WESTERN RIVERSIDE COUNTY MULTIPLE SPECIES HABITAT CONSERVATION PLAN CONSISTENCY ANALYSIS AND BIOLOGY REPORT

KILEY PROPERTIES – TRACT 37154 (ASSESSOR'S PARCEL NUMBERS 290-160-011 AND 290-160-014)

RIVERSIDE COUNTY, CALIFORNIA

MSHCP PERMITTEE: RIVERSIDE COUNTY

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1.0 EXECUTIVE SUMMARY

LSA was retained by Highlands at Sycamore Creek to conduct a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis and general biological study for the Tract 371254 Project (project) located in an unincorporated area of Riverside County, California. The study was conducted for the identification of potential jurisdictional waters and to address compliance with the MSHCP and the California Environmental Quality Act (CEQA). Results of the MSHCP consistency analysis and general biological study are summarized below.

The project site is not within the MSHCP Criteria Area; however, the project is part a Habitat Assessment and Negotiation Strategy (HANS), specifically HANS/PAR 582/Intake 648. The project will dedicate approximately 27 acres of the southerly portion of Assessor's Parcel Number (APN) 290-160-011 for conservation in accordance with HANS/PAR 582/Intake 648.

A jurisdictional delineation was conducted and identified the presence of potential jurisdictional waters and MSHCP riparian/riverine resources. The project would result in 0.13 acre of temporary effects and 0.01 acre of permanent effects to potential nonwetland waters regulated by the United States Army Corps of Engineers (USACE) and 0.20 acre of permanent and 0.03 acre of temporary effect to California Department of Fish and Wildlife (CDFW) riparian/streambed, and 0.38 acre of permanent and 0.01 acre of temporary effects to streambed. Effect to MSHCP riparian/riverine resources is consistent with CDFW effects.

The project is anticipated to require the following agency permits: a Federal Clean Water Act (CWA) Section 404 permit authorization from the USACE, a CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), and a Fish and Game Code Section 1602 Streambed Alteration Agreement from the CDFW. A Determination of Biologically Equivalent or Superior Preservation (DBESP) has been prepared to address mitigation for project effects to MSHCP riparian/riverine resources.

The site does not contain riparian habitat suitable for riparian bird species, such as least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus occidentalis*), protected under the MSHCP. Therefore, these riparian bird species are considered absent and no project-related effects will occur.

No vernal pools as defined in the MSHCP or fairy shrimp habitat occur on the project site. Therefore, vernal pools and fairy shrimp are considered absent and no project-related effects will occur.

The project site is not within the MSHCP survey area for burrowing owl (*Athene cunicularia hypugaea*).

The project site is within the MSHCP Narrow Endemic Plan Species Survey Area (NEPSSA) for eight plant species: Munz's onion *(Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), slender-horned spineflower (*Dodecahema leptoceras*), many-stemmed dudleya (*Dudleya multicaulis*), spreading navarretia (*Navarretia fossalis*), California Orcutt grass (*Orcuttia californica*), San Miguel savory (*Satureja chandleri*), Hammitt's clay-cress (*Sibaropsis hammittii*), and San Miguel savory (*Satureja*

chandleri). A habitat assessment and focused survey found these species to be absent. Therefore, no project-related effects will occur to NEPSSA plants.

The project site is not located within an MSHCP designated survey area for any other species and does not contain Delhi series soils.

The project will be subject to MSHCP Urban/Wildlands interface requirements because it is located adjacent to conserved lands associated with HANS/PAR 582/Intake 648.

The project will not affect species not adequately conserved under the MSHCP.

The project contains a total of 55 individual California live oak trees (*Quercus agrifolia*), of which 35 are anticipated to be affected. An oak tree mitigation and monitoring plan will be developed for project effects to California live oak trees.

The project site provides suitable habitat for nesting birds protected under the Migratory Bird Treaty Act (MBTA) and/or Sections 3503–3801 of the California Fish and Game Code. A nesting bird pre-construction survey will be conducted by a qualified biologist three days prior to ground-disturbing activities to avoid potential effects to nesting birds.

2.0 INTRODUCTION

LSA was retained by Highlands at Sycamore Creek to conduct an MSHCP consistency analysis and general biological study for Tract 37154. Tract 37154 is located in Section 13, Township 5 South Range 6 West, in the unincorporated Temescal Canyon area of Riverside County, California as depicted on the United States Geological Survey (USGS) *Alberhill, California* 7.5-minute topographic quadrangle map (Appendix A, Figure 1).

The study was conducted to address compliance with the MSHCP and CEQA. The study included a site visit on January 24, 2018, by LSA biologists Claudia Bauer and Denise Woodard.

2.1 PROJECT AREA

The project area consists of APNs 290-160-011 and 290-160-014, and the larger study area associated with Tract 37154. Other parcels associated with Tract 37154 will be included with APN 290-160-014 as part of a lot line adjustment. The project area has an overall acreage of approximately 36 acres. A study area was created to include Tract 37154 and consists of approximately 10 acres, which is the focus of this study.

2.2 PROJECT DESCRIPTION

The project proposes the development of a residential subdivision (Appendix A, Figure 2) comprising 15 residential lots. The project site or study area is located within the northwesterly corner of the larger project area and consists of approximately 10 acres, which includes the grading limits of Tract 37154. Staging areas will be confined to within the grading limits of the project. No off-site improvements will occur. Off-site access and utility improvements have been completed by adjacent development.

2.3 GENERAL SETTING

The study area is developed with a rural residence and associated infrastructure. A concrete-lined recreational pond, devoid of water, is present on the northeasterly portion of the study area. It is bordered to the north by residential development and to the south, east, and west by undeveloped open space. The site slopes to the northeast and the elevation ranges from approximately 1,400 to 1,475 feet above mean sea level. A drainage feature runs from the southwest to the northeast through project site. It drains into a flood control feature, along the northerly study area boundary, that discharges into a rectangular concrete box culvert structure at Towhee Lane, and then joins the natural flow path toward the northeast. The mapped soils (Appendix A, Figure 3) in the study area are Soboba gravelly loamy sand, 0 to 5 percent slope, and Friant fine sandy loam, 30 to 75 percent slopes (California Soil Resource Lab 2019). Soil observed throughout the site appears to be consistent with this designation.

3.0 RESERVE ASSEMBLY ANALYSIS

3.1 CELL AND CRITERIA ANALYSIS

The MSHCP provides for the assembly of a Conservation Area consisting of Core Areas and Linkages for the conservation of covered species. The Conservation Area is to be assembled from portions of the MSHCP Criteria Area, which consist of quarter-section (i.e., approximately 160-acre) Criteria Cells, each with specific criteria for the species conservation within that cell.

The project site is not within the MSHCP Criteria Area; however, the project is part a Habitat Assessment and Negotiation Strategy (HANS), specifically HANS/PAR 582/Intake 648 (Appendix A, Figure 4). The project will dedicate approximately 27 acres of the southerly portion of APN 290-160-011 for conservation in accordance with HANS/PAR 582/Intake 648.

3.2 PUBLIC QUASI-PUBLIC LANDS ANALYSIS

The project study area is not adjacent to Public/Quasi Public Lands; however, APN 290-160-011 is adjacent to Public/Quasi Public lands on its southern and western borders (Appendix A, Figure 4). The portions of the APN adjacent to Public/Quasi Public lands will be preserved in accordance with HANS/PAR 582/Intake 648. Therefore, the project will not affect Public/Quasi Public lands.

4.0 VEGETATION

The vegetation/land cover on the project site includes developed/disturbed areas, California live oak woodland, individual California live oak (*Quercus agrifolia*), and chamise chaparral. The predominant land cover is developed/disturbed areas and includes rural residential housing, dirt access routes, out-structures, a concrete-lined recreational pond, ornamental trees and shrubs, and ruderal vegetation. The California live oak woodland consists of California live oak, and occurs on the southwesterly potion of the study area. California live oak trees occur as scattered individuals. Chamise chaparral is dominated by chamise (*Adenostoma fasciculatum*) and also occurs in the southwesterly portion of the study area. Table A provides the acreage of each vegetation type as well as project impacts. Appendix A, Figure 5 shows land cover and photograph locations, and site photographs are provided in Figure 6.

Table A: Impacts to Vegetation/Land Cover in the Study Area

Vegetation Community	Total within Study Area (acres)	Impacts (acres)	
		Temporary	Permanent
Developed and Disturbed	7.31	0.24	6.83
California Live Oak Woodland	1.40	0.17	0.55
Individual California Live Oak Trees	0.43	0.01	0.42
Chamise Chaparral	0.89	0.19	0.34
Total	**10.03**	**0.61**	**8.14**

5.0 PROTECTION OF SPECIES ASSOCIATED WITH RIPARIAN/RIVERINE AREAS AND VERNAL POOLS (MSHCP SECTION 6.1.2)

Section 6.1.2 of the MSHCP requires assessment of impacts to riparian habitats, riverine areas, and vernal pools, including focused surveys for sensitive riparian bird and fairy shrimp species when suitable habitat is present. The intent of the assessment requirement is to provide for the protection of resources used by MSHCP-covered species, as well as existing and future downstream conservation areas. Riverine/riparian areas and vernal pools are defined in Section 6.1.2 of the MSHCP as follows:

> *Riparian/Riverine Areas are lands which contain Habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.*
>
> *Vernal pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.*
>
> *Fairy Shrimp. For Riverside, vernal pool and Santa Rosa fairy shrimp, mapping of stock ponds, ephemeral pools and other features shall also be undertaken as determined appropriate by a qualified biologist.*
>
> *With the exception of wetlands created for the purpose of providing wetlands Habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.*

5.1 RIPARIAN/RIVERINE

5.1.1 Methods

The study area was assessed for riparian/riverine areas during a jurisdictional delineation conducted on January 24, 2018, by Claudia Bauer and Denise Woodard. Potential federal and State jurisdictional features and MSHCP Section 6.1.2 Riparian/Riverine areas were assessed. Potential jurisdictional areas were identified in the study area, evaluated on foot, and mapped using aerial photographs and GPS. Areas of potential jurisdiction were evaluated according to the most current

USACE and CDFW regulatory criteria and guidance. The boundaries of the potential jurisdictional areas within the study area were observed in the field and mapped on an aerial photograph (the scale is 1 inch = approximately 150 feet). Any areas supporting plant species that were potentially indicative of wetlands were evaluated according to routine wetland delineation procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators were also noted. The assessment included identification and mapping of plant communities on the site as well as any drainage features. The riparian/riverine areas discussed in this report are based on the CDFW jurisdictional areas as detailed in the project Jurisdictional Delineation Report (Appendix B).

5.1.2 Existing Conditions and Results

Riparian/Riverine

A single drainage feature (Appendix A, Figure 7) runs from the southwest to the northeast through study area. It drains into a flood control feature, at the northerly study area boundary, that discharges to a concrete box culvert structure at Towhee Lane, and then joins the natural flow path toward the northeast. The drainage is ephemeral and vegetated by ruderal vegetation and California live oak woodland and individual California live oak trees. California live oak woodland/trees associated with the drainage feature are considered to be riparian habitat protected under MSHCP Section 6.1.2.

Functions and Values

A qualitative functions and values analysis of the existing drainage feature was conducted as part of the Jurisdictional Delineation. In addition, a Hydrology/Hydraulic Study for Tract 37154 (Adkan Engineers 2019) was prepared.

The following functions were analyzed at low, moderate, or high value levels based on the criteria below and as shown in Table B.

Table B: Functions and Values of the Drainage Feature within the Study Area

Drainage	Hydrologic Regime	Flood Storage and Flood Flow Modification	Sediment Retention	Nutrient Retention and Transformation	Toxicant Trapping	Social Significance	Wildlife Habitat	Aquatic Habitat
Drainage Feature	Low to Moderate	Low to Moderate	Low	Low	Low	Low to Moderate	Low to Moderate	Low

- **Hydrologic Regime.** This function is the ability of a wetland or stream to absorb and store water below ground. The degree of this saturation is dependent on the soil composition and is affected by prior flooding events. For example, clay soils possess more pore space than sandy soils. However, the smaller pore size slows the rate at which water is absorbed and released; therefore, clay soil has a lower capacity to store water than sandy soils. The storage of water belowground allows for the fluctuation between anaerobic and aerobic conditions that benefit environmental conditions necessary for microbial cycling.

