LARCHMONT BUSINESS PARK PROJECT (APN 909-060-044)

Biological Resource Assessment, MSHCP Consistency Document, and Determination of Biologically Equivalent or Superior Preservation (DBESP)

Prepared for
Larchmont Park LLC

October 2016
Revised January 2018

ESA PCR

Revised by HELIX Environmental Planning, Inc.

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Prepared for
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Introduction

1.1 Background

This report presents the findings of a Biological Resources Assessment (BRA), Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis, and MSHCP Determination of Biologically Equivalent or Superior Preservation Plan (DBESP) conducted by **ESA PCR** for the approximately 10.07-acre proposed Larchmont Business Park commercial development (project) associated with Assessor's Parcel Number (APN) 909-060-044. This report also documents biological resources within approximately 0.81 acre of off-site property to the north that will be disturbed as part of the project (APN 909-060-038). Collectively, the total 10.88 acres evaluated as part of the project footprint for this BRA are referred to as the "study area" for the purpose of this California Environmental Quality Act (CEQA) level biological technical study. The study area is located on the northeast side of Adams Avenue, just southeast of the intersection of Fig Street and Adams Avenue, in the City of Murrieta, Riverside County, California. The study area is completely surrounded by development and/or roads and is essentially an "in-fill" parcel zoned for commercial development. The purpose of this biological study is to demonstrate compliance with the California Environmental Quality Act (CEQA) and the Western Riverside County MSHCP, as well as to supplement subsequent regulatory applications pursuant to Sections 404 and 401 of the Clean Water Act (CWA) and Section 1602 of the California Fish & Game Code (CF&G) for the project.

1.2 Sources

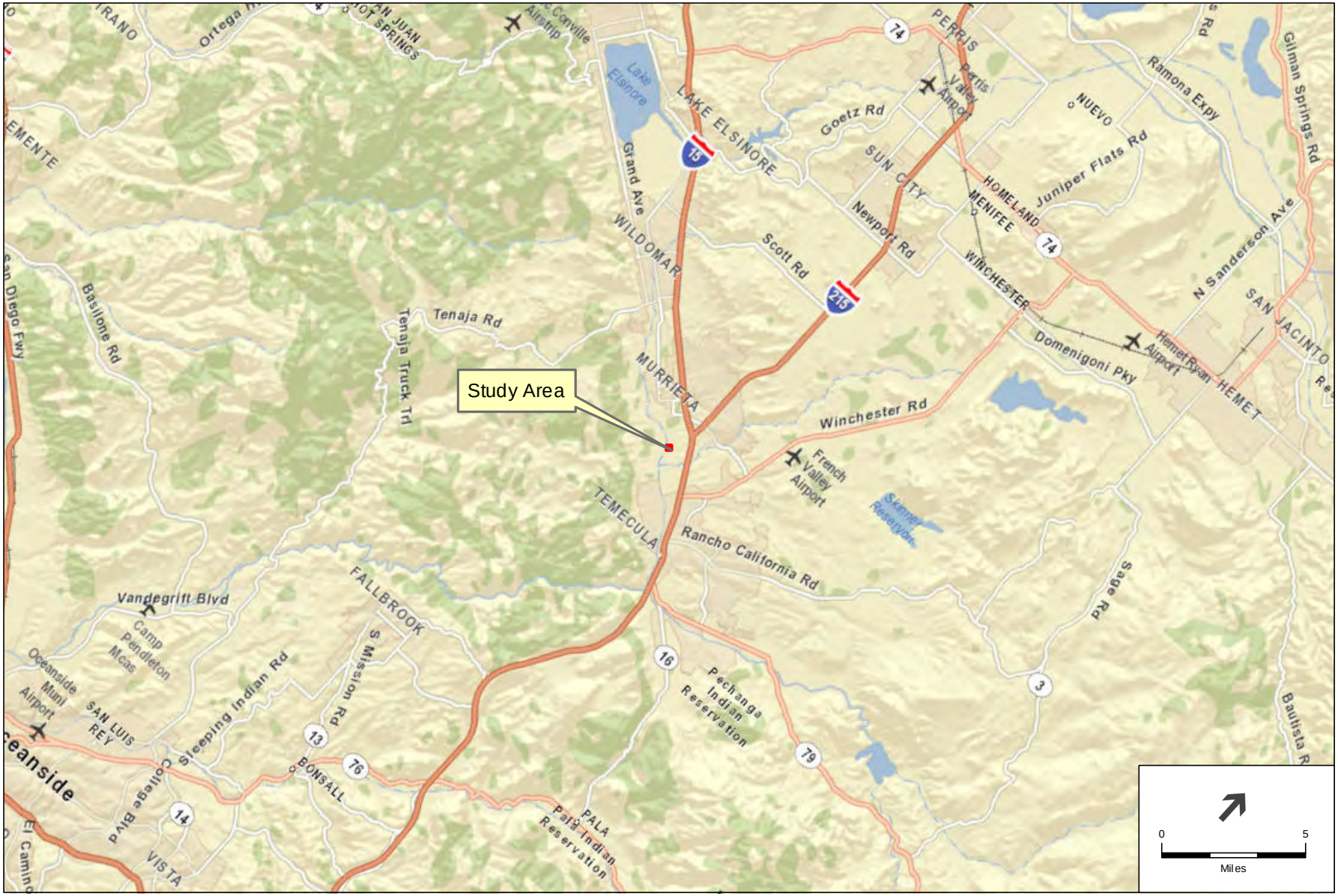
This BRA is based on information compiled through field reconnaissance and appropriate reference materials. A general biological survey, vegetation mapping, and a jurisdictional waters and wetlands delineation were conducted by ESA PCR. Focused surveys for special-status plant species and burrowing owl (*Athene cunicularia*) were also conducted in the study area. In addition, a focused dry season survey for listed fairy shrimp species was conducted in the summer of 2016 and a wet season survey was conducted between December 2016 and April 2017~~with wet season surveys scheduled to begin late 2016~~. The information sources used in preparation of this BRA are provided in Section 11.0, *References*.

1.3 Study Area Location

The approximately 10.88-acre study area is located off of Adams Avenue, just southeast of the intersection of Adams Avenue and Fig Street and approximately 0.75 mile southwest of the Interstate 15/Interstate 215 (I-15/I-215) in the City of Murrieta, Riverside County, California as shown on **Figure 1**, *Regional Map*. The study area can be found on the U.S. Geological Survey (USGS) 7.5' Murrieta (USGS 1953) topographic quadrangle map, as shown in **Figure 2**, *Vicinity Map*.

1.4 Scope of Study

The scope of this BRA includes descriptions of the project, methods of study, and existing site conditions (including vegetation communities and the potential for special-status biological resources), followed by an evaluation of impacts to special-status biological resources pursuant to CEQA thresholds and regulatory requirements including the Western Riverside County MSHCP. Avoidance, minimization, and/or mitigation measures are proposed to reduce any significant impacts.

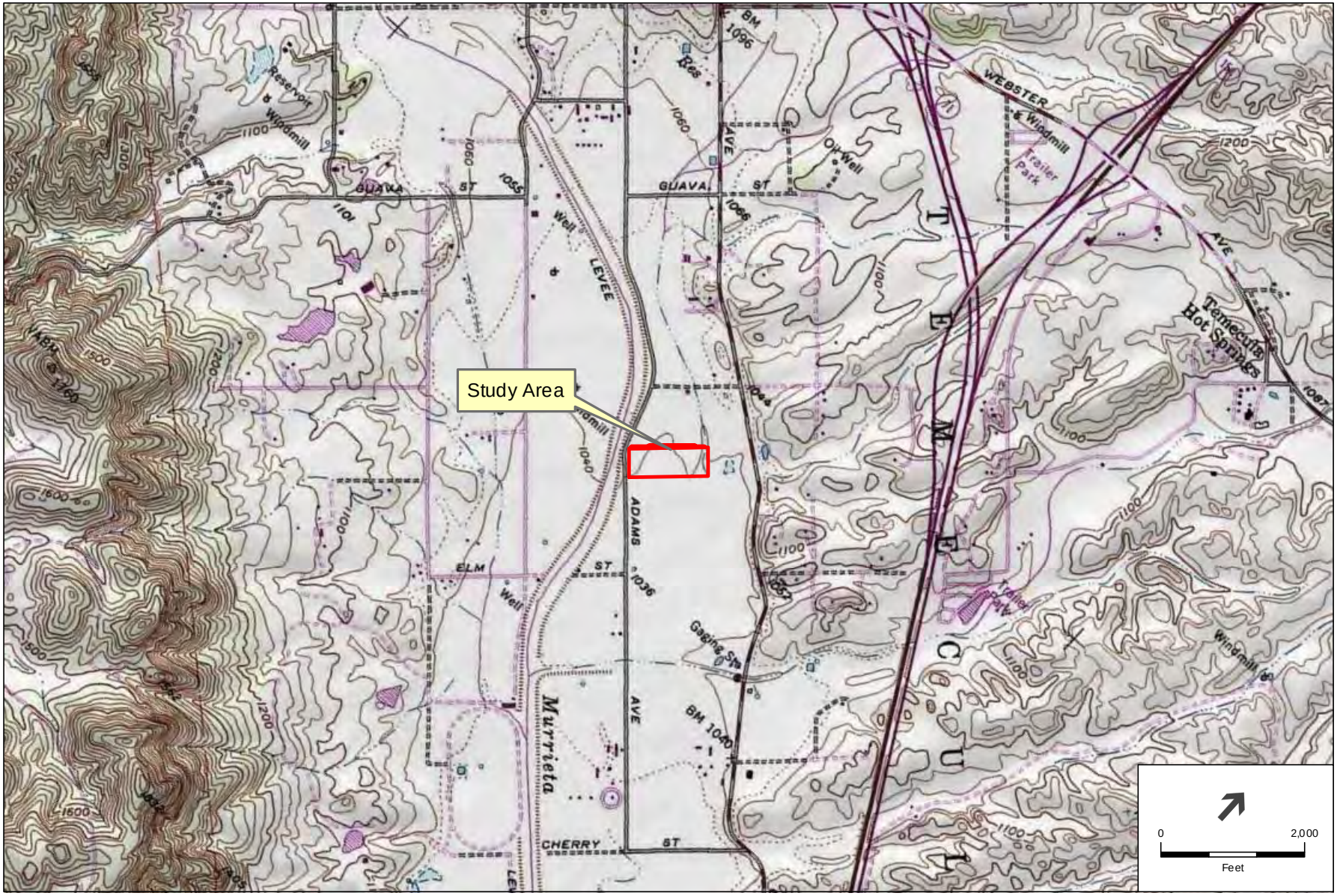


Source: ESRI Street Map, 2009; ESA PCR, 2016.

Larchmont Business Park (APN 909-060-044)

Figure 1
Regional Map

ESA PCR



Source: USGS Topographic Series (Murrieta, CA); ESA PCR, 2016.

Larchmont Business Park (APN 909-060-044)

Figure 2

Vicinity Map

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2.0

Project Description

2.1 Project Description

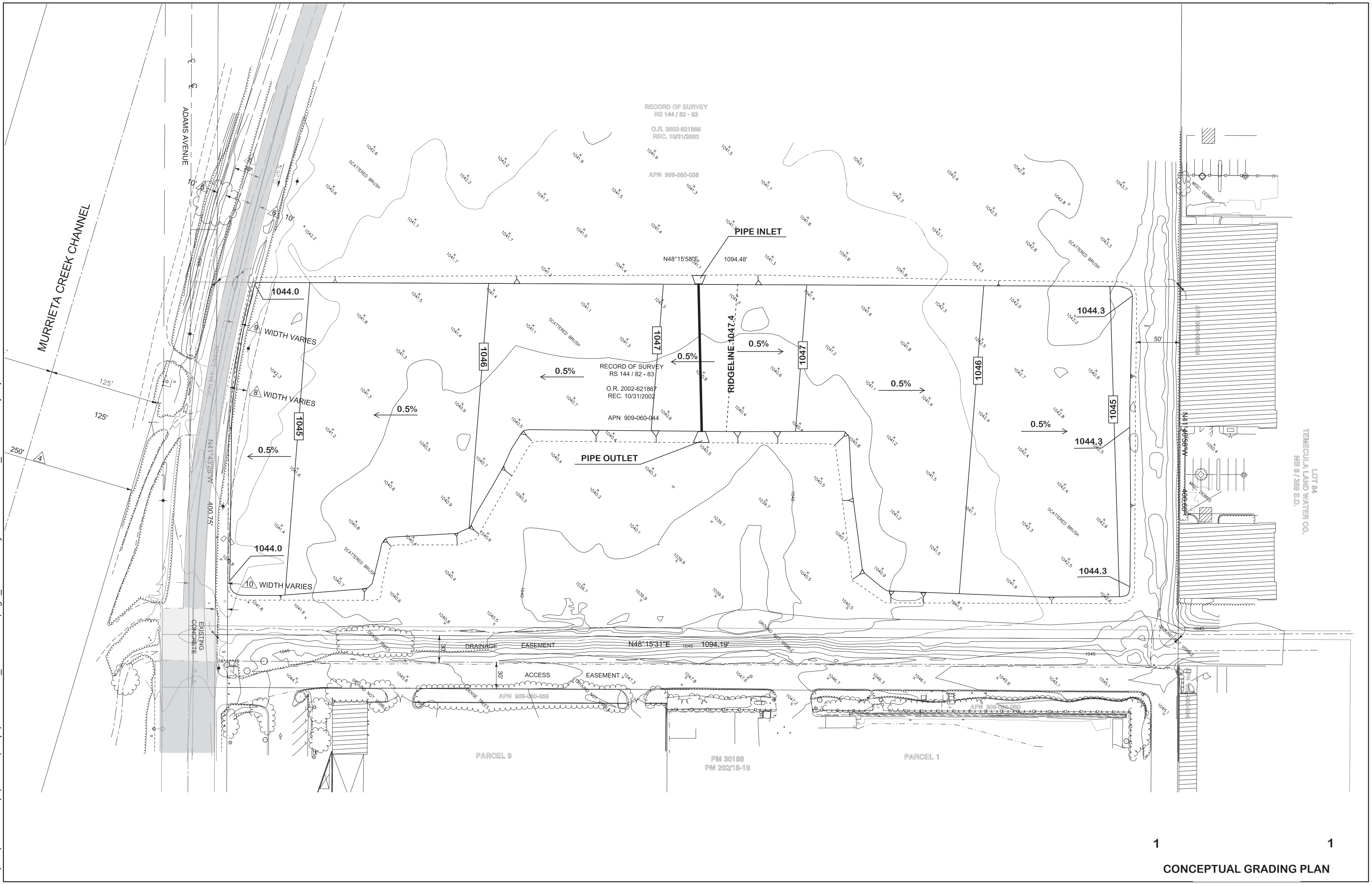
~~The~~Portions of the ~~-~~10.88-acre (10.07 acres on-site and 0.81 acre off-site) study area will be impacted as a result of grading activities in order to support a commercial development at a future date. The study area will be mass graded to support pads and manufactured slopes in the "interim project" and will eventually be fully constructed to support commercial buildings and associated infrastructure as the "ultimate project." Although no structural development is proposed at this time, this document assesses potential impacts and proposed mitigation associated with mass-grading of the interim project. The interim project grading activities will include permanent to 6.99 acres (6.67 acres on-site and 0.32 acre off-site) and temporary impacts to 0.71 ~~over 8.92~~ acre~~s~~ (0.22 acre on-site and 0.49 acre off-site) ~~on-site and 0.81 acre off-site~~ (**Figure 3**, *Interim Project Site Plan*). This document presumes that with the exception of some minor impacts for future storm drain and/or utility infrastructure, all permanent and temporary impacts to biological and jurisdictional resources associated with construction of the future ultimate project will be limited to the project study area already analyzed within this document and should not therefore result in impacts to biological resources beyond those assessed in this report.

2.2 Project Avoidance

The study area supports one drainage feature, identified as Drainage A.~~,~~ ~~a~~A portion of Drainage A that occurs along the southeastern boundary is a man-made drainage known as Larchmont Channel.[1]~~;~~ Drainage A/Larchmont Channel was determined to support "waters of the U.S." regulated by the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB) pursuant to the CWA. Drainage A/Larchmont Channel was also found to support California Department of Fish and Wildlife (CDFW) jurisdiction and MSHCP Riparian/Riverine areas. Drainage A supports a ponding feature that was determined to support suitable habitat for listed fairy shrimp. The entire ponding feature supports suitable fairy shrimp habitat and was surveyed for listed fairy shrimp species. However, the ponding feature ~~area that is subject to ponding following rain events was determined to have been~~ was likely created due to adjacent development and associated grading around 2005/2006, and only a limited portion of the ponding feature ~~area~~ was found to support field indicators associated with

[1] Larchmont Channel's specific location is depicted on Figure 10c, this figure shows the channel shortly after its initial construction.

USACE/RWQCB/CDFW and MSHCP Riparian/Riverine Areas. No wetlands or vernal pools were determined to occur on the study area. The project proposes to permanently avoid 9091% of the jurisdictional and MSHCP Riparian/Riverine Areasresources in on the study area. This includes avoiding 100% (0.814 acre) of USACE/RWQCB jurisdiction and 90% (2.669 acres) of CDFW jurisdiction and MSHCP Riparian/Riverine Areas. Additionally, the CDFW sensitive plant community black willow thicket associated with Drainage A (0.51 acre) will be completely avoided. and 82% of the ponding feature associated with Drainage A, which was also documented to support the CNPS List 1B.1 and MSHCP Covered Species smooth tarplant (*Centromadia pungens* ssp. *laevis*). The avoidance of the black willow thicket will also preserve foraging and movement habitat for the least Bell's vireo (*Vireo bellii pusillus*), which was observed just off-site within this plant community.



Source: RDS & Associates, 2017

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HELIX
Environmental Planning

Interim Project Site Plan

Figure 3

3.0

Methods of Study

3.1 Approach

This BRA is based on information compiled through field reconnaissance and appropriate reference materials. Surveys included a general biological survey and vegetation mapping; a jurisdictional waters and wetlands delineation; focused special-status plant surveys; ~~a~~ focused dry and wet season surveys for listed fairy shrimp species; and focused burrowing owl surveys.

3.2 Literature Review

Assessment of the project began with a review of relevant literature on the biological resources of the study area and surrounding vicinity. The California Natural Diversity Database (CNDDB), a CDFW[2] species account database, was reviewed for all pertinent information regarding the localities of known observations of special-status species and habitats in the vicinity of the study area (CNDDB 2016). The vicinity of the study area included the following USGS topographic quadrangles: Lake Elsinore, Menifee, Winchester, Bachelor Mountain, Pechanga, Temecula, Fallbrook, and Wildomar. Federal register listings, protocols, and species data provided by the United States Fish and Wildlife Service (USFWS) (USFWS 2016a), CDFW, and the California Native Plant Society (CNPS 2016) were reviewed in conjunction with anticipated federally and State listed species potentially occurring within the vicinity. Other data sources reviewed include USFWS critical habitat maps (USFWS 2016b) and the United States Department of Agriculture Natural Resources Conservation Service (NRCS) soils mapping (NRCS 2016). In addition, numerous regional flora and fauna field guides were utilized to assist in the identification of species and suitable habitats, in addition to relevant local policies such as the Western Riverside County MSHCP (Dudek & Associates 2003). A list of all relevant references reviewed is included in Section 11.0, *References*.

3.3 Field Investigations

A general biological survey and vegetation mapping was conducted by ESA PCR biologist Ezekiel Cooley and a delineation of jurisdictional waters and wetlands was conducted by

[2] As of January 1, 2013, the former California Department of Fish and Game name has been changed to the California Department of Fish and Wildlife.

regulatory scientist Amir Morales on April 13, 2016, to identify the presence of drainages and/or wetland features. The observed vegetation communities, jurisdictional features, and other biological features or species observations of interest were mapped on aerial photographs. Survey coverage of the entire study area was ensured using aerial photographs, with special attention to special-status habitats or those areas potentially supporting special-status flora or fauna, or jurisdictional features. Focused plant surveys were conducted on April 20 and July 7, 2016, by ESA PCR biologists Ezekiel Cooley and Lauren Singleton. A habitat assessment for burrowing owls was conducted on April 13, 2016 by ESA PCR biologist Ezekiel Cooley, and focused surveys were conducted from June to July 2016, by ESA PCR biologists Ezekiel Cooley and Amy Lee. A focused dry season survey for listed fairy shrimp was conducted by Finium Environmental ~~ESA~~ permitted biologist Crysta Dickson (TE067347-5) on July 12 and 13, 2016 and ESA PCR affiliate D. Christopher Rogers of the Kansas University. A focused wet season survey for listed fairy shrimp was also conducted by Crysta Dickson conducted between December 2016 and April 2017. The methods for these field investigations are described in detail below.

3.3.1 Plant Community Mapping

Plant communities were mapped directly in the field utilizing a 125-scale (1"=125') aerial photograph focusing on dominant plant species. Plant community names, codes, and descriptions follow A Manual of California Vegetation, Second Edition (Sawyer, Keeler-Wolf, and Evens 2009). After completing the fieldwork, the plant community polygons were digitized using Geographic Information System (GIS) technology to calculate acreages.

3.3.2 Sensitive Plant Communities

Sensitive plant communities are listed by CDFW on their *List of Vegetation Alliances and Associations* (CDFW 2010).[3] Communities on this list are given a Global (G) and State (S) rarity ranking on a scale of 1 to 5, where communities with a ranking of 5 are the most common and communities with a ranking of 1 are the rarest and of the highest priority to preserve. These high priority communities are denoted on the CDFW list with asterisks. For the purpose of this report, sensitive plant communities are those communities that have a state ranking of S3 or rarer. Sensitive habitats within the study area were identified based on the plant communities mapped (see Section 3.3.1, *Plant Community Mapping*).

3.3.3 General Plant Inventory

All plant species observed during the general and focused surveys were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy follows Baldwin (2012). Common plant names, when not available from Baldwin, were taken from Munz (1974) and/or Clarke (2007). Since common names vary significantly between references, scientific names are included upon initial mention of each species; common names only are employed

[3] Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp

thereafter and are kept consistent throughout the report. All plant species observed were recorded in field notes. Special-status plant species are discussed in Section 3.3.4, *Special-Status Plant Species*.

3.3.4 Special-Status Plant Species

The potential for special-status plant species was assessed based upon the known occurrence of species in the area as identified from USFWS, CDFW, and CNPS databases (see Section 3.2, *Literature Review*), and the presence or absence of suitable habitat within the study area based on plant community mapping (see Section 3.3.1, *Plant Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities, soils and/or topography (elevation at MSL) to support the species based on known occurrences in those habitats and/or CDFW and CNPS documented habitat descriptions for the species. The definitions of suitable habitat were then compared against the vegetation mapping conducted for the study area as well as local knowledge. ESA PCR prepared a table of special-status plant species for which potentially suitable habitat occurs within the study area, and the potential for occurrence of each species was determined following completion of the vegetation mapping conducted during the field survey.

Due to the presence of potentially suitable habitat, focused plant surveys were conducted by ESA PCR biologists Ezekiel Cooley and Lauren Singleton on April 20 and July 7, 2016 in accordance with published agency guidelines (CDFW 2009, CDFW 2000, and USFWS 2000) and during the appropriate blooming periods of potential special-status plant species to ensure detection. Although the study area is not located within a Narrow Endemic Plant Species (NEPS) or Criteria Area Species Survey Area overlay, focused surveys were conducted for plant species that are not be covered under the MSHCP but require analysis under CEQA.

3.3.5 General Wildlife Inventory

All wildlife species observed within the study area, as well as any diagnostic sign (call, tracks, nests, scat, remains, or other sign), were recorded in field notes. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. Wildlife taxonomy follows Stebbins (2003) and California Herps (2015) for amphibians and reptiles, the American Ornithologists' Union (1998) for birds, and Jameson and Peeters (1988) for mammals. Since common names vary significantly between references, scientific names are included upon initial mention of each species; common names only are employed thereafter and are kept consistent throughout the report. All wildlife species detected were recorded in field notes. Special-status wildlife species are discussed in Section 3.3.6, *Special-Status Wildlife Species*.

3.3.6 Special-Status Wildlife Species

The potential for special-status wildlife species was assessed based upon the known occurrence of species in the area as identified from USFWS and CDFW databases (see Section 3.2, *Literature Review*), and the presence or absence of suitable habitat within the study area based on plant community mapping (see Section 3.3.1, *Plant Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities and/or topography (elevation at MSL) to support the species based on known occurrences in those habitats and/or CDFW and USFWS

documented habitat descriptions for the species. The definitions of suitable habitat were then compared against the vegetation mapping conducted for the study area as well as local knowledge. ESA PCR prepared a table of special-status wildlife species for which potentially suitable habitat occurs within the study area, and the potential for occurrence for each species was determined following completion of the vegetation mapping conducted during the field survey.

Due to the presence of potentially suitable habitat and MSHCP requirements, focused burrowing owl surveys were conducted. In addition, due to the presence of potentially suitable habitat within the ponding feature associated with Drainage A, focused wet and dry season surveys for listed fairy shrimp were conducted. ~~will be required. Dry season surveys were completed in September 2016. Wet season surveys are scheduled to begin late 2016.~~ A summary of the survey methodology for each of the surveys is provided below; separate survey reports were~~/will~~ also ~~be~~ prepared following completion of the focused surveys. No other focused surveys were conducted for special-status wildlife species.

Fairy Shrimp

The study area supports and two ponding areas, which total approximately 0.22 acre and 6.92 acres located along the easterly site boundary and the center of the study area, respectively. These acreages reflect maximum inundation levels during the rainy season. The ponding areas are mostly contained within Drainage A on the study area; however, portions of both ponding areas extend off-site and to the northwest of the study area. Depending on water levels within Drainage A, the two ponding areas may or may not be contiguous. The ponding areas were determined to potentially support suitable habitat for listed fairy shrimp. Finium Environmental Biologist Crysta Dickson conducted ~~a~~ dry and wet season surveys in accordance with *Survey Guidelines for Listed Large Branchiopods* (USFWS 2015), which were both ~~determined to be~~ negative for listed fairy shrimp species.

The dry season survey consisted of soil collection, soil storage, soil analysis, cyst identification, and preservation (if applicable). Soils were collected on July 12 and 13, 2016. Soil analysis, egg identification, and preservation (if applicable) was conducted by D. Christopher Rogers of Kansas University between July and~~–~~ September 2016 (Finium 2016). ~~Wet season surveys for listed fairy shrimp species are scheduled to begin late 2016.~~ The wet season survey consisted of branchiopod sampling within the two ponding areas following the survey requirements for Survey Zone C (Southwestern California). Wet season surveys were conducted between December 2016 and April 2017 (Finium 2017).

Burrowing Owl

The study area is within the MSHCP Burrowing Owl Survey Area and supports potentially suitable habitat for burrowing owl. As such, in accordance with the County of Riverside's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006), a Step I Habitat Assessment and Step II Locating Burrows and Burrowing Owls focused surveys were conducted.

Suitable habitat was identified in the study area during the Step I Habitat Assessment, which was conducted by ESA PCR biologist Ezekiel Cooley on April 13, 2016 during the general biological survey. Suitable habitat included disturbed, low-growing vegetation; bare ground; and a few small fossorial mammal burrows. Due to the presence of suitable habitat identified during the Step I survey, Step II surveys were conducted within the study area plus a 150-meter (approximately 500 feet) buffer zone around the perimeter of the study area (collectively, the "survey area") by ESA PCR biologists Ezekiel Cooley and Amy Lee on June 2, 15, 29, and July 13, 2016. Step II surveys focused on the detection of burrowing owl individuals, small fossorial mammal burrows potentially suitable for burrowing owl, and burrowing owl diagnostic sign (e.g., molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance). Transects were utilized, spaced no more than 100 feet apart, to allow 100 percent visual coverage of the ground surface. The four focused surveys were conducted during the burrowing owl breeding season (March 1 to August 31) on separate days between two hours before sunset to one hour after or one hour before sunrise to two hours after.[4]

3.3.7 Regional Connectivity/Wildlife Movement Corridor

An analysis of wildlife movement was conducted based on information compiled from the literature, analysis of aerial photographs and topographic maps, direct observations made in the field during survey work, and an analysis of existing wildlife movement functions. Relative to corridor issues, the focus of this assessment was to determine if the change of the existing land use within the study area would have significant impacts on the regional wildlife movement associated with the study area and the immediate vicinity.

The Western Riverside County MSHCP was reviewed to identify any linkage or Core Areas proposed for preservation within the study area (Dudek & Associates 2003). Additionally, the South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion document was reviewed (South Coast Wildlands 2008).

3.3.8 Jurisdictional Delineation

A jurisdictional delineation of existing on-site drainage and wetland features was conducted by ESA PCR Principal Regulatory Scientist Amir Morales~~,~~ and Senior Biologist Ezekiel Cooley (now with HELIX Environmental Planning, Inc.)~~,~~ on April 13, 2016. The purpose of the delineation was to assess the location, extent, and acreage of "waters of the U.S." and/or wetlands under the jurisdiction of the USACE or the RWQCB, and/or streambed and associated riparian habitat under the jurisdiction of the CDFW. All areas were delineated using the protocol stipulated by the CDFW under Section 1600-1607 of the California Fish and Wildlife Code and by the USACE under Section 404 of the Clean Water Act (CWA). Any potential wetlands or vernal pools were assessed using the procedures stipulated in the USACE Wetland Delineation

[4] For projects within the Western Riverside County MSHCP plan area, it has been ESA PCR's experience that the County of Riverside has preferred that Step II surveys be conducted approximately one week apart.

Manual (Environmental Laboratory 1987) and Arid West Supplement (USACE 2008a and USACE 2008b).

The potential for USACE jurisdictional "waters of the U.S." was based primarily on the presence or absence of jurisdictional field indicators consistent with the USACE guidelines (USACE 2008a) such as the presence of an ordinary high water mark (OHWM) and/or secondary indicators of hydrology, including evidence of the deposition of debris, scour, sediment sorting, and changes in vegetation. The extent of CDFW jurisdiction was assessed based on the limits of the defined bed and bank and includes riparian streambed associated vegetation, where applicable. Areas outside of the streambed that did not exhibit a bed and bank but were deemed to support USACE jurisdiction based on the presence of an OHWM were also presumed to support CDFW jurisdiction. If these criteria were met, data was collected to estimate the acreage of jurisdictional features potentially regulated by the resource agencies. Upon completion of the field work, documentation of all jurisdictional waters was completed. The documentation included a map illustrating the location, extent, and acreage of all jurisdictional features (see Section 4.6). Downstream surface connections to known USACE jurisdictional waters were also evaluated in the field and by using satellite imagery and mapping, for the purpose of establishing a connection to downstream "waters of the U.S.," where applicable. The results of the ESA PCR jurisdictional assessment are subject to review and approval by the resource agencies as part of future regulatory permits for the project, if required. A site visit was conducted with USACE staff on September 29, 2016 who generally concurred with the limits of "waters of the U.S." as assessed by ESA PCR. A Preliminary Jurisdictional Determination was issued by Ms. Peggy Bartels of USACE on February 22, 2017. ~~The USACE delineation will be the subject of a forthcoming federal jurisdictional determination.~~

4.0

Existing Conditions

4.1 Characteristics of the Study Area

4.1.1 Study Area Characteristics

The approximately 10.88-acre (10.07 acres on-site and 0.81 acre off-site) study area is located in the City of Murrieta in Riverside County. The study area supports a mixture of native, non-native, and hydrophytic vegetation, including black willow thicket, tarplant field, western ragweed meadow, and non-native vegetation, such as annual brome grassland, foxtail barley patches, and swamp timothy sward. The northwestern and western portion of the study area supports developed areas associated with Adams Avenue.

The study area supports one drainage identified as Drainage A, Drainage A also includes a man-made channel, commonly referred to as Larchmont Channel, Drainage A was observed to support field indicators associated with USACE, RWQCB, and CDFW (collectively "the resource agencies") jurisdictional waters. Larchmont Channel is a man-made drainage feature that did not exist prior to 2005, and was created in order to accept flows from adjacent commercial development to the northeast and east of the study area and carry those flows along the southern property boundary into a tributary channel to Warm Springs Creek that runs along the eastern levy of Murrieta Creek for approximately 0.6-mile prior to entering Murrieta Creek. Larchmont Channel also accepts flow from two tributary drainages north of the intersection of Larchmont Lane and Jefferson Avenue. Due to site topography and the development directly to the south/southeast associated with a mining operation, water flowing onto the study area becomes impounded, creating a large ponding area in the center of the study area and one along the northeastern boundary of the study area associated with a man-made swale that results in "back-ponding" when the larger ponded area becomes inundated. A portion of the larger ponding area was determined to be jurisdictional in association with Drainage A. Drainage A, which was determined to support USACE/RWQCB "waters of the U.S." and CDFW streambed and riparian vegetation, is located along the northeastern and southeastern study area boundaries. A more detailed discussion of jurisdictional waters findings is provided in Section 4.6 below. Larchmont Channel supports the CDFW sensitive plant community black willow thicket along the entirety of the channel along its eastern and southeastern reach. Portions of Drainage A within the larger ponding area support the CDFW sensitive plant community tarplant field and potential habitat for listed fairy shrimp species. The tarplant field is dominated by CNPS List 1B.1 and MSHCP Covered, smooth tarplant (*Centromadia pungens* ssp. *laevis*).

Elevations in the study area range from approximately 1,040 feet above mean sea level (MSL) in the southwestern portion to approximately 1,055 feet above MSL in the eastern portion of the study area. As shown in **Figure 4**, *Soils Map*, the mapped soils in the study area include the following three soil types (NRCS 2016):

- Grangeville fine sandy loam, drained, 0 to 2 percent slopes;
- Greenfield sandy loam, 0 to 2 percent slopes; and
- Riverwash.

Surrounding land uses immediately adjacent to the study area include the Murrieta Valley Pony Baseball athletic fields to the northwest, Murrieta Creek to the southwest, and industrial development to the northeast and southeast. The study area is within the Southwest Area Plan of the MSHCP (**Figure 5**, *Relationship to the MSHCP*).

4.2 Plant Communities

Descriptions of each of the plant communities found within the study area are provided below and their corresponding California Natural Community Code (CaCodes) assigned by CDFW are in parentheses (CDFW 2010). The locations of each of the plant communities are shown in **Figure 6**, *Plant Communities*. **Table 1**, *Plant Communities*, lists each of the plant communities observed, as well as the acreage within the study area. Representative photographs of plant communities found within the study area are included in **Figure 7a**, *Site Photographs* and **Figure 7b**, *Site Photographs*.

TABLE 1
PLANT COMMUNITIES

Plant Communities	Total Area (acres)	
	On-site	Off-site
Black Willow Thicket[a]	0.51	0.00
Tarplant Field[a]	5.18	0.32
Western Ragweed Meadow	0.02	0.05
Annual Brome Grassland	1.99	0.33
Annual Brome Grassland/Cream Cup Field	0.55	0.05
Annual Brome Grassland/Tarplant Field	0.77	0.04
Foxtail Barley Patch	0.44	0.01
Swamp Timothy Sward	0.51	0.00
Developed	0.10	0.01
Total	**10.07**	**0.81**

NOTES:

[a] These communities are high priority [for conservation] vegetation communities denoted on the CDFW "List of California Terrestrial Natural Communities".

SOURCE: ESA PCR, 2016

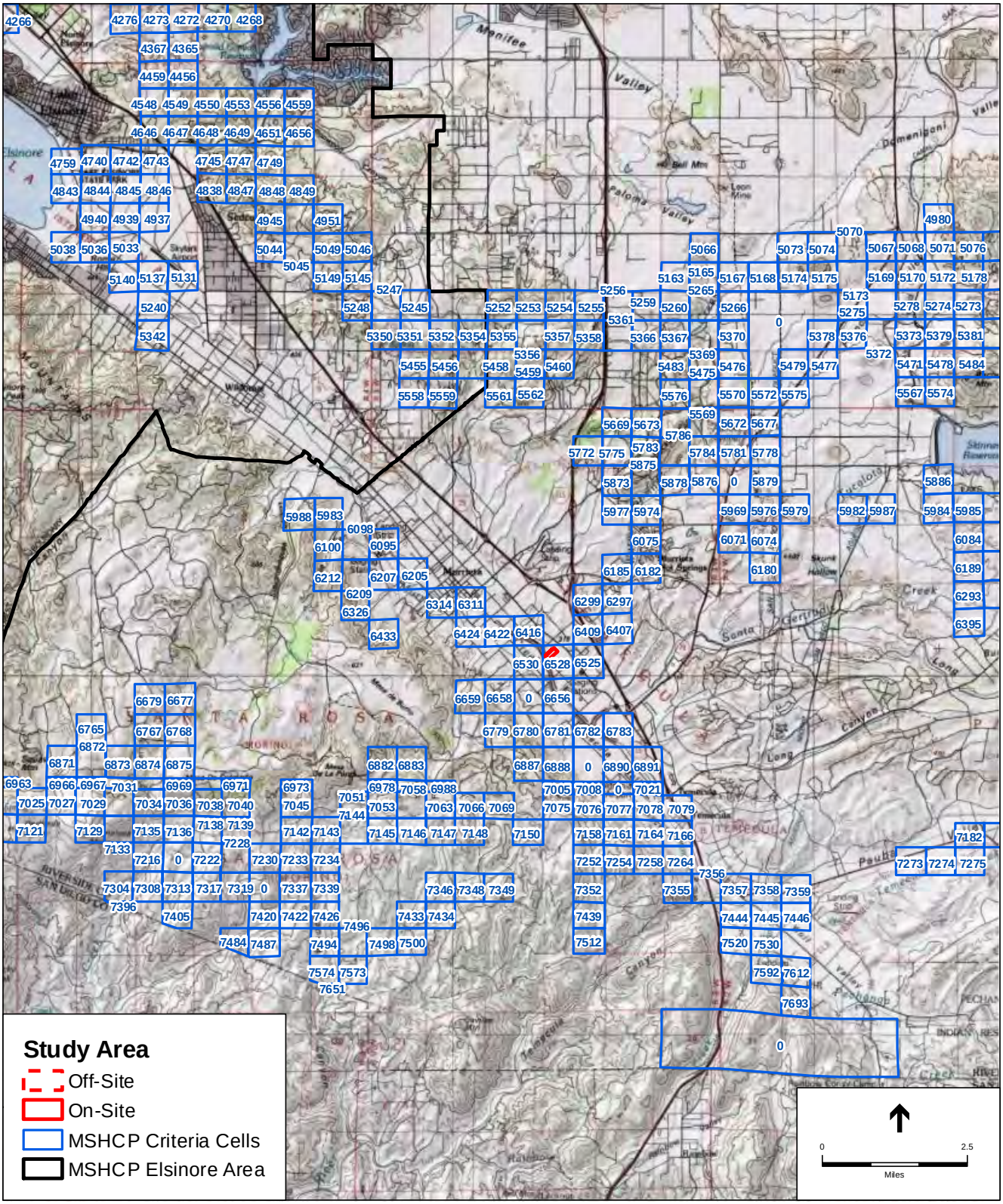
SOURCE: Google, 2015, USDA NRCS, 2005

Larchmont Business Park (APN 909-060-044)

Figure 4

Soils Map

ESA PCR



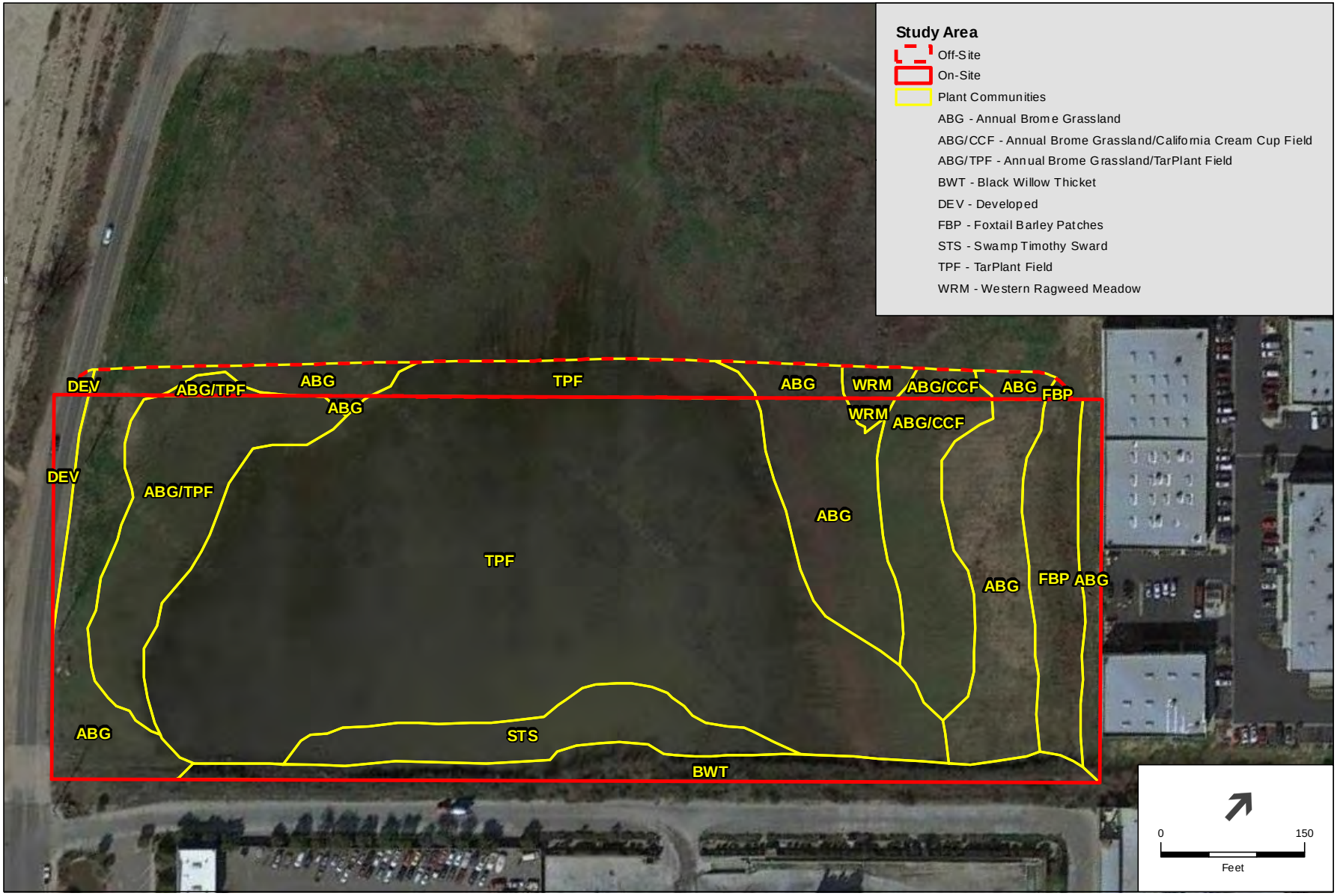
SOURCE: USGS Topographic Series; MSHCP.

Larchmont Business Park (APN 909-060-044)

Figure 5

Relationship to the MSHCP

ESA PCR



SOURCE: Google Maps, 2016; ESA PCR 2016.

Larchmont Business Park (APN 909-060-044)

Figure 6

Plant Communities

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PHOTOGRAPH 1. View of the tarplant field community in the foreground and the black willow thicket community in the background, facing southeast.

PHOTOGRAPH 2. View of tarplant field community, facing northwest.

PHOTOGRAPH 3. View of the western ragweed meadow community, facing north.

SOURCE: ESA PCR, 2016

Larchmont Business Park (APN 909-060-044)

Figure 7a
Site Photographs

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PHOTOGRAPH 4. View of the annual brome grassland community, facing west.

PHOTOGRAPH 5. View of the annual brome grassland/tarplant field, facing northwest.

PHOTOGRAPH 6. View of the annual brome grassland/cream cup field community, facing north.

SOURCE: ESA PCR, 2016

Larchmont Business Park (APN 909-060-044)

Figure 7b
Site Photographs

ESA PCR

4.2.1 Black Willow Thicket (*61.211.00)

Black willow thicket is CDFW sensitive plant community (see Section 4.7.4, *Sensitive Plant Communities*) and is woodland alliance dominated by black willow (*Salix gooddingii*). This community occurs along large rivers, small intermittent streams, and seeps/springs where water is available. Within the study area, mule fat (*Baccharis salicifolia*) is a subdominant species within this community. Black willow thicket occurs within a linear patch associated with Larchmont Channel along the southeastern boundary of the study area. Black willow thicket occupies approximately 0.51 acre of the on-site study area.

4.2.2 Tarplant Field (*44.160.01)

The tarplant field is a CDFW sensitive plant community (see Section 4.7.4, *Sensitive Plant Communities*) and is a herbaceous alliance dominated by smooth tarplant ~~*(Centromadia pungens ssp. laevis)*~~, which is a CNPS-ranked 1B.1 species (see Section 4.7.5, *Special Status Plant Species*). This community grows at the edge of ponding features within fine-textured clay soils or other soils that are poorly drained. Within the study area, associated species include Baccone's sand spurry (*Spergularia bocconi*), common purslane (*Portulaca oleracea*), curly dock (*Rumex crispus*), Hyssop loosestrife (*Lythrum hyssopifolia*), Persian knotweed (*Polygonum argyrocoleon*), short woollyheads (*Psilocarphus brevissimus*), and western marsh cudweed (*Gnaphalium palustre*). Tarplant field dominants the ponding area in the central portion of the study area and occupies approximately 5.18 acres on-site and 0.32 acre off-site.

