

Appendix G

Biological Resources

BLOOMINGTON INDUSTRIAL FACILITY
Draft
ENVIRONMENTAL IMPACT REPORT

**Biological Resources Technical Report
Bloomington Distribution Project**

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Biological Resources Technical Report

Bloomington Distribution Project

1 INTRODUCTION

In February 2015, Dudek conducted a general biological survey for Western Realco's Bloomington Distribution project (project) site. This report includes the evaluation of impacts to biological resources from the project pursuant to California Environmental Quality Act (CEQA). Specifically, this report: (1) describes the existing conditions of biological resources within the project site in terms of vegetation, flora, wildlife, and wildlife habitats; (2) discusses potential impacts to biological resources that would result from development of the project; and (3) recommends mitigation measures for potential impacts to special-status biological resources, if necessary.

1.1 Project Location and Description

The project site is located within the unincorporated San Bernardino County area of Bloomington. Bloomington is located in between the Cities of Rialto and Fontana, just north of the San Bernardino and Riverside County line and approximately 1 mile south of Interstate 10 (Figure 1). The project site is located immediately west of Cedar Avenue, north of Jurupa Avenue, and east of Linden Avenue. It is within the U.S. Geological Survey (USGS) 7.5 minute map Fontana quadrangle, Section 27, Township 1 South, Range 5 West (Figure 2).

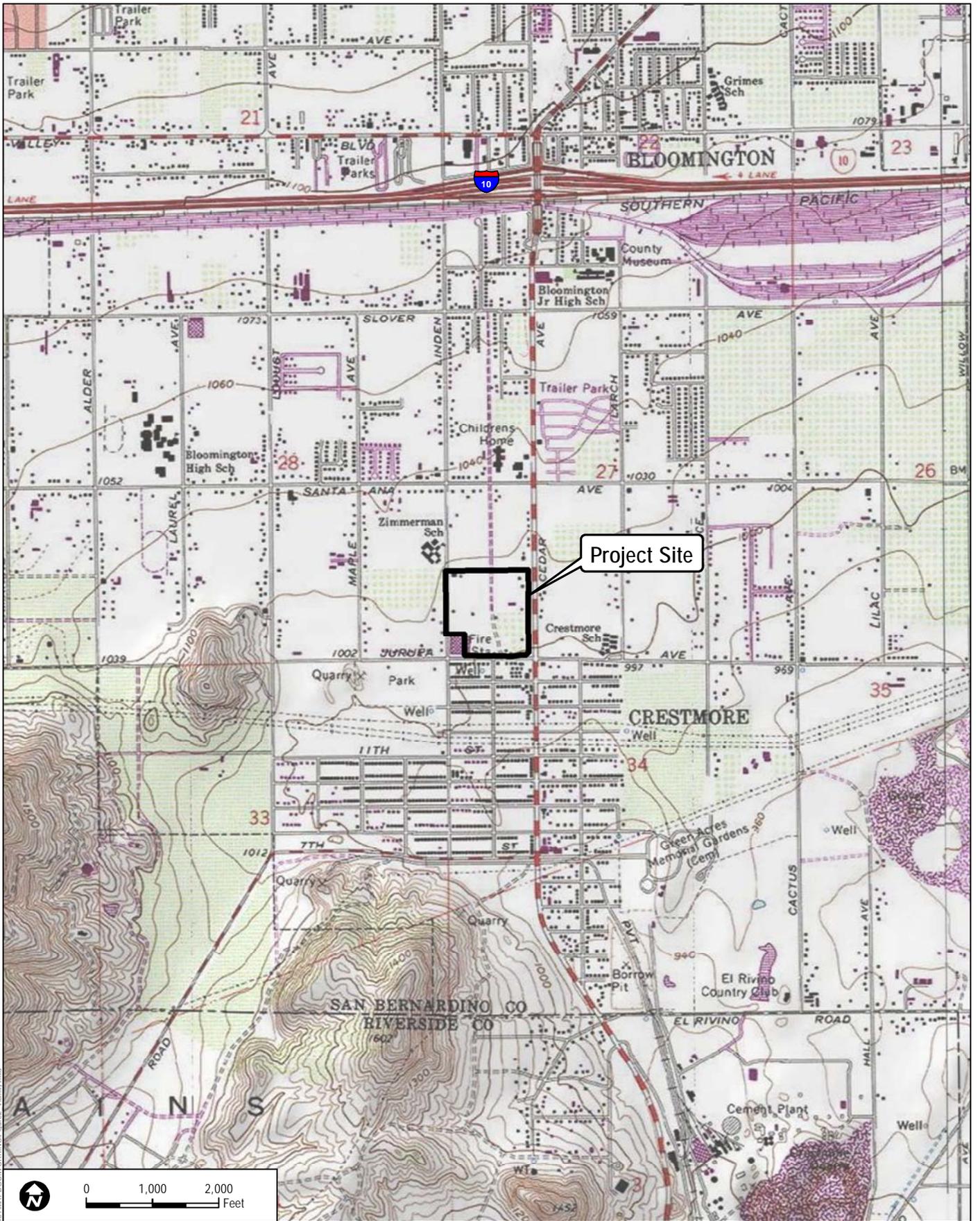
Western Realco is proposing to construct a single 676,983-square-foot distribution building within an approximately 35-acre property. The site would include two detention basins and landscaping along Cedar Avenue and Jurupa Avenue. There will be a total of 272 automobile parking stalls constructed for employee parking with access from Cedar Avenue and Jurupa Avenue. Truck access will be installed from Cedar Avenue, and a dockyard would include 138 trailer storage stalls, 4 grade level ramps, and 110 dock high doors.

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SOURCE: USGS 7.5-Minute Series - Fontana Quadrangle.

WESTERN REALCO - BLOOMINGTON, CA

FIGURE 2
Vicinity Map

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2 REGULATORY SETTING

2.1 Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species, and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. FESA defines an endangered species as “any species that is in danger of extinction throughout all or a significant portion of its range.” A threatened species is defined as “any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Under FESA, it is unlawful to take any listed species. “Take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement.

FESA (16 U.S.C. Sections 1531 to 1599) is implemented by USFWS through a program that identifies and provides for protection of various species of fish, wildlife, and plants deemed to be in danger of or threatened with extinction. As part of this regulatory scheme, the FESA provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and “which may require special management considerations or protection.” Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless “essential for the conservation of the species.”

Under Section 4(f)(1) of FESA, USFWS is required to prepare recovery plans for newly listed species unless USFWS determines that such a plan will not promote the conservation of the species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is an international treaty for the conservation and management of bird species. The MBTA makes it illegal to take, possess, buy, sell, purchase,

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or barter any migratory bird listed in 50 CFR, Part 10 (USFWS 2002). The MBTA protects over 800 species of birds, including the burrowing owl (*Athene cunicularia*). This treaty is enforced in the United States by USFWS.

Clean Water Act

The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States under Section 404 of the federal Clean Water Act. Certain portions of the Clean Water Act are implemented by the State Water Resources Control Board and applicable Regional Water Quality Control Boards in California. The phrase “waters of the United States” is generally defined to include navigable waters as well as other waters (such as streams and seeps) and wetland waters that meet applicable regulatory criteria.

2.2 State Regulations

California Environmental Quality Act

Although endangered and threatened species are covered federal and state statutes, the CEQA Guidelines (Section 15380(b)) declare that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. CEQA provides an agency with the ability to protect a species from a project’s potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted. These guidelines require public agencies to undertake analyses to determine if projects would result in significant effects on candidate species that are not listed by either the USFWS or the California Department of Fish and Wildlife (CDFW). Species of Special Concern must also be considered during the environmental evaluation process for a proposed project. CEQA requires state agencies, local governments, and special districts to analyze and disclose impacts from proposed projects within California. Section 15380 of the CEQA Guidelines indicates that species of special concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

California Fish and Game Code Sections 3503, 3503.5, and 3513

California Fish and Game Code regulations require that elements of a proposed project, particularly vegetation removal or construction near nests, be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS. Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

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Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

California Fish and Game Code 1600 – 1607 (Streambed Alteration Agreements)

Under sections 1600–1607 of the California Fish and Game Code, CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes through Streambed Alteration Agreements. Jurisdiction is defined by the code as a “bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit” (California Fish and Game Code, Section 1600 et seq.). A Streambed Alteration Agreement typically includes conditions for wildlife resources associated with a streambed.

2.3 County Regulations

San Bernardino County Development Code 88.03.010 (Plant Protection and Management)

Under section 88.03.010 of the San Bernardino County Development Code, the County regulates unincorporated areas of the County on property or combinations of property under private or public ownership. This provision applies to “the removal or relocation of regulated trees or plants and to any encroachment (such as grading) within the protected zone of a regulated tree or plant on all private land within unincorporated areas of the County.” The intent is to:

- a. Promote and sustain the health, vigor and productivity of plant life and aesthetic values within the County through appropriate management techniques.
- b. Conserve the native plant life heritage for the benefit of all, including future generations.
- c. Protect native trees and plants from indiscriminate removal and regulate removal activity.
- d. Provide a uniform standard for appropriate removal of native trees and plants in public and private places and streets to promote conservation of these valuable natural resources.
- e. Protect and maintain water productivity and quality in local watersheds.
- f. Preserve habitats for rare, endangered or threatened plants and protect animals with limited or specialized habitats.

Section 88.01.040 of the San Bernardino County Development Code defines all regulated trees and plants as well as appropriate permits required for removal and conditions of approval.

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3 METHODS

3.1 Literature Review

Prior to conducting the field investigation, a literature review was conducted to evaluate the environmental setting of the project site and to identify potential special-status biological resources that may be found on the site. The review included the Fontana 7.5-minute USGS quadrangle and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey. Additionally, a database query was conducted to identify special-status biological resources present or potentially present within the vicinity of the project site using the California Natural Diversity Database (CNDDDB) (CDFW 2015) and California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Vascular Plants* (CNPS 2015). A 7-mile buffer around the project site was queried in the CNDDDB using geographic information systems (GIS) software, and a "nine-quad" query was conducted of the CNPS. A nine-quad query includes the subject quadrangle of Fontana and the eight surrounding USGS quadrangles: Riverside East, Riverside West, Corona North, Guasti, Cucamonga Peak, Devore, San Bernardino North, and San Bernardino South.

3.2 Field Reconnaissance

The purpose of the general biological survey was to map vegetation communities on site; conduct a general inventory of plant and animal species detected by site, sound (calls), tracks, scat, or other signs; and determine the likelihood of occurrence of any special-status plant or wildlife species based on the presence/absence of suitable habitat and other natural history elements that might predict their occurrence.