- **Flood Storage and Flood Flow Modification.** This function is determined based on the ability of a wetland or stream at which the peak flow in a watershed can be attenuated during major storm events and during peak domestic flows to take in surface water that may otherwise cause flooding. This is dependent on the size of the wetland or stream, the amount of water it can hold, and the location in the watershed. For instance, larger wetlands or streams that have a greater capacity to receive waters have a greater ability to reduce flooding. In addition, areas high in the watershed may have more ability to reduce flooding in downstream areas, but areas lower in the watershed may have greater benefits to a specific area. Vegetation, shape, and the configuration of the wetland or stream may also affect flood storage by dissipating the energy of flows during flood events.
- **Sediment Retention.** Removal of sediment is the process that keeps sediments from migrating downstream. This is accomplished through the natural process of sediment retention and entrapment. This function is dependent on the sediment load being delivered by runoff into the watershed. Similar to the above, the vegetation, shape, and configuration of a wetland will also affect sediment retention if water is detained for long durations, as would be the case with dense vegetation, a bowl-shaped watershed, or slow-moving water. This function would be demonstrated (i.e., high) if the turbidity of the incoming water is greater than that of the outgoing water.
- **Nutrient Retention and Transformation.** Nutrient cycling consists of two variables: uptake of nutrients by plants and detritus turnover, in which nutrients are released for uptake by plants downstream. Wetland systems in general are much more productive with regard to nutrients than upland habitats. The regular availability of water associated with the wetland or stream may cause the growth of plants (nutrient uptake) and associated detritivores and generate nutrients that may be used by a variety of aquatic and terrestrial wildlife downstream.
- **Toxicant Trapping.** The major processes by which wetlands remove nutrients and toxicants are as follows: (1) by trapping sediments rich in nutrients and toxicants, (2) by absorption to soils high in clay content or organic matter, and (3) through nitrification and denitrification in alternating oxic and anoxic conditions. Removal of nutrients and toxicants is closely tied to the processes that provide for sediment removal.
- **Social Significance.** This is a measure of the probability that a wetland or stream will be used by the public because of its natural features, economic value, official status, and/or location. This includes its being used by the public for recreational uses (e.g., boating, fishing, birding, and walking) and other passive recreational activities. A wetland or stream that is used as an outdoor classroom, is a location for scientific study, or is near a nature center would have a higher social significance standing.
- **Wildlife Habitat.** General habitat suitability is the ability of a wetland to provide habitat for a wide range of wildlife. Vegetation is a large component of wildlife habitat. As plant community diversity increases along with connectivity with other habitats, so does potential wildlife diversity. In addition, a variety of open water, intermittent ponding, and perennial ponding is also an important habitat element for wildlife.
- **Aquatic Habitat.** The ability of a wetland or stream to support aquatic species requires that there be ample food supply, pool and riffle complexes, and sufficient soil substrate. Food supply

is typically in the form of aquatic invertebrates and detrital matter from nearby vegetation. Pool and riffle complexes provide a variety of habitats for species diversity as well as habitat for breeding and rearing activities. Species diversity is directly related to the complexity of the habitat structure.

The Hydrology/Hydraulic Study (Adkan 2019) was prepared to ensure storm water infrastructure is adequately sized for an anticipated 10- and 100-year storm events, including streets, catch basins, storm drains, and drainage ditches.

Based on the functions and values analysis, the drainage feature has low and, in some cases, low to moderate functions and values. This is because the drainage conveys ephemeral flows, supports limited riparian vegetation, and does not support wetlands vegetation. With the development of the project site with appropriate storm water infrastructure, and through implementation of avoidance, minimization, and mitigation measures described below, these functions and values will not be substantially affected.

5.1.3 Impacts

The drainage feature is considered to be an MSHCP Section 6.1.2 riverine resource. The drainage feature will be entirely developed within the project footprint. The total riparian/riverine resources in the study area are 0.29 acre, and the total riverine resources in the study area are 0.40 acre. The project effects are provided in Table C and shown in Appendix A, Figure 7.

Table C: Effects to Riparian/Riverine Resources

Riparian/Riverine (acres)		Riverine (acres)	
Permanent	**Temporary**	**Permanent**	**Temporary**
0.20	0.03	0.38	0.01

For project impacts to riverine resources, the following avoidance and minimization measures will be incorporated:

- Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed along the boundaries of the project footprint. All construction equipment should be operated in a manner to prevent accidental damage to areas outside the project footprint. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the project boundary to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities.
- All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive upland habitat areas. The designated upland areas will be located in such a manner as to prevent any spill runoff from riverine areas.
- A weed abatement program will be developed to minimize the importation of nonnative plant material during and after construction. Eradication strategies would be employed should an invasion occur.

- A biologist will monitor construction for the duration of the project construction to ensure that vegetation removal, best management practices (BMPs), and all avoidance and minimization measures are properly constructed and followed.
- Riverine areas temporarily affected by the project will be recontoured to their original grades.

5.1.4 Mitigation

Because the project cannot avoid impacts to riverine areas, a Determination of Biologically Superior or Equivalent Preservation (DBESP) analysis has been prepared (LSA 2019). According to the DBESP, to compensate for the permanent loss of 0.20 acre riparian/riverine resources and 0.03 acre of streambed resources, the project will mitigate for permanent impacts at a 3:1 ratio. Compensation for permanent impacts will include one or a combination of the following: off-site habitat enhancement/preservation, off-site participation in an in-lieu fee program for habitat restoration (reestablishment/rehabilitation), and/or purchase of credits from a mitigation bank for habitat restoration (reestablishment/rehabilitation).

5.2 VERNAL POOLS

5.2.1 Methods

The study area was assessed for vernal pools at the time of the January 24, 2018, site visit. The assessment included a search for depressions, indicators of wetland hydrology, suitable soils, and hydrophytic vegetation. The assessment also included a review of seasonally appropriate aerial photographs (Google Earth: 12/2003, 12/2005, 1/2006, 3/2011, 1/2013, 3/2013, 4/2014. 2/2016, and 2/2018).

5.2.2 Existing Conditions and Results

The concrete-lined recreational pond contained standing water at the time of the field survey as a result of recent winter rains. The recreational pond does not qualify as a vernal pool because it is artificially created, concrete-lined, and contains no vegetation or soils. No other ponded areas or features resembling vernal pools were observed during the site visit, nor were any seen in aerial photographs. The soils mapped and observed within the project area are loamy sand and sandy loam, which are unlikely to support ponding sufficient for vernal pool formation. Therefore, no vernal pools will be affected by the project.

5.3 FAIRY SHRIMP

5.3.1 Methods

The study area was assessed for fairy shrimp habitat at the same time and using the same methods as the assessment for vernal pools. The MSHCP calls for habitat assessments for three sensitive species of fairy shrimp: Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), Riverside fairy shrimp (*Streptocephalus woottoni*), and vernal pool fairy shrimp (*Branchinecta lynchi*). Santa Rosa Plateau fairy shrimp occurs only on the Santa Rosa Plateau of extreme southwest Riverside County. A fourth sensitive species of Southern California, San Diego fairy shrimp (*Branchinecta sandiegonensis*) is found primarily in coastal areas of Orange and San Diego Counties. It has been found as far inland as the Wildomar area of southwest Riverside County, but is not expected in the

project area. These sensitive fairy shrimp species inhabit vernal pools as well as stock ponds, large road ruts, or other similar habitats that pond water long enough to allow growth and reproduction. To provide fairy shrimp habitat, a feature must regularly pond water for at least 18 days for vernal pool fairy shrimp (Eriksen and Belk 1999) and two months for Riverside fairy shrimp (USFWS 2012).

5.3.2 Existing Conditions and Results

As noted above, there are no vernal pools on the project site. The concrete-lined recreational pond does not contain soils and therefore would not support fairy shrimp. Given the loamy sand and sandy loam soils, and that no inundation on the site was seen in seasonally appropriate aerial photographs, the loamy soils are unlikely to support ponding for long enough to provide suitable habitat conditions. Therefore, the site does not have habitat suitable for sensitive fairy shrimp species and no fairy shrimp will be affected by the project.

5.4 RIPARIAN BIRDS

5.4.1 Methods

Habitat suitability for riparian birds, including least Bell's vireo (LBVI; *Vireo bellii pusillus*), southwestern willow flycatcher (SWFL; *Empidonax traillii extimus*), and yellow-billed cuckoo (YBCU; *Coccyzus americanus*) was assessed in conjunction with the assessment for riverine/riparian areas.

5.4.2 Existing Conditions and Results

The California live oak trees/woodland and ruderal vegetation associated with the drainage feature is considered to be riparian habitat, but it does not provide suitable habitat for special-status riparian bird species protected under MSHCP Section 6.1.2, including least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo. These species generally require riparian forest habitat composed of willow and cottonwood species with a dense understory. The California live oak trees/ woodland does not contain willow or cottonwoods and has an understory of mainly non-native ruderal plant species. Therefore, California live oak trees/woodland is considered unsuitable habitat, and the project will have no effect to these riparian bird species.

6.0 PROTECTION OF NARROW ENDEMIC PLANT SPECIES (MSHCP SECTION 6.1.3)

Section 6.1.3 of the MSHCP requires focused surveys for specified sensitive plant species if the project is located within a Narrow Endemic Plant Species Area (NEPSSA) and suitable habitat is present. The project is located within NEPSSA 1, which indicates the need for habitat assessment for the following plant species:

- Munz's onion (*Allium munzii*);
- San Diego ambrosia (*Ambrosia pumila*);
- Slender-horned spineflower (*Dodecahema leptoceras*);
- Many-stemmed dudleya (*Dudleya multicaulis*);
- Spreading navarretia (*Navarretia fossalis*);
- California Orcutt grass (*Orcuttia californica*);
- San Miguel savory (*Satureja chandleri*);
- Hammitt's clay-cress (*Sibaropsis hammittii*); and
- San Miguel savory (*Satureja chandleri*).

6.1 METHODS

A focused plant survey for NEPSSA species was conducted during the 2018 blooming season by LSA botanist Stan Spencer. The first visit was conducted on April 25 from 10:45 a.m. to 12:30 p.m., and the second was conducted on June 6 from 3:00 to 4:00 p.m. The survey was conducted on foot and consisted of walking 10- to 30-foot transects throughout all areas of potentially suitable habitat within the project disturbance areas. All plant species observed during the survey were noted. Total and average seasonal precipitation values were taken from weathercurrents.com. Total season precipitation for the 2017–2018 wet season in the Lake Elsinore area was 4.91 inches, compared to an average season value of 10.60 inches.

6.2 EXISTING CONDITIONS AND RESULTS

Habitat requirements for each species are described in Table D, along with an assessment of habitat and the likelihood that the species is present on the site.

Table D: NEPSSA and CASSA Plant Survey Species Occurrence Probability

Species	MSHCP Habitat	Growth Form & Blooming Period	Occurrence Probability
Munz's onion *Allium munzii*	Clay soils on mesic exposures or seasonally moist microsites in grassy openings of coastal sage scrub, chaparral, juniper woodland or valley, and foothill grassland. The MSHCP account for this species states that "Munz's	Perennial bulb April–May	Absent. No clay soils.

Table D: NEPSSA and CASSA Plant Survey Species Occurrence Probability

Species	MSHCP Habitat	Growth Form & Blooming Period	Occurrence Probability
	onion is found on clay and cobbly clay soils which include the following series: Altamont, Auld, Bosanko, Claypit, and Porterville." The account also mentions that "one population (Bachelor Mountain) is reported to be associated with pyroxenite outcrops instead of clay." However, weathering of pyroxenite generally results in a clay soil. It is therefore expected that any Munz's onion population associated with pyroxenite outcrops would be in clay soils.		
San Diego ambrosia *Ambrosia pumila*	Open floodplain terraces on Garretson gravelly fine sandy loams, or in the watershed margins of vernal pools or alkali playas on Las Posas loam in close proximity to Willow silty alkaline soils. Occurs in sparse annual vegetation.	Perennial Generally non-flowering	Absent. No appropriate soils or vernal pools or alkali areas.
Slender-horned spineflower *Dodecahema leptoceras*	Sandy soils in association with mature alluvial scrub (Riversidean alluvial fan sage scrub); or gravel soils of Temecula arkose deposits (i.e., coarse, decomposing arkose) in association with open chamise chaparral in the Vail Lake area. The ideal habitat appears to be terraces and benches that receive overbank deposits every 50–100 years. The MSHCP account for this species states that "this species is dependent on mature alluvial scrub that is maintained by periodic flooding and sediment transport and only occurs along Arroyo Seco and Kolb Creeks, Temescal Wash at Indian Creek, central Bautista Creek, Vail Lake and the upper San Jacinto River near Valle Vista and Hemet … Cryptogamic crusts are frequently present in areas occupied by slender-horned spine flower."	Annual April–June	Absent. No mature alluvial scrub present.
Spreading navarretia *Navarretia fossalis*	Saline alkaline soils of vernal pools and depressions and ditches in areas that once supported vernal pools. The MSHCP account for this species states that it "is primarily restricted to the alkali floodplains of the San Jacinto River, Mystic Lake and Salt Creek in association with Willows, Domino and Traver soils" and that "in western Riverside County, spreading navarretia has been found in relatively undisturbed and moderately disturbed vernal pools, within a larger vernal floodplains dominated by annual alkali grassland or alkali playa."	Annual May–June	Absent. No alkali areas.
California Orcutt grass *Orcuttia californica*	Alkaline soils and southern basaltic claypan in vernal pools. The MSHCP account for this species states that, in Riverside County, it "is found in southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkaline vernal pools as at Skunk Hollow and at Salt Creek west of Hemet."	Annual April–June	Absent. No alkali areas.