4.2.3 Western Ragweed Meadow (33.065.00)

Western ragweed meadow is an herbaceous alliance dominated by western ragweed (*Ambrosia psilostachya*) and occurs within intermittently wet and disturbed meadows that support sandy to clay loam soil. Within the study area, English plantain (*Plantago lanceolata*) and purple nutsedge (*Cyperus rotundus*) are subdominant species within this community. Other associated species include Canadian horseweed (*Erigeron canadensis*), cream cups (*Platystemon californicus*), foxtail barley (*Hordeum murinum*), foxtail chess (*Bromus madritensis* ssp. *rubens*), Menzies' fiddleneck (*Amsinckia menziesii*), and mule fat. There is one patch of western ragweed meadow that occurs in the northern portion of the study area and comprises approximately 0.02 acre on-site and 0.05 acre off-site.

4.2.4 Annual Brome Grassland (42.026.21)

Annual brome grassland is a semi-natural herbaceous community of dense to sparse cover of exotic annual grasses, often with native annual forbs ("wildflowers"). Within the study area, this community is dominated by ripgut grass (*Bromus diandrus*). Other species observed within this community included foxtail chess, jimson weed (*Datura wrightii*), redstem filaree (*Erodium cicutarium*), and winter vetch (*Vicia villosa*). Annual brome grassland dominants the study area and comprises approximately 1.99 acres on-site and 0.33 acre off-site.

4.2.5 Annual Brome Grassland (42.026.00)/Cream Cup Field (Not Applicable)

Annual brome grassland/cream cup field is dominated by species associated with the annual brome grassland community described in section 4.2.4 above. The cream cup field component of this community occurs as small patches intermixed with the annual brome grassland. The cream cup field is an herbaceous alliance dominated by cream cups, which is a native poppy species. Observed species associated with the cream cup field component of this community include bur clover (*Medicago polymorpha*), English plantain, miniature lupine (*Lupinus bicolor*), and scarlet pimpernel (*Anagallis arvensis*). Annual brome grassland/cream cup field occurs as a single patch in the eastern portion of the study area and comprises approximately 0.55 acre on-site and 0.05 acre off-site.

4.2.6 Annual Brome Grassland (42.026.00)/Tarplant Field (*44.160.01)

This community is dominated by annual brome grassland with sparsely intermixed patches of tarplant field as a subdominant component. The components of these vegetation communities are consistent with the species described above, including Section 4.2.4 for annual brome grassland and Section 4.2.2 for tarplant field. Annual brome grassland/tarplant field occurs as a single patch in the southwestern portion of the study area and comprises approximately 0.77 acre on-site and 0.04 acre off-site.

4.2.7 Foxtail Barley Patch (Not Applicable)

Foxtail barley patch is a semi-natural herbaceous community dominated by foxtail barley, an exotic annual grass, and nutsedge occurs as a subdominant species. Other associated species observed within this community include bur clover, Canadian horseweed, common sunflower (*Helianthus annuus*), jimson weed, ripgut, and rough cocklebur (*Xanthium strumarium*). Foxtail barley patch is associated with Drainage A in the eastern portion of the study area and occupies 0.44 acre on-site and 0.01 acre off-site.

4.2.8 Swamp Timothy Sward (Not Applicable)

Swamp timothy sward is a semi-natural herbaceous community that supports an expanse of the exotic grass species, swamp timothy (*Crypsis schoenoides*). Within the study area, other associated species observed within this community include common purslane, common sunflower, rough cocklebur, and willow-weed (*Persicaria lapathifolia*). One linear patch of swamp timothy sward is located in between the black willow thicket and tarplant field near to the eastern boundary of the study area, comprising approximately 0.51 acre on-site.

4.2.9 Developed (Not Applicable)

Developed areas include man-made structures, such as roadways and buildings, and are typically unvegetated. Within the study area, the developed area consists of Adams Avenue in the western

portion of the study area. Developed areas occupy approximately 0.10 acre on-site and 0.01 acre off-site.

4.3 General Plant Inventory

The plant communities discussed above are comprised of a variety of plant species. A list of all plant species observed during the field visits to the project is provided in **Appendix A**, *Floral and Faunal Compendium*. Special-status plant species occurring or potentially occurring within the study area are discussed in Section 4.7.5, *Special-Status Plant Species*.

4.4 General Wildlife Inventory

The plant communities discussed above provide habitat for common wildlife species. A list of all wildlife species observed during the field visits to the study area is provided in Appendix A. Special-status wildlife species occurring or potentially occurring are discussed in Section 4.7.6, *Special-Status Wildlife Species*.

4.5 Wildlife Movement

4.5.1 Overview

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic material (MacArthur and Wilson, 1967; Soulé, 1987; Harris and Gallagher, 1989; Bennett, 1990).

Corridors effectively act as links between different populations of a species. A group of smaller populations (termed "demes") linked together via a system of corridors is termed a "metapopulation." The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increase overall genetic diversity. An increase in a population's genetic variability is generally associated with an increase in a population's health and long-term viability.

Corridors mitigate the effects of habitat fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing

the risk that catastrophic events(such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983; Fahrig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and, (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Although the nature of each of these types of movement is species specific, large open spaces will generally support a diverse wildlife community representing all types of movement. Each type of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds on a "local" level to home ranges encompassing many square-miles for large mammals moving on a "regional" level. A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," and "wildlife crossing" to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

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

Wildlife Corridor: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.

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

4.5.2 Wildlife Movement Within the Study Area

As previously described, wildlife movement activities occur at a variety of scales from a "local" level to a "regional" level. The study area is bordered by athletic fields to the northwest, Adams Avenue and Murrieta Creek to the southwest, and industrial development to the northeast and southeast. Regional wildlife movement is limited due to the high level of surrounding development to the northwest, northeast, and southeast. Murrieta Creek provides the primary

opportunity for regional movement within the vicinity of the study area, which is a major tributary to the Santa Margarita River. Murrieta Creek facilitates regional movement within southwestern Riverside County and provides live-in habitat for a number of local wildlife species. Although the study area is adjacent to Murrieta Creek, Adams Avenue disrupts the connection of the study area to Murrieta Creek. Wildlife may cross Adams Avenue to access the study area from Murrieta Creek; however, wildlife movement to the north is constrained by industrial development directly adjacent to the study area and the I-15 freeway, which is approximately 0.65 mile to the east of the study area. Constraints to regional wildlife movement through the study area are discussed in further detail below.

The study area supports one drainage feature that was analyzed for wildlife movement identified as Drainage A. Drainage A/Larchmont Channel enters the study area in the eastern corner of the site, after which it backflows and impounds into a shallow man-made swale feature along the northeastern study area boundary following significant rain events. The channel also flows along the southern property boundary and flows leaving the site enter a tributary to Warm Springs Creek via an Arizona crossing located off-site near the southwest corner of the study area. Due to the approximately 2-foot difference in elevation between the center of the site and the off-site Arizona crossing outlet, flows only leave the site once sufficient runoff become impounded on the property through the paved Arizona crossing within Adams Avenue. The impoundment of water results in a large ponding feature that encompasses a majority of the central portions of the study area following significant rain events. Once the central portion of the study area is inundated, flows are also forced into a man-made swale along the easterly boundary adjacent to existing development resulting in a much smaller back-ponded condition in that location as well.

The headwaters of Drainage A/Larchmont Channel appear to originate off-site to the northeast of the study area in association with two tributary drainage features that initiate directly east of the I-15, just southeast of the I-15/I-215 interchange. From the east side of the I-15, the tributaries continue to meander southwest, crossing under several roads and rural residential areas. The Drainage A/Larchmont Channel tributaries then enter storm drain culverts beneath Jefferson Avenue, and enter the man-made Larchmont Channel at the intersection of Jefferson Avenue and Larchmont Lane, where flows enter the study area from the eastern corner. The majority of Drainage A, upstream from the study area, appears to support only sparse vegetation, with some areas that are completely unvegetated. The portion of Larchmont Channel that flows between Jefferson Avenue and the study area appears to support sparse patches of riparian vegetation. Within the study area, Larchmont Channel supports primarily black willow interspersed with some stands of mule fat and non-native grassland communities.

Since Drainage A/Larchmont Channel supports some riparian vegetation, the channel may facilitate limited local wildlife movement and provide a limited connection for wildlife to access Murrieta Creek from the area to the north of the study area. The riparian vegetation on-site is narrow in width (<50 feet) and wildlife movement via Drainage A is likely limited for larger mammal species due to the presence of surrounding development, including industrial development, roads and freeways, and the lack of contiguous vegetative cover upstream of the study area. Local movement through the study area is discussed in further detail below.

The southwestern portion of the study area is within MSHCP Proposed Constrained Linkage (CL) 13, which encompasses Murrieta Creek (see Figure 5). The Proposed CL 13 would connect Existing Core F in the north, which includes the Santa Rosa Plateau Ecological Reserve, to Proposed Linkage 10 in the south, which would provide connection to the Santa Margarita Ecological Reserve. Core F and Proposed Linkage 10 are approximately 1.4 miles and 1.0 mile to the southwest of the study area, respectively. The majority of Proposed CL 13 is constrained by existing urban development and agricultural areas. The intent of Proposed CL 13 is to conserve the remaining high-quality riparian habitat that exists within the Proposed CL 13, particularly for species such as yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), and least Bell's vireo. Preservation of Proposed CL 13 would also maintain habitat for western pond turtle (*Emys marmorata*) and arroyo chub (*Gila orcuttii*).

~~Areas, where~~ Portions of Proposed CL 13 that occur~~s~~ within the study area don't support high-quality riparian habitat for yellow warbler, yellow-breasted chat and least Bell's vireo. These areas primarily support non-native grassland species~~ and lack the suitable riparian habitat characteristics necessary to support movement of these species~~. Although the black willow thickets on the study area support some suitable habitat for these species, higher quality nesting habitat is present further upstream and to the northeast of the study area. Nonetheless, the black willow thicket on the study area supports suitable habitat for these species and provides habitat for individuals that may be moving through the study area to access higher quality habitat within Proposed CL 13. A portion of the ponding feature within the study area occurs within Proposed CL 13. The presence of the large ponding area may provide suitable habitat for the western pond turtle; however, this habitat isn't considered high-quality riparian habitat. Due to the ephemeral nature of the ponding area, this species isn't expected to breed or be a permanent resident of the study area; although it may utilize the study area for foraging and basking when water is present.

The study area is not within any linkages identified by the South Coast Missing Linkages report; the nearest linkage design identified is for the Santa Ana – Palomar Connection located approximately 4.0 miles to the south of the study area (South Coast Wildlands 2008). Since the study area is not identified as a linkage by the South Coast Wildlands, and it does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the study area is not considered a wildlife corridor. The study area may provide limited opportunities for wildlife movement, more likely for local wildlife movement as described below.

Movement on a smaller or "local" scale could occur within the study area for species that are less restricted in movement pathway requirements or are adapted to urban areas (e.g., raccoon (*Procyon lotor*), stripped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and bird species in general). Habitat within the study area likely supports habitat for some wildlife movement within the study area and/or nearby areas for foraging and shelter. Data gathered from the biological survey indicates that the study area contains habitat that supports common species of invertebrates, reptiles, birds, and mammals. The home range and average dispersal distance of many of these species may be entirely contained within the study area and immediate vicinity, while bird species in the vicinity may utilize the study area for foraging and breeding.

Populations of animals such as insects, reptiles, small mammals, and a few bird species may find all their resource requirements without moving far or outside of the study area at all. Occasionally, individuals expanding their home range or dispersing from their parental range will attempt to move outside of the study area, if feasible, based on the surrounding restrictions to movement from development (see above). Bird species may fly over the development and freeways to utilize the study area for foraging, although this is expected to be limited due to the high level of human activity in the region.

The study area supports a limited amount of suitable habitat for the least Bell's vireo and yellow warbler along the eastern boundary where the black willow thicket occurs. Movement habitat for least Bell's vireo and yellow warbler would be limited to Drainage A/Larchmont Channel. However, no direct impacts to these species' movement during the nesting season is expected as the riparian habitat within Drainage A (black willows thicket) will not be removed by the proposed project. ~~be avoided, as well as~~ Indirect impacts to these species during construction and post-construction will be minimized by implementing ~~pre- and post-project~~ avoidance measures~~,~~ and project design features. ~~which are~~ These measures are discussed in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Special-Status Wildlife Species* and Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to Migratory or Nesting Birds.*

In summary, the study area may support live-in and movement habitat for species on a local scale (i.e., some live-in and at least marginal movement habitat for invertebrates, reptiles, birds, and small mammal species). Due to the surrounding development and limited riparian corridor associated with Drainage A/Larchmont Channel, the study area likely provides minimal function to facilitate movement for a diversity of wildlife species on a regional scale. Additionally, the study area is not within an MSHCP Core Area or Linkage and is not identified as a regionally important dispersal or seasonal migration corridor by South Coast Wildlands.

4.6 Jurisdictional Waters

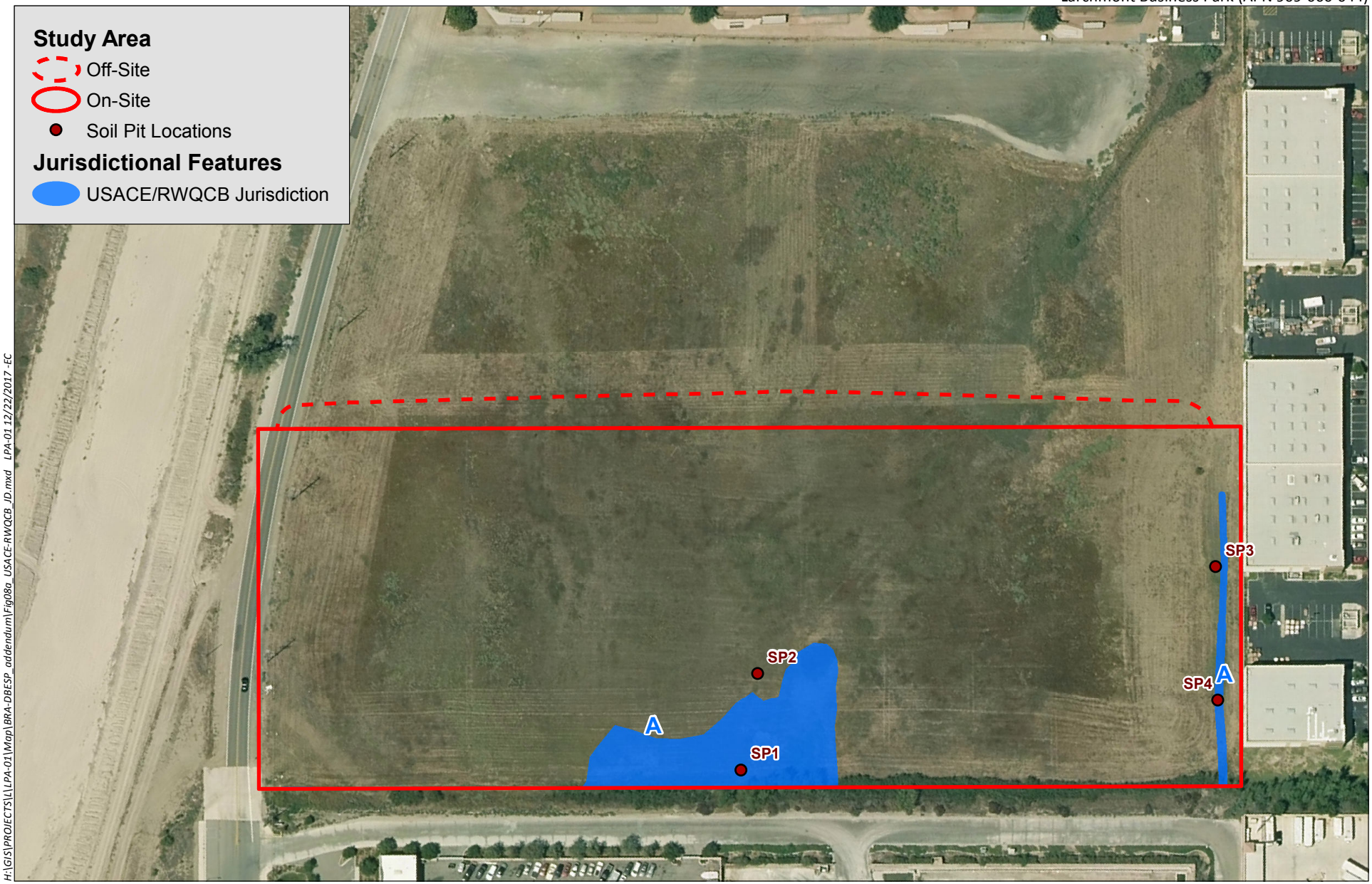
Based on the jurisdictional delineation conducted by Principal Regulatory Scientist Amir Morales, and Senior Biologist Ezekiel Cooley, on April 13, 2016 the approximately 10.88-acre study area supports one drainage feature identified as Drainage A/Larchmont Channel. In total, the study area was determined to support approximately 0.814 acre of USACE/RWQCB "waters of the U.S." (**Figure 8a**, *Revised USACE/RWQCB Jurisdiction*) and 2.967~~1.103~~ acres of CDFW jurisdictional streambed and MSHCP Riparian/Riverine Areas (**Figure 8b**, *Revised CDFW Jurisdiction and MSHCP Riparian/Riverine Areas ~~Jurisdictional Features and MSHCP Riparian/Riverine Areas~~*). No wetlands, vernal pools, or other special aquatic sites were observed within the study area. Photographs of the drainage features are provided in **Figures 9a** and **9b**, *Jurisdictional Features Photographs*. **Table 2**, *Jurisdictional Features*, provides a summary of the jurisdictional features assessed. A description of Drainage A/Larchmont Channel is provided below.

TABLE 2
JURISDICTIONAL FEATURES

Drainage	Length (ft)	USACE/RWQCB (acres)	CDFW (acres)
A	1,406	0.814	2.9671~~1.103~~
Total	**1,406**	**0.814**	**2.9671~~1.103~~**

SOURCE: ESA PCR, 2016~~.~~

Larchmont Business Park (APN 909-060-044)



H:\GIS\PROJECTS\LLPA-01\Map\BRA-DBESP_addendum\Fig08a_USACE-RWQCB_JD.mxd LPA-01 12/22/2017 -EC

0 150 Feet

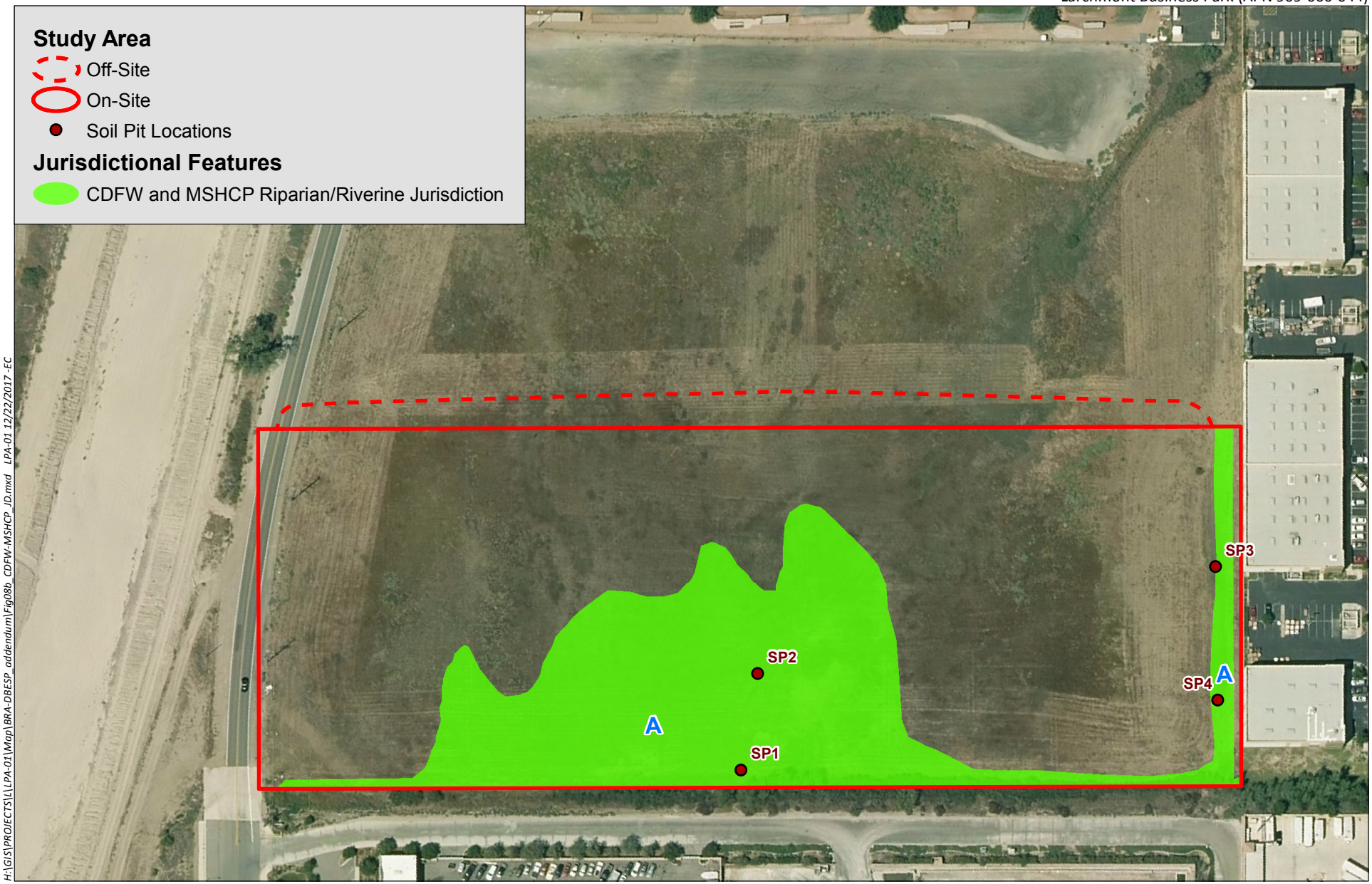
Source: Base Map Layers (Eagle Aerial, 2014; ESA, 2016)

HELIX Environmental Planning

Revised USACE/RWQCB Jurisdiction

Figure 8a

Larchmont Business Park (APN 909-060-044)



Source: Base Map Layers (Eagle Aerial, 2014; ESA, 2016)

HELIX Environmental Planning

Revised CDFW Jurisdiction and MSHCP Riparian/Riverine Areas

Figure 8b

PHOTOGRAPH 1. Photograph of Drainage A, facing northeast (upstream).

PHOTOGRAPH 2. Photograph of the streambed within Drainage A.

PHOTOGRAPH 3. Photograph of ponding within Drainage A, facing southeast.

PHOTOGRAPH 4. Photograph of Drainage A where back ponding occurs, facing southeast.

SOURCE: ESA PCR, 2016

Larchmont Business Park (APN 909-060-044)

Figure 9a

Jurisdictional Features Photographs

ESA PCR

PHOTOGRAPH 5. Photograph of soil pit 1.

PHOTOGRAPH 6. Photograph of soil pit 2.

SOURCE: ESA PCR, 2016

Larchmont Business Park (APN 909-060-044)

Figure 9b

Jurisdictional Features Photographs

ESA PCR

The study area supports one drainage feature, identified as Drainage A, which was determined to support "waters of the U.S." regulated by USACE and RWQCB pursuant to the CWA. A portion of Drainage A that occurs along the southeastern boundary is a man-made drainage named Larchmont Channel; Drainage A/Larchmont Channel was also found to support CDFW jurisdiction and MSHCP Riparian/Riverine areas. Larchmont Channel is an entirely man-made drainage feature that did not exist prior to 2005, and was created in order to accept flows from adjacent commercial development to the east and northeast of the study area, and carry those flows into Murrieta Creek via tributary to Warm Springs Creek. The channel was also constructed to convey flow from two off-site tributary drainage features located on property north/northeast of the intersection of Larchmont Lane and Jefferson Avenue. Following measurable and sequential rain events, flows in the channel overtop the small man-made banks resulting in ponding of much of the central portion of the site, in addition to back-ponding that occurs within a man-made swale along the east/northeast boundary adjacent to existing commercial development. This ponding occurs due to the site topography which is up to 2 feet lower in elevation than the off-site Arizona crossing on Adams Avenue located adjacent to the southern corner of the property, combined with the fact that the off-site property located directly adjacent to the southern project boundary was elevated to support a road associated with a mining operation. The adjacent commercial developments to the east/northeast, mining operation to the south, and construction of Larchmont Channel all occurred from 2003-2006. Therefore, the hydrologic conditions currently observed on the property did not exist prior to this time as further described below in Section 4.6.1 below.

4.6.1 Drainage A (Larchmont Channel)

The study area supports one drainage feature, identified as Drainage A, which was determined to support "waters of the U.S." regulated by USACE and RWQCB pursuant to the CWA as well as CDFW jurisdiction and MSHCP Riparian/Riverine areas. The limits of CDFW jurisdiction were found to be consistent with the limits of Riparian/Riverine Areas pursuant to Section 6.1.2 of the MSHCP. Initially it was presumed that a tributary to Drainage A occurred along the easterly boundary as ponding was observed in this area during the April 13, 2016 site visit. However, no evidence of a streambed occurs upstream of this area and it was determined that the ponded water was flow from Drainage A that had "back-ponded" into the area. As such, the inundated swale was presumed to be part of Drainage A. Soil pits were examined at the most saturated locations, and along the fringes of the wettest portions of the site. The criteria for wetlands and/or vernal pools were not met due to a lack of hydric soils as documented in **Appendix B**, *Wetland Data Sheets*. Once the potential for wetlands and/or vernal pools within the study area were ruled out, *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008) was consulted to determine what extent of areas known to support ponding may support non-wetland "waters of the U.S." given the lack of standard field indicators such as impressions on a bank, wracks, sediment sorting, within these areas. Ultimately, the determination of jurisdiction was based on a combination of geomorphic and vegetative OHWM indicators identified below the limits of ordinary high water resulting from the seasonally-influenced periodic inundation within the ponding areas. Specifically, the occurrence of geomorphic soil desiccation or "mudcrack" indicators combined with the presence of hydroriparian indicators such as the occurrence of wetter species such as yellow nut sedge

(*Cyperus esculentus*), were observed only within areas of the ponding that are the last to dry following rain events. These areas were therefore included as "waters of the U.S." in addition to Larchmont Channel as they were adjacent features that accepted flow from the channel when the relatively small banks are breached during sequential storm events that inundate much of the study area. Larchmont Channel was observed to support patches of monotypic vegetation such as black willow or mule fat, while ponding areas determined to support jurisdictional waters exhibited wetter vegetation types such as yellow nut sedge and swamp timothy which support a facultative wet (FACW) wetland indicator status according to the USACE's 2014 National Wetland Plant List[5].

Most historical aerials depict a history of disking in the study area. When disturbances, such as disking, occur in sandy loam soils, the silty components separate from the sandy components and settle deeper into the soil, creating a quasi-hardpan that can temporarily hold water. However, the hardpan doesn't function on the same level as the hardpans within true vernal pools. Water percolates much faster then what can form and support a wetland and other aquatic species to some degree. Within the study area this condition, coupled with the rerouting and impoundment of water onto the study area, created a hydrological regime that would allow water to pond in the study area during and for short periods of time after rain events, but didn't allow for the formation of a wetland or vernal pool, which was evidenced by the lack of field indicators documented during the jurisdictional delineation conducted in the study area. The following provides a historical analysis of the site conditions based on aerial imagery.

Historic Hydrologic Conditions

Given the saturated conditions that dominate the site for some time after storm events combined with the absence of wetlands and/or vernal pools within the study area due to a lack of hydric soils, ESA PCR conducted historic aerial research to better understand the origins of the ponded features observed in associated with Drainage A/Larchmont Channel. Based on review of historic aerial imagery taken in 1938, 1996, 2005, and 2006, it was determined that the channel and associated ponding areas were created around 2006 due to surrounding development that resulted in the construction of Larchmont Channel which concentrates flows on the site, combined with the grading that occurred in 2005/2006 that effectively created a depressional condition on the site (**Figures 10a-10d**, *Historic Aerials*).

1938 Aerial

Based on the 1938 aerial image provided as Figure 10a, Murrieta Creek can be seen in its natural form without confinement from levees. A drainage feature historically known as Larchmont Wash can be seen meandering along the easterly border of the site prior to continuing toward the south/southeast for several hundred linear feet prior to terminating as a "losing stream" likely due

[5] Based on the 2014 USACE National Wetlands Plant List for the arid southwest United States accessed on April 14, 2016, at http://rsgisias.crrel.usace.army.mil/nwpl_static/data/DOC/lists_2016/National/National_2016v2.pdf

to the flat, sandy nature of that area. In this historic condition, Larchmont Wash does not connect to Warm Springs Creek or Murrieta Creek and does not exhibit ponding on the study area.

SOURCE: USDA (Aerial), 1938.

Larchmont Business Park (APN 909-060-044)

Figure 10a

1938 Historic Aerial Photograph

ESA PCR

1996 Aerial

As shown in the 1996 historical aerial provided as Figure 10b, the study area existed as an open space field that was surrounded by open space, sparse rural development and Murrieta Creek. Consistent with the 1938 drainage condition, remnant indicators of the historic Larchmont Wash can still be seen traversing the northeastern property boundary and dissipating into sheet flow several hundred feet south/southeast of the study area. However, the indicators of flow are less pronounced because historic Larchmont Wash has since been diverted directly into Murrieta Creek at Guava Street approximately 1-mile north of the site as part of the implementation of the USACE's Master Drainage Plan for the area. However, no evidence of ponding can be seen in the study area in this aerial.

2005 Aerial

In the aerial image from 2005 provided as Figure 10c, evidence of surrounding development appears. The commercial development to the east of the study area is nearly completed and the adjacent commercial development to the east/northeast has been graded and foundations lain. The construction of Larchmont Channel is evident between the commercial development pads and within the study area. The mining operation to the south and the corresponding road that was elevated effectively terminated the ability for flows to continue to the south similar to the historic condition associated with Larchmont Wash observed through the1996 imagery. No ponding is visible within the study area.

2006 Aerial

In the 2006 aerial image provided as Figure 10d, construction of development continues to the east and northeast. Evidence of ponding is now visible within the study area. Adams Avenue is unpaved and the Arizona crossing is evident at the southern corner of the property.

4.7 Special-Status Biological Resources

The following discussion describes the plant and wildlife species present, or potentially present, within the study area that have been afforded special recognition by Federal, State, or local resource conservation agencies and organizations. These species have declining or limited population sizes, usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected special-status species are classified by either Federal or State resource management agencies, or both, as threatened or endangered, under provisions of the Federal and State Endangered Species Acts (FESA and CESA, respectively).

SOURCE: Google Maps, 1996.

Larchmont Business Park (APN 909-060-044)

Figure 10b

1996 Historic Aerial Photograph

ESA PCR

SOURCE: Google Maps, 2005.

Larchmont Business Park (APN 909-060-044)

Figure 10c

2005 Historic Aerial Photograph

ESA PCR

SOURCE: Google Maps, 2006.

Larchmont Business Park (APN 909-060-044)

Figure 10d

2006 Historic Aerial Photograph

ESA PCR

4.7.1 Federal Special-Status Resource Protection and Classifications

FESA

The FESA of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally listed plant or animal species, the property owner and agency are required to consult with USFWS pursuant to Section 7 of the ESA if there is a federal nexus, or pursuant to Section 10 of the ESA. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

All references to Federally-protected species in this BRA include the most current published status or candidate category to which each species has been assigned by USFWS. For purposes of this assessment the following acronyms are used for Federal status species, as applicable:

- FE Federally-listed as Endangered
- FT Federally-listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FC Federal candidate species (former C1 species)

Some of the USFWS offices maintain a database of listed species within their jurisdiction, for example the Sacramento[6] and Carlsbad[7] offices. The Carlsbad USFWS Office jurisdiction encompasses the counties of Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego.

6 http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-overview.htm

7 http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List.htm

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects individuals as well as any part, nest, or eggs of any bird listed as migratory. In practice, Federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads, intervening topography, etc.), and is based on the professional judgment of a monitoring biologist. A list of migratory bird species protected under the MBTA is published by USFWS.

Federal Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the U.S. and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Implementing regulations for the CWA define waters of the U.S. as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The permit review process entails an assessment of potentially adverse impacts to USACE jurisdictional Waters of the U.S.

Over the years, the USACE has modified its regulations, typically due to evolving policy or judicial decisions, through the issuance of Regulatory Guidance Letters, memorandums, or more expansive instruction guidebooks. These guidance documents help to update and define how jurisdiction is claimed, and how these waters of the U.S. will be regulated. The most recent, significant modification occurred on June 5, 2007, subsequently updated in December 2008, when the USACE and the U.S. Environmental Protection Agency (USEPA) issued a series of guidance documents outlining the requirements and procedures, effective immediately, to establish jurisdiction under Section 404 of the CWA and the Section 10 of the Rivers and Harbors Act of 1899. These documents are intended to be used for all jurisdictional delineations and provide specific guidance for the jurisdictional determination of potentially jurisdictional features affected by the U.S. Supreme Court rulings in *Rapanos v. the United States* and *Carabell v. the United States* 547 U.S. 715 (2006) (jointly referred to as *Rapanos*).

The *Rapanos* case outlines the conditions and criteria used by the USACE to assess and claim jurisdiction over non-isolated, non-navigable, ephemeral tributaries. Under a plurality ruling, the Court noted that certain "not relatively permanent" (i.e., ephemeral), non-navigable tributaries must have a "significant nexus" to downstream traditional navigable waters to be jurisdictional. An ephemeral tributary has a significant nexus to downstream navigable "waters" when it has "more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a Traditional Navigable Water (TNW)." A significant nexus is established through the consideration of a variety of hydrologic, geologic and ecological factors specific to the particular drainage feature in question. For drainage features that do not meet the significant nexus criteria, a significant nexus determination is provided by the USACE to the USEPA for the

final determination of federal jurisdiction. Drainage features that do not meet the significant nexus criteria based on completion of an AJD, and/or are determined to be isolated pursuant to the SWANCC ruling (see below), may still be regulated by CDFW under Fish and Game Code Section 1600 or the RWQCB under the Porter-Cologne Water Quality Act.

On January 15, 2003, the USACE and USEPA issued a Joint Memorandum to provide clarifying guidance regarding the United States Supreme Court ruling in the *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (January 9, 2001) ("the SWANCC ruling"), (Federal Register: Vol. 68, No. 10.). This ruling held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. As a result of this decision, some previously regulated depressional areas such as mudflats, sandflats, wetlands, prairie potholes, wet meadows, playa lakes, natural ponds, and vernal pools, which are not hydrologically connected to other intra- or inter-state "waters of the U.S.," are no longer regulated by the USACE.

Federal Clean Water Act, Section 401

The mission of the RWQCB is to develop and enforce water quality objectives and implement plans that will best protect the beneficial uses of the state's waters, recognizing local differences in climate, topography, geology, and hydrology. The California RWQCB is responsible for implementing compliance not only with state codes such as the California Water Code but also some federal acts such as Section 401 of the CWA. Section 401 of the CWA requires that any applicant for a federal permit for activities that involve a discharge to waters of the state shall provide the federal permitting agency with a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions of the federal CWA.8 As such, before the USACE will issue a CWA Section 404 permit, applicants must apply for and receive a Section 401 water quality certification (WQC) from the RWQCB. The RWQCB regulates "discharging waste, or proposing to discharge waste, within any region that could affect "waters of the state" (Water Code § 13260 (a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act which defines RWQCB jurisdictional "waters of the state" as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code § 13050 (e)).

With the exception of isolated waters and wetlands, most discharges of fill to waters of the state are also subject to a CWA Section 404 permit. If a CWA Section 404 permit is not required for the project, the RWQCB may still require issuance of Waste Discharge Requirements (WDR) under the Porter-Cologne Water Quality Control Act. The RWQCB may regulate isolated waters that are not under jurisdiction of the USACE through issuance of WDR's. However, projects that obtain a Section 401 WQC are simultaneously enrolled in a statewide general WDR. Processing of Section 401 WQC's generally requires submittal of 1) a construction storm water pollution prevention plan (SWPPP), 2) a final water quality technical report that demonstrates that post-construction storm water Best Management Practices (BMPs) comply with the local design

8 33 USC 1341 *(a) (1)*.

standards for municipal storm drain permits (MS4 permits) implemented by the State Water Resources Control Board effective January 1, 2011, and 3) a conceptual Habitat Mitigation and Monitoring Plan (HMMP) to compensate for permanent impacts to RWQCB waters, if any. In addition to submittal of a draft CEQA document, a WQC application typically requires a discussion of avoidance and minimization of impacts to RWQCB jurisdictional resources, and efforts to protect beneficial uses as defined by the local RWQCB basin plan for the project. The RWQCB cannot issue a Section 401 WQC until the project CEQA document is certified by the lead agency.

4.7.2 State of California Special-Status Resource Protection and Classifications

CESA

California's Endangered Species Act (CESA) defines an endangered species as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.*

The State defines a threatened species as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species.*

Candidate species are defined as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.*

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Wildlife Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating:

> *…no person shall import into this State, export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof,*

that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided.

Under the CESA, "take" is defined as, "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Additionally, some special-status mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Wildlife Code, Sections 4700 and 3511, respectively.

California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest areas.

For the purposes of this BRA, the following acronyms are used for State status species, as applicable:

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

Protection of Birds

Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Activities that result in the abandonment of an active bird of prey nest may also be considered in violation of this code. In addition, California Fish and Game Code, Section 3511 prohibits the taking of any bird listed as fully protected, and California Fish and Game Code, Section 3515 states that is it unlawful to take any non-game migratory bird protected under the MBTA.

State of California Fish and Game Code, Section 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake to notify the CDFW of the proposed project. In the course of this notification process, the CDFW will review the proposed project as it affects streambed habitats within the project area. The CDFW may then place conditions in the Section 1602 Streambed Alteration Agreement to avoid, minimize, and mitigate any potentially significant adverse impacts within CDFW jurisdictional limits.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California (CNPS 2012). The list serves as the candidate list for listing as Threatened and Endangered by CDFW. CNPS has developed the California Rare Plant Ranking System (CRPR), which encompasses five categories of rarity of which Ranks 1A, 1B, and 2 are particularly considered special-status:

- Rank 1A Presumed extinct in California.
- Rank 1B Plants Rare, Threatened, or Endangered in California and elsewhere.
- Rank 2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
- Rank 3 Plants about which we need more information – a review list.
- Rank 4 Plants of limited distribution – a watch list.

The CNPS recently added "threat ranks" which parallel the ranks used by the CNDDB. These ranks are added as a decimal code after the CNPS Ranks (e.g., Rank 1B.1). The threat codes are as follows:

- 1 – Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- 2 – Fairly endangered in California (20-80% occurrences threatened);
- 3 – Not very endangered in California (<20% of occurrences threatened or no current threats known).

Special-status species that occur or potentially could occur within the study area are based on one or more of the following: (1) the direct observation of the species within the study area during

any field surveys; (2) a record reported in the CNDDB; and (3) the study area is within known distribution of a species and contains appropriate habitat.

Sensitive Plant Communities

Sensitive plant communities include those habitat types considered sensitive by resource agencies, namely the CDFW, due to their scarcity and/or their ability to support State and Federally-listed Endangered, Threatened, and Rare vascular plants, as well as several special-status bird and reptile species. CDFW maintains a natural plant community list, the List of California Terrestrial Natural Communities.[9] Special-status natural communities (also referred to by CDFW as 'rare' or 'special concern') are identified on the list by an asterisk and are considered high priority vegetation types (CDFW 2010, CDFW 2000).

4.7.3 Local Special-Status Resource Protection and Classifications

Western Riverside County MSHCP

The study area is within the Western Riverside County MSHCP, which was adopted by the Riverside County Board of Supervisors (June 17, 2003). The MSHCP functions as a Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the FESA and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The USFWS and CDFW have authorized the take of a number special-status plant and wildlife species (Covered Species) within the MSHCP Plan Area in exchange for the assembly and management of a coordinated MSHCP Conservation Area.

Stephens' Kangaroo Rat Habitat Conservation Plan

The Stephens' kangaroo rat (SKR) (*Dipodomys stephensi*) HCP provides Take Authorization for SKR within its boundaries as implemented by legal agreements executed among the Riverside County Habitat Conservation Agency (RCHCA), its member agencies, USFWS, CDFW, BLM, U.S. Department of Interior, State of California Resources Agency, and other agencies as appropriate.[10] The MSHCP provides Take Authorization for SKR outside the boundaries of the SKR HCP, but within the MSHCP Plan Area boundaries. The seven core reserves established by the SKR HCP will be managed as part of the MSHCP Conservation Area consistent with the SKR HCP.

The study area is within the boundaries of the SKR HCP but is not within any of the core reserves. As such, the project would be required to pay a SKR mitigation fee for coverage under the SKR HCP.

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9 Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp.

10 http://www.skrplan.org/index.html

4.7.4 Sensitive Plant Communities

The study area supports three (3) plant communities dominated by native vegetation totaling 6.09 acres, including 0.51 acre of black willow thicket on-site, 5.18 acre on-site and 0.32 acre off-site of tarplant field, and 0.03 acre on-site and 0.05 acre off-site of western ragweed meadow. Two (2) of these communities, black willow thicket and tarplant field, are considered sensitive habitats by CDFW and total 6.01 acres in the study area. Western ragweed meadow is not considered a sensitive habitat. In addition, the study area supports five (5) communities dominated by non-native vegetation that are also not considered sensitive habitats, specifically annual brome grassland, annual brome grassland/cream cup field, annual brome grassland/tarplant field, foxtail barley patch, and swamp timothy sward.

4.7.5 Special-Status Plant Species

Special-status plants include those listed, or candidates for listing, by the USFWS and CDFW; and species considered special-status by the CNPS (Lists 1A, 1B, and 2). Several special-status and CNPS-ranked species were reported in the vicinity based on CNDDB and CNPS, totaling 62 species within the 9-quadrangle search (as indicated in **Appendix C**, *Special-Status Plant Species*). Of the 62 species reported in the vicinity of the site, 29 species were identified as having a potential to occur within the study area based on the literature review and existing habitat, as listed in Appendix C. Focused plant surveys were conducted on April 20, 2016, and July 7, 2016, during the appropriate blooming periods.

Of the 29 species listed in the CNDDB with the potential to occur in the study area, one special-status species was observed, smooth tarplant. Approximately 5.18 acres on-site and 0.32 acre off-site of tarplant field and 0.77 acre on-site and 0.04 acre off-site of annual brome grassland/tarplant field communities supporting this sensitive plant species were mapped within the study area, as shown in **Figure 11**, *Locations of CNPS-Ranked and Riparian/Riverine Plant Species*. Smooth tarplant within areas mapped as tarplant field were observed to be a near-monotypic cover of smooth tarplant. Similarly, the annual brome grassland/tarplant field was sparsely intermixed patches of tarplant field as a subdominant component. Smooth tarplant is a CNPS-ranked 1B.1 species. A CNPS-ranked 1B species is defined as a rare, threatened, or endangered plant in California and other areas within its range. A threat rank of 0.1 is defined as a plant species that is "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)." Smooth tarplant is considered an MSHCP Covered species and is therefore considered adequately conserved outside Narrow Endemic Species Survey Areas and Criteria Area Species Survey Areas. The study area is not within a Narrow Endemic Species or Criteria Area Species Survey Area. However, this species is considered a MSHCP Riparian/Riverine plant species.

Approximately 1.770.09 acres of tarplant field occurs within areas mapped as MSHCP Riparian/Riverine areas within the study area.

4.7.6 Special-Status Wildlife Species

Special-status wildlife species include those species listed as Endangered or Threatened under the FESA or CESA, candidates for listing by the USFWS or CDFW, and species of special concern to the CDFW. Several special-status wildlife species were reported in the vicinity based on CNDDB, totaling 41 species within the 9-quadrangle search. A total of 21 species were identified as having a potential to occur within the study area or use the study area based on the literature review and habitats mapped within the study area, as listed in **Appendix D**, *Special-Status Wildlife Species*.

SOURCE: Google Maps, 2016; ESA PCR 2016.

Larchmont Business Park (APN 909-060-044)

Figure 11

Locations of CNPS-Ranked Plant Species

ESA PCR

Focused surveys were conducted in 2016 for burrowing owl in accordance with accepted protocols. In addition, a focused dry season survey for listed fairy shrimp species was conducted during the summer of 2016 and a focused ~~with~~ wet season survey was conducted between December 2016 and April 2017~~s scheduled for late 2016~~. Potential for foraging and nesting migratory bird and raptor species were also analyzed due to potential habitat within the study area or within the vicinity (see Appendix D). The species with a potential to occur in the study area are discussed below, including the results of burrowing owl surveys, in addition to the migratory birds and raptors assessment.