In February 2015 Dudek Biologist Jessica Self conducted a general biological survey including vegetation mapping as well as the identification of wildlife and plant species on site. Table 1 lists the date, time and field conditions of the biological survey. The survey was limited to the project site boundaries due to surrounding development.

Table 1
Schedule of Surveys

Date	Hours	Personnel*	Focus	Conditions
2/24/15	0700-1100	JDS	General biological survey	47°F–63°F, 0% cc, 0–15 mph winds

JDS = Jessica D. Self, °F = ° Fahrenheit; cc = cloud cover; mph = miles per hour

The project site was methodically surveyed on foot, and all biological resources observed or detected were identified and inventoried. Potential for special-status plant species was assessed based on habitat and soil conditions that are known to support species occurring in the region.

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Expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area.

3.2.1 Vegetation Community and Land Cover Mapping

Vegetation communities and land uses within the project site were mapped in the field directly onto a 200-foot-scale (1 inch = 200 feet) aerial photograph field map of the project site. Following completion of the fieldwork, all vegetation polygons were digitized using ArcGIS and GIS coverage was created. Vegetation communities used in this report are classified using the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) with modifications made to account for site-specific differences.

3.2.2 Flora

All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin and common names for plant species with a California Rare Plant Rank (CRPR) follow the CNPS *Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2015). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2014), and common names follow the USDA NRCS Plants Database (NRCS 2014). General information regarding plant species, identification, and nomenclature was obtained from *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012) and *The Flora of the Santa Ana River and Environs* (Clarke et al. 2007). Appendix A provides a Plant Compendium.

3.2.3 Fauna

Wildlife species observed or detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. No trapping or focused surveys for special-status or nocturnal species was conducted. General information regarding wildlife species present in the region was obtained from Sibley (2000) for birds, Reid (2006) for mammals, and Stebbins (2003) for reptiles and amphibians. Appendix A provides a Wildlife Compendium.

3.2.4 Survey Limitations

The main survey limitation was accessibility to specific areas within the project site. Inaccessible areas included residences, fenced in junk yards, and a fenced agriculture field with llamas and goats grazing. For these areas, the biologist observed wildlife using binoculars and identified plant

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species as precisely as possible (such as down to genus). However, some ornamental plant species were unidentifiable from a distance. Consequently, there may have been wildlife and plant species that were not identified. However, it is unlikely any special-status species occur within these areas as they were heavily developed and disturbed, thus drastically reducing the likelihood of an occurrence. However, burrowing owl burrows could potentially occur within the agriculture field that was inaccessible, but the biologist was unable to survey this area for potential burrows.

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4 ENVIRONMENTAL SETTING

4.1 Land Use

The general vicinity surrounding the project site is developed with a mix of residential and rural residential uses. Single-family residential development occurs immediately adjacent to the site on the south and west. Open agricultural fields are directly north and northeast from the project site; an elementary school is to the northwest; Cedar Avenue runs directly along the eastern side of the site, with Jurupa Avenue along the south side and Linden Avenue along the west side of the site. Commercial property and open fields are east of the site, on the east side of Cedar Avenue.

The project site is disturbed with evidence of recent disking within open areas of the site. Multiple single-family homes and junk yards are present throughout the northern half of the site and three single-family homes are located in the southeastern portion of the site. A dirt road that looks to be an old channel now filled with soil runs north to south through the center of the project site.

4.2 Topography/Hydrology

The project site is in the San Bernardino valley with the San Bernardino Mountains approximately 9 miles to the north, La Loma Hills 2.7 miles to the southeast, Rattlesnake Mountain 0.6 mile to the south, and Mount Jurupa 1 mile to the southwest. The main water body in the vicinity is the Santa Ana River, which flows northeast to southwest approximately 2.5 miles southeast from the project site.

The site is relatively flat with elevation ranging from 1,005 to 1,030 feet above mean sea level. There is no primary drainage on site. However, upon interpretation of aerial photos, there is an old channel feature that runs through the center of the property. It starts north of the project site at Slover Avenue and terminates at Jurupa Avenue. This feature has since been filled with soil and now serves as a road through the property.

4.3 Climate

Bloomington experiences a Mediterranean type climate with cool, wet winters and dry, hot summers. Average yearly precipitation is 10.7 inches. Average summer highs are around 92° Fahrenheit (°F) with average lows around 61°F. In the winter, average highs are 67°F with lows around 42°F (NOAA 2015).

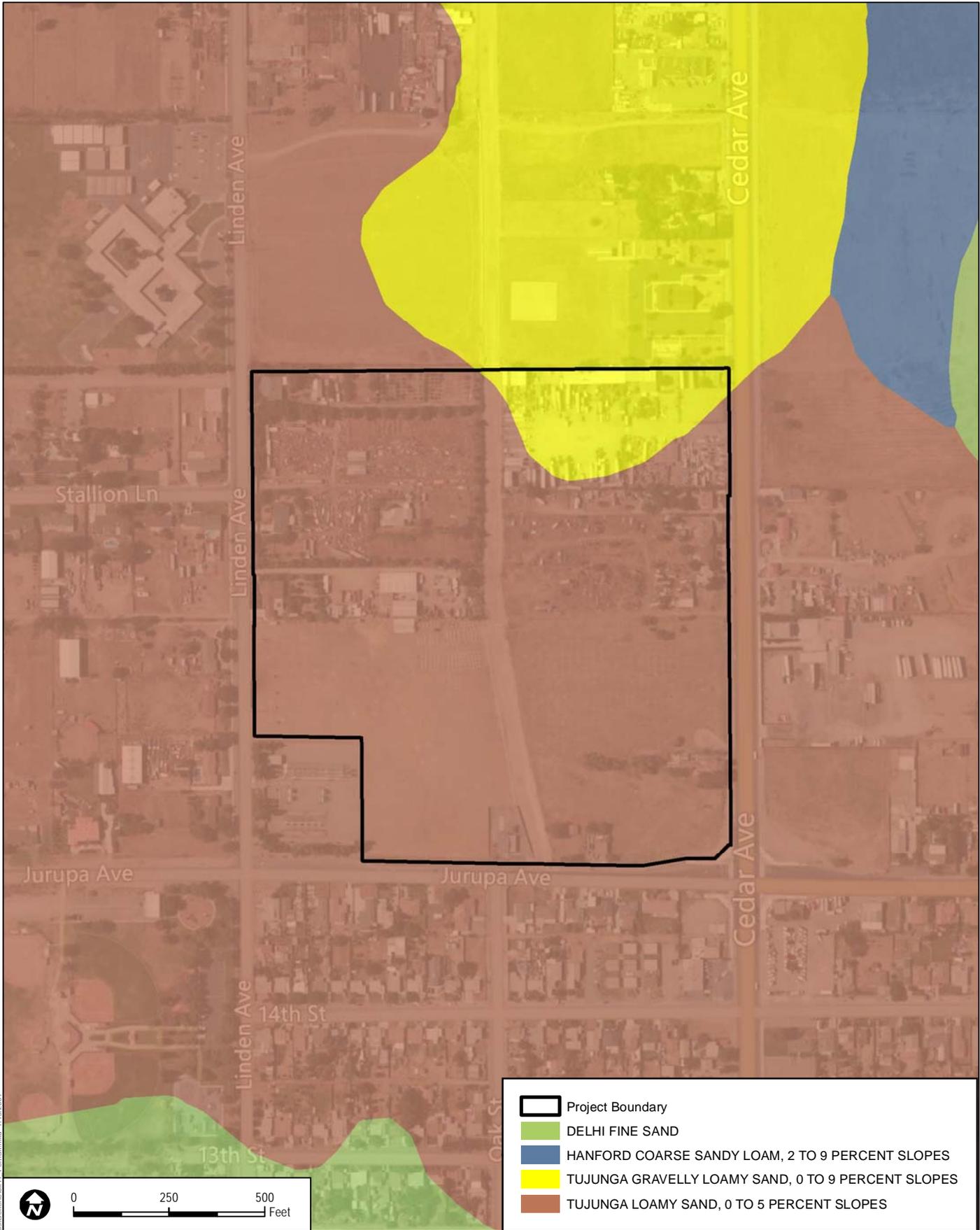
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4.4 Soils

Tujunga gravelly sandy loam and Tujunga loamy sand soils are mapped within the project site (USDA 2015) (Figure 3). The description provided below regarding Tujunga series soils is summarized from NRCS (USDA 2015).

The Tujunga series soils are located on alluvial flood plains derived from granitic sources and consist of deep and drained soils. Slopes with this soil range from 0 to 9%, with an annual mean temperature of 62°F and an annual mean precipitation of 16 inches. Tujunga soils occur at an elevation ranging from 5 to 4,300 feet. Geographically associated soils include Delhi soils as well as the Hanford, Soboba, and Grangeville soils.

A significant portion of the project site has been developed and the entire site has been disturbed with evidence of recent disking within open areas of the site. No windblown sands were observed within the project site.



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SOURCE: Bing Maps 2015, USDA 2012

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**Figure 3
Soils Map**

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5 RESULTS

5.1 Vegetation Communities, Land Covers, and Floral Diversity

Vegetation communities are depicted on Figure 4, and representative photographs are provided in Appendix B. There are three land covers/vegetation communities within the project site: agricultural, nonnative grassland and developed. The acreages are provided in Table 2 and a description of each follows.

Table 2
Vegetation Communities

Macrogroup	Acres	% of Site
Non-native Grassland	6.35	18.4%
Agricultural	6.91	20.0%
Developed/Disturbed	21.27	61.6%
Total	34.54	100.0%

5.1.1 Non-Native Grassland

Non-native annual grassland is characterized by weedy, introduced annuals, primarily grasses, including wild oat (*Avena* spp.), bromes (*Bromus diandrus*, *B. madritensis*, *B. hordeaceus*), black mustard (*Brassica nigra*), filaree (*Erodium* spp.), and Russian-thistle (*Salsola tragus*). It may occur where disturbance by maintenance (mowing, scraping, disking, spraying, etc.), grazing, repetitive fire, agriculture, or other mechanical disruption have altered soils and removed native seed sources from areas formerly supporting native vegetation. Non-native grassland typically occurs adjacent to roads or other developed areas where there has been some historic disturbance. Non-native grassland may support sensitive plant and animal species and provide valuable foraging habitat for raptors (birds of prey).

There are 6.35 acres characterized as non-native grassland within the project site. This vegetation community has a dense vegetative cover dominated by common fiddleneck (*Amsinckia intermedia*), bromes, and London rocket (*Sisymbrium irio*). The soil within this area was recently disked.