Table D: NEPSSA and CASSA Plant Survey Species Occurrence Probability

Species	MSHCP Habitat	Growth Form & Blooming Period	Occurrence Probability
San Miguel savory *Satureja chandleri*	Rocky, gabbroic and metavolcanic substrates in chaparral or oak woodland. MSHCP Table 6-1 lists chaparral, coastal sage scrub, cismontane woodland, riparian woodland, and valley and foothill grasslands as potential habitat for this species. However, this species prefers moist rocky canyons with trees or large shrubs and would not be expected in coastal sage scrub or open grassland except at the margins of chaparral or oak woodland, nor would it be expected in woodlands outside of rocky canyons (Andrew C. Sanders, UC Riverside Herbarium, pers. comm. to Stan Spencer, December 8, 2004, and March 9, 2005). All occurrences of this species in the California Natural Diversity Data Base that include habitat information (16 occurrences in Riverside, Orange, and San Diego Counties) list coast live oak (*Quercus agrifolia*) or chaparral species as associates, or indicate that the habitat is chaparral, oak woodland, a chaparral-coastal sage scrub interface, or grassy openings in chaparral. In Riverside County, this species is known only from the Santa Ana Mountains and Santa Rosa Plateau, except for a dubious record of an occurrence near Sage Road south of Hemet (Andrew C. Sanders, UC Riverside Herbarium, pers. comm. to Stan Spencer, Mar. 10, 2005; MSHCP species account for San Miguel savory).	Perennial March–May	Absent. Site too dry; species not observed during plant surveys.
Hammitt's clay-cress *Sibaropsis hammittii*	Clay soils in chaparral and valley and foothill grassland habitats at 700 to 1,100 meters (2,300–3,600 feet) elevation. The MSHCP account for this species states that "Hammitt's clay-cress is associated with clay soils, such as Altamont, Auld, Bosanko, Claypit, and Porterville soil series" and that, in western Riverside County "Hammitt's clay-cress is only known from the Elsinore Peak area of the Santa Ana Mountains in grasslands."	Annual March–April	Absent. No clay soils; outside elevational range of species.
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	Alkali soils in alkali playa, alkali annual grassland, and alkali vernal pools. The MSHCP account for this species states that "Wright's trichocoronis is restricted to highly alkaline, silty-clay soils in association with Traver, Domino, and Willows soils..."	Annual May–September	Absent. No alkali areas.

As noted in Table D, suitable habitat does not exist on the site for any of these species; therefore, the project will have no effects to NEPSSA plant species. A list of plant and animal species observed is provided as Appendix C.

7.0 ADDITIONAL SURVEY NEEDS AND PROCEDURES (MSHCP SECTION 6.3.2)

MSHCP Section 6.3.2 requires surveys for additional plants, amphibians, small mammals, and burrowing owl for projects located within mapped survey areas.

7.1 CRITERIA AREA PLANT SPECIES

The project is not within a mapped survey area for Criteria Area Species Survey Area (CASSA) plant species.

7.2 AMPHIBIANS

The project is not within a mapped survey area for amphibian species.

7.3 BURROWING OWL

The project site is not within the mapped survey area for burrowing owl.

7.4 MAMMALS

The project is not within a mapped survey area for mammals.

8.0 INFORMATION ON OTHER SPECIES

8.1 DELHI SANDS FLOWER-LOVING FLY

The MSHCP requires surveys for Delhi sands flower-loving fly in most areas of mapped Delhi series soils where suitable habitat exists (MSHCP Section 9).

The project site is not within an area of mapped Delhi soils and soil observed throughout the site is sandy loam and loamy sand, which is inconsistent with Delhi soils; therefore, no survey or additional analysis is required for this species.

8.2 SPECIES NOT ADEQUATELY CONSERVED

Some species that will eventually have full coverage under the MSHCP are not considered adequately conserved until requirements of MSHCP Table 9-3 are met. In addition, there are other special-status species with limited coverage or with no take authorization under the MSHCP.

8.2.1 Methods

Database records for the *Alberhill, California* USGS 7.5-minute series quadrangle and surrounding quadrangles were searched on April 2, 2019, using the CDFW California Natural Diversity Data Base *Rarefind 5* online application (https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data) for occurrence of special-status species not adequately conserved under the MSHCP known from the study area and vicinity.

8.2.2 Existing Results

One MSHCP Table 9 species, Coulter's Matilija poppy (*Romneya coulteri*), was observed within the study area during the NEPSSA plant survey. In addition, based on review of the CNDDB database, one MSHCP Table 9-3 species, Parry's spineflower (*Chorizanthe parryi var. parryi*), is known to occur within a one-mile radius of the study area, but was not found during the NEPSSA plant survey. These species have been determined to meet Table 9-3 criteria and are currently considered adequately conserved under the MSHCP. In addition, no other special-status species with limited coverage or with no take authorization under the MSHCP were found. Therefore, no effects Table 9-3 species, or other special-status species with limited coverage or with no take authorization under the MSHCP, are anticipated to occur.

9.0 GUIDELINES PERTAINING TO THE URBAN/WILDLANDS INTERFACE (MSHCP SECTION 6.1.4)

To preserve the integrity of areas described as existing or future MSHCP Conservation Areas, the guidelines contained in Section 6.1.4 (Urban Wildlands Interface Guidelines) are to be implemented for projects that are adjacent to either existing conservation or land described for conservation in the MSHCP Criteria Area.

The project site is adjacent to conserved lands associated with HANS/PAR 582/Intake 648. Therefore, the following Urban Wildlands Interface Guidelines will be incorporated as appropriate:

- **Drainage.** Proposed developments in proximity to the MSHCP Conservation Area shall incorporate measures, including those required through the National Pollutant Discharge Elimination System (NPDES) requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area. Storm water improvements shall be designed to prevent or reduce the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area.
- **Toxics.** Land uses in proximity to the MSHCP Conservation Area that are potentially toxic or may adversely affect wildlife species, habitat, and water quality include the use of chemicals and fertilizers for agricultural and commercial and residential uses, and petroleum product runoff from paved surfaces. These potential toxicants are not anticipated to be substantially increased by the proposed project. As discussed above, any storm water improvements will be designed to prevent or reduce toxic loads.
- **Lighting.** Night lighting shall be directed away from the MSHCP Conservation Area to protect species within the Conservation Area from direct night lighting. Shielding shall be incorporated in project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased.
- **Noise.** Proposed noise-generating activities and land uses potentially affecting the MSHCP Conservation Area shall be minimized by incorporating setbacks, berms, walls, or other noise reduction methods per applicable guidelines related to residential noise standards.
- **Invasive Species.** Any proposed landscaping adjacent to the MSHCP Conservation Area shall not be composed of invasive, nonnative plants listed in Table 6-2 of the MSHCP.
- **Barriers.** The project will incorporate barriers along the edges of the project site to minimize undirected public access, illegal trespass, off-road vehicle traffic, domestic animal predation, and dumping in the MSHCP Conservation Area. Boundary barriers may include rocks/boulders, fencing, and walls with Western Riverside County Regional Conservation Authority (RCA) Wildlife Area signage.
- **Grading/Land Development.** Manufactured slopes shall not extend across the parcel line of the MSHCP Conservation Area. All land disturbances associated with construction and operation of

the project, including fire management/fuel modification, will be wholly contained within the proposed project parcel boundary.

10.0 POTENTIAL JURISDICTIONAL WATERS AND STREAMBEDS

The drainage feature within the study area is a potential jurisdictional water subject to the regulatory authority of the CDFW, USACE, and the RWQCB.

10.1 METHODS

Claudia Bauer and Denise Woodard conducted the fieldwork for a jurisdictional delineation on January 24, 2018. Potential federal and State jurisdictional features, and MSHCP Section 6.1.2 Riparian/Riverine Areas were identified in the study area, evaluated on foot, and mapped using aerial photographs and GPS. Areas of potential jurisdiction were evaluated according to the most current USACE and CDFW regulatory criteria and guidance as of the date of this report. The boundaries of the potential jurisdictional areas within the study area were observed in the field and mapped on an aerial photograph (the scale is 1 inch = approximately 150 feet). Any areas supporting plant species that were potentially indicative of wetlands were evaluated according to routine wetland delineation procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators were also noted.

10.2 EXISTING CONDITIONS AND RESULTS

A single drainage feature (Appendix A, Figure 7) runs from the southwest to the northeast through study area. It drains into a flood control feature, at the northerly study area boundary, that discharges to a concrete box culvert structure at Towhee Lane, and then joins the natural flow path toward the northeast. The drainage is ephemeral and vegetated by ruderal vegetation and California live oak woodland and individual California live oak trees.

The study area has 0.29 acre of riparian streambed and 0.40 acre of streambed subject to the regulatory authority of CDFW under Section 1602 of the California Fish and Game Code, 0.15 acre of non-wetland waters subject to the regulatory of the USACE under Section 404 of the CWA and the RWQCB under Section 401 of the CWA.

10.3 IMPACTS

Project effects to potential jurisdictional waters are provided in Table E and are shown in Appendix A, Figure 7.

Table E: Effects to Potential Jurisdictional Waters

USACE Non-Wetland Waters (acres)		CDFW (acres)			
		Riparian Streambed		Streambed	
Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
0.13	0.01	0.20	0.03	0.38	0.01

10.4 MITIGATION

Mitigation is anticipated to be required by the USACE, CDFW and the RWQCB to offset the loss of jurisdictional waters and is anticipated to be consistent with that identified in the DBESP. The final determination of what is jurisdictional, what permits will be required, and whether mitigation will be required for such effects ultimately is subject to the discretion of the agencies (i.e., USACE, CDFW, and RWQCB) during the federal and State regulatory processes.

11.0 CALIFORNIA LIVE OAK TREES

The study area contains California live oak trees that are subject to the Riverside County Oak Tree Management Guidelines (approved by the County Board of Supervisors on March 2, 1993). An oak tree assessment (LSA June 2018) was conducted within the study area and is detailed below.

11.1 METHODS

LSA biologists (including an International Society of Arboriculture [ISA] Certified Arborist) inventoried the oak trees and mapped their locations on an aerial photograph. LSA biologist Leo Simone (ISA Certified Arborist No. WE-8491A) led the survey, assisted by LSA biologist Leeann McDougall. The field surveys took place on August 15, 18, and 28, 2017, September 8–9, 2017, and May 25, 2018. Oak woodlands were only mapped when multiple California live oaks were grouped together and had a contiguous closed canopy. Where accessible, trees were measured to determine diameter at breast height (DBH) and tagged with a unique numeric identification (e.g., 3298) inscribed on an aluminum tag. The DBH was estimated if a tree was not fully accessible due to hazardous conditions (e.g., poison oak [*Toxicodendron diversilobum*] or perilously steep terrain), or if it was outside of the project limits. Tree heights and canopy spreads were estimated and general characteristics (e.g., fire damage, broken branches, significant decay, and bee hives) were noted on the field survey forms. Trees with a DBH of less than 2 inches, unless accompanied by another main stem to have a combined DBH of 2 inches or more, were not considered. Each tree was given a rating of good, fair, or poor based on its overall health. Trees rated as good were considered in good health and had no significant issues. Trees rated as fair were considered in moderate health and may have had some issues (e.g., decay, existing fire damage, and/or codominant trunks). Trees rated as poor were considered in poor health and may have had issues such as severe decay or significant beetle damage. Tree characteristics can be used at the time of impact evaluation to determine the baseline condition of the tree compared to its post-construction condition, thus providing context regarding the severity of impacts.

11.2 RESULTS AND IMPACTS

The study area contains a total of 55 individual California live oak trees. At this time, it is estimated, the project will affect approximately 35 California like oak trees within the project footprint.

11.3 MITIGATION

To mitigate for project effects to California live oak trees, an oak tree mitigation and monitoring plan will be developed for project effects to California live oak trees. The project will mitigate for impacts to California live oak trees through one of the following:

- On-site replacement of California live oak trees at a 10:1 replacement ratio. Prior to project construction, a detailed oak tree restoration plan will be prepared and include site preparation methods, number of oak trees to be planted, installation methods, performance standards, maintenance and monitoring success criteria, and reporting measures.
- Off-site purchase of oak tree restoration credits from an approved mitigation bank or habitat conservation organization.

- A combination of on-site and off-site oak tree replacement/restoration.

12.0 NESTING BIRDS

During the bird breeding season (typically February 1 through August 31), large trees on or adjacent to the project site may be used by hawks, ravens, or other large birds for nesting. Trees, shrubs, and other vegetation may provide nest sites for smaller birds, and burrowing owls may nest in ground squirrel burrows, pipes, or similar features. Most birds and their active nests are protected from "take" (meaning destruction, pursuit, possession, etc.) under the Migratory Bird Treaty Act and/or Sections 3503–3801 of California Fish and Game Code. Activities that cause destruction of active nests, or that cause nest abandonment and subsequent death of eggs or young, may constitute violations of one or both of these laws.

To avoid potential effects to fully protected raptors, special-status bird species, and other nesting birds protected by the California Fish and Game Code, and for compliance with MSHCP Incidental Take Permit Condition 5, the following measures will be implemented:

- A nesting bird pre-construction survey will be conducted by a qualified biologist three days prior to ground-disturbing activities. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the qualified biologist and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active. Nesting bird habitat within the BSA will be resurveyed during bird breeding season if there is a lapse in construction activities longer than seven days.

13.0 REFERENCES

Adkan Engineers. 2019. Hydrology/Hydrolic Study for Kiley Family Trust, Tract 37154, Located in Riverside County.

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Eriksen, C., and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas.* Mad River Press, Inc., Eureka, California.

LSA. June 2018. Oak Tree Assessment, Kiley Properties Development Project, Riverside County, California.

LSA. 2019. Determination of Biologically Equivalent or Superior Preservation, Kiley Family Trust, Tract 37154, Riverside County, California.

U.S. Fish and Wildlife Service (USFWS). 2012. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. Federal Register 77: 72070-72140 (December 4, 2012).

United States Geological Survey (USGS). 1988. *Alberhill, California* 7.5-minute topographic quadrangle map.