Species With Potential to Occur On-site

Vernal pool fairy shrimp (*Branchinecta lynchi*): This invertebrate species is federally threatened species and a Covered Species pursuant to the Western Riverside County MSHCP. This common but uncommon species occurs in moderately shallow pools in valley and foothill grasslands from Red Bluff, in Shasta County south through much of the Central Valley, with a few disjunct populations in southwestern Riverside County. The nearest CNDDB occurrence record of this species was recorded in 2008 approximately 2.3 miles to the west of the study area within the Santa Rosa Plateau.

Vernal pool fairy shrimp was determined to have a potential to occur in the study area based on the presence of the ponding areas and the study area's proximity to known occurrences of this species. A dry season survey was conducted in the summer of 2016, which was determined to be negative for fairy shrimp eggs. The dry season fairy shrimp survey report is provided as **Appendix E,** *Dry Season Fairy Shrimp Focused Survey Report*. A ~~W~~wet season survey~~s~~ was conducted between December 2016 and April 2017~~are scheduled for late 2016~~. No fairy shrimp species were observed on the study area during the wet season survey. The wet season fairy shrimp survey report is provided as **Appendix F**, *Wet Season Fairy Shrimp Focused Survey Report*. ~~Until a complete survey is conducted (one wet and one dry season survey), presence/absence for this species in the study area cannot be conclusively determined. However, due to the negative results of the dry season survey, potential for this species to occur on-site is considered low.~~

Riverside fairy shrimp (*Streptocephalus woottoni*): This invertebrate species is federally endangered species and a Covered Species pursuant to the Western Riverside County MSHCP. This species is known to occur in large, long-lived vernal pools within coastal scrub, valley and foothill grassland in San Diego, Riverside and Orange Counties. The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 0.8 mile to the south of the study area in the City of Temecula.

Riverside fairy shrimp was determined to have a potential to occur in the study area based on the presence of the ponding area and the study area's proximity to known occurrences of this species. A dry season survey was conducted in the summer of 2016, which was determined to be negative for this species (see Appendix E). A ~~W~~wet season survey~~s~~ was conducted between December 2016 and April 2017. ~~are scheduled for late 2016.~~ No fairy shrimp species were observed on the study area during the wet season survey (see Appendix F). ~~Until a complete survey is conducted~~

~~(one wet and one dry season survey), presence/absence for this species in the study area cannot be conclusively determined. However, due to the negative results of the dry season survey, potential for this species to occur on-site is considered low. The dry season fairy shrimp survey report is provided as **Appendix E,** *Dry Season Fairy Shrimp Focused Survey Report*.~~

Western spadefoot (*Spea hammondii*): This amphibian species is a state species of special concern and is a Covered Species pursuant to Western Riverside County MSHCP. This species prefers to burrow in open areas within grasslands, chaparral, and pine-oak woodlands and sandy or gravelly soils within alluvial fans, washes, and floodplains. Seasonal pools are required for breeding. The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 1.1 miles to the northeast of the study area within Warm Springs Creek.

Western spadefoot toad was determined to have a high potential to occur within the study area based on the presence of the ponding area, which may provide suitable breeding habitat, and annual brome grassland, which may provide suitable burrowing habitat. Western spadefoot tadpoles and toadlets were observed during wet season fairy shrimp surveys that were conducted between December 2016 and April 2017.~~No incidental sightings of this species occurred during any site surveys conducted in 2016.~~

Western pond turtle: This reptile species is a state species of special concern and is a Covered Species pursuant to Western Riverside County MSHCP. This species requires aquatic environments, such as wetlands, marshes, swamps, or artificial flowing waters. Upland habitat within 0.5 km from an aquatic environment is required for laying eggs and sandy banks or open fields for basking. The nearest CNDDB occurrence record for this species was recorded in 1970, approximately 4.25 miles to the northwest of the study area in the City of Wildomar.

Western pond turtle was determined to have a low/moderate potential to occur in the study area based on the presence of the ponding areas, suitable upland habitat for basking and the study area's adjacency to Murrieta Creek. However, it's not expected that this species would breed on-site. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Coast horned lizard (*Phrynosoma blainvillii*): This reptile species is a state species of special concern and is a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers sandy riparian and sage scrub habitats, but also occurs in valley-foothill, hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet. Habitats include open country, especially sandy areas, washes, flood plains, and windblown deposits.

Coast horned lizard was determined to have a low potential to occur within the study area based on the presence of potentially suitable habitat, including annual grassland habitat with some sandy soils. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Orange-throated whiptail (*Aspidoscelis hyperythra*): This reptile species is a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers chaparral, non-native grassland, Riversidean sage scrub, and juniper and oak woodlands. It is often associated with riparian areas and alluvial fan sage scrub habitats.

Orange-throated whiptail was determined to have a low/moderate potential to occur within the study area based on the presence non-native grassland (i.e. annual brome grassland) and riparian vegetation (i.e. black willow thicket). No incidental sightings of this species occurred during any site surveys conducted in 2016.

Two-Striped Garter Snake (*Thamnophis hammondii*): This reptile species is a state species of special concern. This species is known from coastal California along watercourses with permanent fresh water, and near streams with rocky beds and riparian growth.

Two-striped garter snake has the low/moderate potential to occur within the study area due to the presence of the ponding feature, riparian vegetation (i.e. black willow thicket) and the study area's adjacency to Murrieta Creek and other suitable habitats off-site. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Red-Diamond Rattlesnake (*Crotalus ruber*): This reptile species is a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers chaparral, woodland, grassland, and desert habitats and in rocky areas with dense vegetation.

Red-diamond rattlesnake was determined to have a low/moderate potential to occur within the study area due to the presence of suitable grassland habitat. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Golden Eagle (*Aquila chrysaetos*): This raptor is a state fully protected species and is protected by the Bald and Golden Eagle Protection Act; it is also a Covered Species pursuant to the Western Riverside County MSHCP. This species nests on cliff faces and tall trees. Foraging habitat includes open country, including grasslands and early successional stages of forest and shrub habitats.

The golden eagle was determined to have a low potential to forage within the study area based on the observation of fossorial burrows, suggesting the presence of mammals that could provide a possible food source. The potential for foraging was considered very low since the study area is mostly surrounded by development, which likely limits the presence of this species. No incidental sightings of this species occurred during any site surveys conducted in 2016.

White-tailed kite (*Elanus leucurus*): This bird species is listed as state fully protected species and is a Covered Species pursuant to the western Riverside County MSHCP. This species nests in the upper two-thirds of scattered trees within grassland and marsh habitats and at the edge of forests.

White-tailed kite was determined to have a moderate potential to forage within the study area based on the presence of a number of burrows in the study area, suggesting the presence of fossorial mammals that could provide a possible food source for this species, and the study area's adjacency to suitable habitats off-site (i.e., Murrieta Creek). No incidental sightings of this species occurred during any site surveys conducted in 2016.

Northern harrier (*Circus cyaneus*): This bird species is a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species nests in thick vegetation within marshes, meadows, and agricultural fields and forages in a range of habitats with low vegetation.

Northern harrier was determined to have a moderate potential to forage only in the study area based on the presence of a number of burrows in the study area, suggesting the presence of fossorial mammals that could provide a possible food source for this species, and the study area's adjacency to suitable habitats off-site (i.e., Murrieta Creek). However, the potential for this species maybe minimized due to the study area's relatively small size, which likely limits this species' ability to hunt its prey on the wing. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Swainson's hawk (*Buteo swainsoni*): This bird species is listed as threatened by the state and is a Covered Species pursuant to the Western Riverside County MSHCP. It prefers Great Basin grasslands, riparian forests, riparian woodlands, and valley and foothill grasslands.

Swainson's hawk was determined to have a moderate potential to occur only to forage within the study area based on the presence of a number of burrows in the study area, suggesting the presence of fossorial mammals that could provide a possible food source for this species. This species has not been recorded on CNDDB within the vicinity of the study area since 1933. However, this transient species is frequently observed in the area during migration periods. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Burrowing owl: This bird species is a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers coastal prairie, coastal scrub, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley and foothill grassland and disturbed habitats. It is known to occur in the project vicinity based on CNDDB and the MSHCP. The study area is within the MSHCP Burrowing Owl Survey Area, an overlay in the MSHCP that requires additional surveys.

Burrowing owl was determined to have potential to occur within the study area based on the presence of suitable habitat that was identified during the Step I survey, including disturbed, low-growing vegetation, bare ground, and a few small fossorial mammal burrows. The subsequent Step II surveys did not identify individual burrowing owls, active burrowing owl burrows, or signs of burrowing owls within the survey area. Therefore, the study area and adjacent buffer area do not currently support burrowing owls. The results are also outlined in a separate survey report attached as **Appendix G~~F~~**, *Burrowing Owl Focused Survey Report*.

Loggerhead Shrike (*Lanius ludovicianus*): This bird species is a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.

Loggerhead shrike was determined to have a moderate potential of occurring within the study area due to the presence of open grassland habitat and the study area's adjacency to suitable habitats off-site.

Least Bell's vireo: This bird species is listed as Federally Endangered, State Endangered, and a Covered Species pursuant to the Western Riverside County MSHCP. This species preferred habitats include riparian forests, riparian scrub, and riparian woodland, usually dominated by willow species. The least Bell's vireo is known to occur in the project vicinity based on CNDDB and MSHCP.

A least Bell's vireo was heard calling from off-site during the general biological survey conducted on April 13, 2016, and the focused burrowing owl survey conducted on June 2, 2016. The least Bell's vireo was heard within off-site areas associated with Larchmont Channel. This individual was likely a migrant as Larchmont Channel supports low-quality nesting habitat and a high level of human disturbance associated with the cement factory operations immediately to the east. Further, this individual was not observed during any other site visits conducted within the study area. Least Bell's vireos are known to require dense riparian vegetation that has a stratified canopy for foraging and is large enough to support a typical territory size between 0.5 and 7.5 acres.[11] Larchmont Channel may provide suitable foraging habitat and potential territory opportunities for young or displaced males that may be forced to utilize less optimal habitats; however, the likelihood of least Bell's vireo using Drainage A for nesting is considered low. ~~Focused surveys were not performed since all of the riparian habitat (black willow thickets) within Drainage A will be 100% avoided by the project (see Section 6.3.1.2, *Special Status Wildlife Species,* for a complete discussion).~~

Western Mastiff Bat (*Eumops perotis californicus*): This mammal species is a state species of special concern. This species prefers chaparral, cismontane woodlands, coastal scrub, and valley and foothill grassland habitats.

Western mastiff bat was determined to have a moderate potential to occur for foraging only within the study area based on the presence of grassland habitat. The study area does not support this species' preferred roosting habitat (cliffs and rock crevices) The nearest CNDDB occurrence record of this species was recorded in 1991 approximately 3.2 miles to the southeast of the study area in the City of Temecula. No incidental sightings of this species occurred during any site surveys conducted in 2016.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*): This mammal species is a California Species of Special Concern and a Covered Species pursuant to the Western Riverside County MSHCP. This species prefers open brushlands and scrub habitats.

San Diego black-tailed jackrabbit was considered to have a low potential to occur in the study area based on the presence of grassland habitat. However, the potential was considered low since there are a limited number of shrubs in the study area that would provide cover for this species. This species is conspicuous when present and was not observed during any of the survey

[11] USFWS. 1998. Draft Recovery Plan for the Least Bell's Vireo. U.S. Fish and Wildlife Service, Portland, OR. 139 pp.

conducted in the study area. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Los Angeles pocket mouse (*Perognathus longimembris brevinasus*): This mammal species is listed as a state species of special concern and a conditionally Covered Species pursuant to the Western Riverside County MSHCP (surveys are required for areas within the survey overlay, with potential conservation). It prefers sparsely vegetated habitat areas in patches of fine sandy soils associated with washes within grasslands, alluvial sage scrub, and coastal sage communities.

Los Angeles pocket mouse was determined to have a low potential to occur within the study area based on the presence of marginally suitable grassland habitat within the study area. Further, the potential was considered low since the majority of the CNDDB occurrence records of this species are east of the I-215 freeway. The nearest CNDDB occurrence record of this species was recorded in 1993, approximately 3.6 miles to the northeast of the study area in the City of Murrieta. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Dulzura pocket mouse (*Chaetodipus californicus femoralis*): This mammal species is a state species of special concern. This species prefers chaparral, coastal scrub, and valley and foothill grassland and is commonly found within grass-chaparral ecotone, between 0 and 4,633 feet.

Dulzura pocket mouse was determined to have a potential to occur within the study area based on the presence of suitable grassland habitat and a few fossorial mammal burrows. However, the potential was considered low since this species' preferred habitat is not present on-site (grass-chaparral ecotone). The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 1.1 miles to the northeast of the study area in the City of Murrieta. No incidental sightings of this species occurred during any site surveys conducted in 2016. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*): This mammal species is listed as a state species of special concern and a Covered Species pursuant to the Western Riverside County MSHCP. It prefers moderate canopy cover of chaparral and coastal sage scrub habitats, in addition to grassland and Riversidean alluvial fan sage scrub habitats. This species typically excavates its burrows in gravelly or sandy soil.

Northwestern San Diego pocket mouse was determined to have a potential to occur within the study area based on the presence of potentially suitable grassland habitat and small fossorial mammal burrows. However, the potential was considered low since the study area supports little to no gravelly or sandy soil for this species to excavate burrows. The nearest CNDDB occurrence record of this species was recorded in 2009, approximately 3.2 miles to the northeast of the study area in the City of Murrieta. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Stephens' kangaroo rat: This mammal species is listed as federally endangered and state threatened. Take Authorization for Stephens' kangaroo rat is provided by the SKR HCP within its plan boundaries, and by the Western Riverside County MSHCP for areas outside of the SKR HCP but within the MSHCP area plan boundaries (this species is an MSHCP Covered Species).

This species prefers annual and perennial grasslands, but can occasionally be found in sparse coastal scrub or sagebrush.

Stephens' kangaroo rat was determined to have a potential to occur within the study area based on the presence of suitable grassland habitat. The potential was considered moderate due to the presence of suitable grassland habitat and small fossorial mammal burrows. The nearest CNDDB occurrence record of this species was recorded in 1987 approximately 1.1 miles the southeast of the study area in the City of Murrieta. No incidental sightings of this species occurred during any site surveys conducted in 2016.

Migratory Birds and Raptors

The study area supports potential nesting and foraging habitat for songbirds and potential foraging habitat for raptors. Several common species of birds were observed within the study area, including raptor species (American kestrel [*Falco sparverius*] and red-tailed hawk [*Buteo jamaicensis*]) and songbird species (Say's phoebe [*Sayornis saya*], bushtit [*Psaltriparus minimus*], and song sparrow [*Melospiza melodia*]). A complete list of bird species observed within the study area is listed in Appendix A. In addition, 13 special-status bird species were recorded within the 9-quadrangle CNDDB search area; seven (7) of these species have the potential to occur and one (1) species was observed (see Appendix D).

4.7.7 Study Area Relationship to the Western Riverside County MSHCP

This section provides a discussion of the study area's relationship to the MSHCP policies, including the location within the MSHCP Area Plan, Criteria Cells, and cores and linkages, and the presence of MSHCP protected biological resources.

4.7.7.1 Location of the Study Area within the MSHCP Area Plan and Criteria Cells

The study area is within the Southwest Area Plan (see Figure 5) of the MSHCP within Subunit 1, Murrieta Creek (Riverside County TLMA 2016). Planning area species for this subunit include:

- California red-legged frog (*Rana draytonii*)
- Cooper's hawk (*Accipiter cooperii*)
- Least Bell's vireo
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Tree swallow (*Tachycineta bicolor*)
- White-tailed kite

- Yellow warbler
- Arroyo chub
- Bobcat (*Lynx rufus*)
- Mountain lion (*Puma concolor*)
- Southwestern pond turtle

Biological issues and considerations within this subunit include:

- Maintaining habitat connectivity within Murrieta Creek from the confluence of Temecula Creek to Cole Creek for wildlife movement and Conservation of wetland species.
- Maintaining habitat connectivity between Murrieta Creek and Lower Warm Springs Creek to facilitate wildlife movement and conserve wetland species.
- Maintaining a linkage area for bobcat.
- Maintaining the area of Murrieta Creek at the confluence of Pechanga Creek, Temecula Creek and Santa Margarita River for mountain lion Linkage.
- Maintaining habitat for arroyo chub, California red-legged frog and western pond turtle within Murrieta Creek and Cole Creek

The study area is not within a designated Cell Group (Riverside County TLMA 2016). However, the study area is located within Criteria Cell 6528, which requires conservation of land for inclusion in the MSHCP Conservation Area.

As summarized in Table 3-16, *Criteria for Southwest Area Plan* of the MSHCP, the criteria specific to Criteria Cell 6528 (NW Quarter Section) includes the following:

> *Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 13. Conservation within this Cell will focus on grassland habitat along Murrieta Creek to the extent feasible. Areas conserved within this Cell will be connected to habitat proposed for conservation along Murrieta Creek in Cell #6530 to the west and #6656 to the south. Conservation within this Cell will be approximately 5% of the Cell focusing in the western portion of the Cell.*

The study area is not expected to support a majority of the Subunit 1, Murrieta Creek target species. California red-legged frog, southwestern willow flycatcher, arroyo chub and mountain lion are not expected to occur due to the lack of suitable habitat. Due to the lack of suitable nesting habitat, the study area is not expected to support breeding Cooper's hawk, white-tailed kite or tree swallow; however, due to the presence of possible food sources, these species may utilize the study area for foraging. Similarly, the study area is not expected to be a primary resource for bobcat. It's more likely that this species would utilize open space areas to the west

within Murrieta Creek and to the south for its resource and movement needs. However, this species may, from time to time, utilize the study area to hunt small prey. The presence of the large ponding area may provide suitable habitat for the western pond turtle. Although this species isn't expected to breed or be a permanent resident of the study area, it may utilize the study area for foraging and basking when water is present in the ponding area. The study area supports a limited amount of suitable habitat for the least Bell's vireo and yellow warbler along the eastern boundary where the black willow thicket occurs, but neither of these species is expected to breed on-site.

As discussed in Section 4.7.6, *Special-Status Wildlife Species*, least Bell's vireo was heard calling from just off-site within the willow thicket associated within Drainage A. This individual was heard on two occasions; once during a general biological survey conducted by ESA PCR biologists on April 13, 2016, and again during a focused burrowing owl survey conducted by ESA PCR biologists on June 2, 2016. It was determined that this individual was likely a migrant or a young male in search of new territory. Drainage A supports low-quality nesting habitat and a high level of human disturbance associated with the cement factory operations immediately to the east. ~~Focused surveys for this species were not conducted due to the project's 100% avoidance of the black willow thicket.~~ This individual was not observed during any of the other surveys conducted in the study area. Although the potential is considered low, the study area may provide potential nesting habitat for the yellow warbler within the black willow thicket associated with Drainage A. Similar to the least Bell's vireo, the habitat within the study area is marginal in quality and does not support the structural and other habitat characteristics required for the yellow warbler. Further, the black willow thicket will be avoided as a result of the project.

The proposed project will not conflict with the criteria set forth for Criteria Cell 6528. Currently, approximately 194~~0~~ acres of undeveloped lands remain available for conservation within the western portions of Criteria Cell 6528. This represents approximately 10~~2~~1% of the total 194 acres of lands within the Criteria Cell. The target conservation area for this Criteria Cell was determined to be 5%, focusing on the western portion of the cell. Impacts as a result the proposed development total approximately 5% of the 194 acres of lands within the Criteria Cell. The reduction of 5% from the remaining 10~~2~~1% of open space areas doesn't push the conservation objectives for this Criteria Cell below its 5% conservation target. Although the proposed project is located in the western portion of the Criteria Cell, it's located on the extreme eastern edge of the remaining open space areas and wouldn't threaten to disconnect adjacent open space areas from other open space areas within Criteria Cell 6656 to the south and 6530 to the west. Further, the remaining 194~~0~~ acres of open space areas within this Criteria Cell all occur within the western portions of the cell, include grassland habitats, and provide connectivity to the south and west.

4.7.7.2 Location of the Study Area within MSHCP Cores and Linkages

As mentioned previously in Section 4.5.2, *Wildlife Movement Within the Study Area*, a small area with the western portion of the study area is located within Proposed Constrained Linkage 13 (see Figure 5). The study area is not located within the Special Linkage Area within the Southwest Area Plan.

Proposed Constrained Linkage 13 consists of Murrieta Creek. This Constrained Linkage connects Existing Core F (Santa Rosa Plateau Ecological Reserve) in the north to Proposed Linkage 10 in the south. This Linkage is constrained along most of its length by existing urban Development and agricultural use and the planned land use surrounding the Linkage consists of city (Murrieta and Temecula). Conservation objectives for this linkage include maintaining high quality riparian habitat within the Linkage and along the edges for species such as yellow warbler, yellow-breasted chat, and least Bell's vireo, which have key populations located in or along the creek. Maintenance of existing floodplain processes and water quality along the creek is also important to western pond turtle and arroyo chub in this area (Riverside County TLMA 2016).

As discussed above in Section 4.5.2, *Wildlife Movement within the Study Area,* areas where Proposed CL 13 occur within the study area don't support high quality breeding riparian habitat for yellow warbler, yellow-breasted chat and least Bell's vireo. These areas primarily support non-native grassland species and lack the suitable riparian habitat characteristics necessary to support movement of these species. Movement habitat for least Bell's vireo and yellow warbler would be limited to the Larchmont Channel portion of Drainage A. No impacts to these species movement is expected as the riparian habitat within the Larchmont Channel portion of Drainage A, (black willows thicket) will be preserved. The edge of Ponding Area 1 also occurs within Proposed CL 13. The presence of the large ponding area may provide suitable habitat for the western pond turtle; however, this habitat isn't considered high quality riparian habitat for the species. Due to the nature of the ponding area, this species isn't expected to breed or be a permanent resident of the study area due to the rapid drying of the pond after rain events, which makes this ponding feature unsuitable for typical marsh or aquatic species that require a more permanent source of water. The study area doesn't support suitable habitat for the arroyo chub.

4.7.7.3 Riparian/Riverine Areas and Vernal Pools

Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP provides for the protection of Riparian/Riverine Areas and Vernal Pools within the MSHCP Plan Area. Riparian/Riverine areas are defined in the MSHCP as:

> *"lands which contain habitat dominated by trees, shrubs, persistent emergent, 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 defined in the MSHCP as:

> *"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."*

As shown in Figure 8b and summarized in **Table 3**, *MSHCP Riparian/Riverine Areas*, the study area supports 2.9671.103 acres of MSHCP Riparian/Riverine Areas associated with Drainage A (Larchmont Channel). This acreage is equivalent to the extent to CDFW jurisdiction associated with Larchmont Channel. The project proposes to avoid 9091% of the Riparian/Riverine areas on

the study area, including the 100% of the black willow thicket associated with the Larchmont Channel portion of Drainage A, where least Bell's vireo was observed. The entire 7.14-acre (6.92 acres Pond 2 and 0.22 acre Pond 1) ponding area was surveyed for fairy shrimp. Of the 7.14 acres, 2.97 acres are considered Riparian/Riverine Areas. ~~A portion (0.56 acre) of the Riparian/Riverine areas associated with Drainage A supports a ponding feature which was determined to potentially support listed fairy shrimp~~. No fairy shrimp were detected within the ponding feature during dry and wet season focused surveys.

TABLE 3
MSHCP RIPARIAN/RIVERINE AREAS[A]

Drainage	Area (acres)
A/Larchmont Channel	2.9671~~.103~~
Total	**2.9671~~.103~~**

[a] MSHCP Riparian/Riverine Areas are equivalent to CDFW jurisdiction.

SOURCE: ESA PCR, 2016.

This ponding feature also includes an additional area totaling 4.176~~.36~~ acres that extends outside of the Riparian/Riverine area associated with Drainage A that also ponds but was not classified as Riparian/Riverine or Vernal Pool due to the lack of Riparian/Riverine and Vernal Pool indicators. Therefore, the 4.176~~.36~~ acres of ponding area are not included in the Riparian/Riverine or Vernal Pool analysis because it does not meet the MSHCP definition of a Riparian/Riverine (as defined above) or a vernal pool, which is defined under the MSHCP, Section 6.1.2, as:

> *"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."*

It further states:

> *"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."*

The ponding feature within the study area does not support hydric soils as determined during the jurisdictional delineation summarized in Section 4.6 above. Further, the ponding in the study area is a direct result of alterations to the property and drainage that has resulted in an impoundment of water onto the site. A review of historical aerial photos shows that the ponding of water in the study area is directly linked to development of the surrounding area around 2005/2006. Historic hydrologic conditions evaluated for the study area are provided in Section 4.6.1.

Available historical aerials also show a history of disking in the study area. When disturbances, such as disking, occur in sandy loam soils, the silty components separate from the sandy components and settle deeper into the soil, creating a quasi-hardpan that can temporarily hold water. However, the hardpan doesn't function on the same level as the hardpans within true vernal pools. Water percolates much faster then what can form and support a wetland and other aquatic species to some degree. Within the study area this condition, coupled with the rerouting and impoundment of water onto the study area, created a hydrological regime that would allow water to pond in the study area during and for short periods of time after rain events, but didn't allow for the formation of a wetland or vernal pool, which was evidenced by the lack of field indicators documented during the jurisdictional delineation conducted in the study area.

The biological functions and values of the Riparian/Riverine areas in the study area primarily function for the transport and filtration of water. Drainage A and the associated riparian community also provide resources for Riparian/Riverine wildlife species, specifically some cover and foraging habitat for the least Bell's vireo. The entire 7.14-acre ponding area was surveyed for fairy shrimp. Of the 7.14 acres, 2.97 acres are considered Riparian/Riverine Areas. No fairy shrimp species were detected during the dry or wet season surveys.~~Approximately 0.56 acre of Drainage A that was determined to also be Riparian/Riverine (but not vernal pool) was determined to potentially support listed fairy shrimp; however, the potential is considered low based on the negative findings from the dry season survey and the lack of other Riparian/Riverine and vernal pool indicators.~~ Therefore, the functions and values of this ponding feature are considered low and again are limited to the movement and filtration of water.

Riparian/Riverine Plant Species

A habitat assessment was conducted for species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. The results are presented in **Table 4**, *MSHCP Riparian/Riverine Plant Species*. A total of 11 MSHCP Riparian/ Riverine plant species was determined to have a potential to occur in the study area, including California Orcutt grass (*Orcuttia californica*), Coulter's matilija poppy (*Romneya coulteri*), Engelmann oak (*Quercus engelmannii*), Orcutt's brodiaea (*Brodiaea orcuttii*), San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), slender-horned spineflower (*Dodecahema leptoceras*), smooth tarplant, southern California black walnut (*Juglans californica*), spreading navarretia (*Navarretia fossalis*), thread-leaved brodiaea (*Brodiaea filifolia*), and vernal barley (*Hordeum intercedens*). These species were considered to have a potential to occur due to the presence of suitable habitat in the study area.

Of the 11 species, only smooth tarplant was observed during the focused plant surveys. Within the study area, 5.50 acres of tarplant field and 0.81 acre of annual brome grassland/tarplant field supporting smooth tarplant was mapped within the study area. Approximately 1.77~~0.09~~ acres of the 5.50 acres of smooth tarplant field was mapped in association with Riparian/Riverine areas in the study area. The remaining 3.73~~5.41~~ acres of tarplant field and 0.81 acre of annual brome grassland/tarplant field mapped within the study area didn't qualify as Riparian/Riverine or Vernal Pool due to the lack of field indicators, ~~-~~ including absence of habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens. No signs indicative of areas subject

to fresh water flow were observed within this portion of tarplant field. Moreover, this portion of tarplant field did not support vernal pool indicators, such as the presence of obligate hydrophytes and/or facultative wetland species or three-parameter wetland indicators required to be consistent with vernal pool resources pursuant to Section 6.1.2 of the MSHCP. Additionally, the study area is not located within a Narrow Endemic Species Survey Area or a Criteria Area Species Survey Area.

The remaining 10 Riparian/Riverine plant species were not observed during focused surveys and were therefore concluded to be absent from the study area. The remaining MSHCP Riparian/Riverine plant species are not expected to occur within the study area due to the lack of suitable habitat.

TABLE 4
MSHCP RIPARIAN/RIVERINE PLANT SPECIES

Species	Potential to Occur within the Study Area
Brand's phacelia *Phacelia stellaris*	Not expected to occur. This species has not been recorded in the vicinity of the study area.
California Orcutt grass *Orcuttia californica*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
Coulter's matilija poppy *Romneya coulteri*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
Engelmann oak *Quercus engelmannii*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
Fish's milkwort *Polygala cornuta* var. *fishiae*	Not expected to occur. The majority of occurrence records of this species on CNDDB are confined to the Santa Ana Mountains.
graceful tarplant *Holocarpha virgata* ssp. *Elongate*	Not expected to occur. The study area is outside of the species' range; there are no known records of this species within the flatter agricultural areas east of the Santa Ana Mountains.
lemon lily *Lilium parryi*	Not expected to occur. The study area lacks suitable habitat and is outside this species' range; this species is restricted to the San Jacinto Mountains. Additionally, the study area is outside of species' elevation range.
Mojave tarplant Deinandra mohavensis	Not expected to occur. The study area is outside this species' range; this species is restricted to the San Jacinto Mountains. Additionally, the study area is outside of species' elevation range.
mud nama Nama stenocarpum	Not expected to occur. This species has not been recorded within the vicinity of the study area.
ocellated Humboldt lily *Lilium humboldtii* ssp. *Ocellatum*	Not expected to occur. This species is typically found at higher elevations.
Orcutt's brodiaea *Brodiaea orcuttii*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
Parish's meadowfoam *Limnanthes alba* ssp. *Parishii*	Not expected to occur due to the lack of suitable habitat. Also, the study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area. The study area is outside of this species' elevation range.

Species	Potential to Occur within the Study Area
prostrate navarretia *Navarretia prostrata*	Not expected to occur since the study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Diego button-celery *Eryngium aristulatum* var. *parishii*	Not expected to occur. The study area is outside the species' range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Jacinto Valley crownscale *Atriplex coronata* var. *notatior*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
San Miguel savory *Clinopodium chandleri*	Not expected to occur. This species is primarily recorded on rocky slopes within the Santa Ana Mountains.
Santa Ana River woollystar *Eriastrum densifolium* ssp. *Sanctorum*	Not expected to occur due to lack of suitable habitat. The study area is outside the species' range; this species is restricted to the Santa Ana River and alluvial fan sage scrub habitat.
slender-horned spineflower *Dodecahema leptoceras*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
smooth tarplant *Centromadia pungens* ssp. *Laevis*	Observed.
southern California black walnut *Juglans californica*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
spreading navarretia *Navarretia fossalis*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
thread-leaved brodiaea *Brodiaea filifolia*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.
vernal barley *Hordeum intercedens*	Potential, but not expected to occur. This species was considered to have a potential to occur in the study area but was not observed during the focused plant surveys.

Source: ESA PCR, 2016.

Riparian/Riverine Wildlife Species

Habitat assessments were conducted for wildlife species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. Three (3) species have the potential to occur within the study area, namely the least Bell's vireo, Riverside fairy shrimp and vernal pool fairy shrimp, as indicated in **Table 5**, *MSHCP Riparian/Riverine Wildlife Species*.

Least Bell's vireo was observed off-site within the Larchmont Channel portion of Drainage A during the general biological survey conducted on April 13, 2016, and during the focused burrowing owl survey conducted on June 2, 2016; no nesting least Bells' vireo was observed nesting nor are they expected to, based on habitat conditions. This least Bell's vireo was heard

calling from off-site areas associated with the Larchmont Channel portion of Drainage A. This individual was not observed during any other site visits conducted by ESA PCR within the study area. It was determined that this individual was likely a migrant as Larchmont Channel supports low-quality nesting habitat and a high level of human disturbance associated with the cement factory operations immediately to the east. Larchmont Channel may provide suitable foraging habitat and potential territory opportunities for young or displaced males that may be forced to utilize less optimal habitats; however, the likelihood of least Bell's vireo using Drainage A for nesting is considered low. Although the study area supports low-quality habitat for least Bell's vireo, the project is avoiding direct impacts to suitable habitat. Indirect impacts to least Bell's vireo during construction and post-construction will be minimized by implementing avoidance measures and project design features, which are discussed in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Special-Status Wildlife Species*. ~~Focused surveys were not performed since the entire riparian habitat (black willow thickets) within Drainage A is will be 100% avoided by the project.~~

TABLE 5
MSHCP RIPARIAN/RIVERINE WILDLIFE SPECIES

Species	Potential to Occur within the Study Area
arroyo toad *Anaxyrus californicus*	Not expected to occur due to the lack of suitable habitat (perennial streams).
mountain yellow-legged frog *Rana muscosa*	Not expected to occur due to the lack of suitable habitat (perennial streams).
California red-legged frog *Rana aurora draytonii*	Not expected to occur due to the lack of suitable habitat (perennial streams).
bald eagle *Haliaeetus leucocephalus*	Not expected to occur due to the lack of suitable habitat for foraging and nesting.
least Bell's vireo *Vireo bellii pusillus*	Observed off-site within the upstream portion of Drainages A.
American peregrine falcon *Falco peregrinus anatum*	Not expected to occur due to the lack of suitable habitat for foraging and nesting (cliffs overlooking open areas or large bodies of water).
southwestern willow flycatcher *Empidonax traillii extimus*	Not expected to occur due to the lack of suitable habitat for foraging and nesting.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Not expected to occur due to the lack of suitable habitat for foraging and nesting; outside of the species range.
Santa Ana sucker *Catostomus santaanae*	Not expected to occur due to the lack of suitable habitat (perennial streams).
Riverside fairy shrimp *Streptocephalus woottoni*	Low potential within ponding area; dry season surveys were conducted.
vernal pool fairy shrimp *Branchinecta lynchi*	Low potential within ponding area; dry season surveys were conducted.
Santa Rosa Plateau fairy shrimp *Linderiella santarosae*	Not expected to occur due to the lack of suitable habitat.

Source: ESA PCR, 2016.

Ponding areas totaling 0.22 acre and 6.92 acres located along the easterly boundary and the center of the site, respectively, were determined to potentially support suitable habitat for ~~the~~ two MSHCP Vernal Pool Species, including Riverside fairy shrimp and vernal pool fairy shrimp. However, fairy shrimp species were not detected during the dry or wet season surveys~~the potential for these species to occur within the study area is considered low based on the negative findings for fairy shrimp eggs during dry season surveys based on the dry season focused survey report for fairy shrimp provided as Appendix E~~ (see Appendices E and F~~Finium 2016~~). ~~However, a final determination of presence/absence of listed fairy shrimp species cannot be made until after wet season surveys are completed.~~

No other MSHCP Riparian/Riverine wildlife species are expected to occur due to the lack of suitable habitat in the study area.

4.7.7.4 Narrow Endemic Plant Species Survey Area

The study area is not within the Narrow Endemic Plant Species Survey Area; therefore, no surveys were required for Narrow Endemic plant species.

4.7.7.5 Additional Survey Needs and Procedures

Section 6.3.2, *Additional Survey Needs and Procedures*, of the MSHCP provides, for additional survey needs for the burrowing owl, as well as a number of special-status plants, amphibian, and mammal species.

Burrowing Owl Survey Area

The study area is within the Burrowing Owl Survey Area; therefore, in compliance with the Western Riverside County MSHCP, surveys are required for this species. As discussed in Section 4.7.6, *Special-Status Wildlife Species*, Step I and Step II surveys conducted for the project following Western Riverside County MSHCP protocol were negative. Although the site does not currently support burrowing owls, pre-construction surveys are required within 30 days of ground disturbance based on the presence of suitable habitat.

Criteria Area Species Survey Area

The study area is not within the Criteria Area Species Survey Area; therefore, no surveys were required for Criteria Area plant species.

Amphibian Species Survey Area

The study area is not within the Amphibian Species Survey Area; therefore, no surveys are required.

Mammal Species Survey Area

The study area is not within the Mammal Species Survey Area; therefore, no surveys are required.

4.7.7.6 Urban/Wildlands Interface

Section 6.1.4, *Guidelines Pertaining to the Urban/Wildlands Interface*, of the MSHCP presents a number of guidelines that are intended to address indirect effects associated with locating developments in proximity to an MSHCP Conservation Area. These guidelines address the quantity and quality of any runoff generated by the development, night lighting, noise, and domestic predators.

The study area is located within Criteria Cell (Criteria Cell 6528) (see Figure 5); therefore, additional analysis to address guidelines specific to Urban/Wildlands Interface are required. As discussed further below, the Urbans/Wildlands Interface Analysis address any indirect effects to adjacent MSHCP Conservation Areas, specifically to Murrieta Creek and any open space areas potentially supporting MSHCP resources identified for Subunit 1 and the Criteria Cell. Project design features are proposed that will address indirect impacts of the proposed project and to minimize edge effects beyond the limits of grading at the urban/wildlands interface, consistent with Section 6.1.4 of the MSHCP.

Drainage (Urban and Storm Water Runoff): Runoff from the interim project (i.e. grading of master pad) and the ultimate project (i.e. construction of buildings/infrastructures has the potential to affect the quantity and quality of water to Warm Springs Creek and Murrieta Creek downstream, in addition to the transport of non-native plant seeds. Furthermore, mitigation is proposed within and adjacent to the ~~on-site~~ avoided portions of Drainage A/Larchmont Channel that are considered an MSHCP Riparian/Riverine area and the project has a potential to indirectly affect these areas both during grading for the interim project and following construction of the ultimate project. Implementation of the following measures will ensure that no adverse effects to downstream water quality will occur as a result of the interim or ultimate projects.

Interim Project

The project proponent will be required to prepare an implement a Storm Water Pollution Prevention Plan (SWPPP) and demonstrate compliance with the State Water Resources Control Board's (SWRCB) General Construction Storm Water Permit which will include a robust set of Best Management Practices (BMP) and guidelines to ensure appropriate water quality measures are in place during grading of the master pad proposed as the interim project. In addition, the project will obtain a Section 401 Water Quality Certification (WQC) for impacts to "waters of the U.S." from the San Diego RWQCB which requires review and approval of all water quality measures proposed for the interim project. Water quality for the interim project will ensure the control of sediment from the graded master pad through the use of a series of swales and desilting basins that will be monitored and maintained as part of the SWRCB General Construction Stormwater Permit and is subject to review and approval by the City of Murrieta.

Ultimate Project

Post-construction water quality and flood measures associated with the ultimate project will be documented in a Water Quality Management Plan (WQMP) to be approved by the City of Murrieta, in addition to compliance with the City's Municipal Storm Drain Permit (MS4) ensuring that the quantity and quality of water discharged into on and off-site Riparian/Riverine Areas will be consistent with the pre-project condition. Implementation of the MS4 permit for the ultimate project will require that flows leaving the site do not result in downstream impacts by erosion or sedimentation. In addition, the San Diego RWQCB will require review and approval of the water quality plan for the ultimate project by way of a permit condition or a full amendment to the future project Section 401 WQC.

Toxic Material: Construction of the interim project will incorporate erosion control measures (e.g., sand bags and/or straw wattles as appropriate) around the perimeter of the work area to ensure all water leaving the site is filtered and an increase in siltation does not occur. In addition, for the long-term operation of the ultimate project, the measures and BMPs outlined in the future WQMP and SWPPP will treat project-generated flows and remove pollutants. These measures will avoid any indirect effects from toxic materials to ~~the on-site mitigation area and to~~ any downstream MSHCP Conservation Areas as a result of the proposed project.

Trash/Debris: The ultimate project will be required to minimize and address the amount of trash/debris created by the development, and avoid trash/debris from entering downstream areas.

These may include activity restrictions placed on the occupants, the distribution of educational materials, street sweeping and waste management, and will be outlined in the project's WQMP and SWPPP. These measures will avoid any indirect effects from trash/debris ~~to the on-site mitigation area and~~ to any downstream MSHCP Conservation Areas as a result of the proposed project.

Lighting: The ultimate project will be ~~been~~ designed to minimize night lighting while remaining compliant with City ordinances related to street lighting. All lighting will be directed away from avoided and/or preserved drainages on-site; therefore, no effects from lighting are anticipated such as disturbance to wildlife species.

Noise: The proposed use of the site for commercial development is not anticipated to result in noise-generating activities apart from increased traffic noise, which could indirectly impact any least Bell's vireo that may use the avoided black willow thicket within Drainage A/Larchmont Channel. To avoid potential indirect impacts to least Bell's vireo, ~~T~~the project will comply with all City requirements pertaining to noise and traffic standards. In addition, three project design features (PDFs BIO-1 through BIO-3) will be incorporated into the interim and ultimate project design to limit any potential noise impacts to least Bell's vireo (see Section 2.3 above). In addition, a mitigation measure is recommended to minimize any potential indirect impacts to least Bell's vireo during construction (see MM BIO-2 in Section 7.2.1 below).

Invasive Species: No invasive, non-native plant species listed in Table 6-2 of the MSHCP, *Plants That Should Be Avoided Adjacent to the MSHCP Conservation Area*, will be utilized in the landscape plans~~, particularly in those areas in proximity to the on-site mitigation~~. This will avoid dispersal of invasive plant seeds into the mitigation area and to downstream areas, thus providing a watershed benefit.

Barriers: The MSHCP requires the incorporation of barriers, such as native landscaping, rocks/boulders, fencing, walls, and/or signage, for proposed land uses adjacent to preservation areas to minimize unauthorized public access, trampling, the introduction of urban wildlife, and/or illegal dumping within the preservation areas. The project will include fences and/or walls around the entire development. ~~Furthermore, the potential mitigation areas are proposed within dedicated open space lots to buffer the drainages from the development and to discourage access.~~

Grading/Land Development and/or Fuel Modification Activities: All grading will be contained within the study area identified and will not extend beyond the limits analyzed in this report or into the avoidance ~~potential mitigation~~ areas. Brush management, as well as all ground disturbing activities associated with construction and operation of the project development, will also be contained within the interim/ultimate projects'~~s~~ impact footprint ~~and shall not encroach into the mitigation area post-construction~~ in accordance with Section 6.4 of the MSHCP.

The Fuels Management guidelines presented in Section 6.4 of the MSHCP are intended to address reduce management activities around new development within or adjacent to the MSHCP Conservation Area. Fuel modification will be incorporated into the project design and will not extend into avoided or preserved habitat areas.

5.0

Thresholds of Significance

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

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

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

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

Appendix G of the State CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including: candidate, sensitive, or special-status species; riparian habitat or other sensitive natural communities; Federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and, adopted HCPs. This is done in the form of a checklist of questions to be answered during the Initial Study leading to the preparation of the appropriate environmental documentation for a project [i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impacts Report (EIR)]. Because these questions are derived from standards in

other laws, regulations, and other commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following conditions would result from implementation of the proposed Project.

Threshold BIO-A	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Wildlife Service. *Note: Threshold BIO-A also encompasses the threshold on the Riverside County Environmental Assessment/Initial Study form as follows: "Have a substantial adverse effect, either directly or through habitat modifications, on any endangered, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)."*
Threshold BIO-B	Have a substantial adverse effect on any riparian habitat or other sensitive plant community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service.
Threshold BIO-C	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
Threshold BIO-D	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas.
Threshold BIO-E	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
Threshold BIO-F	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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

- "Substantial adverse effect" means loss or harm of a magnitude which, based on current scientific data and knowledge would: (1) substantially reduce population numbers of a listed, candidate, sensitive, rare, or otherwise special status species; (2) substantially reduce the distribution of a sensitive plant community/habitat type; or (3) eliminate or substantially impair the functions and values of a biological resource (e.g., streams, wetlands, or woodlands) in a geographical area defined by interrelated biological components and systems. In the case of this analysis, the prescribed geographical area is considered to be the region that includes the USGS topographic quadrangle for the study area, namely Murrieta. For some species, the geographic area may extend to the vicinity of the study area based on known distributions of the species. The vicinity of the study area is considered to comprise the following USGS topographic quadrangles: Lake Elsinore, Menifee, Winchester, Bachelor Mountain, Pechanga, Temecula, Fallbrook, and Wildomar.

- "Conflict" means contradiction of a magnitude, which based on foreseeable circumstances, would preclude or prevent substantial compliance.

- "Rare" means: (1) that the species exists in such small numbers throughout all, or a significant portion of, its range that it may become endangered if its environment worsens; or (2) the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the FESA.

6.0

Project Related Impacts

6.1 Regulatory Setting

Special-status species are provided protection by either Federal or State resource management agencies, or both, under provisions of the FESA and CESA.

There are a number of performance criteria and standard conditions that must be met as part of any review and approval of the proposed project. These include compliance with all of the terms, provisions, and requirements with applicable laws that relate to Federal, State, and local regulating agencies related to potential impacts to special-status plant and wildlife species, wetlands, riparian habitats, and blue lined stream courses. The following summarizes federal and state regulations, and CNPS, as previously discussed in Section 4.7, *Special-Status Biological Resources*.

6.1.1 Federal Regulations

As discussed in Section 4.7.1, *Federal Special-Status Resource Protection and Classifications* of this BRA, under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. In a case where a property owner seeks permission from a Federal agency for an action which could affect a Federally-listed plant and animal species, the property owner and agency are required to consult with USFWS to obtain appropriate permits. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants. In addition to FESA, take of migratory birds, or bald or golden eagles, require permits pursuant to the MBTA and the Bald and Golden Eagle Protection Act, respectively. Furthermore, any impacts to USACE and RWQCB jurisdictional waters would require permitting pursuant to Sections 404 and 401 of the CWA, respectively.

