36						36.0	30	38	Good	Good	Grading		6141826.179	2199343.318
99	*Quercus agrifolia*	1	18						18.0	28	25	Good	Good	Grading		6142038.836	2199440.586
100	*Quercus agrifolia*	1	7						7.0	10	0	Dead	Dead	Grading	Dead - Fire Related	6142039.715	2199446.279
101	*Quercus agrifolia*	1	10						10.0	20	15	Good	Fair	Grading		6142038.891	2199443.321
102	*Quercus agrifolia*	1	12						12.0	11	0	Dead	Dead	Grading	Dead	6142053.138	2199440.713

Appendix B - Saddle Crest Tree Management and Preservation Plan

Individual Oak Tree Information Matrix

Tree Number	Species	Stems	Diameter at Breast Height (D.B.H) Stem #						Composite Trunk Diameter* (inches)	Height (ft.)	Crown (ft.)	Health	Structure	Location**	Notes	Map Coordinates (Northing/Easting)	
			1	2	3	4	5	6									
103	*Quercus agrifolia*	1	13						13.0	16	16	Fair	Fair	Grading		6142022.216	2199523.362
104	*Quercus agrifolia*	1	6						6.0	15	8	Dead	Dead	Grading	Dead	6142022.021	2199535.227
105	*Quercus agrifolia*	1	9						9.0	17	18	Fair	Poor	Grading	Declining	6142021.850	2199527.809
106	*Quercus agrifolia*	3	14	13	10				21.6	19	18	Fair	Fair	Grading		6141997.013	2199546.420
107	*Quercus agrifolia*	2	11	8					13.6	17	15	Good	Good	Grading		6141884.761	2199632.554
108	*Quercus agrifolia*	1	13						13.0	18	15	Fair	Fair	Grading		6142069.868	2199589.497
109	*Quercus agrifolia*	1	13						13.0	17	18	Poor	Fair	Grading		6142136.659	2199736.469
110	*Quercus agrifolia*	1	13						13.0	17	16	Poor	Fair	Grading		6142134.684	2199744.169
111	*Quercus agrifolia*	1	15						15.0	18	0	Dead	Dead	Grading	Dead	6142238.751	2199791.960
112	*Quercus agrifolia*	1	15						15.0	18	22	Good	Fair	Edge of Grading		6141968.736	2199781.687
113	*Quercus agrifolia*	1	13						13.0	17	18	Good	Fair	Edge of Grading		6141950.713	2199762.006
114	*Quercus agrifolia*	1	13						13.0	16	15	Fair	Fair	Edge of Grading		6141950.081	2199755.821
115	*Quercus agrifolia*	4	16	12	11	8			24.2	16	15	Fair	Fair	Grading		6141966.568	2199741.378
116	*Quercus agrifolia*	2	8	8					11.3	16	15	Fair	Fair	Grading		6141951.129	2199725.787
117	*Quercus agrifolia*	1	13						13.0	19	15	Poor	Fair	Edge of Grading		6141929.753	2199712.417
118	*Quercus agrifolia*	2	14	13					19.1	17	0	Dead	Dead	Edge of Grading	Dead	6141963.955	2199852.924
119	*Quercus agrifolia*	1	18						18.0	22	4	Poor	Poor	Grading	Declining	6142595.334	2199980.400
120	*Quercus agrifolia*	2	14	12					18.4	19	20	Fair	Fair	Grading		6142745.411	2199863.595
121	*Quercus agrifolia*	1	14						14.0	17	15	Poor	Fair	Grading		6142867.319	2199855.876
122	*Quercus agrifolia*	4	13	13	12	9			23.7	20	0	Poor	Poor	Grading		6143127.291	2199330.867
123	*Quercus agrifolia*	3	12	11	9				18.6	19	0	Dead	Dead	Grading	Dead - Fire Related	6143131.288	2199294.089
124	*Quercus agrifolia*	3	17	16	15				27.7	24	32	Fair	Poor	Grading		6143112.758	2199297.562
125	*Quercus agrifolia*	1	18						18.0	26	23	Fair	Fair	Grading		6143085.807	2199292.538
126	*Quercus agrifolia*	1	17						17.0	16	0	Dead	Dead	Grading	Dead - Fire Related	6143384.045	2199348.491
127	*Quercus agrifolia*	1	30						30.0	22	20	Fair	Fair	Fuel Modification Zone		6141931.061	2199746.943
128	*Quercus agrifolia*	3	17	17	14				27.8	22	25	Fair	Fair	Fuel Modification Zone		6141915.477	2199743.101
129	*Quercus agrifolia*	1	13						13.0	10	0	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141903.211	2199755.423
130	*Quercus agrifolia*	1	9						9.0	17	12	Good	Fair	Fuel Modification Zone		6141882.866	2199737.448
131	*Quercus agrifolia*	1	9						9.0	17	12	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141880.452	2199736.961
132	*Quercus agrifolia*	1	10						10.0	16	12	Fair	Fair	Fuel Modification Zone		6141884.079	2199760.797
133	*Quercus agrifolia*	1	8						8.0	13	9	Fair	Fair	Fuel Modification Zone		6141880.393	2199761.363
134	*Quercus agrifolia*	1	15						15.0	20	22	Good	Fair	Fuel Modification Zone		6141872.573	2199764.862
135	*Quercus agrifolia*	1	13						13.0	17	18	Good	Fair	Fuel Modification Zone		6141872.938	2199762.603
136	*Quercus agrifolia*	1	13						13.0	15	18	Poor	Poor	Fuel Modification Zone		6141857.334	2199768.960
137	*Quercus agrifolia*	1	6						6.0	12	10	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141847.009	2199770.894
138	*Quercus agrifolia*	1	9						9.0	16	15	Good	Fair	Fuel Modification Zone		6141850.663	2199785.081
139	*Quercus agrifolia*	1	15						15.0	21	23	Fair	Fair	Fuel Modification Zone		6141865.905	2199794.762
141	*Quercus agrifolia*	2	12	12					17.0	20	16	Fair	Fair	Fuel Modification Zone		6141831.674	2199744.835
142	*Quercus agrifolia*	1	10						10.0	13	10	Fair	Fair	Fuel Modification Zone		6141835.228	2199727.253
143	*Quercus agrifolia*	1	12						12.0	13	10	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141839.371	2199726.962
152	*Quercus agrifolia*	1	13						13.0	17	20	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141893.191	2199780.768
153	*Quercus agrifolia*	2	12	9					15.0	16	13	Fair	Fair	Fuel Modification Zone		6141927.017	2199792.635
154	*Quercus agrifolia*	6	12	12	11	9	9	9	25.5	18	20	Poor	Fair	Fuel Modification Zone		6141900.962	2199824.459
155	*Quercus agrifolia*	1	5						5.0	12	0	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141881.785	2199888.817
156	*Quercus agrifolia*	1	17						17.0	22	18	Good	Fair	Fuel Modification Zone		6141879.358	2199915.980
157	*Quercus agrifolia*	2	15	17					22.7	19	20	Good	Fair	Fuel Modification Zone		6141884.403	2199933.132
158	*Quercus agrifolia*	1	17						17.0	19	20	Good	Fair	Fuel Modification Zone		6141882.011	2199920.585
159	*Quercus agrifolia*	2	22	13					25.6	19	30	Good	Fair	Fuel Modification Zone		6141915.339	2199974.124
160	*Quercus agrifolia*	1	10						10.0	10	12	Fair	Fair	Fuel Modification Zone		6141911.392	2199969.668
161	*Quercus agrifolia*	1	18						18.0	20	24	Fair	Fair	Fuel Modification Zone		6141910.272	2199973.012
162	*Quercus agrifolia*	1	3						3.0	10	24	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141924.398	2199976.252

Appendix B - Saddle Crest Tree Management and Preservation Plan

Individual Oak Tree Information Matrix

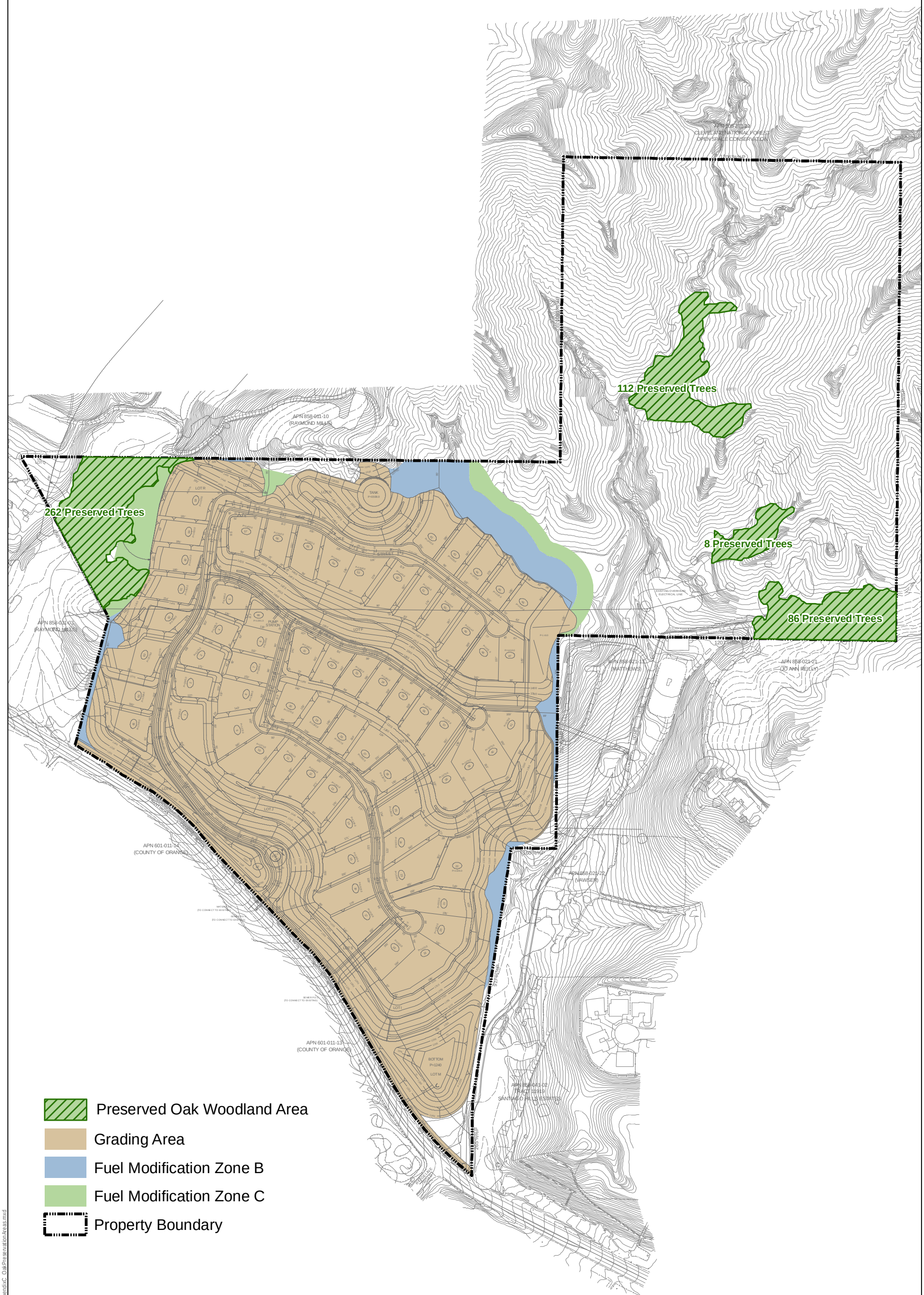
Tree Number	Species	Stems	Diameter at Breast Height (D.B.H) Stem #						Composite Trunk Diameter* (inches)	Height (ft.)	Crown (ft.)	Health	Structure	Location**	Notes	Map Coordinates (Northing/Easting)	
			1	2	3	4	5	6									
163	*Quercus agrifolia*	1	3						3.0	10	24	Dead	Dead	Fuel Modification Zone	Dead - Fire Related	6141941.608	2199983.580
164	*Quercus agrifolia*	2	17	8					18.8	22	28	Good	Fair	Fuel Modification Zone		6141917.719	2200056.742
167	*Quercus agrifolia*	1	25						25.0	22	20	Good	Fair	Fuel Modification Zone		6141958.375	2200135.188
172	*Quercus agrifolia*	1	17						17.0	19	18	Good	Fair	Fuel Modification Zone		6141975.085	2200165.025
175	*Quercus agrifolia*	1	32						32.0	25	26	Poor	Poor	Fuel Modification Zone		6142032.571	2200202.378
177	*Quercus agrifolia*	3	12	10	9				18.0	17	17	Good	Fair	Fuel Modification Zone		6142054.264	2200193.672
178	*Quercus agrifolia*	1	5						5.0	12	10	Good	Fair	Edge of Grading		6142058.753	2200178.423
179	*Quercus agrifolia*	1	5						5.0	12	10	Good	Fair	Fuel Modification Zone		6142032.389	2200168.399
180	*Quercus agrifolia*	1	9						9.0	0	45	Fair	Fair	Fuel Modification Zone		6142030.000	2200189.000
181	*Quercus agrifolia*	1	7						7.0	45	15	Fair	Fair	Fuel Modification Zone		6142021.000	2200164.000
182	*Quercus agrifolia*	1	8						8.0	35	20	Fair	Fair	Fuel Modification Zone		6142014.000	2200161.000
183	*Quercus agrifolia*	3	15	10	7				19.3	30	15	Fair	Fair	Edge of Grading		6142056.000	2200159.000
184	*Quercus agrifolia*	2	7	7					9.9	15	15	Fair	Fair	Fuel Modification Zone		2200124.000	6142002.000
185	*Quercus agrifolia*	2	10	5					11.2	25	15	Fair	Fair	Fuel Modification Zone		2200122.000	6142007.000
186	*Quercus agrifolia*	1	14						14.0	25	15	Fair	Fair	Fuel Modification Zone		2200119.000	6141999.000
187	*Quercus agrifolia*	1	15						15.0	25	20	Fair	Fair	Fuel Modification Zone		2200108.000	6142008.000
188	*Quercus agrifolia*	1	10						10.0	30	25	Fair	Fair	Fuel Modification Zone		2200109.000	6141985.000
189	*Quercus agrifolia*	1	18						18.0	20	15	Poor	Poor	Fuel Modification Zone		2200104.000	6141988.000

* Composite trunk diameter represents the sum of the cross sectional square inch area for each trunk stem converted to representative diameter.

**Trees classified as "Grading" or "Grading Edge" are considered impacted while trees classified as "Fuel Modification Zone" are not considered impacted.

APPENDIX C

Oak Preservation Areas



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6456-01

July 2011

Appendix C

Oak Preservation Areas

Sadldle Crest Tree Management and Preservation Plan

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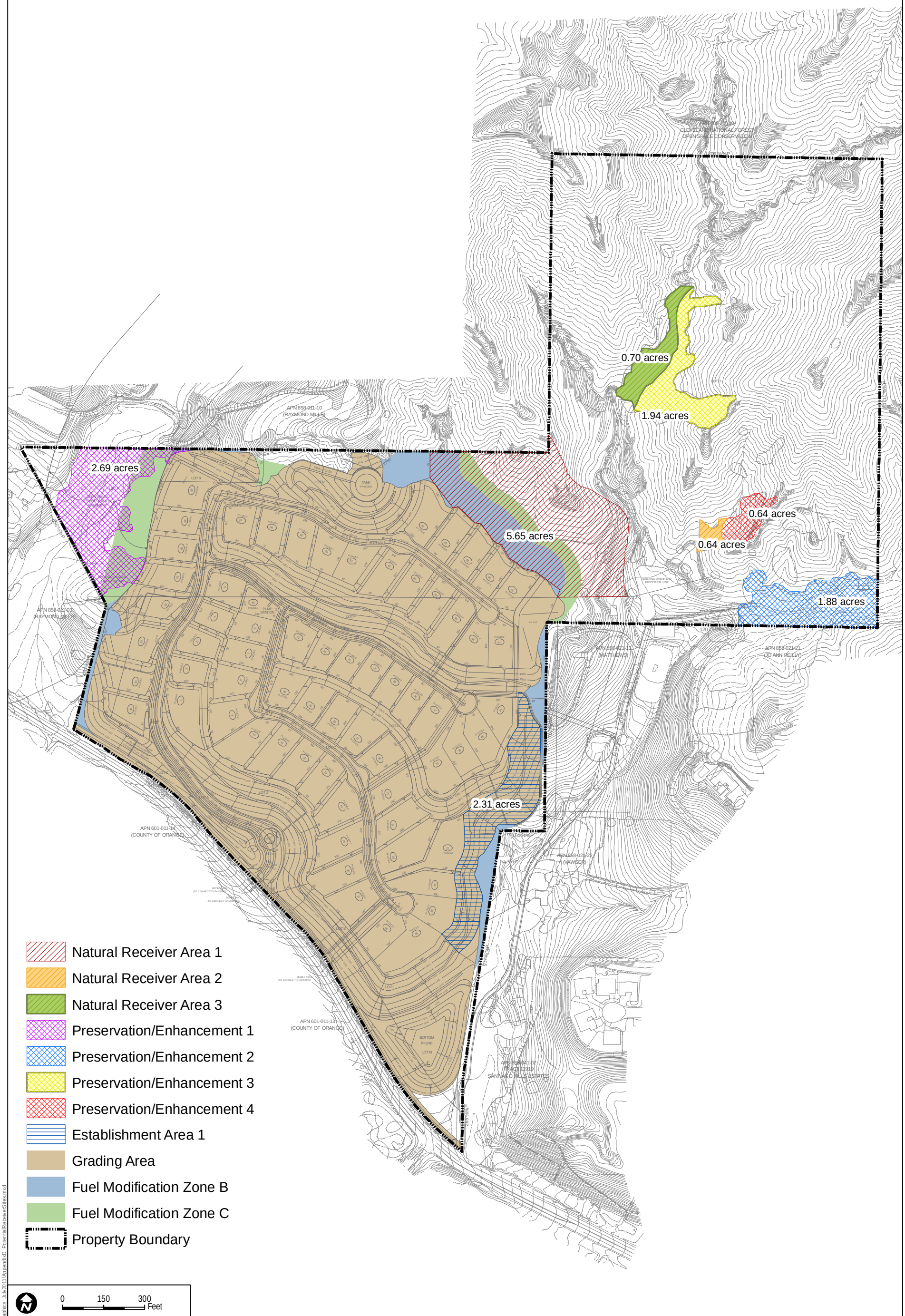
APPENDIX D

Potential Receiver Sites



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July 2011

Appendix D

Potential Receiver Sites

Sadldle Crest Tree Management and Preservation Plan

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APPENDIX E

Standard Tree Protection Measures on Construction Sites

APPENDIX E
Standard Tree Protection Measures on Construction Sites

The following sections are included as general guidelines for tree protection from construction impacts and are consistent with tree protection requirements of the FTSP. The measures presented shall be monitored by arborists and enforced by contractors and property owners for maximum benefit to the trees.