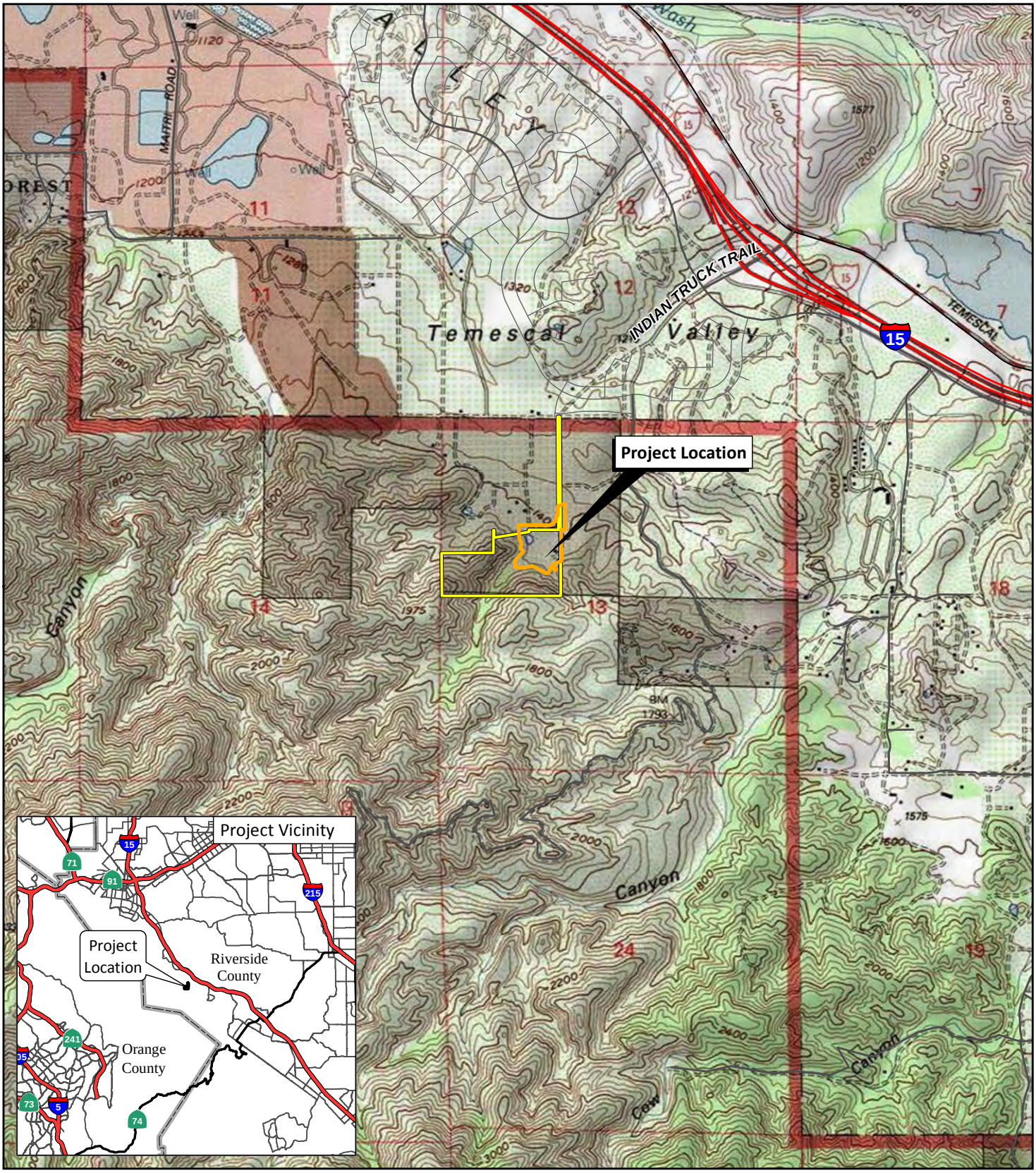
14.0 CERTIFICATION STATEMENT

I hereby certify that the statements furnished in this report present the data and information required for this biological evaluation and the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: May 8, 2019 Signature: 

APPENDIX A

FIGURES



LSA

FIGURE 1

LEGEND

Parcel Boundary (290-160-011)

Study Area

N

0 1000 2000

FEET

Kiley Properties - TR 37154

Regional and Project Location

SOURCE: USGS 7.5' Quads: Alberhill & Lake Mathews, 1988, CA; Riverside County, 2017.

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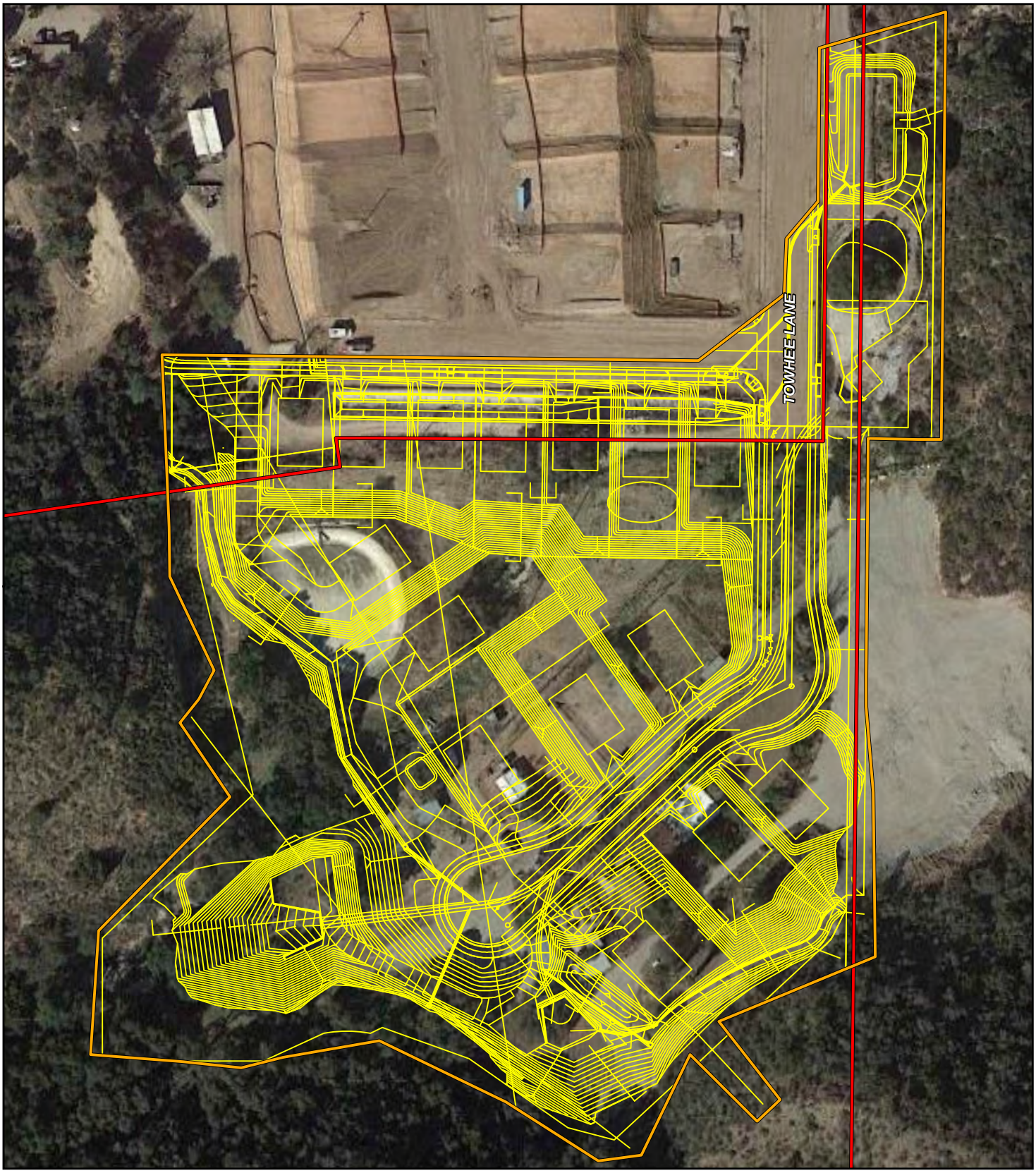

LSA

Project Boundary
Study Area
Site Plan

FIGURE 2

N

0 60 120
FEET

Kiley Properties - TR 37154

Site Plan

SOURCE: Google (2018); Soil Data Mart (2017).

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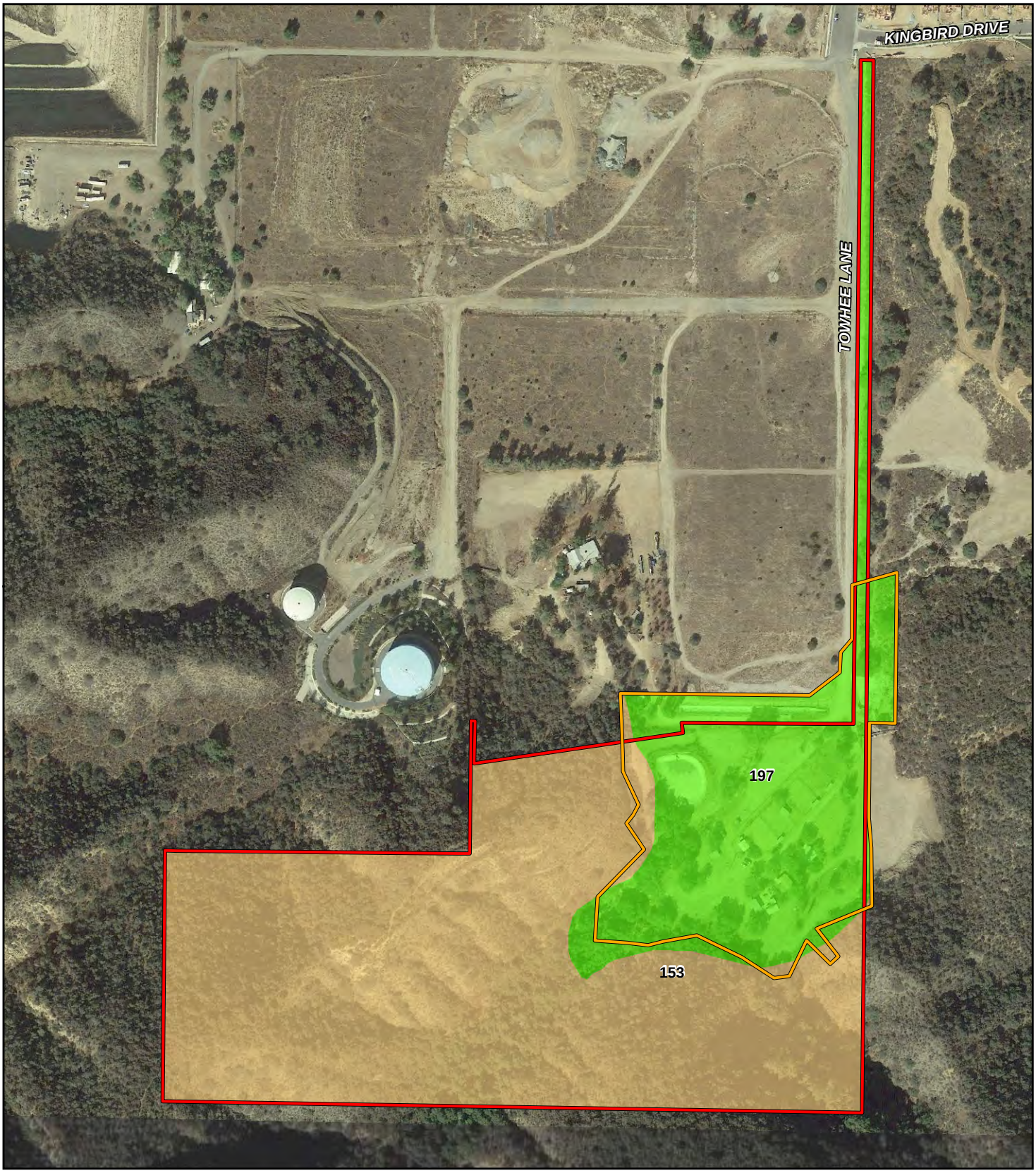

LSA

FIGURE 3

LEGEND

Parcel Boundary (290-160-011)

Study Area

Soil Types

Friant Fine Sandy Loam, 30-75% Slopes

Soboba Gravelly Loamy Sand, 0-5% Slopes

N

0 170 340

FEET

Kiley Properties - TR 37154

Soil Types

SOURCE: Google Earth, 2016; Soil Data Mart, 2017.