6.1.2 State of California Regulations

As discussed in Section 4.7.2, *State of California Special-Status Resource Protection and Classifications* of this BRA, Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species. Exceptions authorized by the State to allow "take" require permits or memoranda of understanding and can be authorized for "endangered species, threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Wildlife Code provide that notification is required by an initiator prior to disturbance. State regulations also exist for protection of birds

pursuant to the MBTA, and for acquiring permits for impacts to CDFW jurisdictional streambeds pursuant to Section 1602 of the Fish and Game Code.

6.1.3 California Native Plant Society

As discussed in Section 4.7.2, *State of California Special-Status Resource Protection and Classifications* of this BRA, the CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California which classifies plant species into categories of rarity. Informally ranked species are not protected per se, but warrant consideration in the preparation of biological assessments as part of the CEQA process. In some cases, there may be suitable habitat for CNPS-listed species that are not covered by the MSHCP. As such, sensitive plant surveys may be recommended in cases where the MSHCP does not have plant survey requirements.

6.1.4 Local Regulations

The study area is within the adopted Western Riverside County MSHCP Plan area. The Western Riverside County MSHCP provides permits for the take of all species identified in the MSHCP as covered and conditionally covered, so long as the conditions imposed are satisfied (see also Sections 4.7.3, *Local Special Status Resource Protection and Classifications* and 4.7.7, *Study Area Relationship to Western Riverside County MSHCP*).

6.2 Project Related Impacts

The analysis in Section 6.3, *Impact Analysis* of this BRA examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the project. For the purpose of this assessment, project-related impacts take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to study area.

The determination of impacts in this analysis is based on both the proposed project development plan and the biological values of the habitat and/or sensitivity of plant and wildlife species to be affected. Any recommended mitigation measures to address impacts are discussed in Section 7.0, *Mitigation Measures*. Compliance with existing regulations is also outlined in Section 7.0, *Mitigation Measures* as Conditions of Approval.

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

Impacts to biological resources as a result of project development were analyzed in GIS using Computer-Aided Design (CAD) data of the project footprint and guidelines on temporary impact areas for the drainage crossings, both provided by the project engineer. Acreages of impacts were calculated by overlaying the CAD data over GPS data of biological resources collected by ESA PCR during the surveys.

6.3 Impact Analysis

6.3.1 Impacts to Special-Status Species

Threshold BIO-A: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Wildlife Service?

Less than Significant with Mitigation Incorporated

6.3.1.1 Special-Status Plant Species

Impacts to the study area would result in the direct removal of numerous common plant species; a list of plant species observed within the study area is included in Appendix A. Common plant species present within the study area occur in large numbers throughout the region and their removal does not meet the significance thresholds defined in Section 5.0, *Thresholds of Significance*. Therefore, impacts to common plant species would not be considered a significant impact and no mitigation measures are required.

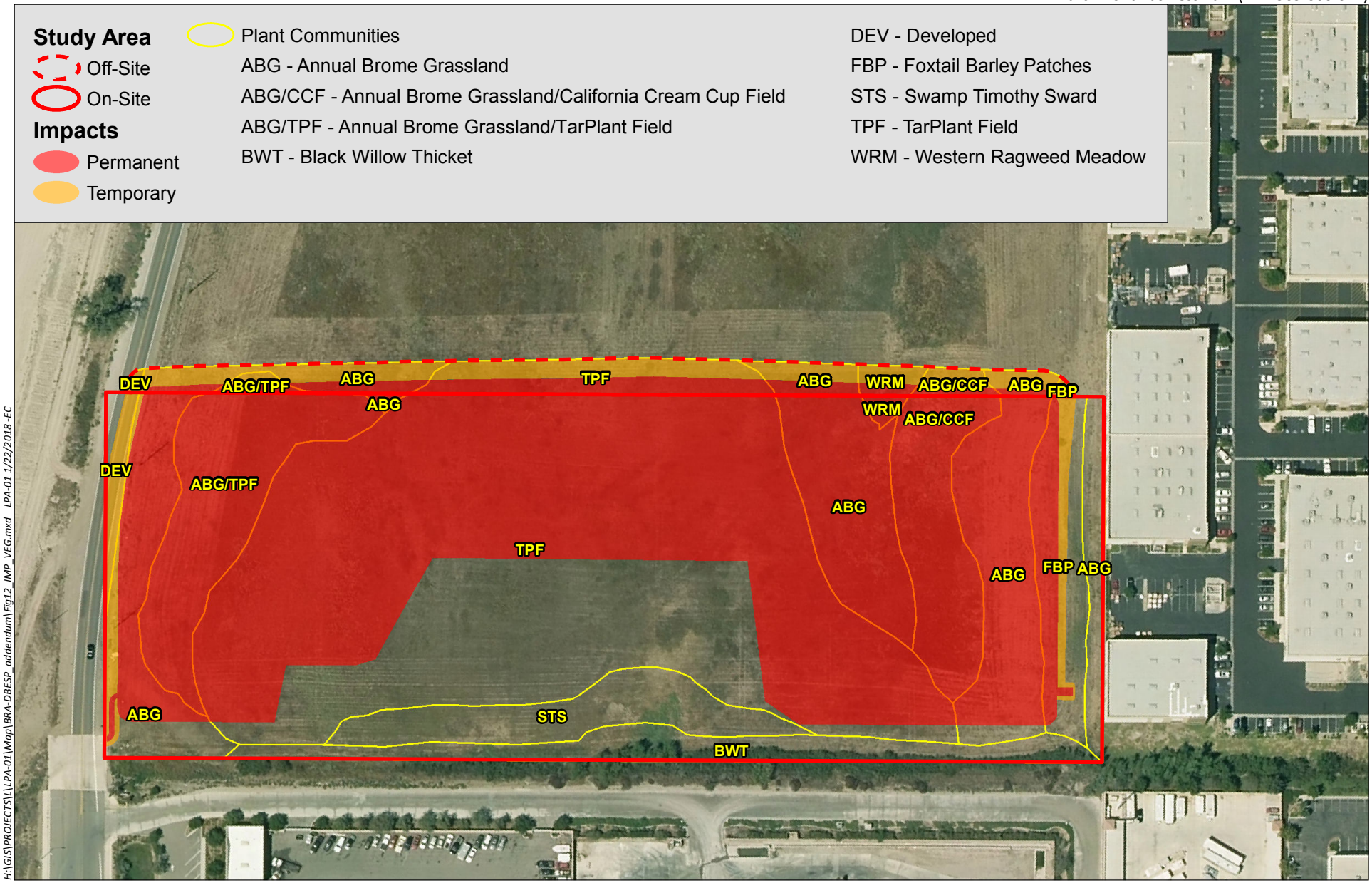
Of the 73 special-status plant species identified in available databases as occurring in the project vicinity (see Section 4.7.5, *Special-Status Plant Species* and Appendix C), 50 are not expected to occur within the study area due to the lack of suitable habitat or because the study area is outside the known distribution or elevation range for the species. The remaining 23 special-status plant species were determined to have a potential to occur on-site; however, 22 of these species are not expected to occur since focused surveys were negative. As such, no impacts to these special-status plant species would occur as a result of the proposed project; therefore, no mitigation measures are required.

One special-status plant species, smooth tarplant was observed throughout the study area. Smooth tarplant is a CNPS List 1B.1 species as well as a Covered Species under the MSHCP and a MSHCP Riparian/Riverine Species. An area totaling 5.50 acres (5.18 acres on-site and 0.32 acre off-site), supporting an almost monotypic cover of smooth tarplant, was mapped within the study area (see Figure 6). In addition, 0.81 acre (0.77 acre on-site and 0.04 acre off-site) of annual brome grassland/tarplant field was also mapped within the study area. The annual brome grassland/tarplant field was mostly dominated by annual non-native grasses but also included less dominate patches of smooth tarplant. Approximately 1.770.09 acres of the tarplant field was mapped in association with Riparian/Riverine areas.

The proposed project will result in 3.725.10 acres (3.564.94 acres on-site and 0.16 acre off-site) of permanent impacts and 0.37 acre (0.21 acre on-site and 0.16 acre off-site) of temporary off-site impacts to tarplant field; and 0.79 acre (0.77 acre on-site and 0.02 acre off-site) of permanent impacts and 0.021 acre of temporary off-site impacts off-site to annual brome grassland/tarplant field (**Figure 12**, *Impacts to Plant Communities* and **Table 6***, Proposed Impacts and Avoidance of Plant Communities*). Smooth tarplant doesn't carry a federal listing as threatened or endangered. Further, the study area isn't located within a Narrow Endemic Species Survey Area or Criteria Area Species Survey Area for the smooth tarplant. Any impacts to smooth tarplant outside of Criteria Area or Narrow Endemic Species Survey Areas are considered fully mitigated under the implementation of the MSHCP Conservation Areas. Therefore, the permanent loss of 4.335.89 acres of habitat supporting this species wouldn't expect to threaten regional population numbers. Therefore, impacts to this species are considered less then significant. Impacts associated with smooth tarplant as a Riparian/Riverine plant species are discussed further below.

6.3.1.2 Special-Status Wildlife Species

Development of the study area would result in the disruption and removal of habitat and the loss and displacement of common wildlife species. A list of wildlife species observed within the study area is included in Appendix A. Due to the limited amount of native habitat (3.585.14 acres within tarplant field and western ragweed meadow) to be permanently removed and the level of existing disturbance from human activity within the vicinity (e.g., nearby development), these impacts would not be expected to reduce the general wildlife populations below self-sustaining levels within the region and impacts to common wildlife species do not meet the significance thresholds defined in Section 5.0, *Thresholds of Significance*. Therefore, impacts to common wildlife species would not be considered a significant impact and no mitigation measures are required.



HELIX Environmental Planning

Impacts to Plant Communities

Figure 12

TABLE 6
PROPOSED IMPACTS AND AVOIDANCE OF PLANT COMMUNITIES

	Existing (acres)		Permanent Impacts (acres)		Temporary Impacts (acres)		Avoidance (acres)	
Sensitive Plant Community	**On-site**	**Off-site**	**On-site**	**Off-site**	**On-site**	**Off-site**	**On-site**	~~**Off-site**~~
Annual Brome Grassland	1.99	0.33	1.59	0.10	0.060.17	0.23	0.400.04	~~0.23~~
Annual Brome Grassland/California Cream Cup Field	0.55	0.05	0.55	0.02	0.00	0.03	0.00	~~0.03~~
Annual Brome Grassland/Tarplant Field	0.77	0.04	0.77	0.02	0.00	0.021	0.00	~~0.02~~
Black Willow Thicket	0.51	0.00	0.00	0.00	0.00	0.00	0.51	~~0.00~~
Developed	0.10	0.01	0.00	0.00	0.080.08	0.01	0.10	~~0.01~~
Foxtail Barley Patches	0.44	0.01	0.18	0.00	0.080.18	0.01	0.26	~~0.01~~
Swamp Timothy Sward	0.51	0.00	0.000.08	0.00	0.000.16	0.00	0.510.43	~~0.00~~
Tarplant Field	5.18	0.32	3.564.94	0.16	0.000.21	0.16	1.620.24	~~0.16~~
Western Ragweed Meadow	0.02	0.05	0.020.03	0.02	0.00	0.03	0.00	~~0.03~~
Total	**10.0788**	**0.81**	**6.678.14**	**0.32**	**0.220.80**	**0.498**	**3.401.58**	~~**0.49**~~

SOURCE: ESA PCR, 2016.

Of the 38 special-status wildlife species identified in available databases as occurring in the project vicinity (see Section 4.7.6, *Special-Status Wildlife Species* and Appendix D) 17 are not expected to occur within the study area due to the lack of suitable habitat or because the study area is outside the known distribution or elevation range for the species. Since these species are not expected to be present in the study area, no impacts would occur as a result of project development and no mitigation measures are required.

Of the remaining 21 special-status wildlife species were determined to have a potential to occur on site, four are conditionally covered by the MSHCP with additional surveys and mitigation required, including least Bell's vireo (observed off-site), burrowing owl, Riverside fairy shrimp and vernal pool fairy shrimp. Of these species, focused surveys were completed for burrowing owl and dry and wet season focused surveys were completed for listed fairy shrimp species. Details regarding these species, including least Bell's vireo, are discussed in further detail below.

Of the remaining 17 potential special-status wildlife species, 12 species are covered by the MSHCP with no survey or conservation requirements for the study area, including western spadefoot (observed during wet season fairy shrimp surveys) , orange-throated whiptail, red diamondback rattlesnake, golden eagle, white-tailed kite, northern harrier, Swainson's hawk, loggerhead shrike, northwestern San Diego pocket mouse, Stephens' kangaroo rat (covered by the SKR HCP), Los Angeles pocket mouse, and San Diego black-tailed jackrabbit. Therefore,

assuming payment of the applicable fees (the MSHCP Local Development Mitigation Fee and the SKR HCP fee for the Stephens' kangaroo rat) and compliance with required guidelines in the MSHCP (see Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to the MSHCP*), no additional mitigation is required for these species.

The remaining three (3) species, the two-striped garter snake, western mastiff bat and Dulzura pocket mouse are not covered by the MSHCP. Two-striped garter snake, western mastiff bat, Dulzura pocket mouse are listed as species of special concern by the CDFW and do not carry a federal or state listing as threatened or endangered. These species are considered to have a moderate to low potential to occur in the study area based on the limited habitat and/or quality of the habitat, and no significant impacts are anticipated to these species as described below. The study area also has the potential to support migratory birds and raptors that are discussed further in Section 6.3.4.2, *Migratory Species* of this report.

- No significant impacts to two-striped garter snake are expected. Although this species is considered to have a low/moderate potential to occur in the study area due to the presence of the ponding area, this species isn't expected to be a permanent resident because of the nature of the ponding area. It's more likely that this species would utilize the study area for foraging only when water is present.

- No significant impacts to Dulzura pocket mouse are expected since this species is only considered to have a low potential to occur since only a few fossorial mammal burrows were observed in the study area, and as such, the study area would not be expected to support large populations of this species, if present. Additionally, the study area does not support this species' preferred habitat (grass-chaparral ecotone). The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 1.1 miles to the northeast of the study area near Murrieta.

- No significant impacts to western mastiff bat since this species is only considered to have a moderate potential to occur for foraging with no suitable roosting habitat in the study area. Higher-quality foraging habitat (less disturbed and larger open areas) exists in the open areas to the west of the study area and impacts to a relatively small acreage of suitable foraging habitat (10.88 acres) would not likely impact this species to below self-sustaining populations. As such, any impacts to foraging habitat for these species, if present, would be less than significant and no mitigation measures are required. The nearest CNDDB occurrence record of this species was recorded in 1991, approximately 3.2 miles to the southeast of the study area in the City of Temecula.

The above three species were not considered for coverage under the MSHCP, indicating that regionally significant populations of these species do not exist within the MSHCP boundaries. Based on the above discussion, the study area is not capable of supporting large populations of these species and a loss of a few individuals, if present, would not expect to reduce regional population numbers. Therefore, any impacts to these species would be less than significant and no mitigation measures are required.

Burrowing Owl

Although the study area and off-site areas do not currently support burrowing owls, the study area, and off-site areas support potentially suitable burrowing owl (habitat). Any impacts to burrowing owl, if present, would be considered potentially significant without implementation of mitigation measures. In addition, a pre-construction survey is required in compliance with the MSHCP. Specifically, in accordance with the County of Riverside's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006), a pre-construction survey for burrowing owl is required within 30 days prior to ground disturbance to avoid potential direct take of burrowing owls in the future. A Condition of Approval (COA BIO-1) requiring this survey is provided in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species*, in addition to a recommended mitigation measure (MM BIO-1) should burrowing owls be present in the future.

Least Bell's Vireo

No direct impacts to ~~L~~least Bell's vireo are expected as a result of project implementation. The study area supports 0.51 acre of black willow thicket, which is associated with Drainage A. The full extent of the black willow thicket is not entirely located within the property boundary and much of the habitat occurs off-site and to the southeast of the study area. As described in Sections 4.7.7.3 and 4.7.7.5 above, the portion of the black willow thicket within the study area is considered low-quality nesting habitat for least Bell's vireo based on the lack of suitable density, structure, immediate proximity to an active concrete facility and size of the habitat. Additionally, the upstream portion of Drainage A that occurs off-site and to the northeast of the study area supports higher quality nesting habitat, though the habitat is small, isolated, and bounded by existing development on either side.

The 0.51-acre black willow thicket located within the study area is subjected to a high-level of human disturbance associated with the adjacent cement factory operation immediately to the southeast of the study area. There is no natural buffer between the black willow thicket and the existing development to the southeast, nor is there a natural buffer between the habitat in the upstream off-site portion of Drainage A and the existing developments to the northwest and southeast. Additionally, the black willow thicket is isolated since it does not immediately connect to suitable riparian habitat upstream beyond Jefferson Avenue or downstream beyond Adams Avenue. Based on the low-quality habitat, existing ambient noise disturbance from the adjacent developments, and fragmented nature of the habitat, the on-site black willow thicket is unlikely to support nesting least Bell's vireo.

Although nesting potential within Drainage A is considered low, ~~A~~any indirect impacts to this species would be considered potentially significant without mitigation. As such, a number of avoidance and minimization measures are proposed to prevent potential indirect impacts to least Bell's vireo during construction of the interim and ultimate projects in addition to any ambient noise generated post-construction of the ultimate project.~~; however, there is a potential for indirect noise impacts if construction occurs during the breeding season and post-construction impacts from human influences (breeding season starts April 10, depending on their arrival from wintering areas, and continues until they leave around July 31). Any indirect impacts to this~~

species would be considered potentially significant without mitigation. Avoidance and minimization measures (MM BIO-2) to avoid indirect impacts to least Bell's vireo during on-site construction in the vicinity of Drainage A if it occurs during the breeding season (March 1 through August 31) and post-construction are provided below, in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species*.

In addition to MM BIO-2, three project design features (PDF BIO-1 through BIO-3) would be incorporated in the interim and ultimate project designs to further avoid and minimize potential indirect impacts to least Bell's vireo from any additional noise generated. These measures include manufactured slopes (interim project) and buildings (ultimate project) to be construction above the avoided MSHCP Riparian/Riverine Areas; a cinderblock wall to be installed adjacent to Drainage A/Larchmont Channel as part of the ultimate project design; a structural setback of building proposed as part of the ultimate project design from suitable least Bell's vireo habitat; and buildings proposed as part of the ultimate project to be oriented in a way that the buildings act as a noise barrier, which would limit ambient noise that reaches the avoided MSHCP Riparian/Riverine Area. The mitigation measure (MM BIO-2) and project design features (PDFs BIO-1 through BIO-3) would reduce any potential indirect impacts to least Bell's vireo to less than significant.

Burrowing Owl

Although the study area and off-site areas do not currently support burrowing owls, the study area, and off-site areas support potentially suitable burrowing owl. Any impacts to burrowing owl, if present, would be considered potentially significant without implementation of mitigation measures. In addition, a pre-construction survey is required in compliance with the MSHCP. Specifically, in accordance with the County of Riverside's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006), a pre-construction survey for burrowing owl is required within 30 days prior to ground disturbance to avoid potential direct take of burrowing owls in the future. A Condition of Approval requiring this survey is provided in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species*, in addition to a recommended mitigation measure should burrowing owls be present in the future.

Riverside Fairy Shrimp and Vernal Pool Fairy Shrimp

Fairy shrimp species were not observed during the dry or wet season focused surveys conducted within the ponding areas on the study area. Therefore, the ponding areas do not support listed Riverside fairy shrimp or vernal pool fairy shrimp species and no mitigation is required. Although focused dry season surveys for fairy shrimp eggs were negative there remains a potential for Riverside and vernal pool fairy shrimp to be present on-site within the ponding areas. Presence/absence cannot be confirmed until wet season surveys are completed. Both fairy shrimp species carry a federal listing as threatened or endangered, respectively. Therefore, any impacts to these species, if present, would be considered potentially significant without mitigation. Further, these species are considered MSHCP Vernal Pool species, which would require further analysis under Section 6.1.2 of the MSHCP if avoidance isn't feasible. Recommended mitigation measures to reduce potential impacts to listed fairy shrimp species to less than significant are

~~provided below in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species*.~~

6.3.2 Impacts to Sensitive Plant Communities

Threshold BIO-B: Would the project have a substantial adverse effect on any riparian habitat or other sensitive plant community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated

6.3.2.1 Sensitive Plant Communities

The study area supports three (3) native plant communities totaling 6.08 acres (5.71 acres on-site and 0.37 acre off-site), including black willow thicket (0.51 acre on-site), tarplant field (5.18 acres on-site and 0.32 acre off-site), and western ragweed meadow (0.02 acre on-site and 0.05 acre off-site) as summarized in Table 1. Two of these communities are considered special-status habitats (high priority for inventory) by CDFW, namely black willow thicket and tarplant field. These sensitive plant communities total 6.01 acres (5.69 acres on-site and 0.32 acre off-site) in the study area. The remaining native community, western ragweed meadow, is not considered special-status plant community.

A total of 3.72~~5.47~~ acres (3.56~~5.15~~ acres onsite and 0.16~~0.32~~ acre off-site) of tarplant field will be permanently impacted by the project~~, including 5.10 acres (4.94 acres on-site and 0.16 acre off-site) of permanent impacts and 0.37 acre (0.21 acre on-site and 0.16 acre off-site) of temporary impacts~~, as summarized in **Table 7**, *Proposed Impacts and Avoidance of Sensitive Plant Communities*, and shown in Figure 12. Approximately 0.30~~0.09~~ acre ~~(0.08 acre permanent and 0.01 acre of temporary)~~ of on-site permanent impacts to the tarplant field is associated with Drainage A, a jurisdictional feature that is also considered an MSHCP Riparian/Riverine area. In addition, smooth tarplant is considered a Riparian/Riverine plant species. Permanent impacts to tarplant field wouldn't be considered significant since ~~as the smooth tarplant is considered adequately conserved through the implementation of the MSHCP Conservation objectives. Further,~~ the study area is not located within a MSHCP Criteria Area Species Survey Area ~~smooth tarplant survey area under the MSHCP~~. Through payment of the MSHCP Local Development Mitigation Fee and compliance with required guidelines in the MSHCP, no additional mitigation is required for impacts to tarplant field that occurs outside of the Riparian/Riverine areas. The remaining 0.51-acre of sensitive communities (black willow thicket) would be completely avoided, as shown on Figure 12. Therefore, no impacts to this sensitive plant community are expected. Potential impacts to tarplant field as it related to MSCHP Riparian/Riverine Areas is discussed further below in Section 6.3.6.2, *Riparian/Riverine.*

TABLE 7
PROPOSED IMPACTS AND AVOIDANCE OF SENSITIVE PLANT COMMUNITIES

	Existing (acres)		Permanent Impacts (acres)		Temporary Impacts (acres)		Avoidance (acres)	
Sensitive Plant Community	**On-site**	**Off-site**	**On-site**	**Off-site**	**On-site**	**Off-site**	**On-site**	~~**Off-site**~~
Black Willow Thicket	0.51	0.00	0.00	0.00	0.00	0.00	0.51	~~0.00~~
Tarplant Field	5.18	0.32	3.564~~.94~~	0.16	0.000~~.21~~	0.16	1.620~~.2~~ 4	~~0.16~~
Total	**5.69**	**0.32**	**3.564~~.94~~**	**0.16**	**0.000~~.21~~**	**0.16**	**2.130~~.7~~ 5**	~~**0.16**~~

SOURCE: ESA PCR, 2016.

6.3.2.2 CDFW Jurisdiction

The study area supports Drainage A/Larchmont Channel, which is ~~drainages that are~~ considered a jurisdictional streambed pursuant to Section 1602 of the California Fish and Game Code, as regulated by CDFW~~, which are proposed for impacts~~. ~~Drainages A and A1 are jurisdictional, of which permanent and temporary impacts are proposed to both.~~ Permanent impacts are proposed to 0.2980~~.098~~ acre within Drainage A while temporary impacts are proposed to 0.00189 acre within Drainage A, as shown on **Figure 13a**, *Revised Impacts to CDFW Jurisdiction ~~Jurisdictional Features~~ and MSHCP Riparian/Riverine Areas*. Existing and impact acreages are summarized in **Table 8**, *Proposed Impacts and Avoidance of CDFW Jurisdictional Features and MSHCP Riparian/Riverine Areas*. The permanent impacts total approximately ~~less than~~ 10 percent of the total 2.967~~1.103~~ acres of CDFW jurisdiction within the study area.

Impacts to CDFW jurisdictional features would be required to comply with Section 1602 of the California Fish and Game Code, including applying for a permit and compensatory mitigation. A mitigation measure (MM BIO-3) ~~Condition of Approval (COA BIO-2)~~ is proposed in section *7.2.2 Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features* of this BRA to comply with the compensatory mitigation requirement of this regulation, subject to approval by CDFW. Compliance with Section 1602 of the California Fish and Game Code would reduce impacts to a less than significant level.

TABLE 8
PROPOSED IMPACTS AND AVOIDANCE OF CDFW JURISDICTIONAL FEATURES AND MSHCP RIPARIAN/RIVERINE AREAS[A]

Drainage	Existing (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Avoidance (acres)
A	2.967~~1.103~~	0.298~~0.098~~	0.001~~0.089~~	2.669~~1.005~~
Total	**2.967~~1.103~~**	**0.298~~0.098~~**	**0.001~~0.089~~**	**2.669~~1.005~~**

[a] MSHCP Riparian/Riverine Areas are equivalent to CDFW jurisdiction.

SOURCE: ESA PCR, 2016.

6.3.3 Impacts to Wetlands

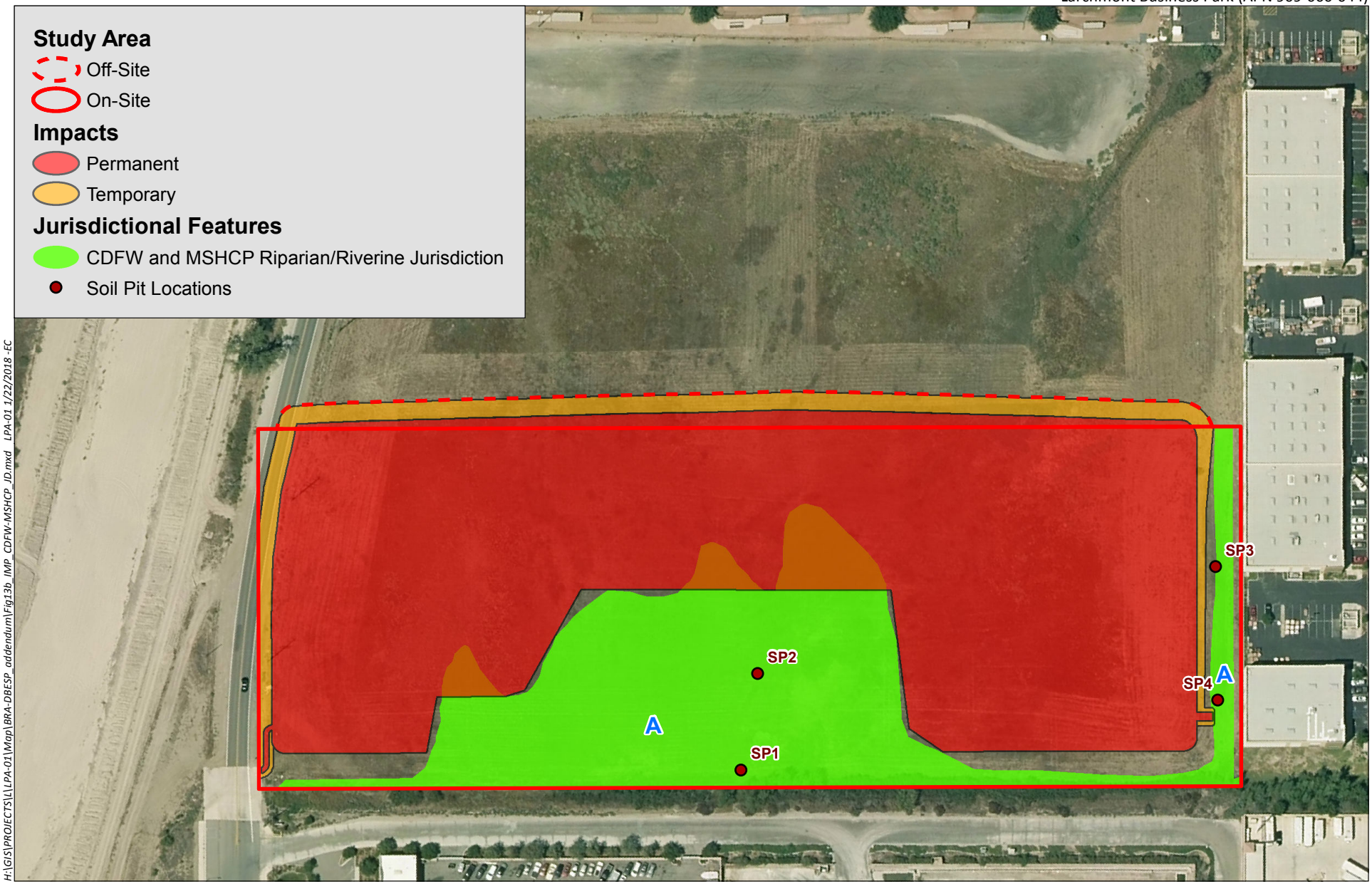
Threshold BIO-C: Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Regulatory Compliance

The study area does not support wetlands but does support 0.814 acre (1,406 linear feet [LF]) of USACE/RWQCB non-wetland jurisdiction regulated under Sections 404/401 of the Clean Water Act (CWA). ~~that are proposed for impacts. Drainages A and A1 are jurisdictional, of which permanent and temporary impacts are proposed to both, a~~As shown on **Figure 13b,** *Revised Avoidance of USACE/RWQCB Jurisdiction*~~.~~

~~Existing and impact acreages are~~ and summarized in **Table 9**, ~~*Existing and*~~ *Proposed Avoidance ofto USACE/RWQCB Jurisdictional Features ~~and MSHCP Riparian/Riverine Areas~~*, no permanent or temporary impacts are proposed to Drainage A. Therefore, permitting and mitigation is not required pursuant to Sections 404 and 401 of the CWA.~~Permanent impacts are proposed to 0.098 acre/77 linear feet (LF) within Drainage A while temporary impacts are proposed to 0.066 acre/66 LF within Drainage A. The permanent impacts total approximately 12 percent of the total 0.819 acre of USACE/RWQCB jurisdictional "waters of the U.S.".~~

~~Impacts to USACE and/or RWQCB jurisdictional features would be required to comply with Sections 404 and 401 of the CWA, respectively, including applying for a permit and mitigation subject to approval by USACE and/or RWQCB. A Condition of Approval is proposed in section *7.2.2 Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features* of this BRA to comply with the compensatory mitigation requirement of these regulations, subject to approval by USACE and RWQCB. Compliance with Sections 404 and 401 of the CWA would reduce impacts to a less than significant level.~~



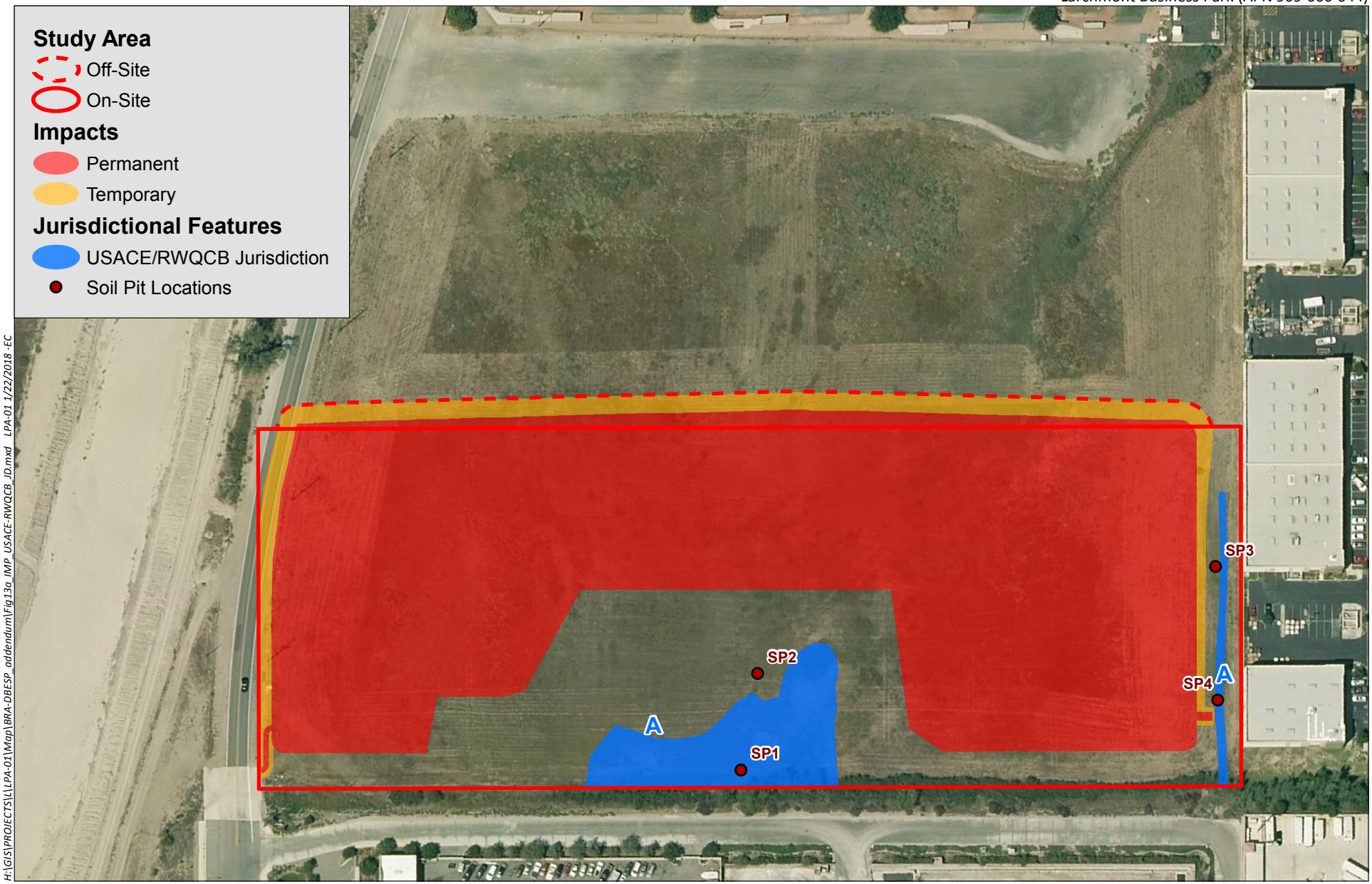
Source: Base Map Layers (Eagle Aerial, 2014; ESA, 2016)

HELIX Environmental Planning

Revised Impacts to CDFW Jurisdiction and MSHCP Riparian/Riverine Areas

Figure 13a

Larchmont Business Park (APN 909-060-044)



H:\GIS\PROJECTS\LLPA-01\Map\BRA-DBESP_addendum\Fig13a_IMP_USACE-RWQCB_JD.mxd LPA-01 1/22/2018 -EC

0 150 Feet

Source: Base Map Layers (Eagle Aerial, 2014; ESA, 2016)

HELIX Environmental Planning

Revised Impacts to USACE/RWQCB Jurisdiction

Figure 13b

TABLE 9
PROPOSED ~~IMPACTS AND~~ AVOIDANCE OF USACE/RWQCB JURISDICTIONAL FEATURES[A]

	Existing[a]		Permanent Impacts		Temporary Impacts		Avoidance	
Drainage	Length (ft)	Area (Acres)	Length (ft)	Area (Acres)	Length (ft)	Area (Acres)	Length (ft)	Area (Acres)
A	1,406	0.814	0~~87~~	0.0000~~.098~~	0~~87~~	0.0000~~.066~~	1,406~~1,263~~	0.8140~~.066~~
Total	**1,406**	**0.814**	**0~~87~~**	**0.0000~~.098~~**	**0~~87~~**	**0.0000~~.066~~**	**1,406~~1,263~~**	**0.8140~~.066~~**

[a] USACE/RWQCB and CDFW jurisdictional acreages overlap and are not additive (e.g., USACE/RWQCB acreages are included in the total CDFW jurisdictional acreages summarized in Table 8~~7~~).

SOURCE: ESA PCR, 2016.

6.3.4 Impacts to Wildlife Movement and Migratory Species

Threshold BIO-D: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas?

Less than Significant with Mitigation Incorporated

6.3.4.1 Wildlife Movement

As described in Section 4.5.2, *Wildlife Movement Within the Study Area*, the study area supports potential live-in and movement habitat for species on a local scale (i.e., some limited live-in and at least marginal movement habitat for reptile, bird, and mammal species), but it likely provides little to no function to facilitate wildlife movement for wildlife species on a regional scale, and is not identified as a regionally important dispersal or seasonal migration corridor. Movement on a local scale likely occurs with species adapted to urban environments due to the development and disturbances in the vicinity of the study area. Although implementation of the project would result in disturbances to local wildlife movement within the study area, those species adapted to developed areas would be expected to persist on-site following construction. As such, impacts would be less than significant and no mitigation measures would be required. Since the study area does not function as a regional wildlife corridor and is not known to support wildlife nursery area(s), no impacts would occur and no mitigation measures would be required. Additionally, the project avoids permanent impacts to the entirety of the riparian habitat within Drainage A.

6.3.4.2 Migratory Species

Migratory Birds and Raptors

As previously discussed in Section 4.7.6, *Special-Status Wildlife Species*, the study area supports potential nesting, including shrubs and trees, and potential foraging habitat for migratory birds.

Although limited, there is some suitable foraging habitat for raptors. Due to the limited acreage of the study area, and its proximity to an existing development, the foraging habitat is considered to be moderate quality. Higher quality foraging habitat is considered to occur in less developed areas with larger expanses of open space, such as the areas to the west of study area. The loss of a relatively small acreage of habitat adjacent to existing development would not be expected to significantly impact the foraging of these species as the open areas to the west of the study area provide higher quality foraging habitat for displaced individuals. Therefore, impacts to foraging habitat would be considered less than significant and no mitigation measures are considered required.

The study area has the potential to support songbird and raptor nests due to the presence of shrubs, ground cover, and trees on-site. Nesting activity typically occurs from February 15 to August 31. Disturbing or destroying active nests is a violation of the MBTA (16 U.S.C. 703 et seq.). In addition, nests and eggs are protected under Fish and Wildlife Code Section 3503. As such direct impacts to breeding birds (e.g. through nest removal) or indirect impacts (e.g. by noise causing abandonment of the nest) is considered a potentially significant impact as defined by the thresholds of significance (Threshold BIO-D) in Section 6.0, *Project Related Impacts*. Compliance with the MBTA would reduce impacts to a less than significant level, as detailed in MM BIO-42 (see Section 7.2.3, *Measures to Mitigate Potentially Significant Impacts to Nesting Birds*).

6.3.5 Consistency with Local Policies and Ordinances

Threshold BIO-E: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impacts

The project does not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or ordinances.

6.3.6 Consistency with Adopted Natural Community Conservation Plan

Threshold BIO-F: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less than Significant with Mitigation Incorporated

The study area is within the Western Riverside County MSHCP and requires payment of the Local Development Mitigation Fee and compliance with requirements of the MSHCP including the Burrowing Owl Survey Area guidelines (Section 6.3.2 of the MSHCP) and the Protection of

Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2 of the MSHCP). Additionally, the study area is within Subunit 1, Murrieta Creek and Criteria Cell 6528 (Riverside County TLMA 2016), which would, therefore, require the project to go through the HANS process in order to determine if the site will be included into the MSHCP Conservation Areas or if it'll be subjected to other MSHCP Criteria. Part of the HANS process requires analysis of edge effects that may adversely affect biological resources within adjacent MSHCP Conservation Areas. As such, the project will be subject to certain requirements outlined in the Guidelines Pertaining to the Urban/Wildlands Interface (Section 6.1.3 of the MSHCP) including those for the treatment and management of edge factors including night lighting, noise, barriers for public access and predators, and grading/land development limits. The study area is not within the survey overlays for Criteria Area Species, Narrow Endemic Plant Species, Amphibian Species, or Mammal Species (Section 6.3.2 of the MSHCP).

Potential impacts to and project compliance with the MSHCP pertaining to burrowing owl, Riparian/Riverine areas, Riparian/Riverine species (least Bell's vireo), and Urban/Wildlands Interface requirements are summarized below. A Condition of Approval (COA BIO-2) is proposed in Section *7.2.4 Measures to Mitigate Potentially Significant Impacts to the MSHCP* of this BRA to ensure the project's compliance with the MSHCP, which would reduce impacts to a less than significant level under CEQA.~~:~~

6.3.6.1 Burrowing Owl

The study area is within the Burrowing Owl Survey Area of the MSHCP. Focused burrowing owl surveys were conducted within portions of the study area that support potentially suitable habitat for this species. No burrowing owls were observed. However, due to the presence of potentially suitable habitat, a 30-day pre-construction survey for burrowing owl is required pursuant to the MSHCP. If burrowing owls are found within the study area during the 30-day pre-construction survey impacts to this species would be potentially significant without implementation of mitigation measures. The Condition of Approval (COA BIO-1) and mitigation measure (MM BIO-1) prescribed in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Special-Status Wildlife Species*, would reduce this impact to a less than significant level and ensure consistency with the MSHCP.

6.3.6.2 Riparian/Riverine

Riparian/Riverine Areas

As shown in Figure 13 and **Table 8**, *Permanent Impacts and Avoidance of CDFW Jurisdictional Features and MSHCP Riverine Areas*, Drainage A/Larchmont Channel, meets the definition of Riparian/Riverine Areas pursuant to the MSHCP. In total, the study area supports 2.967 ~~1.103~~ acres of Riparian/Riverine Areas, of which 0.298~~0.098~~ acre will be permanently impacted by the proposed project. The temporary impacts to Riparian/Riverine Areas are associated with the construction buffer, which ~~and~~ total ~~of~~ 0.001~~0.066~~ acre~~ of temporarily impacted Riparian/Riverine Areas will be restored to pre-project conditions~~. As such, the project will be permanently avoiding 90~~91~~% (2.669 acres) of the Riparian/Riverine Areas on the study area~~ site~~,

including 100% of the black willow thicket within Drainage A. The 2.669-acre avoided Riparian/Riverine Area will be protected through an appropriate legal preservation mechanism, such as a deed restriction or conservation easement, per MSHCP guidelines provided that said mechanism will not inhibit the City of Murrieta's ability to implement hydraulic improvements to the channel in the future. However, any City improvements would be subject to independent MSHCP review and would not be a part of the proposed project. Nonetheless, any impacts to MSHCP Riparian/Riverine Areas would be considered significant without implementation of mitigation measures. The mitigation measure (MM BIO-5) prescribed in Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to MSHCP*, would reduce this impact to a less than significant level and ensure consistency with the MSHCP. A project design feature (PDF BIO-4) is also proposed to prevent unintentional impacts to avoided Riparian Riverine Areas.

Permanent indirect impacts to Riparian/Riverine Areas on and off-site include the effects of increases in ambient levels of sensory stimuli (e.g. noise, light), unnatural predators (e.g. domestic and other non-native animals), competitors (e.g. exotic plants, non-native animals), and trampling and unauthorized recreational use due to the increase in human population. Other permanent indirect effects may occur that are related to water quality and stormwater management, including trash/debris, toxic materials, and dust. Any permanent indirect impacts to Riparian/Riverine Areas would be considered potentially significant without implementation of mitigation measures. The Condition of Approval (COA BIO-2) ~~mitigation measure~~ prescribed in Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to MSHCP* would reduce this impact to a less than significant level and ensure consistency with the MSHCP.

Riparian/Riverine Plant Species

Approximately 1.77~~0.09~~ acres of tarplant field supporting smooth tarplant occurs within Riparian/Riverine Areas within the study area. Of the 1.77 acres, ~~A~~approximately~~,~~ 0.30~~0.07~~ acre of tarplant field will be permanently impacted by the proposed project ~~with less than 0.01 acre that will be temporarily impacted~~. Smooth tarplant is considered a Riparian/Riverine plant species. Under the MSHCP, protection of Riparian/Riverine areas is important for the conservation of this species as well as several other MSHCP Covered species. Therefore, any impacts to Riparian/Riverine areas supporting this species would be considered potentially significant and would be subject to MSHCP requirements, including a DBESP. However, it should be noted that based on an initial consultation between the County of Riverside ~~EPD~~ Regional Conservation Authority (RCA) and the project proponent, it was determined that the presence of this species on-site is not expected to have long-term conservation value and no additional mitigation obligations specific to these ~~this~~ species is expected. In addition, the study area isn't located within a ~~Narrow Endemic Species Survey Area or~~ Criteria Area Species Survey Area for this species; therefore, this species ~~is considered adequately conserved outside of Riparian/Riverine areas and therefore~~ would not be subject to additional mitigation over and above the mitigation proposed for Drainage A.~~MSHCP requirements.~~ Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to MSHCP*, below, discusses measures that will reduce potential impacts to Riparian/Riverine area to a less than significant level and ensure consistency with the MSHCP.