Tree Protection Measures Prior to Construction

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

Fencing: A 4-foot high, orange-webbing, polypropylene barricade fence with tree protection signs shall be erected around all trees (or tree groups) to be preserved that are within 250 feet of the grading limits. The protective fence shall be installed ten feet beyond the dripline of the tree. This will delineate the tree protection area and prevent unwanted activity in and around the trees in order to reduce soil compaction in the root zones of the trees and other damage from heavy equipment. The contractor shall maintain the fence to keep it upright, taut, and aligned at all times. Fencing shall be removed only after all construction activities are complete.

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

Protection and Maintenance During Construction

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

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

Storage and Disposal: Do not store or discard any supply or material, including paint, lumber, concrete overflow, etc. within the protection zone. Remove all foreign debris within the

protection zone; it is important to leave the duff, mulch, chips, and leaves around the retained trees for water retention and nutrients. Avoid draining or leakage of equipment fluids near retained trees. Fluids such as gasoline, diesel, oils, hydraulics, brake and transmission fluids, paint, paint thinners, and glycol (anti-freeze) shall be disposed of properly. Keep equipment parked at least 50 feet away from retained trees to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the retained trees could lead to decline and death.

Grade Changes: Grade changes, including adding fill, are not permitted within the tree protection zone, without special written authorization and under supervision by a Certified Arborist. Lowering the grade within this area will necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the tree(s). Adding soil, even temporarily, on top of the existing grade will compact the soil further, and decrease both water and air availability to the trees' roots.

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

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

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

Pruning: Do not prune any of the trees unless necessary to avoid damage to branches during construction. All pruning shall be completed under the direction of an ISA Certified Arborist and using ISA guidelines. Only dead wood shall be removed from tree canopies.

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

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

Maintenance After Construction

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

Pruning: The trees will not require regular pruning. Pruning shall only be done to maintain clearance and remove broken, dead, or diseased branches. Pruning shall only take place following a recommendation by an ISA Certified Arborist and performed under the supervision of an ISA Certified Arborist. No more than 15% of the canopy shall be removed at any one time. All pruning shall conform to International Society of Arboriculture standards.

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

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

Appendix D3

Results of California Gnatcatcher Surveys

ESA

July 15, 2010

Ms. Sandy Marquez
U.S. FISH AND WILDLIFE SERVICE
6010 Hidden Valley Road
Carlsbad, California 92011

Re: RESULTS OF FOCUSED COASTAL CALIFORNIA GNATCATCHER SURVEYS FOR SADDLE CREST, ORANGE COUNTY, CALIFORNIA

Dear Ms. Marquez:

This report is prepared in compliance with the conditions of authorized permit number TE067347-3 issued to **PCR Services Corporation (PCR)** biologist Crysta Dickson for the performance of coastal California gnatcatcher (*Polioptila californica californica*) surveys in accordance with U.S. Fish and Wildlife Service (USFWS) guidelines. As such, this letter report summarizes the methodology and findings of surveys for this species conducted on the approximately 113.6-acre Saddle Crest property located within the Foothill/Trabuco Specific Plan (F/TSP) area in Orange County, California ("the study area") (Figure 1, *Regional Map*, attached). The surveys were conducted within approximately 16.5 acres of suitable habitat (the "survey area") to determine the presence and location or absence of CAGN. No CAGN were observed on-site during any of the survey efforts conducted in 2010.

STUDY AREA

The study area is generally located in south Orange County adjacent to, and partially within, the Cleveland National Forest and lies north of the Live Oak Canyon Road and Santiago Canyon Road intersection and east of Santiago Canyon Road. The study area is within Section 32 and an unsectioned portion, T. 5 S., R. 7 W. of the U.S. Geological Survey (USGS) 7.5' El Toro Quadrangle and in Section 33 T. 5 S., R. 7 W. of the USGS 7.5' Santiago Peak Quadrangle (Figure 2, *Vicinity Map*, attached). The study area lies within the F/TSP and the County of Orange Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

BACKGROUND

Focused breeding season surveys were conducted within the survey area in 1999; the presence of coastal California gnatcatcher was not detected. Focused breeding season surveys were repeated in 2002 to determine the current status of the species on-site; no coastal California gnatcatchers were observed. Surveys were again conducted in 2007 during the non-breeding season. An observation of a single coastal California gnatcatcher was recorded on October 16, 2007 within a sagebrush scrub/ruderal community along the eastern boundary of the survey area. It should be

noted that due to the timing of this observation outside of the breeding season, the poor suitability of the habitat where it was observed, and the affect that the 2007 Santiago fire had on suitable habitat, it is likely that this individual was a dispersing transient moving through the study area.

This report presents the findings of the coastal California gnatcatcher surveys conducted in 2010.

PLANT COMMUNITIES

Plant communities within the study area were mapped in 2007; however, the majority of the study area was burned in the October 2007 Santiago Fire. Although the fire resulted in a temporary elimination of the vegetation, much of the native vegetation has grown back since the fire and, given that these communities are well-adapted to fire, the plant communities are expected to continue to recover. The vegetation map was updated in 2009 to reflect the existing conditions on-site. Those communities of potentially suitable habitat within the study area that were surveyed are presented below.

The coastal California gnatcatcher survey area constitutes all potentially suitable habitats within the study area (scrub and scrub-dominated mixed communities). Descriptions of each of the plant communities within the survey area are provided below and are based on the Orange County Habitat Classification System (OCHCS) and PCR findings. The OCHCS Classification Number is included with the description for ease of review. Table 1, *Plant Communities within the Survey Area*, lists the acreage of each of the scrub communities found within the survey area. Figure 3, *Plant Communities within the Study Area*, attached, depicts the location of all plant communities mapped within the study area.

Black Sage Scrub (OCHCS 2.3.4)

Black sage scrub is dominated by black sage (*Salvia mellifera*). Associated species include California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), horehound (*Marubium vulgare*), and coastal prickly pear (*Opuntia littoralis*). The understory consists of annual species including blue-eyed grass (*Sisyrinchium bellum*), scarlet pimpernel (*Anagallis arvensis*), red-stemmed filaree (*Erodium cicutarium*), and annual bur-clover (*Medicago polymorpha*). A total of 2.3 acres of black sage scrub occur within the western portion of the study area.

Table 1

Plant Communities within the Survey Area

Plant Community	OCHCS Code[a]	Acreage
Black Sage Scrub	2.3.4	2.3
Black Sage Scrub/Southern Mixed Chaparral	2.3.4/3.2	8.1
Sagebrush Scrub	2.3.6	1.5
Sagebrush Scrub/Southern Mixed Chaparral	2.3.6/3.2	0.2
Sagebrush Scrub/Ruderal	2.3.6/4.6	3.6
White Sage Scrub	2.3.5	0.8
Total		**16.5**

[a] *Orange County Habitat Classification System Code.*

Source: PCR Services Corporation, 2010.

Black Sage Scrub/Southern Mixed Chaparral (OCHCS 2.3.4/3.2)

Black sage scrub/southern mixed chaparral is a type of ecotone/sere which represents the intermingling or gradation of scrub and chaparral species. On-site, this community is dominated by black sage with significant amounts of California sagebrush, California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), sugar bush (*Rhus ovata*), our Lord's candle (*Yucca whipplei*), and scrub oak (*Quercus berberidifolia*). A total of 8.1 acres of black sage scrub/southern mixed chaparral occur within the northeastern portion of the study area.

Sagebrush Scrub (OCHCS 2.3.6)

Sagebrush scrub is dominated by California sagebrush. Associated species within this community include black sage, deerweed (*Lotus scoparius*), orange-bush monkey flower (*Mimulus aurantiacus*), and laurel sumac with an understory of non-native grasses. A total of 1.5 acres of sagebrush scrub occur within the study area.

Sagebrush Scrub/Southern Mixed Chaparral (OCHCS 2.3.6/3.2)

Sagebrush scrub/southern mixed chaparral represents the intermingling or gradation of scrub and chaparral species. On-site, this community is dominated by California sagebrush with California buckwheat, laurel sumac, sugar bush, our Lord's candle, and scrub oak. A total of 0.2 acre of sagebrush scrub/southern mixed chaparral occur within the western corner of the study area.

Sagebrush Scrub/Ruderal (OCHCS 2.3.6/4.6)

Sagebrush scrub/ruderal is dominated by California sagebrush with non-native, ruderal species comprising between 20 and 45 percent of the vegetative cover. Associated ruderal, weedy species observed within this community include tocalote (*Centaurea melitensis*) and artichoke thistle (*Cynara cardunculus*). This community totals 3.6 acres in two patches within the study area.

White Sage Scrub (OCHCS 2.3.5)

White sage scrub is dominated by white sage (*Salvia apiana*). Associated species include deerweed, California sagebrush, and laurel sumac with an understory composed mostly of California everlasting (*Gnaphalium californicum*). A total of 0.8 acre of white sage scrub occurs in two patches in the south central portion of the study area.

METHODOLOGY

Surveys for the coastal California gnatcatcher were conducted by PCR biologist Crysta Dickson (Permit No. TE067347-3). Methods employed were in conformance with the USFWS *Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, issued July 28, 1997.[1] Accordingly, six surveys were performed at least one week apart, between 6:00 A.M. and 12:00 P.M., within all portions of the study area containing suitable habitat. Surveys were conducted on April 20, April 27, May 4, May 11, May 18, and May 25, 2010. Temperatures during surveys ranged between 45 degrees Fahrenheit and 72 degrees Fahrenheit. Weather conditions were suitable for surveys, with skies ranging from clear to 100 percent overcast, and winds ranging from 0 to 3 miles per hour. Details of each survey are included in Table 2, *Survey Data*, below.

The permitted field investigator slowly walked through all potentially suitable habitat within the study area, stopping at approximately 200-foot intervals, uttering pishing sounds, and playing a digital copy of recorded coastal California gnatcatcher vocalizations. The recording was played for several seconds at each interval, followed by a brief pause to listen for a response. To ensure coverage of adjacent areas, vocalizations were broadcast outside the boundaries where suitable coastal California gnatcatcher habitat exists.

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[1] *U.S. Fish and Wildlife Service. Department of the Interior. Coastal California Gnatcatcher (Polioptila californica californica): Presence/Absence Survey Guidelines. Unpublished paper. Sacramento, California.*

Table 2

Survey Data

Date	Time	Wind (mph) (start/end)	Temperature (F) (start-end)	Weather (start-end)	Results	Surveyor
04/20/10	0645–0900	0/0-1	45°-60°	Clear-20% Cloud Cover	None Found	Dickson
04/27/10	0745–1000	0-1/0-1	58°-66°	Overcast-40% Cloud Cover	None Found	Dickson
05/04/10	0700–0900	0-1/0-1	53-72°	Clear-Clear	None Found	Dickson
05/11/10	0830-1000	0-1/2-3	62°-62°	10% Cloud Cover-10% Cloud Cover	None Found	Dickson
05/18/10	0930-1100	0-1/0-1	60°-62°	Overcast-Overcast	None Found	Dickson
05/25/10	0700-0845	0/0	50°-60°	Clear-Clear	None Found	Dickson

Source: PCR Services Corporation, 2010.

RESULTS

No coastal California gnatcatchers were observed during the six breeding season surveys conducted. One sensitive avian species observed was the coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) [California Special Concern species (CSC)].[2] No brown-headed cowbirds (*Molothrus ater*) were observed. A list of all avian species observed within the study area during surveys is included in Attachment A, *Avian Compendium.*

[2] *State of California. The Resources Agency. Department of Fish and Game. Wildlife & Habitat Data Analysis Branch. California Natural Diversity Database. February 2008. Special Animals List. 60 pp.*

Should you have any questions regarding the methodology or findings in this report, please contact Crysta Dickson (c.dickson@pcrnet.com) at (949) 753-7001.

Sincerely,
PCR SERVICES CORPORATION

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

Crysta Dickson
Senior Biologist II
TE067347-3

Maile Tanaka
Biologist

ATTACHMENT A
AVIAN COMPENDIUM

BIRDS

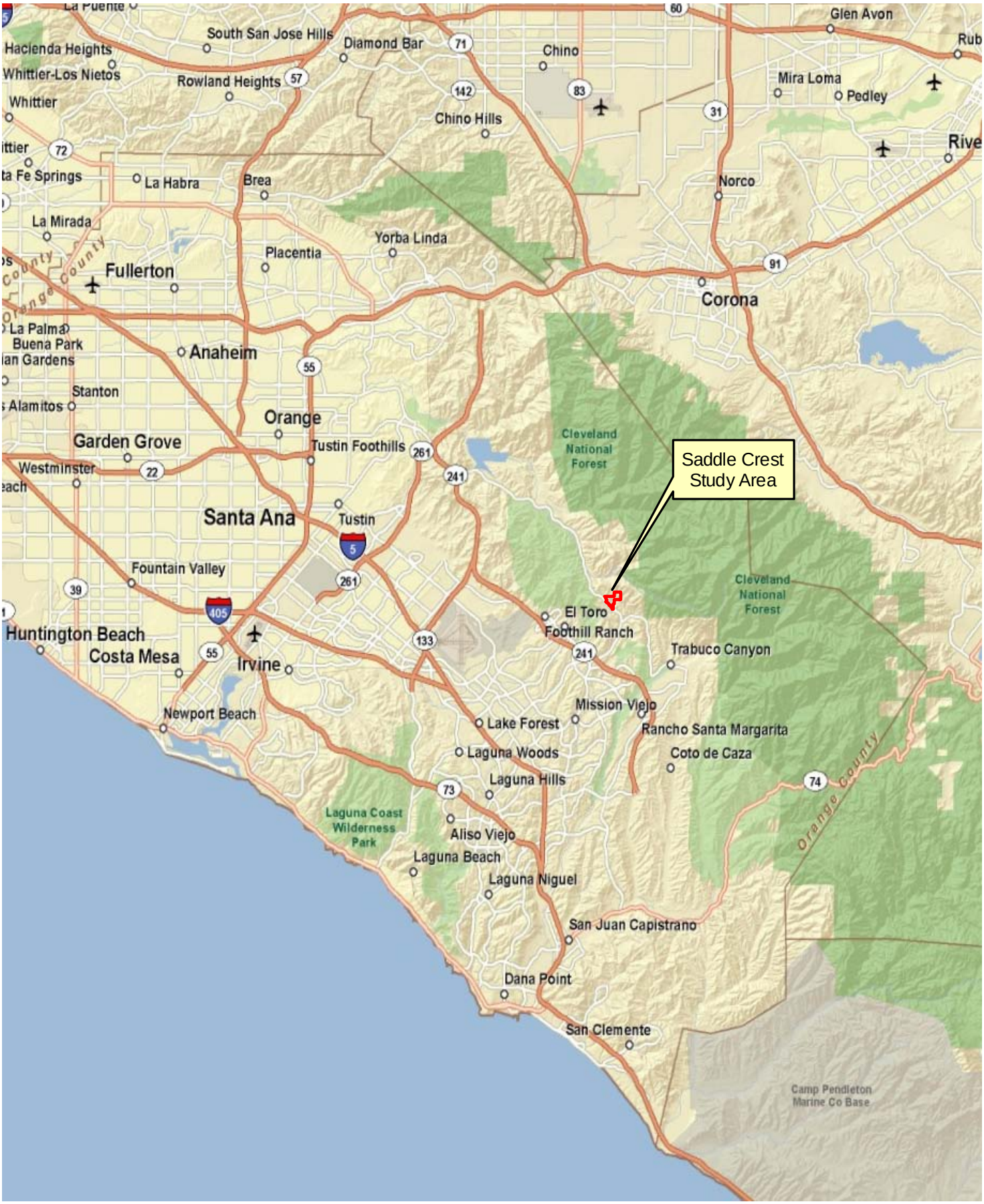
SCIENTIFIC NAME	COMMON NAME
Cathartidae	**New World Vultures**
Cathartes aura	turkey vulture
Accipitridae	**Hawks**
Buteo jamaicensis	red-tailed hawk
Apodidae	**Swifts**
Aeronautes saxatalis	white-throated swift
Odotophoridae	**Quails**
Callipepla californica	California quail
Columbidae	**Pigeons and Doves**
Columba livia	rock dove
Zenaida macroura	mourning dove
Hirundinidae	**Swallows**
Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
Trochilidae	**Hummingbirds**
Calypte costae	Costa's hummingbird
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
Picidae	**Woodpeckers**
Colaptes auratus	northern flicker
Melanerpes formicivorus	acorn woodpecker
Ptilogonatidae	**Silky Flycatchers**
Phainopepla nitens	phainopepla
Tyrannidae	**Tyrant Flycatchers**
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say’s phoebe
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin’s kingbird
Corvidae	**Jays and Crows**
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow

BIRDS

SCIENTIFIC NAME	COMMON NAME
Corvus corax	common raven
Muscicapidae	**Wrentits**
Chamaea fasciata	wrentit
Paridae	**Titmice**
Baeolophus inornatus	oak titmouse
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Troglodytidae	**Wrens**
Troglodytes aedon	house wren
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren
Sylviidae	**Old World Warblers, Gnatcatchers**
Polioptila caerulea	blue-gray gnatcatcher
Mimidae	**Thrashers**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Thraupidae	**Tanagers**
Piranga ludoviciana	western tanager
Piranga rubra	summer tanager
Turdidae	**Thrushes**
Sialia mexicana	western bluebird
Sturnidae	**Starlings**
* *Sturnus vulgaris*	European starling
Parulidae	**Wood Warblers**
Geothlypis trichas	common yellowthroat
Cardinalidae	**Cardinals**
Guiraca caerulea	blue grosbeak
Pheucticus melanocephalus	black-headed grosbeak
Emberizidae	**Emberizids**
Aimophila ruficeps canescens	Southern California rofous-crowned sparrow
Chondestes grammacus	lark sparrow
Junco hyemalis	dark-eyed junco
Pipilo crissalis	California towhee
Pipilo maculatus	spotted towhee
Zonotrichia leucophrys	white-crowned sparrow
Icteridae	**Blackbirds**
Icterus bullockii	Bullock's oriole

BIRDS

SCIENTIFIC NAME	COMMON NAME
Fringillidae	**Finches**
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch



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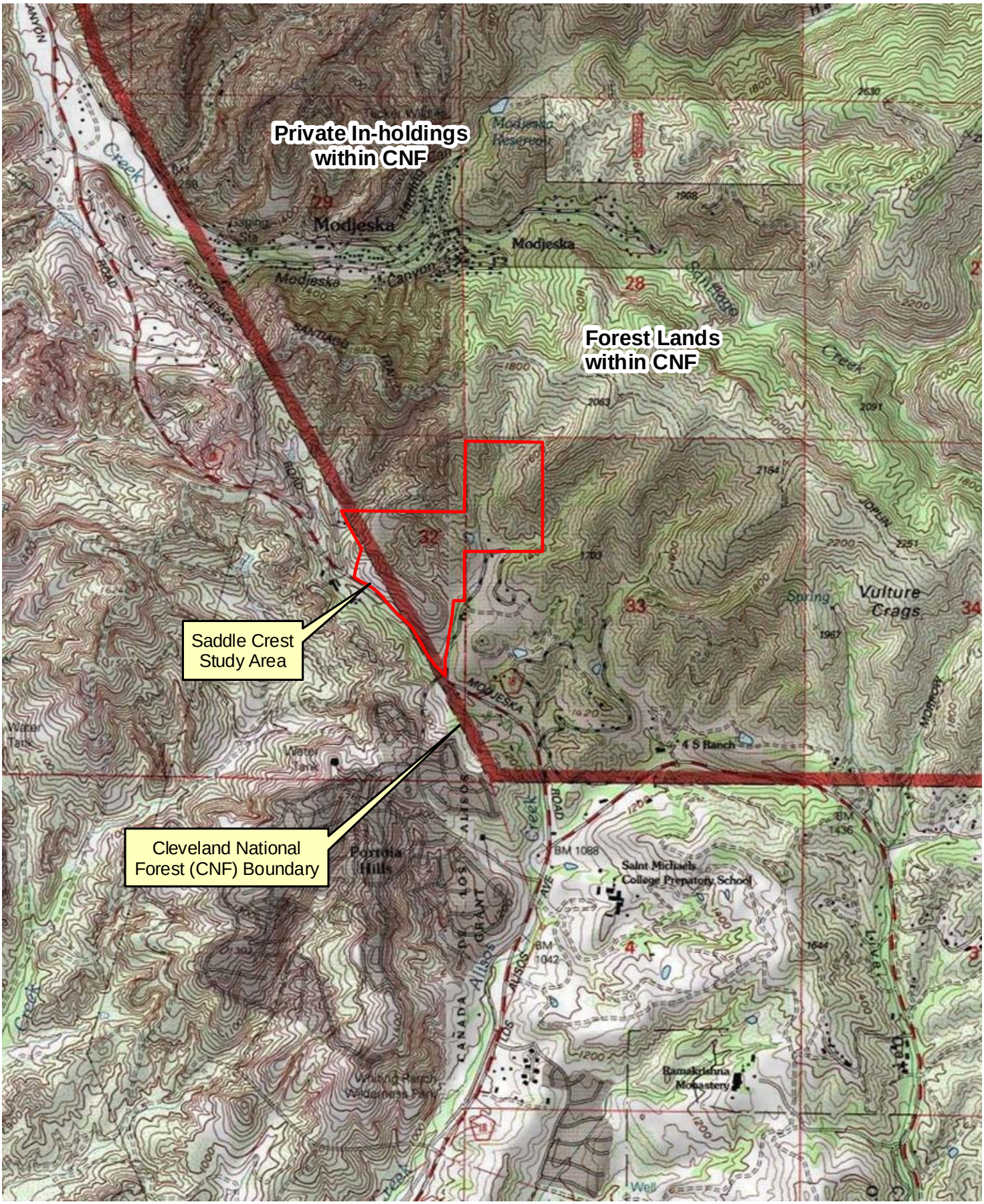
Regional Map

Saddle Crest

Source: ESRI Street Map, 2009; PCR Services Corporation, 2010.

FIGURE

1



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Vicinity Map

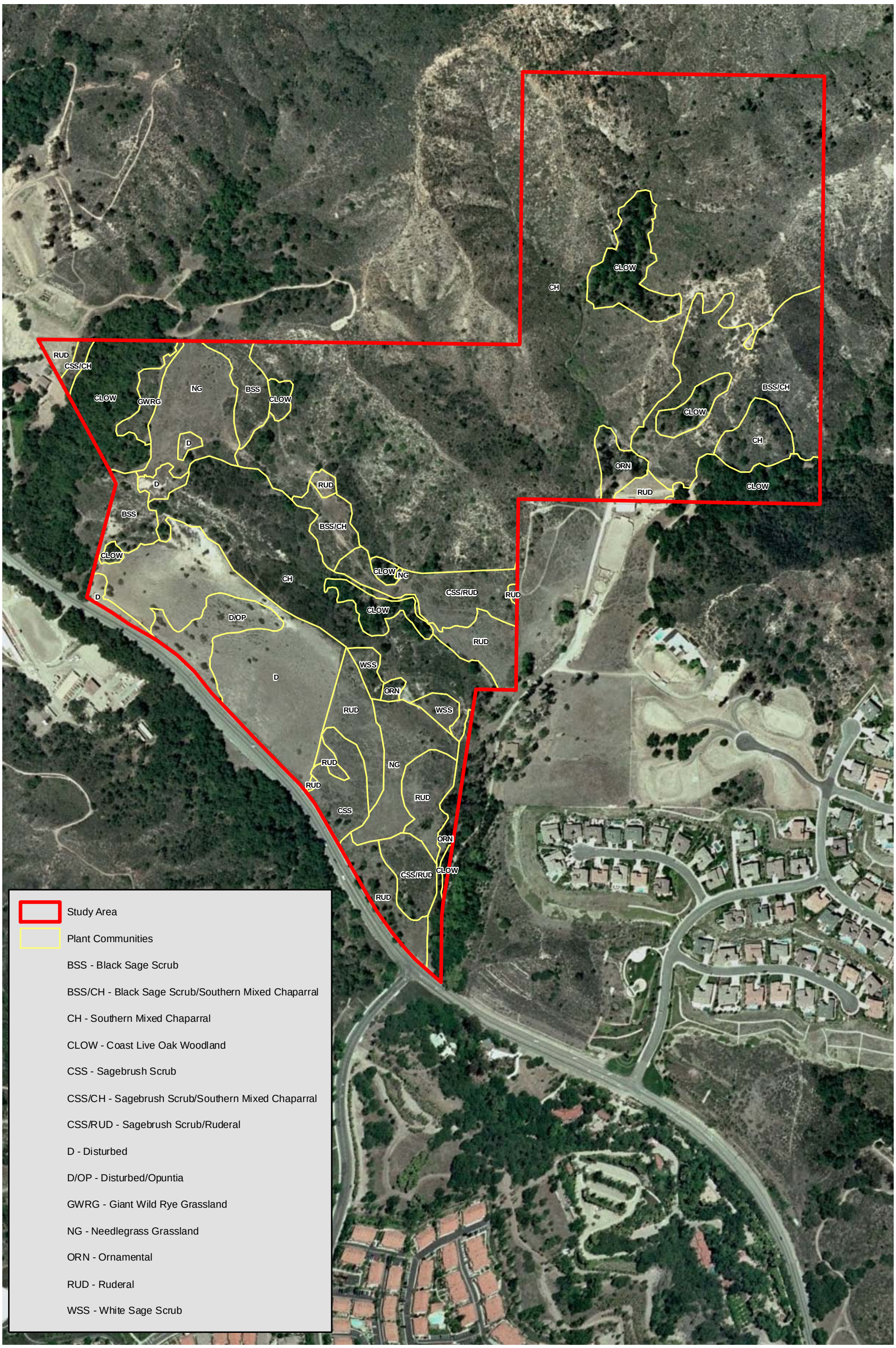
Saddle Crest

Source: USGS Topographic Series (El Toro, Santiago Peak, CA); PCR Services Corporation, 2010.

FIGURE

2

PCR



PCR

N

0 350 700 Feet

Plant Communities within Study Area

Saddle Crest

Source: Google (Aerial), 2007; PCR Services Corporation, 2010.

FIGURE

3

Appendix D4

Investigation of Jurisdictional Wetlands and Waters of the U.S. and Addendum

ESA

January 12, 2012

Mr. Mike Eadie
RUTTER SANTIAGO, LP
18012 Cowan, Suite 200
Irvine, CA 92614

Re: ADDENDUM TO THE JURISDICTIONAL DELINEATION FOR SADDLE CREST, ORANGE COUNTY, CALIFORNIA

Dear Mr. Eadie:

This letter serves as an addendum to the Saddle Creek/Saddle Crest Jurisdictional Delineation Report, dated February 2008, attached. The 2008 Jurisdictional Delineation Report summarizes the results of a jurisdictional delineation/verification conducted by PCR Services Corporation (PCR) biologists Richard Haywood, Maile Tanaka, and Ezekiel Cooley on October 8, 2007 to re-assess the extent and condition of all existing on-site drainage features and update the previous jurisdictional delineation assessment conducted by PCR in 1999 of U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Game (CDFG) jurisdictional "waters of the U.S."/"waters of the State," wetlands, and/or streambed and associated riparian habitat.

On September 19, 2011, PCR regulatory scientist Beth Martinez and biologist Maile Tanaka met with ACOE representative Jason Lambert to verify the jurisdiction mapped on-site for the Saddle Crest jurisdictional delineation only. Based on feedback from the meeting, a subsequent delineation of the on-site downstream portion of Drainage E1 was conducted on October 11, 2011 by Beth Martinez and Maile Tanaka. The width of Drainage E1 was measured varying 1-3 feet (previously measured as 1-2 feet); the acreage changed from 0.08 acre to 0.12 acre. Upon revising the findings for Drainage E1 per the request of Mr. Lambert, and upon further coordination with ACOE, Mr. Lambert verbally confirmed the study area's jurisdictional delineation findings in a phone conversation with Beth Martinez on October 24, 2011.

The jurisdictional acreages presented in **Figure 1**, *Jurisdictional Features*, attached, and **Table 1** *Jurisdictional Features*, below, reflect the revisions requested by ACOE.

Table 5

Jurisdictional Features

Drainage Feature	Length (feet)		Area (acres)[b]		
	ACOE	RWQCB	ACOE	RWQCB	CDFG
Drainage E	2,843	2,843	0.09	0.09	2.57
Tributary E1[a]	3,239	3,239	0.12	0.12	2.53
Tributary E2[a]	800	800	0.03	0.03	1.19
Tributary E3[a]	N/A	1,060	N/A	0.03	0.08
Tributary E4	400	400	0.01	0.01	0.02
Tributary E5	300	300	0.01	0.01	0.02
Tributary F	296	296	0.01	0.01	0.20
Tributary F1	84	84	<0.01	<0.01	<0.01
Tributary G	380	380	0.01	0.01	1.26
Total	**8,342**	**9,402**	**0.28**	**0.31**	**7.87**

[a] *The ACOE/RWQCB and CDFG acreages calculated for each tributary include the jurisdictional acreages for all sub-tributaries within that tributary system (e.g. jurisdictional acreages for Sub-tributary E3.2 are included as a part of Tributary E3).*

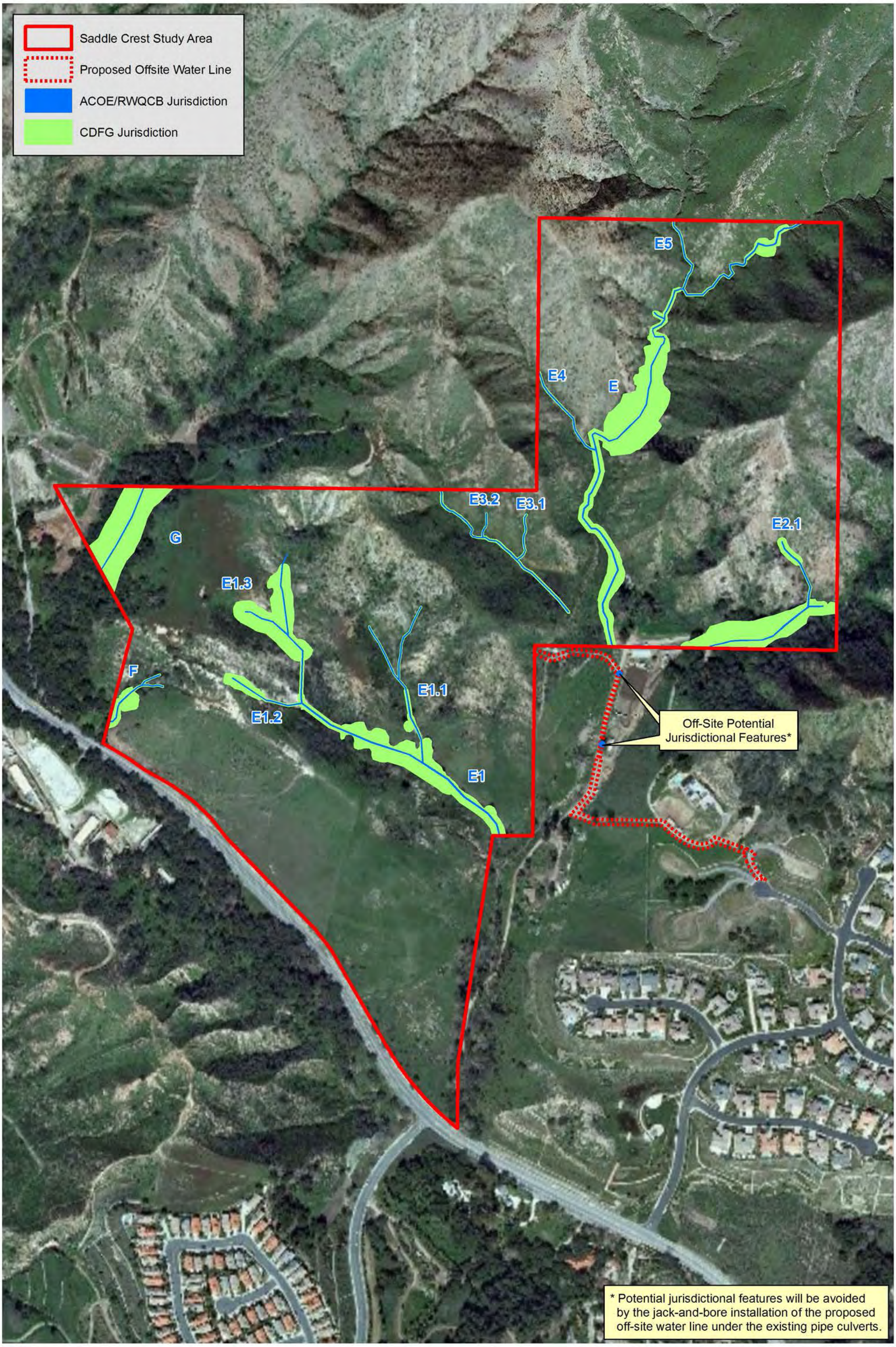
[b] *Jurisdictional acreages often overlap and are therefore not additive (e.g., ACOE acreages are often included in the total RWQCB and CDFG jurisdictional acreages).*

Source: PCR Services Corporation, 2011.