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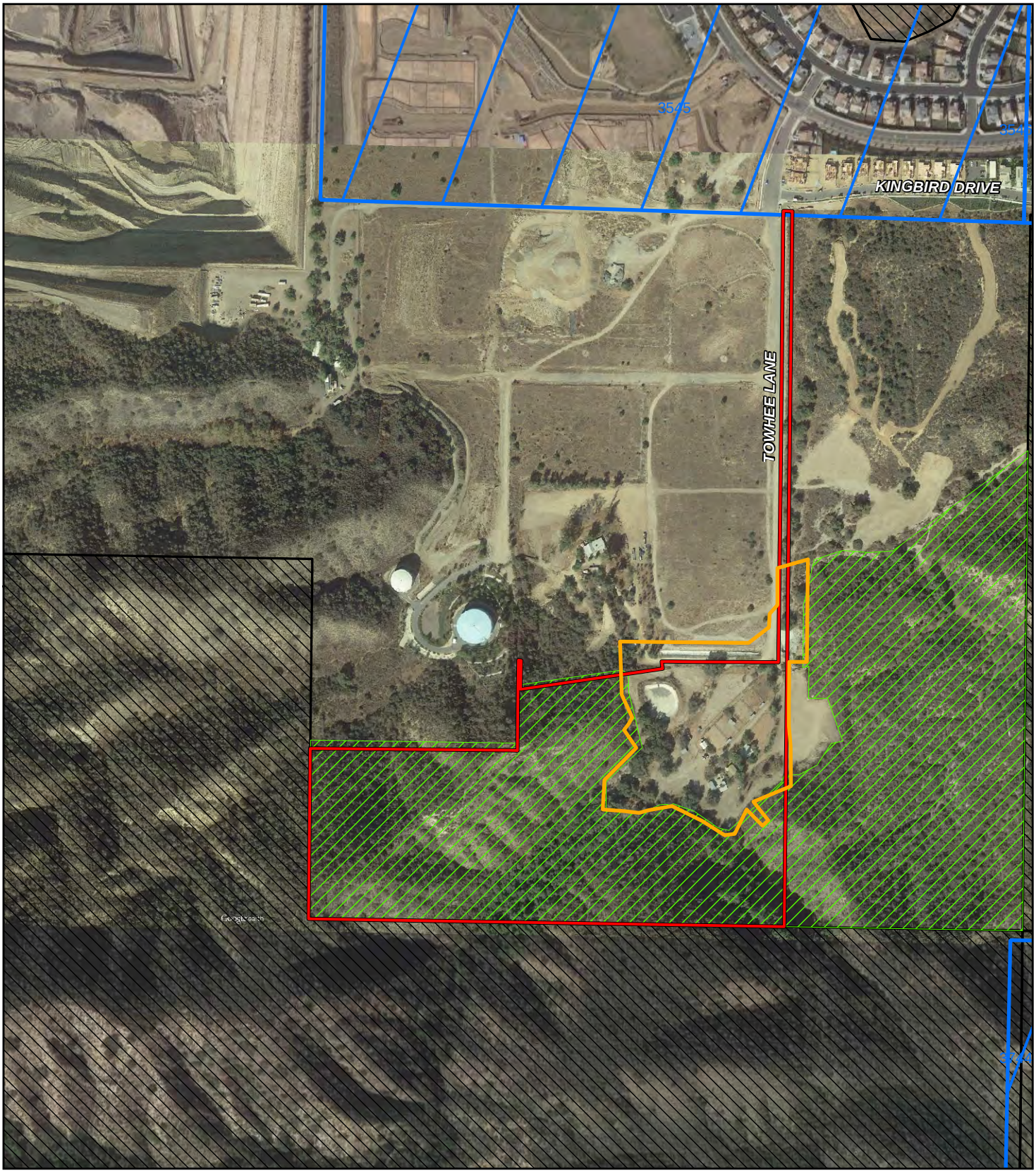

LSA

Parcel Boundary (290-160-011)
Study Area
HANS-PAR582 - Intake 648 Area
CriteriaCells
Public/Quasi Public Lands

N

0 250 500
FEET

FIGURE 4

Kiley Properties - TR 37154

Reserve Assembly

SOURCE: Google Earth, 2016; Riverside MSHCP, 2005

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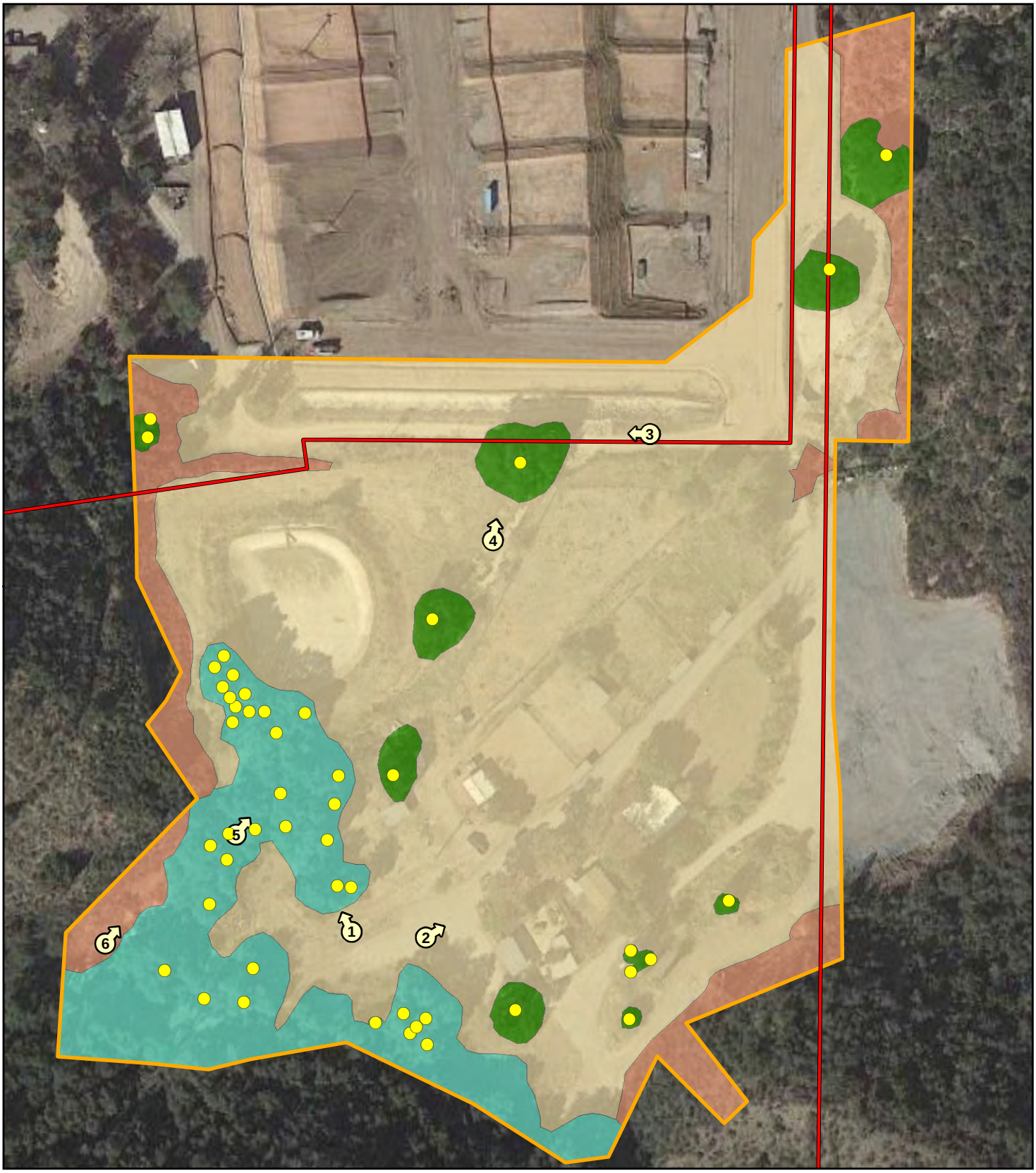

LSA

Parcel Boundary (290-160-011)

Study Area (10.03 ac)

Photo Location

California Live Oak Trees (Trunk Location)

Land Cover

California Live Oak Trees (0.43 ac)

California Live Oak Woodland (1.40 ac)

Developed/Disturbed (7.31 ac)

Chamise Chaparral (0.89 ac)

N

0 60 120

FEET

FIGURE 5

Kiley Properties - TR 37154

Land Cover and Photo Locations

SOURCE: Google (2018); Soil Data Mart (2017).

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Photograph 1:
View facing north of a California live oak woodland.

Photograph 2:
View facing northeast of rural residence surrounded by ornamental vegetation. California live oak tree visible on the right.

Photograph 3:
View facing west where the drainage feature crosses the access road and discharges into the flood control channel along the northerly project boundary.

LSA

FIGURE 6

Kiley Properties - TR 37154
Site Photographs

Photograph 4:
View facing north of drainage feature.

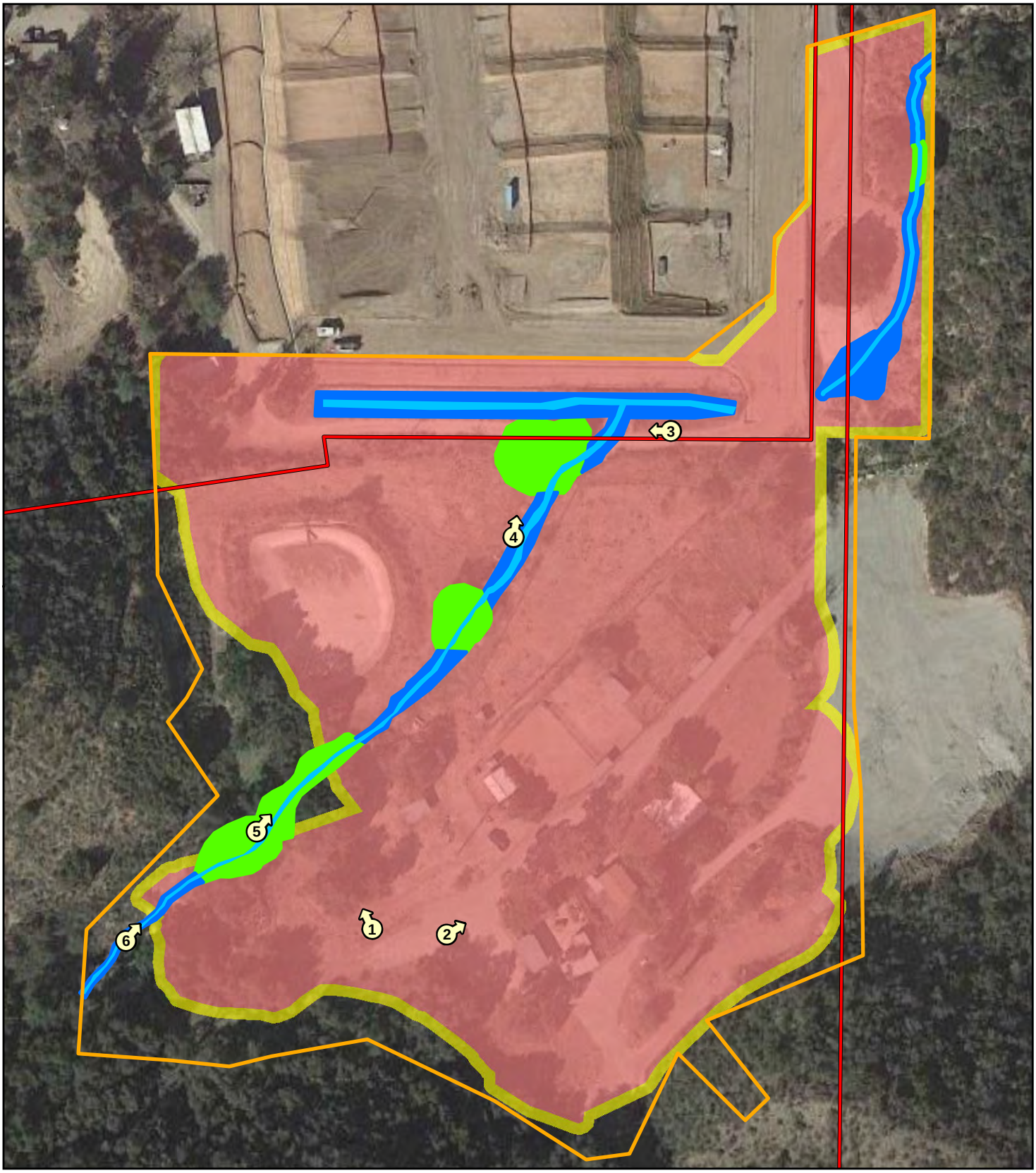
Photograph 5:
View facing northeast showing drainage feature within California live oak woodland.

Photograph 6:
View facing northeast along drainage where the California live oak woodland abuts chamise chaparral vegetation.

LSA

FIGURE 6

Kiley Properties - TR 37154
Site Photographs



LSA

Parcel Boundary (290-160-011)

Study Area

Riparian Riverine/Jurisdictional Areas

USACE Non-Wetland Waters (0.15 ac)

CDFW Riparian Streambed, MSHCP Riparian/Riverine (0.29 ac)

CDFW Streambed, MSHCP Riverine (0.40 ac)

Impacts

Permanent (USACE = 0.13 ac, CDFW Riparian Streambed = 0.20 ac, CDFW Streambed = 0.38 ac)

Temporary (USACE = 0.01 ac, CDFW Riparian Streambed = 0.03 ac, CDFW Streambed = 0.01 ac)

Photo Location

N

0 60 120

FEET

FIGURE 7

Kiley Properties - TR 37154

Riparian/Riverine Resources, Potential Jurisdictional Waters and Impacts

SOURCE: Google (2018); Soil Data Mart (2017).