Riparian/Riverine Wildlife Species

Least Bell's vireo was observed just off-site within the black willow thicket that's associated with Drainage A. While the least Bell's vireo or its habitat (on-site and off-site) will not be directly impacted by the proposed project, there's a potential for indirect noise impacts if construction occurs during the breeding season and post-construction from human influences (March 1 through August 31~~breeding season starts April 10, depending on their arrival from wintering areas, and continues until they leave around July 31~~). Any impacts to this species would be considered potentially significant without implementation of mitigation measures. Avoidance and minimization measures (MM BIO-2) and project design features (PDFs BIO-1 through BIO-3) to avoid indirect impacts to least Bell's vireo during on-site construction in the vicinity of Drainage A, if it occurs during the breeding season, and post-construction are provided in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Special-Status Wildlife Species* would reduce this impact to a less than significant level and ensure consistency with the MSHCP.

Although the ponding areas on the study area do support low quality habitat for Riverside fairy shrimp and vernal pool fairy shrimp, no fairy shrimp were detected during the dry and wet season focused surveys. Therefore, the study area does not support any list fairy shrimp species and no mitigation is required.~~Although the potential is considered low, the study area has the potential to support MSHCP Vernal Pool species, Riverside fairy shrimp and vernal pool fairy shrimp within the two ponding features on site. Although the dry season survey was negative for these species a wet season survey is still required. If found present, and avoidance isn't feasible, impacts to these species would be considered potentially significant without implementation of mitigation measures. Additional analysis under Section 6.1.2 of the MSHCP would be required. According to Section 6.1.2 of the MSHCP, if an avoidance alternative is not feasible a DBESP shall be made by the project applicant to ensure the replacement of any lost functions and values of habitat as it relates to MSHCP Covered Species. Mitigation measures prescribed in Section 7.2.1, *Measures to Mitigate Potentially Significant Impacts to Special-Status Wildlife Species*, would reduce this impact to a less than significant level and ensure consistency with the MSHCP~~.

Urbans/Wildlands Interface

As discussed above in Section 4.7.7.6, *Urban/Wildlands Interface,* there's potential for indirect effects associated with night lighting, noise, and grading/land development, and barriers as a result of the proposed project's location within a Criteria Cell. Although no structural development is expected to occur immediately, indirect effects associated with on-going or permanent noise or barriers associated with a future development are potentially significant without incorporation of mitigation measures. Indirect effects associated with grading and other construction-related noise are expected to be temporary. Further, with the implementation of project-related Best Management Practices (BMPs), which includes no nighttime work/lighting and barrier fencing around the work areas, temporary indirect effects will be reduced to the maximum extent possible. Potential ongoing indirect effects could occur as a result of impacts to the existing on-site drainages, which may result in increased surface flows off-site and into Murrieta Creek. The run-off may result in increased sedimentation flows, water quality issues and an increase in the transport of non-native plant seeds into the Creek. Since the project will be

required to comply with flood and water quality standards[12], as well as provide appropriate mitigation measures during the permitting process with the regulatory agencies, potential indirect effects will be reduced to the maximum extent possible. ~~These measures will avoid impacts to water quality and the dispersal of invasive plant seeds in the watershed and are outlined in the Condition of Approval (COA BIO-3) recommended in Section 7.2.2, *Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features*. An additional Condition of Approval and mitigation measure is prescribed in Section 7.2.4, *Measures to Mitigate Potentially Significant Impacts to the MSHCP,* which would reduce potential impacts as a result of noise, barriers, and lighting to a less than significant level and ensure consistency with the MSHCP.~~Measures pertaining to drainage, invasives, toxics, trash/debris, lighting, noise, invasive species, barriers, and grading/land development outlined in Section 6.1.4 of the MSHCP and Section 4.7.7.6 above are recommended to ensure the project does not indirectly impact any MSHCP Conservation Areas. Compliance with measures will minimize the project's potential indirect effect on the MSHCP Conservation Areas and are included as a Condition of Approval (COA BIO-2) in Section 7.2.4 below. In addition, three project design features (PDFs BIO-1 through BIO-3) will be incorporated into the interim and ultimate project design to limit any potential noise impacts to least Bell's vireo and MM BIO-2 will be implemented to avoid potential indirect impacts during construction (Section 7.2.1 below).

[12] The project will be required to prepare a Water Quality Management Plan and Storm Water Pollution Prevention Plan consistent with Regional Water Quality Control Board and County requirements that will outline measures such as Best Management Practices (BMPS) to address water quantity and quality, and to address any potential flooding.

7.0

Mitigation Measures

7.1 Approach

Mitigation measures are recommended for those impacts determined to be significant to special-status biological resources (identified in italics in Section 7.2, *Mitigation Measures and Conditions of Approval for Significant Impacts*). Mitigation measures for impacts considered to be "significant" were developed in an effort to reduce such impacts to a level of "insignificance," while at the same time allowing an opportunity to realize development goals under the proposed project. As stated in CEQA Guidelines Section 15370 mitigation includes:

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

Where compliance with existing regulations and the issuance of permits by regulatory agencies would reduce impacts to a less than significant level, those measures are proposed as conditions of approval (identified in non-italics in Section 7.2, *Mitigation Measures and Conditions of Approval for Significant Impacts*).

7.2 Mitigation Measures and Conditions of Approval for Significant Impacts

The following mitigation measures (MM), project design features (PDF), and conditions of approval (COA) address potentially significant impacts from the proposed development project.

7.2.1 Measures to Mitigate Potentially Significant Impacts to Special-status Wildlife Species

Burrowing Owl

COA BIO-1 Due to the presence of suitable habitat and in compliance with the MSHCP, a pre-construction survey for burrowing owl is required within 30 days prior to ground disturbance to determine the presence of burrowing owls and avoid potential direct take of burrowing owls if present.

MM BIO-1 *If burrowing owls are determined present during the 30-day pre-construction survey, occupied burrows shall be avoided to the greatest extent feasible, following the guidelines in the Staff Report on Burrowing Owl Mitigation published by Department of Fish and Wildlife (March 7, 2012) including, but not limited to, conducting pre-construction surveys, avoiding occupied burrows during the nesting and non-breeding seasons, implementing a worker awareness program, biological monitoring, establishing avoidance buffers, and flagging burrows for avoidance with visible markers. The project proponent shall immediately inform RCA (and CDFW and USFWS, if required) if burrowing owls are observed during the pre-construction survey. Preparation of a Burrowing Owl Protection and Relocation Plan for approval by RCA (and CDFW and UWSFW, if required) would be required prior to initiating ground disturbance.~~If occupied burrows cannot be avoided, acceptable methods may be used to exclude burrowing owl either temporarily or permanently, pursuant to a Burrowing Owl Exclusion Plan that shall be prepared and approved by the County of Riverside Environmental Programs Department (EPD), in coordination with the CDFW. The Burrowing Owl Exclusion Plan shall be prepared in accordance with the guidelines in the Staff Report on Burrowing Owl Mitigation and the MSHCP.~~*

In accordance with the MSHCP, take of active nests will be avoided. Passive relocation (i.e., the scoping of the burrows by a burrowing owl biologist and collapsing burrows free of young) will occur when owls are present outside the nesting season, which shall be described in the agency-approved Burrowing Owl Protection and Relocation Plan. The RCA ~~EPD~~ may require translocation sites for the burrowing owl to be created in the MSHCP reserve for the establishment of new colonies pursuant to MSHCP objectives for the species. Translocation sites, if required, will be identified in consultation with RCA ~~EPD and/or~~ (and CDFW and USWFS, if required) taking into consideration unoccupied habitat areas, presence of burrowing mammals, existing colonies, and effects to other MSHCP Covered Species. If required by CDFW, translocation sites would also be described in the agency-approved Burrowing Owl Protection and Relocation Plan.

~~**COA BIO-2** Prior to issuance of a grading permit the project shall complete a focused wet season fairy shrimp survey in accordance with USFWS protocol (USFWS 2015) within suitable habitats in the study area.~~

~~**MM BIO-2** *If it is determined that the study area supports listed fairy shrimp and the proposed project cannot avoid the habitat, a DBESP shall be prepared in accordance with the MSHCP. The DBESP will describe mitigation for impacts to listed fairy shrimp*~~

~~*habitat that will be accomplished through on-site creation, enhancement and/or restoration of habitat to pre-project conditions. In doing so, a habitat mitigation and monitoring plan will be drafted which will include site-specific details for the protection of avoided habitat during construction and the implementation plan. The implementation plan will include details on topsoil salvage and inoculum (i.e., the top two to three inches of topsoil containing and fairy shrimp eggs), surface recontouring, watershed preservation and enhancement, success criteria and long term monitoring and maintenance. The resulting goal of the on-site creation, enhancement and/or restoration efforts would be to design a self-sustaining system that supports the listed fairy shrimp and will persist over the long term without irrigation or major remedial action once specified success criteria goals have been met. The mitigation site will be preserved in perpetuity through a conservation easement, deed restriction or similar legal protection mechanism.*~~

~~*If on-site creation, enhancement and/or restoration of habitat to pre-project conditions is not feasible occupied habitat shall be acquired at a ratio of 5:1 for the purpose of in-perpetuity preservation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank.*~~

Least Bell's Vireo

PDF BIO-1 Manufactured slopes proposed as part of the interim project and commercial buildings proposed as part of the ultimate project that are within 300 feet or less of suitable least Bell's vireo habitat shall be constructed above the avoided habitat, with a vertical difference ranging from approximately eight to ten feet. Since noise is known to travel less efficiently downhill as it does uphill, the manufactured slopes are intended aid in shielding any ambient noise generated from the use of future commercial buildings after implementation of the ultimate project.

PDF BIO-2 A physical noise barrier in the form of a cinderblock wall shall be installed as part of the ultimate project design to limit any additional ambient noise that may arise as a result of the future commercial development pursuant to recommendations from a qualified biologist. The cinderblock wall shall be installed along Drainage A where permanent impacts are proposed within 300 feet or less of suitable least Bell's vireo habitat to separate the ultimate project footprint from the suitable habitat. The cinderblock wall shall be no less than 6 feet tall and will be installed at the top of a 5-foot slope. The cinderblock wall shall be constructed outside of the least Bell's vireo breeding season (March 1 through August 31).

PDF BIO-3 Future buildings proposed as part of the ultimate project that are within 300 feet or less of suitable least Bell's vireo shall be oriented in a way that the backs of the buildings will help act as an additional noise barrier and ambient noise generated from the future commercial buildings will be directed away from the avoided least Bell's vireo habitat pursuant to recommendations from a qualified biologist.

MM BIO-2~~3~~ *The following avoidance and minimization measures shall be adopted to avoid impacts to the least Bell's vireo, if present, during construction and following*

completion of construction ~~during the breeding season (approximately April 10 until July 31, depending on when the birds arrive from and depart to wintering areas)~~:

Prior to and During Construction

Ground-disturbing activities, including grubbing, grading, clearing, and construction of cinderblock wall, shall be scheduled outside of the least Bell's vireo breeding season (March 1 through August 31).

If ground-disturbing activities are scheduled during the least Bell's vireo breeding season, then the follow measures shall be taken:

~~1) A pre-construction survey to determine the presence of least Bell's vireo on-site shall be conducted by a qualified biologist before any grading or ground disturbance activity commences within or adjacent to potentially suitable habitat in Drainage A during the breeding season. The survey results shall be forwarded to the USFWS and CDFW.~~

1) ~~The qualified biologist~~ A biological monitor shall identify a 300-foot avoidance buffer from ~~any occupied~~ suitable least Bell's vireo habitat if construction occurs during the breeding season. The biological monitor shall be present during any ground disturbance conducted within the breeding season to observe the birds' behavior. The construction supervisor shall be notified if the ground-disturbing activities appear to be altering the birds' normal breeding behavior. Ground disturbance shall cease until additional minimization measures have been performed. Measures may include, but are not limited to, limitation on the use of certain equipment, placement of equipment, restrictions on the simultaneous use of equipment, increasing the height of the erected sound barrier, or other noise attenuation methods as deemed appropriate by the biologist. If the birds' behavior is still altered from normal breeding behavior, ground distance shall cease until RCA (and CDFW and USFWS, if required) is contacted to discuss alternative methods. ~~If work is required within 300 feet during the breeding season, the biologist shall monitor all work to ensure no impacts occur to the least Bell's vireo. Written documentation shall be prepared and submitted to CDFW and/or USFWS on completion of construction during the breeding season to outline any monitoring activities.~~

If ground disturbance occurs within or adjacent to the 300-foot avoidance buffer, a qualified acoustician shall be retained to determine ambient noise levels and project-related noise levels at the edge of suitable habitat. The need for sound monitoring shall be recommended by the biological monitor based on the presence of nesting individuals and observation of the birds' behavior. Noise levels at the edge of the suitable habitat shall not exceed an hourly average of 60 decibels (dB[A]), or a 3 dB(A) increase in noise levels if ambient noise levels exceed 60 dB(A). If project-related noise levels at the edge of the suitable habitat are above 60 dB(A) or the 3 dB(A) increase in noise occurs, additional minimization measures shall be taken to reduce project-related noise levels to an acceptable level as determined by the biological monitor. If additional measures

do not decrease project-related noise levels below the thresholds described above, ground disturbance shall cease until RCA (and CDFW and USFWS, if required) is contacted to discuss alternative methods. Written documentation shall be prepared and submitted to RCA (and CDFW and USFWS, if required) on completion of construction during the breeding season to outline any monitoring activities.

2) *Construction limits in and around any occupied least Bell's vireo habitat shall be delineated with flags and/or fencing prior to the initiation of any grading or construction activities to clearly identify the limits of the habitat and/or the 300-foot avoidance buffer during the breeding season.*

3) *Prior to grading and construction, a training program shall be developed and implemented by the qualified biologist to inform all workers on the project about the listed species, its habitat, and the importance of complying with avoidance and minimization measures.*

4) *All construction work shall occur during daylight hours. The construction contractor shall limit all construction-related activities that would result in high noise levels according to the construction hours determined by the City of Murrieta.*

5) *During any excavation and grading within or immediately adjacent to the 300-foot avoidance buffer, the construction contractors shall install properly operating and maintained mufflers on all construction equipment, fixed or mobile, to reduce construction equipment noise to the maximum extent possible. The mufflers shall be installed consistent with manufacturers' standards. The construction contractor shall also place all stationary construction equipment so that emitted noise is directed away from the occupied least Bell's vireo habitat.*

6) *The construction contractor shall stage equipment in areas that will create the greatest distance between construction-related noise sources and occupied habitat during all project construction occurring during the breeding season.*

~~7) *If the monitoring biologist determines that noise from the construction activities may be affecting the normally expected breeding behavior of the birds, the construction supervisor shall be informed and work within no less than 300 feet of construction areas shall be ceased until appropriate measures are implemented. This may include monitoring by a qualified acoustician to verify noise levels are below 60 dBA within the occupied least Bell's vireo habitat. If the 60 dBA requirement is exceeded the acoustician shall make operational changes, utilize technology to reduce construction noise such as mufflers, and/or install a barrier to alleviate noise levels during the breeding season. Installation of noise barriers and any other corrective actions taken to mitigate noise during the construction period shall be communicated to the USFWS and CDFW.*~~

~~8) *If after all corrective actions are implemented the monitoring biologists determines that the normally expected breeding behavior of the birds is being*~~

~~*affected, work within no less than 300 feet shall be ceased and the USFWS and CDFW shall be contacted to discuss the appropriate course of action.*~~

Post Construction

1. *Access to occupied habitat areas shall be restricted to conservation activities only. Signs shall be installed prohibiting public access, including dogs.*

2. *All night lighting associated with the development shall be directed away from occupied habitat areas. The project shall be designed to minimize exterior night lighting while remaining compliant with local ordinances related to street lighting. Any necessary lighting (e.g., to light up equipment for security measures) shall be shielded or directed away from the occupied habitat areas and are not to exceed City of Murrieta (City) standards. Monitoring by a qualified lighting engineer (attained by the project applicant and subject to spot checking by local municipality staff) shall be conducted as needed to verify compliance with the City standards within identified occupied least Bell's vireo habitat following construction. If City standards are exceeded, the lighting engineer shall make operational changes and/or install a barrier to alleviate light levels during the breeding season.*

7.2.2 Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features

MM~~COA~~ BIO-3~~3~~ Prior to the issuance of any grading permit for permanent impacts in the areas designated as jurisdictional features, the project applicant shall obtain regulatory permits from ~~the USACE, RWQCB, and~~ CDFW. Off-site mitigation for permanent impacts to CDFW jurisdictional streambeds is proposed at a 3:1 ratio through the purchase of a minimum 0.894 acre of combined off-site streambed mitigation credits. Compensatory mitigation will include the purchase of riparian rehabilitation/reestablishment credits at a 2:1 ratio totaling no less than 0.596 acre of off-site mitigation credits through the Riverside-Corona Resource Conservation District In-Lieu Fee Program, in addition to the purchase of riparian/wetland preservation credits at a 1:1 ratio totaling no less than 0.298 acre of riparian or wetland preservation credits through the Skunk Hollow Mitigation Bank located within the Santa Margarita Watershed. The Riverside-Corona Resource Conservation District In-Lieu Fee Program and Skunk Hollow Mitigation Bank are both located within the MSHCP Plan Area. Purchase of mitigation credits through the Riverside-Corona Resource Conservation District In-Lieu Fee Program and Skunk Hollow Mitigation Bank shall occur prior to any impacts to jurisdictional drainages.

~~The following shall be incorporated into the permitting, subject to approval by the regulatory agencies:~~

~~On-site or off-site enhancement, restoration, and/or creation of USACE/RWQCB jurisdictional "waters of the U.S." within the Santa Margarita Watershed at a ratio no less than 2:1 or within an adjacent watershed at a ratio no less than 3:1 for permanent impacts,~~

~~and for any temporary impacts to restore the impact area to pre-project conditions (i.e., pre-project contours and revegetate where applicable). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity preservation, permittee-responsible mitigation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program.~~

~~On-site or off-site enhancement, restoration and/or creation rehabilitation/reestablishment and preservation of CDFW jurisdictional streambeds within the Santa Margarita Watershed at a ratio no less than 2:1 or within an adjacent watershed at a ratio no less than 3:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-project conditions (i.e., pre-project contours and revegetate where applicable). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity preservation, permittee-responsible mitigation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. Purchase of any mitigation credits through an agency-approved mitigation bank or in-lieu fee program should occur prior to any impacts to jurisdictional drainages. Any mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the preservation, enhancement, restoration, and/or creation, of similar habitat pursuant to a future Habitat Mitigation and Monitoring Plan (HMMP) that may be required as part of regulatory permitting. The HMMP shall be prepared prior to any impacts to jurisdictional features, and shall provide details as to the implementation of the mitigation, maintenance, and future monitoring.~~

The goal of the compensatory mitigation shall be to rehabilitate/reestablish and preserve streambed ~~, enhance, restore, and/or create similar~~ habitat with equal or greater function and value than the impacted habitat. The purchase of mitigation through the Riverside-Corona Resource Conservation District In-Lieu Fee Program would contribute to the rehabilitation/reestablishment of riparian habitat and purchase of mitigation through the Skunk Hollow Mitigation Bank would contribute to the preservation of riparian or wetland habitat within the MSHCP Plan Area to compensate for impacts to a disturbed, unnatural drainage with little function and value. Therefore, the compensatory mitigation would rehabilitate/reestablish and preserve habitat with greater function and value than the impacted habitat providing equivalent or superior preservation under the MSHCP.

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

MM BIO-~~4~~44 *Prior to the issuance of any grading permit that would remove potentially suitable nesting habitat for raptors or songbirds, the project applicant shall demonstrate to the satisfaction of the City of Murrieta that either of the following has been or will be accomplished.*

1. *Vegetation removal activities shall be scheduled outside the nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors) to avoid potential impacts to nesting birds.*

2. *Any construction activities that occur during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors) will require that all suitable habitat be thoroughly surveyed for the presence of nesting birds by a qualified biologist before the commencement of clearing. If any active nests are detected a buffer of 300 feet (500 feet for raptors) around the nest adjacent to construction will be delineated, flagged, and avoided until the nesting cycle is complete. The buffer may be modified and/or other recommendations proposed as determined appropriate by the biological monitor to ensure no adverse effects to nesting birds.*

7.2.4 Measures to Mitigate Potentially Significant Impacts to the MSHCP

~~i.~~

~~Due to the uncertainty in the forthcoming regulatory permit application process, the project is proposing both conceptual on-site and potential future off-site mitigation options for impacts to MSHCP Riparian/Riverine areas (equivalent to CDFW jurisdictional areas) in the study area to demonstrate how either option will provide biologically equivalent or superior preservation pursuant to requirements of the MSHCP. Proposed mitigation for impacts to MSHCP Riparian/Riverine Areas will also serve to support the project's determination under the California Environmental Quality Act (CEQA) that impacts to jurisdictional areas are considered less than significant through the implementation of either mitigation option. The dual mitigation option approach proposed in this report is intended to help ensure that the project is able to avoid having to mitigate for the same impact more than once to satisfy both CEQA/MSHCP requirements, as well as future regulatory permit requirements, given that the regulatory permitting process generally requires that applications be submitted after CEQA approvals. Both the on-site and off-site mitigation opportunities would require regulatory agency approval during the permitting process.~~

~~On-Site Mitigation Option~~

~~The on-site mitigation option proposes restoration and/or creation of streambed habitat at a minimum 2:1 ratio within, or adjacent to, the avoided portion of Drainage A/Larchmont Channel. If the on-site mitigation option is preferred by the resource agencies as part of future processing of regulatory permits, the specific locations of the mitigation area(s) will be determined as part of the future Habitat Mitigation & Monitoring Plan (HMMP). However, if on-site creation of streambed habitat is determined to be infeasible, if the resource agencies prefer the restoration of existing jurisdictional areas over streambed creation, and/or a combination of streambed restoration and creation is required, streambed restoration may be proposed within the existing limits of Drainage A. The areas determined to be available to support streambed mitigation areas are depicted on **Figure 14**, *Conceptual On-Site Mitigation Areas*. Details of the on-site mitigation (if implemented), including plant palette, monitoring term, and success criteria, will be included in a five-year Habitat Mitigation and Monitoring Plan (HMMP) prepared for the proposed Project during the permitting process with the USACE and RWQCB to obtain a Section 404 Nationwide Permit and a Section 401 Water Quality Certification under the Clean Water Act (CWA),~~

~~respectively, and the CDFW to obtain a Streambed Alteration Agreement (SAA) under Section1602 of the California Fish and Game Code. The off-site mitigation option would be part of a larger mitigation effort that would be implemented, monitored and maintained pursuant to an existing document prepared for the entire program. The proposed on-site mitigation recommended in MM BIO-5 would provide a minimum 2:1 ratio of compensation for 0.98 acre of permanent impacts to Riparian/Riverine areas, for a total of no less than 0.196 acre of streambed restoration and/or creation.~~

~~Off-Site Mitigation Option~~

~~Currently, there is no agency approved mitigation banks or in-lieu fee programs available in the watershed to provide off-site compensatory mitigation. However, opportunities may arise in the future for off-site mitigation during forthcoming regulatory permit processing subject to agency approval. For example, potential opportunities could occur on lands owned by the Regional Conservation Authority (RCA) or on alternate off-site lands as part of a collaborative group of developers.~~

~~**Figure 14 Conceptual On-Site Mitigation Areas**~~

~~If approved by the regulatory agencies, off-site mitigation would provide more wide-reaching watershed benefits than on-site mitigation if part of a larger effort and/or within an area with more habitat diversity, and would be preserved in perpetuity and managed by a pre-identified entity or entities. As such, on-site mitigation within a small drainage system provided by the permittee would be replaced by off-site mitigation within a larger drainage system in the watershed and pre-secured for in-perpetuity preservation and long-term management by an agency-approved entity. Off-site mitigation is preferred by the USACE as it has been demonstrated to have a higher rate of success than on-site mitigation in general and provide greater regional habitat benefits as opposed to small mitigation efforts that are scattered throughout a watershed. Based on these reasons off-site mitigation, if available in the future, would likely be preferred over the on-site option. However, on-site mitigation may also be deemed inadequate if the agencies require an increased mitigation ratio as part of the regulatory permitting process, the agencies revise the regulatory requirements associated with on-site mitigation, and/or if USACE determines the mitigation is not consistent with their guidelines (known as the "USACE 2008 Final Mitigation Rule[13]"). The proposed off-site mitigation recommendation in MM BIO-5 would provide a minimum 2:1 ratio of compensation for 0.98 acre of permanent impacts to Riparian/Riverine areas, for a total of no less than 0.196 acre of streambed restoration and/or creation.~~

~~Details on the proposed Conditions of Approval and Mitigations Measures for impacts to the MSHCP are discussed further below in COA BIO-4 and MM BIO-5. The expected functional gains of the proposed mitigation and the success criteria set forth for the proposed mitigation is discussed below in Section, 7.2.4.1, *Expected Functional Gains of Mitigation* and Section 7.2.4.2, *Success Criteria for Mitigation*.~~

PDF BIO-4: Prior to construction, temporary fencing shall be erected between the avoided MSHCP Riparian/Riverine Areas (avoidance areas) and the project footprint under the supervision of a biological monitor. The purpose of the fencing shall be to protect the avoidance areas during project construction. The fencing shall be comprised of orange silt fencing, or similar material, to prevent sediment from entering the avoided areas and to clearly delineate the limit of work. If deemed appropriate by the project engineer, other Best Management Practices (BMPs), such as sand bags or weed-free straw bales, shall also be installed to avoid any discharge of sediment into avoided resources; any additional BMPs shall be installed within the project footprint and under the supervision of a qualified biologist. All construction personnel shall be educated prior to commencement of construction regarding the purpose of the fence and any BMPs, and the importance of staying within the identified work area. The fencing and BMPs shall be maintained in their original condition by construction personnel for the entire duration of construction activities, and any damages shall be repaired immediately. Once project construction is complete, the fencing and BMPs shall be removed. In accordance with

~~[13] The USACE's Final Mitigation Rule can be located in the Federal Register, Vol. 73, No. 70, pgs. 19594-19705, dated April 10, 2008.~~

Appendix C to the MSHCP, a biological monitor will be present for the duration of construction activities to prevent incidental disturbance of the avoidance areas.

COA BIO-2 Prior to the issuance of any grading permit, the project proponent shall comply with all of the provisions of the MSHCP, including payment of the MSHCP Local Development Mitigation Fee, compliance with Section 6.1.2 of the MSHCP pertaining to Riparian/Riverine Areas, implementation of drainage, toxics and non-native species guidelines pertaining to the Urban/Wildlands Interface in Section 6.1.4 of the MSHCP, and compliance with Section 6.3.2 of the MSHCP pertaining to Burrowing Owl Survey Area requirements.

MM BIO-55 *Off-site mitigation for permanent impacts to MSHCP Riparian/Riverine Areas is proposed at a 3:1 ratio through the purchase of a minimum 0.894 acre of combined off-site streambed mitigation credits. Compensatory mitigation will include the purchase of riparian rehabilitation/reestablishment credits at a 2:1 ratio totaling no less than 0.596 acre of off-site mitigation credits through the Riverside-Corona Resource Conservation District In-Lieu Fee Program, in addition to the purchase of riparian/wetland preservation credits at a 1:1 ratio totaling no less than 0.298 acre of riparian or wetland preservation credits through the Skunk Hollow Mitigation Bank located within the Santa Margarita Watershed. The Riverside-Corona Resource Conservation District In-Lieu Fee Program and Skunk Hollow Mitigation Bank are both located within the MSHCP Plan Area. Purchase of mitigation credits through the Riverside-Corona Resource Conservation District and Skunk Hollow Mitigation Bank shall occur prior to any impacts to jurisdictional drainages.*

~~*On-site or off-site enhancement, restoration and/or creation of MSHCP Riparian/Riverine Areas within the Santa Margarita Watershed at a ratio no less than 2:1 or within an adjacent watershed at a ratio no less than 3:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-project conditions (i.e., pre-project contours and revegetate where applicable). Off-site mitigation Purchase of any mitigation credits through an agency-approved mitigation bank or in-lieu fee program should occur prior to any impacts to jurisdictional drainages. may occur on land acquired for the purpose of in-perpetuity preservation, permittee-responsible mitigation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. Purchase of any mitigation credits through an agency-approved mitigation bank or in-lieu fee program should occur prior to any impacts to MSHCP Riparian/Riverine Areas. Any mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the preservation, enhancement, restoration, and/or creation, of similar habitat pursuant to a future Habitat Mitigation and Monitoring Plan (HMMP) that may be required as part of regulatory permitting. The HMMP shall be prepared prior to any impacts to jurisdictional features, and shall provide details as to the implementation of the mitigation, maintenance, and future monitoring. The goal of the compensatory mitigation shall be to preserve, enhance, restore, and/or create similar habitat with equal or greater function and value than the impacted habitat.*~~

The goal of the compensatory mitigation shall be to rehabilitate/reestablish and preserve streambed habitat with equal or greater function and value than the impacted habitat. The purchase of mitigation through the Riverside-Corona Resource Conservation District In-Lieu Fee Program would contribute to the rehabilitation/reestablishment of riparian habitat and purchase of mitigation through the Skunk Hollow Mitigation Bank would contribute to the preservation of riparian or wetland habitat within the MSHCP Plan Area to compensate for impacts to a disturbed, unnatural drainage with little function and value. Therefore, the compensatory mitigation would rehabilitate/reestablish and preserve habitat with greater function and value than the impacted habitat providing equivalent or superior preservation under the MSHCP.

7.2.4.1 Expected Functional Gains of the Mitigation

~~On-Site Mitigation~~

~~The on-site mitigation set forth above will compensate for the loss of streambed within the study area by providing the following functional gains:~~

~~*1. The input of treated run-off from the proposed development and the enhancement, restoration, and/or creation of streambed habitat within, or adjacent to, Drainage A by removing non-native weeds and replacing with native plantings, and/or implementing the widening and planting of streambed habitat to create appropriate riparian and riparian-transition habitat, will provide important biogeochemical and water quality functions.*~~

- ~~The vegetation will result in increased trapping of sediment, and the microbial action in the root zone of plants removes toxins, nitrogen, and other nutrients from the runoff, thereby improving water quality and helping to reduce the impacts of non-point source pollution (Schaefer and Brown, 1992) through natural filtering of pollutants (bio-filtration effects). Heterotrophic microorganisms, which thrive in riparian areas, are also responsible for converting detritus from leaf litter and other dead organic matter into consumable organic matter. This organic material forms the base for the riparian food chain and, within the drainages, can be released downstream as dissolved organic matter (Gregory, et al., 1991; Schaefer and Brown, 1992). Knight and Bottorff (1984) reported that up to 1000g/m^2/yr of detritus are processed by aquatic macrophytes in riparian zones and this provides a food chain base for these ecosystems, promoting their biodiversity. Improvement of water quality and biogeochemical functions will take place as these nutrients pass through the drainage and are transformed or sequestered into the plant tissue. In addition, the deposition of fine and coarse woody debris will provide important habitat for amphibians, reptiles, and other wildlife.~~

~~*2. The input of treated run-off from the proposed development and the enhancement, restoration within, or creation adjacent to Drainage A by removing non-native weeds and planting to create appropriate riparian and riparian-transition habitat, will enhance hydrologic functions.*~~

- ~~The streambed enhancement, restoration, and/or creation activities will allow greater energy dissipation and storage during storm events. The interception of storm runoff regulate the sharp runoff peaks and slow discharges over a longer period of time to avoid~~

~~erosional issues. Increasing plant cover also stabilizes soil to deter channel and habitat degradation by storm flows.~~

~~*3. The streambed enhancement, restoration, and/or creation activities, within, and/or adjacent to Drainage A by removing non-native weeds and planting to create appropriate riparian and riparian-transition habitat, will enhance biological functions.*~~

~~The streambed enhancement, restoration, and/or creation activities will include planting with riparian and riparian-transition species which will increase potential wildlife habitat by planting more native species and removal of non-native species. This will provide more species diversity, forage and cover for wildlife. In particular, the increase in habitat quality would be a direct benefit to wildlife species that may utilize drainage areas for breeding and foraging, specifically the least Bell's vireo which was observed in off-site areas of Drainage A/Larchmont Channel. An increase in structural and spatial diversity is also expected to occur which would also increase the species diversity within the drainage.~~

~~The increased vegetation cover is expected to be supported by greater run-off into the mitigation site from the impervious surfaces on the development. The existing hydrology and design of the outlets into the mitigation site is intended to provide a water source along the entire length. Specifically, the upstream portion of the mitigation site will continue to be supported by existing flows from Lamont Channel and Drainage B that flows onto the study area from the northeast.~~

~~Off-Site Mitigation~~

The off-site mitigation set forth above will compensate for the loss of streambed within the study area. ~~Although a site-specific analysis of off-site mitigation cannot be completed at present since the resource agencies have yet to determine what they will accept as compensatory mitigation for the project, the mitigation would be expected to include the enhancement, , restoration~~Reestablishment/rehabilitation and preservation through the purchase of mitigation credits at the Riverside-Corona Resource Conservation District In-Lieu Fee Program and the Skunk Hollow Mitigation Bank~~, and/or creation of a streambed habitat with native species, likely~~ would occur within a larger drainage system than supported in the study area. ~~Off-site mitigation at a formal bank, or an~~ The in-lieu fee program and mitigation bank would also be part of a wider-reaching effort and would therefore result in a more collective benefit to the Santa Ana ~~w~~Watershed and/or the Santa Margarita Watershed.~~, while off-site permittee responsible mitigation would be similar in size and scope to those mitigation activities currently proposed on-site subject to approval by the resource agencies.~~ The off-site rehabilitation/reestablishment and prerservation ~~mitigation~~ would result in a higher function and value than the disturbed drainage that currently exist in the study area.~~, which is consistent with the proposed on-site mitigation option. However, the off-site mitigation also has a potential to provide higher function and value than the on-site mitigation, for example if new drainage habitat was created, the mitigation was part of a larger drainage system, and/or the mitigation was part of a wider-reaching mitigation effort. As such, functional gains for off-site mitigation would be expected to be equivalent or superior to the functional gains for on-site mitigation described above.~~

7.2.4.2 Success Criteria for the Mitigation

On-Site Mitigation

In addition to compensating for streambed loss, the proposed on-site mitigation will enhance the existing drainage by providing increased native plant cover for wildlife habitat and to stabilize the drainage system. The success criteria below will be incorporated into the final HMMP for the project to ensure long-term success of the on-site enhancement, presuming this is the preferred method of mitigation chosen by the resource agencies as part of regulatory permitting.

1. The mitigation area will contribute to regional biodiversity in perpetuity.

- With the implementation of the Project water quality measures, the drainage system within the study area as a whole will become stabilized. The proposed on-site mitigation will increase native plant cover, which will create habitat for wildlife populations within the study area and general area to ensure a more diverse habitat structure and stable watershed. The avoided drainages, including the mitigation, would be within zoned open space; the on-site mitigation option, if implemented, may be protected through a legal instrument if required by the regulatory agencies.

2. The habitat mitigation will be self-sustaining and will not require supplemental watering or outside input for recruitment and propagation of plant species.

- The HMMP prepared for the proposed project will include a number of specific interim and ultimate success criteria over a five-year program. One of the success criteria will be to demonstrate that the mitigation can survive without supplemental watering prior to final approval to ensure the area is self-sustaining. Another success criterion will be to demonstrate the presence of natural recruitment of individual plants within the mitigation. It is anticipated that natural recruitment will occur due to the seed bank that exists and/or will be established (i.e., the repository of seeds within the soil) and seed dispersal (e.g. through wind or upstream flows), and that no additional planting or irrigation will be needed once the habitat is established. Only species that are known to survive in the conditions within the study area and vicinity will be used and the plant palette will be tailored to the site based on the location of the mitigation area, the slope aspect, soil type, hydrology, etc. to maximize the probability of success.

3. The entire range of biological components, processes, and interactions will be present in each community.

- As stated previously, the HMMP prepared for the proposed Project during the agency permitting process will include a number of specific interim and ultimate success criteria for a five-year period. Success criteria for riparian/riparian transition areas will include those related to habitat structural diversity, habitat coverage and spatial diversity, percent of non-native vegetation, and hydrologic regime. These criteria will allow for monitoring of the expected range of biological components, processes and interactions within the mitigation site.

4. Natural processes of ecological succession will be allowed to occur.

The success criteria for the final HMMP will ensure the long-term survivability of the habitats created, and one of the goals of the mitigation plan will be to create self-sustaining habitat that will follow natural ecological succession which will include processes such as nutrient cycling.

Off-Site Mitigation

In addition to compensating for streambed loss, the off-site mitigation will provide increased native plant cover for wildlife habitat and to stabilize the drainage system, consistent with the on-site mitigation option described above. For banks or in-lieu fee programs it is expected that the success criteria below are already incorporated into a restoration plan prepared for the entire effort. However, if lands are secured for off-site permittee-responsible mitigation, these success criteria will be incorporated into a final HMMP in compliance with the USACE's 2008 Final Mitigation Rule to ensure long-term success of the mitigation.

1. The mitigation will contribute to regional biodiversity in perpetuity.

The proposed mitigation will include the goal of increasing native plant cover and removing non-native weeds. This will create habitat for wildlife populations within the mitigation site and general area to ensure a more diverse habitat structure and stable watershed. Off-site mitigation within an approved mitigation bank, private bank, or in-lieu free program will be part of a larger mitigation effort benefitting the regional watershed that is preserved in perpetuity typically through an existing preservation mechanism. For off-site land purchased for preservation, a preservation mechanism will be established to ensure in-perpetuity conservation of the mitigation.

2. The habitat mitigation will be self-sustaining and will not require supplemental watering or outside input for recruitment and propagation of plant species.

For off-site permittee-responsible mitigation on acquired lands, a HMMP will be prepared and will include a number of specific interim and ultimate success criteria over a five-year program that would require the site to be self-sustaining, consistent with the on-site mitigation option described above. It is expected that agency approved mitigation banks, in-lieu fee programs, and private banks would have existing success criteria outlined in a plan prepared as part of the larger mitigation effort. The plan is expected to include criteria for demonstrating the mitigation is self-sustaining, which is typical for mitigation plans.

3. The entire range of biological components, processes, and interactions will be present in each community.

As discussed above, success criteria will be developed as part of the HMMP or are anticipated to be part of existing plans for approved mitigation banks, in-lieu fee programs, and private banks. These will, or are expected to, include criteria related to habitat structural diversity, habitat coverage and spatial diversity, percent of non-native vegetation,

and hydrologic regime, and will allow for monitoring of the expected range of biological components, processes and interactions within the mitigation site.

4. Natural processes of ecological succession will be allowed to occur.

The success criteria and/or goals in the HMMP or existing plans will ensure the long-term survivability of the habitats created, including self-sustaining habitat that will follow natural ecological succession including processes such as nutrient cycling.

8.0

Impacts After Mitigation

8.1 Level of Significance after Mitigation

The proposed project, inclusive of mitigation measures ~~and~~ conditions of approvals, and project design features~~,~~ would have less than significant impacts to special-status wildlife species, jurisdictional features, and migratory and/or nesting birds, in addition to providing MSHCP consistency.

8.2 Cumulative Impacts

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

The MSHCP identifies areas for long-term conservation and management. As such, cumulative impacts of proposed projects within authorized take lands are minimized through the conservation of land. Cumulative impacts to the biological resources listed below for the study area are considered to be less than significant based on compliance with the Western Riverside County MSHCP and regulations for jurisdictional waters. This includes implementation of the mitigation measures and conditions of approval outlined above in Section 6.0 *Project Related Impacts* and 7.0 *Mitigation Measures and Conditions of Approval*. Since the study area was determined not to function as a regional wildlife movement corridor, this biological resource is not included below.

- Burrowing owl;
- Least Bell's vireo;
- ~~Listed Fairy Shrimp Species;~~

- Migratory and/or nesting birds;
- Water features (including USACE, RWQCB and CDFW jurisdictional features and MSHCP Riparian/Riverine areas); and
- MSHCP Urban/Wildlands Interface in relationship to MSHCP Conservation Areas.

The proposed mitigation would result in a minimum no-net-loss of the biological function and value of these resources, and the conditions of approval would ensure compliance with existing regulations (such as the Western Riverside County MSHCP and regulations for jurisdictional drainages). Therefore, with the proposed mitigation and conditions of approval, impacts would not be considered cumulatively significant. A summary is provided below.

Special-status Wildlife Species: If any burrowing owls or least Bell's vireo are observed in the study area in the future, mitigation is proposed that would avoid direct impacts in compliance with the Western Riverside County MSHCP. Mitigation is also proposed to avoid direct impacts to raptors and migratory bird species through compliance with the MBTA. With these mitigation measures, any impacts would not be considered cumulatively significant.

~~If any listed fairy shrimp species are found within the study area, mitigation is proposed that would compensate for direct impacts, including approval of a DBESP by the City of Murrieta and Wildlife Agencies, as required in Section 6.1.2 of the Western Riverside County MSHCP. Mitigation is also proposed to avoid direct and indirect impacts associated with the preservation of any fairy shrimp habitat that will be avoided on-site. With these mitigation measures, any impacts would not be considered cumulatively significant.~~

Jurisdictional Drainages: Impacts to jurisdictional features would be subject to permitting with the regulatory agencies, including USACE, RWQCB and/or CDFW, including compensatory mitigation. With the proposed compliance of existing regulations through the permitting process, impacts would not be considered cumulatively significant.

9.0

Determination of Biologically Equivalent or Superior preservation

Section 6.1.2 of the MSHCP, Volume I, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, is intended to ensure protection of Riverine/Riparian areas within the entire MSHCP Plan Area such that habitat values are preserved for those species within the MSHCP Conservation Area.

The proposed Project, inclusive of all project design features and mitigation measures, is biologically superior to an avoidance alternative for the following reasons:

- The proposed impacts are limited to the disturbed portions of the drainages that have been severely altered by manmade disturbances with low function and value. The project proposes to avoid 100% of USACE/RWQCB jurisdiction and 90% of CDFW jurisdiction and MSHCP Riparian/Riverine Areas, which includes the entire black willow thicket ~~on-site~~ within Drainage A.

- Mitigation is proposed at a 3:1 ratio through the purchase of a minimum 0.894 acre of combined off-site streambed mitigation credits. Compensatory mitigation will include the purchase of riparian rehabilitation/reestablishment credits at a 2:1 ratio totaling no less than 0.596 acre of off-site mitigation credits through the Riverside-Corona Resource Conservation District In-Lieu Fee Program, in addition to the purchase of riparian/wetland preservation credits at a 1:1 ratio totaling no less than 0.298 acre of riparian or wetland preservation credits through the Skunk Hollow Mitigation Bank located within the Santa Margarita Watershed. ~~Proposed mitigation for impacts to 0.098-acre of streambed would be mitigated at a ratio no less than 2:1. Mitigation would either include the on-site restoration and/or habitat creation within preserved areas of Drainage A with native riparian/riparian-transition habitat; or, if available, restoration and/or creation of streambed habitat off-site at an approved mitigation bank/in-lieu fee program, a private bank, RCA lands, or on land purchased to support permittee-responsible mitigation. Both on-site and~~ The off-site mitigation ~~options~~ would provide higher function and value than the existing drainages proposed for impacts by removing non-native species and planting with native species, as appropriate. The increase in native ~~and~~ riparian~~/riparian-transition~~ habitat would provide improved functions such as water quality, water storage and wildlife habitat. Furthermore, the off-site mitigation ~~option~~ has

the potential to provide additional function and value by being part of a larger drainage system and~~/or~~ mitigation program, thus resulting in wider-reaching watershed benefits.

- Currently the on-site drainages are unprotected and subject to disturbance.~~;~~ ~~t~~The proposed MSCHP Riparian/Riverine avoidance areas within Drainage A (2.669 acres) ~~(including the on-site mitigation option)~~ will be within dedicated open space areas and will be protected through an appropriate legal preservation instrument, such as a deed restriction or conservation easement, per MSHCP guidelines provided that said mechanism will not inhibit the City of Murrieta's ability to implement hydraulic improvements to the channel in the future. However, any City improvements would be subject to independent MSHCP review and would not be a part of the proposed project. ~~The on-site mitigation option, if implemented, may be protected through a legal preservation instrument if required by the regulatory agencies.~~ The off-site mitigation purchased through the Riverside-Corona Resource Conservation District In-Lieu Fee Program and Skunk Hollow Mitigation Bank would be protected in perpetuity through a CDFW-approved legal preservation instrument~~, which is expected to be in place for banks and in-lieu fee program~~s. Preservation of the avoidance and off-site mitigation area ~~options~~ will ensure protection of the ~~on-site~~ Riparian/Riverine Areas as intended pursuant to Volume I, Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*.