Sincerely,
PCR SERVICES CORPORATION

Maile Tanaka
Senior Biologist I

Beth Jolie Martinez
Principal Regulatory Scientist



PCR

N

0 350 700 Feet

Jurisdictional Features

Saddle Crest

Source: Aerial Express, 2009; PCR Services Corporation, 2012.

FIGURE

1

Investigation of Jurisdictional Wetlands and Waters of the U.S.

Saddle Creek and Saddle Crest

Orange County, California

January 29, 2008

PCR

Investigation of Jurisdictional Wetlands and Waters of the U.S.

Saddle Creek and Saddle Crest

Orange County, California

PREPARED FOR:

RUTTER DEVELOPMENT
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Contact: Richard Haywood, Senior Ecologist/Certified Arborist

January 29, 2008

Investigation of Jurisdictional Wetlands and Waters of the U.S./State

Saddle Creek and Saddle Crest
Orange County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination for the above-referenced project.

PCR Services Corporation

Richard Haywood, Senior Wetland Ecologist

Maile Tanaka, Associate Biologist

January 25, 2008

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INVESTIGATION OF JURISDICTIONAL WETLANDS AND WATERS OF THE U.S./STATE FOR SADDLE CREEK AND SADDLE CREST ORANGE COUNTY, CALIFORNIA

1.0 INTRODUCTION

This report presents the findings of an investigation conducted by **PCR Services Corporation (PCR)** to determine the extent of jurisdictional wetlands and "waters of the U.S./State" on the combined Saddle Creek and Saddle Crest properties located in Orange County, California (referred to collectively as "the study area"). The study area is generally located in southern Orange County, adjacent to the Cleveland National Forest, as shown in Figure 1, *Regional Map*, on page 2. The two properties lie north of the intersection of Live Oak Canyon Road and Santiago Canyon Road.

The two properties, located in close proximity to each other, are comprised of eight smaller parcels and, combined, total approximately 600 acres. These parcels are referred to within this report as Watson, 4S Ranch North, 4S Ranch South, Harris, Panter Ranch, Schefflette, Lutheran Church, and 7th Day Adventist, as shown in Figure 2, *Vicinity Map*, on page 3.

- The Saddle Creek property includes the Watson, 4S Ranch North, 4S Ranch South, and Harris parcels.

- The Saddle Crest property includes the Panter Ranch, Schefflette, Lutheran Church, and 7th Day Adventist parcels.

The Saddle Creek property, specifically the Watson, 4S Ranch North, a small portion of the 4S Ranch South, and Harris parcels, are located within Section 33, T. 5S., R 7W. and the majority of the 4S Ranch South parcel lies within Section 4, T. 6S., R. 7W. of the U.S. Geological Survey (USGS) 7.5-minute Santiago Peak Quadrangle (Figure 2). The Universal Transverse Mercator (UTM) coordinates for the approximate center of the Saddle Creek property are 443,283mE and 3,727,613mN.

The eastern half of the Saddle Crest property, specifically the 7th Day Adventist parcel, is located within Section 33, T. 5S., R 7W. of the USGS 7.5-minute Santiago Peak Quadrangle. The western half of the Saddle Crest property, specifically the Panter Ranch, Schefflette, and Lutheran Church parcels, are located within Section 32 and an un-sectioned portion, T. 5S., R. 7W. of the USGS 7.5-minute El Toro Quadrangle. The UTM coordinates for the approximate center of the Saddle Crest property are 441,854mE and 3,728,057mN.

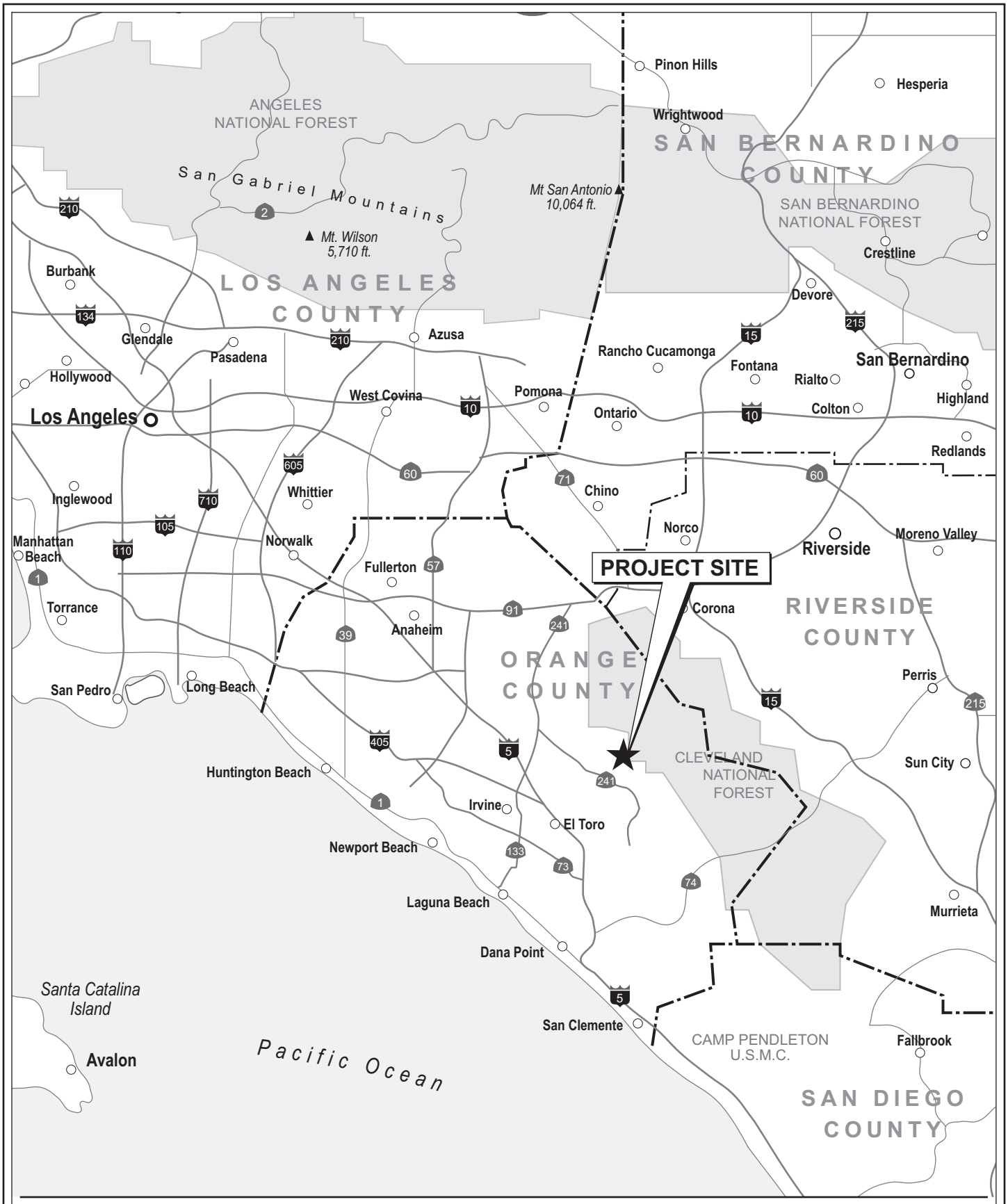
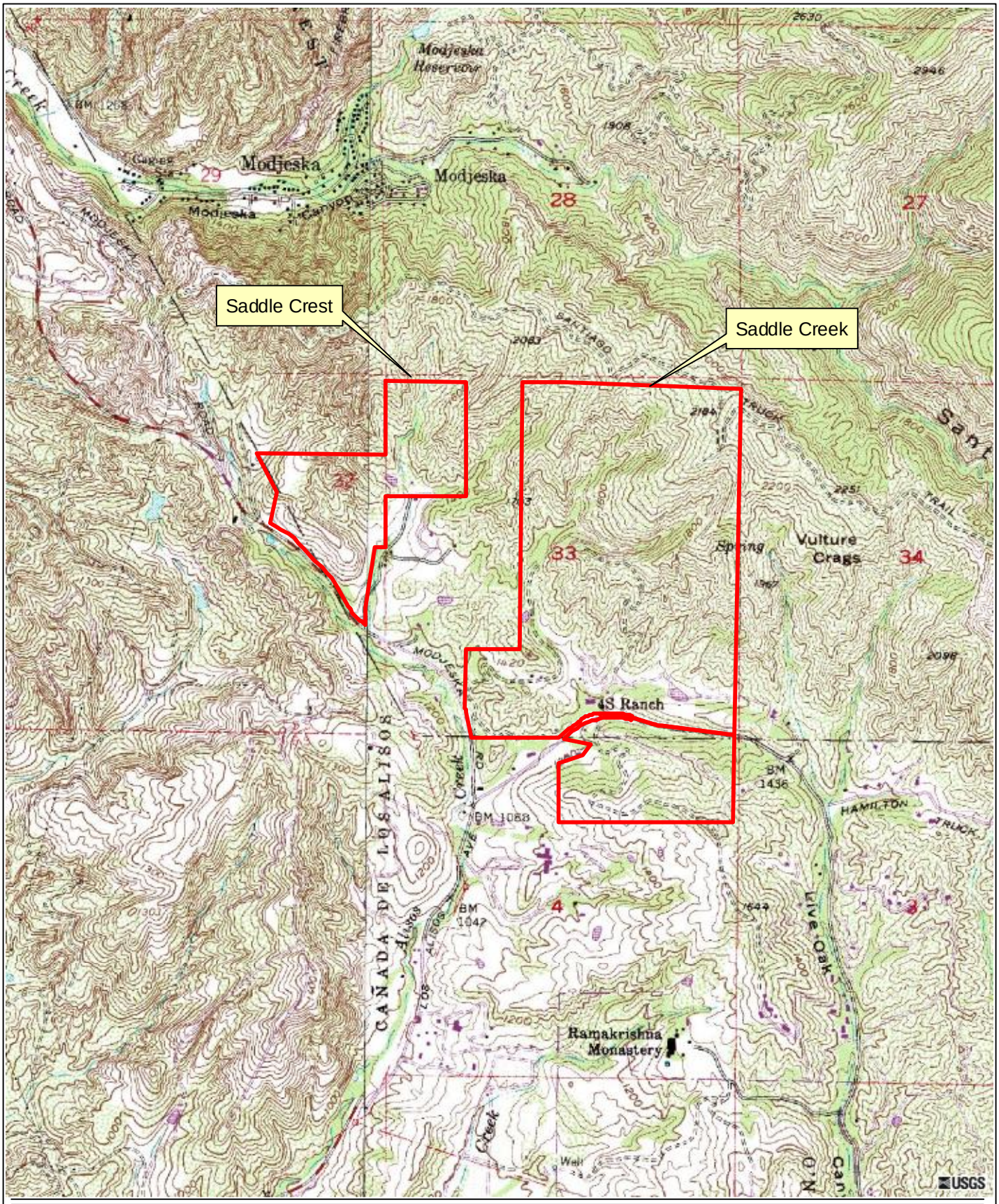


Figure 1
Saddle Creek and Saddle Crest Regional Map

Source: PCR Services Corporation, 2008.



PCR

N

2,000 0 2,000 Feet

Figure 2
Saddle Creek and Saddle Crest
Vicinity Map

Source: USGS Topographic Series (El Toro, Santiago Peak, CA); PCR Services Corporation, 2008.

A breakdown of the acreage of each parcel and property is shown in Table 1, *Parcel Acreages*, on page 5.

A previous assessment of jurisdictional wetlands and "waters of the U.S./State" on the study area was conducted by PCR in 1999. The previous assessment was conducted to determine the extent of all drainages occurring throughout the study area, and whether or not those on-site drainages are subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE), the Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Game (CDFG).

The current investigation of jurisdictional wetlands and "waters of the U.S./State," was conducted by PCR Senior Wetland Ecologist Richard Haywood and Associate Biologists Maile Tanaka and Ezekiel Cooley on October 8, 2007 (Saddle Crest property) and November 28, 2007 (Saddle Creek property), and is a re-assessment of the extent and condition of all existing on-site drainage features to update the jurisdictional delineation previously conducted by PCR in 2000 (PCR 2000a). In addition, this investigation is also evaluating the connection between the on-site drainage features and downstream "traditional navigable waters" (TNW) or "relatively permanent water bodies" (RPW) to assist in determining whether a "significant nexus" exists and waters are ACOE jurisdictional.[1]

Previous biological surveys performed by PCR on the study area include focused surveys for sensitive plants in 1999 and 2001; Quino checkerspot butterfly (*Euphydryas editha quino*) in 1999; and coastal California gnatcatcher (*Polioptila californica*) in 2000 and 2002. Fairy shrimp surveys were conducted by Glenn Lukos Associates in 2001 and PCR in 2003 and a tree survey was conducted by Integrated Urban Forestry in 2000. No Quino checkerspot butterfly were observed on-site, although the coastal California gnatcatcher was observed on the Saddle Creek property and a few sensitive plant species, including Coulter's matilija poppy (*Romneya coulteri*), Catalina mariposa lily (*Calochortus catalinae*), foothill mariposa lily (*Calochortus weedii* var. *intermedius*), and chaparral nolina (*Nolina cismontana*), have been identified, as discussed in *Biological Resources Assessment* and *Supplemental Biological Resources Assessment for the Saddle Creek and Saddle Crest Projects*, under separate cover (PCR 2000b and 2002).

Focused surveys for the coastal California gnatcatcher and vernal pool branchiopods (fairy shrimp) are currently being updated. A sensitive plant survey is scheduled to be conducted in the spring of 2008.