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APPENDIX B

JURISDICTIONAL DELINEATION

JURISDICTIONAL DELINEATION REPORT

KILEY PROPERTIES – TRACT 37154

RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

Highlands at Sycamore Creek
4338 Plazzo Lane
Corona, California 92883

Prepared by:

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. HSC1801

LSA

May 2019

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TABLES

APPENDICES

INTRODUCTION

LSA was retained by Highlands at Sycamore Creek to conduct a jurisdictional delineation for Tract 37154 (Assessor's Parcel Numbers [APNs] 290-160-011 and 290-160-014). Other parcels associated with Tract 37154 will be included with APN 290-160-014 as part of a lot line adjustment. The project area has an overall acreage of approximately 36 acres. The project study area includes Tract 37154 and consists of approximately 10 acres, which is the focus of this delineation.

Tract 37154 is located west of Interstate 15 and south of Santiago Canyon Road at the southern terminus of Towhee Lane in an unincorporated part of Riverside County, California. Specifically, it is located in Section 13, Township 5 South, Range 6 West as depicted on the United States Geological Survey (USGS) *Alberhill, California* 7.5-minute topographic quadrangle map (Appendix A, Figure 1).

The proposed project involves development of a 15-lot residential subdivision (Appendix A, Figure 2).

SITE DESCRIPTION

The study area for Tract 37154 is primarily developed with existing residences and associated infrastructure, ornamental landscaping, and ruderal vegetation. It is bordered to the north by residential development and to the south, east, and west by undeveloped open space. The topography of the study area slopes to the northeast and the elevation ranges from approximately 1,400 to 1,475 feet above mean sea level. Vegetation present consists of California live oak woodland, individual California live oak (*Quercus agrifolia*) trees and chamise chaparral. A drainage feature runs from the southwest to the northeast through project site. It drains into a flood control feature, along the northerly study area boundary, that discharges into a rectangular concrete box culvert structure at Towhee Lane, and then joins the natural flow path toward the northeast.

The climate is classified as Hot–Summer Mediterranean (i.e., an arid climate with hot, dry summers and moderately mild, wet winters). The average annual precipitation is approximately 11 inches. Although most of the precipitation occurs from November through May, thunderstorms may occur at other times of the year and can cause extremely high precipitation rates. Over the course of a year, temperatures typically range between 52 and 83 degrees Fahrenheit. Average seasonal precipitation and weather values were taken from weathercurrents.com (WeatherCurrents 2019).

The study area is located within the Santa Ana River Watershed, which is defined by the San Gabriel Mountains to the north, the San Bernardino National Forest to the northeast, the San Jacinto Mountains to the southeast, and the Santa Ana Mountains to the west. The tributaries within this watershed, including the subject drainage feature, collectively drain into the Santa Ana River and ultimately flow into the Pacific Ocean, a navigable water of the United States.

REGULATORY BACKGROUND

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States (WOTUS). These waters include wetland and nonwetland bodies of

water that meet specific criteria. The USACE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters [TNWs] used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations). For several decades, the operable definition of waters of the United States was provided at 33 Code of Federal Regulations (CFR) 328.3, but implementation of this definition has been shaped by the courts and subsequent guidance over the years, most substantially by the 2001 Supreme Court decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (*SWANCC*) and the 2006 Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208), collectively referred to as *Rapanos*. The Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. Based, in part, on the *Rapanos* decision, a new rule defining WOTUS was promulgated in the Federal Register on June 29, 2015 (USACE et al. 2015). Following a series of legal challenges and the current presidential administration's attempt to delay the implementation of this rule, on August 16, 2018, the U.S. District Court for the District of South Carolina enjoined the delay of the WOTUS Rule implementation for failure to comply with the Administrative Procedure Act. This decision means that the 2015 WOTUS definition is in effect in 26 states where federal district court judges have not stayed it, including California. A summary of the currently operable definition of WOTUS is provided below:

> Several categories of waters are defined as WOTUS directly by the Rule, without the need for a significant nexus evaluation:
>
> (i) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
>
> (ii) All interstate waters, including interstate wetlands;
>
> (iii) The territorial seas;
>
> (iv) All impoundments of waters otherwise identified as waters of the United States under this section;
>
> (v) All tributaries of waters identified in paragraphs (1)(i) through (iii) of this definition; tributary is further defined as a water that contributes flow, either directly or through another water to a water identified in paragraphs (i) through (iii) of this definition that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark;
>
> (vi) All waters adjacent to a water identified in paragraphs (i) through (v) of this definition, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters; the term adjacent means bordering, contiguous, or neighboring a water identified above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. Neighboring includes waters within 100 feet of the ordinary high water mark of these waters and within the 100-year floodplain but not more than 1,500 feet from the ordinary high water mark.

Neighboring also includes waters within 1,500 feet of waters in paragraphs i through iii, including the Great Lakes.

In addition to the waters defined as WOTUS by rule, above, two categories of waters can be considered WOTUS pursuant to a significant nexus evaluation and determination:

(vii) Certain depressional wetlands where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (1)(i) through (iii) of this definition. The waters identified in this category are considered similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (1)(i) through (iii) of this definition. Waters identified in this paragraph shall not be combined with waters identified in paragraph (vi) of this definition when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (vi), they are an adjacent water and no case-specific significant nexus analysis is required. The depressional wetlands that are specifically identified in this paragraph occur in various regions throughout the country. In California, they include (D) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) of this definition and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) of this definition where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (i) through (iii) of this definition. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) of this definition or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (vi) of this definition when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (1)(vi) of this definition, they are an adjacent water and no case-specific significant nexus analysis is required.

Finally, the 2015 WOTUS Rule specifies several categories of waters that are excluded from CWA jurisdiction, even if they otherwise meet the terms of paragraphs (iv) through (viii) above. The excluded waters are waste treatment systems, previously converted cropland, and ditches with ephemeral or intermittent flow that are not a relocated tributary or excavated in tributary, as well as ditches that do not flow into waters in categories (i) through (iii) above. However, a ditch with intermittent flow that drains wetlands and flows to waters in categories (i) through (iii) may not be excluded. Also excluded are artificial reflecting pools or swimming pools, ornamental waters, and incidental created depressions, provided these were created in dry land. Other excluded waters are erosional features that do not meet the definition of tributary, puddles, groundwater, storm water control features created in dry land, and wastewater recycling structures, basins, and distributary structures constructed in dry land.

The USACE typically considers any body of water displaying an ordinary high water mark (OHWM) for designation as WOTUS, subject to the 2015 WOTUS Rule. USACE jurisdiction over nontidal WOTUS extends laterally to the OHWM or beyond the OHWM to the limit of any contiguous wetlands, if present. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

Waters found to be isolated and not subject to CWA regulation may still be regulated by the Regional Water Quality Control Board (RWQCB) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Wetlands

Wetland delineations for Section 404 purposes must be conducted according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (*Regional Supplement*) (USACE 2008) and the 1987 *Corps of Engineers Wetlands Delineation Manual* (*1987 Manual*) (USACE 1987). Where there are differences between the two documents, the *Regional Supplement* takes precedence over the *1987 Manual*.

The USACE and United States Environmental Protection Agency (EPA) define wetlands as follows:

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

To be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied for that particular wetland characteristic to be met. Several indicators may be analyzed to determine whether the criteria are satisfied.

Hydrophytic vegetation and hydric soils indicators provide evidence that episodes of inundation have lasted more than a few days or have occurred repeatedly over a period of years, but do not confirm that an episode has occurred recently. Conversely, wetland hydrology indicators provide evidence that an episode of inundation or soil saturation occurred recently, but do not provide evidence that episodes have lasted more than a few days or have occurred repeatedly over a period of years. Because of this, if an area lacks one of the three characteristics under normal circumstances, the area is considered nonwetland under most circumstances.

Determination of wetland limits may be obfuscated by a variety of natural environmental factors or human activities, collectively called "difficult wetland situations," including cyclic periods of drought and flooding or highly ephemeral stream systems. During periods of drought, for example, bank return flows are reduced and water tables are lowered. This results in a corresponding lowering of

the OHWM and invasion of upland plant species into wetland areas. Conversely, extreme flooding may create physical evidence of high water well above what might be considered ordinary and may allow the temporary invasion of hydrophytic species into nonwetland areas. In the highly ephemeral systems typical of Southern California, these problems are encountered frequently. In these situations, professional judgment based on years of practical experience and extensive knowledge of local ecological conditions comes into play in delineating wetlands. The *Regional Supplement* provides additional guidance for difficult wetland situations.

Hydrophytic Vegetation

Hydrophytic vegetation is plant life that grows and is typically adapted for life in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, herb, and woody vine layers) are considered hydrophytic. Hydrophytic species are those included on the National Wetland Plant List (Lichvar et al. 2016). Each species on the list is rated according to a wetland indicator category per the *1987 Manual*, as shown in Table A. To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated as OBL, FACW, or FAC).

Table A: Hydrophytic Vegetation

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability > 99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67–99%)
Facultative (FAC)	Equally likely to occur in wetlands and non-wetlands (estimated probability 34–66%)
Facultative Upland (FACU)	Usually occur in nonwetlands (estimated probability 67–99%)
Obligate Upland (UPL)	Almost always occur in nonwetlands (estimated probability > 99%)

Source: *Corps of Engineers Wetlands Delineation Manual* (United States Army Corps of Engineers 1987).

The delineation of hydrophytic vegetation is typically based on the most dominant species from each vegetative stratum (strata are considered separately); when more than 50 percent of these dominant species are hydrophytic (i.e., FAC, FACW, or OBL), the vegetation is considered hydrophytic. In particular, the USACE recommends the use of the "50/20" rule (also known as the dominance test) from the *Regional Supplement* for determining dominant species. Under this method, dominant species are the most abundant species that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species composing 20 percent or more of the total dominance measure for the stratum. In cases where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test, the prevalence index must be used. The prevalence index is a weighted average of all plant species within a sampling plot. The prevalence index is particularly useful when communities only have one or two dominants, where species are present at roughly equal coverage, or when strata differ greatly in total plant cover. In addition, USACE guidance provides that morphological adaptations may be considered when determining hydrophytic vegetation when indicators of hydric soil and wetland hydrology are present (USACE 2008). If the plant community passes either the dominance test or prevalence index after reconsideration of the indicator status of any plant species that exhibits morphological adaptations for life in wetlands, then the vegetation is considered hydrophytic.

Hydric Soils

Hydric soils[1] are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Soil Conservation Service 1994).[2] Soils are considered likely to meet the definition of a hydric soil when one or more of the following criteria are met:

- All Histels except Folistels and Histosols except Folists;
- Soils that are frequently ponded for a long duration or very long duration[3] during the growing season; or
- Soils that are frequently flooded for a long duration or very long duration during the growing season.

Hydric soils develop under conditions of saturation and inundation combined with microbial activity in the soil that causes a depletion of oxygen. While saturation may occur at any time of year, microbial activity is limited to the growing season, when soil temperature is above biologic zero (the soil temperature at a depth of 50 centimeters [1.6 feet], below which the growth and function of locally adapted plants are negligible). Biogeochemical processes that occur under anaerobic conditions during the growing season result in the distinctive morphologic characteristics of hydric soils. Based on these criteria, a National List of Hydric Soils was created from the National Soil Information System database and is updated annually.

The *Regional Supplement* has a number of field indicators that may be used to identify hydric soils. The Natural Resources Conservation Service[4] (NRCS) has also developed a number of field indicators that may demonstrate the presence of hydric soils. These indicators include hydrogen sulfide generation, the accumulation of organic matter, and the reduction, translocation, and/or accumulation of iron and other reducible elements. These processes result in soil characteristics that persist during both wet and dry periods. Separate indicators have been developed for sandy soils and for loamy and clayey soils.

Wetland Hydrology

Under natural conditions, development of hydrophytic vegetation and hydric soils is dependent on a third characteristic: wetland hydrology. Areas with wetland hydrology are those where the presence of water has an overriding influence on vegetation and soil characteristics due to anaerobic and reducing conditions, respectively (USACE 1987). The wetland hydrology parameter is satisfied when the area exhibits at least one of the primary indicators or two or more secondary indicators shown on the Wetland Determination Data Form – Arid West Region (Appendix B) and identified in the *Regional Supplement* (USACE 2008).

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1 The hydric soil definition and criteria included in the *1987 Manual* are obsolete. Users of the *1987 Manual* are directed to the United States Department of Agriculture Natural Resources Conservation Service website for the most current information on hydric soils.

2 Current definition as of 1994 (*Federal Register*, July 13, 1994).

3 A long duration is defined as a single event ranging from 7 to 30 days. A very long duration is defined as a single event that lasts longer than 30 days.

4 Natural Resources Conservation Service. Website: http://www.nrcs.usda.gov, accessed December 2018.

Hydrology is often the most difficult criterion to measure in the field due to seasonal and annual variations in water availability. Some of the indicators that are commonly used to identify wetland hydrology include visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels (rhizospheres) resulting from prolonged anaerobic conditions.

Deepwater Aquatic Habitat

Deepwater aquatic habitats are areas that are permanently inundated at mean annual water depths greater than 6.6 feet or permanently inundated areas greater than 6.6 feet in depth that do not support rooted-emergent or woody plant species.[1] Deepwater aquatic waters do not qualify as wetland waters due to the lack of hydrophytic terrestrial vegetation. Deepwater aquatic waters are recognized as having a high habitat value due to their use as a fish and wildlife resource and limited distribution in the arid west.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Game Code (Section 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water.