- ~~A minimum 15-foot wide setback will be established between the habitat in Drainage A and the development pad/slopes to address potential edge effects. A structural set-back of between 50 and 100 feet is proposed from Riparian/Riverine Areas.~~

- The interim project will result in a graded master pad that will be managed in conjunction with the City of Murrieta and the State Water Resources Control Board's (SWRCB) General Construction Stormwater Permit utilizing a series of swales and desilting basins to ensure no discharge of sediment from the interim project occurs. The ultimate project's water quality plan will manage daily nuisance flows and initial first flush storm flows generated by the development. As such, the water discharged into Drainage A will be treated for both sediment and pollutants. ~~If the on-site mitigation option is implemented, planting of the mitigation area is also expected to increase biofiltration, providing further water quality benefits for the mitigation and downstream areas of the watershed system.~~

- ~~If the on-site mitigation option is implemented or off-site land is acquired for permittee-responsible mitigation purposes, a project-specific HMMP will be prepared and submitted to the USACE, RWQCB, and CDFW for review and/or approval as part of the regulatory permitting process. A copy would also be provided to the County of Riverside Regional Conservation Authority (RCA). The mitigation would be monitored regularly pursuant to a five-year program, and analyzed against a number of interim and target success criteria. The success criteria will ensure that the mitigation efforts are successful.~~ The proposed ~~O~~off-site mitigation ~~at a mitigation bank, in-lieu fee program, or private mitigation bank~~ will be part of a larger program (Riverside-Corona Resource

Conservation District In-Lieu Fee Program and Skunk Hollow Mitigation Bank) and, as such, will be monitored pursuant to the plan prepared for the program.

- As discussed above, a number of additional project design features will be incorporated to address edge effects (i.e., indirect impacts) such as lighting, noise, trash/debris, toxics, exotic infestation, dust, and recreational use.

9.1 Effects on Riparian/Riverine Planning Species

- The study area is within the Burrowing Owl Survey Area and Riparian/Riverine resources were found on-site. As such, focused surveys for burrowing owl were conducted due to the presence of potentially suitable habitat for this species within the study area. A pre-construction survey will be conducted to confirm continued absence and to ensure consistency with the MSHCP.

- Habitat assessments were conducted for the Riparian/Riverine planning species listed under Section 6.1.2 of the MSHCP. ~~Although the project is not within a Narrow Endemic Plant Species (NEPS) survey or within a criteria survey overlay for the species, s~~Smooth tarplant was found within the study area as part of plant surveys for special-status plant species pursuant to CNPS/CEQA. However, this species would not be subject to additional mitigation over and above the mitigation proposed for Drainage A since the study area is not located within a Criteria Area Species Survey Area.

- ~~based on initial discussions between the RCA and the project proponent, the RCA indicated that the smooth tarlplant is fully conserved throughout the Plan Area and no additional requirements for the smooth tarplant are required. Therefore, no mitigation for smooth tarplant is proposed or warranted for the proposed project.~~

- The two ponding areas in the study area support potentially suitable habitat for MSHCP Vernal Pool species, Riverside fairy shrimp and vernal pool fairy shrimp. However, no fairy shrimp species were detected during the dry or wet season focused surveys. Therefore, the ponding features do not support listed fairy shrimp species and no mitigation is required.~~Although the potential is considered low based on the negative dry season survey findings, the project will move forward with wet season surveys to confirm presence/absence. If these species are found present and avoidance isn't feasible, additional analysis under Section 6.1.2 of the MSHCP will be conducted to ensure the functions and values of the habitat as it relates to these species aren't lost. In addition, a separate DBESP will be required to address impacts to MSHCP-covered fairy shrimp species will be prepared and provided to the City for submittal to the RCA for approval prior to impacts to occupied habitat.~~

- Least Bell's vireo was observed just off-site within the black willow thicket. Although this species wasn't observed on-site and wasn't documented as breeding, the black willow thicket habitat occurs in the study area within Drainage A; therefore, supporting the potential for this species to occur on-site. The project is avoiding 100% of the black

willow thicket on the study area ~~site~~, which is located within the avoided 2.669-acre Riparian/Riverine Area that will be preserved through an appropriate legal preservation mechanism, such as a deed restriction or conservation easement, per MSHCP guidelines provided that said mechanism will not inhibit the City of Murrieta's ability to implement hydraulic improvements to the channel in the future. However, any City improvements would be subject to independent MSHCP review and would not be a part of the proposed project. ~~In addition, on-site mitigation is proposed within and adjacent to Drainage A.~~ The avoidance of black willow thickets ~~this habitat and the proposed on-site mitigation measures, if implemented,~~ will ensure the functions and values of the habitat as it pertains to least Bell's vireo are ~~maintained and~~ preserved in perpetuity. In addition, avoidance and minimization measures (MM BIO-2) and project design features (PDFs BIO-1 through BIO-3) are ~~have been~~ proposed to ensure no indirect impacts to least Bell's vireo occur as a result of project implementation.

- The proposed off-site mitigation ~~(on-site and off-site)~~ will include riparian rehabilitation/reestablishment ~~removing non-native species and planting with native riparian/riparian-transition habitat, as appropriate,~~ at a ~~2~~2:1 ratio through purchase of credits at the Riverside-Corona Resource Conservation District In-Lieu Fee Program and riparian or wetland preservation at a 1:1 ratio through purchase of credits at the Skunk Hollow Mitigation Bank ~~to impacts~~. This will increase the acreage of native habitat ~~and replace the disturbed drainage with riparian/riparian-transition habitat that has increased spatial, structural and species diversity to encourage wildlife use. The mitigation will also~~ and improve water quality and hydrology functions within the MSHCP Plan Area. As such, the proposed mitigation will improve the quality of the habitat for wildlife species and provide potential habitat for Riparian/Riverine planning species within the MSHCP Plan Area.

9.2 Effects on Conserved Habitats

- The proposed Project completely avoids the Riparian/Riverine Areas habitat ~~(black willow thicket) on-site~~ on the study area with the greatest biological functions and values (black willow thicket).

- The Riparian/Riverine Areas mapped within the study area, which will be partly impacted by the proposed Project, are man-made features that have been severely altered by historic and ongoing disturbance. Furthermore, the drainages are surrounded by areas that are dominated by non-native grassland species and subject to regular disking for several decades. As such, these features do not support suitable habitat for many of the Riparian/Riverine wildlife species listed under Section 6.1.2 of the MSHCP. Apart from the presence of smooth tarplant~~, which has been determined to be adequately conserved throughout the Plan Area~~, the ponding areas have the potential to support MSHCP Vernal Pool species, Riverside fairy shrimp and vernal pool fairy shrimp. However, no fairy shrimp species were detected during the dry or wet season focused surveys.~~this potential is considered very low and will be confirmed pending 2017 wet season surveys for fairy shrimp.~~

- The main hydrologic function of the Riparian/Riverine Areas within the study area is the transport of water during storm events and biofiltration. Although Drainage A ~~the on-site drainages~~ provide some limited ecological functions (i.e., limited sediment transport, transport of nutrients and aquatic chemicals to downstream waters, seasonal flood storage, flood flow attenuation, toxicant trapping, and velocity dissipation), the proposed mitigation would provide these ecological functions at a greater magnitude due to the removal of non-native species and planting of native riparian species within the off-site mitigation area~~and associated with on-site streambed restoration and/or creation activities, or at the off-site mitigation area~~. The mitigation would provide increased wildlife habitat that could support species listed in Section 6.1.2 of the MSHCP. Furthermore, the mitigation would allow for greater nutrient and toxicant trapping, which would be beneficial to downstream water quality. The ~~on-site~~ 2.669-acre MSHCP Riparian/Riverine avoidance area ~~and mitigation~~ will be within dedicated open space areas and protected by an appropriate legal preservation mechanism, such as a deed restriction or conservation easement, per MSHCP guidelines provided that said mechanism will not inhibit the City of Murrieta's ability to implement hydraulic improvements to the channel in the future. However, any City improvements would be subject to independent MSHCP review and would not be a part of the proposed project. ~~The on-site mitigation option (if implemented) may be protected through a legal preservation instrument if required by the regulatory agencies, and t~~The off-site mitigation would be protected through a legal preservation instrument ~~(which is expected to be in place for approved mitigation banks or in-lieu fee programs)~~. Based on the above, the ~~on-site or~~ off-site mitigation would be biologically superior to the Riparian/Riverine resources which currently exist on-site that will be impacted by the proposed Project.

9.3 Effects on Linkages and Functions of the MSHCP Conservation Area

- As previously mentioned the proposed Project avoids the Riparian/Riverine habitat ~~on-site~~ with the greatest biological functions and values (black willow thickets), and would preserve the hydrological flow within the watershed by maintaining existing upstream and downstream connections. The drainages will continue to provide connection between habitat areas (e.g., Murrieta Creek to which the drainages ultimately drain into). Use of these drainages for wildlife movement is considered minimal but will be preserved.

- The Project has been designed to avoid any impacts to MSHCP Cores or Linkages to the maximum extent feasible and no significant impacts to movement within CL 13 is expected as the areas within the study area that occur in CL 13 doesn't support suitable habitat for movement of the species identified for this CL.

- The proposed project will not conflict with the criteria set forth for Criteria Cell 6528 as discussed in detail above in Section, 4.7.7.1, *Location of Study Area within the MSHCP Area Plan Criteria Cells*. Currently, there are 1940 ~~40~~ acres~~,~~ of the 194 acres (or 1021~~21~~%),

that remain as open space lands within this Criteria Cell. Impacts as a result of the proposed project will reduce open space areas within this Criteria Cell by 5%. The reduction of 5% of the remaining open space areas will not conflict with the conservation goals set forth for this Criteria Cell. Further, a number of mitigation measures and project design features have been incorporated to address edge effects, such as drainage, toxics, trash/debris, lighting, noise, invasive species, barriers, and grading/land development. These will ensure that there will be no indirect impacts from the Project which could affect MSHCP Cores, Linkages or Conservation Areas upstream or downstream of the study area.

- The proposed 2.669-acre MSHCP Riparian/Riverine avoidance area~~s (Drainage A)~~ will be within a dedicated open space area protected under an appropriate legal preservation mechanism, such as a deed restriction or conservation easement, per MSHCP guidelines provided that said mechanism will not inhibit the City of Murrieta's ability to implement hydraulic improvements to the channel in the future~~s; the on-site mitigation option, if implemented, may be protected through a legal instrument if required by the regulatory agencies. A set-back is also proposed between the study area and the on-site avoidance areas to avoid indirect edge effects.~~ The implementation of PDFs BIO-1 through BIO-3 and MM BIO-2 will avoid indirect edge effects. The off-site mitigation ~~option, if implemented,~~ will be protected through a legal preservation instrument.

- In addition, the water quality management plan and/or BMPs will protect against flooding, prevent downstream erosion, and improve water quality by filtering pollutants from previously untreated flows. ~~The on-site mitigation, if implemented, is also expected to provide additional biofiltration functions through planting of native vegetation. Thus, all water leaving the study area will be of a higher quality compared to existing site conditions. The off-site mitigation option, if implemented, would also provide water quality benefits through biofiltration. As such, both the on-site and off-site options would improve the overall water quality of flows downstream and within MSHCP Conservation Areas, and potentially improve the habitat for MSHCP planning species, making this a superior alternative to existing conditions.~~

10.0

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Appendix A

Floral and Faunal Compendium

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

EUDICOTS

	Scientific Name	Common Name
Asteraceae		**Aster Family**
*	*Acroptilon repens*	Russian knapweed
	Ambrosia psilostachya	western ragweed
	Artemisia californica	California sagebrush
	Artemisia douglasiana	Douglas' sagewort
	Baccharis salicifolia	mule fat
*	*Carduus pycnocephalus*	Italian thistle
	Centromadia pungens ssp. *laevis*[1]	smooth tarplant
*	*Centaurea melitensis*	tocalote
*	*Centaurea solstitialis*	yellow star-thistle
	Deinandra paniculata[2]	paniculate tarweed
	Erigeron canadensis	Canadian horseweed
	Filago californica	California filago
	Gnaphalium palustre	western marsh cudweed
	Hedypnois cretica	Cretanweed
*	*Hypochaeris glabra*	smooth cat's ear
	Helianthus annuus	common sunflower
	Heterotheca grandiflora	telegraphweed
*	*Lactuca serriola*	prickly lettuce
	Matricaria discoidea	pineapple weed
*	*Oncosiphon piluliferum*	stinknet
	Pseudognaphalium luteoalbum	Jersey cudweed
	Psilocarphus brevissimus	short woollyheads
*	*Sisymbrium irio*	London rocket
*	*Sonchus asper*	spiny sowthistle
	Stephanomeria exigua	small wirelettuce
	Xanthium strumarium	rough cocklebur
Boraginaceae		**Borage Family**
	Amsinckia menziesii	Menzies' fiddleneck
	Heliotropium curassavicum	salt heliotrope
Brassicaceae		**Mustard Family**
*	*Hirschfeldia incana*	shortpod mustard
Caryophyllaceae		**Pink Family**
*	*Spergularia bocconi*	Boccone's sand spurry
Chenopodiaceae		**Goosefoot Family**

1 Smooth tarplant is a CNPS-listed 1B.1 species.

2 Paniculate tarweed is a CNPS-listed 4.2 species.

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

	Atriplex lentiformis	big saltbush
*	*Atriplex semibaccata*	Australian saltbush
*	*Chenopodium murale*	nettle-leaved goosefoot
*	*Salsola tragus*	prickly Russian thistle
Cuscutaceae		**Dodder Family**
	Cuscuta sp.	Dodder
Euphorbiaceae		**Spurge Family**
	Croton setigerus	dove weed
Fabaceae		**Legume Family**
	Acmispon americanus	Spanish lotus
	Acmispon glaber	Deerweed
	Lotus unifoliolatus	American bird's-foot trefoil
	Lupinus bicolor	miniature lupine
*	*Medicago polymorpha*	bur clover
*	*Medicago sativa*	Alfalfa
*	*Melilotus albus*	white sweetclover
*	*Melilotus officinalis*	yellow sweet clover
	Vicia villosa	winter vetch
Geraniaceae		**Geranium Family**
*	*Erodium botrys*	longbeak stork's bill
*	*Erodium cicutarium*	redstem filaree
Lamiaceae		**Mint Family**
	Salvia apiana	white sage
	Salvia mellifera	black sage
Lythraceae		**Loosestrife Family**
*	*Lythrum hyssopifolia*	Hyssop loosestrife
Malvaceae		**Mallow Family**
	Malvella leprosa	Alkali mallow
Montiaceae		**Purslane Family**
*	*Portulaca oleracea*	common purslane
Myrsinaceae		**Myrsine Family**
*	*Anagallis arvensis*	scarlet pimpernel
Nyctaginaceae		**Four O'Clock Family**
	Mirabilis laevis	wishbone bush
Onagraceae		**Evening Primrose Family**
	Epilobium ciliatum	fringed willowherb
*	*Oenothera speciosa*	pink evening primrose
Papaveraceae		**Poppy Family**

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

	Platystemon californicus	cream cups
Plantaginaceae		**Plantain Family**
*	*Plantago lanceolata*	English plantain
	Plantago ovata	desert plantain
	Veronica peregrina ssp. *xalapensis*	purslane speedwell
Polygonaceae		**Buckwheat Family**
	Eriogonum fasciculatum	California buckwheat
*	*Lepidium latifolium*	perennial pepperweed
*	*Persicaria lapathifolia*	willow-weed
	Polygonum argyrocoleon	Persian knotweed
*	*Rumex crispus*	curly dock
	Rumex salicifolius	willow dock
Rosaceae		**Rose Family**
	Prunus ilicifolia	holly-leaved cherry
Salicaceae		**Willow Family**
	Populus fremontii ssp. *fremontii*	Fremont's cottonwood
	Salix gooddingii	black willow
	Salix laevigata	red willow
Simaroubaceae		**Quassia Family**
*	*Ailanthus altissima*	tree of heaven
Solanaceae		**Nightshade Family**
	Datura wrightii	jimson weed
Tamaricaceae		**Tamarix Family**
*	*Tamarix* sp.	Tamarisk

MONOCOTYLDENS

	Scientific Name	**Common Name**
Cyperaceae		**Sedge Family**
	Cyperus eragrostis	tall cyperus
*	*Cyperus rotundus*	purple nutsedge
	Eleocharis sp.	spike-rush
Poaceae		**Grass Family**
*	*Avena* sp.	Oat
*	*Bromus diandrus*	ripgut grass
*	*Bromus hordeaceus*	soft chess
*	*Bromus madritensis ssp. rubens*	foxtail chess
*	*Crypsis schoenoides*	swamp timothy
	Distichlis spicata	Saltgrass
*	*Festuca myuros*	rattail fescue

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

MONOCOTYLDENS

Scientific Name	Common Name
* *Festuca perennis*	Italian ryegrass
* *Hordeum murinum*	foxtail barley
Melica imperfecta	coast range melic
* *Phalaris minor*	Mediterranean canary grass
* *Polypogon monspeliensis*	annual beard grass
* *Polypogon viridis*	water bent
* *Schismus barbatus*	Mediterranean schismus
Typhaceae	**Cattail Family**
Typha sp.	Cattail

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

BIRDS

Scientific Name	Common Name
Anatidae	**Waterfowl**
Aix sponsa	wood duck
Anas acuta	northern pintail
Accipitridae	**Hawks**
Buteo jamaicensis	red-tailed hawk
Falconidae	**Falcons**
Falco sparverius	American kestrel
Charadriidae	**Plovers**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
* *Columba livia*	rock pigeon
* *Streptopelia decaocto*	Eurasian collared-dove
Zenaida macroura	mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
Vireonidae	**Vireos**
Vireo bellii pusillus[3]	least Bell's vireo
Corvidae	**Jays and Crows**
Corvus brachyrhynchos	American crow
Hirundinidae	**Swallows**
Stelgidopteryx serripennis	northern rough-winged swallow
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Troglodytidae	**Wrens**
Troglodytes aedon	house wren

[3] Least Bell's vireo call was heard off-site during the general biological survey (4/13/16) and the first focused burrowing owl survey (6/2/16).

APPENDIX A: FLORAL AND FAUNAL COMPENDIUM

BIRDS

Scientific Name	Common Name
Mimidae	**Thrashers**
Mimus polyglottos	northern mockingbird
Sturnidae	**Starlings**
* *Sturnus vulgaris*	European starling
Parulidae	**Wood Warblers**
Geothlypis trichas	common yellowthroat
Emberizidae	**Emberizine Sparrows and Allies**
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Cardinalidae	**Buntings, Grosbeaks, and Tanagers**
Passerina caerulea	blue grosbeak
Icteridae	**Blackbirds**
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Icterus cucullatus	hooded oriole
Quiscalus mexicanus	great-tailed grackle
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch

MAMMALS

Scientific Name	Common Name
Didelphidae	**Opossums**
Didelphis virginiana	Virginia opossum
Leporidae	**Hares and Rabbits**
Sylvilagus audubonii sanctidiegi	Audubon's cottontail
Mephitidae	**Skunks**
Mephitis mephitis	striped sunk
Sciuridae	**Squirrels and Chipmunks**
Otospermophilus beecheyi	California ground squirrel

Appendix B

Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Sandahl Murrieta City/County: Murrieta / Riverside Sampling Date: 4/13/16

Applicant/Owner: State: CA Sampling Point: S1

Investigator(s): Amir Morales, Zeke Cooley Section, Township, Range: T7S, R3W

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

Subregion (LRR): Lat: 33.555786° Long: -117.186254 Datum: NAD83

Soil Map Unit Name: Grangeville fine Sandy loam, leveled 0 to 2% Slopes NWI classification: NA

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	Y	FACW
2.			
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Marah fabi	10	Y	FAC
2. Salix gooddingii	5	Y	FACW
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 15')			
1. Rumex crispus	20	Y	FAC
2. Helianthus annuus	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: SP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-36	10YR 2/2	100					Sandy loam	Within actively dist Area.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Pit dug on berm bordering drainage, dug 18" below overburden.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes X No ____ Depth (inches): 14"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ondulé Murrieta City/County: Murrieta / Riverside Sampling Date: 4/13/16

Applicant/Owner: State: CA Sampling Point: SP2

Investigator(s): Aaron Morales, Zeke Cooley Section, Township, Range: T7S, R3W

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

Subregion (LRR): Lat: 33.536040° Long: -117.186446° Datum: NAD83

Soil Map Unit Name: Grangeville fine Sandy loam, leveled 0 to 2% Slopes NWI classification: NA

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-1)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15-1)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15-1)			
1. Hirschfeldia incana	10	FACU	
2.			
3. Portulaca oleracea	5	FAC	
4. Crypsis schoenoides	70	FACW	Y
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: SP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Refusal at 14". Poor soil structure as expected due to historic soil disturbance

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ondaka Mesa City/County: Murrieta / Riverside Sampling Date: 4/13/16

Applicant/Owner: State: CA Sampling Point: SP3

Investigator(s): Amir Morales, Zeke Cooley Section, Township, Range: T7S, R3W

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

Subregion (LRR): Lat: 33.537222° Long: -117.185466 Datum: NAD83

Soil Map Unit Name: Greenfield Sandy loam 0 to 2% Slopes NWI classification: RIVERINE

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

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

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

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 15)			
1. Hordeum murinum	60	FACU	Y
2. Cyperus esculentus	10	FACW	
3. Plantago lanceolata	5	FAC	
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species 10	x 2 = 20
FAC species 5	x 3 = 15
FACU species 60	x 4 = 240
UPL species ____	x 5 = ____
Column Totals: 75 (A)	275 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					Silt loam Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- X Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): _____

Water Table Present? Yes X No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Pit dries under 4" of water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Orchard Murrieta City/County: Murrieta / Riverside Sampling Date: 4/13/16

Applicant/Owner: State: CA Sampling Point: SP4

Investigator(s): Amir Morales, Zeke Cooley Section, Township, Range: T7S, R3W

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

Subregion (LRR): Lat: 33.536923° Long: -117.185132° Datum: NAD83

Soil Map Unit Name: Greenfield Sandy loam 0 to 2% Slopes NWI classification: NA

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. Baccharis salicifolia	5	Y	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 15)			
1. Rumex crispus	5		FAC
2. Plantago lanceolata	10		FAC
3. Hordeum murinum	10		FACU
4. Festuca perennis	30	Y	FAC
5. Vicia villosa ssp. villosa	30	Y	UPL
6. Cyperus esculentus	10		FACW
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Sl/Clay Loam	
8-10	10YR 4/2	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): Surface

Water Table Present? Yes X No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Appendix C

Special-Status Plant Species

APPENDIX C: SPECIAL-STATUS PLANT SPECIES

Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
BRYOPHYTES (Mosses)								
Bryaceae	**Moss Family**							
Mielicchoferia shevockii	Shevock's copper moss	N/A	None	None	1B.2	None	Cismontane woodland (metamorphic, rock, mesic).	**None**
Tortula californica	California screw moss	N/A	None	None	1B.2	None	Chenopod scrub, Valley and foothill grassland; grows within sandy soils. 10-1640 meters.	**Absent**
MARCHANTIOPHYTES (Liverworts)								
Sphaerocarpaceae	**Bottle Liverwort Family**							
Geothallus tuberosus	Campbell's liverwort	N/A	None	None	1B.1	None	Coastal scrub (mesic), vernal pools. 10-600 meters.	**Absent**
Sphaerocarpos drewei	bottle liverwort	N/A	None	None	1B.1	None	Chaparral, coastal scrub; grows within openings. 90-600 meters.	**Absent**
GYMNOSPERMS								
Cupressaceae	**Cypress Family**							
Hesperocyparis forbesii	Tecate cypress	N/A	None	None	1B.1	None	Clay, gabbroic or metavolcanic soils associated with closed-cone coniferous forest and chaparral. 80-1500 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
EUDICOTS								
Apiaceae	**Carrot Family**							
Eryngium aristulatum var. *parishii*	San Diego button-celery	Apr.-Jun.	FE	SE	1B.1	MSHCP	Coastal scrub, valley and foothill grassland, vernal pools; grows within San Diego mesa hardpan, claypan vernal pools, southern interior basalt flow vernal pools. 20-620 meters.	**None**
Asteraceae	**Sunflower Family**							
Ambrosia pumila	San Diego ambrosia	Apr.-Oct.	FE	None	1B.1	MSCHP (b)	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; often in disturbed areas; sometimes alkaline sandy loam or clay soils. 20-415 meters.	**Absent**
Centromadia pungens ssp. *laevis*	smooth tarplant	Apr.-Sep.	None	None	1B.1	MSCHP (d)	Valley and foothill grasslands with poorly drained alkaline soil conditions at low elevations. 0-640 meters.	**Observed**
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Jan.-Aug,	None	None	1B.1	None	Coastal bluff scrub (sandy), coastal dunes. 0-100 meters.	**None**
Holocarpha virgata ssp. *elongata*	graceful tarplant	May-Nov.	None	None	4.2	MSHCP(e)	Chaparral; cismontane woodland; coastal scrub; valley and foothill woodland. 60-1100 meters.	**None**
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Feb.-Jun.	None	None	1B.1	MSHCP (d)	Salt-marsh, playas, vernal-pools, coastal; usually occurs in wetlands but occasionally in non-wetlands. 1-1375 meters.	**Absent**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Packera gander	Gander's ragwort	Apr.-Jun.	None	CR	1B.2	None	Chaparral, cismontane, woodland, coastal scrub, riparian; sandy, gravelly soils. 400-1200 meters.	**None**
Pseudognaphalium leucocephalum	white rabbit-tobacco	Jul.-Dec.	None	None	2B.2	None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelling soils. 35-515 meters.	**Absent**
Symphyotrichum defoliatum	San Bernardino aster	Jul.-Nov.	None	None	1B.2	None	Near ditches, springs, and streams; cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic) 2-2040 meters	**Absent**
Berberidaceae	**Barberry Family**							
Berberis nevinii	Nevin's barberry	Mar.-June	FE	SE	1B.1	MSHCP (d)	Cismontane chaparral, coastal sage scrub, oak woodland, and riparian scrub and woodland; grows in sandy soils in low-gradient washes, alluvial terraces, and canyon bottoms, along gravelly wash margins, or on coarse soils on steep, generally north-facing slopes in alluvial scrub. 290-1575 meters.	**Absent**
Boraginaceae	**Borage Family**							
Cryptantha wigginsii	Wiggins' cryptantha	Feb.-Jun.	None	None	1B.2	None	Coastal scrub; typically grows in clay soils. 20-275 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Brassicaceae	**Cabbage Family**							
Sibaropsis hammittii	Hammitt's clay-cress	Mar.-Apr.	None	None	1B.2	MSHCP(b)	Chaparral (openings), valley and foothill grassland; mesic, open areas on clay soils in grasslands dominated by *Stipa* spp; often grows in openings within chamise chaparral. 720-1065 meters.	**None**
Chenopodiaceae	**Goosefoot Family**							
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	Apr.-Aug.	FE	None	1B.1	MSHCP (d)	Alkaline flats, playas, valley and foothill grassland, vernal pools; alkaline areas within the San Jacinto River Valley. 140-500 meters.	**Absent**
Atriplex pacifica	South Coast saltscale	Mar.-Oct.	None	None	1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, playas. 0-140 meters	**None**
Atriplex parishii	Parish's brittlescale	Jun.-Oct.	None	None	1B.1	MSHCP (d)	Chenopod scrub, playas, vernal pools. 25-1900 meters.	**Absent**
Atriplex serenana var. *davidsonii*	Davidson's saltscale	Apr.-Oct.	None	None	1B.2	MSHCP (d)	Coastal bluff scrub, coastal scrub. 10-200 meters.	**None**
Crassulaceae	**Stonecrop Family**							
Dudleya multicaulis	many-stemmed dudleya	Apr.-Jul.	None	None	1B.2	MSHCP(b)	Chaparral, coastal scrub, valley and foothill grassland often on clay soils. 15-790 meters.	**Absent**
Dudleya viscida	sticky dudleya	May-Jun.	None	None	1B.2	MSHCP(f)	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub. 10-550 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Ericaceae	**Heather Family**							
Arctostaphylos glandulosa ssp. *gabrielensis*	San Gabriel manzanita	Mar.	None	None	1B.2	None	Chaparral. 205-670 meters.	**Absent**
Euphorbiaceae	**Spurge Family**							
Tetracoccus dioicus	Parry's tetracoccus	Apr.-May	None	None	1B.2	None	Chaparral, coastal scrub. 165-1000 meters	**Absent**
Fabaceae	**Legume Family**							
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	Dec.-Jun.	None	None	1B.1	None	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland; dry ridges and valleys, open sandy slopes; most typically found in grassland and oak-chaparral. 365-915 meters.	**None**
Fagaceae	**Oak Family**							
Quercus engelmannii	Engelmann oak	Mar.-Jun.	None	None	4.2	MSHCP	Cismontane woodland, chaparral, riparian woodland, valley and foothill grassland. 50-1300 meters.	**Absent**
Geraniaceae	**Geranium Family**							
California macrophylla	round-leaved filaree	Mar.-May	None	None	1B.1	MSHCP (d)	Cismontane woodland, valley and foothill grassland, clay soils. 15-1200 meters.	**Absent**
Juglandaceae	**Walnut Family**							
Juglans californica	southern California black walnut	Mar.-Aug.	None	None	4.2	MSHCP	Chaparral, coastal scrub, cismontane woodland, slopes, canyons, alluvial habitats. 50-900 meters.	**Absent**
Lamiaceae	**Mint Family**							

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Lepechinia cardiophylla	heart-leaved pitcher sage	Apr.-Jul.	None	None	1B.2	MSHCP (d)	Closed-cone coniferous forest, chaparral, cismontane woodland. 520-1370 meters.	**None**
Monardella hypoleuca ssp*. intermedia*	intermediate monardella	Apr.-Sep.	None	None	1B.3	None	Chaparral, cismontane woodland, lower montane, occasionally coniferous forest; generally grows on steep hillsides with dense brush. 400-1250 meters.	**None**
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	Jun.-Aug.	None	None	1B.2	None	Chaparral, cismontane woodland; typically found as an understory species within sandy soils. 300-1575 meters.	**None**
Monardella macrantha ssp. *hallii*	Hall's monardella	Jun.-Oct.	None	None	1B.3	MSHCP	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; dry slopes and ridges within openings. 730- 2195 meters.	**None**
Clinopodium chandleri	San Miguel savory	Mar.-Jul.	None	None	1B.2	MSHCP	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Grows within rocky, gabbroic, or metavolcanic soils. 120-1075 m.	**None**
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	Jun.-Aug.	None	None	1B.2	None	Chaparral, cismontane woodland, lower montane coniferous forest; typically grows in gravelly soil on moist embankments of montane creeks. 425-2000 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Malvaceae	**Mallow Family**							
Ayenia compacta	California ayenia	Mar.-Apr.	None	None	2.3	None	Mojavean desert scrub, Sonoran desert scrub; creosote bush scrub, washes. 150-1095 meters.	**None**
Nyctaginaceae	**Four O'clock Family**							
Abronia villosa var. *aurita*	chaparral sand-verbena	Jan.-Sep.	None	None	1B.1	None	Chaparral, coastal scrub, desert dunes; sandy. 75-1600 meters.	**Absent**
Onagraceae	**Evening-primrose Family**							
Clarkia delicata	delicate clarkia	Apr.-Jun.	None	None	1B.2	None	Cistmontane woodland, chaparral; typically found on gabbro soils. 235-1000 meters.	**None**
Papaveraceae	**Poppy Family**							
Romneya coulteri	Coulter's matilija poppy	Mar.-Jul.	None	None	4.2	MSHCP (e)	Dry washes and canyons in sage scrub and chaparral. 20-1200 meters.	**Absent**
Polemoniaceae	**Phlox Family**							
Navarretia fossalis	spreading navarretia	Apr.-Jun.	None	None	1B.1	MSHCP (b)	Chenopod scrub, marshes and swamps, playas, and vernal pools; San Diego hardpan and claypan; found in swales and vernal pools. 30-655 meters.	**Absent**
Navarretia prostrata	prostrate vernal pool navarretia	Apr.-Jul.	None	None	1B.1	MSHCP (d)	Coastal sage scrub, valley and foothill grasslands, vernal pools, meadows, and seeps; alkaline soils in grasslands or vernal pools. 3-1210 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Polygalaceae	**Milkwort Family**							
Polygala cornuta var. *fishiae*	Fish's milkwort	May-Aug.	None	None	4.3	MSHCP (e)	Cismontane woodland, riparian woodland, chaparral; typically grows among oaks along ridges and scree slopes and is often found along streams. 100-1000 meters.	**None**
Polygonaceae	**Buckwheat Family**							
Chorizanthe parryi var. *parryi*	Parry's spineflower	Apr.-Jun.	None	None	1B.1	MSHCP (e)	Openings/clearings in coastal or desert sage scrub, chaparral or interface; dry slopes or flat ground; sandy soils. 275-1220 meters.	**Absent**
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	Apr.-Jul.	None	None	1B.2	MSHCP	Chaparral, coastal scrub, meadow and seep, valley and foothill grassland, vernal pools; ultramafic, often clay. 30-1530 meters.	**Absent**
Dodecahema leptoceras	slender-horned spineflower	Apr.-Jun.	FE	SE	1B.1	MSHCP (b)	Chaparral, cismontane woodland, coastal scrub (alluvial fan); sandy. 200-760 meters.	**Absent**
Rosaceae	**Rose Family**							
Horkelia cuneata var. *puberula*	mesa horkelia	Feb.-Jul.	None	None	1B.1	None	Chaparral (maritime), cismontane woodland, coastal scrub; sandy or gravelly soils. 70-810 meters.	**Absent**
Horkelia truncata	Ramona horkelia	May-Jun.	None	None	1B.3	None	Chaparral, Cismontane woodland; vernal streams and disturbed areas adjacent to roads; grows within clay soil and sometimes on gabbro. 400-1300 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Ceanothus cyaneus	Lakeside ceanothus	Apr.-Jun,	None	None	1B.2	None	Chaparral, closed-cone pine forest. 235-755 meters.	**None**
Ceanothus ophiochilus	Vail Lake ceanothus	Feb.-Mar.	FT	SE	1B.1	MSHCP (d)	Chaparral; gabbro seams on lower north-facing slopes. 580-1065	**None**
MONOCOTYLEDONS								
Alliaceae	**Onion Family**							
Allium munzii	Munz's onion	Mar.-May	FE	ST	1B.1	MSHCP (b)	Bare or grassy clearings in a variety of southern California plant communities; clay soils. 305-915 meters.	**Absent**
Juncaceae	**Rush Family**							
Juncus luciensis	Santa Lucia dwarf rush	Apr.-Jul.	None	None	1B.2	None	Chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools. 300-2040 meters.	**None**
Liliaceae	**Lily Family**							
Calochortus plummerae	Plummer's mariposa lily	May-Jul.	None	None	1B.2	MSHCP(e)	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest; rocky and sandy areas, typically of granitic or alluvial material; typically common after fire. 100-1700 meters.	**Absent**
Calochortus weedii var. intermedius	intermediate mariposa lily	May-Jul.	None	None	1B.2	MSHCP	Coastal scrub, chaparral, valley and foothill grassland on rocky soil and rocky outcrops. 105-855 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Mar.-Jul.	None	None	4.2	MSHCP (e)	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, openings. 30-1080 meters	**None**
Lilium parryi	lemon lily	Jul.-Aug.	None	None	1B.2	MSHCP (f)	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. 1220-2745 meters.	**None**
Limnanthaceae	**Meadowfoam Family**							
Limnanthes alba ssp. *parishii*	Parish's meadowfoam	Apr.-Jun.	None	SE	1B.2	MSHCP	Lower montane coniferous forest, meadows and seeps, vernal pools. 600-2000 meters.	**None**
Poaceae	**True Grass Family**							
Hordeum intercedens	vernal barley	Mar.-Jun.	None	None	3.2	MSHCP	Valley and foothill grassland, vernal pools, coastal dunes, coastal scrub, dry saline streambeds, alkaline flats. 5-1000 meters.	**Absent**
Orcuttia californica	California Orcutt grass	Apr.-Aug.	FE	SE	1B.1	MSHCP (b)	Vernal pools; 100-2000 meters.	**Absent**
Ruscaceae	**Ruscus Family**							
Nolina cismontana	chaparral nolina	May-Jul.	None	None	1B.2	None	Xeric Diegan sage scrubs, open chaparral, coastal scrub; generally grows within sandstone and shale substrates and occasionally within gabbro. 140-1275 meters.	**None**

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Scientific Name	Common Name	Flowering Period	Federal	State	CNPS-List	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Themidaceae	**Butcher's-Broom Family**							
Brodiaea filifolia	thread-leaved brodiaea	Mar.-Jun.	FT	SE	1B.1	MSHCP (d)	Clay soils in coastal scrub, valley and foothill grassland, cismontane woodland, and vernal pools. 25-1120 meters.	**Absent**
Brodiaea orcuttii	Orcutt's brodiaea	May-Jul.	None	None	1B.1	MSHCP	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools. 30-1692 meters.	**Absent**
Brodiaea santarosae	Santa Rosa Basalt brodiaea	May-Jun.	None	None	1B.2	None	Valley and foothill grassland. 565-1045 meters.	**None**

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FPE	Federally Proposed as Endangered	SCE	State Candidate for Endangered
FPT	Federally Proposed as Threatened	SCT	State Candidate for Threatened
FPD	Federally Proposed for Delisting	SFP	State Fully Protected
		SSC	California Species of Special Concern
		CR	California Rare Species

MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan covered species
MSHCP (a)	Surveys may be required as part of wetlands mapping per MSHCP Section 6.1.2.
MSHCP (b)	Surveys may be required within Narrow Endemic Plant Species survey area per MSHCP Section 6.1.3.
MSHCP (c)	Surveys may be required per MSHCP Section 6.3.2.
MSHCP (d)	Surveys may be required within Criteria Area per MSHCP Section 6.3.2.
MSHCP (e)	These Covered Species will be considered to be Covered Species Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met per MSHCP Section 9.0 (Table 9-3).
MSHCP (f)	These Covered Species will be considered to be Covered Species Adequately Conserved when a Memorandum of Understanding is executed with the Forest Service that addresses management for these species on Forest Service Land per MSHCP Table 9-3.

Source: ESA PCR 2016

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Appendix D

Special-Status Wildlife Species

APPENDIX D: SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
INVERTEBRATES						
Crustacea/Branchipoda	**Fairy Shrimp**					
Branchinecta lynchi	vernal pool fairy shrimp	FT	None	MSHCP (a)	Valley and foothill grassland, vernal pool, wetland.	**Not Expected ~~Potential (Moderate)~~** The ponding feature on the study area supports potentially suitable habitat for this species, although this species was not detected during dry or wet season focused surveys. The nearest CNDDB occurrence record of this species was recorded in 2008 approximately 2.3 miles to the west of the study area within the Santa Rosa Plateau.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE	None	None	San Diego and Orange County mesas, vernal pools.	**Not Expected ~~Potential (Moderate)~~** The ponding feature on the study area supports potentially suitable habitat for this species although this species was not detected during dry or wet season focused surveys. The nearest CNDDB occurrence record of this species was recorded in 2009 approximately 13.5 miles to the southwest of the study area within Camp Pendleton.
Streptocephalus woottoni	Riverside fairy shrimp	FE	None	MSHCP (a)	Coastal scrub, valley and foothill grassland, vernal pool, wetland.	**Not Expected~~Potential (Moderate)~~** The ponding feature on the study area supports potentially suitable habitat for this species, although this species was not detected during dry or wet season focused surveys. The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 0.80 mile to the south of the study area in the City of Temecula.
Insecta/Lepidoptera	**Butterflies and Moths**					

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Euphydryas editha quino	quino checkerspot butterfly	FE	None	MSHCP	Chaparral and coastal scrub with sunny clearings. Require high densities of host plants, such as *Plantago erecta*, *P. ovata*, and *Castilleja exserta*.	**Potential (Very Low)** The study area supports sporadic individuals of this species' host plant (*Plantago ovata*); however, high densities of the host plant were not observed.
FISH						
Cyprinidae	**Ray-finned Fish**					
Gila orcuttii	arroyo chub	FT	SSC	MSHCP	Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation & associated invertebrates.	**None** The study area does not support suitable habitat.
AMPHIBIANS						
Salamandridae	**Newts**					
Taricha torosa	Coast Range newt	None	SSC	MSHCP	Terrestrial habitats and will migrate over 1 kilometer to breed in ponds, reservoirs and slow-moving streams	**None** The study area does not support suitable habitat. CNDDB occurrence records of this species within the MSHCP Plan Area are primarily within the Santa Ana Mountains.
Pelobatidae	**Spadefoot Toads**					
Spea hammondii	western spadefoot	None	SSC	MSHCP	Prefers burrow sites within relatively open areas in lowland grasslands, chaparral, and pine-oak woodlands, areas of sandy or gravelly soil in alluvial fans, washes, and floodplains. Requires temporary pools for reproduction.	**Observed ~~Potential (Low)~~** The ponding feature on the study area ~~may~~ provide<u>s</u> suitable breeding habitat for this species. <u>Tadpoles and toadlets were observed during the wet season focused survey for fairy shrimp.</u> Additionally, grasslands may provide suitable habitat for burrow sites. ~~The study area is entirely surrounded by development and adjacent disturbance may limit the potential for this species.~~ The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 1.1 miles to the northeast of the study area within Warm Springs Creek.

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Bufonidae	**True Toads**					
Anaxyrus californicus	arroyo toad	FE	SSC	MSHCP (c)	Shallow, exposed streamsides, quiet water stretches, or overflow pools with silt-free sandy or gravelly bottoms. Nearby sandy terraces, dampened in places by capillary action, with some scattered vegetation.	**None** The study area does not support suitable habitat.
Ranidae	**True Frogs**					
Rana draytonii	California red-legged frog	FT	SSC	MSHCP (c)	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**None** The study area does not support suitable habitat.
REPTILES						
Emydidae	**Pond Turtle Family**					
Emys marmorata	western pond turtle	None	SSC	MSHCP	Aquatic environments; artificial flowing waters; marsh and swamp; south coast flowing and standing waters; wetlands. Requires upland habitat up to 0.5 km from water for egg laying and sandy banks or open fields for basking.	**Potential (Low)** The ponding area on the project site may support suitable habitat for this species. Additionally, the study area supports some sandy areas and lots of open fields for basking. However, the nearest CNDDB occurrence record for this specie was recorded in 1970, approximately 4.25 miles to thenorthwest of the study area in Wildomar. This population was considered extirpated in 1980.
Phrynosomatidae	**Iguanid Lizard Family**					
Phrynosoma blainvillii	coast horned lizard	None	SSC	MSHCP	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet, open country, especially sandy areas, washes, flood plains, and windblown deposits.	**Potential (Moderate)** The study area supports annual grassland habitat with some sandy soils that may be suitable for this species.

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Teiidae	**Whiptail Family**					
Aspidoscelis hyperythra	orange-throated whiptail	None	SSC	MSHCP	Chaparral, non-native grassland, Riversidean sage scrub, and juniper and oak woodlands. Associated with riparian areas and alluvial fan scrub habitats.	**Potential (Moderate)** The study area supports suitable non-native grassland and riparian vegetation for this species.
Scincidae	**Skinks**					
Plestiodon skiltonianus interparietalis	Coronado Island skink	None	SSC	None	Grassland, chaparral, pinon-juniper and juniper sage woodland, pine-oak and pine forests; typically found in habitats that are in early successional stage or open areas; prefers rocky areas adjacent to streams and dry hillsides.	**None** The study area does not support suitable habitat.
Colubridae	**Colubrid Snakes**					
Salvadora hexalepis virgultea	coast patch-nosed snake	None	SSC	None	Desert and rocky areas in chaparral covered hillsides and canyons.	**None** The study area does not support suitable habitat.
Thamnophis hammondii	two-striped garter snake	None	SSC	None	Coastal California along watercourses with permanent fresh water, and near streams with rocky beds and riparian growth.	**None** The study area does not support suitable habitat.
Viperidae	**Vipers**					
Crotalus ruber	red-diamond rattlesnake	None	SSC	MSHCP	Chaparral, woodland, grassland, and desert. In rocky areas and dense vegetation.	**None** The study area does not support suitable habitat.
BIRDS						
Charadriidae	**Plovers**					
Charadrius alexandrinus nivosus	western snowy plover	FT	SSC	None	Coastal scrub, chaparral, grasslands, sagebrush; typically feeds in wrackline along shore near beaches, lagoons, alkaline or saline lakes, reservoirs, and ponds. Breeds on dry land scattered with pebbles and/or course gravel.	**None** The study area does not support suitable habitat.