5.1.2 Agricultural Land

This community is not a designated vegetation community in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986); however, it is a commonly recognized land use and was a distinctive component within the project site. It is similar to non-native grassland and often contains some of the same weedy, introduced annuals including wild

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oat, bromes, black mustard, filaree, and Russian-thistle. These grasslands serve as agricultural fields for various livestock species and are often heavily grazed.

On site, this community occurs on 6.91 acres within the southwest section of the property. There were llamas and goats grazing within the field. The plant species within this community were unidentifiable due to a combination of the agriculture field being completely fenced as well as livestock heavily grazing the grass species. However, since the non-native grassland vegetation community is in close proximity to the non-native grassland, it can be assumed that this community shares a similar species composition as the non-native grassland vegetation community.

5.1.3 Developed/Disturbed Land

Developed land consists of buildings, structures, homes, parking lots, paved roads, and maintained areas. Developed areas do not support native vegetation. Disturbed land refers to areas that are not developed yet lack vegetation, and generally are the result of severe or repeated mechanical perturbation.

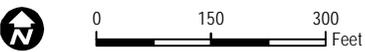
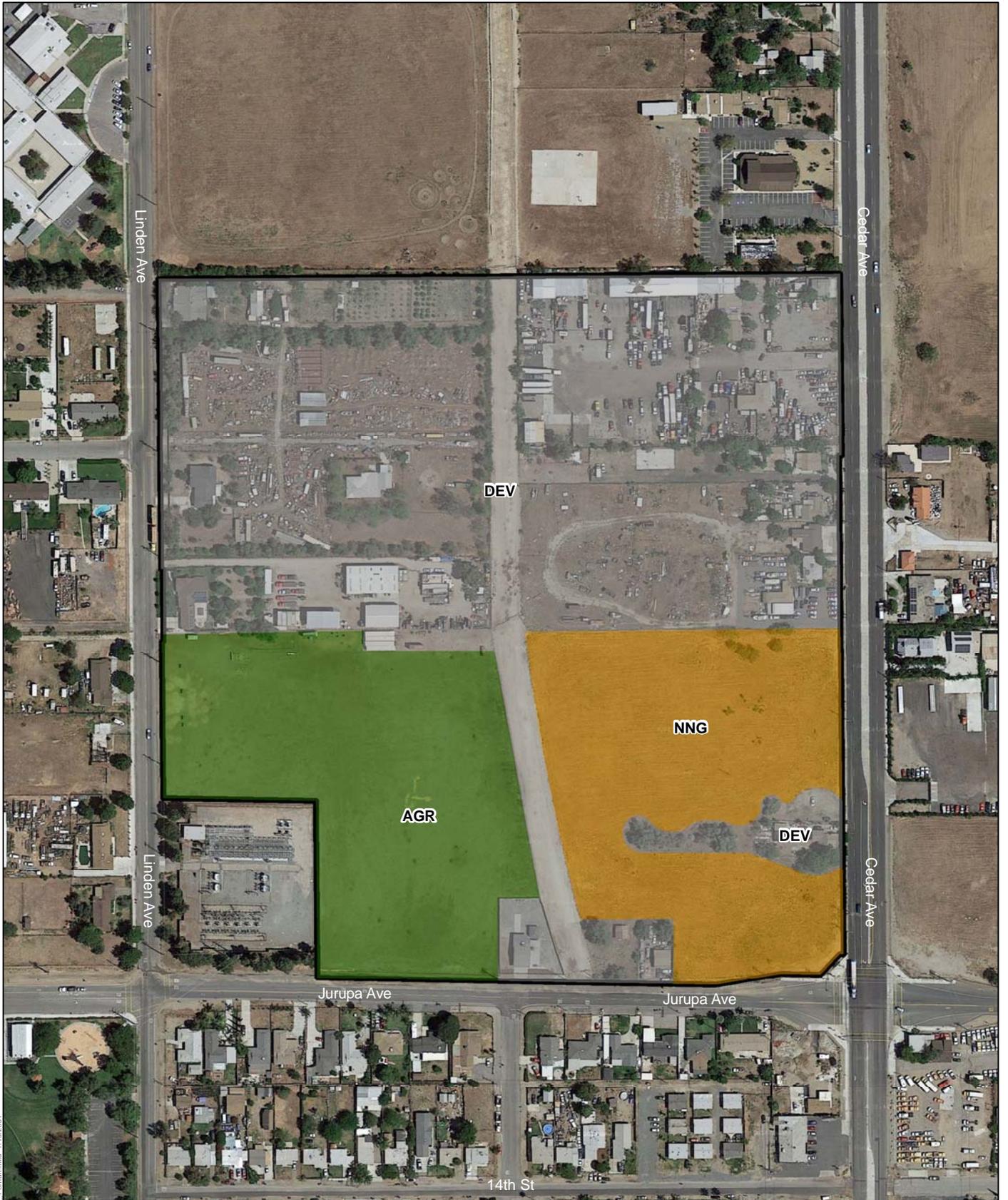
Developed/disturbed land occurs within a majority of the project site for a total of 21.27 acres. Multiple residential homes and a junk yard are located within the project boundary. The residential yards contain ornamental trees including tamarisk (*Tamarix aphylla*), Peruvian pepper trees (*Schinus molle*), eucalyptus trees (*Eucalyptus* spp.), and tree tobacco (*Nicotiana glauca*). Some areas contain multiple cars and trailers. The gravel road running through the center of the project site is absent of vegetation.

5.2 Floral Diversity

A total of 14 vascular plant species, including 1 native species (7%) and 13 non-native species (93%), were recorded during the surveys, representing 12 plant families. The lack of species diversity and relatively high proportion of non-native plants indicates the project site contains disturbed areas. The common plant species that were identified within the vegetation communities are provided in the Plant Compendium in Appendix A.

5.3 Faunal Diversity

Twenty-six wildlife species were observed during the field survey, including common bird species such as northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Spinus psaltria*). There were also a large number of painted lady (*Vanessa cardui*) butterflies. There were multiple species of farming animals on site located within fenced areas. A full list of wildlife species observed during the survey is provided in the Wildlife Compendium in Appendix A.



2015, County of San Bernardino, DigitalGlobe, U.S. Geological Survey, USDA Farm Service Agency

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SOURCE: Google Maps 2015
WESTERN REALCO - BLOOMINGTON, CA

FIGURE 4
Vegetation Map

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5.4 Special-Status Plant Species

The project does not overlap any Critical Habitat as designated by the U.S. Fish and Wildlife Service (USFWS). No special-status plant species were identified within the project site during the general biological survey. The project site is mostly developed and is primarily composed of disturbed land and developed land. Table 3 lists special-status plant species documented in the literature review and their potential to occur within the project site. No listed or special-status plant species have the potential to occur within the project site due to the lack of suitable habitat.

**Table 3
Special-Status Plant Species Potential to Occur on the Project Site**

Common Name	Scientific Name	Status (Federal/State)	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Bristly sedge	<i>Carex comosa</i>	None/None	2B.1	Coastal prairie, marshes and swamps(lake margins), valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2,051	Not expected to occur. No suitable habitat including marshes and swamps on site.
California satintail	<i>Imperata brevifolia</i>	None/None	2B.1	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), riparian scrub/mesic/perennial rhizomatous herb/Sep–May/0–3,986	Not expected to occur. High disturbance of habitat on site, and associated habitat including meadows and seeps are not located on site.
Chaparral ragwort	<i>Senecio aphanactis</i>	None/None	2B.2	Chaparral, cismontane woodland, Coastal scrub/sometimes alkaline/annual herb/Jan–Apr/49–2,625	Not expected to occur. Associated habitat is not located on site.
Chaparral sand-verbena	<i>Abronia villosa</i> var. <i>aurita</i>	None/None	1B.1	Chaparral, coastal scrub, desert dunes/sandy/annual herb/Jan–Sep/246–5,249	Not expected to occur. High disturbance of habitat on site, and associated habitat is not located on site.
Coulter's goldfields	<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	None/None	1B.1	Marshes and swamps(coastal salt), playas, vernal pools/annual herb/Feb–Jun/3–4,003	Not expected to occur. Lack of associated habitat including marshes and swamps on site.
Gambel's water cress	<i>Nasturtium gambelii</i>	FE/CT	1B.1	Marshes and swamps(freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/16–1,083	Not expected to occur. Lack of associated habitat including marshes and swamps on site.

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**Table 3
Special-Status Plant Species Potential to Occur on the Project Site**

Common Name	Scientific Name	Status (Federal/ State)	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Horn's milk-vetch	<i>Astragalus hornii</i> var. <i>hornii</i>	None/None	1B.1	Meadows and seeps, playas/lake margins, alkaline/annual herb/May–Oct/197–2,789	Not expected to occur. High disturbance and lack of associated habitat on site.
Hot springs fimbristylis	<i>Fimbristylis thermalis</i>	None/None	2B.2	Meadows and seeps (alkaline, near hot springs)/perennial rhizomatous herb/Jul–Sep/361–4,396	Not expected to occur. Lack of associated habitat including meadows and seeps on site.
Many-stemmed dudleya	<i>Dudleya multicaulis</i>	None/None	1B.2	Chaparral, coastal scrub, valley and foothill grassland/often clay/perennial herb/Apr–Jul/49–2592	Not expected to occur. Lack of associated habitat, including clay soils, on site.
Mesa horkelia	<i>Horkelia cuneata</i> var. <i>puberula</i>	None/None	1B.1	Chaparral(maritime), cismontane woodland, coastal scrub/sandy or gravelly/perennial herb/Feb–Jul (Sep)/230–2,657	Not expected to occur. Lack of associated habitat on site.
Nevin's barberry	<i>Berberis nevinii</i>	FE/CE	1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub/sandy or gravelly/perennial evergreen shrub/Mar–Jun/899–2,707	Not expected to occur. Lack of associated riparian habitat on site.
Parish's desert-thorn	<i>Lycium parishii</i>	None/None	2B.3	Coastal scrub, Sonoran desert scrub/perennial shrub/Mar–Apr/443–3,281	Not expected to occur. Lack of associated habitat on site.
Parish's gooseberry	<i>Ribes divaricatum</i> var. <i>parishii</i>	None/None	2B.3	Riparian woodland/perennial deciduous shrub/Feb–Apr/213–984	Not expected to occur. Lack of associated riparian woodland habitat on site.
Parry's spineflower	<i>Chorizanthe parryi</i> var. <i>parryi</i>	None/None	1B.1	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/sandy or rocky, openings/annual herb/Apr–Jun/902–4,003	Not expected to occur. High disturbance of habitat on site, and lack of associated habitat on site.
Prairie wedge grass	<i>Sphenopholis obtusata</i>	None/None	2B.2	Cismontane woodland, meadows and seeps/mesic/perennial herb/Apr–Jul/984–6,562	Not expected to occur. Lack of associated habitat including meadows and seeps on site.
Pringle's monardella	<i>Monardella pringlei</i>	None/None	1A	Coastal scrub (sandy)/annual herb/May–Jun/984–1,312	Not expected to occur. Lack of associated habitat on site.