---

[1] *"Traditional navigable waters" (TNW) or "relatively permanent water bodies" (RPW) are defined as jurisdictional in the June 5, 2005 Jurisdictional Determination guidance documents issued by the ACOE (U.S. ACOE and U.S. EPA 2007a, 2007b, and 2007c).*

Table 1

Parcel Acreages

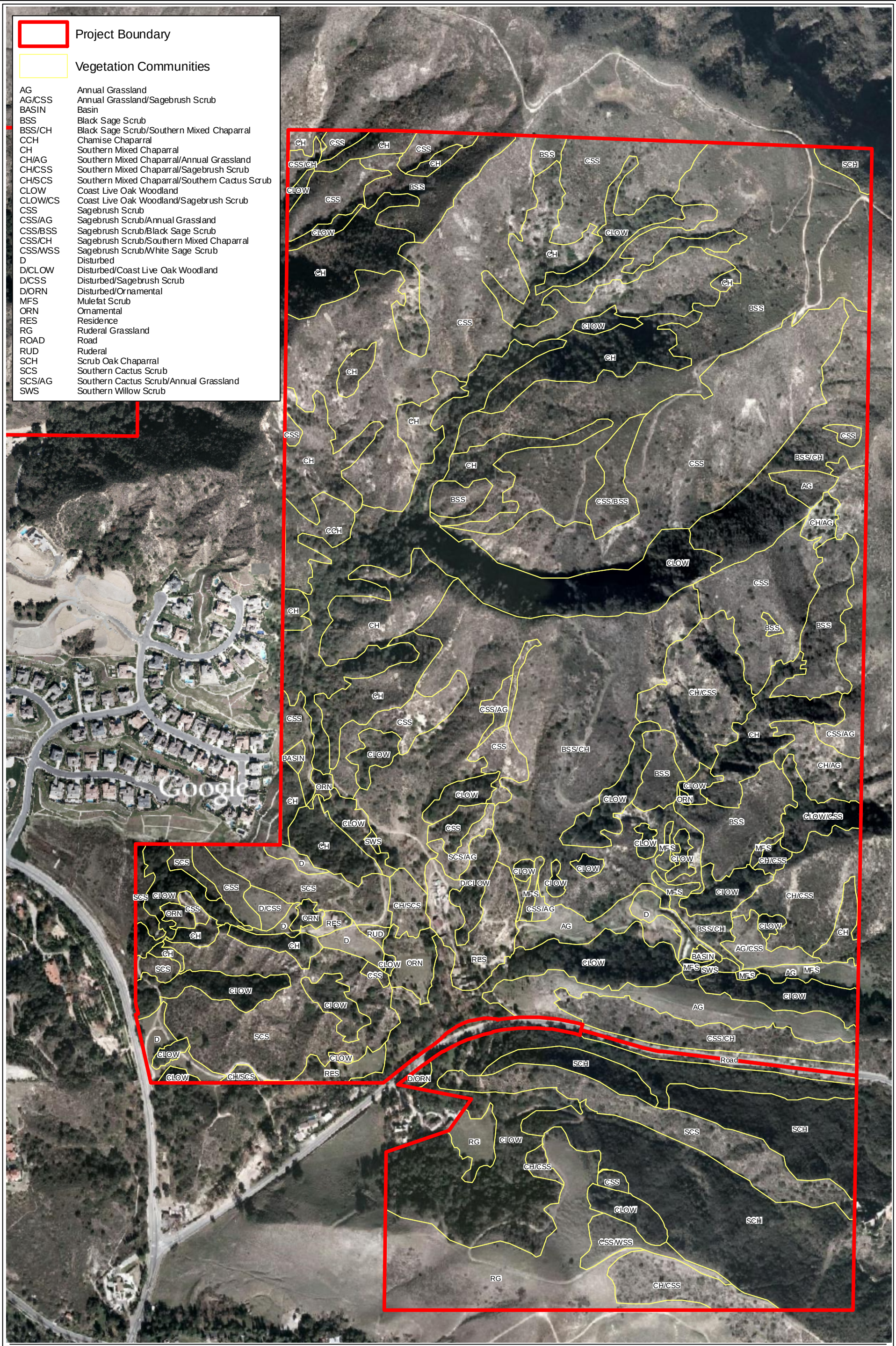
Property Name	Parcel Name	Total Acres
Saddle Crest	Panter Ranch	32.9
	Schefflette	15.4
	Lutheran Church	14.8
	7th Day Adventist	47.3
Saddle Creek	Watson	98
	4S Ranch North	306.4
	4S Ranch South	83.1
	Harris	1.9
Total Acres of the Study Area		**599.8**

Source: PCR Services Corporation, 2008.

2.0 EXISTING SITE CONDITIONS

Elevations range from 1,200 feet above mean sea level (msl) at the southern extent to over 2,180 feet msl at the northern boundary of the study area. The two properties that comprise the study area contain seven drainage systems, one of which is an unnamed USGS "blue-line" stream that is directly tributary to Aliso Creek. The topography across the study area is diverse ranging from flat grasslands and rolling hills at the lower elevations to extremely steep sloping canyons on the Saddle Creek parcel. Disturbances on both properties include extensive burning from the October 2007 wild fires, grazing by horses and cattle throughout much of the lower elevations, unpaved roads, and scattered development. Prior to the October 2007 wild fires, maps of the plant communities within the study area were updated and are shown in Figure 3, *Plant Communities – Saddle Creek*, on page 6 and Figure 4, *Plant Communities – Saddle Crest*, on page 7.

Surrounding land uses include mostly open space with sparse development including stables, residential homes, and Cook's Corner, a local restaurant and bar. Santiago Canyon Estates, a residential development, is located along Santiago Canyon Road between the Saddle Creek and Saddle Crest properties. Preserved public open space within close proximity of the properties includes the Cleveland National Forest to the northeast and O'Neill Regional Park to the southeast.



PCR

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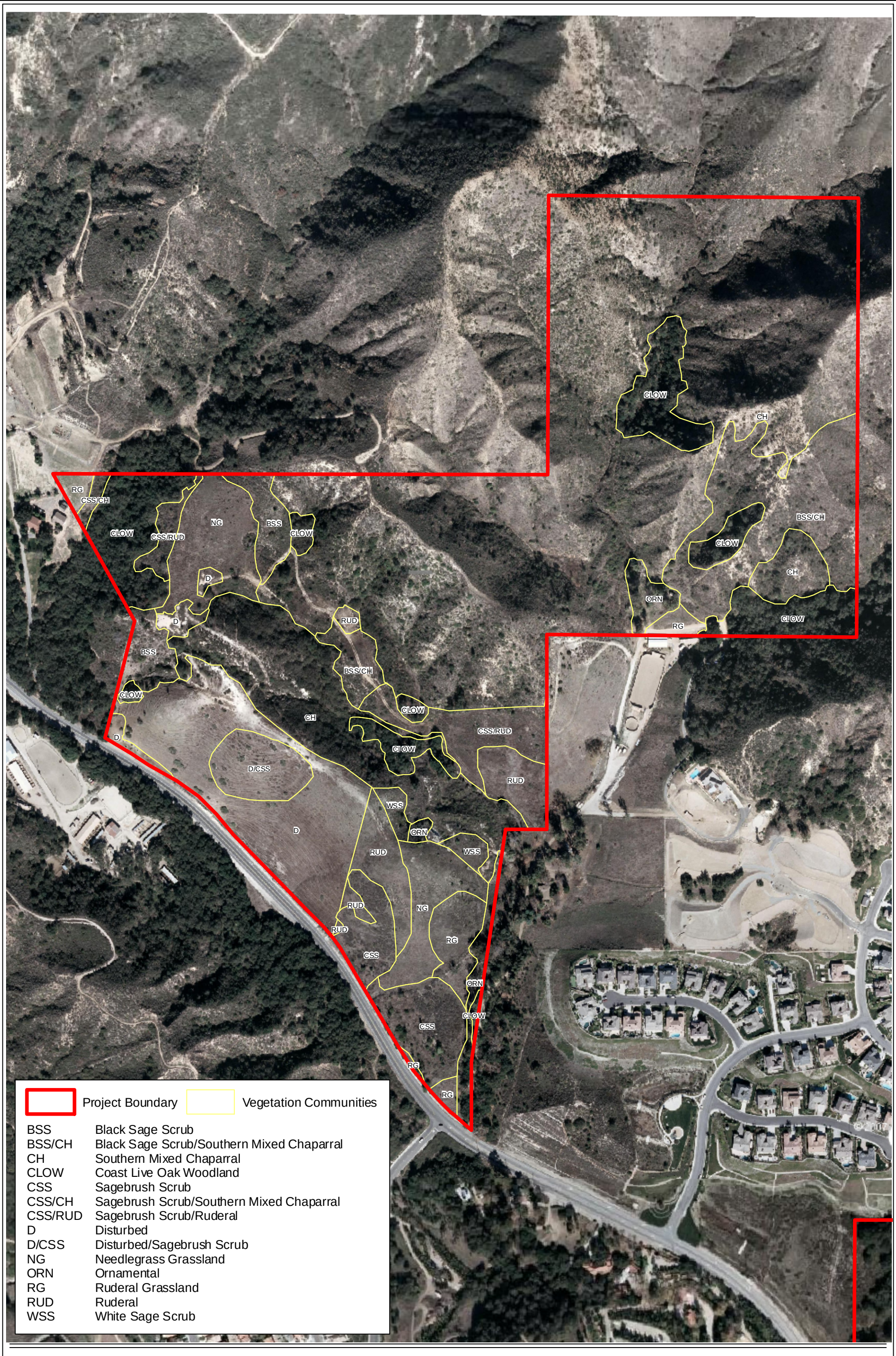
500 0 500 Feet

Source: Google Earth (Aerial); PCR Services Corporation, 2007.

Figure 3
Saddle Creek and Saddle Crest
Plant Communities - Saddle Creek



PCR

N

350 0 350 Feet

Source: Google Earth (Aerial); PCR Services Corporation, 2007.

Figure 4

Saddle Creek and Saddle Crest

Plant Communities - Saddle Crest

3.0 SUMMARY OF REGULATIONS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The ACOE Regulatory Program regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA), the CDFG regulates activities under the Fish and Game Code (FGC) Section 1600-1616, and the RWQCB regulates activities under the Porter-Cologne Water Quality Control Act and Section 401 of the CWA. The following provides a summary of the regulatory programs of these agencies.

3.1 U.S. Army Corps of Engineers

The ACOE regulates "discharge of dredged or fill material" into "waters of the U.S.," which includes tidal waters, interstate waters, and all other waters that are part of a tributary system to interstate waters or to navigable "waters of the U.S.," the use, degradation, or destruction of which could affect interstate or foreign commerce, or which are tributaries to waters subject to the ebb and flow of the tide (33 C.F.R. 328.3(a)), pursuant to provisions of Section 404 of the CWA.

The ACOE generally takes jurisdiction within rivers and streams to the "ordinary high water mark" (OHWM) determined by erosion, the deposition of sediments or debris, and changes in vegetation. The ACOE defines jurisdictional wetlands as areas that contain hydrophytic vegetation, hydric soils, and wetland hydrology, in accordance with the procedures established in the ACOE *Wetlands Delineation Manual* (Environmental Laboratory 1987) and updated in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2006).

The most recent revision occurred on June 5, 2007, when the ACOE and the U.S. Environmental Protection Agency (EPA) issued a series of guidance documents (U.S. ACOE and U.S. EPA 2007a, 2007b, and 2007c) outlining the requirements and procedures, effective immediately, to establish jurisdiction under the CWA and the Rivers and Harbors Act of 1899. These documents are intended to be used for all jurisdictional delineations but also provide guidance for the jurisdictional determination of potentially jurisdictional features affected by the following two United States Supreme Court rulings:

1. The *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (January 9, 2001) ("SWANCC") held that the CWA does not give the Federal government regulatory authority over non-navigable, isolated, intrastate waters. As a result of this decision, some previously regulated isolated depressional areas, such as mudflats, sandflats, wetlands, prairie potholes, wet

meadows, playa lakes, natural ponds, and vernal pools which are not hydrologically connected to other intra- or inter-state "waters of the U.S.," are no longer regulated by the ACOE. A jurisdictional determination of these types of isolated features is typically addressed on a case-by-case basis.

2. The consolidated cases *Rapanos v. the United States* and *Carabell v. the United States* 126 U.S. Ct. 2208 (2006) (jointly referred to as "Rapanos") outlines the conditions and criteria utilized by the ACOE to assess and claim jurisdiction over non-navigable waters. Under this ruling certain adjacent wetlands and "not relatively permanent" non-navigable tributaries are required to have a "significant nexus" to downstream traditional navigable waters to be considered jurisdictional. The "significant nexus" is established through the consideration of a variety of hydrologic, geologic, and ecological factors specific to the particular drainage feature in question.

However, these isolated and "not relatively permanent" features may still be regulated by CDFG under FGC Section 1600 or the RWQCB under the Porter-Cologne Water Quality Act. A detailed discussion of the CWA Section 404 definitions and permit processing is included in Section 7.0, *Regulations*, of this report.

3.2 California Department of Fish and Game

In accordance with Section 1600 et seq. of the FGC (Streambed Alteration), the CDFG regulates activities that "will substantially divert, obstruct, or substantially change the natural flow or bed, channel or bank, of any river, stream, or lake designated by the Department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." The CDFG takes jurisdiction to the top of bank of the stream, or the limit of the adjacent associated vegetation, referred to in this report as "streambed and associated riparian habitat." A detailed discussion of the FGC Section 1600 et seq. permit processing is included in Section 7.0, *Regulations*, of this report.

3.3 Regional Water Quality Control Board

The RWQCB regulates "discharging waste, or proposing to discharge waste, within any region that could affect "waters of the State" (Water Code § 13260 (a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State" (Water Code § 13050 (e)). Before the ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter-Cologne Water Quality Control Act. A detailed discussion of the

CWA Section 401 definitions and permit processing is included in Section 7.0, *Regulations*, of this report.

4.0 INVESTIGATION METHODS

4.1 Literature Review Methods

Prior to visiting the study area, potential and/or historic drainages and aquatic features were located based on a review of the following: *Jurisdictional Waters of the U.S. Results* report (PCR 2000a), USGS Santiago Peak topographic map (1:2,400 scale) (1954, photo-revised 1988), USGS El Toro topographic map (1:2,400 scale) (1968, photo-revised 1982), aerial photographs, and soil survey maps (Wachtell 1978). In addition, detailed digital orthophoto quarter quadrangle (DOQQ) imagery produced by the USGS National Mapping Division, Western Mapping Center was analyzed. The DOQQ data are digital images derived from aerial photography that have been ortho-rectified with a one-meter ground resolution. The DOQQ data were used with PCR's in-house Geographic Information System (GIS) as a base layer to identify vegetation communities and drainage features as well as existing on-site and surrounding conditions, including access availability and existing structures. Drainage features were then "ground-truthed" during field observations to obtain characteristic parameters and detailed descriptions using a combination of standard measurement tools and Global Positioning System (GPS) equipment. The precise location of transects, upstream and downstream extents of each feature, and sample points were collected in the field using a GPS hand-held unit. The Trimble GeoXT system is an advanced geographic data collection tool that integrates satellite differential and wide area augmentation system capabilities to provide sub meter (50 cm RMS) positional accuracy on a real-time basis. Following data collection, the digital information was uploaded and incorporated within PCR's project-specific GIS database to calculate jurisdictional acreages.

4.2 Field Investigation Methods

Utilizing the previous *Jurisdictional Waters of the U.S. Results* report (PCR 2000a), as well as other documentation referenced above, all on-site drainage features were re-evaluated for the potential to be subject to the jurisdiction of the ACOE, RWQCB, and/or the CDFG. During the current delineation, each drainage feature was determined to be a potential jurisdictional "water of the U.S." based on the presence of an OHWM, as well as secondary indicators of hydrology including evidence of erosion, deposition and sorting of sediment or debris, and changes in vegetation. Because these criteria were met for many of the drainage features, and associated tributaries throughout the study area, a series of transects were run to determine the extent of jurisdictional non-wetland "waters of the U.S."

Identified non-wetland "waters of the U.S." were traversed within or along the channel, and the OHWM was measured. Where channels diverged to form low, intermediate areas between the channels, the entire area between the outermost edge of each channel was considered within the OHWM. Where the intermediate area was equal to or above the height of the uppermost bank of either channel, the OHWM was recorded individually for each channel. The CDFG jurisdiction was defined to the top of bank of the stream/channels or to the outer dripline of vegetation associated with the drainage, as applicable.

ACOE jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manuel: Arid West Region* (U.S. Army Corps of Engineers 2006) based on hydrologic and edaphic features of the study area, and on the vegetation composition of each area being investigated. In areas where jurisdictional wetlands were suspected, data on vegetation, hydrology, and soils was collected along transects, as described below.

Vegetation

In areas that could potentially support jurisdictional wetlands, transects were conducted to determine the presence or absence of a dominance of wetland indictor plant species related to jurisdictional wetlands. Areal cover of all plant species was recorded along each transect by estimating coverage in two randomly placed circular plots. Tree cover was estimated using 30-foot radius circular plots; sapling, shrub, and forb cover was estimated using 10-foot radius plots. Plant species in each stratum were ranked according to their dominance. Species that contributed to a cumulative total of 50 percent of the total dominant coverage plus any species that comprised at least 20 percent of the total dominant coverage were recorded on the wetland data sheets. The wetland indicator status was assigned to each species using the *National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1988), as shown in Table 2, *Summary of Wetland Indicator Status*, on page 12. If greater than 50 percent of the dominant species from all strata are Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation is considered to be met.

Hydrology

The presence or absence of wetland hydrology was evaluated at each transect by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil pits. If present, indicators of wetland or riverine hydrology were recorded, including water marks, drift lines, rack, debris, and sediment deposits. The lateral extent of the hydrologic indicators was used as a guide for locating soil pits to evaluate hydric soils. In portions of the drainage where the flow was divided between two channels with

Table 2

Summary of Wetland Indicator Status

Category		Probability
Obligate Wetland	(OBL)	Almost always occur in wetlands (estimated probability of >99%)
Facultative Wetland	(FACW)	Usually occur in wetlands (estimated probability of 67 to 99%)
Facultative	(FAC)	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34 to 66%)
Facultative Upland	(FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland	(UPL)	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator	(NI)	No indicator status has been assigned

Source: Reed, 1988.

intermediate sand bars, the entire area between the outermost edge of each channel was considered within the OHWM and the wetland hydrology indicator is considered met for the entire area, assuming surface water was present.