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Cuculidae	**Cuckoos and Roadrunners**					
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FC	SE	MSHCP (a)	Southwestern cottonwood-willow riparian, mixed broadleaf riparian forest.	**None** The study area does not support suitable habitat.
Accipitridae	**Hawks, Kites, Harriers and Eagle Family**					
Aquila chrysaetos	golden eagle	None	SFP	MSHCP	Mountains, deserts, and open country; prefer to forage over grasslands, deserts, savannahs and early successional stages of forest and shrub habitats.	**None (N); Potential (F, Very Low)** The study area does not support this species' preferred nesting habitat (cliff faces). There are a number of burrows on the study area, suggesting the presence of fossorial mammals that could provide a possible food source. However, the study area is relatively small and surrounded by development in all directions, which likely limits the potential foraging for this species.
Elanus leucurus	white-tailed kite	None	SFP	MSHCP	Grasslands with scattered trees, near marshes, along highways.	**None (N); Potential (F, Moderate)** The study area does not support scattered trees that would be suitable for this species to nest. There are a number of burrows on the study area, suggesting the presence of fossorial mammals that could provide a possible food source.
Haliaeetus leucocephalus	bald eagle	None	SE	MSHCP	Lower montane coniferous forest; old growth.	**None** The study area does not support suitable habitat.
Circus cyaneus	northern harrier	None	SSC	MSHCP	Coastal salt marshes, freshwater marshes, grasslands, and agricultural fields; occasionally forages over open desert and brushlands.	**None (N); Potential (F, Low)** The study area does not support thick vegetation suitable for this species to nest. There are a number of burrows on the study area, suggesting the presence of fossorial mammals that could provide a possible food source. However, the study area is relatively small which likely limits the presence of this

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
						species since it hunts prey on the wing.
Buteo swainsoni	Swainson's hawk	None	ST	MSHCP	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees.	**None (N); Potential (F, Very Low)** There are a number of burrows on the study area, suggesting the presence of fossorial mammals that could provide a possible food source. However, this species has not been recorded on CNDDB within the vicinity of the study area since 1933.
Strigidae	**Owls**					
Athene cunicularia	burrowing owl	None	SSC	MSHCP (c)	Dry grasslands, desert habitats, open-pinyon-juniper and ponderosa pine woodlands below 5,300 feet elevation. Prefers berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas.	**Not Expected** Although potentially suitable habitat was observed on the study area, no burrowing owls were observed during the focused surveys.
Laniidae	**Shrike Family**					
Lanius ludovicianus	loggerhead shrike	None	SSC	MSHCP	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	**None** The study area does not support suitable habitat.
Vireonidae	**Vireo Family**					
Vireo bellii pusillus	least Bell's vireo	FE	SE	MSHCP (a)	Found especially in willow and mesquite thickets near water.	**Observed** An individual was heard calling during the general biological survey (4/13/16) and the first focused burrowing owl survey (6/2/16). The individual was heard off-site within Drainage A, upstream from the study area.

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Troglodytidae	**Wrens**					
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	SSC	MSHCP	Southern California coastal sage scrub; requires *Opuntia*s sp. cactus for nesting and roosting.	**None** The study area does not support suitable habitat.
Parulidae	**Wood Warblers**					
Icteria virens	yellow-breasted chat	None	SSC	MSHCP	In southern California, nest in dense willow woodlands and thickets or other riparian areas with a developed understory.	**None** The study area does not support suitable habitat.
Sylviidae	**Old World Warblers, Gnatcatchers**					
Polioptila californica californica	coastal California gnatcatcher	FT	SSC	MSHCP	Coastal sage scrub vegetation below 2,500 feet elevation in Southern California; generally avoids steep slopes and dense vegetation for nesting.	**None** The study area does not support suitable habitat.
MAMMALS						
Molossidae	**Free-tailed Bats**					
Eumops perotis californicus	western mastiff bat	None	SSC	None	Chaparral; cismontane woodland; coastal scrub; valley and foothill grassland; mainly within arid open habitats. Preferred roosting habitat consists of crevices within rock outcrops, although this species has been known to use trees and tunnels for roost sites. Feeds on flying insects.	**None (R); Potential (F, Moderate)** Preferred roosting habitat is not present on the study areas. Suitable foraging habitat is present within the annual brome grassland habitats. The nearest CNDDB occurrence record of this species was recorded in 1991, approximately 3.2 miles to the southeast of the study area in the City of Temecula
Nyctinomops femorosaccus	pocketed free-tailed bat	None	SSC	None	Joshua tree woodland; pinyon and juniper woodland; desert scrub, palm oasis, desert wash, and desert riparian; Sonoran desert scrub. Typically roost in caves and rocky outcrops; prefers cliffs in order to obtain flight speed. Feeds on insects flying, over bodies of water or arid desert habitats to capture prey.	**None (R); None (F)** The study area does not support suitable roosting or foraging habitat.

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Scientific Name	Common Name	Federal	State	MSHCP Coverage	Preferred Habitat	Potential for Occurrence in the Study Area
Vespertilionidae	**Evening Bats**					
Antrozous pallidus	pallid bat	None	SSC	None	Chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, and valley and foothill grassland; prefers arid, open areas for foraging and adjacent rock outcrops for roosting. This species is also known to use mines, crevices in buildings, and hollow trees as roosting sites. Very sensitive to disturbance of roosting sites. Forages on a variety of insects and arachnids by gleaning within open habitats.	**None (R); None (F)** The study area does not support suitable roosting or foraging habitat. Although the study area supports some riparian vegetation (black willow thickets), there are no adjacent rock outcrops.
Lasiurus xanthinus	western yellow bat	None	SSC	None	Desert wash. Known to occur in palm oases.	**None (R); None (F)** The study area does not support suitable habitat.
Leporidae	**Hares and Rabbit Family**					
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	SSC	MSHCP	Open brushlands and scrub habitats between sea level and 4,000 feet elevation.	**Potential (Low)** The number of shrubs on the study area is limited. This species is conspicuous when present and was not observed during any of the surveys conducted on the study area.
Heteromyidae	**Pocket Mice and Kangaroo Rat Family**					
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	SSC	MSHCP (c)	Coastal sage scrub, and grasslands, desert cactus, creosote bush and sagebrush habitats.	**Potential (Low)** The study area supports potentially suitable habitat due to the presence of grasslands and small fossorial mammal burrows. However, the majority of the CNDDB occurrence records of this species are east of the I-215 freeway. The nearest CNDDB occurrence record of this species was recorded in 1993, approximately 3.6 miles to the northeast of the study area in the City of Murrieta.

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Perognathus longimembris internationalis	Jacumba pocket mouse	None	SSC	None	Desert riparian, desert scrub, desert wash, coastal scrub, and coast sagebrush; infrequently observed on rocky areas within all canopy densities.	**None** The study area does not support suitable habitat.
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	SSC	None	Chaparral, coastal scrub, and valley and foothill grassland. Frequently found within grass-chaparral ecotone.	**Potential (Low)** The study area supports potentially suitable habitat due to the presence of grasslands and small fossorial mammal burrows. However, this species' preferred habitat is not present on-site (grass-chaparral ecotone). The nearest CNDDB occurrence record of this species was recorded in 2005 approximately 1.1 miles to the northeast of the study area in the City of Murrieta.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	SSC	MSHCP	Coastal scrub, sagebrush, chaparral, grasslands, pinyon-juniper, and desert wash and scrub. Found in sandy, herbaceous areas with nearby shrubs for cover. Burrows are typically dug within gravelly or sandy soil.	**Potential (Low)** The study area supports potentially suitable habitat due to the presence of grasslands and small fossorial mammal burrows. However, the study area supports little to no gravelly or sandy soil for this species to excavate burrows. The nearest CNDDB occurrence record of this species was recorded in 2009, approximately 3.2 miles to the northeast of the study area in the City of Murrieta.
Dipodomys stephensi	Stephens' kangaroo rat	FE	ST	MSHCP	Open grasslands or sparse shrub lands. Sandy to sandy loam soils with low clay to gravel content.	**Potential (Moderate)** The study area supports potentially suitable habitat due to the presence of grasslands and small fossorial mammal burrows. The nearest CNDDB occurrence record of this species was recorded in 2009, approximately 1.1 miles to the northeast of the study area in the City of Murrieta.

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Muridae	**Mice, Rats, and Vole Family**					
Neotoma lepida intermedia	San Diego desert woodrat	None	SSC	MSHCP	Coastal scrub and chaparral. Prefer areas with moderate to dense canopy cover. Frequently found in areas with rock outcrops and cliffs.	**None** The study area does not support suitable habitat.
Onychomys torridus ramona	southern grasshopper mouse	None	SSC	None	Prefers alkali desert scrub and desert scrub habitats, although also found in other desert habitats, such as succulent shrub, wash, riparian, coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats. Friable soil for digging burrows within habitats with low to moderate shrub cover is preferred. Food source is arthropods, especially scorpions and grasshoppers.	**None** The study area does not support suitable habitat.

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MSHCP (a)	Surveys may be required as part of wetlands mapping per MSHCP Section 6.1.2.
MSHCP (b)	Surveys may be required within Narrow Endemic Plant Species survey area per MSHCP Section 6.1.3.
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MSHCP (f)	These Covered Species will be considered to be Covered Species Adequately Conserved when a Memorandum of Understanding is executed with the Forest Service that addresses management for these species on Forest Service Land per MSHCP Table 9-3.

Source: ESA PCR 2016

NONE = Species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; **LOW** = There is a low possibility for this species to occur on-site due to the small amount of habitat and/or poor quality of habitat and/or known range minimizes possibility for species' presence within the study area; **MODERATE** = There is a moderate possibility for this species to occur on-site; **HIGH** = There is a high probability for this species to occur on-site; **F** = For raptor and bat species: if present, would utilize the site for foraging only; **N/R** = For raptor and bat species: if present, would utilize the site for nesting or roosting only.

NONE = Species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; **LOW** = There is a low possibility for this species to occur on-site due to the small amount of habitat and/or poor quality of habitat and/or known range minimizes possibility for species' presence within the study area; **MODERATE** = There is a moderate possibility for this species to occur on-site; **HIGH** = There is a high probability for this species to occur on-site; **F** = For raptor and bat species: if present, would utilize the site for foraging only; **N/R** = For raptor and bat species: if present, would utilize the site for nesting or roosting only.

Appendix E

Dry Season Fairy Shrimp Focused Survey Report

FINIUM ENVIRONMENTAL

September 20, 2016

Ms. Stacey Love
Recovery Permits Coordinator
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: RESULTS OF THE DRY SEASON FAIRY SHRIMP SURVEY FOR THE OMDAHL MURRIETA (APN'S 909-060-038 AND 909-060-044) PROJECT SITE LOCATED IN THE CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA

Dear Stacey:

This report is prepared in compliance with the conditions of authorized permit issued under Section 10(a)(1)(A) of the federal Endangered Species Act to Crysta Dickson (TE067347-5) to collect dry season soil samples for vernal pool branchiopods (fairy shrimp) on the Omdahl Project Site ("project site") located in Riverside County, California. The dry season survey protocol followed the May 31, 2015 U.S. Fish and Wildlife Service (USFWS) *Survey Guidelines for the Listed Large Branchipods.*[1] A 15-day notification was sent to the USFWS on June 17, 2016. Authorization to commence dry season surveys was received from USFWS representative Karin Cleary-Rose on July 8, 2016.[2] Soil samples were processed and analyzed by D. Christopher Rogers of the Kansas Biological Survey. No potential special status fairy shrimp eggs were found in the soil samples collected from the project site.[3]

PROJECT SITE LOCATION

The approximately 10.88-acre project site (10.07 acres on-site and 0.81 acre off site) is located off of Adams Avenue, just southeast of the intersection of Adams Avenue and Fig Street and approximately 0.75 mile southwest of the Interstate 15/Interstate 215 (I-15/I-215) in the City of Murrieta, Riverside County, California as shown on **Figure 1**, *Regional Map*. The study area can be found in an unsectioned portion of the U.S. Geological Survey (USGS) 7.5' Murrieta (USGS 1953) topographic quadrangle map, as shown in **Figure 2**, *USGS Topographic Map*.

PROJECT SITE DESCRIPTION

The project site supports a mixture of native, hydrophytic vegetation, including black willow thicket, tarplant field, western ragweed meadow, and non-native vegetation, such

[1] USFWS. 2015. Survey Guidelines for the Listed Large Branchiopods. May 31.
[2] Email communication between Crysta Dickson and Karin Cleary-Rose of USFWS, July 8, 2016.
[3] Kansas Biological Survey. 2016. SUBJECT: Results of Analyses of Soil Samples Collected from a proposed project site in Murietta, Riverside County, California. September 2.

as annual brome grassland, foxtail barley patches, and swamp timothy sward (**Figure 3**, *Plant Communities*). The northwestern and western portion of the study area supports developed areas associated with Adams Avenue.

The project site supports two drainages observed to support field indicators associated with U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) (collectively "the resource agencies") jurisdictional waters, referred to in this report as Drainages A and B (**Figure 4**, *Jurisdictional Waters*). The water flow within the drainages is primarily supported by runoff from the adjacent developments. However, due to significant alterations to the drainage courses as a result of nearby developments, the drainages have been disconnected hydrologically from Murrieta Creek. As a result, water flowing onto the project site becomes impounded, creating a large ponding area in the center and along the eastern boundary of the project site. The two ponding areas (referred to in this report as Ponding Areas 1 and 2) were determined to potentially support listed fairy shrimp habitat based on the presence of water which stays inundated on the site for short periods of time during and following rain events (**Figure 5**, *Ponding Areas and Photo Locations*). These ponding features are mostly contained within the 10.88-acre project site; however, potions of the northwestern extents of each feature occur in areas outside of the project site. All portions of each feature, on and off-site, were sampled during the survey.

Ponding Areas 1 and 2, which were created as a direct result of man-made alterations to the landscape total approximately 0.22 acre and 6.92 acres, respectively. Ponding Area 1, which is located along the eastern boundary of the project site is characterized as a shallow, linear swale-like feature that is approximately 495 linear feet long. This feature, which was once part of a USGS Blueline stream alignment has since been disconnected from it's historical upstream flows. This feature is currently fed from a drainage feature (Drainage A) that enters the project site at the southeast corner of the project site. The flows backflow and impound into this feature causing ponding. During the site assessment conducted on July 12, 2016 by Crysta Dickson, this feature was documented as showed evidence of shallow cracking soils. Vegetation within this feature was dominated by common sunflower (*Helianthus annuus*), western ragweed (*Ambrosia psilostachya*) and shortpod mustard (*Hirschfeldia incana*). Less dominant plant species observed included Russian thistle (*Salsola tragus*), English plantain (*Plantago lanceolata*), curly dock (*Rumex crispus*), brome grass (*Bromus* sp.), purple nutsedge (*Cyperus rotundus*), rough cocklebur (*Xanthium strumarium*), mulefat (*Baccharis salicifolia*) smooth tarplant (*Centromadia pungens ssp. laevis*), bur clover (*Medicago polymorpha*), Canadian horseweed (*Erigeron canadensis*), jimson weed (*Datura wrightii*) and ripgut grass (*Bromus diandrus*)[4] (**Figure 6a**, *Ponding Area 1 Photos*).

Ponding Area 2 is also fed from flows that enter the project site from the southeast corner of the project site (Drainage A) as well as presumed sheet flows from Drainage B. Historically, flows from both Drainages would move across the project site and into

[4] BRA

Murrieta Creek, which is located to the southwest of the project site. However, due to the development to the south and road improvements to Adams Avenue, flows became impounded onto the project site. This created a large ponding area that encompasses a majority of the central portion of the project site. Similar to Ponding Area 1, this feature becomes inundated with water during and for short periods of time after rain events. This feature is a moderately deep feature with the deepest portions (approximately 1-2 feet deep) located along its southern boundary. This feature supports deep cracked soils and an almost monotypic cover of smooth tarplant with the southern boundary supporting a dominance of swamp timothy sward (*Crypsis schoenoides*). Other species observed within this feature included common sunflower, rough cocklebur, willow-weed (*Persicaria lapathifolia*), Baccone's sand spurry (*Spergularia bocconi*), common purslane (*Portulaca oleracea*), curly dock, Hyssop loosestrife (*Lythrum hyssopifolia*), Persian knotweed (*Polygonum argyrocoleon*), short woollyheads (*Psilocarphus brevissimus*), and western marsh cudweed (*Gnaphalium palustre*)[5] (**Figures 6a and 6b**, *Ponding Area 2 Photos*).

Elevations within the project site range from approximately 1,040 feet above mean sea level (MSL) in the southwestern portion to approximately 1,055 feet above MSL in the eastern portion of the project site. Surrounding land uses immediately adjacent to the project site include the Murrieta Valley Pony Baseball athletic fields to the northwest, Murrieta Creek to the southwest, and industrial development to the northeast and southeast.

METHODOLOGY

The dry season survey followed the May 31, 2015 USFWS *Survey Guidelines for the Listed Large Branchipods.*[6] As such, a 15-day notification was sent to the USFWS on June 17, 2016. Authorization to commence dry season surveys was received from USFWS representative Karin Cleary-Rose on July 8, 2016.[7] Soils were collected from the two Ponding Areas on July 12 and 13, 2016 by permitted biologist Crysta Dickson (TE-067347-5). Soil samples were collected from 0700 to 1200 on July 12, 2016. Temperatures ranged from 62° to 86° Fahrenheit with 100% overcast skies and winds at 0-1 mph. Soils collected on July 13, 2016 were collected from 1200 to 1530 with temperatures ranging from 86° to 90° Fahrenheit with 0% cloud cover and winds at 0-1 mph. The amount of soil collected from each Ponding Area followed USFWS guidelines in accordance with the size of each feature. Samples locations were distributed evenly throughout each feature with a slightly higher proportion of samples being collected from the deeper parts of each feature. Fifty samples of approximatley 50-100 millileters (ml) each were collected from Ponding Area 1. One hundred samples of approxiamtley 50-100 ml each were collecected from Ponding Area 2. The soil samples were individually labled and stored in a double-lined plastic bag. Soil samples were submitted to the Kansas Biological Survey laboratory at the University of Kansas for analysis by D.

[5] ESA PCR. 2016. Biological Resources Assessment. September.
[6] USFWS. 2015. Survey Guidelines for the Listed Large Branchiopods. May 31.
[7] Email communication between Crysta Dickson and Karin Cleary-Rose of USFWS, July 8, 2016.

Christopher Rogers to identify any collected eggs to genus (refer to **Appendix A**, *Results of Analyses of Soil Samples*). Soil samples were prepared for examination in the laboratory by dissolving the clumps of soil in water and sieving the material through 300- and 150- µm pore sized screens. The small size of the screens ensured that the any eggs from the shrimp species would be retained. The portion of each sample retained in the screens was dissolved in a brine solution to separate the organic material from the inorganic material. The organic fraction was then examined under a microscope.

RESULTS

No potential special status shrimp eggs were found in and of the samples (refer to **Appendix B**, *USFWS Data Sheet for Dry Season Sample Analysis for Listed Large Branchipods*).

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

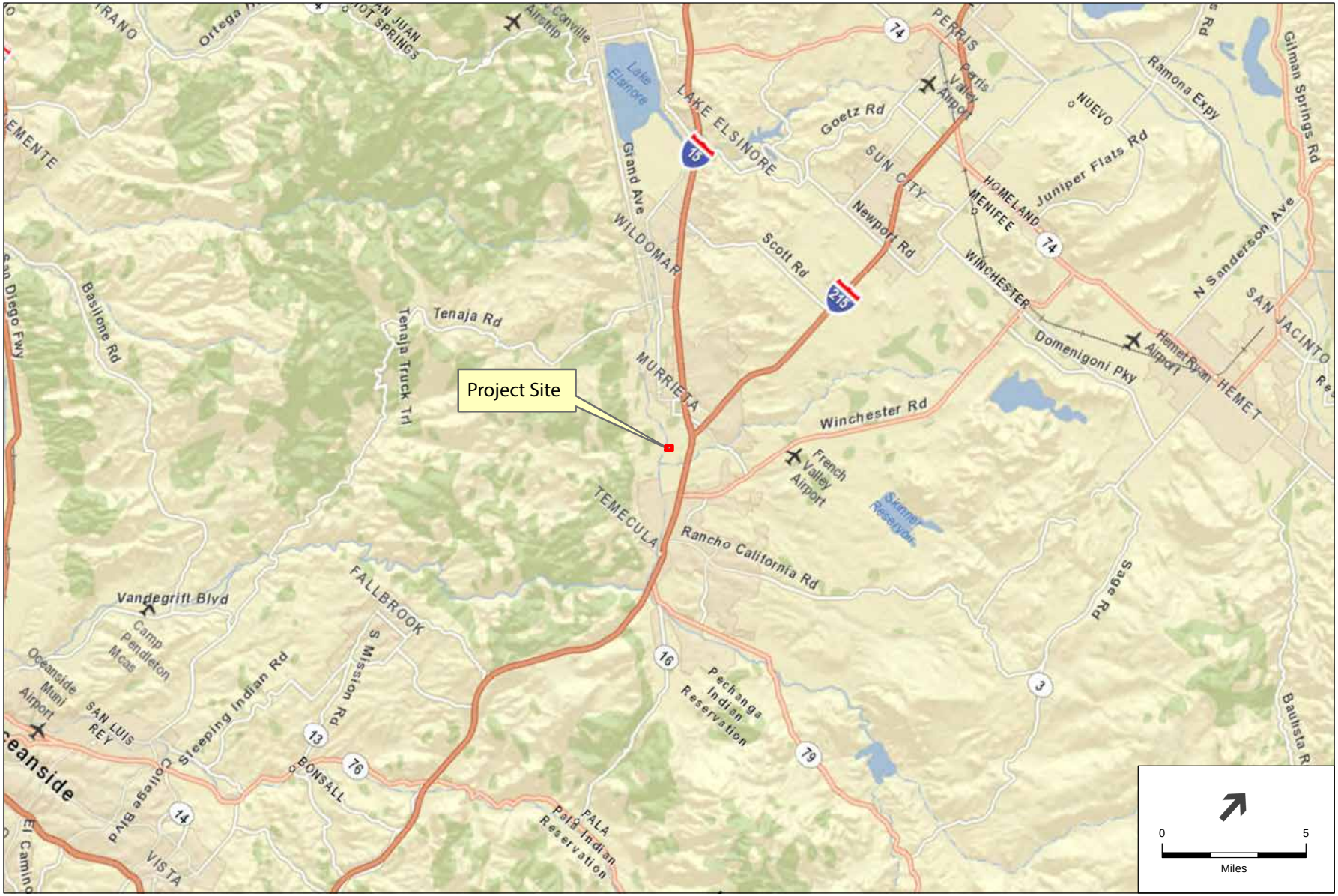
Feel free to contact me at crysta@finiumenvironmental.com or 949-292-7135 should you have any questions or concerns in regards to this notification.

Sincerely,
FINIUM ENVIRONMENTAL

Signature:_____ Date:__20 September 2016_____
Crysta Dickson (TE-067347-5)

Attachments:
Figure 1: Regional Map
Figure 2: USGS Topographic Map
Figure 3: Plant Communities
Figure 4: Jurisdictional Waters
Figure 5: Ponding Areas and Photo Locations
Figure 6a: Ponding Area Photos
Figure 6b: Ponding Area Photos
Appendix A: Results of Analysis of Soil Samples
Appendix B: USFWS Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods

Cc: Karin Cleary-Rose, USFWS

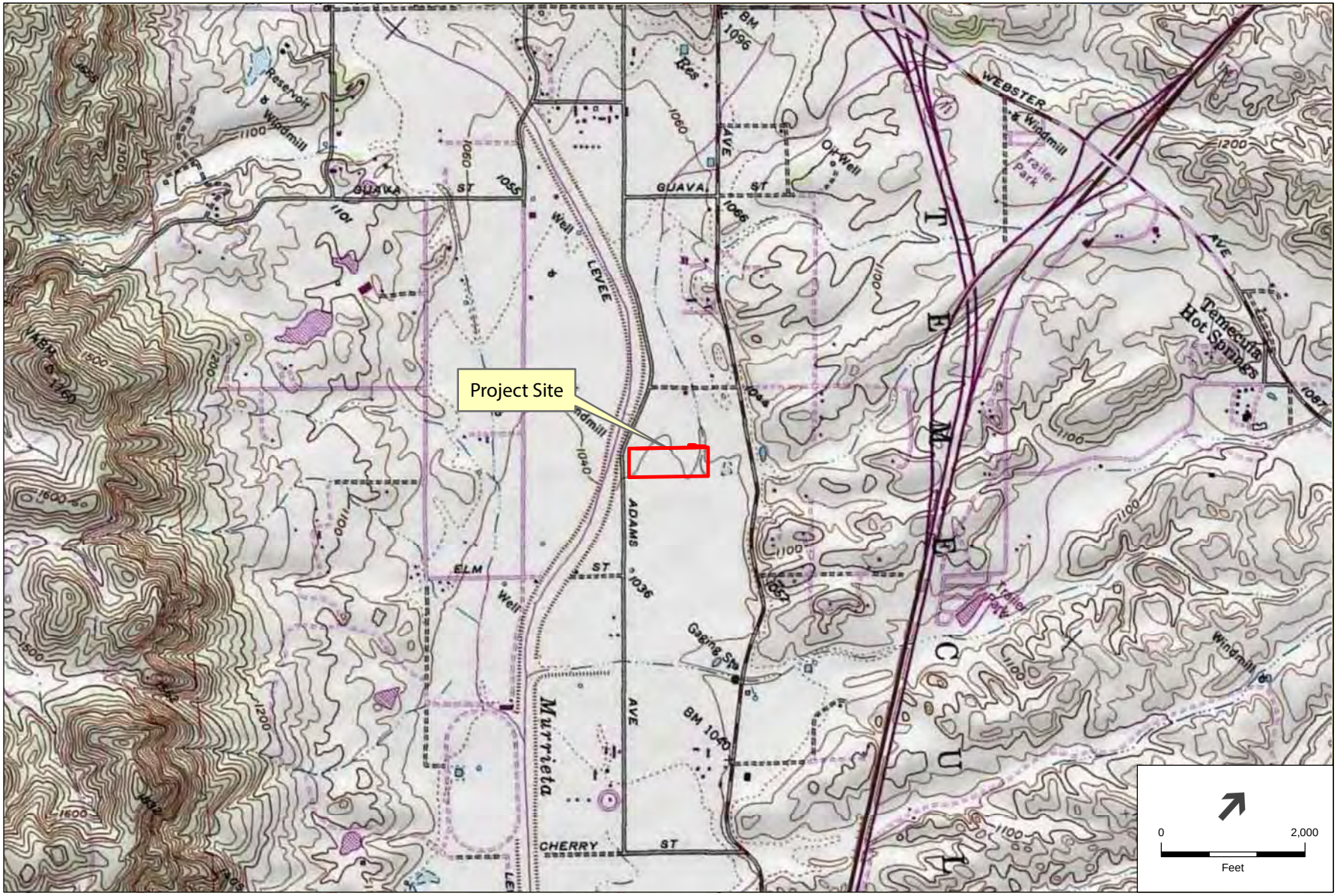


Source: ESRI Street Map, 2009; ESA PCR Services Corporation, 2016; FINIUM, 2016.

FINIUM ENVIRONMENTAL

FIGURE

Regional Map 1



Source: USGS Topographic Series (Murrieta, CA); ESA PCR Services Corporation, 2016; FINIUM, 2016.

FINIUM ENVIRONMENTAL

FIGURE

USGS Topographic Map

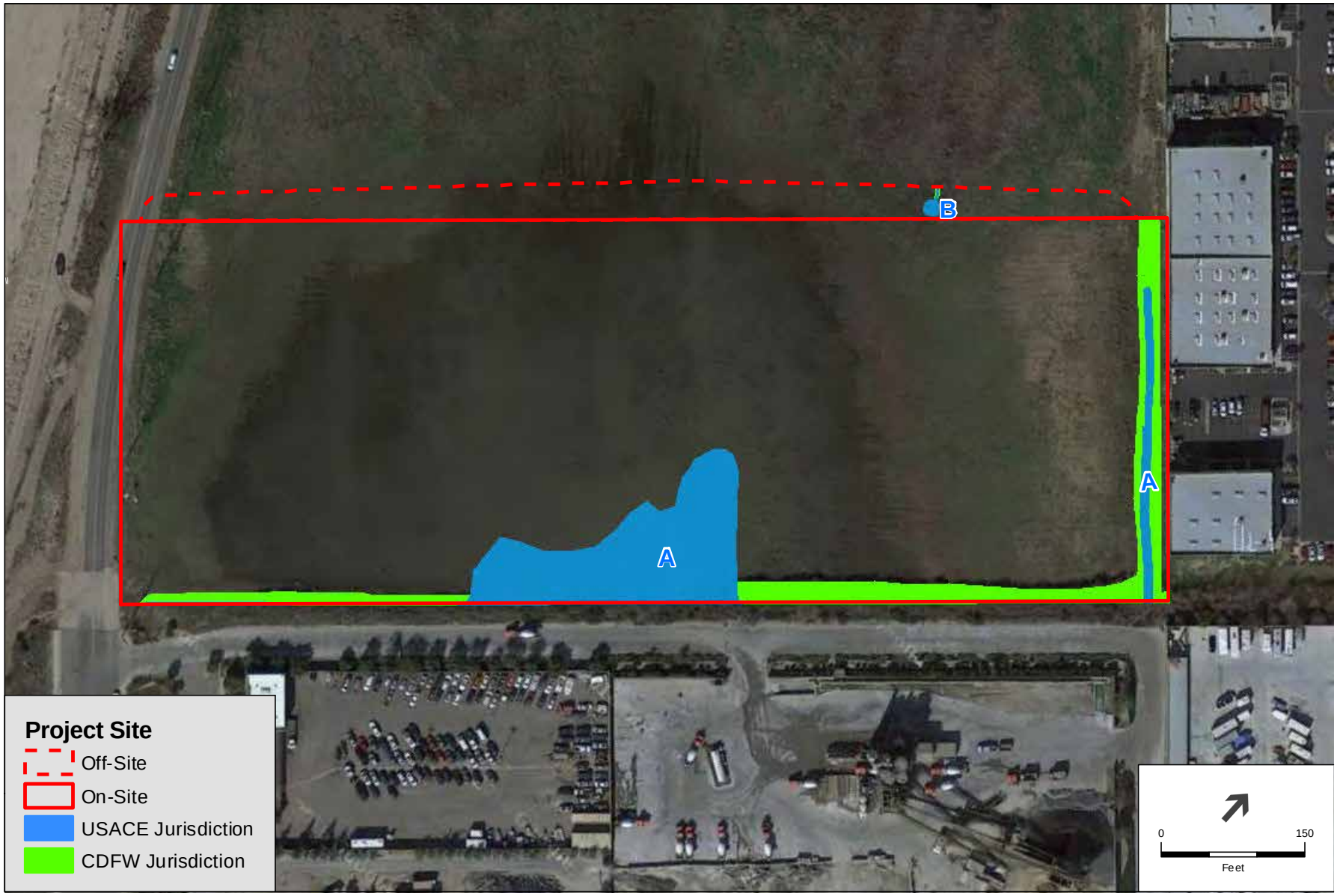
2

Source: Google Maps 2016; ESA PCR Services Corporation, 2016.

FIGURE

FINIUM ENVIRONMENTAL

Plant Communities 3



Source: Google Maps 2015; ESA PCR Services Corporation, 2016.

FIGURE

Jurisdictional Waters

4

FINIUM ENVIRONMENTAL

Source: Google Maps 2015; ESA PCR Services Corporation, 2016; FINIUM, 2016.

FINIUM ENVIRONMENTAL

Ponding Areas and Photo Locations

FIGURE 5

Photo CD_01_07122016. Ponding Area 1. Photo taken from the northwestern corner looking southeast down the center of the feature.

Photo CD_02_07122016. Ponding Area 1. Photo taken from the southeastern corner looking northwest up the center of the feature.

Photo CD_03_07122016. Ponding Area 2. Photo taken from the northern corner looking south down the center of the feature.

Photo CD_04_07122016. Ponding Area 2. Photo taken from the southeastern corner looking northwestern up the center of the feature.

Source: FINIUM Environmental, 2016.

FINIUM ENVIRONMENTAL

Ponding Area Photos

FIGURE 6a

Photo CD_05_07122016. Ponding Area 2. Photo taken from the southern corner looking north up the center of the feature.

Photo CD_06_07122016. Ponding Area 2. Photo taken from the western corner looking east up the center of the feature.

Source: FINIUM Environmental, 2016.

FINIUM ENVIRONMENTAL

FIGURE

Ponding Area Photos

6b

APPENDIX A

RESULTS OF DRY SEASON ANALYSIS OF SOIL SAMPLES

The University of Kansas

Kansas Biological Survey

2 September 2016

Crysta Dickson
Finium Enterprises
222 West Mariposa
San Clemente, CA 92672

SUBJECT: Results of Analyses of Soil Samples Collected from a proposed project site in Murietta, Riverside County, California.

Dear Ms. Dickson,

Finium Enterprises conducted a dry season survey of potential special status shrimp habitats at a proposed project site in Murietta, Riverside County, CA. Soil samples were collected from 2 previously identified habitats judged to be suitable for special status shrimp species. No anostracan eggs were found in the soils samples.

Kansas Biological Survey understands that Finium Enterprises will submit this report and all other pertinent materials and information to the US Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (DFW), as required by the USFWS guidelines for a protocol level survey.

Definitions

For the purpose of this report, special status shrimp are defined to include shrimp species listed as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR 17.11 for listed animals and various Federal Register notices for proposed species). Two special status fairy shrimp species (*Streptocephalus woottoni* and *Branchinecta sandiegonensis*) have the potential to occur at the proposed project site. In addition, one non listed fairy shrimp species (*Branchinecta lindahli*) is known from the proposed project vicinity.

Methods

Finium Enterprises staff collected soil samples from two potential special status shrimp habitats at the proposed project site. The samples from each site were labeled with the locality number, and taken to the Kansas Biological Survey laboratory for analysis. All potential habitats sampled were identified according to the numbers assigned to them in the field, and recorded on a base map.

The University of Kansas

Laboratory Analysis

Soil samples were prepared for examination in the laboratory by dissolving the clumps of soil in water and sieving the material through 300- and 150- µm pore size screens. The small size of these screens ensures that the eggs from the shrimp species will be retained. The portion of each sample retained in the screens was dissolved in a brine solution to separate the organic material from the inorganic material. The organic fraction was then examined under a microscope.

Results

No potential special status shrimp eggs were found in and of the samples

These analyses are insufficient by themselves to determine that special status shrimp are absent from habitats on this site. The results of this survey must be combined with a protocol wet season survey, and concurrence must be sought from the USFWS before any additional determinations can be made.

If you have any questions please call me.

Sincerely,

D. Christopher Rogers
785.864.1714
Crustacean Taxonomist and Ecologist
Kansas Biological Survey
Central Plains Center for Bioassessment
Kansas University, Higuchi Hall
2101 Constant Avenue, Lawrence, KS 66047-3759 USA

APPENDIX B

USFWS DATA SHEET FOR DRY SEASON SAMPLE ANALYSIS FOR LISTED LARGE BRANCHIOPODS

Appendix 2. U.S. Fish and Wildlife Service – Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods

Project Information		Biologist Information
Project Name: Omdahl	Quad: Murrieta	Name of Person(2) Who Conducted the Following Tasks and Permit Number(s):
USFWS Project Number:	Township: N/A	Soil Collection: Crysta Dickson (TE 067347-5)
County: Riverside	Range: N/A	Soil Processing: D. Christopher Rogers, Kansas University Survey
Lat:	Section: Unsectioned	Soil Analysis/Cysts ID: D. Christopher Rogers, Kansas University Survey
Long:		Soil Collection Date: July 12 and 13, 2016

	Invertebrates Present (X)															
						Number of Large Branchiopod Cysts										
Pool/ Habitat/ Basin No.	Insect Exo-Skeletons	Micro-Turbellaria Cysts	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Copepods Live/Cysts	*Branchinecta* sp.	*Lepidurus packardi*	*Streptocephalus wootoni*	*Linderiella occidentalis*	*Lynceus brachyurus*	*Cyzicus californicus*	Hydracarina Live	Nematoda	Collembola	Other Species	Comments
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Appendix F

Wet Season Fairy Shrimp Focused Survey Report

FINIUM ENVIRONMENTAL

April 26, 2017

Ms. Stacey Love
Recovery Permits Coordinator
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: RESULTS OF WET SEASON FAIRY SHRIMP SURVEYS FOR THE OMDAHL MURRIETA (APN'S 909-060-038 AND 909-060-044) PROJECT SITE LOCATED IN THE CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA

Dear Stacey:

This report is prepared in compliance with the conditions of authorized permit issued under Section 10(a)(1)(A) of the federal Endangered Species Act to Crysta Dickson (TE067347-5) to conduct wet season surveys for vernal pool branchiopods (fairy shrimp) on the Omdahl Project Site ("project site") located in Riverside County, California. The wet season survey protocol followed the May 31, 2015 U.S. Fish and Wildlife Service (USFWS) *Survey Guidelines for the Listed Large Branchipods.*[1] A 15-day notification was sent to the USFWS on December 5, 2016. Authorization to commence wet season surveys was received from USFWS representative Stacey Love on December 20, 2016.[2] Wet season survey results for listed fairy shrimp species were negative.

PROJECT SITE LOCATION

The approximately 10.88-acre project site (10.07 acres on-site and 0.81 acre off site) is located off Adams Avenue, just southeast of the intersection of Adams Avenue and Fig Street and approximately 0.75 mile southwest of the Interstate 15/Interstate 215 (I-15/I-215) in the City of Murrieta, Riverside County, California as shown on **Figure 1**, *Regional Map*. The project site can be found in an unsectioned portion of the U.S. Geological Survey (USGS) 7.5' Murrieta (USGS 1953) topographic quadrangle map, as shown in **Figure 2**, *USGS Topographic Map*.

Elevations within the project site range from approximately 1,040 feet above mean sea level (MSL) in the southwestern portion to approximately 1,055 feet above MSL in the eastern portion of the project site. Surrounding land uses immediately adjacent to the project site include the Murrieta Valley Pony Baseball athletic fields to the northwest, Murrieta Creek to the southwest, and industrial development to the northeast and southeast.

[1] USFWS. 2015. Survey Guidelines for the Listed Large Branchiopods. May 31.
[2] Email communication between Crysta Dickson and Stacey Love of USFWS, December 20, 2016.

PROJECT SITE DESCRIPTION

The project site supports a mixture of native and hydrophytic vegetation including black willow thicket, tarplant field, western ragweed meadow, and non-native vegetation, such as annual brome grassland, foxtail barley patches, and swamp timothy sward (**Figure 3**, *Plant Communities*). The northwestern and western portion of the project site supports developed areas associated with Adams Avenue.

The project site supports two drainages observed to support field indicators associated with U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) (collectively "the resource agencies") jurisdictional waters, referred to in this report as Drainages A and B (**Figure 4**, *Jurisdictional Waters*). The water flow within the drainages is primarily supported by runoff from the adjacent developments. However, due to significant alterations to the drainage courses because of nearby developments, the drainages have been disconnected hydrologically from Murrieta Creek. As a result, water flowing onto the project site becomes impounded, creating a large ponding area in the center and along the eastern boundary of the project site. The two ponding areas (referred to in this report as Ponding Areas 1 and 2) were determined to potentially support listed fairy shrimp habitat based on the presence of water which stays inundated on the site for short periods of time during and following rain events (**Figure 5**, *Ponding Areas and Photo Locations*). These ponding features are mostly contained within the 10.88-acre project site; however, potions of the northwestern extents of each feature occur in areas outside of the project site. All portions of each feature, on and off-site, supporting suitable habitat were sampled during each survey.

Ponding Areas 1 and 2, which were created as a direct result of man-made alterations to the landscape total approximately 0.22 acre and 6.92 acres, respectively. Ponding Area 1, which is located along the eastern boundary of the project site is characterized as a shallow, linear swale-like feature that is approximately 495 linear feet long. This feature, which was once part of a USGS Blueline stream alignment has since been disconnected from it's historical upstream flows. This feature is currently fed from a drainage feature (Drainage A) that enters the project site at the southeast corner of the project site. The flows backflow and impound into this feature causing ponding.

Ponding Area 2 is also fed from flows that enter the project site from the southeast corner of the project site (Drainage A) as well as presumed sheet flows from Drainage B. Historically, flows from both Drainages would move across the project site and into Murrieta Creek, which is located to the southwest of the project site. However, due to the development to the south and road improvements to Adams Avenue, flows became impounded onto the project site. This created a large ponding area that encompasses most the central portion of the project site. Like Ponding Area 1, this feature becomes inundated with water during and for short periods of time after rain events. Both ponding features are highly disturbed, show evidence of tire tracks and frequent disking.

METHODOLOGY

The wet season surveys followed the May 31, 2015 USFWS *Survey Guidelines for the Listed Large Branchipods.*[3] As such, a 15-day notification was sent to the USFWS on December 5, 2016. Authorization to commence wet season surveys was received from USFWS representative Stacey Love on December 20, 2016.[4] Wet season surveys were conducted from December 21, 2016 through April 19, 2017 by permitted biologist Crysta Dickson (TE-067347-5). Biologist Barry Nerhus assissted with surveys on February 8, 15, and 22; March 22 and April 5, 2017.

RESULTS

Ponding Area 1

Ponding Area 1 first became inundated in accordance with USFWS survey guidelines on December 18, 2016 after receiving 2.56 inches of accumulated wet season rains.[5] Wet season sampling for this feature was initiated on December 21, 2016 and continued every week through March 8, 2017, until this feature dried up completely. This feature remained moderately shallow during all sampling efforts, averaging approximately 7 cm deep. The max depth was recorded at approximately 30 cm on January 11 and March 1, 2017. The maximum surface area for this feature was approximately 1,500 m^2. In January, after receiving more than 5 inches of accumulated rain for the month, this feature was observed to connect with Ponding Area 2 via Larchmont Channel. In February, this feature became moderately turbid forming a thick algal mat along its bottom. Towards the end of the ponding cycle, this ponding feature was observed to become stagnant and odorous. No fairy shrimp were observed in this feature during wet season surveys. However, other crustaceans observed during surveys included Copepods, Ostracods and Cladoceras. Aquatic insects observed included Coleopterans, Hemipterans, *Dipeta culicidae* and *Diptera chironomidae*. No amphibian species were observed in this feature. Vegetation observed within and immediately adjacent to this feature included California plantain (*Plantago erecta*), English plantain (*Plantago lanceolate*), red maids (*Calandrinia menziesii*), small flowered fiddleneck (*Amsinckia meniesii*), pineapple weed (*Matricaria discoidea*), pigmy weed (*Crassula aquatic*), umbrella sedge (*Cyperus squarrosus*), common sunflower (*Helianthus annuus*), western ragweed (*Ambrosia psilostachya*), shortpod mustard (*Hirschfeldia incana*). Russian thistle (*Salsola tragus*), curly dock (*Rumex crispus*), brome grass (*Bromus* sp.), purple nutsedge (*Cyperus rotundus*), rough cocklebur (*Xanthium strumarium*), mulefat (*Baccharis salicifolia*), smooth tarplant (*Centromadia pungens ssp. laevis*), bur clover (*Medicago polymorpha*), Canadian horseweed (*Erigeron canadensis*), jimson weed (*Datura wrightii*) and ripgut grass (*Bromus diandrus*).

[3] USFWS. 2015. Survey Guidelines for the Listed Large Branchiopods. May 31.
[4] Email communication between Crysta Dickson and Karin Cleary-Rose of USFWS, July 8, 2016.
[5] www.accuweather.com accessed on April 25, 2017 for Murrieta, CA.

Details on the data collected during each survey for Ponding Area 1, including water chemistry, ponding characteristics and weather conditions can be found in **Table 1**, *Ponding Area 1 Survey Data*. Representative Photographs of Ponding Area 1 can be found in **Figure 6a**, *Ponding Area 1 Photos*.

Table 1
Ponding Area 1 Survey Data

Survey Date	12/21/16	12/28/16	1/4/17	1/11/17	1/18/17	1/25/17	2/1/17	2/8/17	2/15/17	2/22/17	3/1/17	3/8/17	3/15/17	3/22/17	3/29/17	4/5/17	4/12/17	4/19/17
Air Temp (C)	14	24	18	15	17	15	23	22	26	11	21	29	31	19	28	21	21	21
Cloud Cover (%)	100	0	80	90	100	10	30	80	0	40	0	5	5	75	0	0	0	0
Wind (mph)	0-1	0-1	2-3	2-5	0-1	0-1	2-3	0-1	0-1	2-3	0-1	0-1	0-1	2-3	0-1	0-1	0-1	0-1
Water Temp (C)	14	24	22	21	21	18	20	22	22	21	20	27	-	-	-	-	-	-
Avg. Water Depth (cm)	5	10	10	10	7	7	7	12	5	10	20	10	-	-	-	-	-	-
Surface Area (m^2)	300	1170	300	1500	1500	1500	1500	1100	1070	18	1500	300	-	-	-	-	-	-
pH	6.8	9.1	9.3	9.0	8.7	7.8	-	9.2	7.8	8.9	7.3	8.8	-	-	-	-	-	-
Conductivity	4	53	62	46	73	98	-	182	105	69	50	105	-	-	-	-	-	-
Total Dissolved Solids	3	38	43	33	52	69	-	130	74	45	38	75	-	-	-	-	-	-
Salinity	2.38	0.03	0.03	0.02	0.04	0.05	-	0.09	0.05	0.03	0.03	0.05	-	-	-	-	-	-

Source: FINIUM Environmental, 2017

Ponding Area 2

Ponding Area 2 first became inundated in accordance with USFWS survey guidelines on December 18, 2016 after receiving 2.56 inches of accumulated wet season rains.[6] Wet season sampling for this feature was initiated on December 21, 2016 and continued every week through April 12, 2017 until this feature dried up completely. This feature remained moderately deep, at 76 cm, with areas along the southern extents reaching 101 cm during most of the sampling efforts. The maximum surface area for this feature was approximately 38,700 m^2. This feature was documented as being a moderately turbid feature with a thick mat of dead vegetation along its bottom. Towards the end of the

[6] www.accuweather.com accessed on April 25, 2017 for Murrieta, CA.

ponding cycle for this feature it was observed to become stagnant and odorous. No fairy shrimp were observed in this feature during wet season surveys. However, other crustaceans observed during surveys included Copepods, Ostracods and Cladocerans. Aquatic insects observed included Coleopterans, Hemipterans, *Dipeta culicidae* and *Diptera chironomidae*. Amphibian species observed included western toad (*Bufo boreas*) tadpoles and toadlets, western spadefoot toad (*Spea hammondii*) tadpoles and toadlets and African clawed frog (*Xenopus laevis*) tadpoles. Also observed were mosquito fish (*Gambusia affinis*).

Vegetation observed within and immediately adjacent to this feature included dead mats of cocklebur and southern tarplant along its bottom. As this feature dried down, emergent grasses and herbs were observed. Details on the data collected during each survey for Ponding Area 2, including water chemistry, ponding characteristics and weather conditions can be found in **Table 2**, *Ponding Area 2 Survey Data*. Representative Photographs of Ponding Area 1 can be found in **Figures 6a and 6b***, Ponding Area 2 Photos*.

Table 2
Ponding Area 2 Survey Data

Survey Date	12/21/16	12/28/16	1/4/17	1/11/17	1/18/17	1/25/17	2/1/17	2/8/17	2/15/17	2/22/17	3/1/17	3/8/17	3/15/17	3/22/17	3/29/17	4/5/17	4/12/17	4/19/17
Air Temp (C)	14	24	18	15	17	15	23	22	26	11	21	29	31	19	28	21	21	21
Cloud Cover (%)	100	0	80	90	100	10	30	80	0	40	0	5	5	75	0	0	0	0
Wind (mph)	0-1	0-1	2-3	2-5	0-1	0-1	2-3	0-1	0-1	2-3	0-1	0-1	0-1	2-3	0-1	0-1	0-1	0-1
Water Temp (C)	13	20	19	18	17	18	19	24	24	23	22	25	21	21	24	31	25	-
Avg. Water Depth (cm)	15	76	76	76	76	76	76	76	76	60	80	25	15	15	15	10	10	-
Surface Area (m^2)	5880	38700	7000	7500	38700	38700	38700	38700	38700	38700	38700	20900	15000	3600	2800	4125	1350	-
pH	7.0	6.8	7.0	7.5	7.3	7.3	7.5	7.5	7.3	7.6	7.4	8.1	8.5	9.0	7.9	7.4	8	-
Conductivity	303	120	192	212	189	128	162	180	186	117	102	104	117	132	131	198	203	-
Total Dissolved Solids	164	87	138	149	134	90	113	128	135	86	74	79	83	101	93	136	14	-
Salinity	0.15	0.06	0.1	0.1	0.09	0.06	0.08	0.09	0.09	0.06	0.05	0.06	0.06	0.08	0.07	0.1	0.1	-

Source: FINIUM Environmental, 2017

Terrestrial vertebrate species observed included red-tailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), northern shoveler (*Anas clypeata*), western kingbird (*Tyrannus verticalis*), American kestrel (*Falco sparverius*), great egret (*Ardea alba*), Wilson's snipe (*Gallinago delicata*), white-crowned sparrow (*Zonotrichia leucophrys*), American crow (*Corvus brachyrhynchos*), mallard (*Anas platyrhynchos*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), double-crested cormorant (*Phalacrocorax auritus*), loggerhead shrike (*Lanius ludovicianus*), black-necked stilts (*Himantopus mexicanus*), killdeer (*Charadrius vociferus*), song sparrow (*Melospiza melodia*), white-faced ibis (*Plegadis chihi*), cinnamon teal (*Anas cyanoptera*) and cottontail rabbit (*Sylvilagus audubonii*).

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

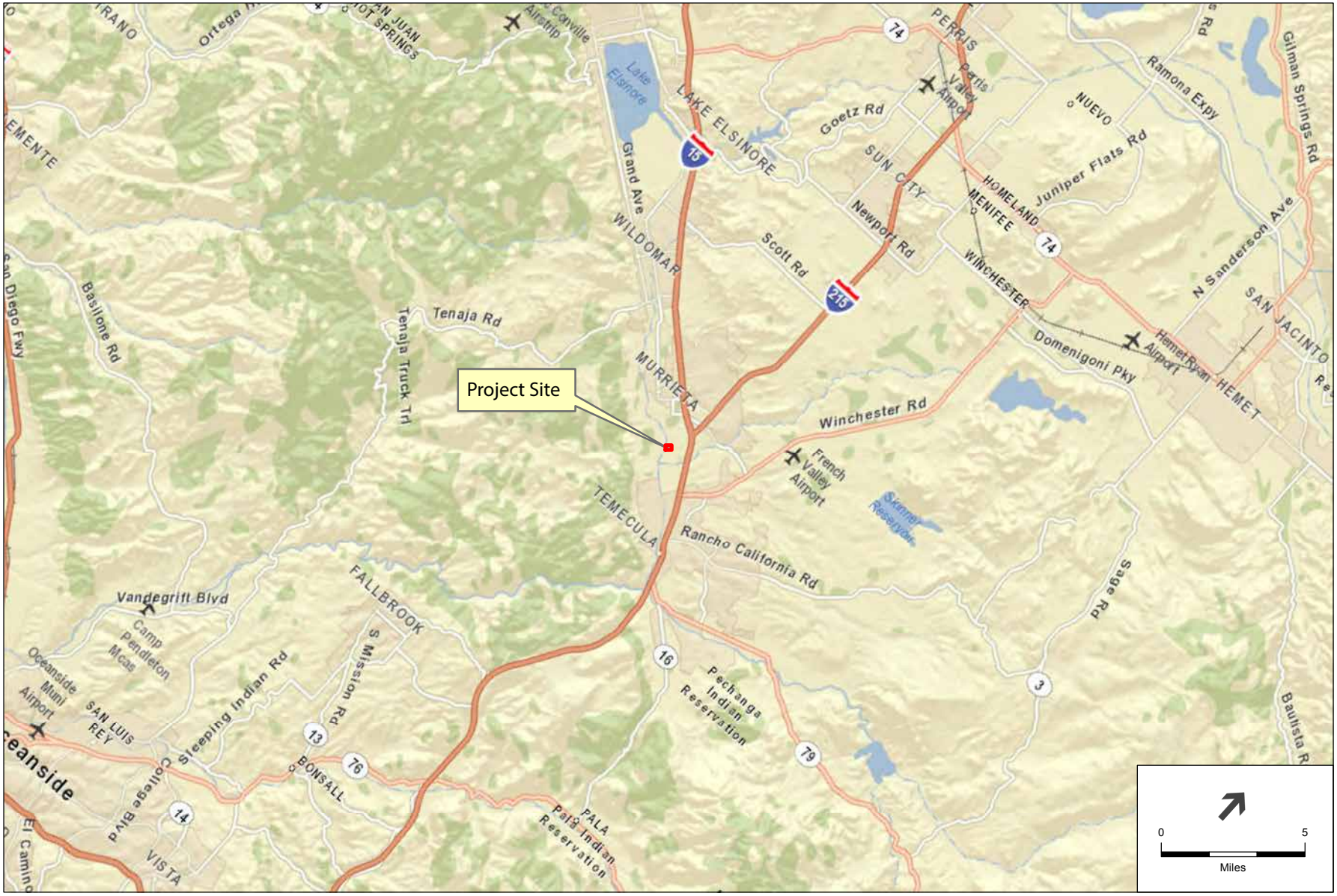
Feel free to contact me at crysta@finiumenvironmental.com or 949-292-7135 should you have any questions or concerns regarding this notification.

Sincerely,
FINIUM ENVIRONMENTAL

Signature:___ _____ Date:__26 April 2017_____
Crysta Dickson (TE-067347-5)

Attachments:
Figure 1: Regional Map
Figure 2: USGS Topographic Map
Figure 3: Plant Communities
Figure 4: Jurisdictional Waters
Figure 5: Ponding Areas and Photo Locations
Figure 6a: Ponding Area Photos
Figure 6b: Ponding Area Photos
Appendix a: USFWS - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Cc: Karin Cleary-Rose, USFWS



Source: ESRI Street Map, 2009; ESA PCR Services Corporation, 2016; FINIUM, 2016.

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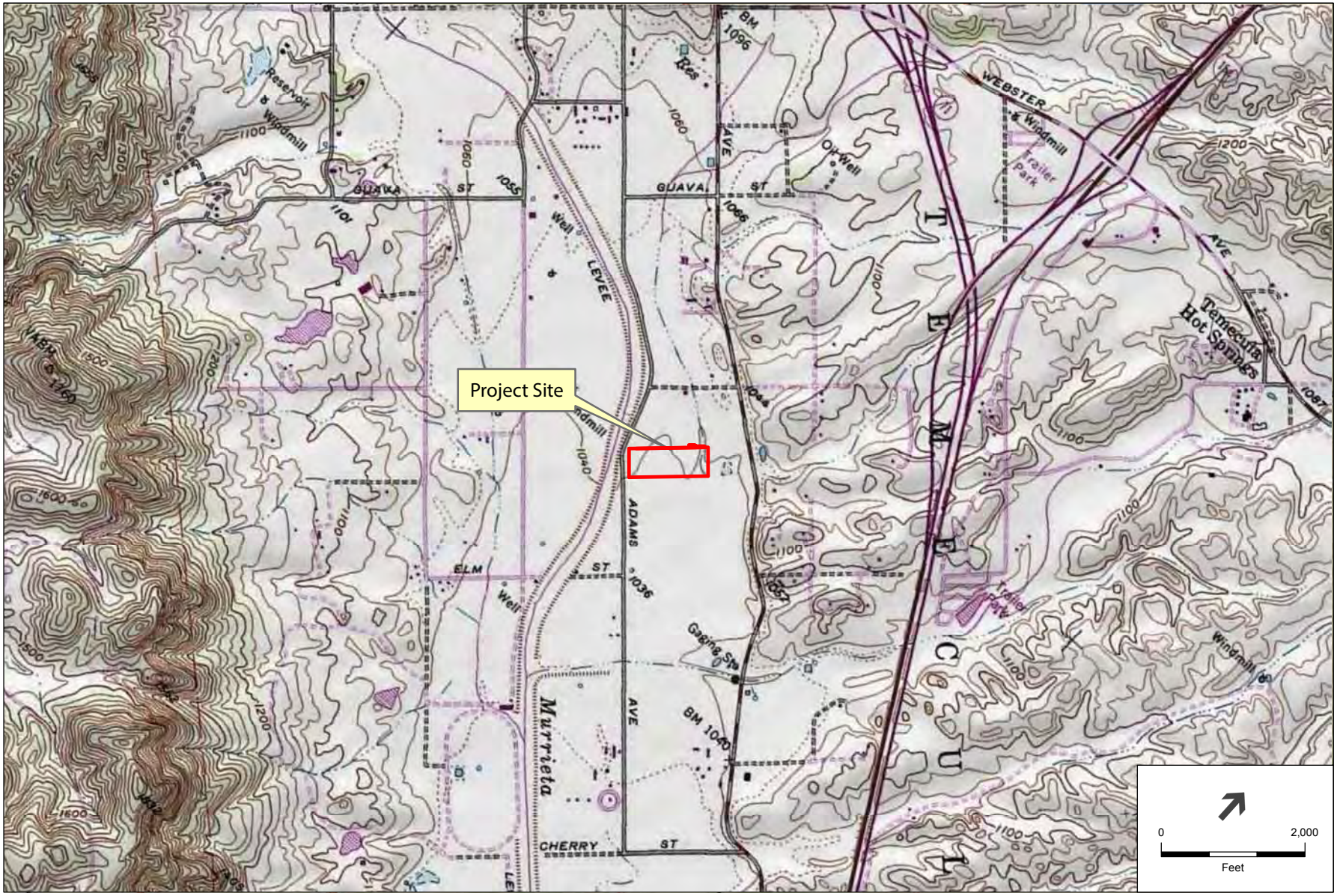
FIGURE

Regional Map 1



Source: USGS Topographic Series (Murrieta, CA); ESA PCR Services Corporation, 2016; FINIUM, 2016.

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USGS Topographic Map

FIGURE 2

Source: Google Maps 2016; ESA PCR Services Corporation, 2016.

FIGURE

Plant Communities 3

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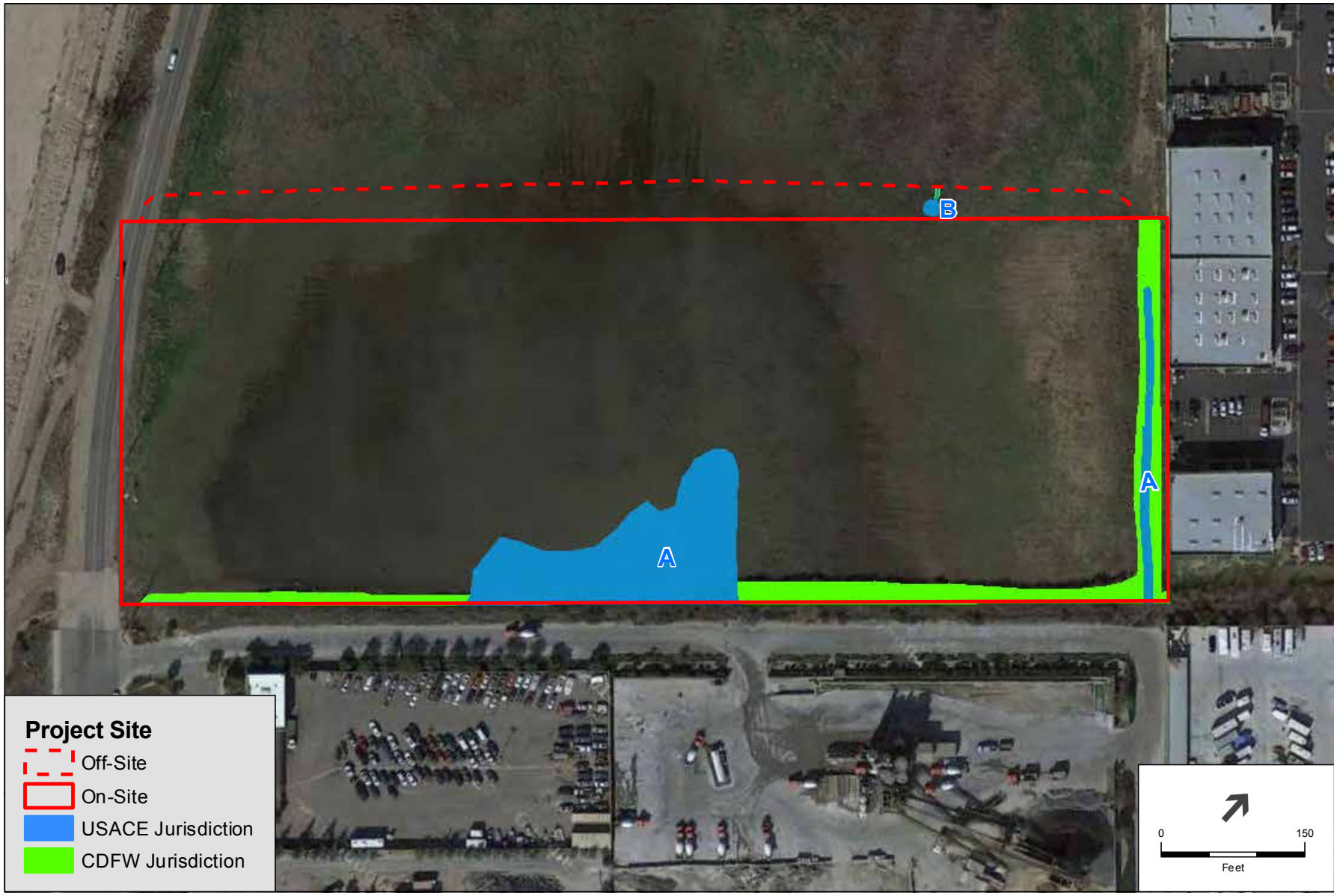

Source: Google Maps 2015; ESA PCR Services Corporation, 2016.

FIGURE

Jurisdictional Waters 4

FINIUM ENVIRONMENTAL

Source: Google Maps 2015; ESA PCR Services Corporation, 2016; FINIUM, 2016.

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Ponding Areas and Photo Locations

FIGURE 5

Photo CD_01_020817. Ponding Area 1. Photo taken from photo location 1 from the northwestern corner looking southeast down the center of the feature.

Photo CD_02_020817. Ponding Area 1. Photo taken from photo location 2 from the southeastern corner looking northwest up the center of the feature.

Photo CD_03_030117. Ponding Area 1. Photo taken from photo location 2 looking south where feature hydrologically connected with Larchmont Channel.

Photo CD_04_032217. Ponding Area 1. Photo taken from photo location 1 looking south down center of feature after it had completely dried up .

Source: FINIUM Environmental, 2017.

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FIGURE

Ponding Area 1 Photos 6a

Photo CD_05_122816. Ponding Area 2. Photo taken from photo location 3 looking southwest down the center of the feature.

Photo CD_06_122816. Ponding Area 2. Photo taken from photo location 4 looking northwest the up center of the feature.

Photo CD_07_122816. Ponding Area 2. Photo taken from photo location 5 looking northeast up the center of the feature.

Photo CD_08_122816. Ponding Area 2. Photo taken from photo location 6 looking south down the center of the feature.

Source: FINIUM Environmental, 2017.

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FIGURE

Ponding Area 2 Photos 6b

APPENDIX A

USFWS DATA SHEET FOR WET SEASON SAMPLE ANALYSIS FOR LISTED LARGE BRANCHIOPODS

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riv. | **Quad:** Murrieta | **Township:** | **Range:** unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 12/21/16 | **Time:** 1100-120 | **Weather Conditions:** 60°F w/rain / 0-1 mph (intermittent showers)

Feature ID #	UTM (Northing, Easting, Datum) LAT/LONG	Temp (°C) Air	Temp (°C) Water	Depth (cm) Average	Depth (cm) Est. Max.	Surface Area ~~(m x m)~~ Present	Surface Area ~~(m x m)~~ Est. Max.	Crustaceans: Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Insects: Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae	Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
PA1	33.5373 -117.1855	~~58~~ 14	14.8	5	15	60x5	180x10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/TT/P	NO FS
PA2	33.5360 -117.1867	14	13	15	25	60x98	180x215	Ø	Ø	X	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP/D/TT	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** Unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 12/28/16 | Time: 145-400 | Weather Conditions: 78° / 0% cc / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT/LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	24	24.6	10	20	130 x 9	150 x 10	Ø	Ø	X	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	24	20	76	101	180 x 215	180 x 215	Ø	Ø	X	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** Unsectioned

SURVEYOR / Permit Number: TE067347-5

Date: 1/4/17 | Time: 1245-300 | Weather Conditions: 66° / 80% cc / 2-3 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	18	22.4	10	20	60 x 5	150 x 10	Ø	Ø	X	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	18	19.6	76	101	70 x 100	180 x 215	Ø	Ø	X	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** Unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 1/11/17 | Time: 230 – 400 | Weather Conditions: 60° / 90% cc / 2-5 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	15	21.5	10	30	150 x 10	150x 10	Ø	Ø	X	X	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	15	18.5	76	101	75x 100	180x 215	Ø	Ø	X	X	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** Unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 1/18/17 | Time: 1100 – 100 | Weather Conditions: 63° / 100% cc / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	17	18.6	37	15	150x 10	150x 10	Ø	Ø	Ø	X	X	Ø	Ø	X	X	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	17	17.9	76	101	150x 215	180x 215	Ø	Ø	Ø	X	X	Ø	Ø	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** Unsectioned | **Range:** | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 1/25/17 | Time: 1115-115 | Weather Conditions: 59° / 10% cc / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	15	18.6	7	15	150x 10	150x 10	Ø	Ø	Ø	X	X	Ø	Ø	X	X	Ø	CP D/π/P	NO FS
PA2	33.5360 -117.1867	15	18.7	76	101	180x 215	180x 215	Ø	Ø	Ø	X	X	Ø	Ø	Y	X	Ø	CP D/π/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** | **Township:** | **Range:** Unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 2/1/17 | Time: 1015 – 1230 | Weather Conditions: 74° / 30% / 2-3 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 117.1855	23	20	7	15	150 x 10	150 x 10	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/TT/P	NO FS
PA2	33.5360 117.1867	23	19.9	76	101	180 x 215	180 x 215	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/TT/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** | **Township:** Unsectioned | **Range:** | **Section:**

SURVEYOR / Permit Number: TE067347-5 (B. Nervus assisted)

Date: 2/8/17 | Time: 1030-1230 | Weather Conditions: 72°/80% cc/0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	22	22.4	12	15	150x 10	150x 10	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	22	24.8	76	101	180x 215	180x 215	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl **County:** Riverside **Quad:** **Township:** Unsectioned **Range:** **Section:**

SURVEYOR / Permit Number: TE067347-5 (B. Nernus assisted)

Date: 2/15/17 Time: 1030-1200 Weather Conditions: 79° / 0% / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	26	22.5	5	10	107x 10	150x 10	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	26	24.4	76	101	180x 215	180x 215	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** | **Township:** | **Range:** | **Section:**

SURVEYOR / Permit Number: TE067347-5 (B. Nervus assisted)

Date: 2/22/17 | Time: 1100 – 1250 | Weather Conditions: 59° / 40% cc / 2-3 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	11	21.3	10	20	6X3	150X 10	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/π/P	NO FS
PA2	33.5360 -117.1867	11	23.7	60	90	180X 215	180X 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/π/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** Unsectioned | **Range:** | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 3/1/17 | Time: 1100 – 130 | Weather Conditions: 71°/0%/0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT/LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1 –	33.5373 117.1855	21	20.5	20	30	150x 10	150x 10	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/TT/P	NO FS
PA2 –	33.5360 117.1867	21	22.2	80	90	150x 215	150x 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/TT/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Ordahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** Unsectioned

SURVEYOR / Permit Number: TE067347-5

Date: 3/8/17 | Time: 1015-1230 | Weather Conditions: 85° / 5% / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT/LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	29	27	10	15	60X5	150X10	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS
PA2	33.5360 -117.1867	29	25.7	25	40	110X190	180X215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** Unsectioned

SURVEYOR / Permit Number: TE067347-5

Date: 3/15/17 | Time: 1000-1230 | Weather Conditions: 88° / 5% / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	31	Ø	Ø	Ø	Ø	150x 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP/ D/T/P	DRY
PA2	33.5360 -117.1867	31	21.4	15	30	100x 150	180x 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** unsectioned

SURVEYOR / Permit Number: TE067347-5 (B. Nerhus assisted)

Date: 3/22/17 | Time: 940 - 1145 | Weather Conditions: 67° / 75% cc / 2-3 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT/LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	19	Ø	Ø	Ø	Ø	150X 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/TT/P	DRY
PA2	33.5360 -117.1867	19	21.4	15	30	90X 40	180X 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/TT/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl **County:** Riverside **Quad:** Murrieta **Township:** **Range:** **Section:** unsectioned

SURVEYOR / Permit Number: TE067347-5 (B. Nernup assisted)

Date: 3/29/17 Time: 1100 - 1000 Weather Conditions: 84° / 0% / 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	28	Ø	Ø	Ø	Ø	150x 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	DRY
PA2	33.5360 -117.1867	28	24.1	15	30	30x 35	180x 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** Unsectioned

SURVEYOR / Permit Number: TE067347-5 (B. Nerhus assisted)

Date: 4/5/17 | Time: 1200-100 | Weather Conditions: 70°/ 0%/ 0-1 mph

Feature ID #	~~UTM (Northing, Easting, Datum)~~ LAT/ LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	21	Ø	Ø	Ø	Ø	150 x 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	DRY
PA2	33.5360 -117.1867	21	31	10	20	75 x 55	180 x 215	Ø	Ø	Ø	X	X	Ø	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** Unsectioned | **Section:**

SURVEYOR / Permit Number: TE067347-5

Date: 4/12/17 | Time: 1050 - 1200 | Weather Conditions: 71° / 0% cc / 0-1 mph

Feature ID #	~~UTM~~ (~~Northing, Easting, Datum~~) LAT / LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	21	Ø	Ø	Ø	Ø	150X 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/T/P	DRY
PA2	33.5360 -117.1867	21	~~25~~	~~10~~	~~20~~	30X 45	180X 215	Ø	Ø	Ø	X	X	X	X	X	X	Ø	CP D/T/P	NO FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Omdahl | **County:** Riverside | **Quad:** Murrieta | **Township:** | **Range:** | **Section:** Unsectioned

SURVEYOR / Permit Number: TE067347-5

Date: 4/19/17 | Time: 115-200 | Weather Conditions: 71° / 0% cc / 0-1 mph

Feature ID #	~~UTM~~ (~~Northing, Easting, Datum~~) LAT/LONG	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
PA1	33.5373 -117.1855	21	~~0~~	~~0~~	~~0~~	~~0~~	150x 10	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	TT/D/P CP	DRY
PA2	33.5360 -117.1867	21	~~0~~	~~0~~	~~0~~	Ø	180x 215	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	CP D/TT/P	DRY

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix GF

Burrowing Owl Focused Survey Report

ESA PCR

2121 Alton Parkway
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Irvine, CA 92606
949.753.7001 phone
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July 28, 2016

Mr. Howard Omdahl
Larchmont Park, LLC
P.O. Box 845
Temecula, CA 92593

Subject: Results of Focused Burrowing Owl Surveys for the 20-acre Larchmont Park Project, City of Murrieta, Riverside County, California

Dear Mr. Omdahl:

This report summarizes the methodology and findings of focused burrowing owl (*Athene cunicularia*) (BUOW) surveys conducted by **ESA PCR** for approximately 20-acre Larchmont Park project comprised of two parcels with Assessor's Parcel Numbers (APNs) 909-060-038 and 909-060-044 (project site) proposed for commercial development. The project site is located off of Adams Avenue, just southeast of the intersection of Adams Avenue and Fig Street in the City of Murrieta, Riverside County, California. The surveys encompassed the project site and a 500-foot survey buffer surrounding the perimeter of the project site where suitable habitat was present. The surveys were conducted in accordance with the County of Riverside's 2006 *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*.[1]

Survey Area Description

The project site is generally situated southwest of Interstate 15/Interstate 215 (I-15/I-215) interchange, as shown in **Figure 1**, *Regional Map*. Specifically, the project site is located off of Adams Avenue, just southeast of the intersection of Adams Avenue and Fig Street. The project site is depicted on the U.S. Geological Survey (USGS) 7.5' Sunnymead topographic quadrangle map, Section 27, Township 7 South, Range 3 West, as shown in **Figure 2**, *Vicinity Map*. The topography of the project site is generally flat with elevations on the project site ranging from approximately 1,044 feet above mean sea level (MSL) to approximately 1,047 feet above MSL. Surrounding land uses include commercial development to the south and east; a baseball field to the north; and Murrieta Creek to the west.

Plant Communities

Plant communities found within the project site include black willow thicket, tarplant field, western ragweed meadow, annual brome grassland, annual brome grassland/California cream cup field, annual brome grassland/tarplant field, foxtail barley patch, swamp timothy sward, ruderal, disturbed, disturbed/California buckwheat scrub, and developed. A description of all suitable BUOW habitat surveyed within the project site is presented below.

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1 County of Riverside. 2006. Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area.

Tarplant Field

Tarplant field is dominated by smooth tarplant (*Centromadia pungens ssp. laevis*). Associated species include Baccone's sand spurry (*Spergularia bocconi*), common purslane (*Portulaca oleracea*), curly dock (*Rumex crispus*), Hyssop loosestrife (*Lythrum hyssopifolia*), Persian knotweed (*Polygonum argyrocoleon*), short woollyheads (*Psilocarphus brevissimus*), and western marsh cudweed (*Gnaphalium palustre*). Tarplant field occurs within the southeastern portion of the project and occupies approximately 5.93 acres.

Western Ragweed Meadow

Western ragweed meadow is dominated by western ragweed (*Ambrosia psilostachya*). English plantain (*Plantago lanceolata*) and purple nutsedge (*Cyperus rotundus*) as subdominant species within this plant community. Other associated species include Canadian horseweed (*Erigeron canadensis*), California cream cups (*Platystemon californicus*), foxtail barley (*Hordeum murinum*), foxtail chess (*Bromus madritensis* ssp. *rubens*), Menzies' fiddleneck (*Amsinckia menziesii*), and mule fat (*Baccharis salicifolia*). There is one patch of western ragweed meadow within the northern portion of the project site and comprises approximately 0.44 acre.

Annual Brome Grassland

Annual brome grassland is dominated by ripgut grass (*Bromus diandrus*). Other species observed within this community included foxtail chess, jimson weed (*Datura wrightii*), redstem filaree (*Erodium cicutarium*), and winter vetch (*Vicia villosa*). Annual brome grassland dominants the project site with approximately 8.89 acres.

Annual Brome Grassland/California Cream Cup Field

Annual brome grassland/California cream cup field is dominated by species associated with the annual brome grassland community with California cream cups intermixed in small patches within the annual brome grassland. The California cream cup field is an herbaceous alliance dominated by cream cups, which is a native poppy species. Observed species associated with the California cream cup field component of this community include bur clover (*Medicago polymorpha*), English plantain, miniature lupine (*Lupinus bicolor*), and scarlet pimpernel (*Anagallis arvensis*). Annual brome grassland/California cream cup field is found within a single patch within the eastern portion of the project site and comprises approximately 0.63 acre.

Annual Brome Grassland/Tarplant Field

This plant community is dominated by annual brome grassland with sparsely intermixed patches of tarplant field as a subdominant component. The components of these vegetation communities are consistent with the species described above. Annual brome grassland/tarplant field occurs as a single patch in the southwestern portion of the project site and comprises 0.81 acre.

Foxtail Barley Patch

Foxtail barley patch is dominated by foxtail barley and subdominated by nutsedge species. Other associated species observed within this community include bur clover, Canadian horseweed, common sunflower (*Helianthus annuus*), jimson weed, ripgut brome (*Bromus diandrus*), and rough cocklebur (*Xanthium strumarium*). Foxtail barley patch is located within the eastern portion of the project site and occupies 0.46 acre.

Swamp Timothy Sward

Swamp timothy sward is dominated by swamp timothy (*Crypsis schoenoides*). Associated species observed within this community include common purslane, common sunflower, rough cocklebur, and willow-weed (*Persicaria lapathifolia*). One linear patch of swamp timothy sward is located adjacent to the eastern boundary of the project site, comprising approximately 0.51 acre.

Ruderal

Ruderal vegetation is found in areas heavily disturbed by human activities, such as roadsides, graded fields, and manufactured slopes and is dominated by non-native species. Within the project site, species observed include shortpod mustard (*Hirschfeldia incana*), prickly Russian thistle (*Salsola tragus*), foxtail chess, and London rocket (*Sisymbrium irio*). Ruderal vegetation occurs in one small patch adjacent to Adams Road in the western corner of the project site and occupies approximately 0.24 acre.

Disturbed

Disturbed areas are areas that support little to no vegetation due to excessive human disturbance. Within the project site, there is one large disturbed area along the northwestern boundary. The disturbed area consists of an unpaved, compact road that provides access to the project site. The disturbed area is only sparsely vegetated with non-native species, including foxtail chess, prickly Russian thistle, and shortpod mustard. The disturbed area occupies approximately 1.27 acres.

Disturbed/California Buckwheat Scrub

The disturbed/California buckwheat scrub community is primarily comprised of non-native, exotic species introduced by human activities and disturbances. The disturbed areas are intermixed with remnant patches of California buckwheat scrub, which include species such as California buckwheat (*Eriogonum fasciculatum*), deerweed (*Acmispon glaber*), Jersey cudweed (*Pseudognaphalium luteoalbum*), jimson weed, and mule fat. The disturbed/California buckwheat scrub occurs in a small patch adjacent to Murrieta Creek in the western corner of the project site and comprises approximately 0.23 acre.

Developed

Developed areas include man-made structures, such as roadways and buildings, and are typically unvegetated. Within the project site, the developed area consists of Adams Avenue in the western portion of the project site. Developed areas occupy approximately 0.52 acre.

Methodology

Step I - Habitat Assessment

The surveys were conducted in accordance with the County of Riverside's 2006 *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*.[1] During the Step I Habitat Assessment, suitable habitat was identified on-site during the field survey, including disturbed, low-growing vegetation; bare ground; and small fossorial mammal burrows.

Step II – Locating Burrows and Burrowing Owls

Step II surveys were conducted within the project site plus an approximately 500-foot survey buffer around the project site perimeter. Surveys focused on the detection of small fossorial mammal burrows potentially suitable for BUOW, BUOW burrows, individual BUOW, and any diagnostic sign of their occurrence (e.g., molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance). Off-site areas within the 500-foot survey buffer were surveyed by foot where accessible, or with the use of binoculars in areas which were inaccessible.

Surveys were conducted on June 2, 15, 29 and July 13, 2016 by ESA PCR biologists Amy Lee and Ezekiel Cooley. Surveys consisted of four site visits, on four separate days, and were conducted between one hour prior to and two hours after sunrise during suitable weather conditions. Transects were utilized in all accessible areas, spaced no more than 100 feet apart, to allow for 100 percent visibility (**Figure 3**, *Transect Map*, attached). In addition, observations were made with the use of binoculars. Weather conditions consisted of 0 to 100 percent cloud cover with winds between 0 and 1 mile per hour (mph) and air temperatures ranging from 53° to 72° Fahrenheit. Survey data is presented in **Table 1**, *Survey Data*, below.

TABLE 1
SURVEY DATA

Date	Time	Wind (mph) (start/end)	Temperature (F) (start-end)	Weather (start-end)	Results	Surveyor
06/02/16	0525 – 0710	0-1/0-1	57° – 63°	5% Cloud Cover – 3% Cloud Cover	No BUOW or BUOW sign	Lee
06/15/16	0645 – 0800	0-1/0-1	53° – 56°	100% Cloud Cover – 100% Cloud Cover	No BUOW or BUOW sign	Cooley
06/29/16	0540 – 0720	0-1/0-1	68° – 72°	0% Cloud Cover – 0% Cloud Cover	No BUOW or BUOW sign	Lee
07/13/16	0550 – 0735	0-1/0-1	60°– 65°	0% Cloud Cover – 0% Cloud Cover	No BUOW or BUOW sign	Lee

SOURCE: ESA PCR, 2016.

Results

The survey area is within the Burrowing Owl Survey Area for the Western Riverside County MSHCP. The following results present the findings of the Step I Habitat Assessment and Step II Locating Burrows and Burrowing Owls.

Step I - Habitat Assessment

Results of the Step I, Habitat Assessment concluded that the project site and 500-foot survey buffer exhibited suitable BUOW habitat consisting of disturbed, low-growing vegetation; bare ground; and fossorial mammal burrows.

Step II – Locating Burrows and Burrowing Owls

The Step II surveys did not identify BUOW burrows, BUOW sign or BUOW within the project site or within the 500-foot survey buffer. A complete list of all avian species observed within the project site and 500-foot survey buffer is included in **Appendix A**, *Avian Compendium*, attached.

Recommendations

As required by the MSHCP, a pre-construction survey must be conducted 30 days prior to ground disturbance for project sites whether or not BUOW are found during the focused surveys to avoid the direct take of BUOW.

Should you have any questions concerning the methodology or findings in this report, please contact Amy Lee (a.lee@pcrnet.com) or Ezekiel Cooley (e.cooley@pcrnet.com) at (949) 753-7001.

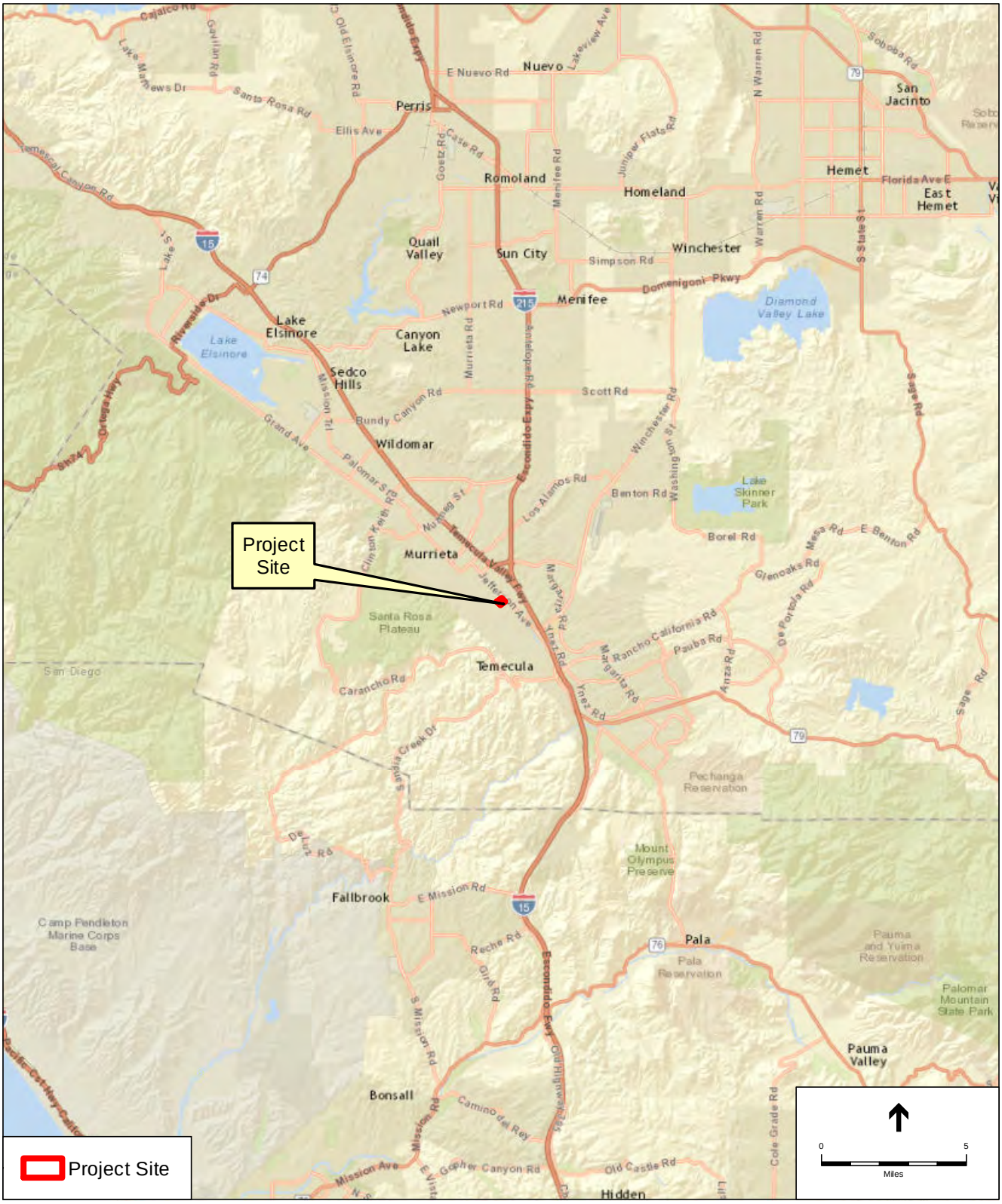
Sincerely,

Amy Lee
Biologist

Ezekiel Cooley
Senior Biologist

Attachments

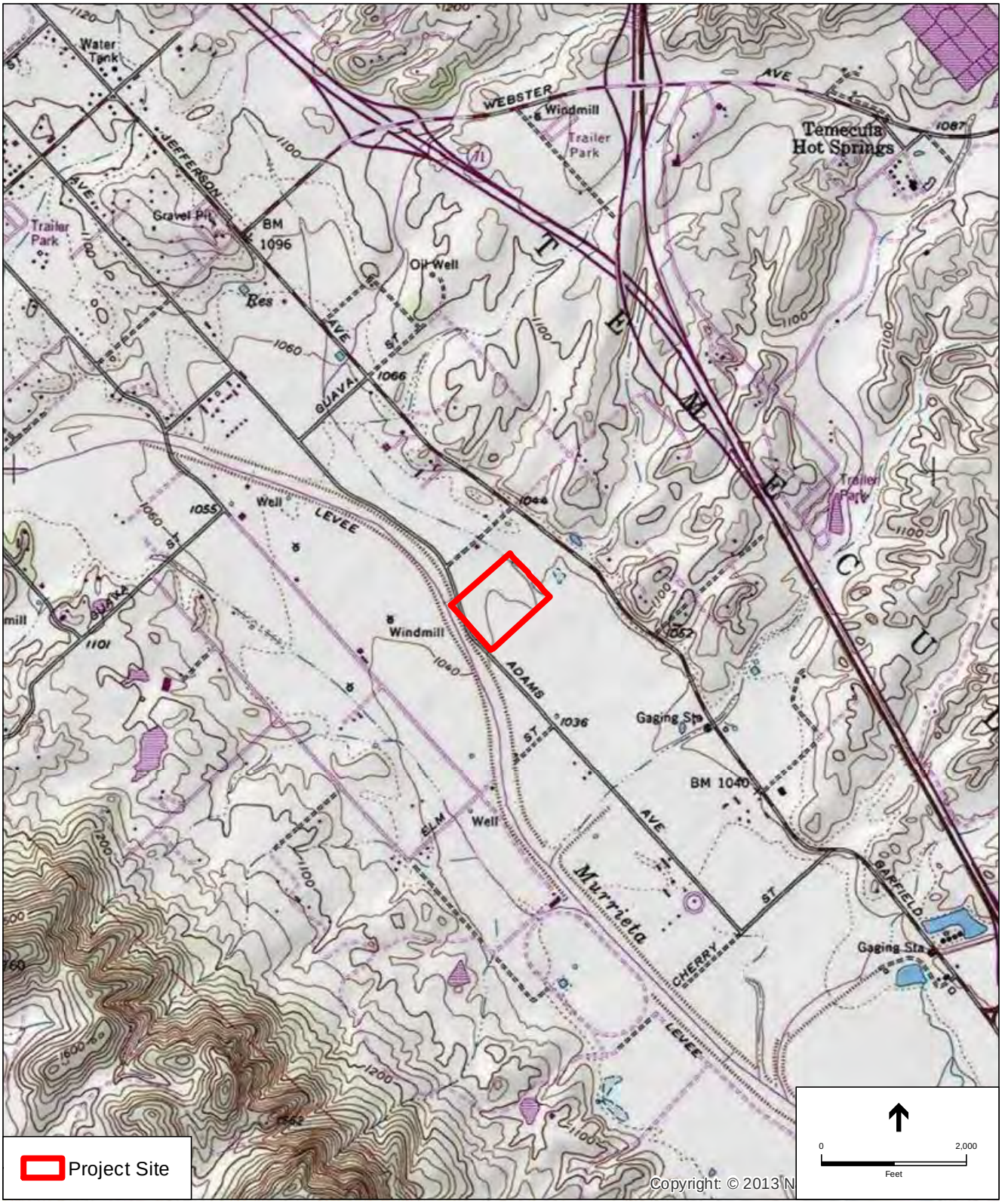
Fig 1 - Regional Map
Fig 2 - Vicinity Map
Fig 3 -Transect Map
Appendix A – Avian Compendium



SOURCE: ESRI Street Map, 2009.

Larchmont Park
Figure 1
Regional Map

ESA PCR



SOURCE: USGS Topographic Series (Murrieta, CA).

Larchmont Park

Figure 2

Vicinity Map

ESA PCR

SOURCE: Google Maps, 2015.

Larchmont Park
Figure 3
Transect Map

ESA PCR

Appendix A - Avian Compendium

BIRDS

Scientific Name	Common Name
Accipitridae	**Hawks**
Buteo jamaicensis	red-tailed hawk
Falconidae	**Falcons**
Falco sparverius	American kestrel
Charadriidae	**Plovers**
Charadrius vociferus	killdeer
Columbidae	**Pigeons and Doves**
* *Columba livia*	rock pigeon
* *Streptopelia decaocto*	Eurasian collared-dove
Zenaida macroura	mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
Vireonidae	**Vireos**
Vireo bellii pusillus	least Bell's vireo
Corvidae	**Jays and Crows**
Corvus brachyrhynchos	American crow
Hirundinidae	**Swallows**
Stelgidopteryx serripennis	northern rough-winged swallow
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Mimidae	**Thrashers**
Mimus polyglottos	northern mockingbird
Sturnidae	**Starlings**
* *Sturnus vulgaris*	European starling
Parulidae	**Wood Warblers**
Geothlypis trichas	common yellowthroat

* non-native

BIRDS

Scientific Name	Common Name
Emberizidae	**Emberizine Sparrows and Allies**
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Cardinalidae	**Buntings, Grosbeaks, and Tanagers**
Passerina caerulea	blue grosbeak
Icteridae	**Blackbirds**
Agelaius phoeniceus	red-winged blackbirds
Euphagus cyanocephalus	Brewer's blackbird
Icterus cucullatus	hooded oriole
Quiscalus mexicanus	great-tailed grackle
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch

* non-native