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**Table 3
Special-Status Plant Species Potential to Occur on the Project Site**

Common Name	Scientific Name	Status (Federal/ State)	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Prostrate vernal pool navarretia	<i>Navarretia prostrata</i>	None/None	1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland(alkaline), vernal pools/mesic/annual herb/Apr–Jul/49–3,970	Not expected to occur. Lack of associated habitat including coastal scrub, meadows and seeps on site.
Salt spring checkerbloom	<i>Sidalcea neomexicana</i>	None/None	2B.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas/alkaline, mesic/perennial herb/Mar–Jun/49–5,020	Not expected to occur. Lack of associated habitat on site.
San Bernardino aster	<i>Symphyotrichum defoliatum</i>	None/None	1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic)/near ditches, streams, springs/perennial rhizomatous herb/Jul–Nov/7–6,693	Not expected to occur. Lack of associated habitat including marshes, seeps, meadows, and swamps on site.
San Diego ambrosia	<i>Ambrosia pumila</i>	FE/None	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1,362	Not expected to occur. Extremely high soil disturbance and lack of associated habitat on site.
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	None/None	1B.2	Marshes and swamps(assorted shallow freshwater)/perennial rhizomatous herb/May–Oct (Nov)/0–2,133	Not expected to occur. Lack of associated habitat including marshes and swamps on site.
Santa Ana River woollystar	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	FE/CE	1B.1	Chaparral, coastal scrub (alluvial fan)/sandy or gravelly/perennial herb/Apr–Sep/299–2,001	Not expected to occur. Lack of associated habitat on site.
Singlewhorl burrobrush	<i>Ambrosia monogyra</i>	None/None	2B.2	Chaparral, Sonoran desert scrub/sandy/perennial shrub/Aug–Nov/33–1,640	Not expected to occur. Lack of associated habitat is not located on site.
Slender-horned spineflower	<i>Dodecahema leptoceras</i>	FE/CE	1B.1	Chaparral, cismontane woodland, coastal scrub (alluvial fan)/sandy/annual herb/Apr–Jun/656–2,493	Not expected to occur. Lack of associated habitat is not located on site.
Smooth tarplant	<i>Centromadia pungens</i> ssp. <i>laevis</i>	None/None	1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland/alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. Lack of riparian woodland habitat on site.

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**Table 3
Special-Status Plant Species Potential to Occur on the Project Site**

Common Name	Scientific Name	Status (Federal/State)	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	FT/CE	1B.1	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools/often clay/perennial bulbiferous herb/Mar–Jun/82–3,675	Not expected to occur. No vernal pools or other associated habitat on site.
White-bracted spineflower	<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	None/None	1B.2	Coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland/sandy or gravelly/annual herb/Apr–Jun/984–3,937	Not expected to occur. Lack of associated habitat on site.

Federal Designations

FE: Species listed as endangered by the USFWS.

FT: Species listed as threatened by the USFWS.

State Designations

CE: Species listed as endangered by the California Fish and Game Commission.

CT: Species listed as threatened by the California Fish and Game Commission.

California Rare Plant Rank (CRPR)

1A: Plants presumed extinct in California.

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

2: Plants rare, threatened, or endangered in California, but more common elsewhere.

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

4: Plants of limited distribution—a watch list.

Threat Ranks

0.1: Seriously threatened in California (high degree/immediacy of threat).

0.2: Fairly threatened in California (moderate degree/immediacy of threat).

0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known).

5.5 Special-Status Wildlife Species

The project does not overlap any Critical Habitat as designated by the USFWS. The project is within the boundary of the Delhi sands flower-loving fly Jurupa Recovery Unit (USFWS 1997); however, there are no Delhi sands mapped within the project site and there is no suitable habitat for the Delhi sands flower-loving fly within the project site.

No special-status wildlife species were observed during the survey. There is a potential for burrowing owl, a California Species of Special Concern, to occur on site due to presence of suitable habitat within and surrounding the project site, as well as historical occurrences within 1 mile. However, no suitable burrows were found within areas that were accessible to survey on site.

Table 4 includes special-status wildlife species documented in the literature review and their potential to occur on site based on the location of the site and general vegetation communities

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found in the area. Where pertinent, a distinction is made between foraging and breeding habitat available on site. Species with a moderate or higher potential to occur are discussed in more detail following the table. With the exception of the foraging raptors and marginal potential of burrowing owl, no listed or special-status wildlife species are expected to occur on site based on the lack of suitable habitat.

**Table 4
Special-Status Wildlife Species Potential to Occur on Project Site**

Common Name	Scientific Name	Federal/State Status	Habitat	Potential to Occur
<i>Amphibians</i>				
Western spadefoot	<i>Spea hammondi</i>	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture	Not likely to occur. No suitable habitat due to a lack of breeding ponds or aestivation habitat.
<i>Reptiles</i>				
Orangethroat whiptail	<i>Aspidoscelis hyperythra</i>	None/SSC	Low-elevation coastal scrub, chaparral, and valley-foothill hardwood	Not likely to occur. No habitat associations present; heavy ground disturbance due to disking. Urbanization surrounds the project site.
California mountain kingsnake	<i>Lampropeltis zonata (parvirubra)</i>	None/SSC	Wide range of habitats including conifer forest, oak-pine woodlands, riparian woodland, chaparral, manzanita and coastal scrub	Not likely to occur. No habitat associations present; heavy ground disturbance due to disking. Urbanization surrounds the project site.
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	None/SSC	Stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	Not likely to occur. No habitat associations present; heavy ground disturbance due to disking. Urbanization surrounds the project site.
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland	Not likely to occur. No habitat associations present; heavy ground disturbance due to disking. No associated ant colonies present. Urbanization surrounds the project site.
Red diamondback rattlesnake	<i>Crotalus ruber</i>	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not likely to occur. No habitat associations present; heavy ground disturbance due to disking. Urbanization surrounds the project site.

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**Table 4
Special-Status Wildlife Species Potential to Occur on Project Site**

Common Name	Scientific Name	Federal/State Status	Habitat	Potential to Occur
<i>Birds</i>				
Cooper's Hawk	<i>Accipiter cooperii</i>	None/WL	Riparian and oak woodlands, montane canyons	Present for foraging; not expected to occur for nesting. Potential foraging habitat. However, no nesting habitat. Observed foraging in the fall.
Burrowing owl	<i>Athene cunicularia</i>	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Moderate potential to occur. CNDDDB extant occurrence overlaps project site. Suitable, open and flat habitat, No suitable burrows were detected but portions of the project site that was fenced and could not be surveyed. Due to animal grazing, the fenced in section habitat remains open. However, the potential for burrowing owl is low due to the chance of agricultural animals collapsing potential burrows.
Swainson's hawk	<i>Buteo swainsoni</i> (nesting)	None/ST	Nests in open woodland and savanna, riparian and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Low potential for foraging during migration. Not expected to nest due to the lack of suitable nesting habitat on site. Documented CNDDDB occurrences within the area are presumed extirpated by CNDDDB.
Yellow warbler	<i>Setophaga petechia</i> (nesting)	None/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine and mixed conifer habitats	Not expected to occur on site. No suitable vegetation present including riparian, woodland and conifer habitats.
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet in elevation	Not expected to occur on site. CNDDDB occurrence within 1 mile from project site; however, no nesting potential due to the absence of coastal scrub vegetation on site and surrounded by residential development. No potential for foraging.
Least Bell's vireo	<i>Vireo bellii pusillus</i> (nesting)	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur on site. No suitable habitat occurs on site. Strongly associated with riparian forest.

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Table 4
Special-Status Wildlife Species Potential to Occur on Project Site

Common Name	Scientific Name	Federal/State Status	Habitat	Potential to Occur
<i>Mammals</i>				
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Low potential to occur. Heavy ground disturbance due to disking. Unsuitable habitat, potential for recolonization within junk yard areas.
Los Angeles pocket mouse	<i>Perognathus longimembris brevinasus</i>	None/SSC	Lower elevation grassland, alluvial sage scrub, and coastal scrub	Low potential to occur. Heavy ground disturbance due to disking. Marginally suitable habitat, potential for recolonization.
Northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	None/SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland, on immediate terraces adjacent to creeks	Low potential to occur. Heavy ground disturbance due to disking. Marginally suitable habitat, potential for recolonization.
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	FE/SSC	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	Not expected to occur. Project site is not near streams with the absence of suitable vegetation as well as heavy ground disturbance due to disking.
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	None/SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. Heavy ground disturbance due to disking. Marginally suitable habitat, potential for recolonization.
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FE/ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover or in disturbed areas	Not expected to occur. No documented occurrence within a 7-mile radius of the project site. Heavy ground disturbance due to disking.
Western mastiff bat	<i>Eumops perotis californicus</i>	None/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees and tunnels, seeming to prefer synthetic structures. Roosting occurs on 50% – 100% of rocky slopes.	Low potential for foraging; not expected to roost on site. No roosting potential occurs within the project site due to the absence of rocky slopes.
<i>Invertebrates</i>				
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	FE/None	Vernal pools, non-vegetated ephemeral pools	No potential to occur. No suitable habitat. Based on soils present, the site doesn't have the inherent capacity to hold rain water over a lengthy duration.

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Table 4
Special-Status Wildlife Species Potential to Occur on Project Site

Common Name	Scientific Name	Federal/State Status	Habitat	Potential to Occur
Delhi Sands flower-loving fly	<i>Rhaphiomidas terminatus abdominalis</i>	FE/none	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover.	No potential to occur. CNDDDB presumed extant occurrence within 1.5 miles of the site; however, no suitable habitat on site due to the absence of Delhi soils.

Federal Designations

FE: Species listed as endangered by the USFWS.

FT: Species listed as threatened by the USFWS.

State Designations

SE: Species listed as endangered by the California Fish and Game Commission.

ST: Species listed as threatened by the California Fish and Game Commission.

SSC: California Species of Special Concern; considered by CDFW as vulnerable to extinction in California due to declining populations or habitat.

WL: CDFW Watch List

5.5.1 Burrowing Owl

Burrowing owl is a USFWS Bird of Conservation Concern and a California Species of Special Concern. With a relatively wide-ranging distribution throughout the west, burrowing owls are considered habitat generalists (Lantz et al. 2004). In California, burrowing owls are year-long residents of open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon–juniper and ponderosa pine habitats (Zeiner et al. 1990). Preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Haug et al. 1993).