Soils

If the criteria for wetland vegetation and hydrology were met, then an examination of the soils was conducted to determine if the soils were hydric. Soil pits were dug to a depth of 20 inches. In areas of recent deposition of sand or other overburden material, the soil pit was dug to a depth of 20 inches below the depth of the overburden material. At each soil pit the soil texture and color were recorded by comparison with standard plates within a Munsell soil color chart (1994). Any indicators of hydric soils, such as redoximorphic features, buried organic matter, organic streaking, reduced soil conditions, gleyed or low-chroma soils, or sulfidic odor were also recorded.

5.0 RESULTS

PCR biologists used the methods described above to determine the presence or absence of aquatic resources on the study area that would be regulated by the ACOE, RWQCB, and/or CDFG. Based on this re-verification of the initial data collection, seven drainage systems, which include seven major drainage features and a total of 66 associated tributaries and sub-tributaries, and two constructed watering basins were identified on-site. The jurisdictional features on-site total approximately 54,732 linear feet of stream channel; 5.59 acres of ACOE jurisdictional "waters of the U.S.," of which approximately 0.48 acre is ACOE jurisdictional wetland; 5.74 acres of RWQCB jurisdictional "waters of the State," of which approximately 0.63 acre is RWQCB jurisdictional wetland; and 70.86 acres of CDFG jurisdictional streambed and associated riparian habitat. The location of all drainages determined to be jurisdictional "waters of the U.S./State" and jurisdictional streambed and associated riparian habitat are presented in

Figure 5, *Jurisdictional Features – Saddle Creek*, on page 14 and Figure 6, *Jurisdictional Features – Saddle Crest*, on page 15. The various jurisdictional acreages often overlap, i.e., ACOE/RWQCB acreage is typically included in CDFG acreages, and the two are not additive.

Information obtained from each source (soils map, topographic map, aerial photograph, and field investigation) is described below.

5.1 Soil Survey Review

The *Soil Survey for Orange County and Western Part of Riverside County, California* (Watchell 1978) was consulted and 13 soil types within eight soil series were identified within the study area (Figure 7, *Soils Map*, on page 16). The soils series mapped on-site include Alo, Anaheim, Balcom, Botella, Callegus, Cieneba, Myford, and Sorrento. The soil types mapped within the study area are described in detail below. The soils map and underlying aerial photograph were analyzed for indicators of streams and location of wetlands, seeps, springs, or hydric soils. Drainage E appears on the 1978 soils map as an "intermittent" aquatic feature that begins north of the Saddle Crest property. No other aquatic resources appear on the soils map within the study area boundaries.

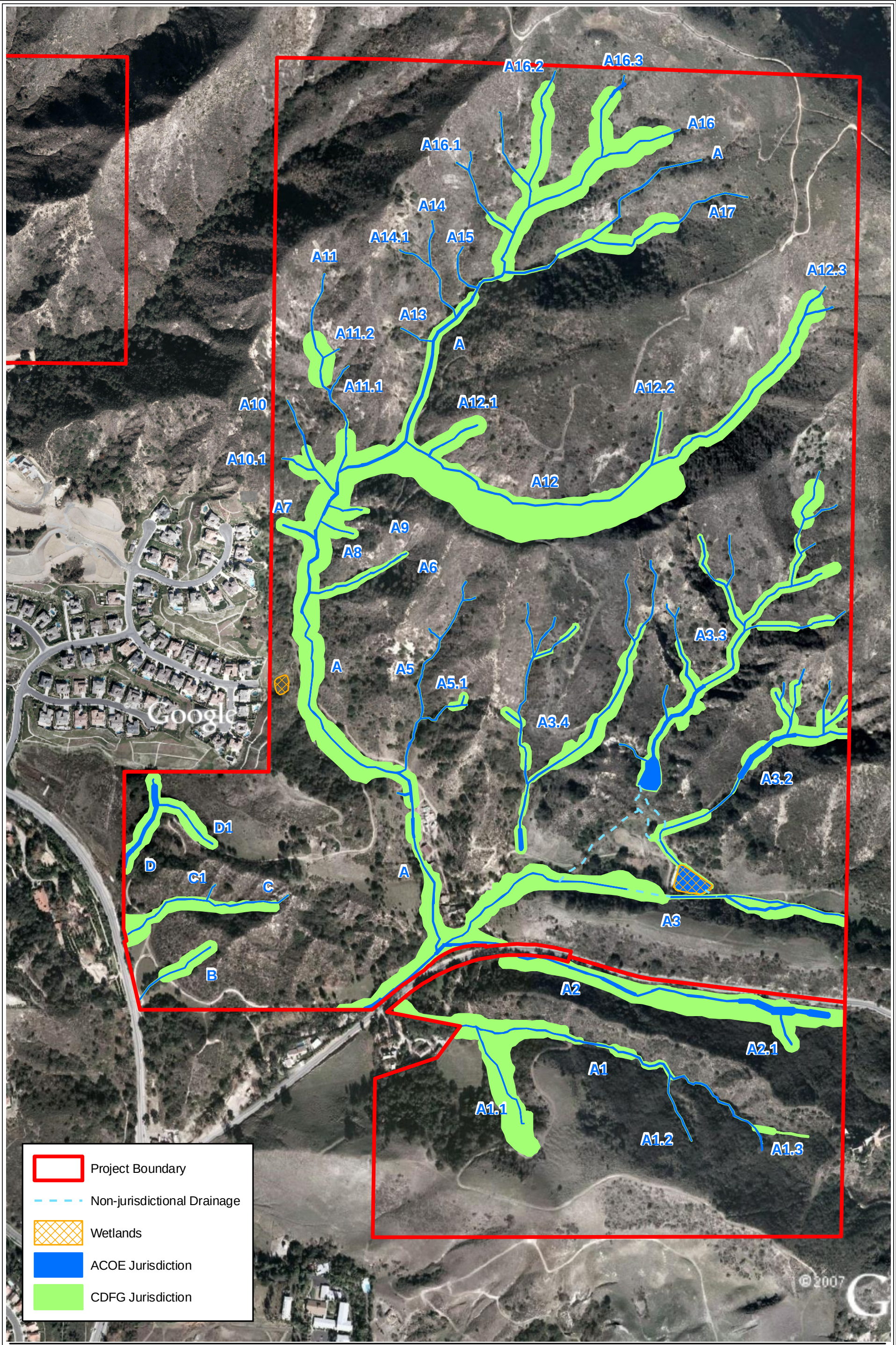
The Alo Series consists of well-drained soils developed in material weathered from calcareous sandstone and shale. The soil types which are mapped on-site within this series include **Alo clay 5 to 30 percent (101)** and **Alo clay 15 to 30 percent slopes (102)**. Descriptions of these soil types are included below.

- **Alo clay 5 to 30 percent (101)** is a moderately steep soil generally occurring on broad ridgetops in the foothills. These soils are slowly permeable, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 3.5 to 6.0 inches, and the root zone is 24 to 36 inches deep.

- **Alo clay 15 to 30 percent slopes (102)** is a soil that generally occurs on side slopes in the foothills. These soils are slowly permeable, runoff is rapid, and the erosion hazard is high.

The Anaheim Series consists of well-drained soils on foothills, formed from weathered soft sandstone or shale. The soil types within this series found within the study area are **Anaheim clay loam, 15 to 30 percent slopes (108)** and **Anaheim clay loam, 30 to 50 percent slopes (109)**. Descriptions of these soil types are included below.

- **Anaheim clay loam, 15 to 30 percent slopes (108)** is a moderately steep soil that generally occurs on broad ridgetops and north-facing slopes. These soils have moderately slow permeability, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 4.0 to 7.0 inches.



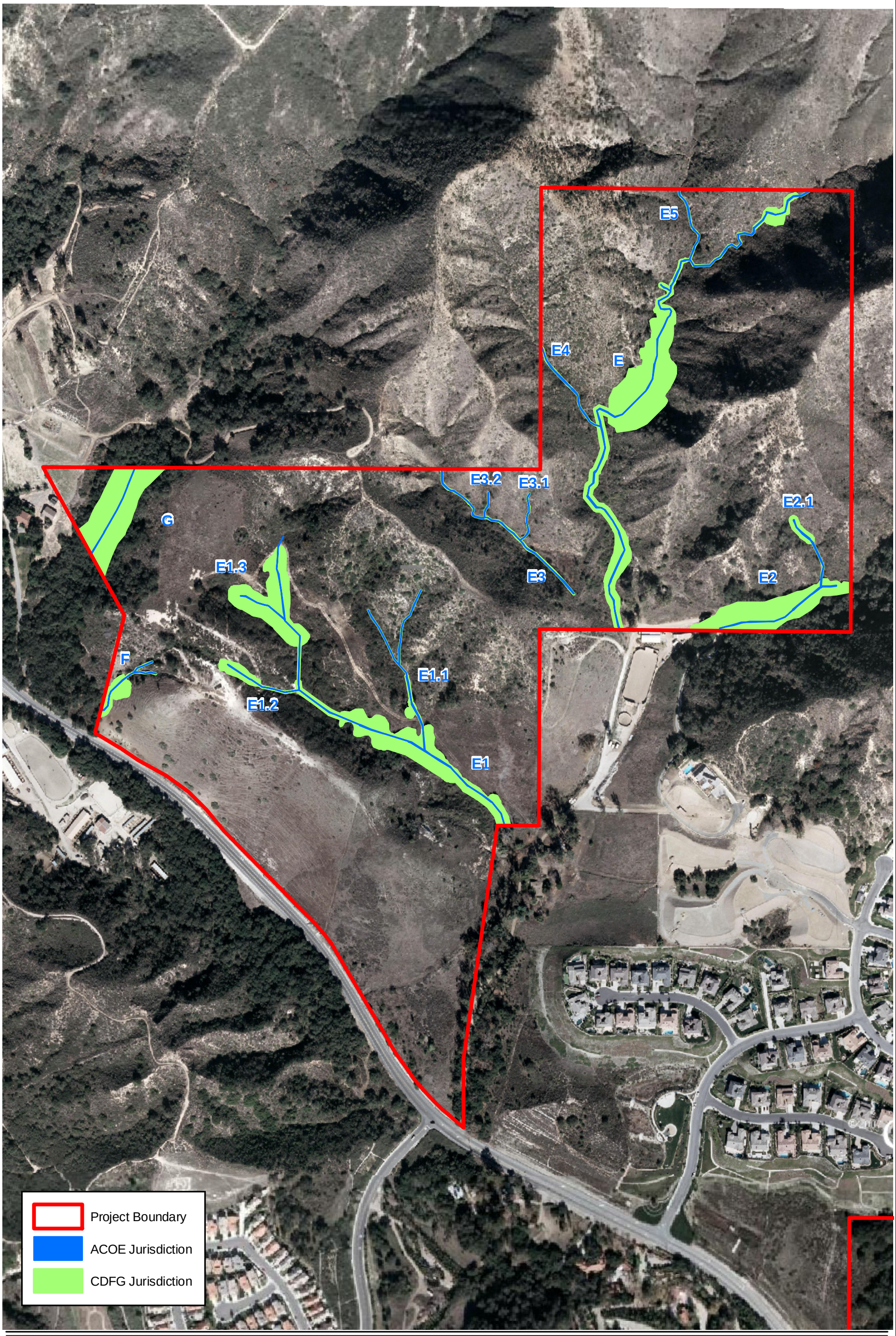
PCR

N

500 0 500 Feet

Source: Google Earth (Aerial); PCR Services Corporation, 2008.

Figure 5
Saddle Creek and Saddle Crest
Jurisdictional Features - Saddle Creek



PCR

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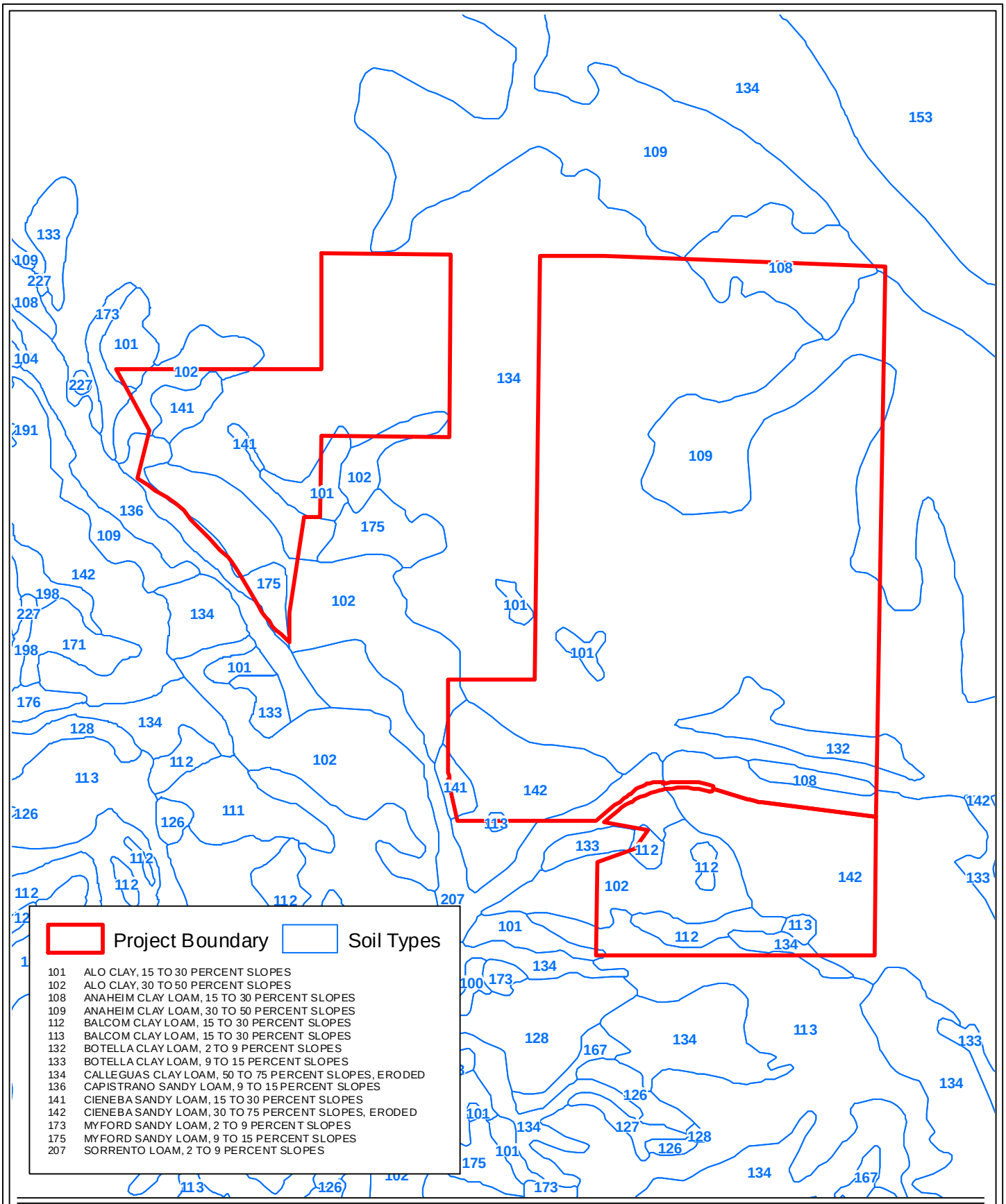
350 0 350 Feet

Source: Google Earth (Aerial); PCR Services Corporation, 2008.

Figure 6
Saddle Creek and Saddle Crest
Jurisdictional Features - Saddle Crest



PCR

N

1,250 0 1,250 Feet

Source: PCR Services Corporation, 2008.

Figure 7
Saddle Creek and Saddle Crest
Soils Map

- **Anaheim clay loam, 15 to 30 percent slopes (108)** is a steep soil that generally occurs on north-facing slopes. These soils have moderately slow permeability, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 4.0 to 7.0 inches.

The Balcom Series consists of well-drained soils on uplands, formed from weathered soft fine-grained sandstone, calcareous soft shale, and marl. The soil types within this series found within the study area are **Balcom clay loam, 15 to 30 percent slopes (112)** and **Balcom clay loam, 30 to 50 percent slopes (113)**. Descriptions of these soil types are included below.

- **Balcom clay loam, 15 to 30 percent slopes (112)** is a moderately steep soil that generally occurs on ridgetops. These soils have moderately slow permeability, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 4.0 to 6.0 inches.

- **Balcom clay loam, 30 to 50 percent slopes (113)** is a steep soil that generally occurs as irregular and oblong areas of 40 to 100 acres. These soils have moderately slow permeability, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 3.5 to 5.0 inches.

The Botella Series consists of well-drained soils on alluvial fans, formed in sedimentary alluvium. The soil types within this series found within the study area are **Botella clay loam, 2 to 9 percent slopes (132)** and **Botella clay loam, 9 to 15 percent slopes (133)**. Descriptions of these soil types are included below.

- **Botella clay loam, 2 to 9 percent slopes (132)** is a gently to moderately sloping soil that generally occurs on alluvial fans in narrow foothill valleys. These soils have moderately slow permeability, runoff is medium, and the hazard of erosion is moderate. The available water holding capacity is 9.5 to 11.5 inches.

- **Botella clay loam, 9 to 15 percent slopes (133)** is a strongly sloping soil that generally occurs on alluvial fans in narrow foothill valleys. These soils have moderately slow permeability, runoff is medium, and the hazard of erosion is moderate. The available water holding capacity is 9.5 to 11.5 inches.

The Calleguas Series consists of well-drained soils on uplands, formed in weathered lime-coated shale or lime-coated sandstone, or both. The soil type within this series found within the study area is **Calleguas clay loam, 50 to 75 percent slopes (134)**. A description of this soil type is included below.

- **Calleguas clay loam, 50 to 75 percent slopes (134)** is a very steep soil that generally occurs on south-facing slopes. Geologic erosion is active and soil slipping is common. These soils have moderate permeability, runoff is rapid, and the hazard of erosion is high. The available water holding capacity is 1.5 to 3.5 inches.

The Cieneba Series consists of somewhat excessively well-drained soils, formed in weathered granitic rocks in the Santa Ana Mountains and from sandstone of the coastal foothills. The soil types within this series found within the study area are **Cieneba sandy loam, 15 to 30 percent slopes (141)** and **Cieneba sandy loam, 30 to 75 percent slopes (142)**. Descriptions of these soil types are included below.

- **Cieneba sandy loam, 15 to 30 percent slopes (141)** is a moderately steep soil that generally occurs on or near ridgetops, and is generally only 15 to 19 inches over bedrock. These soils have moderately rapid permeability, runoff is rapid, and the hazard of erosion is high.

- **Cieneba sandy loam, 30 to 75 percent slopes (142)** is a steep to very steep soil that generally occurs on or near ridgetops, that is eroded, and generally only 5 to 15 inches over bedrock. This soil is commonly cut by gullies and intermittent drainage channels. Geologic erosion is active, and small landslides are common. These soils have moderately rapid permeability, runoff is rapid, and the hazard of erosion is high.

The Myford Series consists of moderately well-drained soils on marine terraces, formed in sandy sediments. The soil type within this series found within the study area is **Myford sandy loam, 9 to 15 percent slopes (175)**. A description of this soil type is included below.

- **Myford sandy loam, 9 to 15 percent slopes (175)** is a strongly sloping soil that generally occurs on side slopes of terraces. These soils have very slow permeability, runoff is medium to rapid, and the hazard of erosion is moderate to high. The available water holding capacity is 2.0 to 4.0 inches.

The Sorrento Series consists of well-drained soils on alluvial fans and flood plains, formed in alluvium derived from sedimentary rocks. The soil type within this series found within the study area is **Sorrento loam, 2 to 9 percent slopes (207)**. A description of this soil type is included below.

- **Sorrento loam, 2 to 9 percent slopes (207)** is a gently to moderately sloping soil that generally occurs on upper valley fans and along stream channels. These soils have moderate permeability, runoff is slow to medium, and the hazard of erosion is slight to moderate. The available water holding capacity is 10.0 to 13.0 inches.

None of the soils found within the study area boundaries are included in the *Field Office Official List of Hydric Soil Map Units for Orange and Riverside Counties, California* (U.S. Department of Agriculture 1992); therefore, based on the soil survey alone, no hydric soils were mapped on-site.

5.2 Topographic Map Review

The USGS 7.5-minute Santiago Peak, California topographic quadrangle map (USGS 1954, photo-revised 1988) and the USGS 7.5-minute El Toro, California topographic quadrangle map (USGS 1968, photo-revised 1982) were reviewed to understand the natural and man-made features occurring on the study area and in its vicinity. Information obtained from the map includes contour lines, streets, streams, and development. The majority of the study area is mapped as undeveloped, with a few structures and dirt roads scattered throughout the two properties. One USGS-designated "blue-line" stream is depicted on the Santiago Peak quadrangle map which is located on the eastern half of the Saddle Crest property (Drainage E) of the study area.

5.3 Aerial Photograph Review

A review of a 2006 aerial photograph reveals the numerous drainage features identified throughout the study area. On the Saddle Creek property, Drainage A and all of its tributaries generally flow to the southwest, eventually joining Aliso Creek off-site. Drainages B, C, and D flow in a more westerly direction, and are eventually collected within a storm drain system along Santiago Canyon Road and are presumably discharged into Aliso Creek. On the Saddle Crest property, Drainage E and all of its tributaries flow off-site to the south, and similarly flow into Aliso Creek off-site to the southeast. Drainages F and G flow off-site to the southwest and also join Aliso Creek to the west. Refer to Figure 5, *Jurisdictional Features – Saddle Creek* and Figure 6, *Jurisdictional Features – Saddle Crest*.

5.4 Field Investigation

The following description of each drainage system evaluated on-site begins on the Saddle Creek property. For discussion purposes, each drainage has been assigned a letter of the alphabet. Tributaries are assigned the letter of the drainage into which they empty plus a number. Primary tributaries are those that flow directly into main drainages. Secondary and tertiary tributaries are those that flow into primary and secondary tributaries respectively. The following are general descriptions of the drainage features investigated on the study area. Plant species observed within the OHWM of the drainages, as well on the surrounding banks and uplands are noted, as applicable. The wetland indicator status (Table 2, *Summary of Wetland*

Indicator Status) of each plant species observed within the OHWM of the drainages are noted upon first mention of the plant species in this report.

5.4.1 Saddle Creek Property – Drainage Systems A – D

Detailed lengths, widths, and the locations and extent of all delineated drainages on the Saddle Creek property are included in Table 3, *Jurisdictional Features – Saddle Creek Property*, on page 21 and Figure 5, *Jurisdictional Features – Saddle Creek*. Representative photographs of drainages within the Saddle Creek property are shown in Figure 8, *Site Photographs – Saddle Creek*, on page 22.

Drainage System A

Drainage System A is the largest drainage system on either property within the study area and drains the majority of the Saddle Creek property (refer to Figure 5, *Jurisdictional Features – Saddle Creek*). The system is comprised of one main ephemeral stream, Drainage A, with 16 primary tributaries, and numerous secondary and tertiary tributaries. Please note that the confluence between Drainage A and Tributaries A1 and A2 are located off-site to the southwest. Drainage A and most of its tributaries originate within narrow, steeply-sloped foothill valleys that dominate much of the Saddle Creek property. Downstream and off-site, Drainage A flows into Aliso Creek to the west of Santiago Canyon Road.

Drainage A originates in the northwestern corner of the Saddle Creek property within a steeply-sloped, narrow valley. The drainage flows generally south-southwest through valley-confined earthen channels, with numerous small tributary systems which also originate within steep, narrow valleys joining the drainage along its length. A mature coast live oak (*Quercus agrifolia*) (FACU) and western sycamore (*Platanus racemosa*) (FACW) woodland dominates the riparian corridor along much of Drainage A and many of its tributaries. The higher slopes and surrounding uplands are typically steep chaparral and sage scrub communities. The understory plant community typically consists of laural sumac (*Malosma laurina*) (FACU), toyon (*Heteromeles arbutifolia*) (UPL), bush monkey flower (*Mimulus aurantiacus*) (FACU), poison oak (*Toxicodendron diversilobum*) (FACU), and scattered mule fat (*Baccharis salicifolia*) (FACW) and Mexican elderberry (*Sambucus mexicana*) (FAC) usually found on flood terraces or on stream banks along much of Drainage A and its tributaries. The streambed throughout most of Drainage A and its tributaries is typically unvegetated with sand, cobbles, and some boulder-sized substrate. The channel banks are typically very well-defined, often vertical, earthen banks. Because the majority of the drainages that make up Drainage System A occur within steep, confined valleys, their stream channels all tend to be well-defined to incised drainage features.

Table 3

Jurisdictional Features – Saddle Creek Property

Feature	Length (feet)	Area (acres)[c] ACOE/ RWQCB[b]	Area (acres)[c] CDFG	Nature
Drainage A	6,598	0.89/0.89	12.44	Ephemeral
Tributary A1[a]	3,420	0.16/0.16	4.49	Ephemeral
Tributary A2[a]	2,499	0.64/0.64	5.23	Ephemeral
Tributary A3[a]	14,569	1.86/1.86	14.41	Ephemeral
Tributary A4	100	0.01/0.01	0.01	Ephemeral
Tributary A5[a]	1,772	0.09/0.09	0.19	Ephemeral
Tributary A6	600	0.02/0.02	0.50	Ephemeral
Tributary A7	200	0.03/0.03	0.26	Ephemeral
Tributary A8	200	0.01/0.01	0.17	Ephemeral
Tributary A9	200	0.01/0.01	0.14	Ephemeral
Tributary A10[a]	800	0.07/0.07	0.53	Ephemeral
Tributary A11[a]	1,500	0.08/0.08	1.22	Ephemeral
Tributary A12[a]	4,123	0.34/0.34	11.62	Ephemeral
Tributary A13	200	<0.01/<0.01	<0.01	Ephemeral
Tributary A14[a]	800	0.03/0.03	0.03	Ephemeral
Tributary A15	300	0.02/0.02	0.02	Ephemeral
Tributary A16[a]	3,913	0.23/0.23	6.37	Ephemeral
Tributary A17	1,000	0.07/0.07	1.06	Ephemeral
Watson Basin	-	0.00/0.15(0.15)	0.15	Ephemeral
4S Ranch North Basin	-	0.48(0.48)/ 0.48(0.48)	0.48	Ephemeral
Drainage B	503	0.02/0.02	0.61	Ephemeral
Drainage C	1,000	0.02/0.02	1.46	Ephemeral
Tributary C1	100	<0.01/<0.01	<0.01	Ephemeral
Drainage D	545	0.22/0.22	0.93	Ephemeral
Tributary D1	400	0.03/0.03	0.67	Ephemeral
Total	**45,342**	**5.33(0.48)/5.48(0.63)**	**62.99**	

[a] *The ACOE/RWQCB and CDFG acreages calculated for each tributary include the jurisdictional acreages for all sub-tributaries within that tributary system (e.g. jurisdictional acreages for Sub-tributary A5.3 are included as a part of Tributary A5).*

[b] *Acreages in parentheses indicate the area of jurisdictional wetlands and are a subset of the total jurisdictional area; therefore, they are not additive.*

[c] *Jurisdictional acreages often overlap and are therefore not additive (e.g., ACOE acreages are often included in the total RWQCB and CDFG jurisdictional acreages).*

Source: PCR Services Corporation, 2008.

Drainage A and its tributaries (specifically, Tributaries A6 through A16 and their associated sub-tributaries) are mostly undisturbed throughout the northern half of the property, with the exception of two small dirt roads and some minor ranching activities. The southern half of Drainage A, as well as portions of its tributaries located within the southern half of the Saddle

Photograph 1: Drainage A looking downstream with a thick layer of ash within the drainage and covering the eastern bank.

Photograph 2: Upstream view of Drainage A just east of its confluence with Trubutary A9.

Photograph 3: Upstream view of Tributary A8.1 from the point of confluence with Drainage A.

Photograph 4: Downstream view of Tributary A3.1, which shows disturbance from ranching activities.

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Figure 8
Saddle Creek and Saddle Crest Site Photographs

Source: PCR Services Corporation, 2007.

Creek property (specifically Tributaries A3 through A5, and their associated sub-tributaries) all tend to have moderate levels of human related impacts, including grazing and ranching activities, animal corrals, dirt roads, minor earth moving, the construction of stream crossings, and the construction of a stormwater basin that collects flows from Sub-tributaries A3.1, A3.2 and A3.3. Tributaries A1 and A2 are located south of Live Oak Canyon Road and flow within generally undisturbed coast live oak woodlands, with some minor ranching related impacts.

At the time of the re-assessment, the Santiago Canyon fires in October 2007 had recently occurred, destroying most of the vegetation across much of the northern half of the Saddle Creek property. However, much of the riparian woodland and some pockets of the understory community received only minor fire damage or avoided burning altogether. The burned area on the northern half of the Saddle Creek property extends south to within approximately 600 feet (to the north) of the Watson Basin. Because nearly all vegetation that was located on the side slopes and uplands surrounding Drainage A and its northern tributaries has been eliminated, there is potential for a severe risk of erosion resulting from heavy precipitation.

Drainage System A totals 42,794 linear feet with 5.04 acres of ACOE/RWQCB jurisdictional "waters of the U.S./State," of which 0.48 acre is wetland (all within the 4S Ranch North Basin), and 58.69 acres of CDFG jurisdictional streambed and associated riparian habitat. The Watson Basin, which is an isolated basin that is adjacent to, but not a part of, Drainage System A, totals 0.15 acre of ACOE/RWQCB jurisdictional "waters of the U.S./State" and wetland, and 0.15 acre of CDFG jurisdictional streambed and associated riparian habitat.

Drainage Systems B, C, and D

These three small drainages are all located along the western boundary of the Saddle Creek property (refer to Figure 5, *Jurisdictional Features – Saddle Creek*). All three flow off-site to the west where they are collected within a stormwater collection system along Santiago Canyon Road and are presumed to be subsequently discharged into Aliso Creek. On-site, the three drainages are small ephemeral streams located within coast live oak woodland and some chaparral habitat. They all have small, moderately well-defined earthen channels, with little vegetation and a moderate layer of leaf litter within their streambeds.

Drainage System B totals 503 linear feet with 0.02 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 0.61 acre of CDFG jurisdictional streambed and associated riparian habitat.

Drainage System C totals 1,100 linear feet with 0.02 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 1.46 acres of CDFG jurisdictional streambed and associated riparian habitat.

Drainage System D totals 945 linear feet with 0.25 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 1.60 acres of CDFG jurisdictional streambed and associated riparian habitat.

5.4.2 Saddle Crest Property – Drainages E – G

The detail of lengths, widths, and the locations and extent of all delineated drainages on the Saddle Crest property are included in Table 4, *Jurisdictional Features – Saddle Crest Property*, on page 25 and Figure 6, *Jurisdictional Features – Saddle Crest*. Representative photographs of drainages within the Saddle Crest property are shown in Figure 9, *Site Photographs – Saddle Crest*, on page 26.

Drainage System E

Drainage System E is the second largest drainage system within the study area, draining the majority of the Saddle Crest property (refer to Figure 6, *Jurisdictional Features – Saddle Crest*). The system is comprised of one main ephemeral to intermittent stream, with five primary tributaries and a few secondary tributaries. Please note that the confluence between Drainage E and Tributaries E1 and E2 are located off-site to the south. Drainage E and all of its tributaries originate in gently to moderately sloping foothill valleys. Drainage E is a "blue-line" stream on the USGS Santiago Peak quadrangle map. Downstream and off-site, Drainage E flows into Aliso Creek to the west of Santiago Canyon Road.

Drainage E originates off-site to the north of the 7th Day Adventist parcel, in the surrounding foothills. The drainage flows generally south through very well-defined, incised channels. The remnants of concrete structures, as well as trash and debris is evident throughout the southern half of the drainage's on-site extent. The northern half of the drainage is generally undisturbed coast live oak woodland with a dense understory of laurel sumac and poison oak. A small spring was identified approximately half way upstream on Drainage E. The resulting intermittent or perennial flow from the spring has allowed a small wetland system to develop within the streambed of the drainage (see Figure 9, *Site Photographs – Saddle Crest*). This small wetland system persists for approximately 50 feet before surface flows dissipate into the streambed substrate. The streambed throughout the on-site extent of drainage system is composed intermittently of unconsolidated sands and gravel, cobbles, and boulders.

Like the Saddle Creek property, the recent Santiago Canyon fires in October 2007 destroyed the majority of the vegetation across the northern and northeastern portions of the Saddle Crest property, including the majority of the riparian woodland. The burned area extends from the northern border of the study area and covers the entirety of the study area to just south-southwest of Tributary E1. Because nearly all vegetation that was located on the side slopes and

Table 4

Jurisdictional Features – Saddle Crest Property

Feature	Length (feet)	Area (acres)[c] ACOE/ RWQCB[b]	Area (acres)[c] CDFG	Nature
Drainage E	2,844	0.09/0.09	2.57	Intermittent/Ephemeral
Tributary E1[a]	3,233	0.08/0.08	2.54	Ephemeral
Tributary E2[a]	800	0.03/0.03	1.20	Ephemeral
Tributary E3[a]	1,058	0.02/0.02	0.08	Ephemeral
Tributary E4	400	0.01/0.01	0.02	Ephemeral
Tributary E5	300	0.01/0.01	0.02	Ephemeral
Tributary F	293	0.01/0.01	0.19	Ephemeral
Tributary F1	84	<0.1/<0.01	<0.01	Ephemeral
Tributary G	378	0.01/0.01	1.25	Ephemeral
Total	**9,390**	**0.26/0.26**	**7.87**	

[a] *The ACOE/RWQCB and CDFG acreages calculated for each tributary include the jurisdictional acreages for all sub-tributaries within that tributary system (e.g. jurisdictional acreages for Sub-tributary E3.2 are included as a part of Tributary E3).*

[b] *Acreages in parentheses indicate the area of jurisdictional wetlands and are a subset of the total jurisdictional area; therefore, they are not additive.*

[c] *Jurisdictional acreages often overlap and are therefore not additive (e.g., ACOE acreages are often included in the total RWQCB and CDFG jurisdictional acreages).*

Source: PCR Services Corporation, 2008.

uplands surrounding Drainage E and its northern tributaries has been eliminated, there is potential for a severe risk of erosion resulting from heavy precipitation.

Drainage System E totals 8,635 linear feet with 0.24 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 6.43 acres of CDFG jurisdictional streambed and associated riparian habitat.

Drainage System F

Drainage F is a small ephemeral drainage feature flowing within coast live oak woodland and black sage scrub habitat in the southwestern portion of the Saddle Crest property (refer to Figure 6, *Jurisdictional Features – Saddle Crest*). The drainage flows off-site to the west and discharges into Aliso Creek on the west side of Santiago Canyon Road. The drainage has a moderately well-defined, generally unvegetated channel with a sandy streambed and shallow banks.

Photograph 1: Poorly defined channel morphology-Tributary E1 upper end.

Photograph 2: Tributary E2-Typical channel morphology.

Photograph 3: Drainage E looking upstream towards spring wetland.

Photograph 4: Spring on Drainage E.

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Figure 9
Saddle Creek and Saddle Crest Site Photographs

Source: PCR Services Corporation, 2007.

Drainage System F totals 377 linear feet with 0.01 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 0.19 acre of CDFG jurisdictional streambed and associated riparian habitat.

Drainage System G

Drainage G originates in the foothills to the north of the Saddle Crest property and flows roughly southwest across the western-most corner of the Saddle Crest property and eventually into Aliso Creek (refer to Figure 6, *Jurisdictional Features – Saddle Crest*). The drainage flows within an undisturbed, mature coast live oak woodland with an interspersion of some chaparral habitat. The drainage is a moderately to very well-defined earthen channel with a sandy streambed and shallow to very steep, eroded banks.

Drainage System G totals 378 linear feet with 0.01 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S./State" and 1.25 acres of CDFG jurisdictional streambed and associated riparian habitat.

6.0 CONCLUSIONS

The study area, comprised of the Saddle Creek and Saddle Crest properties, contains a total of seven drainage systems and two constructed basins that total 54,732 linear feet and support 5.59 acres of ACOE jurisdictional "waters of the U.S.," of which approximately 0.48 acre is ACOE jurisdictional wetland (contained entirely within 4S Ranch North Basin) and 5.74 acres of RWQCB jurisdictional "waters of the State," of which approximately 0.63 acre is RWQCB jurisdictional wetland (contained entirely within 4S Ranch North Basin and Watson Basin). The study area contains 70.86 acres of CDFG jurisdictional streambed and associated riparian habitat.

All of the drainages described within this document are tributaries to Aliso Creek and are likely regulated by the ACOE/RWQCB as "waters of the U.S./State" and CDFG as jurisdictional streambed and associated riparian habitat. At the time of the field investigation, no standing or flowing water was observed anywhere throughout the study area. However, due to presence of hydrophytic vegetation, hydric soils, and secondary indicators of hydrology, two small wetland areas have been identified as wetlands within constructed watering basins associated with ranching activities on the Saddle Creek property. The field investigation on the Saddle Creek property occurred shortly after the October 2007 wild fires, and as such, much of the northern half of the property had undergone extensive burning. The field investigation on the Saddle Crest property was conducted prior to the October 2007 fires, however, much of this property was subsequently also burned.

Prior to the October 2007 fires, the majority of the coast live oak woodland on-site was in good condition and was dominated exclusively by coast live oak in the tree canopy with individual sycamores scattered throughout. The shrub layer was dominated by toyon and Mexican elderberry and the forbs were dominated by poison oak, wild rose (*Rosa californica*), nightshade (*Solanum* sp.), and several ferns where more mesic conditions persist. Areas in both the southeastern portion of the Saddle Creek property north of Live Oak Canyon Road and portions of the Saddle Creek parcel south of Live Oak Canyon Road have been consistently grazed by cattle for the last several years which has degraded the quality of these portions of the woodland habitat. The areas of grazed oak woodlands typically consisted of large, mature oak trees with no understory species growing. Although the majority of the vegetation on both the Saddle Creek and Saddle Crest properties were burned in the October 2007 fire, the vegetation is expected to eventually re-establish itself. The regulating agencies will evaluate any impacts to these communities based on the conditions which existed prior to the fire.

Any development proposal that involves impacting the drainage areas within the study area through filling, stockpiling, conversion to a storm drain, channelization, bank stabilization, road or utility line crossings, or any other modification would require permits from the ACOE, RWQCB, and the CDFG before any development could commence. Processing of the RWQCB's Porter-Cologne Water Quality Control Act Waste Discharge Requirements and CDFG's Fish and Game Code Section 1602 permits can occur concurrently with the ACOE's CWA Section 404 permit process and can utilize the same information and analysis. The ACOE will not issue its authorization until the RWQCB completes the CWA Section 401 permit. The following section, Section 7.0, *Regulations*, provides a detailed discussion of the current State and Federal regulations that govern the various jurisdictional resources on the study area.

7.0 REGULATIONS

Jurisdictional features would be subject to the permitting requirements of the ACOE, RWQCB, and the CDFG and require authorization prior to any impacts. The following discussion provides information on the processing of permits with each regulatory agency. Similar information is required for each permit application, and the applications can be processed concurrently. This discussion concentrates on the ACOE's CWA Section 404 permit because the processing time of an Individual Permit (IP) or Nationwide Permits (NWP) generally drives the other permits.

CWA Section 404

Section 404 of the CWA regulates the discharge of dredged material or placement of fill material within "waters of the U.S." and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. "Waters of the U.S." are defined by the CWA as

"rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." Over the years, the ACOE has adopted several revisions to their regulations in order to more clearly define "waters of the U.S." In January 2001, as a result of the SWANCC case ruling, the U.S. Supreme Court held that the CWA does not give the Federal government regulatory authority over non-navigable, isolated, intrastate waters. Prior to the SWANCC ruling, "waters of the U.S." included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable "waters of the U.S." However, as a result of the court ruling, some of the previously regulated depressional areas, which are not hydrologically connected to other intrastate or interstate "waters of the U.S.," are no longer regulated by the ACOE.

In addition, "waters of the U.S." must be evaluated to determine if a "Significant Nexus" exists to downstream "Traditional Navigable Waters" (TNW). A "Significant Nexus" is defined as having a "more than a speculative or insubstantial effect on the chemical, physical, and/or biological integrity of a TNW." A TNW is defined as a water body that is susceptible to trade or travel. TNWs generally encompass larger water bodies that are clearly under the jurisdiction of the ACOE (i.e. the ocean, large perennial rivers, large lakes, etc.). This determination is now required by the ACOE and EPA as a result of two recent Supreme Court rulings, *Rapanos v. the United States* and *Carabell v. the United States* (jointly referred to as Rapanos), and is outlined in a series of guidance documents issued jointly by the ACOE and EPA on June 5, 2007 (U.S. ACOE and U.S. EPA 2007a, 2007b, and 2007c).

Permits can be issued for individual projects under an IP or for general categories of projects under one of the NWPs, also referred to as General Permits. Once the limits of ACOE jurisdiction are determined and an application is submitted to the ACOE, the ACOE determines whether or not the activity meets the terms and conditions of one of the NWPs. If a project qualifies under one of the NWPs, a letter may be issued verifying compliance with the NWP program. Verification of compliance may be conditioned with specific terms regarding construction protocol, use of best management practices, avoidance of endangered species habitat, and mitigation requirements to ensure that the project will have minimal incremental or cumulative impacts to aquatic resources. If a project meets the general terms and conditions of a NWP, but will result in greater than minimal impacts (typically 0.5 acre, but varies between NWPs), the ACOE District Engineer may take discretionary authority and require the project to be processed as an IP. The review process for a NWP is generally less extensive than for an IP and can often be completed within three months.

Projects that cannot be permitted under a NWP must undergo a more extensive review under the IP process, which typically takes 120 days. The ACOE decides whether to issue an IP

based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity. According to ACOE regulations, permits should not be issued for activities that will create "significant" degradation of the "waters of the U.S." or have "significantly adverse effects on wetland values." However, the CWA provides no clear definition of "significant."

The evaluation process for an IP is based on guidelines established under Section 404(b) (1) of the CWA and on the "public interest review" procedures. The public interest review involves a broad, qualitative evaluation of a project's benefits and detriments. ACOE regulations have identified 21 factors that are relevant to permit review. These factors are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, and the general needs and welfare of the people. The public interest review is facilitated by the issuance of a 15- to 30-day Public Notice period when comments are solicited from the public and resource agencies, such as the U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency, and the CDFG regarding the proposed project. A public hearing may be held for highly controversial projects.

The Section 404(b) (1) guidelines are often considered the driving force in the ACOE permit process. The 404(b) (1) guidelines prohibit discharge of dredged or fill material if there is a less environmentally damaging practicable alternative. Practicability is determined based on technological, economic, social, and logistic considerations. If a proposed project has greater than significant impacts, attempts must be made to avoid and minimize impacts. Impacts that cannot be avoided must be mitigated to a level where the net impacts to "waters of the U.S." are not significant. In some cases, projects that result in significant impacts may be permitted if they provide a substantial benefit to the public, such as projects affecting national security or considerable production of energy, and appropriate off-site compensatory mitigation is implemented.

The ACOE must ensure that permitted projects comply with all other applicable Federal resource protection laws such as the Endangered Species Act (ESA), the National Historic Preservation Act, and the Coastal Zone Management Act. In addition, certification that the proposed activity will comply with all applicable effluent limitations and water quality standards of Section 401 of the CWA is needed prior to issuance of a Section 404 permit. The need for a Section 404 permit constitutes a Federal action under the National Environmental Policy Act (NEPA). Therefore, during the review of a proposed project an Environmental Assessment is prepared according to NEPA guidelines. If the impacts of the proposed activity are determined to be significant according to NEPA, an Environmental Impact Statement must be prepared and reviewed according to all NEPA requirements.

If a proposed project complies with all the NEPA requirements, the 404(b)(1) guidelines, is determined not to be contrary to the public interest, and does not violate any Federal resource protection laws, the ACOE will issue an IP authorizing the proposed discharge of dredged or fill material into "waters of the U.S." or wetlands. If a proposed project violates any of the above, then the ACOE must deny the Section 404 permit.

CWA Section 401

Section 401 of the CWA requires that any applicant for a Federal permit that involves activities resulting in a discharge to "waters of the U.S." shall provide a certification from the State in which the discharge is proposed. The State certification needs to conclude that the discharge will comply with the applicable provisions under the Federal CWA.

Therefore, before the ACOE will issue a Section 404 permit, applicants must apply for and receive a CWA Section 401 Water Quality Certification from the RWQCB. Applications to the RWQCB must include a complete California Environmental Quality Act (CEQA) document (e.g., Initial Study/Negative Declaration or Environmental Impact Report). Processing of a Water Quality Certification generally takes 60 days, but the ACOE may grant the RWQCB time extensions of up to one year. A 21-day public comment period is included in the processing of the Water Quality Certification. The RWQCB may add conditions to their certification to remove or mitigate potential impacts to water quality standards and/or beneficial uses. Such conditions must ultimately be included in the Federal Section 404 permit. The State water quality regulations contain an "aggrieved party provision" that allows any person or group who objects to the issuance of a Water Quality Certification to petition the State Water Resources Control Board (SWRCB) to reconsider the RWQCB decision within 30 days of issuance.

Under separate authorities granted by State law (i.e., the Porter-Cologne Act), each of the nine RWQCBs may choose to regulate discharges of waste (dredge or fill materials) by issuing Waste Discharge Requirements (WDR), a type of State discharge permit, instead of issuing a CWA Section 401 Water Quality Certification. The SWRCB must review the WDR and certify, condition, or deny any activity if it does not comply with State water quality standards. Each RWQCB may waive WDRs for a specific discharge or category of discharges as long as the conditions stated in that RWQCB's Water Quality Management Plan are followed. Processing of a WDR is similar to that of a Section 401 certification; however, the RWQCB has slightly more discretion to add conditions to a project under the Porter-Cologne Act than under the CWA.

California Fish and Game Code Section 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, State or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, it must first notify the CDFG of the proposed project.[2] This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support, or have supported, riparian vegetation. The CDFG's jurisdiction extends to the river, steam, or lakes top of bank, or to the outer edge of the adjacent riparian vegetation (i.e., riparian "drip line"), whichever is greater.

During the notification process, the CDFG will review the proposed project as it affects CDFG jurisdictional areas within the project boundary. Based on the notification materials submitted and any subsequent field investigation(s), the CDFG will determine if the proposed project will substantially impact fish or wildlife resources. If the CDFG determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. A completed CEQA document must be submitted to the CDFG before issuance of a Streambed Alteration Agreement. Within 60 days of receipt of a complete notification package, the CDFG will recommend avoidance, minimization, or mitigation measures necessary to protect the fish and/or wildlife that the proposed project could affect. These measures may be the same as any that has been included as part of the project and/or measures proposed by the CDFG. The applicant has 30 days after receiving the CDFG's proposed measures to notify it in writing whether they accept them, unless this time period is extended by mutual agreement. If the measures are acceptable, the Streambed Alteration Agreement will be issued. If the measures are not acceptable, the applicant may request a meeting with the CDFG within 14 days from the date the CDFG receives the response or by some other mutually agreed upon date for the purpose of developing measures that are acceptable to both the applicant and the CDFG. If an agreement is not reached with the CDFG on acceptable protection measures, an arbitration panel will be established to resolve any disagreements. If a panel is requested, it must be established within 14 days of the meeting with the CDFG. The arbitration panel will be composed of a representative from the CDFG, the applicant, and a mutually agreed upon third person who will act as the panel chair. The panel must complete the arbitration within 14 days from the date the panel is established unless a time extension is mutually agreed upon. The CDFG, the applicant, or any party affected by a panel

[2] *Senate Bill No. 418, approved by the Governor October 8, 2003, includes revisions to the Streambed Alteration Agreement process.*

decision may appeal the decision to the court to confirm, correct, or vacate the decision in accordance with Section 1285 et seq., of the Code of Civil Procedure.

Once the applicant and the CDFG accept or agree on measures necessary to protect fish and/or wildlife resources, the CDFG will incorporate these measures into a draft Lake or Streambed Alteration Agreement for review and signature.

ESA Section 7 Consultation [3]

This process is required only if the proposed project would affect a Federally-listed threatened or endangered species and if Federal authorization is required. The process begins when the Federal agency (the ACOE) completes a Biological Assessment (BA) and formally requests to initiate consultation with the USFWS and/or the National Marine Fisheries Service (NMFS). The ACOE, in cooperation with the applicant, coordinates with the USFWS and/or NMFS regarding avoidance and minimization of impacts to endangered species and habitat. Following the assessment of avoidance and minimization measures, the USFWS and/or NMFS will require mitigation, as compensation for "take" of individual animals or plants along with occupied habitat. The term "take" is defined by the ESA Section 3(19) as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The USFWS and/or NMFS will then issue a Biological Opinion (BO), which is required before the ACOE can make a CWA Section 404 permit decision. The ESA regulations state that the USFWS (or NMFS) has 90 days from the initiation of consultation to complete a BA and 45 days to write the BO. However, the ACOE and the USFWS (or NMFS) can agree to a 60-day extension without approval from the applicant. If there are substantial impacts to endangered species, the USFWS and/or NMFS will issue a BO that concludes the proposed project would jeopardize the continued existence of the species, which would result in a permit denial from the ACOE. A "jeopardy" decision is made if the proposed project action would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR §402.02). If there are no substantial impacts, the USFWS and/or NMFS will issue a "no jeopardy" decision with specific terms and conditions to allow the project to move forward.

[3] *Section 7 Consultation requirements may differ if a federally-listed threatened or endangered species is covered under a Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan.*

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