The CDFW has various definitions and descriptions of the terms "channel bed" and "banks." The following definitions are from Appendix C: Legal Opinions of *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600–1607, California Fish and Game Cod*e (CDFG 1994) to characterize the bed and bank:

> The extent of a stream bed and banks can be measured by several means: (1) flood plain, depending on the return frequency considered and if the riparian vegetation is present in the flood plain; (2) the outer edge of riparian vegetation used as a line of demarcation; (3) the bank, channel, or levee that confines flows; and (4) the extent of riparian vegetation outside of a levee.

The following concepts are also described in *A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994):

> Streams can include intermittent ephemeral streams, dry washes, canals, aqueducts, irrigation ditches if they support aquatic life, riparian vegetation, or seasonally stream-dependent terrestrial wildlife, such as amphibians.
>
> Natural attributes or biological components of a stream include aquatic and riparian vegetation, and all aquatic animals, including fish, amphibians, reptiles, invertebrates, and terrestrial species, which derive benefits from the stream system.

[1] Areas with less than a 6.6-foot mean annual depth that support only submergent aquatic plants are vegetated shallows, not wetlands.

The CDFW regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by the CDFW. CDFW jurisdiction typically extends beyond the streambed/ banks to the limits of the riparian vegetation (if present) associated with streams, rivers, or lakes. The CDFW defines riparian as:

> On, or pertaining to, the banks of a stream. As riparian vegetation or riparian woodland. Vegetation which occurs in and/or adjacent to a watercourse. For the purpose of administering Code Section 1600, et seq., this should be expanded to vegetation adjacent to lakes as well.[1]

An artificial waterway is considered natural if the landowners and the community regard the ditch as a natural drainage course under normal circumstances, as in having existed over 7 years (CDFG 1988, 1990). This would include the following treatment of artificial waterways:

> Artificial waterways are jurisdictional if that constructed drainage now has attributes similar to a natural stream bed and that artificial channels or ditches without natural attributes are not subject to Fish and Game Code provisions.

In obtaining CDFW streambed alteration agreements, the limits of wetlands are not typically determined. The reason for this is that the CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, mule fat, and other vegetation typically associated with the banks of a stream or lake shorelines and may not be consistent with USACE wetlands definitions. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet USACE criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream, away from frequently saturated soils).

Regional Water Quality Control Boards

The RWQCBs are responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of the USACE (i.e., WOTUS, including any wetlands). The RWQCB may also assert authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Act.

METHODOLOGY

Biologists Denise Woodard and Claudia Bauer conducted the fieldwork for a jurisdictional delineation on January 24, 2018. Potential federal and State jurisdictional features and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Riparian/Riverine Areas were identified in the study area, evaluated on foot, and mapped using aerial photographs.

Areas of potential jurisdiction were evaluated according to the most current USACE and CDFW regulatory criteria and guidance. The boundaries of the potential jurisdictional areas within the

[1] *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600–1607, California Fish and Game Code* (CDFG 1994).

study area were observed in the field and were mapped on an aerial photograph (the scale is 1 inch = approximately 150 feet). Measurements of federal and State jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs.

Areas supporting plant species that were potentially indicative of wetlands were evaluated according to routine wetland delineation procedures described in the *Regional Supplement*. Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators were also noted. General site characteristics were also noted throughout all potential jurisdictional areas.

RESULTS

Based on close examination of historical and recent aerial photography and fieldwork, a single, unnamed drainage feature (Appendix A, Figure 2), approximately 1,439 feet long, runs from the southwest to the northeast through study area. It drains into a flood control feature, along the northerly study area boundary, that discharges into a rectangular concrete box culvert structure at Towhee Lane, and then joins the natural flow path toward the northeast. The drainage feature is an ephemeral, natural earthen drainage that is a secondary tributary to Temescal Wash, which is approximately 1 mile east of the study area. Temescal Wash is tributary to the Santa Ana River at the Prado Flood Control Basin. The Santa Ana River conveys flows to the Pacific Ocean, a USACE TNW. The drainage is ephemeral and vegetated by ruderal vegetation, California live oak woodland and individual California live oak trees.

The following details USACE and CDFW jurisdictional areas as well as riparian/riverine areas protected under the MSHCP.

POTENTIAL UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTION

The subject drainage feature is a naturally occurring, earthen drainage channel that conveys ephemeral flows. The drainage exhibits indicators of OHWMs that include sediment and debris deposits. The vegetation associated with this drainage feature consists of upland, non-hydric plant species associated with ruderal vegetation, California live oak woodland, and individual California live oak trees. Therefore, due to the lack of hydric vegetation, this drainage feature is considered a nonwetland water of the U.S. subject to USACE regulatory authority.

POTENTIAL CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTION

The drainage feature has defined channel beds and riparian vegetation consisting of California live oak trees. Based on the presence of channel bed and banks and riparian vegetation, the drainage feature would be subject to the regulatory authority of CDFW.

MULTIPLE SPECIES HABITAT CONSERVATION PLAN PROTECTED AREAS

Riparian/Riverine Areas

MSHCP Section 6.1.2 describes Riparian/Riverine Areas as lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which

depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year. MSHCP Section 6.1.2 also states that areas demonstrating riparian/ riverine/vernal pools characteristics, which are artificially created, are not considered to meet the definition of riparian/riverine/vernal pools resources regulated under the MSHCP.

As described above, the subject drainage feature is a natural earthen waterbody that conveys seasonal flows and contains riparian vegetation consisting of California live oak trees. This drainage feature exhibits certain characteristics that would make it subject to the MSHCP; these characteristics include having physically defined beds and banks and riparian vegetation functioning as part of a natural drainage system. The Riparian/Riverine resources discussed in this report are consistent with CDFW jurisdictional areas.

The potential jurisdictional areas are shown in Appendix A, Figure 2. Site photographs are provided in Appendix A, Figure 3, and a qualitative functions and values analysis is provided in Appendix B. Table B shows the drainage feature acreages of potential jurisdictional areas for the USACE, CDFW, and MSHCP.

Table B: Total Acreages of Potential Jurisdictional Areas for USACE, CDFW, and MSHCP

	CDFW		MSHCP	
USACE Non-Wetland Waters	**Riparian/Streambed**	**Streambed**	**Riparian/Riverine**	**Riverine**
0.15	0.29	0.40	0.29	0.40

Acres have been rounded to two significant digits.

CONCLUSIONS

The study area contains 0.15 acre of nowetland waters subject to USACE jurisdiction and 0.29 acre of riparian/streambed and 0.40 acre of streambed subject to CDFW jurisdiction. The study area contains MSHCP riparian/riverine resources including 0.29 acre of riparian/riverine resources and 0.40 acre of riverine resources. Because there is no current public guidance on determining RWQCB jurisdictional areas, jurisdiction was determined based on the federal definition of wetlands and other waters of the U.S. as recommended by the September 2004 Workplan (State Water Resources Control Board 2004). RWQCB jurisdiction was considered coincident with USACE jurisdiction for the purposes of Section 401 certification. Therefore, 0.15 acre of RWQCB jurisdiction is located in the study area.

DISCLAIMER

The findings and conclusions presented in this report, including the locations and extents of wetlands and other waters subject to regulatory jurisdiction (or lack thereof), represent the professional opinion of the consultant biologists. These findings and conclusions should be considered preliminary until verified by the appropriate regulatory agencies.

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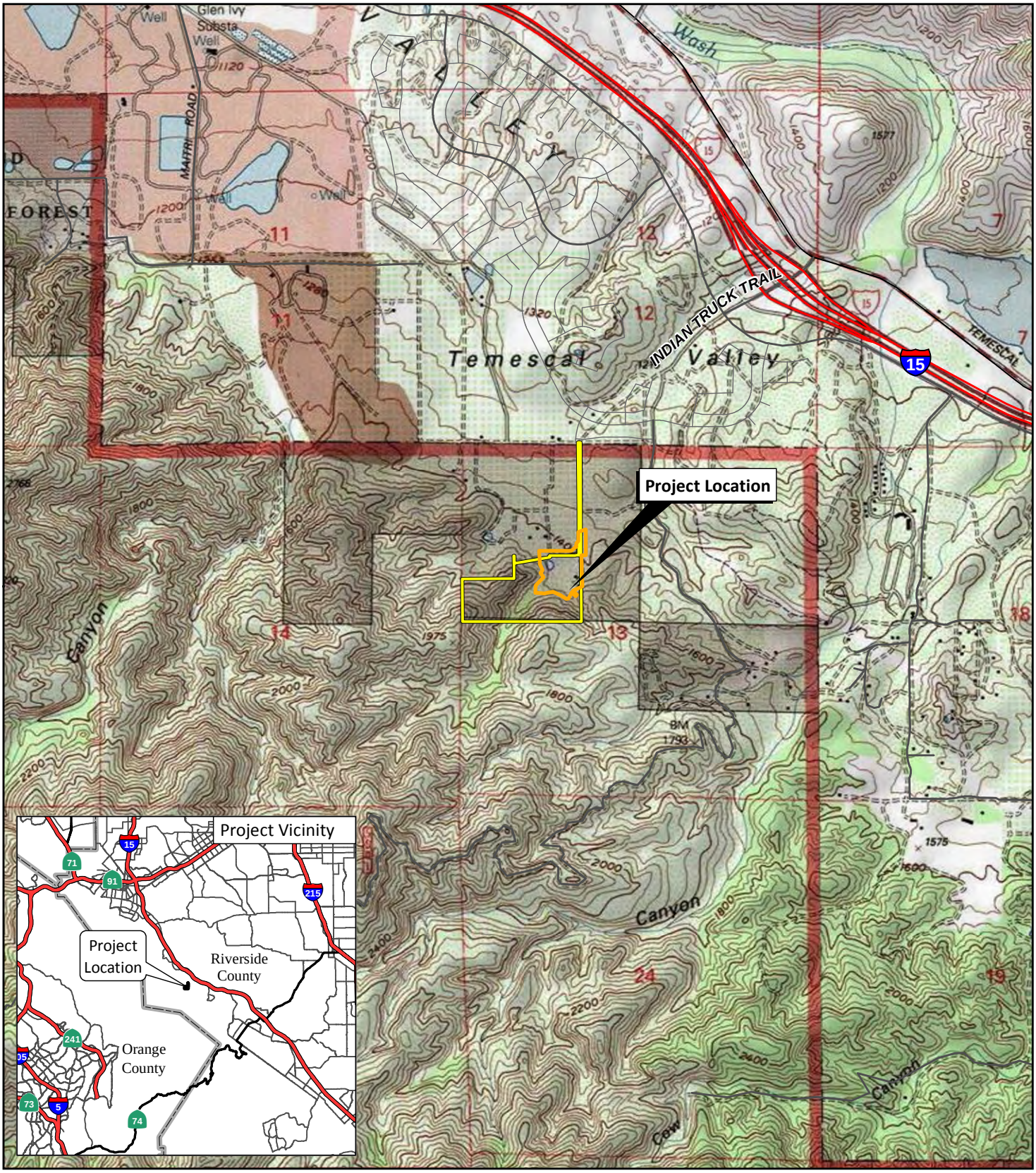
APPENDIX A

FIGURES 1–3



LSA

LEGEND

Parcel Boundary (290-160-011)

Study Area

N

0 1000 2000

FEET

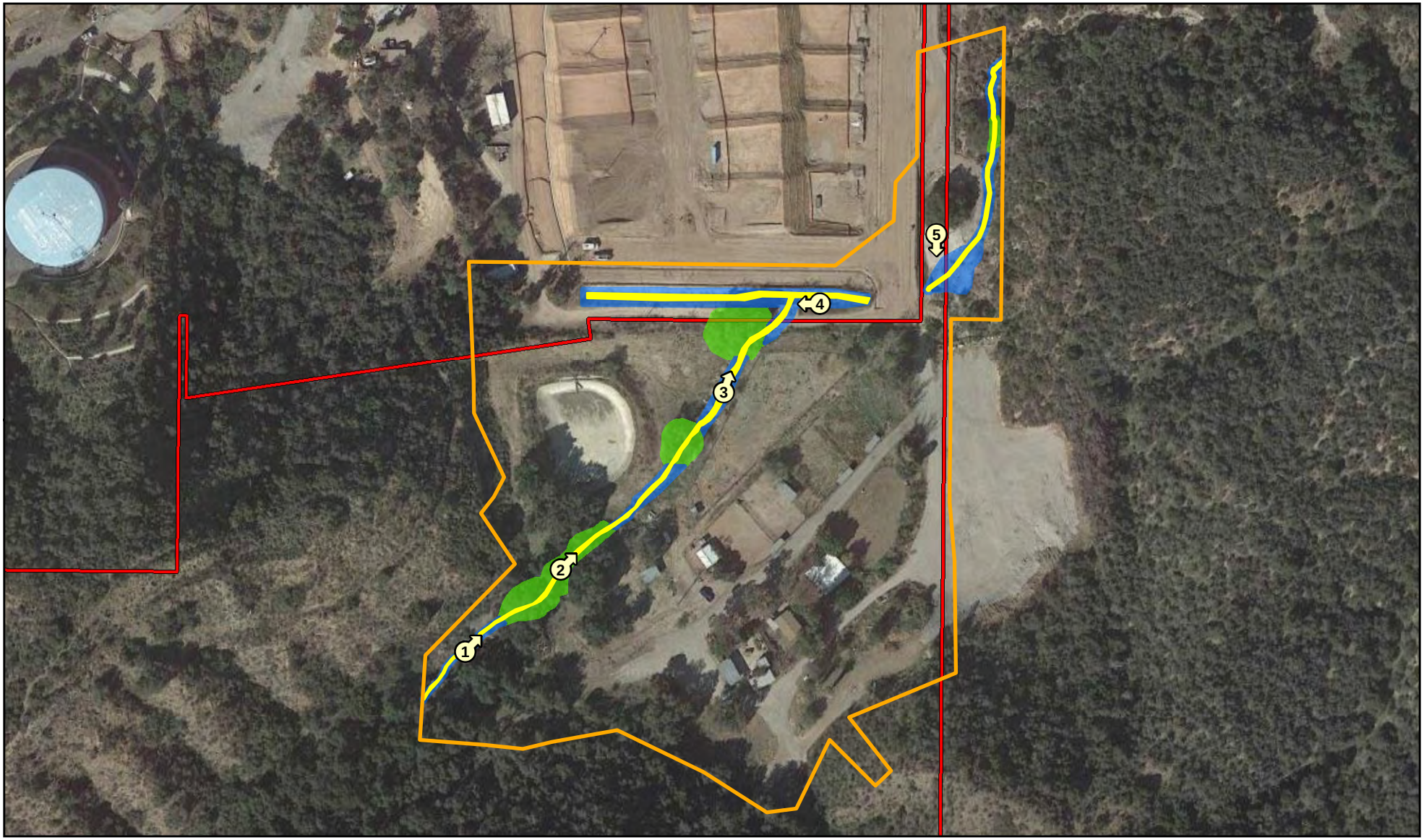
FIGURE 1

Kiley Properties - TR 37154

Regional and Project Location

SOURCE: USGS 7.5' Quads: Alberhill & Lake Mathews, 1988, CA; Riverside County, 2017.