The presence of burrows is the most essential component of burrowing owl habitat as they are required for nesting, roosting, cover, and caching prey. In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Spermophilus (Otospermophilus) beecheyi*). Burrowing owls may occur in human-altered landscapes such as channels, agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse), useable burrows are available, and foraging habitat occurs in close proximity (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can also be used for nesting and roosting.

There were no potential burrows detected within the project site during the biological survey; however, a majority of the project site was inaccessible because it was fenced. Therefore, the biologist was unable to conduct a thorough habitat suitability assessment for burrowing owl. Due to the absence of sign within the portion of the project site that was accessible, it is assumed burrowing owls are not present at this time. However, potential burrowing owl burrows could occur within the agriculture field that was inaccessible. There is a presumed extant burrowing

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owl occurrence documented in 2004 in the CNDDDB that overlaps the project site and therefore enhances the possibility of future residency of this species on site.

5.5.2 Cooper's Hawk

Cooper's hawk is found year-round in Southern California. They are usually found in oak and conifer woodlands, suburban areas, riparian areas, and tree groves within the desert region. Their nests are usually more than 6 meters (20 feet) off the ground and are made of sticks and twigs on top of a bulky platform (Sibley 2000; Cornell Lab of Ornithology 2014).

Within the project site, there is suitable foraging and nesting habitat for Cooper's hawk. Cooper's hawk generally nest in riparian and oak woodlands; however, they are known to nest within suburban areas where trees greater than 6 meters (20 feet) in height are present.

5.6 Jurisdictional Waters

Due to the absence of riparian vegetation communities within the property as well as the absence of drainage features or other hydraulic indicators within the project site, there are no waters present that would fall under the jurisdiction of CDFW and/or the U.S. Army Corps of Engineers.

5.7 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. Because nearly the entire project site is fenced and surrounded by development, there are no wildlife corridors within or adjacent to the project site.

5.8 Nesting Birds

The trees within the project site and surrounding residential areas could potentially be used by migratory birds for breeding. The open fields within the project site also have the potential to contain suitable burrows for burrowing owl and the ground surface is suitable nesting habitat for kill deer (*Charadrius vociferus*). There are multiple nesting boxes located on site along the west side of the dirt road that runs through the project site (see photograph in Appendix B). Numerous bird species can use these boxes for nesting. Furthermore, there are numerous bird species that nest within the non-native vegetation on site, such as the northern mockingbird and mourning dove (*Zenaida macroura*).

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6 PROJECT IMPACTS

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

The following are the significance thresholds for biological resources provided in the CEQA Guidelines Appendix G Environmental Checklist, which states that a project could potentially have a significant affect if it:

- Impact BIO-1** Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game¹ or U.S. Fish and Wildlife Service.

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

- Impact BIO-3** Has 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.

¹ Although the California Department of Fish and Game changed its name to California Department of Fish and Wildlife effective January 1, 2013, this text is taken directly from the current CEQA Guidelines checklist, and therefore has not been modified.

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- Impact BIO-4** Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- Impact BIO-5** Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Impact BIO-6** Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

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

All potential habitat for special status plants and wildlife species would be removed during grading and construction of the proposed development. Operation of the project would not result in significant impacts to biological resources since the majority of the site will be paved or landscaped. However, the proposed water quality basin could provide habitat for burrowing owl following construction. Maintenance of the basins could result in take of active burrowing owl nests if these activities are conducted during the breeding season. Therefore, the discussion below focuses on impacts to biological resources as a result of construction of the project and maintenance of the proposed water quality basin on the project site.

6.1 Impact BIO-1: Special-Status Species

6.1.1 Special-Status Plants

No special-status plant species were observed within the project site.

Due to high disturbance and lack of suitable habitat throughout the entire project area, there is no potential for special-status plant species to occur on site. Therefore, there are no anticipated occurrences of direct or indirect impacts to special-status plants within the project site.

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6.1.2 Special-Status Wildlife

Potential impacts could occur to Cooper's hawk and burrowing owl. With implementation of MM-BIO-1 and MM-BIO-2, impacts would not be significant, and no additional mitigation is required for these species.

If the project removes trees or other habitat utilized by Cooper's hawk and other birds for foraging or nesting, direct impacts to foraging raptor species would occur. Potential indirect impacts to special-status foraging birds, such as Cooper's hawk, are limited to short-term construction impacts from increased noise and dust. Due to the limited amount of suitable habitat within the project footprint and the ability for foraging birds to move freely to other available habitat, indirect impacts to foraging special status bird species would be less than significant.

Project construction could result in direct impacts to nesting individuals, including the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between February 1 and June 30). Furthermore, maintenance of the basins proposed as part of the project could result in direct impacts to nesting individuals. This impact may be significant because substantial direct impacts to individuals of designated special-status species could occur during a critical period of these species' life cycles and may result in reduced reproductive success during the construction period. Implementation of a nesting bird survey conducted in accordance with the MBTA, as described in MM-BIO-1, would reduce potential impacts to nesting special-status bird species to less than significant.

MM-BIO-1 If construction or basin maintenance activities are to take place during the avian nesting season breeding season (February 15 through August 31 for most bird species, and January 1 through August 31 for raptors), a pre-construction survey for nesting bird species, including raptors, shall be conducted within 7 days prior to vegetation removal or ground disturbing activities. The survey will identify any active protected nesting birds on the project site or within 500 feet of construction activities. If active nests of protected birds are present in the impact area or within 500 feet of the edge of construction area, a qualified biologist (knowledgeable of nesting birds in the region) shall prescribe avoidance measures including, but not limited to, establishing a construction avoidance buffer. The buffer will be established in the field using conspicuous flagging and construction personnel will be informed of the avoidance area. The buffer will be the minimum necessary to avoid direct and indirect impacts to the nest as determined by a qualified biologist but will be a minimum of 50 feet. The qualified biologist may determine that additional avoidance measures are necessary (such as noise reduction or visual buffers) and will be based on the

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type of species, nesting stage, surround topography, existing conditions, and type of construction activity. Avoidance measures shall remain in place until the nest is no longer active as determined by a qualified biologist. All nests, implemented avoidance measures, and results (ie – nest success, nest predation, nest failure) will be documented in monitoring logs.

MM-BIO-2 A qualified biologist will conduct a burrowing owl pre-construction survey in accordance with the latest California Department of Fish and Wildlife (CDFW) survey guidelines within 14 days and within 24 hours prior to ground-disturbance or noise-producing activities. If burrowing owls occupy the site, then a mitigation plan shall be prepared following the requirements of the Staff Report on Burrowing Owl Mitigation (CDFG 2012) or latest CDFW requirements. The plan will include minimization measures and monitoring if practicable. Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owls impacted are replaced in accordance with the recommendations of the Staff Report on Burrowing Owl Mitigation. Mitigation will include permanent conservation of similar vegetation communities to provide for burrowing owl nesting, foraging, wintering, and dispersal comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. The mitigation lands may require habitat enhancements including enhancement or expansion of burrows for breeding, shelter and dispersal opportunity, and removal or control of population stressors. Mitigation lands shall be permanently protected through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission, The mitigation plan shall be approved by CDFW, and implemented prior to initiation of ground-disturbance activities that may affect the burrowing owl on site.

6.2 Impact BIO-2: Sensitive Vegetation Communities

There are no sensitive vegetation communities within or adjacent to the project site; therefore, the project would not result in direct or indirect impacts to sensitive vegetation communities.

6.3 Impact BIO-3: Jurisdictional Waters

There are no water features present within the project site; therefore, the project would not result in direct or indirect impacts to jurisdictional waters. Due to the lack of waters under the

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jurisdiction of U.S. Army Corps of Engineers and CDFW, no additional coordination or application for permits with these agencies is required.

6.4 Impact BIO-4: Wildlife Corridors and Migratory Routes

There are no wildlife corridors within the project site, and therefore, the project would not have impacts to wildlife corridors.

Project implementation would not interfere substantially with the movement of any native resident or migratory bird species. The project site has potential to support nesting resident and migratory birds. The project will comply with all federal and state regulations that protect nesting and migratory bird species and will implement MM-BIO-1 to avoid nesting birds; therefore, there would be no significant impacts to migratory birds.

6.5 Impact BIO-5: Local Policies or Ordinances

There are no species or habitat regulated by the County's Native Plant Protection Act within the project site. There are no other local policies or ordinances with respect to biological resources that apply to the project site. Therefore, the project is not in conflict with local policies or ordinances.

6.6 Impact BIO-6: Habitat Conservation Plan

The project site is not within a designated habitat conservation plan area; therefore, the project is not in conflict with any habitat conservation plan.

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7 CONCLUSION

Based on our review of biological resources in the project site, with implementation of the recommended mitigation measures, no significant impacts to biological resources would occur as a result of the project.

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8 REFERENCES

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APPENDIX A

Plant and Wildlife Compendiums

APPENDIX A

Plant and Wildlife Compendiums

PLANT COMPENDIUM

ANGIOSPERMS (DICOTS)

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

- * *Schinus molle*—Peruvian peppertree

BORAGINACEAE—BORAGE FAMILY

Amsinckia menziesii var. *intermedia* - common fiddleneck

BRASSICACEAE—MUSTARD FAMILY

- * *Brassica nigra*—black mustard
- * *Sisymbrium irio* – London rocket
- * *Sisymbrium erysimoides* – Australian rocket

CHENOPODIACEAE—GOOSEFOOT FAMILY

- * *Salsola tragus*—prickly Russian thistle

GERANIACEAE – GERANIUM FAMILY

- * *Erodium cicutarium* – Red stemmed filaree

MYRTACEAE—MYRTLE FAMILY

- * Eucalyptus species

PINACEAE – PINE FAMILY

- * *Pinus halepensis* – Aleppo pine

RUTACEAE – ORANGE FAMILY

- * *Citrus sinensis* – Orange tree

SIMAROUBACEAE – QUASSIA FAMILY

- * *Ailanthus altissima* – Chinese tree of heaven

SOLANACEAE – NIGHTSHADE FAMILY

- * *Nicotiana glauca* – Tree tobacco

TAMARICACEAE – TAMARISK FAMILY

- * *Tamarix aphylla* – Salt cedar

APPENDIX A (Continued)

MONOCOTS

POACEAE—GRASS FAMILY

- * *Bromus diandrus* – Ripgut
- * *Hordeum murinum* ssp. *glaucum* – Mouse barley

* signifies introduced (non-native) species

WILDLIFE COMPENDIUM

WILDLIFE SPECIES – VERTEBRATES

BIRD

EMBERIZIDAE—EMBERIZIDS

Melospiza melodia – Song sparrow

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Carpodacus mexicanus—House finch

Spinus psaltria – Lesser goldfinch

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—Red-tailed hawk

CORVIDAE—CROWS, RAVENS AND JAYS

Corvus brachyrhynchos — Common crow

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—Northern mockingbird

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—Mourning dove

INVERTEBRATE

NYMPHALIDAE – TRUE BUTTERFLIES

Vanessa cardui – Painted lady

APPENDIX A (Continued)

MAMMAL

CAMELIDAE – CAMEL FAMILY

- * *Lama glama* – Llama

SUIDAE – PIG FAMILY

- * *Sus* sp. – Pig species

BOVIDAE – BISON, BUFFALO, SHEEP, GOATS, ANTELOPES AND GAZELLES

- * *Capra aegagrus hircus* - Goat

EQUIDAE – HORSES, DONKEYS AND ZEBRAS

- * *Equus ferus caballus* - Horse

REPTILE

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—Western fence lizard

- * signifies introduced (non-native) species

APPENDIX A (Continued)

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APPENDIX B
Photo Documentation

APPENDIX B

Photo Documentation



Location 1: Dirt road/ filled in drainage channel, facing north.



Location 2: Fiddleneck field, facing southeast.



Location 3: Nesting bird box (one of three on site).



Location 4: Agriculture field with goats grazing, facing west.

APPENDIX B (Continued)



Location 5: Agriculture fields with llamas grazing and an electrical plant in the background, facing southwest.



Location 6: Tamarisk grove, facing east.



Location 7: Fiddleneck field with on-site commercial property in the background, facing northeast.



Location 8: Debris on ground, facing north.

APPENDIX B (Continued)



Location 9: Center of project site, facing east.



Location 10: Center of project site, facing northeast.



Location 11: Center of project site facing north.



Location 12: Center of project site, facing northwest.

APPENDIX B (Continued)



Location 13: Deceased goat, facing east.



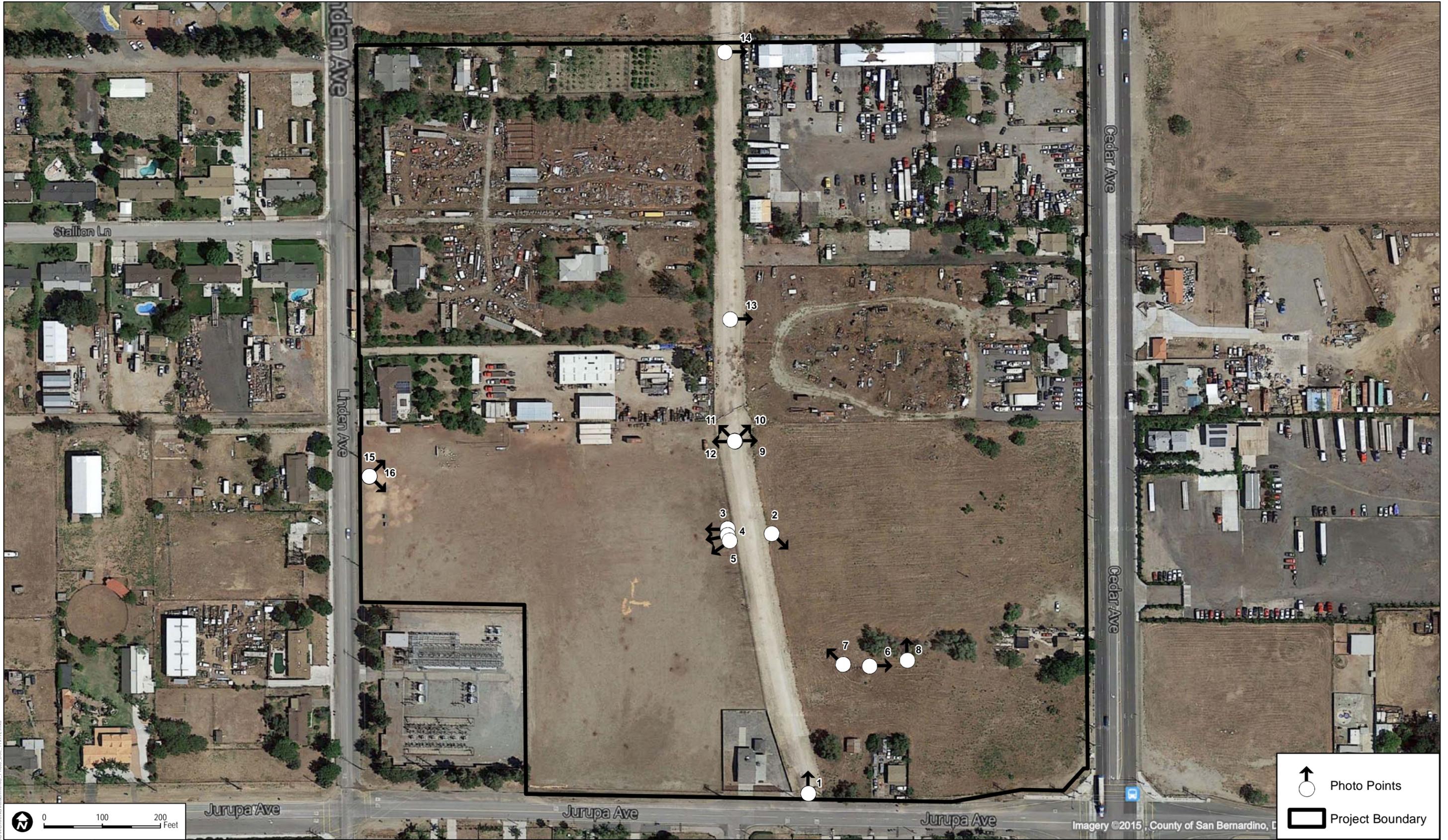
Location 14: Multiple animals in enclosure, facing northeast.



Location 15: Agriculture field, facing east.



Location 16: Agriculture field, facing southeast.



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APPENDIX C
Resumes

Linda Archer

Environmental Specialist

Linda Archer is an environmental specialist and project manager with 16 years' experience providing natural resource and regulatory compliance consulting services, specializing in the integration of natural resource and Clean Water Act (CWA) issues within the planning process, as well as application of the Rapanos Guidance. Ms. Archer's has experience preparing and providing quality assurance/quality control review for documents in compliance with the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), biological technical reports and natural environment studies, and biological assessments.

Ms. Archer advises clients on the regulatory permitting process, obtaining permits under the CWA Sections 404 and 401, California Porter-Cologne Act, state and federal Endangered Species Acts (ESAs), and California Fish and Game Code Sections 1600–1616, as well as from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife.

Ms. Archer has extensive experience managing projects in Riverside and San Bernardino counties, particularly complying with the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) and the Coachella Valley MSHCP. She performs jurisdictional delineations, general and directed surveys for federally and state-listed plants, locally important plant species identification, mitigation and construction monitoring, data collection for field studies and development of restoration plans, and oak tree assessments.

Ms. Archer has experience managing large biology teams, and maintains open communication with clients and among team members throughout the project process, enabling efficient collaboration and allocation of resources where needed to manage workload.

Project Experience

Development

Specific Plan, Benchmark Pacific Corp, Hemet, California. Served as task leader for biological and regulatory compliance services and as an assistant project manager on the EIR for a specific plan in Hemet. Natural resource issues included compliance with the Western Riverside County MSHCP, conservation of vernal pools, and obtainment of permits from the Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board.

Eagle Valley Development, Rose Investments, Inc., Lake Mathews, California. Served as biology and permitting task leader for the 800-acre master planned community located north of Lake Mathews in the sphere of influence of the City of Corona. Work efforts for this project included constraints analysis of

EDUCATION

University of Rochester
BS, Biology, Ecology, and Evolution, 1996

CERTIFICATIONS

Wetland Training Institute

- Plant Identification for Coastal Southern California, June 2007
- Advanced Hydric Soils, April 2005
- Wetland Delineation, March 2002

Southern California Coastal Water Research Project: CRAM 1-day workshop, 2008

Society for Ecological Restoration (SERCAL):
Planned Grazing in the Management of Native Grasslands, 2003

California Native Grass Association (CNGA):
Native Grassland Restoration, 2002

PROFESSIONAL AFFILIATIONS

American Planning Association, Los Angeles Chapter

California Native Plant Society

CNGA

SERCAL, California Chapter

multiple access roads connecting the project site to Cajalco Road to the south and La Sierra Avenues to the east. Biology and permitting issues included MSHCP consistency analysis including HANS review, determination of biologically equivalent or superior preservation for riparian/riverine habitat, focused surveys for special-status species, jurisdictional delineation for 15 drainages, and consultation with the associated agencies.

Mine Expansion, Justice Associates, Coachella Valley Aggregates, Riverside County, California.

Served as project manager for two mine expansion projects (180 acres and 400 acres) located in Coachella Valley in Riverside County, California. Oversaw technical studies including biological resource surveys, focused desert tortoise surveys, Coachella Valley MSHCP compliance, jurisdictional delineation, and cultural resource surveys.

CEQA Biological Study and Assorted Surveys, Trimark Pacific Homes, Victorville, California. Project manager for several projects for Trimark Pacific Homes in the Victorville area. Scope of the projects consisted of cultural resources assessment, focused Mohave ground squirrel (*Spermophilus mohavensis*) surveys, focused burrowing owl surveys (*Athene cucularia*), focused desert tortoise surveys, CEQA-level general biological technical report, jurisdictional delineation, and 404, 401, and 1602 permit compliance. Managed efforts of staff biologists and subconsultants, coordinated with regulatory agencies, and assured environmental compliance of the projects. Conducted the general biological field survey, the jurisdictional delineations, and obtained the 404, 401, and 1602 permits.

ESA Compliance and Regulatory Services, Century Vintage Homes, San Bernardino, California.

Project manager for a 280-acre site in Devore area of San Bernardino designated for residential development. Efforts included a jurisdictional delineation, regulatory advisory services, and ESA compliance.

Resource Management Plan for Planned Community, Aera Energy, LLC, Los Angeles and Orange Counties, California.

Prepared a Restoration Management Plan for an approximately 3,000-acre master planned community in Los Angeles and Orange counties. Utilized GIS to incorporate existing resources, soils, aspect, slope, and wildlife movement corridors in the development of the plan. Worked closely with the California Department of Fish and Game, the Los Angeles County Fire Department, and the Orange County Fire Authority to develop unique mitigation strategies to maximize on-site opportunities. Additionally, analyzed baseline conditions to determine impacts to special-status biological resources and develop mitigation strategies for the project and alternatives.

Resource Management Plan for Planned Community, Ahmanson Land Company, Ventura County, California.

Provided input to the Resource Management Plan for an approximately 3,000-acre master planned community in Ventura County. Contributions to the Resource Management Plan included management of special-status plant resources, a coastal sage scrub restoration plan, and a native grassland restoration plan. Conducted research on the state-listed San Fernando Valley spineflower and participated in an oak tree inventory that documented over 3,000 trees on the site.

Education

Glen Mor 2 Student Housing EIR, University of California, Riverside, Riverside, California. Project involved preparation of an EIR and associated technical studies for a University of California, Riverside (UCR) student housing community on approximately 21 acres of university-owned property. The project is covered in the University 2005 Long-Range Development Plan's (LRDP's) Land Use Plan. Ms. Archer was responsible for preparing the biological resources and jurisdictional delineation technical reports

supporting the EIR. Primary resource issues include an Arroyo within the project site, which is defined as naturalistic open space in the LRDP. The technical report included a consistency analysis of the project with the LRDP, and avoidance and mitigation measures for potential impacts to the Arroyo. The proposed project also occurs within the Western Riverside County MSHCP area. UCR is not a permittee under the Western Riverside County MSHCP; however, to address CEQA provisions related to consistency with habitat conservation plans and natural community conservation plans, the impact assessment and proposed mitigation measures were conducted and developed in accordance with the Western Riverside County MSHCP and associated implementation guidance.

Energy

Tehachapi Renewable Transmission Line Project, Biological Consulting, Southern California Edison, California. Ms. Archer served as the biological monitor manager on an approximately 174-mile transmission project that traverses from Antelope Valley through the Angeles National Forest to Chino Hills in the Los Angeles Basin. In the role of biological monitor manager, Ms. Archer was responsible for the compliance program related to biological resources during construction activities, including understanding all permit conditions related to biological resources (including CEQA mitigation measures, water permit conditions, and ESA permit conditions), providing consistency in biological monitoring and reporting across all segments, ensuring adequate staffing levels for biological monitors (up to 45 monitors per day), developing and implementing a training program for all biological monitors, and taking corrective actions for underperforming monitors.

On-Call Biological Services, Southern California Gas, California. Ms. Archer served as project manager for an on-call contract with Southern California Gas to provide biological and permitting support for operations and maintenance activities. Ms. Archer was the project manager for 12 task orders, which included biological reports (habitats assessments, plant survey, and Western Riverside County MSHCP consistency review) for the Evans Road gas pipeline installation, desert tortoise monitoring and pre-construction surveys, biological documentation (National Forest Biological Assessment/Evaluation) for the Lake Elsinore Microwave Station, and California newt (*Taricha torosa*) surveys and monitoring. Task orders frequently required mobilizing biologists in less than 24 hours to respond to emergency maintenance needs.

Municipal

Mockingbird Canyon to Harford Springs Regional Trail, Riverside County Regional Park and Open Space District, Riverside County, California. The County of Riverside Regional Park and Open Space District is developing and implementing a multi-use regional trail. As project manager, Ms. Archer oversaw completion of a constraints analysis to determine the best route for the trail and technical studies in support of a CEQA document. The constraints analysis included stakeholder and public meetings to compile trail goals and selection criteria, review of existing data to identify constraints, determination of selection criteria, use of GIS to prepare several alternative routes, and analysis of the routes to select a preferred alternative. Primary resource issues included biological resources, consistency with the Western Riverside MSHCP, and cultural resources.

San Bernardino County Department of Public Works On-Call, San Bernardino County Department of Public Works, San Bernardino County, California. Linda has been the client liaison for the County of San Bernardino Department of Public Works for approximately 6 years, managing work under an on-call contract including jurisdictional delineations, permitting, biological surveys, and CEQA compliance.

Resource Management

Upper Santa Ana River Wash Land Management and Habitat Conservation Plan, San Bernardino Valley Water Conservation District, San Bernardino County, California. The project consisted of preparation of a Habitat Conservation Plan for implementation of the Upper Santa Ana River Wash Plan. Ms. Archer served as the biologist responsible for estimating take and compiling avoidance, minimization, and mitigation measures for the potentially affected special-status plant species, San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*).

Transportation

Alabama Street Bridge Culvert Replacement Project, Lim and Nascimiento Engineering, Redlands, California. Served as project manager for a culvert replacement project at Alabama Street in the City of Redlands. Work included focused surveys for special-status plant species, completion of a Natural Environment Study for Caltrans, jurisdictional delineation, a biological assessment for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) in compliance with the ESA, and obtainment of permits from the Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board.

Boulder Street Bridge Replacement Project, Lim and Nascimiento Engineering, Highland, California. Served as task leader for regulatory compliance services for a bridge replacement project in the City of Highland. Work efforts included jurisdictional delineation, focused plant surveys, and obtainment of 404, 401, and 1600 permits. The 404 permit included a Section 7 consultation for San Bernardino kangaroo rat and Santa Ana River woollystar.

Pepper Street Bridge Plant Surveys, City of Rialto, California. Conducted focused plant surveys, which included mapping an extensive population of Santa Ana River woollystar. Assisted with the Biological Assessment, which covered Santa Ana River woollystar and San Bernardino kangaroo rat, in compliance with Section 7 of the ESA.

LAX Master Plan Supplement to Environmental Impact Statement (EIS)/EIR—Los Angeles, California. Worked on the team that drafted the biological communities, wetlands, and threatened and endangered species sections of the LAX Master Plan Supplement to the draft EIS/EIR and final EIS/EIR. Researched scientific literature and solicited input from experts to complete an impact analysis to biological resources resulting from air, light, and noise impacts.

Water/Wastewater

Mojave River Maintenance Permit, San Bernardino County Department of Public Works, San Bernardino County, California. The San Bernardino County Flood Control District (District) performs maintenance activities in accordance with the Floodplain Maintenance Plan within 35 miles of an approximately 65-mile stretch of the Mojave River. Ms. Archer oversaw the completion of the jurisdictional delineation of the subject reaches of the Mojave River. The delineation included a review and analysis of available data to determine jurisdiction based on the river having a significant nexus to a navigable feature or to interstate commerce. The Mojave River watershed is the primary watershed in the desert regions of San Bernardino County and the jurisdiction of the Mojave River has long been contested due to its ephemeral nature. Guidance from the Environmental Protection Agency and the U.S. Army Corps of Engineers issued in 2007 resulting from court cases, "Rapanos Guidance," provides a basis for determining jurisdiction based on navigability, perennial waters, and a significant nexus to such waters or to interstate

commerce. The delineation report reviewed the Mojave River in light of this guidance to determine if it still qualifies as jurisdictional for the U.S. Army Corps of Engineers.

Lake Machado and Wilmington Drain Ecosystem Rehabilitation Project, CDM, Los Angeles, California. Ms. Archer served as the project manager on this highly public project coordinating with the Los Angeles Department of Public Works Bureau of Engineering and Bureau of Sanitation, Los Angeles Recreation and Parks, and team engineers. This project is a Proposition O-funded project that includes improving the water quality within Machado Lake in the City of Los Angeles. Linda coordinated with the client (engineer) and the City (applicant), provided technical oversight on all work efforts, and participated in the jurisdictional delineation and California Rapid Assessment Method (CRAM). Work efforts included baseline biological studies, jurisdictional delineation, CRAM, development of permit strategy, pre-application consultation with agencies, restoration plan, and obtainment of permits from the Army Corps of Engineers, California Department of Fish and Game, and Regional Water Quality Control Board. Biological studies included focused surveys for least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*), focused surveys for special-status plants, population mapping of southern tarplant (*Centromadia parryi ssp. australis*), plant community mapping, and tree inventory. The project site includes approximately 40 acres of freshwater marsh and 53 acres of riparian forest. CRAM was completed on all wetland and riparian areas with a total of 18 assessment areas.

Relevant Previous Experience

ICF International

3/2008–9/2011: Southern California Biology Team Leader – Senior Project Manager

Michael Brandman Associates

3/2004–3/2008: Project Manager/Regulatory Team Leader

Sapphos Environmental Inc.

9/2001–03/2004: Biologist/Project Manager

Jessica Self

Biologist

Jessica Self is a biologist with 5 years' professional experience specializing in botanical and wildlife surveys and inventory. Her extensive experience and knowledge of California fauna and flora combined with proficiency using geographic information system (GIS) software and handheld devices makes her an asset in the field and the laboratory, where she has supervised technicians and undergraduates of varying skill levels. Her teaching experience equips her to clearly communicate scientific information in both written and oral form to industry professionals, clients, and the public. A strong background in biology, chemistry, and habitat restoration allows her to bring a unique understanding of the relationship between plant and wildlife species and their habitats to enhance environmental studies and reports. She has successfully collaborated with federal, state, local, and private agencies and excels at keeping the lines of communication open. Ms. Self has a history of successful team coordination, using data management, record keeping, and technical tools for coordination and conducting meetings.

EDUCATION

Georgia Southern University
MS, Biology, 2012

Western Washington University
BA, Biology, Chemistry Minor, 2009

CERTIFICATIONS/TRAINING

CDFW Rare Plant Voucher Collection
Permit No. 2081(a)-15-011-V

USFWS, Survey Permit:

- Fairy shrimp (submitted)
- Casey's June beetle (passed exam May 2015; permit being processed)

First Aid and CPR Certified

PROFESSIONAL AFFILIATIONS

Desert Tortoise Council (2014–2015)

CNPS (2013–2015)

Project Experience

Energy

Coles Levee Habitat Conservation Plan (HCP), Aera Energy LLC, Kern and Fresno Counties, California. As project biologist, conducted general biological reconnaissance surveys in Belridge, Lost Hills, and Coalinga. Conducted focused surveys for blunt-nosed leopard lizards (*Gambelia sila*) as the PASSPORT Training certified person in charge for all sites.

Nesting Bird Surveys, Blythe Solar Power, Blythe, California. As project biologist, conducted nesting bird surveys.

McCoy Solar Energy Nesting Bird Surveys, First Solar Electric Inc., Blythe, California. As project biologist, conducted nesting bird surveys and wrote nesting bird final reports.

Wind Energy Project Biological Technical Report, Confidential Client, Riverside, California. As project biologist, conducted general biological survey and vegetation mapping and wrote technical report.

Municipal

Warm Creek Conservation Basins Species Mitigation Plan, County of San Bernardino, Flood Control District, San Bernardino, California. Served as project biologist, wrote the Warm Creek Species Mitigation Plan for burrowing owl (*Athene cunicularia*) and nesting birds.

Tequesquite Creek Project Nesting Bird Survey Services, City of Riverside-Department of Public Works, Riverside, California. As project biologist, conducted a jurisdictional delineation and vegetation mapping in Tequesquite Creek/box springs channel. Also wrote proposal and final report.

Transportation

I-215 Keller Road Interchange Project, California Department of Transportation (Caltrans), Murrieta, California. As project biologist, conducted fairy shrimp (*Branchinecta spp.*) surveys, rare plant surveys, burrowing owl surveys, and general biological surveys. Currently writing natural environmental study report.

Water/Wastewater

North Norco Stage 11 Channel Improvements, Riverside County Flood Control and Water Conservation District, Norco, California. Wrote/constructed permit applications for Section 401 water quality certification, Clean Water Act Section 404 permitting, and streambed alteration agreement for North Norco channel improvements.

Operations and Maintenance (O&M) On Call Environmental Services Project Jurisdictional Delineation, County of San Bernardino-Flood Control District, San Bernardino, California. As project biologist, delineated jurisdictional waters for all water basins within the County of San Bernardino using ArcMap.

System Infrastructure Protection Program Environmental Impact Report (PIER), Metropolitan Water District of Southern California, Orange, California. As project biologist and biological monitor, conducted preconstruction nesting bird surveys and biological monitoring for geotechnical studies. Communicated with construction staff regarding avoidance measures and safety hazards in the area.

Biological Services for EIR Project Sensitivity Ranking System Development, County of San Bernardino-Flood Control District, San Bernardino, California. As project biologist, conducted biological sensitivity ranking for water facilities in the desert and mountain regions of San Bernardino County using ArcMap.

As-Needed Storm and Surface Water Permitting Services for Bena Landfill, Kern County Waste Management, Bakersfield, California. As project biologist, wrote an impact analysis for the Bena Landfill and assisted in the applications for the State Water Resources Control Board Section 401 water quality certification and California Department of Fish and Wildlife streambed alteration agreement permits for this project.

Relevant Previous Experience

Various Projects, ISCA Technologies Inc., Riverside, California. As project manager for all internal and external research and development projects for ISCA Technologies, reared multiple species of Coleoptera, Drosophila, Lepidoptera, and Hymenoptera and conducted laboratory and field experiments on these subjects. Wrote Small Business Innovation Research (SBIR) grants funded by the U.S. Department of Agriculture, the U.S. Department of Defense, the National Science Foundation, the National Institute of Health, and the Bill & Melinda Gates Foundation (funding up to \$1 million per grant). Wrote monthly, quarterly, semiannual, and final reports for grants and privately funded research projects. Supervised biologists and interns. Scheduled, organized, prepared, and conducted meetings with collaborators, federal agencies and funding agencies. Provided updates to, assisted, and corresponded with research collaborators worldwide. Developed, planned, conducted, and analyzed laboratory and field experiments. Developed and implemented laboratory safety protocols. Edited grants, manuscripts, and reports. Registered new products with federal and state Environmental Protection Agencies.

Various Projects, U.S. Forest Service, Stanislaus National Forest, Sonora, California. As biological science technician for the Stanislaus National Forest, acted as crew leader for the wildlife crew (seven crew members) during the 2012 field season and for the botany crew (four crew members) during the 2012 and 2013 field seasons. Led and supervised the botany crew during threatened and sensitive plant surveys and habitat restoration projects. Led and supervised the wildlife crew during California spotted owl (*Strix occidentalis*), northern goshawk (*Accipiter gentilis*), and carnivore surveys. Conducted quality checks on wildlife and sensitive plant data survey forms, as well as conducting sensitive plant and wildlife surveys, inventories, and monitoring in support of ecological restoration and resource management projects. Collected, interpreted, and supervised data collection conducted with a high standard protocol of quality control.

Planned and developed sensitive plant and wildlife surveys, inventories, and monitoring studies. Using GIS, the California Natural Diversity Database (CNDDDB), and Natural Resource Information System (NRIS), conducted prefield review analysis. Entered sensitive plant and wildlife surveys and occurrences as well as legacy data into Microsoft Access Database, GIS, CNDDDB and NRIS. Interpreted aerial photos using GIS.

Followed all applicable rules, regulations, and protocols to perform tests, analyses, and surveys. Using adaptive management techniques identified appropriate alterations when needing to adjust protocols or work methods in order to resolve problems or unforeseen situations. Established equipment requirements for projects and informed crew of any changes in required equipment. Conducted conflict resolution discussions among coworkers when necessary and focused on maintaining positive crew dynamics. Led relevant safety meetings, created crew work schedules, and ensured that all crewmembers were conducting surveys efficiently while following all U.S. Forest Service safety protocols. Organized field and lab equipment and ordered supplies.

Wrote literature reviews, grants, and data summaries. Translated technical scientific data and concepts into easy-to-interpret format, using graphs, charts, tables, and presentations. Reformatted/updated survey and occurrence forms, developed and updated protocols, and created a working herbarium. Participated in outreach opportunities and developed partnerships within the community; organized and led volunteer workdays.

Research in Alvord Basin, Oregon, Georgia Southern University, Statesboro, Georgia. As graduate assistant, conducted literature reviews and authored and submitted grants. Wrote and edited multiple manuscripts for publication. Supervised three undergraduates in the field and laboratory over the course of two years. Created publishable-quality experimental designs, gaining professional knowledge of experimental procedure and design. Performed precise record keeping and data collection. Digitized habitat, morphology, performance, and kinematic data in MATLAB and Microsoft Excel. Created research presentations using Microsoft PowerPoint for lecture and poster presentation. Attended and presented at research seminars and research symposiums. Formulated feasible hypotheses and designed statistical sampling and analytical approaches. Analyzed data using multivariate statistical analyses in JMP 10.0 software. Captured lizards, measured their morphological features, and conducted experiments on the subjects in the field while following strict animal husbandry protocols. Filmed with high-speed digital cameras.

Georgia Southern University Herpetology Collection, Statesboro, Georgia. As curatorial assistant, identified and digitized terrestrial and aquatic reptile and amphibian specimens including whole body organisms, bones, skin and eggs using Specify software. Identified all specimens at the species level. Organized legacy data.

Field Studies, Alvord Basin, Oregon. As field technician, provided field assistance while characterizing the evolution of habitat use, morphology and sprinting performance in desert lizards. Duties included capturing, conducting field experiments and releasing hundreds of lizards in the field while following strict animal husbandry protocols. Identified invertebrate species in lizard fecal samples. Collected extensive vegetation data. Performed precise record keeping and data collection.

Principles of Biology I, Georgia Southern University, Statesboro, Georgia. As lab instructor, implemented laboratory coursework, created and graded exams, and created and conducted lectures. Supervised one weekly section with 25 biology major undergraduates. Ensured proper laboratory safety and attire. Coursework focused on scientific method, microscopy, mitosis, solutions, dilutions, spectrophotometry, enzymes and catalysts, paper chromatography, DNA isolation, agarose gel electrophoresis, DNA fingerprinting, and PCR amplification.

Environmental Biology, Georgia Southern University, Statesboro, Georgia. As lab instructor, implemented laboratory coursework, created and graded exams, and created and conducted lectures. Supervised four weekly sections with 100 non-major undergraduates each semester. Ensured proper laboratory safety and attire. Coursework focused on scientific measurement, scientific investigation, allelopathy, sustainability, environmental microscopy, invasive species and biological control, lichens as bioindicators, population dynamics, and aquatic ecology. Independently identified and taught students how to identify microbes, aquatic species (including fish, macroinvertebrates, and microinvertebrates), lichens, plants, and various fungi using taxonomic keys and microscopes.

Ecological Field Methods and Research in Reptile Ecology, Alvord Basin, Fields, Oregon, Western Washington University. As teaching assistant, tracked desert horned lizards (*Phrynosoma platyrhinos*) using radio telemetry. Supervised 15 undergraduates. Trained students in plant and invertebrate identification and surveys. Maintained camp (repaired tools, cleaned and organized supplies, and cleaned camp). Trained students how to maintain a field notebook. Weighed, measured, and tagged captured lizards.

AmeriCorps Education, Georgia Sea Turtle Center, Jekyll Island, Georgia. Instructed and designed outreach programs, field trips, and adult educational programs directed toward sea turtle (Chelonioidae) anatomy, conservation, and rehabilitation. Assisted the husbandry department with surgeries, patient feedings, distributing medications, and physical therapy. Assisted with preparations for the release of sea turtles after rehabilitation. Duties include attachment of satellite tracking devices and insertion of microchips and flipper tags.

Specialized Training

- Successful CEQA Compliance – University of California, Los Angeles, Extension Center, December 2014
- Desert Tortoise Workshop – Ridgecrest, California, November 2014
- California Fairy Shrimp and Tadpole Identification – February 2015

Publications

Collins, C.E., R.E. Anderson, R.A., J.D. Self, and L.D. McBrayer. 2013. "Rock-Dwelling Lizards Exhibit Less Sensitivity of Sprint Speed to Increases in Substrate Rugosity." *Zoology* 116(3): 151–158.

Self, J.D., C.E. Collins, and L.D. McBrayer. In press. "Hurdling for Stability: Lizards Negotiate Obstacles by Altering Locomotor Posture, Kinematics, and Behavior." *Biological Journal of the Linnean Society*.

Self, Jessica D. 2012. "The Effects of Locomotor Posture on Kinematics, Performance, and Behavior during Obstacle Negotiation in Lizards." Master's thesis; Georgia Southern University, Jack N. Averitt College of Graduate Studies, Department of Biology. *Electronic Theses & Dissertations*, Paper 10. <http://digitalcommons.georgiasouthern.edu/etd/10>.

Conference Presentations

"Biological Survey Methods." April 2015. Educational outreach presentation for California State University, San Diego undergraduates at 2015 Association of Environmental Professionals California Environmental Quality Act (CEQA) Practicum.

"Sprint Performance and Running Behavior of Obstacle Crossing in the Lizards *Crotaphytus bicinctores*, *Gambelia wislizenii*, *Aspidooscelis tigris*, and *Sceloporus occidentalis*." March 2012. Paper presented with L.D. McBrayer at Georgia Southern University Graduate Research Symposium. Statesboro, Georgia.

"Sprint Performance and Running Behavior of Obstacle Crossing in the Lizards *Crotaphytus bicinctores*, *Gambelia wislizenii*, *Aspidooscelis tigris*, and *Sceloporus occidentalis*." 2012. Paper presented with L.D. McBrayer at Society for Integrative and Comparative Biology, Annual Meeting. Charleston, South Carolina. January 2012.