I:\HSC1801\Reports\Bio\JD\RegLoc.mxd (4/29/2019)



LSA

LEGEND

Study Area

Parcel Boundary (290-160-011)

Photo Location

Potential Jurisdictional Waters

USACE Non-Wetland Waters (0.15 ac)

CDFW Riparian Streambed/MSHCP Riparian Riverine (0.29 ac)

CDFW Streambed/MSHCP Riverine (0.40 ac)

N

0 90 180

FEET

SOURCE: Google Earth (2018)

I:\HSC1801\Reports\Bio\JD\JurisDelineation.mxd (4/29/2019)

FIGURE 2

Kiley Properties
TR 37154

Potential Jurisdictional Waters

Photograph 1:
View of drainage feature at the southeasterly end of the study area.

Photograph 2:
View of drainage feature and associated California live oak woodland.

LSA

FIGURE 3

Kiley Properties - TR 37154
Site Photographs

Photograph 3:
View of drainage feature conditions at the northerly portion of the study area.

Photograph 4:
View of drainage feature where it drains over a dirt access road and discharges into a flood control channel along the northerly study area boundary.

LSA

FIGURE 3

Kiley Properties - TR 37154
Site Photographs

Photograph 5:
View facing south showing the concrete box culvert at Towhee Lane.

LSA

FIGURE 3

Kiley Properties - TR 37154
Site Photographs

APPENDIX B

FUNCTIONS AND VALUES ANALYSIS

ANALYSIS OF FUNCTIONS AND VALUES OF WETLANDS AND OTHER WATERS

The following is a qualitative assessment of the functions and values attributable to the identified potential jurisdictional waters in the biological study area. All wetlands and other waters have some degree of functionality, and no single wetland can perform all the functions considered below. The following functions are analyzed at low, moderate, or high value levels based on the criteria below and as shown in Table B-1.

Hydrologic Regime. This function is the ability of a wetland or stream to absorb and store water below ground. The degree of this saturation is dependent on the soil composition and is affected by prior flooding events. For example, clay soils possess more pore space than sandy soils. However, the smaller pore size slows the rate at which water is absorbed and released; therefore, clay soil has a lower capacity to store water than sandy soils. The storage of water belowground allows for the fluctuation between anaerobic and aerobic conditions that benefit environmental conditions necessary for microbial cycling.

Flood Storage and Flood Flow Modification. This function is determined based on the ability of a wetland or stream at which the peak flow in a watershed can be attenuated during major storm events and during peak domestic flows to take in surface water that may otherwise cause flooding. This is dependent on the size of the wetland or stream, the amount of water it can hold, and the location in the watershed. For instance, larger wetlands or streams that have a greater capacity to receive waters have a greater ability to reduce flooding. In addition, areas high in the watershed may have more ability to reduce flooding in downstream areas, but areas lower in the watershed may have greater benefits to a specific area. Vegetation, shape, and the configuration of the wetland or stream may also affect flood storage by dissipating the energy of flows during flood events.

Sediment Retention. Removal of sediment is the process that keeps sediments from migrating downstream. This is accomplished through the natural process of sediment retention and entrapment. This function is dependent on the sediment load being delivered by runoff into the watershed. Similar to the above, the vegetation, shape, and configuration of a wetland will also affect sediment retention if water is detained for long durations, as would be the case with dense vegetation, a bowl-shaped watershed, or slow-moving water. This function would be demonstrated (i.e., high) if the turbidity of the incoming water is greater than that of the outgoing water.

Nutrient Retention and Transformation. Nutrient cycling consists of two variables: uptake of nutrients by plants and detritus turnover, in which nutrients are released for uptake by plants downstream. Wetland systems in general are much more productive with regard to nutrients than upland habitats. The regular availability of water associated with the wetland or stream may cause the growth of plants (nutrient uptake) and associated detritivores and generate nutrients that may be used by a variety of aquatic and terrestrial wildlife downstream.

Toxicant Trapping. The major processes by which wetlands remove nutrients and toxicants are as follows: (1) by trapping sediments rich in nutrients and toxicants, (2) by absorption to soils high in clay content or organic matter, and (3) through nitrification and denitrification in alternating oxic

and anoxic conditions. Removal of nutrients and toxicants is closely tied to the processes that provide for sediment removal.

Social Significance. This is a measure of the probability that a wetland or stream will be used by the public because of its natural features, economic value, official status, and/or location. This includes its being used by the public for recreational uses (e.g., boating, fishing, birding, and walking) and other passive recreational activities. A wetland or stream that is used as an outdoor classroom, is a location for scientific study, or is near a nature center would have a higher social significance standing.

Wildlife Habitat. General habitat suitability is the ability of a wetland to provide habitat for a wide range of wildlife. Vegetation is a large component of wildlife habitat. As plant community diversity increases along with connectivity with other habitats, so does potential wildlife diversity. In addition, a variety of open water, intermittent ponding, and perennial ponding is also an important habitat element for wildlife.

Aquatic Habitat. The ability of a wetland or stream to support aquatic species requires that there be ample food supply, pool and riffle complexes, and sufficient soil substrate. Food supply is typically in the form of aquatic invertebrates and detrital matter from nearby vegetation. Pool and riffle complexes provide a variety of habitats for species diversity as well as habitat for breeding and rearing activities. Species diversity is directly related to the complexity of the habitat structure.

Table B-1: Functions and Values of Drainage Feature within the Study Area

Drainage	Hydrologic Regime	Flood Storage and Flood Flow Modification	Sediment Retention	Nutrient Retention and Transformation	Toxicant Trapping	Social Significance	Wildlife Habitat	Aquatic Habitat
Drainage Feature	Low to Moderate	Low to Moderate	Low	Low	Low	Low to Moderate	Low to Moderate	Low

APPENDIX C

PLANT AND ANIMAL SPECIES OBSERVED

Plant and Animal Species Observed

Scientific Name	Common Name
CONIFERS	
Pinaceae	**Pine family**
Pinus canariensis (non-native species)	Canary Island pine
EUDICOT FLOWERING PLANTS	
Adoxaceae	**Muskroot family**
Sambucus nigra ssp. *caerulea*	Blue elderberry
Anacardiaceae	**Sumac family**
Malosma laurina	Laurel sumac
Schinus molle (non-native species)	Peruvian peppertree
Schinus terebinthifolius (non-native species)	Brazilian peppertree
Toxicodendron diversilobum	Pacific poison oak
Apocynacecae	**Dogbane family**
Funastrum cynanchoides	Fringed twinevine
Asteraceae	**Sunflower family**
Acourtia microcephala	Sacapellote
Artemisia californica	California sagebrush
Artemisia dracunculus	Tarragon
Carduus pycnocephalus (non-native species)	Italian Thistle
Corethrogyne filaginifolia	California aster
Encelia farinosa	Brittlebush
Erigeron canadensis	Canadian horseweed
Eriophyllum confertiflorum	Golden yarrow
Gutierrezia californica	California matchweed
Hazardia squarrosa	Common hazardia
Helianthus gracilentus	Slender sunflower
Heterotheca grandiflora	Telegraph weed
Lepidospartum squamatum	Scalebroom
Pseudognaphalium californicum	Ladies' tobacco
Rafinesquia neomexicana	Desert chicory
Senecio flaccidus	Shrubby butterweed
Senecio vulgaris (non-native species)	Common groundsel
Sonchus oleraceus (non-native species)	Common sow thistle
Stephanomeria exigua	Small wreath-plant
Stylocline gnaphaloides	Everlasting neststraw
Boraginaceae	**Borage family**
Amsinckia intermedia	Common fiddleneck
Eucrypta chrysanthemifolia	Common eucrypta
Phacelia cicutaria	Caterpillar phacelia
Phacelia ramosissima	Branching phacelia
Plagiobothrys sp.	Popcornflower

Plant and Animal Species Observed

Scientific Name	Common Name
Brassicaceae	**Mustard family**
Hirschfeldia incana (non-native species)	Shortpod mustard
Sisymbrium irio (non-native species)	London rocket
Sisymbrium orientale (non-native species)	Indian hedgemustard
Cucurbitaceae	**Gourd family**
Marah macrocarpus	Cucamonga manroot
Euphorbiaceae	**Spurge family**
Croton setigerus	Dove weed
Fabaceae	**Pea family**
Acmispon glaber	Deerweed
Amorpha fruticosa	False indigo
Robinia pseudoacacia (non-native species)	Black locust
Fagaceae	**Beech family**
Quercus agrifolia	California live oak
Quercus berberidifolia	Scrub oak
Geraniaceae	**Geranium family**
Erodium cicutarium (non-native species)	Redstem stork's bill
Lamiaceae	**Mint family**
Marrubium vulgare (non-native species)	Horehound
Salvia apiana	White sage
Salvia mellifera	Black sage
Montiaceae	**Miner's lettuce family**
Calandrinia menziesii	Fringed redmaids
Claytonia parviflora var. parviflora	Streambank springbeauty
Myrtaceae	**Myrtle family**
Eucalyptus sp. (non-native species)	Eucalyptus
Nyctaginaceae	**Four-o'clock family**
Mirabilis laevis	Wishbone bush
Oleaceae	**Olive family**
Olea europaea (non-native species)	Olive
Papaveraceae	**Poppy family**
Romneya coulteri	Coulter's Matilija poppy
Phrymaceae	**Monkey-flower family**
Mimulus aurantiacus	Red bush monkey-flower
Plantaginaceae	**Plantain family**
Keckiella antirrhinoides	Yellow bush penstemon
Platanaceae	**Sycamore family**
Platanus racemosa	California sycamore
Polemoniaceae	**Phlox family**
Gilia angelensis	Los Angeles gilia

Plant and Animal Species Observed

Scientific Name	Common Name
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Eriogonum gracile	Slender buckwheat
Rosaceae	**Rose family**
Adenostoma fasciculatum	Chamise
Heteromeles arbutifolia	Toyon
Prunus ilicifolia	Hollyleaf cherry
Rubiaceae	**Madder family**
Galium angustifolium ssp. *angustifolium*	Narrow-leaved bedstraw
Salicaceae	**Willow family**
Populus fremontii	Fremont cottonwood
Solanaceae	**Nightshade family**
Nicotiana glauca (non-native species)	Tree tobacco
Solanum douglasii	Greenspot nightshade
Urticaceae	**Nettle Family**
Urtica urens (non-native species)	Dwarf nettle
Verbenaceae	**Vervain family**
Lantana camara	Lantana
MONOCOTS FLOWERING PLANTS	
Arecaceae	**Palm family**
Phoenix canariensis (non-native species)	Canary Island date palm
Washingtonia robusta (non-native species)	Mexican fan palm
Poaceae	**Grass family**
Bromus catharticus (non-native species)	Rescue grass
Bromus madritensis (non-native species)	Foxtail chess
Melica imperfecta	Coast range melic
Schismus barbatus (non-native species)	Common Mediterranean grass
REPTILES	
Phrynosomatidae	**Phrynosomatid Lizards**
Uta stansburiana	Common side-blotched lizard
BIRDS	
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Columbidae	**Pigeons and Doves**
Streptopelia decaocto (non-native species)	Eurasian collared dove
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
Picidae	**Woodpeckers**
Melanerpes formicivorus	Acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker

Plant and Animal Species Observed

Scientific Name	Common Name
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Bombycillidae	**Waxwings**
Bombycilla cedrorum	Cedar waxwing
Ptilogonatidae	**Silky flycatchers**
Phainopepla nitens	Phainopepla
Fringillidae	**Finches**
Haemorhous mexicanus	House finch
Passerellidae	**New World Sparrows**
Melozone crissalis	California towhee
Icteridae	**Blackbirds, Orioles and Allies**
Icterus cucullatus	Hooded oriole
MAMMALS	
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel