APPENDIX C
BIOLOGICAL RESOURCES ASSESSMENT

FIRSTCARBONSOLUTIONS™

Biological Resources Assessment and San Bernardino Merriam's Kangaroo Rat Habitat Assessment Song and Emm Properties Project City of Redlands, San Bernardino County, California

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SECTION 1: INTRODUCTION

This Biological Resources Assessment (BRA) and San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*) Habitat Assessment was prepared by FirstCarbon Solutions (FCS) for a proposed residential development located on West Pioneer Avenue in Redlands, California (proposed project). The purpose of the BRA is to (1) document existing and potentially occurring biological resources on the project site and adjacent areas; (2) analyze potential project-related impacts on regulated biological resources; (3) summarize relevant local, State, and federal regulations; and (4) recommend appropriate measures to mitigate potential impacts on biological resources to less than significant levels.

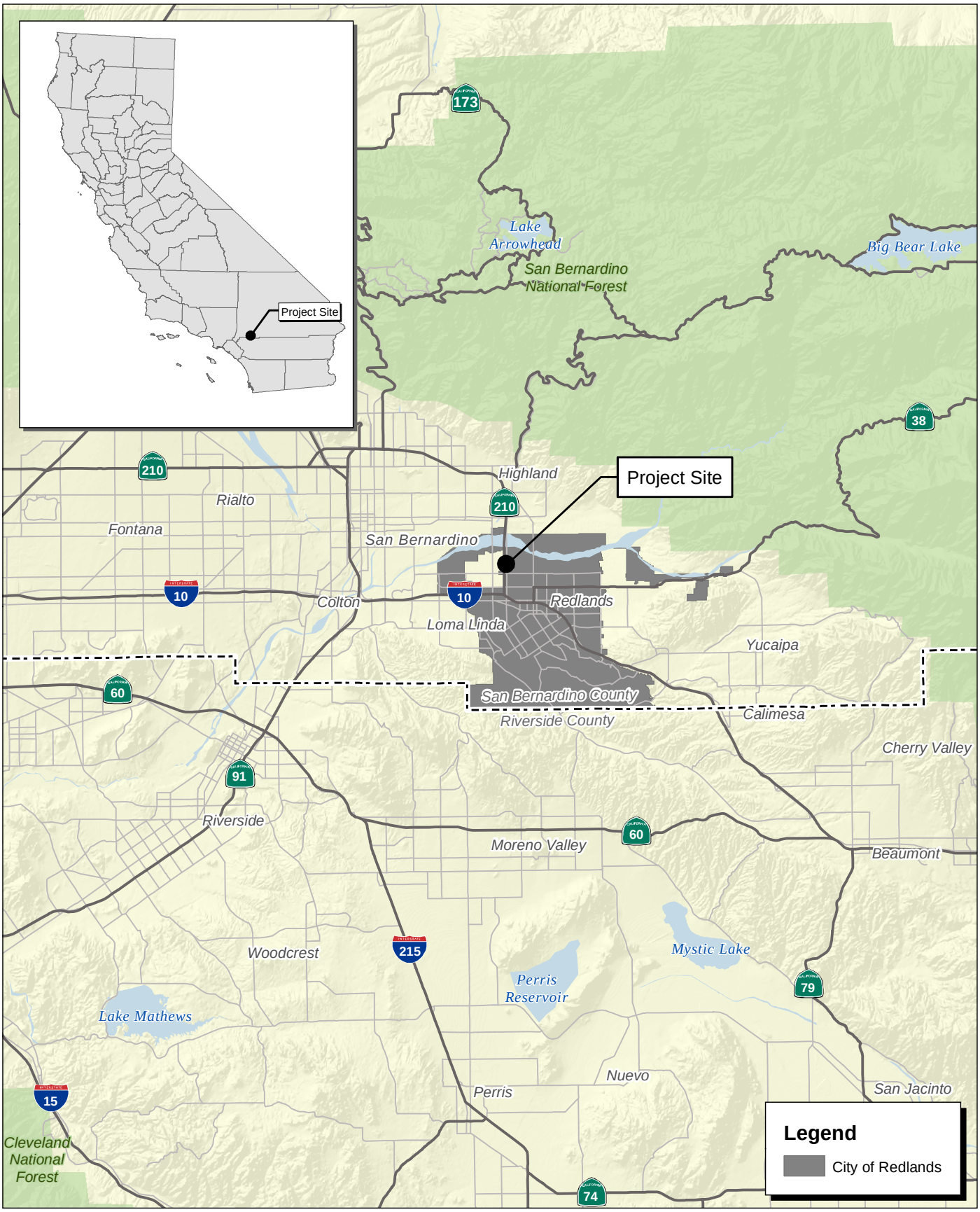
1.1 - Project Location and Setting

The 14.6 gross acre project site is located at 1160 West Pioneer Avenue in the City of Redlands, in San Bernardino County, California (Exhibit 1). The project site consists of two adjacent properties, the Song Property (Assessor's Parcel Number [APN] 016-706-101) and the Emm Property (APN 016-706-103), which are currently vacant and bounded by West Pioneer Avenue to the south, Citrus Valley High School to the east, undeveloped lands to the north, and State Route (SR) 210 to the west (Exhibit 2). The project site is located within the *Redlands, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 1 South, Range 3 West, Section 16 (Latitude 34° 4' 48" North; Longitude 117° 11' 55" West). The project site is situated on an alluvial terrace that drains into the Santa Ana River, which is located approximately 0.5 mile to the north.

1.2 - Project Description

The proposed project would include development of approximately 117 motor court homes on the 14.6-acre project site at a density of 8.1 units per acre (Exhibit 3).

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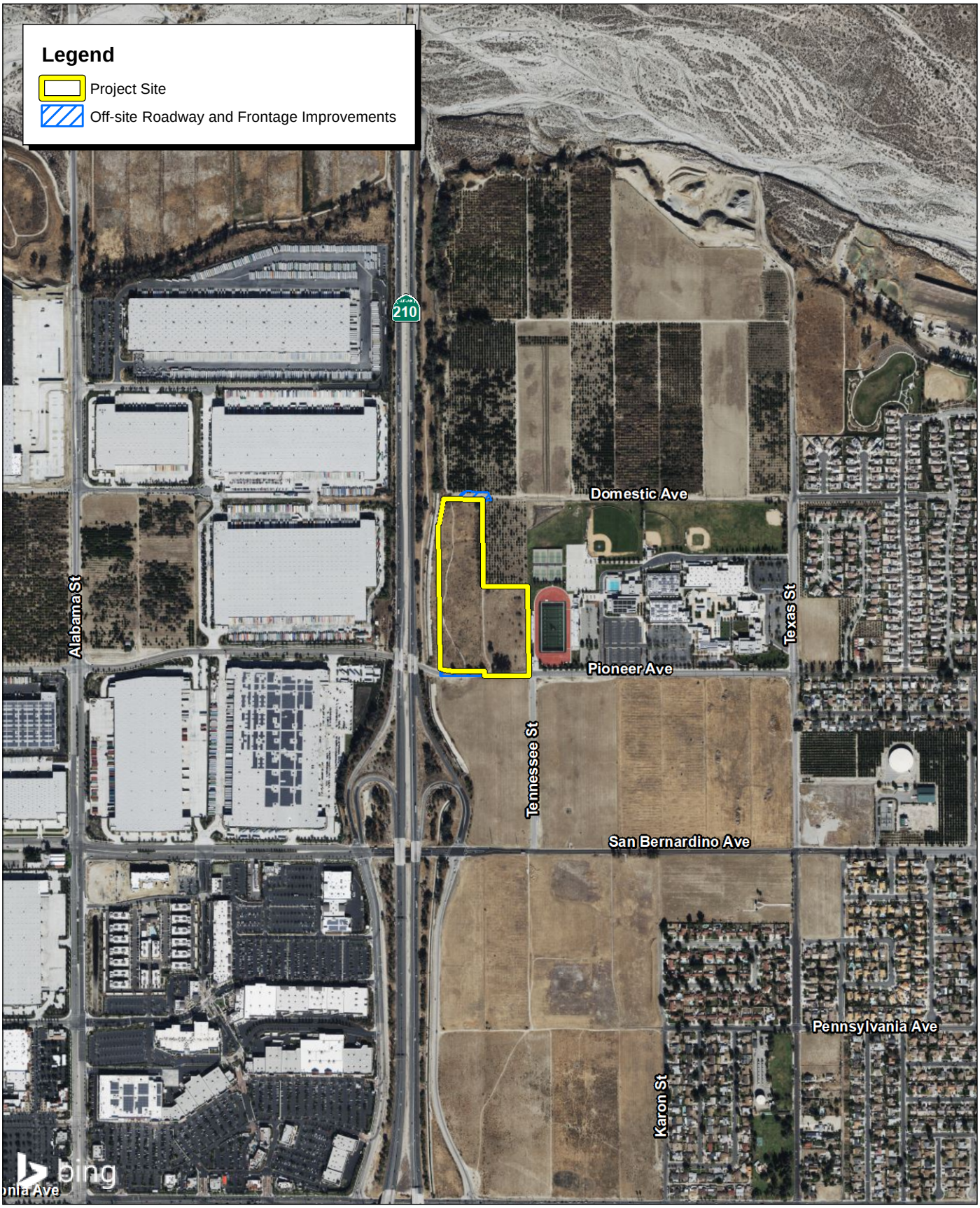
Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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Exhibit 1
Regional Location Map

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Source: Bing Aerial Imagery. Huitt-Zollars, 08/2022.

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Exhibit 2
Local Vicinity Map

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MLC HOLDINGS, INC.
SONG AND EMM PROPERTIES PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

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Source: MLC Holdings, Inc., May 2022.

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Exhibit 3
Site Plan

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SECTION 2: REGULATORY SETTING

2.1 - Federal

2.1.1 - Endangered Species Act

The United States Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under the Endangered Species Act. Section 9 of the Endangered Species Act protects listed species from "take," which is broadly defined as actions taken to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." The Endangered Species Act protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; during the environmental review process, these species are usually treated by resource agencies as if they were actually listed.

2.1.2 - Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. All migratory birds and their nests are protected from take and other impacts under the MBTA (16 United States Code [USC] § 703, *et seq*.).

2.1.3 - Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) are afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC § 669, *et seq*.) and the Bald and Golden Eagle Protection Act (16 USC §§ 668–668d).

2.1.4 - Clean Water Act

Section 404

The United States Army Corps of Engineers (USACE) administers Section 404 of the federal Clean Water Act (CWA), which regulates the discharge of dredge and fill material into waters of the United States. The USACE has established a series of nationwide permits that authorize certain activities in waters of the United States if a proposed activity can demonstrate compliance with standard conditions. Normally, USACE requires an individual permit for an activity that will affect an area equal to or greater than 0.5 acre of waters of the United States. A project that results in impacts to less than 0.5 acre of waters of the United States can normally be conducted pursuant to one of the nationwide permits if it is consistent with the standard permit conditions. The USACE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to between 0.1 and 0.5 acre. Use of any nationwide permit is contingent on the activities having no impacts on endangered species.

Section 401

As stated in Section 401 of the CWA, "any applicant for a federal permit for activities that involve a discharge to waters of the State, shall provide the federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act." Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB).

2.2 - State

2.2.1 - CEQA Guidelines

The following California Environmental Quality Act (CEQA) Guidelines Appendix G checklist questions serve as thresholds of significance when evaluating the potential impacts of a proposed project on biological resources. Impacts are considered significant if a project would:

- Have 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 Wildlife (CDFW) or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

2.2.2 - California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA pertains to State listed endangered and threatened species. CESA requires State agencies to consult with the CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code [FGC] § 2080). CESA directs agencies to consult with the CDFW on projects or actions that could affect listed species, directs the CDFW to determine whether jeopardy would occur, and allows the CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows the CDFW to

authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC § 2081).

2.2.3 - California Fish and Game Code

Under CESA, the CDFW has the responsibility for maintaining a list of endangered and threatened species (FGC § 2070). Fish and Game Code Sections 2050 through 2098 outline the protection provided to California's rare, endangered, and threatened species. Fish and Game Code Section 2080 prohibits the taking of plants and animals listed under the CESA, and Fish and Game Code Section 2081 established an incidental take permit program for State listed species. The CDFW maintains a list of "candidate species," which it formally notices as being under review for addition to the list of endangered or threatened species.

In addition, the Native Plant Protection Act of 1977 (NPPA) (FGC § 1900, *et seq*.) prohibits the taking, possessing, or sale within the State of any plants with a State designation of rare, threatened, or endangered (as defined by the CDFW). An exception to this prohibition in the NPPA allows landowners to take listed plant species under specified circumstances, provided that the owners first notify CDFW and give the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed. Fish and Game Code Section 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right-of-way." Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

In addition to formal listing under the Endangered Species Act and CESA, some species receive additional consideration by the CDFW and local lead agencies during the CEQA process. Species that may be considered for review are those listed as a "Species of Special Concern." The CDFW maintains lists of "Species of Special Concern" that serve as species "watch lists." Species with this status may have limited distributions or limited populations and/or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored, and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under CEQA and specific protection measures may be warranted. In addition to Species of Special Concern, the CDFW Special Animals List identifies animals that are tracked by the California Natural Diversity Database (CNDDB) and may be potentially vulnerable but warrant no federal interest and no legal protection.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for the assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society (CNPS) List ranked 1A, 1B, and 2 would typically require evaluation under CEQA.

Fish and Game Code Sections 3500—5500 outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. The CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock.

Under Fish and Game Code Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders of *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. To comply with the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State listed species are fully protected under the mandates of CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under Fish and Game Code Section 206.591. Authorization from the CDFW would be in the form of an Incidental Take Permit.

Fish and Game Code Section 1602 requires any entity to notify the CDFW before beginning any activity that "may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake" or "deposit debris, waste, or other materials that could pass into any river, stream, or lake." "River, stream, or lake" includes waters that are episodic and perennial and ephemeral streams, desert washes, and watercourses with a subsurface flow. A Lake or Streambed Alteration Agreement will be required if the CDFW determines that project activities may substantially adversely affect fish or wildlife resources through alterations to a covered body of water.

2.2.4 - California Porter-Cologne Water Quality Control Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State" (Water Code § 13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State" (Water Code § 13050(e)).

2.2.5 - California Native Plant Society Rare Plant Rankings

The CNPS maintains a rank of plant species that are native to California and that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Following are the definitions of the CNPS ranks:

- **Rank 1A:** Plants presumed extirpated in California and either rare or extinct elsewhere
- **Rank 1B:** Plants Rare, Threatened, or Endangered in California and elsewhere
- **Rank 2A:** Plants presumed extirpated in California but common elsewhere
- **Rank 2B:** Plants rare, threatened, or endangered in California but more common elsewhere
- **Rank 3:** Plants about which more information is needed
- **Rank 4:** Watch List: Plants of limited distribution

Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. All plants appearing on the CNPS List ranked 1 or 2 are considered to meet the CEQA Guidelines Section 15380 criteria. Rank 3 and 4 plants do not automatically meet this definition. Rank 4 plants do not clearly meet CEQA standards and thresholds for impact considerations.[1]

2.3 - Regional and Local

The proposed project does not lie within the boundaries of any adopted Habitat Conservation Plan (HCP) Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan.[1]

2.3.1 - City of Redlands

The City of Redlands General Plan 2035 (City of Redlands 2017) establishes long-range development policies to guide City departments, the Planning Commission, and City Council in their decision-making. The General Plan outlines principles and actions pertaining to natural resources and guidance for location, design, and quality of development to protect important wildlife, plants, and their associated habitats:

Principle 6-P.1 Develop a balanced and integrated open space system that reflects a variety of considerations, including resource conservation, production of agriculture, recreation, aesthetics, and community identity.

Principle 6-P.5 Encourage the preservation of natural habitat areas as open space.

Principle 6-P.6 Promote access to and views of conservation areas in a manner consistent with good land resource stewardship.

Action 6-A.1 Preserve as open space those areas that contain unique habitats, natural resources, and visual amenities such as citrus groves, hillsides, canyons, and waterways. These areas provide natural contrast with the urban cityscape.

Action 6-A.7 Work with San Bernardino County, neighboring cities, conservation organizations, and landowners to maintain and enhance the trails, roadways, and lands within the Emerald Necklace, and to ensure that sensitive resources in these areas are not disturbed or degraded.

[1] California Native Plant Society (CNPS). 2020. Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis. Sacramento, CA. January.

Action 6-A.8 Provide sufficient resources for the maintenance of trails and conservation areas through both volunteer and City mechanisms.

Principle 6-P.7 Protect environmentally sensitive lands, wildlife habitats, and rare, threatened, or endangered plant and animal communities.

Principle 6-P.8 Minimize disruption of wildlife and valued habitat throughout the Planning Area and emphasize that open space is for more than just human use, but also serves as habitat for biological resources.

Principle 6-P.9 Preserve, protect, and enhance wildlife corridors, including natural watercourses, connecting the San Bernardino National Forest, Santa Ana River Wash, Crafton Hills, San Timoteo and Live Oak Canyons, the Badlands, and other open space areas.

Action 6-A.11 Require a biological assessment of any proposed project site within the Planning Area where species that are State or federally listed as rare, threatened, or endangered are identified as potentially present.

Action 6-A.12 Require that proposed projects adjacent to, surrounding, or containing wetlands, riparian corridors, or wildlife corridors be subject to a site-specific analysis that will determine the appropriate size and configuration of a buffer zone.

Action 6-A.13 Utilize conservation easements and preserves as means to conserve natural habitats.

Action 6-A.14 Construct freeway and arterial street undercrossings or overpasses where necessary to establish and preserve identified wildlife corridors.

Action 6-A.20 Work with State and County agencies in developing recovery and restoration plans after natural or man-made disasters to restore natural landscapes, habitats, and functioning ecosystems. As part of the recovery and restoration plans, include evaluation processes and implementation actions. Where appropriate, incorporate the use of native species.

Action 6-A.21 Ensure that future activities in the Santa Ana River Wash are consistent with the habitat conservation policies of the Upper Santa Ana River Land Management Habitat Conservation Plan (Wash Plan).

Redlands City Code

Chapter 12.52 of the Redlands City Code outlines the City's Tree Protection Guidelines. These guidelines are applicable to the following categories of trees as defined by this chapter of the City Code:

Public Tree A tree located in a public place or area under ownership or control of the City, including, but without limitation, City streets, parkways, open space, and park lands.

Specimen Tree Any public tree meeting the criteria established by resolution of the City Council by species and size of tree which is thereby presumed to possess distinctive form, size or age and to be an outstanding specimen of a desirable species and to warrant the protections of this chapter.

Landmark Tree A public tree designated as a historic resource under Chapter 2.62 of this code as a tree of historic or cultural significance and of importance to the community due to any of the following factors: it is one of the largest or oldest public trees of the species located in the City, it has historical significance due to an association with a historic building, site, street, person or event, or it is a significant outstanding feature of a neighborhood.

Native Tree Any tree, identified by a certified arborist as native to the local area, with a trunk more than eight inches (8”) in diameter at a height of four and one-half feet (4 ½’) above natural grade that is identified on a list of native trees approved by the City Council.

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SECTION 3: METHODS

3.1 - Literature and Database Reviews

This literature review provides a baseline from which to evaluate potential project impacts on biological resources on the project site and in the surrounding area.

3.1.1 - Existing Documentation

As part of the literature review, an FCS Biologist examined existing environmental documentation for the project site and vicinity. This documentation included literature pertaining to the habitat requirements of special-status species with the potential to occur in the project vicinity; and federal register listings, protocols, and species data provided by the USFWS and CDFW.

3.1.2 - Topographic Maps and Aerial Photographs

An FCS Biologist reviewed current USGS 7.5-minute topographic quadrangle map(s)and aerial photographs as a preliminary analysis of the existing conditions within the project site and immediate vicinity.[2] Information obtained from the topographic maps included elevation, general watershed information, and potential drainage feature locations using Google Earth in conjunction with the United States Environmental Protection Agency (EPA) Watershed Assessment, Tracking, and Environmental Results System (WATERS).[3] Aerial photographs provided a perspective of the current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

3.1.3 - Soil Surveys

The United States Department of Agriculture (USDA) has published soil surveys that describe the soil series (i.e., group of soils with similar profiles) occurring within a particular area.[4] These profiles include major horizons with similar thickness, arrangement, and other important characteristics. These series are further subdivided into soil mapping units that provide specific information regarding soil characteristics. Many special-status plant species have a limited distribution based exclusively on soil type. Therefore, pertinent USDA soil survey maps were reviewed to determine the existing soil mapping units within the project site and to establish whether the soil conditions on-site are suitable for any special-status plant species.

3.1.4 - Special-status Species Database Search

An FCS Biologist compiled a list of threatened, endangered, and otherwise special-status species previously recorded within the project vicinity based on a search of the USFWS Information for

[2] United States Geological Survey (USGS). 2021. National Geospatial Program. Website: https://www.usgs.gov/core-science-systems/national-geospatial-program/us-topo-maps-america?qt-science_support_page_related_con=4#qt-science_support_page_related_con. Accessed March 2023.

[3] United States Environmental Protection Agency (EPA). 2021. Watershed Assessment, Tracking and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed March 2023.

[4] Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey (WSS). United States Department of Agriculture (USDA). Website: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed March 2023.

Planning and Consultation (IPaC) database,[5] the California Natural Diversity Database (CNDDB), and the CNPS Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California.[6,7] The CNDDB search focused on species records within 10 miles of the project site. The CNPSEI search focused on records from the *Redlands, California,* USGS 7.5-minute Topographic Quadrangle Map and the eight surrounding quadrangles. The CNDDB Biogeographic Information and Observation System (BIOS 5) was used to determine distances between species occurrences and the project site.[8]

The potential for occurrence on the project site was assessed for each of the special-status species identified in the database searches. The potential for occurrence was assessed based on conditions on the project site, habitat requirements of special-status species, and number of recent (< 20 years old) occurrences in the project vicinity.

3.1.5 - Jurisdictional Waters and Wetlands

Prior to conducting the reconnaissance-level survey, an FCS Biologist reviewed EPA WATERS and aerial photography to identify potential natural drainage features and water bodies.[9] In general, all surface drainage features identified as blue-line streams on USGS maps and linear patches of vegetation are expected to exhibit evidence of flows and are considered potentially subject to State and federal regulatory authority as waters of the United States and/or State. A preliminary assessment was conducted to determine the location of any existing drainages and limits of project-related grading activities to aid in determining whether a formal delineation of waters of the United States or State is necessary.

3.2 - Field Surveys

3.2.1 - General Biological Survey

Senior Biologist Matthew South and Biologist Lucas South conducted a survey on March 9, 2023. The objective of the general survey was to ascertain general site conditions and identify whether existing vegetation communities provide suitable habitat for special-status plant or wildlife species. During this survey, the Biologist walked and drove the project site and characterized and mapped vegetation communities, identified and recorded plants and wildlife observed on-site, and recorded evidence of wildlife habitats, including wildlife corridors, nests, dens, or burrows. Special-status or unusual biological resources identified during the literature review were ground-truthed during the field survey for mapping accuracy. Special attention was paid to sensitive habitats and areas potentially supporting special-status floral and faunal species.

[5] United States Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation (IPaC). Website: https://ecos.fws.gov/ipac/. Accessed March 2023.
[6] California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed March 2023.
[7] California Native Plant Society (CNPS). 2021. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed March 2023.
[8] California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed March 2023.
[9] United States Environmental Protection Agency (EPA). 2021. Watershed Assessment, Tracking and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed March 2023.

Vegetation Communities and Plants

Common plant species observed during the general biological survey were identified by visual characteristics and morphology in the field and recorded in a field notebook and on field maps. Uncommon and fewer familiar plants were identified with the use of taxonomical guides, including Jepson eFlora and Calflora.[10,11] Taxonomic nomenclature used in this study follows The Jepson Manual: Vascular Plants of California.[12] Common plant names, when not available from The Jepson Manual, were taken from other regionally specific references. Vegetation community types and boundaries were noted on aerial photos, verified through field observation, and digitized using ESRI ArcGIS software® ArcMap 10.0. By incorporating collected field data and interpreting aerial photography, a map of habitat types, land cover types, and other biological resources within the project site was prepared. Vegetation community and land cover types used to help classify habitat types are based on the Manual of California Vegetation (MCV) and cross-referenced with the CDFW Natural Communities List.[13,14]

Wildlife

Wildlife species detected during the general biological survey by sight, calls, tracks, scat, or other signs were recorded. Notations were made regarding suitable habitat for those special-status species determined to have the potential to occur within the project site.[15] Appropriate field guides were used to assist in species identification during surveys, such as Peterson, Reid, and Stebbins.[16,17,18] Online resources such as eBird and California Herps were also consulted, as necessary. [19,20]

Wildlife Movement Corridors

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Urbanization and the resulting fragmentation of open space areas create isolated “islands” of wildlife habitat, forming separated populations. Corridors act as an effective link between populations.

The project site was evaluated for evidence of a wildlife movement corridor during the general biological survey. The scope of the biological resource assessment did not include a formal wildlife movement corridor study utilizing track plates, camera stations, scent stations, or snares. Rather, the

[10] Jepson Flora Project (eds.) 2021. Jepson eFlora, https://ucjeps.berkeley.edu/eflora/. Accessed on March 22, 2022.
[11] Calflora. 2020. Calflora: Information on California plants for education, research, and conservation. Website: http://www.calflora.org/. Accessed on March 2023.
[12] Baldwin, B., et al. 2012. The Jepson Manual: Vascular Plants of California. Berkeley: University of California Press. County of San Bernardino (Bernardino)(amended 2015).
[13] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento. 1300 pp.
[14] California Department of Fish and Wildlife (CDFW). 2021. Natural Communities List, Sacramento: California Department of Fish and Wildlife. Website: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities. Accessed March 2023.
[15] California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed March 2023.
[16] Peterson, T.R. 2010. A Field Guide to Birds of Western North America, 4th Edition. Boston: Houghton Mifflin Harcourt.
[17] Reid, F. 2006. A Field Guide to Mammals of North America, Fourth Edition. Boston: Houghton Mifflin Harcourt.
[18] Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. Third Edition. Boston: Houghton Mifflin Harcourt.
[19] eBird. 2021. Online bird occurrence database. Website: http://ebird.org/content/ebird/. Accessed March 2023.
[20] California Herps. 2021. A Guide to the Amphibians and Reptiles of California. Website: http://www.californiaherps.com/Accessed March 2023.

focus of this study was to determine whether a change in land use at the project site could have significant impacts on the regional movement of wildlife. Conclusions are based on the information compiled during the literature review, including aerial photographs, USGS topographic maps, and resource maps for the vicinity; the field survey; and professional experience with the desired topography, habitat, and resource requirements of the special-status species potentially utilizing the project site and vicinity.

3.2.2 - San Bernardino Merriam's Kangaroo Rat Field Habitat Assessment

During the general biological survey of the project site, the FCS Biologist searched the project site and 500-foot buffer area for the presence of vegetation communities that could breeding and/or foraging habitat for San Bernardino Merriam's kangaroo rat, including Riversidian alluvial fan sage scrub, and ruderal and annual grassland habitats with open vegetation and bare areas. The Biologist also evaluated the condition and suitability of existing wildlife habitats and searched the project site for evidence of kangaroo rats, including burrows, tracks, and scat.

SECTION 4: RESULTS

This section summarizes the results of the literature search and general biological reconnaissance survey. The results of the sensitive biological resources database reviews and an analysis for the potential for occurrence of these resources on the project site are presented in Section 5. An analysis of project requirements for CEQA consistency is presented in Section 6.

4.1 - Literature Review

4.1.1 - Environmental Setting

The Song Property and the Emm Property to the east are currently vacant. Both parcels show signs of previous human use including recent disking and dumping. Former home foundations were also present on the Song Property. The project site is surrounded by urban development and SR-210 to the west, active construction (fully graded) and the Santa Ana River to the north, vacant land to the south and southeast and Citrus Valley High School to the east.

Soils

The Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) mapped one soil type (Ramona sandy loam, 0 to 2 percent slopes) on the project site and two soil types (Ramona sandy loam, 0 to 2 percent slopes and Pachappa fine sandy loam, 0 to 2 percent slopes) within the off-site road improvements area (Exhibit 4). The Ramona series soils are brown, slightly and medium acid, sandy loams and fine sandy loams. The Pachappa series soils consist of well drained (minimal) Noncalcic Brown soils developed from moderately coarse textured alluvium.

4.2 - Biological Surveys

Consulting Biologist, FCS Senior Biologist, Michael Tuma, PhD, conducted the general biological survey of the project site on August 5, 2022, between approximately 9:00 a.m. to 10:30 a.m. Weather conditions during the field surveys were sunny and clear, with temperatures ranging from 79 to 80°F (degrees Fahrenheit), and wind speeds between 0 and 3 miles per hour (mph). Vegetation Communities and Land Use

The project site consists of undeveloped lands that were recently disked and vegetated in ruderal species at the time of the survey. Adjacent lands within 500 feet of the project site included ruderal habitat and urban/developed lands (Exhibit 5). Photographs of the vegetation communities on-site are presented in Appendix B. Detailed descriptions of vegetation communities and land cover types are provided below.

Ruderal/Disturbed

Ruderal/disturbed habitat is classified as areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association but continue to retain a soil substrate. Typically, if any vegetation is present, it is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species that take

advantage of disturbance or show signs of past or present animal usage that precludes them from providing viable natural habitat for uses other than dispersal. Examples of disturbed land include areas that have been graded, land that is repeatedly cleared for fuel management purposes and/or experienced repeated use that prevents natural revegetation (i.e., dirt parking lots, trails that have been present for several decades), recently graded firebreaks, graded construction pads, construction staging areas, off-road vehicle (OHV) trails, and old home-sites.

Ruderal/disturbed habitat occurs over the entire project site and on adjacent, undeveloped lands. Most areas exhibiting ruderal habitat were recently disked for weed abatement activities. The soil surface is predominantly bare in the recently disked areas, but the southwestern portion of the Song Property and areas bordering Pioneer Avenue were not disked and exhibited relatively dense ruderal vegetation. Plant species observed in ruderal areas included prickly Russian thistle (*Kali tragus*), common fiddleneck (*Amsinckia intermedia*), puncturevine (*Tribulus terrestris*), London rocket (*Sisymbrium irio*), shortpod mustard (*Hirschfedlia incana*), telegraph weed (*Heterotheca grandiflora*), and Canada horseweed (*Erigeron canadensis*), red brome (*Bromus rubens*), and ripgut brome (*Bromus diandrus*).

Urban/Developed

Urban developments are characterized by a combination of developed and hardscaped areas and manicured vegetation, including street/shade trees, lawns, and shrubs, and little or no exposed soil substrates. Irrigation and fertilization allow for tropical and other non-native and ornamental species to flourish in urban areas. Trees are often grown in a spaced pattern with an open understory, and lawns are typically one species maintained at a continuous, uniform height. Shrubs are grown as spaced individuals or in tight rows that are hedged. These conditions provide habitat to a low diversity of wildlife that are tolerant of human-modified environments.

Urban/developed lands in the 500-foot buffer around the project site include Citrus Valley High School to the east and SR-210 and industrial warehouses to the west of the project.

Trees

Scattered trees and shrubs were observed in ruderal areas on-site, including black elderberry (*Sambucus nigra*), tree tobacco (*Nicotiana glauca*), tree of heaven (*Ailanthus altissima*), and lemon-scented gum (*Corymbia citriodora*). On the Emm Property, a small group of black elderberry trees is present on the eastern side of the parcel. Several scattered elderberry trees were also observed on the Song Property, including some that had been disked over but survived the disturbance. Several of the black elderberry trees, which grow as multi-trunked trees, appeared to have combined trunk measurements exceeding 8 inches diameter at breast height (DBH; approximately 4.5 feet above the ground surface). A row of lemon-scented gum trees is located along Pioneer Avenue on the southern border of the Song Property.

4.2.1 - Wildlife

Despite the highly modified environment on and adjacent to the project site, the vegetation community and land cover types there provide habitat for numerous wildlife species capable of tolerating those conditions. Even the anthropogenic features on the project site (buildings, shipping

containers, stored equipment, and concrete foundations) could provide habitat for numerous wildlife species. Wildlife activity during the general biological reconnaissance survey was moderate and consisted primarily of avian and mammalian species. Evidence of other species was evident in tracks, scat, and other signs, as well as information provided by the current site occupant. The following discussions regarding the wildlife species observed within the project site are organized by taxonomic group. Each discussion contains representative examples of a particular taxonomic group either observed or expected to occur on-site. No special-status wildlife species were observed during the survey.

Amphibians and Fish

No amphibian or fish species were observed on-site during the general biological reconnaissance survey. Because of arid climate in the region, amphibians are uncommon and typically limited to areas where sufficient sources of water are present. A channelized drainage feature paralleling SR-210 conveys water runoff to the Santa Ana River, but it does not likely hold water for sufficient periods that would allow for occurrence of fish or amphibians. A basin associated with the Citrus Valley High School grounds may hold water during storm events but would likely not support breeding habitat for amphibians. With no apparent open water sources on-site or in the vicinity, amphibians and fish are not expected to occur on-site or within a 500-foot buffer.

Birds

Avian activity was moderate during the field survey. Dr. Tuma identified common native and non-native species, including mourning dove (*Zenaida macroura*), Eurasian collared dove (*Streptopelia decaocto*), rock pigeon (*Columba livia*), Anna's hummingbird (*Calypte anna*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), bushtit (*Psaltriparus minimus*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), California towhee (*Melozone crissalis*), house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), and western meadowlark (*Sternella neglecta*). Birds may find nesting platforms throughout the project site on bare ground, in grasses, shrubs, and trees, and in similar habitats and on buildings within 500 feet of the project.

Invertebrates

Three butterflies, painted lady (*Vanessa cardui*), common buckeye (*Junonia coenia*), and cabbage white (*Pieris rapae*), were observed on-site, as were European honeybees (*Apis mellifera*), houseflies (*Musca domestica*), oblique streaktail (*Allograpta obliqua*), California harvester ant (*Pogonomyrmex californicus*), and blue dasher (*Pachydiplax longipennis*). Other invertebrates that likely occur at the site year-round or during seasonal pulses include several species of beetles, flies, ants, bees, wasps, moths and butterflies, and spiders and tarantulas, among others.

Mammals

Two mammalian species were observed on-site during the general biological field survey, including California ground squirrel (*Otospermophilus beecheyi*) and desert cottontail (*Sylvilagus audubonii*). Burrows, scat, and tracks of other mammals were evident on-site, including coyote (*Canis latrans*), and valley pocket gophers (*Thomomys bottae*). Other mammalian species that may be present on

the project site include Virginia opossum (*Didelphis virginiana*), California myotis (*Myotis californicus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), western harvest mouse (*Reithrodontomys megalotis*), black rat (*Rattus rattus*), and house mouse (*Mus musculus*).

Reptiles

Two reptiles, western side-blotched lizard (*Uta stansburiana elegans*) and Great Basin fence lizard (*Sceloporus occidentalis longipes*), were observed on the project site. Other common reptiles that may occur on-site include San Diego gophersnake (*Pituophis catenifer annectens*) and California kingsnake (*Lampropeltis californiae*). Wildlife Movement Corridors

A channelized drainage located west of the project site but within its 500-foot buffer likely provides a movement corridor for a number of terrestrial wildlife species, including Virginia opossum, coyote, raccoon, striped skunk, several rodent species, and several lizard species, including San Diegan tiger whiptail. The channelized drainage provides a connection and movement corridor between the Santa Ana River Wash to the north and the parcel supporting ruderal vegetation located directly southwest of the project site. The channelized drainage supports native riparian woodland species and eucalyptus trees that provide cover for dispersing wildlife species. The bank of the channelized drainage and portions of the terrace area adjacent to and up to approximately 30 feet of the edge of the bank likely also function as a part of the wildlife movement corridor. The channelized drainage bank and the adjoining terrace may be particularly useful for wildlife movements in areas where homeless encampments within the channelized drainage may limit the movement of some wildlife species. The project site itself does not serve as a wildlife movement corridor.

4.2.2 - San Bernardino Merriam's Kangaroo Rat Habitat Assessment

San Bernardino Merriam's kangaroo rat occurs on alluvial floodplains of the Santa Ana River and its tributaries and adjacent upland habitats in the San Bernardino, Menifee, and San Jacinto Valleys in San Bernardino and Riverside Counties. The Santa Ana River supports suitable habitat and one of the largest extant populations of the species.[21] Critical habitat for the species was designated in the Santa Ana River Wash by the USFWS. San Bernardino Merriam's kangaroo rat prefers early (pioneer) and intermediate successional stages of Riversidian alluvial fan sage scrub, a plant community with coastal sage scrub and chaparral elements on alluvial terraces and braided river channels in Southern California.[22] The species excavates burrows in loose, sandy soils, usually near or beneath shrubs. The species may also occur in abandoned agricultural fields and orchards, but usually only when such habitats are adjacent to suitable natural habitats. San Bernardino Merriam's kangaroo rat abundance is greatest in areas of sandy soils with low-to-moderate perennial vegetative cover (less than 30 percent to 50 percent) and minimal density of non-native annual grass cover.[23,24] Presence of San Bernardino Merriam's kangaroo rat is negatively correlated with dense stands of non-native

[21] McKernan, R.L. 1997. The status and known distribution of the San Bernardino kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Prepared for the United States Fish and Wildlife Service, Carlsbad, California.

[22] McKernan, R.L. 1997. The status and known distribution of the San Bernardino kangaroo rat (Dipodomys merriami parvus): field surveys conducted between 1987 and 1996. Prepared for the United States Fish and Wildlife Service, Carlsbad, California.

[23] Ibid.

[24] MEC Analytical Systems, Inc. 2000. Final report of findings for the San Bernardino kangaroo rat and Habitat relationships 1999 field study for the Santa Ana River alluvial fan, San Bernardino County, California. Report prepared for the United States Army Corps of Engineers, Los Angeles District.

grasses and areas dominated by surface boulders and rocks, and positively correlated with sandy soils, sparse vegetation cover, and presence of scalebroom (*Lepidospartum squamatum*).[25,26]

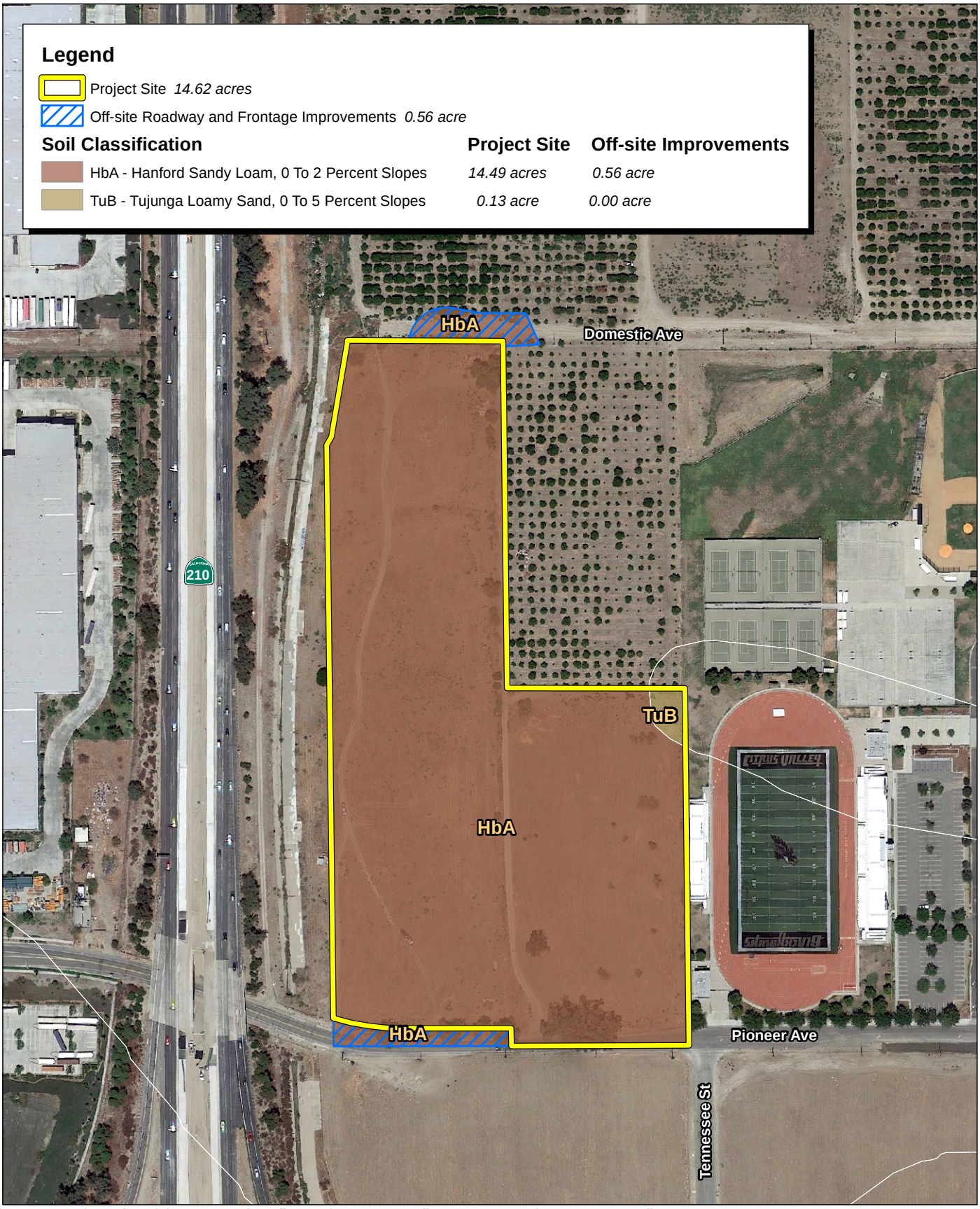
Habitat conditions on the project site, including the open, ruderal, grassland-like habitat appear to be marginally suitable for San Bernardino Merriam's kangaroo rat occupancy. Portions of the Song Property may have been used for planting of citrus orchards during historical times, and building ruins located on the Emm Property indicates it was previously occupied and used by humans. In recent years regular disking of the project site has maintained an open habitat that is preferred by San Bernardino Merriam's kangaroo rats, allowing them to recolonize the site after the removal of orchards and abandonment of residential/agricultural use of the site. The channelized drainage west of the project site provides a potential wildlife movement corridor that could allow access of the site by San Bernardino Merriam's kangaroo rats from the Santa Ana River, where a large population of the species is known to occur north of the project site.[27]

[25] Root, B. 2008. 2005-2007 San Bernardino Kangaroo Rat Mark-Recapture Survey Analyses from the Woolly Star Preserve Area, San Bernardino County, California. Report prepared for the United States Army Corps of Engineers, Los Angeles District. 87 pp.

[26] Root, B. 2008. 2006-2007 San Bernardino Kangaroo Rat Occupancy Survey Analyses from the Woolly Star Preserve Area, San Bernardino County, California. Prepared for the United States Army Corps of Engineers. United States Fish and Wildlife Service. December. 153 pp.

[27] McKernan, R.L. 1997. The status and known distribution of the San Bernardino kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Prepared for the United States Fish and Wildlife Service, Carlsbad, California.

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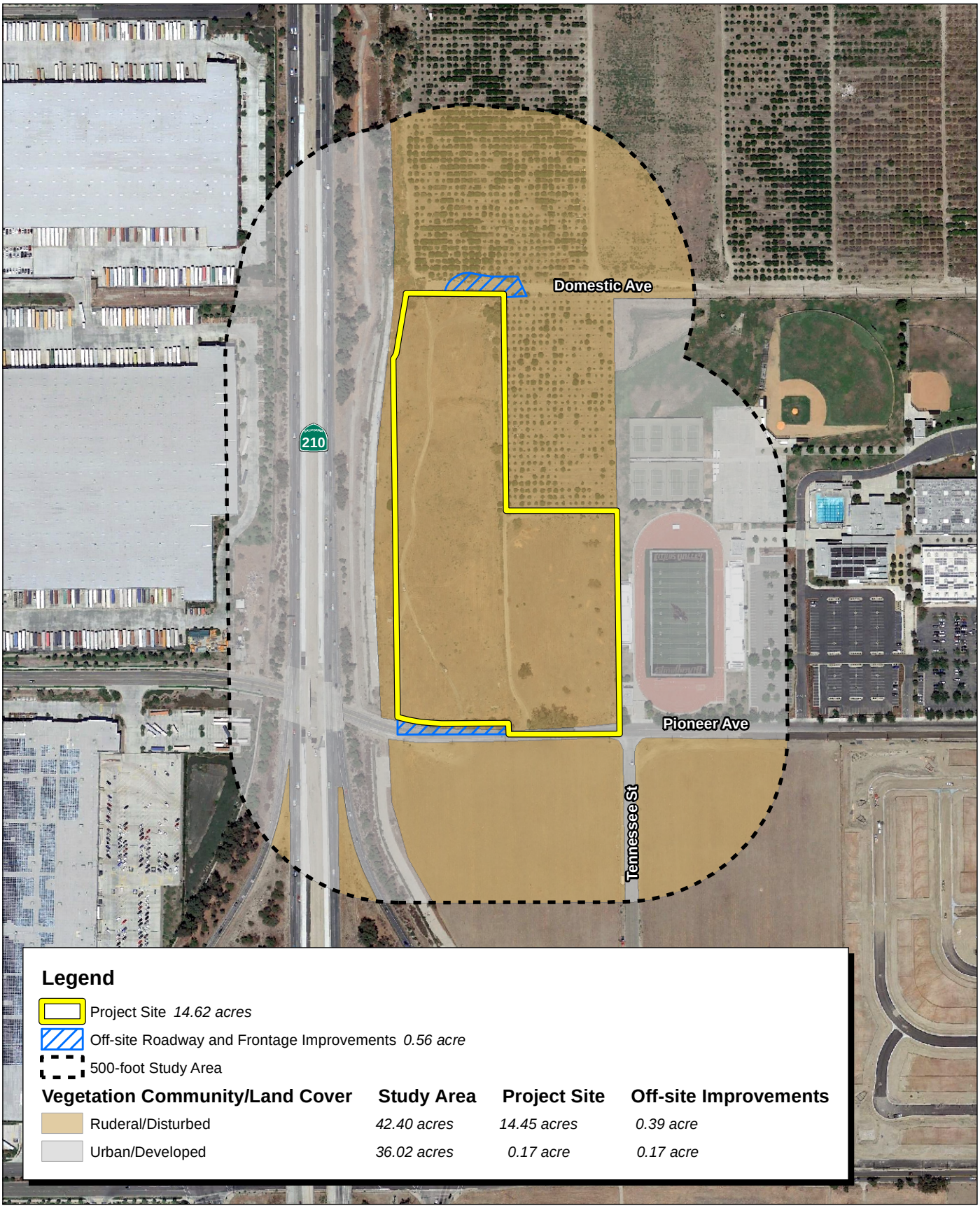
Source: Google Earth Aerial Imagery. Huitt-Zollars, 08/2022. USDA Soils Data Mart, Southwest San Bernardino.

FIRSTCARBON SOLUTIONS™

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Feet

Exhibit 4
Soils Map

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Source: Google Earth Aerial Imagery. Huitt-Zollars, 08/2022.

FIRSTCARBON SOLUTIONS™

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Exhibit 5
Vegetation Community/Land Cover

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SECTION 5: SENSITIVE BIOLOGICAL RESOURCES DATABASE REVIEWS

The following section discusses the results of the database reviews for sensitive biological resources and an analysis of the potential for these resources to occur within the project site based on existing biological conditions on and adjacent to the site.

5.1 - Sensitive Natural Communities

Sensitive natural communities are vegetation communities or special wildlife habitats that are rare or occur in limited distributions or provide specific habitat requirements for special-status plant or wildlife species. The CDFW maintains a list of natural communities which attempts to classify vegetation types found within the State of California and rank them based on rarity. Communities ranked S1-S3 are considered sensitive natural communities.[28] The CNDDB identified three sensitive natural communities that are known to occur within 5 miles of the project site: Southern Mixed Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Riversidian Alluvial Fan Sage Scrub. Seven sensitive natural communities, including Canyon Live Oak Ravine Forest, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub have been recorded in the CNDDB between 5 and 10 miles from the project site.[29] These communities are not present on or adjacent to the project site.

5.2 - Special-status Plant Species

According to the CNDDB, 19 special-status plant species have been recorded within 5 miles of the project site and an additional 14 species have been recorded between 5 and 10 miles from the project site.[30,31] An additional 50 species were identified on the 9-quadrangle CNPSEI search, and one additional species was identified in the USFWS IPaC review (Appendix C, Table 1). Table 1 in Appendix C includes the species' status, required habitat, and a summary analysis of the potential for each of these species to occur on the project site. Special-status plant species that were determined to have low or no potential to occur on-site appear in the table with justification for their exclusion from further discussion. The potential for occurrence of a species was based on presence of suitable habitats, soil types, and occurrences recorded by the CNPSEI and CNDDB.[32,33] Previous and significant surface disturbances evident throughout the project site and the presence and abundance of several non-native, invasive, annual plant species there have likely lowered the potential for persistence and occurrence of populations of many special-status plant species.

[28] California Department of Fish and Wildlife (CDFW). 2021. Natural Communities List, Sacramento: California Department of Fish and Wildlife. Website: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities. Accessed March 2023.

[29] California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed March 2023.

[30] Ibid.

[31] California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed March 2023.

[32] California Native Plant Society (CNPS). 2021. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed March 2023.

[33] California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed March 2023.

5.2.1 - Potential for Occurrence of Special-status Plants

The project site is significantly disturbed and is surrounded by urbanized development and undeveloped lands that have been repeatedly disturbed (disked). Because of the conditions on and adjacent to the project site, all special-status plants that occur in the region were assessed as having no potential for occurrence (Appendix C, Table 1). Thus, special-status plants are not expected to occur on the project site and are not discussed further.

5.3 - Special-status Wildlife Species

Forty-two special-status wildlife species were identified as occurring within 5 miles of the project site as recorded in the CNDDB and an additional 14 species were identified in the USFWS IPaC review (Appendix C, Table 2).[34,35,36] Table 2 in Appendix C includes the species' status, required habitat types and features, and potential to occur within the project site. The table also includes special-status wildlife species that have been determined to have low or no potential to occur on-site, primarily based on the absence of suitable habitat and the lack of recorded occurrence in the project vicinity, along with other justification(s) for their exclusion from further discussion. Special-status wildlife species with moderate to high potential to occur on-site are analyzed further below. The potential for wildlife to occur on the project site was based on presence of suitable habitats and occurrences recorded in the CNDDB.

5.3.1 - Potential for Occurrence of Special-status Wildlife

The project site contains suitable habitat conditions that provide at least a moderate potential for the following special-status wildlife species to occur on-site:

Species evaluated with a **moderate** potential to occur include:

- San Diegan tiger whiptail
- Southern California legless lizard *(Anniella stebbinsi*)
- Cooper's hawk (*Accipiter cooperii*)
- burrowing owl (*Athene cunicularia*)
- California horned lark
- San Bernardino Merriam's kangaroo rat

All other species were assessed as having no or low potential to occur because the project site is outside of the known distributional range of the species or did not support suitable habitat (Appendix C, Table 2). Those species with moderate or high potential to occur on-site are discussed below.

[34] California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed March 2023.
[35] California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed March 2023.
[36] United States Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation (IPaC). Website: https://ecos.fws.gov/ipac/. Accessed March 2023.

Moderate Potential

San Diegan tiger whiptail

The San Diegan tiger whiptail typically occurs in arid scrublands with sparse vegetation. This whiptail can also be found within forests, woodlands, chaparral and riparian areas. It feeds on small invertebrates, especially spiders, scorpions, centipedes, termites, and other small lizards. This species was observed on a parcel adjacent to the project site during a biological survey by FCS in 2020. There are three recent records (from 2014, 2015, and 2016) within 5 miles of the project site. One observation was in an area that supported remnant Riversidean fan sage scrub and annual grassland habitat near the channelized drainage. The channelized drainage feature is located just west of the current project site, therefore, there is moderate potential for this species to occur on-site.

Southern California legless lizard

The Southern California legless lizard is found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. Much of the coastal dune habitat it lives in has been destroyed by coastal development. Suitable habitat for this species may be present in ruderal habitats on and adjacent to the project site. There are six recent and two historical records within 5 miles of the project site, and 11 recent and six historical records between 5 and 10 miles from the project site. The regular and recent disking of the project site likely make the area less suitable for occurrence of this species.

Cooper's hawk

The Cooper's hawk is a California Species of Special Concern that inhabits forested or wooded riparian areas throughout California. The species capture prey (typically mid-sized birds) from cover or while flying quickly through dense vegetation, relying on surprise. There is suitable foraging and nesting habitat for this species in the ornamental trees on and adjacent to the project site. There is one historical record within 5 miles of the project site. There is moderate potential for this species to occur on-site as a forager or nester.

Burrowing owl

The burrowing owl is an owl in the family Strigidae. Burrowing owls occur in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. This species utilizes, modifies, and nests in burrows created by other species, most notably those of the California ground squirrel, but also those excavated by coyotes, desert kit foxes, desert tortoises, American badgers, and other burrowing mammals. Burrowing owl populations are threatened by habitat loss, pesticide use, and ground squirrel eradication programs, which limit suitable burrowing habitat. This species is considered a Special Species of Concern (SSC) by the CDFW and a Bird of Conservation Concern (BCC) by the USFWS. Nesting burrows of this species are protected by the MBTA and Fish and Game Codes pertaining to native nesting avian species.

The project site contains suitable open habitat with low-growing vegetation. There were numerous California ground squirrel burrows observed on the project site and adjacent properties. There are 11 recent records within 5 miles of the project site and 40 recent records between 5 and 10 miles

from the project site (Exhibit 6).[37] There is moderate potential for this species to occur on-site as a breeder, winter resident, and/or for post-breeding dispersal.

California Horned Lark

California horned lark is designated as a California Species of Special Concern. This species is a common to abundant year-round resident that inhabits a variety of open habitats, such as grasslands and other open habitats with low, sparse vegetation, and typically where trees and large shrubs are absent. California horned lark nest on the ground, building grass-lined nests in a cup-shaped depression on open ground. This species is very gregarious and often forms large flocks that forage and roost together after the breeding season. California horned lark eats insects, snails, and spiders during breeding season and grass and forb seeds and other plant matter outside of the breeding season. There is one historical record within 5 miles of the project site. (Exhibit 6).[38] The open areas on and adjacent to the project site may provide suitable foraging and nesting habitat for this species, and there is moderate potential for this species to occur there.

Loggerhead Shrike

The loggerhead shrike is a passerine bird in the family Laniidae. This species inhabits open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Loggerhead shrikes were once widely distributed across southern Canada, the contiguous United States and Mexico; however, their populations have declined significantly since the 1960s. They are considered a SSC by the CDFW and a BCC by the USFWS. Their nests are protected by the MBTA and Fish and Game Codes pertaining to native nesting avian species. There is one historical record within 5 miles of the project site. There is moderate potential for this species to forage and nest on the project site.

San Bernardino Merriam's Kangaroo Rat

The San Bernardino kangaroo rat (SBKR) is one of three subspecies of the Merriam's kangaroo rat. The Merriam's kangaroo rat is a widespread species that can be found from the inland valleys to the deserts of Southern California. The subspecies known as the San Bernardino kangaroo rat, however, is confined to inland valley scrub communities, and more particularly, to scrub communities occurring along rivers, streams and drainages. Most of these systems have been historically altered as a result of flood control efforts and the increased use of river resources, including mining, off-road vehicle use and road and housing development. This increased use of river resources has resulted in a reduction in both the amount and quality of habitat available for the San Bernardino Merriam's kangaroo rat. Marginally suitable habitat for this species is present on-site. There are 11 recent records (between 2004 and 2017) and two historical records (1989 and 1997) of San Bernardino Merriam's kangaroo rat within 5 miles of the project site and seven recent records (between 2003 and 2017) and one historical record (1990) between 5 and 10 miles from the project site. Most

[37] California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed March 2023.
[38] Ibid.

records were recorded in Riversidean alluvial fan sage scrub habitat, and one record from 2004 was in a recently disked agricultural field.

Our Biologists conducted an SBKR survey and habitat assessment on March 9, 2023, to determine both the quality of habitat for SBKR and to assess the parcels for current SBKR use by conducting a burrow survey.[39] Burrows were not observed in most of the site due to the recently tilled soil, which would remove any existing burrows. Burrows were observed on the northeastern edge of the review site in a narrow 10-foot by 100-foot tract of undisturbed ground, half covered with forbs and concrete debris. These burrows were not SBKR burrows because they were either too small or too large and did not have signs of SBKR use. The small burrows were approximately 1.5-2 inches in diameter, and are too small to be used or made by SBKR. The larger burrows were 5.5-6 inches or greater in size and had often an oblong or non-circle entrance. These larger burrows were active with California ground squirrel that were observed frequently along this berm. No burrows were observed in the densely vegetated portions of the berm or in the tilled areas. Each of the burrows were inspected for signs of use by SBKR (tail drags or scat) and showed no signs of SBKR activity.

SBKR habitat has been characterized as areas with a sandy substrate and with a low to moderate perennial vegetative cover absent a dense cover of non-native, annual grasses. SBKR prefers areas with smaller shrubs sparsely spaced and bare sandy ground between the shrubs. The project site lacks the frequent alluvial action that creates SBKRs preferred conditions found in the active floodplain to the north of the review area, and the area lacks the typical plant cover characteristics of SBKR habitat. The tilled areas would not be considered SBKR habitat due to the lack of vegetation and disturbance that altered the soils and plants. The few untilled areas are covered in dense ruderal plants, which do not support SBKR, and in areas where the plant density is sparser, the burrows were not of the size or shape of SBKR. Because of the tilled bare soil, lack of typical plant species and composition, and the position of the site away from any alluvial action of the river, the site lacks habitat for SBKR.

5.3.2 - Nesting Birds

The project site contains numerous surfaces, structures, and vegetation that could provide suitable nesting habitat for bird species protected under the MBTA and the Fish and Game Code. These species include Cooper's hawk, burrowing owl, California horned lark, loggerhead shrike, and other native avian species. Construction activities could disturb nesting and breeding birds in trees and shrubs within and around the construction site. Potential impacts on special-status and migratory birds that could result from construction and operation of the proposed project include destruction of eggs or occupied nests, mortality of young, and abandonment of nests with eggs or young birds prior to fledging.

5.4 - Potentially Jurisdictional Waters and Wetlands

The project site does not contain any potentially jurisdictional waters or wetlands within its boundaries; therefore, a formal Jurisdictional Delineation is not required. However, it should be noted that the concrete drainage channel located immediately to the west of the Song Property may

[39] South Environmental. 2023. San Bernardino Kangaroo Rat Habitat Assessment and Survey, Song and Emm Properties Project, City of Redlands, San Bernardino County, California, March 9, 2023.

be a jurisdictional water of the United States and water of the State (i.e., a State and federal protected water resource), owing to its connection to the Santa Ana River.

5.5 - Protected Trees

Several trees on-site may meet criteria for protection under Chapter 12.52 of the Redlands City Code. Several of the native black elderberry trees on-site appeared to exhibit combined trunk diameters that exceed 8-inches at 4.5 feet above the ground surface. Additionally, the row of lemon-scented gum trees along Pioneer Avenue may be located in a public right-of-way, which would qualify them as public trees. Black elderberry trees with cumulative trunk diameters of 8 inches or greater and any lemon-scented gum trees in a public right-of way may be subject to protection under Redlands City Code Chapter 12.52.

CNDDB version 08/2022. Please Note:
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

Legend
- Project Site
- 10-Mile Radius

Symbology
- Plant (circular)
- Multiple (circular)
- Sensitive EO's (Commercial only)

Charina umbratica
southern rubber boa

Lycium parishii
Parish's desert-thorn

10-Mile Radius

5-Mile Radius

Scientific Name	Common Name
Malacothamnus parishii	Parish's bush-mallow
Nyctinomops femorosaccus	pocketed free-tailed bat

Rhaphiomidas terminatus abdominalis
Delhi Sands flower-loving fly

Scientific Name	Common Name
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak
Arenaria paludicola	marsh sandwort

Lake Arrowhead, Crestline, Arrowhead Highlands, Verdemont, Muscoy, San Manuel Ind. R., Amber Hills, San Bernardino, Rialto, Norton Air Force Base, Highland, Santa Ana River, Colton, Mentone, Redlands, Loma Linda, Grand Terrace, Crestmore Heights, Yucaipa, Highgrove, Calimesa, Riverside, Hidden Springs, Cloverdale, Moreno

The following species (not shown on map) are also known to occur within this 10-mile radius area:

Scientific Name	Common Name
Accipiter cooperii	Cooper's hawk
Agelaius tricolor	tricolored blackbird
Aimophila ruficeps canescens	southern California rufous-crowned sparrow
Anniella stebbinsi	Southern California legless lizard
Anniella stebbinsi	Southern California legless lizard
Antrozous pallidus	pallid bat
Aquila chrysaetos	golden eagle
Arizona elegans occidentalis	California glossy snake
Artemisiospiza belli belli	Bell's sage sparrow
Aspidoscelis hyperythra	orange-throated whiptail
Aspidoscelis tigris stejnegeri	coastal whiptail
Astragalus hornii var. hornii	Horn's milk-vetch
Athene cunicularia	burrowing owl
Batrachoseps gabrieli	San Gabriel slender salamander
Berberis nevinii	Nevin's barberry
Brodiaea filifolia	thread-leaved brodiaea
Buteo regalis	ferruginous hawk
Buteo swainsoni	Swainson's hawk
Buteo swainsoni	Swainson's hawk
Calochortus plummerae	Plummer's mariposa-lily
Canyon Live Oak Ravine Forest	Canyon Live Oak Ravine Forest
Carex comosa	bristly sedge
Catostomus santaanae	Santa Ana sucker
Centromadia pungens ssp. laevis	smooth tarplant
Chaetodipus fallax fallax	northwestern San Diego pocket mouse
Chorizanthe parryi var. parryi	Parry's spineflower
Chorizanthe xanti var. leucotheca	white-bracted spineflower
Coccyzus americanus occidentalis	western yellow-billed cuckoo
Coleonyx variegatus abbotti	San Diego banded gecko
Crotalus ruber	red-diamond rattlesnake
Cuscuta obtusiflora var. glandulosa	Peruvian dodder
Dipodomys merriami parvus	San Bernardino kangaroo rat
Dipodomys stephensi	Stephens' kangaroo rat
Dodecahema leptoceras	slender-horned spineflower
Elanus leucurus	white-tailed kite
Empidonax traillii extimus	southwestern willow flycatcher
Emys marmorata	western pond turtle
Eremophila alpestris actia	California horned lark
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar
Euchloe hyantis andrewsi	Andrew's marble butterfly
Eugnosta busckana	Busck's gallmoth
Eumops perotis californicus	western mastiff bat
Euphydryas editha quino	quino checkerspot butterfly
Falco columbarius	merlin
Fimbristylis thermalis	hot springs fimbristylis
Galium californicum ssp. primum	Alvin Meadow bedstraw
Gila orcuttii	arroyo chub
Helianthus nuttallii ssp. parishii	Los Angeles sunflower
Horkelia cuneata var. puberula	mesa horkelia
Icteria virens	yellow-breasted chat
Imperata brevifolia	California satintail
Lanius ludovicianus	loggerhead shrike
Laterallus jamaicensis coturniculus	California black rail
Lepidium virginicum var. robinsonii	Robinson's pepper-grass
Leptonycteris yerbabuenae	lesser long-nosed bat
Lepus californicus bennettii	San Diego black-tailed jackrabbit
Monardella macrantha ssp. hallii	Hall's monardella
Monardella pringlei	Pringle's monardella
Nasturtium gambelii	Gambel's water cress
Neolarra alba	white cuckoo bee
Neotoma lepida intermedia	San Diego desert woodrat
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS
Onychomys torridus ramona	southern grasshopper mouse
Perideridia parishii ssp. parishii	Parish's yampah
Perognathus alticola alticola	white-eared pocket mouse
Perognathus longimembris brevinasus	Los Angeles pocket mouse
Phrynosoma blainvillii	coast horned lizard
Polioptila californica californica	coastal California gnatcatcher
Rana draytonii	California red-legged frog
Rhinichthys osculus ssp. 8	Santa Ana speckled dace
Ribes divaricatum var. parishii	Parish's gooseberry
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub
Salvadora hexalepis virgultea	coast patch-nosed snake
Schoenus nigricans	black bog-rush
Senecio aphanactis	chaparral ragwort
Setophaga petechia	yellow warbler
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom
Sidalcea neomexicana	salt spring checkerbloom
Sidalcea pedata	bird-foot checkerbloom
Southern Coast Live Oak Riparian Forest	Southern Coast Live Oak Riparian Forest
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest
Southern Mixed Riparian Forest	Southern Mixed Riparian Forest
Southern Riparian Forest	Southern Riparian Forest
Southern Riparian Scrub	Southern Riparian Scrub
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland
Southern Willow Scrub	Southern Willow Scrub
Spea hammondii	western spadefoot
Sphenopholis obtusata	prairie wedge grass
Spinus lawrencei	Lawrence's goldfinch
Symphyotrichum defoliatum	San Bernardino aster
Taxidea taxus	American badger
Thamnophis hammondii	two-striped gartersnake
Thelypteris puberula var. sonorensis	Sonoran maiden fern
Vireo bellii pusillus	least Bell's vireo

Source: Bing Street Imagery. California Natural Diversity Database (CNDDB), August 2022.

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13,000 6,500 0 13,000 Feet

Exhibit 6
CNDDB Special-Status
Species Occurrences (10-mile radius)

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SECTION 6: IMPACT ANALYSIS AND RECOMMENDATIONS

The following discussion addresses potential project impacts on regulated biological resources, including special-status species, and recommends measures to avoid and/or mitigate impacts to a less than significant level under CEQA. These impacts and others are analyzed and addressed with proposed Mitigation Measures (MMs) that would avoid or lessen them.

6.1 - Special-status Wildlife Species

Burrowing owl, a California Species of Special Concern, was assessed as having a moderate potential to occur on the project site. To prevent potential project impacts on burrowing owl that may utilize the project site, the following mitigation measures are recommended.

Mitigation Measure

MM BIO-1 Pre-Construction Surveys for Burrowing Owl (including avoidance if found)

- **Burrowing Owl Pre-construction Survey:** The project applicant shall retain a qualified Biologist to perform a pre-construction burrowing owl survey to determine whether burrowing owls are present within 30 days prior to construction activities, according to the California Department of Fish and Wildlife (CDFW) 2012 guidelines. If construction is delayed or suspended for more than 30 days after the survey, the area shall be resurveyed. Survey for occupied burrows shall be completed within all construction areas and within 300 feet from the proposed project impact area (where possible and appropriate based on locations of barren or ruderal habitats). At least 15 days prior to the expected start of any project-related ground disturbance activities, or restart of activities, the City shall provide a burrowing owl survey report with mapping exhibits to the CDFW. If no burrowing owls are detected during the pre-construction survey, no further action is necessary.
- **Agency Consultation, Mitigation, and Avoidance:** If burrowing owls are detected during the pre-construction survey, the City shall consult with the CDFW and United States Fish and Wildlife Service (USFWS) to develop and implement a Burrowing Owl Mitigation Plan that includes mitigation measures outlined in CDFW (2012) guidelines and a Worker Environmental Awareness Program (WEAP).

There is moderate potential for two special-status lizards, San Diegan tiger whiptail and Southern California legless lizard, to occur within the project site.

MM BIO-2 Pre-Construction Surveys for Special-status Reptiles (including avoidance if found)

- **Pre-construction Survey:** Prior to the issuance of a grading permit, the project applicant shall provide evidence that a qualified Biologist has been retained to perform a pre-construction survey of the entire project impact area, including any staging/laydown areas, for Southern California legless lizard and San Diegan tiger

whiptail no more than 7 days prior to initiating project activities.
If special-status wildlife species are observed during construction activities, all work within 50 feet of the animal(s) will be stopped. At no time shall work occur within 50 feet of the animal without the Biological Monitor present. Any special-status wildlife species detected within the project impact area, including any staging/laydown areas, shall be allowed to move away on their own and shall not be captured or handled without authorization from the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).

- **Avoidance of Entrapment:** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches may need to be covered at the close of each working day with plywood or other suitable material or provided with one or more escape ramps constructed of earth fill or wooden planks. The project applicant shall retain a qualified Biologist to regularly inspect open trenches during the construction phase.
- **Environmentally Sensitive Area Fencing:** Areas that support sensitive habitats or species shall be temporarily fenced to protect them from construction activities and traffic. The project applicant may need to retain a qualified Biologist to monitor Environmentally Sensitive Areas during the construction phase.
- **Worker Environmental Awareness Program:** A Worker Environmental Awareness Program (WEAP) training shall be implemented to educate construction workers about the presence of special-status plant and wildlife species on and near the project site and shall be administered to construction personnel prior to the initiation of ground-disturbing or vegetation/habitat altering activities.

San Bernardino Merriam's Kangaroo Rat

The project site lacks habitat for SBKR due to the tilled nature, lack of typical plant species and composition, and the position outside of alluvial action of the river. The small mammal burrows at the site were determined to be made by other species and lacked the characteristics of SBKR burrows. Furthermore, no SBKR individuals were observed and there were no signs of SBKR activity in the vicinity of the burrows (e.g., tail drag marks, scat). Therefore, SBKR is considered absent from the site. The exclusionary fencing surrounding the site will ensure that no SBKR will be able to populate the site in the future and it will remain free of SBKR.

Nesting Birds

Birds protected under the MBTA or California Fish and Game Code are considered sensitive during the active nesting period. The project site contains several large and medium sized trees which could provide suitable habitat for nesting birds including special-status species such as Cooper's hawk and loggerhead shrike. The project site also contains open ruderal habitat that could provide suitable habitat for ground-nesting birds such as California horned lark and burrowing owl. Construction activities that occur during the avian nesting season (generally February 1 to August 31) could disturb nesting sites for bird species protected under the MBTA or the Fish and Game Code. The removal of trees during the nesting season could result in direct harm to nesting birds, while noise, light and other man-made disturbances may cause nesting birds to abandon their nests. The project applicant shall implement the following mitigation measures to ensure that project impacts on nesting birds are less than significant:

- **Seasonal Avoidance:** If feasible, tree removal and vegetation clearing should be limited to the non-nesting season (September 1 through January 31).
- **Pre-construction Nesting Bird Surveys:** If the project requires trees to be removed during the nesting season (February 1 through August 31), a qualified Biologist shall conduct pre-construction surveys for migratory birds on the project site, including a 300-foot survey buffer, no more than 3 days prior to the start of ground-disturbing activities. If construction is delayed or suspended for more than 3 days after the survey, the area shall be resurveyed to re-confirm the presence/absence of any active nests.
- **Monitoring of Active Nests:** If an active nest is located during pre-construction surveys, the USFWS and/or the CDFW (as appropriate) will be notified regarding the status of the nest. Furthermore, construction activities will be restricted as necessary to avoid disturbance of the nest until it is abandoned, or the Biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 300 feet around an active raptor nest and 50-foot radius around an active non-raptor passerine bird nest) or alteration of the construction schedule.
- A qualified Biologist will delineate the buffer using nest buffer signs, environmentally sensitive area fencing, pin flags, and or flagging tape. The buffer zone will be maintained around the active nest site(s) until the young have fledged and are foraging independently.

Potentially Jurisdictional Features

Project construction activities on the western side of the Song Property could cause sediment to enter the channelized drainage and result in indirect impacts to the drainage channel and water quality downstream, potentially including through spills and stormwater runoff during construction. Therefore, implementation of water quality protection Best Management Practices (BMPs) are recommended. These shall include the following:

- Construction General Permit from the RWQCB.
- Stormwater planning documents consistent with the requirements of the RWQCB (e.g., a Storm Water Pollution Prevention Plan [SWPPP] that complies with current National Pollution Discharge Effluent Standards [NPDES]).
- BMPs to control the pollutants in stormwater runoff (e.g., silt fencing, straw wattles, etc.).

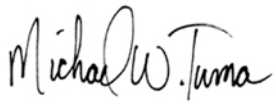
Protected Trees

The project site supports several native black elderberry trees with combined trunk diameters that exceed 8 inches, and lemon-scented gum trees in a public right-of-way, which may be regulated by Chapter 12.52 of the City Code of Redlands. If any of these trees would be removed during development of the project, the applicant shall be required to obtain a tree removal permit from the City of Redlands prior to their removal. As part of the application for a removal permit and as mitigation to reduce potential impacts to less than significant, the project applicant shall provide a report prepared by a certified arborist that determines which trees present on-site would be protected under the City Code and provides recommendations for their removal and replacement.

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SECTION 7: CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this Biological Resources Assessment, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: June 21, 2023 Signed: 

Michael W. Tuma, PhD, Senior Biologist
FirstCarbon Solutions
967 Kendall Drive, #A-537
San Bernardino, CA 92407
714.508.4100

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Appendix A:
Professional Qualifications

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FIRSTCARBON SOLUTIONS™

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

OVERVIEW

- More than 28 years of experience

Education

- Doctor of Philosophy, Integrative and Evolutionary Biology, University of Southern California, Los Angeles, CA, 2016
- Master of Science, Anthropology, University of Southern Mississippi, Hattiesburg, MS, 1998
- Master of Science, Zoology, Eastern Illinois University, Charleston, IL, 1993
- Bachelor of Science, Zoology, Truman State University, Kirksville, MO, 1991

Permits, Authorizations, and Certifications

- Certified Wildlife Biologist, The Wildlife Society, 2013–present
- Certified Significant Ecological Areas Technical Advisory Committee (SEATAC) Biota Report Preparer, Los Angeles County Department of Regional Planning, 2008–present
- Qualified Biologist, San Bernardino County, 2007–present
- Approved CEQA Consultant for Archaeological Resources, San Diego County, 2006–present
- Authorized Biological Consultant, Riverside County, 2006–present
- Authorized Biologist for Agassiz's desert tortoise activities under 10(a)1(A) Recovery Permits (former) and Biological Opinions, US Fish and Wildlife Service (USFWS), August 2005–present
- California Scientific Collecting Permit/California Endangered Species Act (ESA)-Memorandum of Understanding, California Department of Fish and Wildlife (CDFW), August 2005–present
- Certified Archaeologist, Orange County, 2004–present
- Registered Professional Archaeologist (RPA), 2000–present

Awards and Grants

- Turtle Conservation Fund Grant for Pancake Tortoise Research, Turtle Conservation Fund, 2019
- Mohamed bin Zayed Grant for Pancake Tortoise Research, Mohamed bin Zayad Species Conservation Fund, 2019
- MA Fritz Grant Student Travel Award, Royal Ontario Museum, 2015
- Turtle Conservation Fund Grant for Pancake Tortoise Research, Turtle Conservation Fund, 2015
- Mohamed bin Zayed Grant for Pancake Tortoise Research, Mohamed bin Zayad Species Conservation Fund, 2015
- David J. Morafka Memorial Research Award for Desert Tortoise Research, Desert Tortoise Council, 2013
- Grant in Aid of Research for Anthropological Research, Sigma Xi (The Scientific Research Honor Society), University of Southern Mississippi, 1997

Trainings and Workshops

- ArcGIS Training Courses, Esri Academy, 2016–present
- Desert Tortoise Health Assessments for Translocation Projects, Desert Tortoise Council, 2015
- CEQA Workshop, Association of Environmental Professionals, 2008

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

- Endangered Species: Regulation, Conservation Planning, and Permits for Development, University of California, Los Angeles Extension, 2008
- Desert Tortoise Health Assessment and Phlebotomy Training, US Geographical Survey (USGS), 2007
- Endangered Species Permitting: Strategies and Successful Negotiations Workshop, The Wildlife Society, 2006
- A/E/C Project Management Bootcamp, PSMJ Resources, Inc., 2006
- Introduction to CEQA: A Step-by-Step Approach Workshop, SCWA, 2005
- Western Pond Turtle Workshop: Ecology and Conservation, The Wildlife Society, 2005
- Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council, 2004

Professional Affiliation

- Adjunct Professor, University of Southern California, March 2019–present
- Chair, Board of Directors, Desert Tortoise Council, February 2018–February 2020
- Chair, Media Committee, Desert Tortoise Council, June 2017–present
- Chair, Grants Committee, Desert Tortoise Council, January 2016–present
- Board of Directors Member, Desert Tortoise Council, January 2014–present
- Newsletter Editor, Desert Tortoise Council, January 2014–January 2018

Skills

- ArcMap/ArcGIS
- HexSim
- Systat

Michael Tuma, PhD, CWB, RPA, has more than 28 years of experience as a professional scientist in academic settings, agency positions, and as an environment consultant. He assists clients in complying with laws such as the ESA, the National Historic Preservation Act, CEQA, and NEPA. He has experience in a wide variety of technical biological work, including population and habitat modeling. He is an expert in implementing advanced field data collection techniques and methodologies during studies of reptiles and amphibians, including population monitoring, habitat assessments, translocation, head-starting, radio telemetry, protocol health assessments, collection of blood/tissue samples, morphometric measurements, and radiography. He has worked with a variety of species, including yellow mud turtles (*Kinosternon flavescens*), Agassiz's desert tortoises (*Gopherus agassizii*), and pancake tortoises (*Malacochersus tornieri*), and he is an expert in the North American *Gopherus* tortoises, having recently completed his PhD at the University of Southern California. Dr. Tuma has provided training to and directed teams of biologists. He has been authorized to conduct biological studies by the USFWS, the Kenya Wildlife Service, the Tanzania Wildlife Research Institute, and several state agencies, including the CDFW, Nevada Department of Wildlife, Arizona Game and Fish Department, and Texas Department of Wildlife and Parks. Dr. Tuma is skilled in project management, statistics, geographic information systems (GIS), and computer modeling. He has a passion for educating the public about science, and has been providing tutoring sessions, workshops, and lectures for more than 20 years.

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

RELATED EXPERIENCE AND CLIENT SUMMARY

Barton Road Logistics Center Project EIR, Technical Studies, and Peer Review, City of Colton, CA

FCS is providing CEQA documentation and peer review services for the Barton Road Logistics Facility Project in the City of Colton, in San Bernardino County. The proposed project includes the demolition of four industrial buildings, an office building, and a parking lot. The proposed project would construct two state-of-the-art speculative concrete tilt-up industrial warehouse logistics facilities with a total square footage of 960,040 square feet. The project will develop Best-in-Class industrial facilities in the City of Colton that are designed to meet contemporary industry standards, can easily accommodate a wide variety of warehouse and distribution uses, and are economically competitive with similar warehouse facilities in the local Inland Empire marketplace. FCS is preparing an EIR with supporting stand-alone Air Quality and GHG Emissions Analysis with Health Risk Assessment (HRA), Biological Resources Assessment, Phase I Cultural Resources Assessment (CRA), Noise Impact Analysis, and Traffic Impact Analysis. Our team will also peer review the Geotechnical Report. The Phase I CRA will provide an evaluation and recommendations regarding potential construction related impacts to cultural resources. Dr. Tuma was the Senior Biologist for the peer review of the biological resources studies.

Lilac Avenue Warehouse Project IS/MND and Technical Studies, City of Rialto, CA

FCS is preparing an IS/MND and associated technical studies for the Lilac Avenue Warehouse Project on approximately 12.77 gross-acres in the City of Rialto, California. Dedeaux Properties (project applicant) proposes to construct an approximately 47,609-square-foot warehouse building, a 2,063-square-foot ground floor office, 2,649-square-foot mezzanine, 85 dock doors, and one grade door. Other amenities include parking for ADA, vanpools, electric vehicles, and bicycles; tilt-up walls to screen trailers; controlled access and security fencing; and emergency vehicle access. The project will require a development plan review and approval, a comprehensive application for development and land use approval, and grading and building permits. FCS is in the process completing the analysis for all areas of concern. The Administrative Draft IS/MND was submitted in April 2021. Dr. Tuma was the Senior Biologist for the preparation of the Biological Resources Due Diligence Memorandum, which concluded 14 special-status plan species and 31 special-status animal species have been recorded within a 5-mile radius of the project site, and provided mitigation measures for nesting birds and burrowing owl (*Athene cunicularia*).

Bridge Point Project EIR, Technical Reports, and Responses to Comments Peer Review, City of Rancho Cucamonga, CA

FCS is peer reviewing the EIR, associated technical reports, and responses to comments for two proposed new industrial warehouse buildings totaling approximately 2,164,200 square feet. The project involves the demolition of the existing 1,432,000-square-foot industrial building, 20,000-square-foot retail building, and associated parking lot. Dr. Tuma was the Senior Biologist for the peer review of the biological resources studies.

Other Relevant FCS Projects

- Public Safety Broadband Network Project Environmental Monitoring, Los Angeles Regional Interoperable Communications System (LA-RICS), Los Angeles County, CA
- Port of Los Angeles Industrial Project Bird's Nest Survey, City of Los Angeles, CA

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

- Alton Parkway Logistics Facility Project IS/MND and Technical Studies, City of Irvine, CA
- Quick N Clean Car Wash Project IS/MND and Technical Studies, City of Adelanto, CA
- Redlands Residential Project Biological and Cultural Due Diligence, City of Redlands, CA

Prior Work Experience

Stone Canyon Water Quality Improvement Project, Los Angeles Department of Water and Power (through contract with MWH Americas, Inc.), Los Angeles County, CA

Dr. Tuma served as the Project Manager for this project between 2004 and 2008, and his responsibilities included performing pre-construction surveys for special-status species, establishing buffers around active red-tailed hawk (*Buteo jamaicensis*) nests, and monitoring active avian nests in the vicinity of construction activities. He provided expertise to Los Angeles Department of Water and Power personnel, construction personnel, and community interest groups regarding red-tailed hawk reproductive biology and the effects of construction activities on actively nesting pairs and their offspring. Dr. Tuma also contributed to the development of construction schedules around sensitive periods of red-tailed hawk nesting.

Riverside Energy Resource Center, POWER Engineers, Inc., Riverside County, CA

Dr. Tuma served as the Project Manager and Lead Designated Biologist for two phases of this project between 2004 and 2013. His responsibilities included leading assessments of biological, cultural, paleontological, and socioeconomic resources analyses, documentation, and permitting in support of the project, in conformance with the California Energy Commission's (CEC's) Small Power Plant Exemption Application process. He managed the biological, cultural, and paleontological tasks, which included coordinating with CEC biologists; developing mitigation measures for burrowing owl (*Athene cunicularia*), a species that was determined to occupy the site prior to its development; and authoring documents. Dr. Tuma also developed and implemented the project Burrowing Owl Mitigation Plan that included the installation of artificial burrows and revegetation of mitigation area with California native vegetation communities.

Helendale Transition Zone Monitoring Well, Mojave Water Agency, San Bernardino County, CA

Dr. Tuma served as the Project Manager and Lead Authorized Biologist for this project between 2004 and 2006. His responsibilities included supervising biological field personnel, performing pre-construction surveys for nesting birds and desert tortoise on Bureau of Land Management (BLM) lands, presenting the worker tortoise education program for construction crew and site visitors, monitoring construction of a tortoise-excluding fence and the monitoring well, and authoring the report detailing results of the monitoring program.

Kessler Springs Ranch Employee Housing Project, National Park Service, San Bernardino County, CA

Dr. Tuma served as the Project Manager for this project in 2005 and 2006, which consisted of performing a focused protocol survey for desert tortoises and authoring a technical report in support of Section 7 consultation.

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

Santa Susana Field Laboratory, Boeing (through contract with MWH Americas, Inc.), Ventura County, CA

Dr. Tuma served as the Project Manager for this project between 2006 and 2008. Under one task he designed and conducted field investigations on the extent and size of Braunton's milk-vetch (*Astragalus brauntonii*) population within an area of a USFWS-proposed designated Critical Habitat. He led field efforts, which included conducting vegetation mapping, delineating the Braunton's milk-vetch population within the proposed area, estimating the population size with the use of randomized transects and quadrats, conducting a complete vascular plant inventory within the study area, and authoring a technical report detailing the results of the investigation, which were used by the client in commenting on the proposed area of designated Critical Habitat. Dr. Tuma performed other tasks under this project, including nesting bird surveys, pre-construction surveys for special status species, and a revegetation/mitigation effort for the California Rare Santa Susana tarplant.

Fort Irwin Land Expansion Project, Daggett Epidemiology Study, Fort Irwin and the National Training Center, San Bernardino County, CA

Dr. Tuma assisted Dr. Kristin Berry of the USGS Western Ecological Research Center with conducting health assessments and collecting blood and nasal samples from a population of Agassiz's desert tortoises near Daggett, California in 2007 and 2008. The project was a mitigation measure for the Fort Irwin Land Expansion Project. Dr. Tuma assisted with surveying for tortoises throughout the study area, conducting full health assessments of each captured tortoise, drawing blood and collecting nasal lavages from tortoises, and fitting transmitters to a subset of the sampled tortoises to track the long-term health of these individuals.

Kramer Junction Solar Energy Center, NextEra Energy, Inc., San Bernardino County, CA

Dr. Tuma served as the Project Manager for this project between 2009 and 2010 and co-managed it between 2010 and 2011. His responsibilities included designing and implementing measures to avoid impacts on sensitive biological resources, including desert tortoises, in support of the development of a solar power project. He consulted with the USFWS and the CDFW for permitting the project, developed a fencing plan to keep desert tortoises from accessing the project site, developed and implemented a desert tortoise monitoring program, and served as senior author of the technical report deliverables.

Juvenile Agassiz's Desert Tortoise Survivorship Study, US Fish and Wildlife Service, San Bernardino County, CA

Dr. Tuma served as the Project Manager and Principal Investigator for this project between 2009 and 2013 and conducted research into the survivorship of the head-started juvenile Agassiz's desert tortoises. He also worked with the USFWS Desert Tortoise Recovery Office and Department of Defense personnel to fund and permit the project and authored technical report deliverables. The research entailed radio telemetric observations of juvenile tortoises that were head-started at the FISS and released onto Fort Irwin and BLM lands situated within the Superior-cronese Critical Habitat Unit in San Bernardino County, California. Dr. Tuma presented the research at the annual meetings of the Desert Tortoise Council.

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

Edwards Air Force Base Agassiz's Desert Tortoise Head-starting, Los Angeles, Kern, and San Bernardino Counties, CA

Dr. Tuma assisted biologists and Project Managers from MWH Americas, Inc. in conducting tortoise head-starting research at Edwards Air Force Base (AFB) in 2010. Dr. Tuma directed field crews and performed advanced, specialized field techniques related to the research. This included attaching radio transmitters to adult and juvenile tortoises on Edwards AFB and nearby BLM lands in the counties of Los Angeles, Kern, and San Bernardino; completing health assessments of sampled female tortoises, including collecting blood samples for antibody testing and nasal lavages for microorganism (mycoplasma) testing; radiographing female tortoises to determine whether they were gravid with eggs; and releasing them into predator-proof pens for egg laying. Dr. Tuma also contributed to the program's year-end report.

Between 2017 and 2019, Dr. Tuma worked on this project as a USGS employee. Using radio telemetry, he recorded the health, growth, movements, and survival of the juvenile, head-started tortoises that were released at two sites on Edwards AFB in 2013 and 2014.

San Gorgonio Wind Project, NextEra Energy Resources, Inc., Riverside County, CA

Dr. Tuma served as the Principal Investigator for this project in 2010. He designed and implemented a burrowing owl passive relocation program in support of Coachella Valley Multiple Species Habitat Conservation Plan compliance for the San Gorgonio Wind Project. Dr. Tuma developed the Burrowing Owl Relocation Plan, consulted with the CDFW staff, and directed the field work. The effort resulted in the construction of 18 artificial burrows and the passive relocation of more than six burrowing owls.

Biological and Archaeological Services On-Call Contract with Southern California Edison, Mono, Inyo, Tulare, Kern, Santa Barbara, Ventura, Los Angeles, Orange, and Riverside Counties, CA

Dr. Tuma served as the Biological Resources Program Director for this contract in 2013. While serving in this capacity, he was responsible for leading a team of technical specialists, support staff, and subconsultants in responding to multiple, concurrent emergency and fast-burn task orders involving biological resources. Tasks conducted under this contract included biological assessments of gen-tie line alternatives, nesting bird surveys, pre-construction surveys, and monitoring in support of the construction of a new substation and associated tie-in with a transmission line, and preparing a Biological Assessment in support of Section 7 consultation for a deteriorated pole replacement project in the Angeles National Forest.

On-Call Biological Services Contract, San Bernardino County Department of Public Works and Flood Control District, San Bernardino County, CA

Dr. Tuma served as the Project Manager for this on-call services contract in 2014 and 2015. Dr. Tuma oversaw execution of task orders, managed project staff, performed field work, and provided reporting/documentation. Task orders included nesting bird surveys and monitoring for desert tortoise.

Environmental Generalist Services Task Order Contract, California Department of Transportation District 7, Los Angeles and Ventura Counties, CA

Dr. Tuma served as a Senior Biologist for this two-year on-call environmental services contract with the California Department of Transportation (Caltrans) District 7 between 2014 and 2015. While serving in

this capacity, contributed to two task orders in support of the State Route 138 NW project, which consists of protocol desert tortoise, burrowing owl, and rare plant surveys and an analysis of wildlife crossing and movements on State Route (SR) 138 between SR 14 and Interstate 5. Dr. Tuma led in the field surveys, planned field and desktop analyses, directed a group of biologists and GIS specialists, and served as primary author of the deliverables produced for these task orders.

Dune Palms Road Crossing Replacement, Caltrans (through contract with Parsons Brinckerhoff), Riverside County, CA

Dr. Tuma served as the Project Manager for this project in 2014 and 2015. He was responsible for coordinating natural resources studies and agency consultation in support of the preparation of a Caltrans Natural Environment Study (NES). Project tasks included a general biological survey, focused surveys for burrowing owl and rare plants, trapping efforts for Palm Springs round-tailed ground squirrel (*Spermophilus tereticaudus*) and Palm Springs pocket mouse, a jurisdictional waters/habitats determination, agency consultation, preparation of a Biological Assessment in support of Section 7 consultation, documentation of study results, and preparation of the NES.

Desert Quartzite Solar Energy Project EIR/EIS and Biological Studies, First Solar, Inc., Riverside County, CA

Dr. Tuma served as the Project Manager for this project in 2015 and 2016, and was responsible for client management, biological studies, technical report preparation, and CEQA/NEPA documentation for a large-scale development in east Riverside County, California. His specific duties included reviewing studies prepared by prior consultants, conducting updated field surveys (vegetation mapping, rare plant, and desert tortoise surveys) and technical studies, and preparing the EIR/EIS Biological Resources section and appendices (Invasive Weed Management Plan, Raven Management Plan, Desert Tortoise Translocation Plan, Desert Kit Fox and American Badger Management Plan, Rare Plant Management Plan, and Vegetation Restoration Plan).

Edom Hills Wind Energy Facility, BP Wind Energy North America, Inc., Riverside County, CA

Dr. Tuma served as the Project Manager and Lead Authorized Biologist for this project in 2016 and was responsible for conducting a habitat assessment, eolian dune characterization study, and biological monitoring of project activities in support of minimizing the potential for take of Coachella Valley fringe-toed lizard (*Uma inornata*) and Coachella Valley milk-vetch (*Astragalus lentiginosus var. coachellae*) during the installation of equipment in two project turbines. He coordinated with the BLM project Biologist to gain approval of biologists to monitor the work, and concurrence for the recommended mitigation measures, which included removing wind-blown sands from portions of the access road and placing the sand in adjacent areas where they could continue transport in the eolian ecosystem. He authored a post-construction memorandum that detailed the restoration of the eolian sand and avoidance of sensitive microhabitats where fringe-toed lizards typically hibernate during the project activities.

Health of Adult Desert Tortoises in the Mojave National Preserve, National Park Service, San Bernardino County, CA

Dr. Tuma served as the Lead Authorized Biologist for this project in 2018. He led crews of contracted biologists and volunteers in the sampling of adult Agassiz's desert tortoises at two locations (Ivanpah and Fenner Valleys) in the Mojave National Preserve. Sampling included performing assessments of the

external health of captured tortoises, and collecting blood samples for microbial antibody testing, nasal lavages for presence of disease-causing bacteria, and oral swabs for presence of herpesvirus.

Biological and Archaeological On-Call Services Contract, Southern California Edison (through contract with Cardno), Mono, Inyo, Tulare, Kern, Santa Barbara, Ventura, Los Angeles, Orange, and Riverside Counties, CA

Dr. Tuma served as the Program Manager for this contract in 2019 and 2020, and was responsible for client management, QA/QC of data and technical deliverables (biological and cultural resources), and management and mentoring of technical staff. Additional duties included preparation of biological reports for Los Angeles County SEATAC review, development of training program, and desktop reviews for biological and cultural resources.

High Desert Solar Project, Middle River Power (through contract with AECOM), San Bernardino County, CA

Dr. Tuma served as the Lead Authorized Biologist for this project in 2020. He led the implementation of a desert tortoise translocation program in support of the High Desert Solar Project site in Victorville, San Bernardino County, California. The effort consists of performing protocol health assessments, collecting blood samples for disease testing, translocating tortoises from the development area to an off-site location in the Kramer Hills in the Fremont-Kramer Critical Habitat Unit, and monitoring them following translocation.

LA-RICS LMR System, Motorola, Los Angeles County, CA

Dr. Tuma served as Biological Monitor for this project in 2020. His responsibilities included implementing mitigation measures and ensuring project compliance in support of the LA-RICS LMR System in Los Angeles County, California. Dr. Tuma monitored project for compliance for up to 33 mitigation measures, including performing clearance surveys for special status species, pre-construction nesting bird surveys, and several measures pertaining to California condor (*Gymnogyps californianus*) conservation, including condor hazing.

Agassiz's Desert Tortoise Population Modeling and Conservation Planning for the Superior-Cronese and Gold Butte-Pakoon Critical Habitat Units, BLM, San Bernardino County, CA, Clark County, NV, and Mohave County, AZ

As the Project Manager, Client Manager, and Principal Investigator of this project, Dr. Tuma conducted research into the population biology of Agassiz's desert tortoises on two study areas that comprise federal lands administered by the BLM between 2008 and 2013. He directed a team of more than 40 biologists, statisticians, and GIS specialists who contributed to the project; successfully developed spatially explicit, individual-based population models used to rank the importance of site-specific threats at each of the study areas; and served as the primary author of the technical report deliverables. This project consisted of collecting field data, compiling GIS data, conducting intensive literature reviews and expert interviews, and developing tortoise occurrence models, population models, and threats models for study areas that included the Superior-Cronese Critical Habitat Unit in San Bernardino County, California, and the Gold Butte-Pakoon Critical Habitat Unit in Clark County, Nevada, and Mohave County, Arizona. The modeling effort allowed Dr. Tuma to simulate the effects of site-specific threats on tortoise populations at each study area and develop land management and species conservation strategies that could be implemented by the BLM Field and State Offices on tortoise populations within each Critical

Habitat Unit. He presented the research at the annual meetings of the Desert Tortoise Council, The Wildlife Society, and the World Congress of Herpetology, and published a manuscript in the Journal of Wildlife Management in early 2016.

Pahrump Community Pit Agassiz's Desert Tortoise Translocation, BLM Southern Nevada District Office, Nye County, NV

Dr. Tuma served as the Project Manager and Lead Authorized Biologist for this project in 2010 and 2011. Hea was responsible for clearing an active gravel pit mine of Agassiz's desert tortoises that had wandered onto the project site and translocating them to adjacent areas of habitat outside of the mine. He also consulted with USFWS and BLM personnel in developing a plan for the translocation and led the field crew that implemented it. Following the field effort, he authored the report detailing the translocation effort. Under the direction of Dr. Tuma, the project team carefully inspected each cover site within the mine property for the presence of tortoises and tortoise nests and rendered them unsuitable for occupancy following clearance. The project team captured a total of nine adult and two juvenile tortoises from the mine site and relocated them to the closest unoccupied burrow or caliche cave outside of the mine property. The team also tracked the progress of the relocated tortoises for up to a week following their release and removed the radio transmitters once the tortoises had established residency at the new cover sites.

Dry Lake Solar Energy Zone Desert Tortoise Translocations, First Solar, NV Energy, and Invenergy, Clark County, NV

Dr. Tuma served as Authorized Biologist for this project in 2015. He was responsible for conducting focused, protocol health assessments and tissue sampling of desert tortoises within the project site and translocation areas in support of disease testing and assessment. The project involved translocating desert tortoises from a designated Solar Energy Zone on BLM lands in the vicinity of Dry Lake in Clark County, Nevada, to support the development of the area for solar energy facilities. Dr. Tuma captured and handled tortoises encountered during surveys of the development area and proposed translocation areas, performed USFWS-protocol health assessments, collected blood samples through subcarapacial venipuncture, collected oral swabs, and weighed, measured, photographed, and released the tortoises.

Wind Energy Facility, EDP Renewables North America, LLC, Hidalgo and Starr Counties, TX

Dr. Tuma served as Lead Authorized Biologist for this project in 2015 and 2016, and was responsible for overseeing the implementation of Best Management Practices pertaining to four sensitive reptiles (Texas tortoise [*Gopherus berlandieri*], Texas indigo snake [*Drymarchon melanurus erebennus*], Texas horned lizard [*Phrynosoma cornutum*], and reticulate collared lizard [*Crotaphytus reticulatus*]) for a wind power facility construction project in Hidalgo and Starr Counties, Texas. He coordinated with Texas Parks and Wildlife Department to obtain handling permits and approval of biologists to conduct the work, developed and implemented a worker environmental training program, directed a team of biologists who performed daily monitoring activities, and provided client communications and deliverables.

Kingman Solar II Facility, Brookfield Renewable Energy Group, Mohave County, AZ

Dr. Tuma served as the Project Manager for this project in 2015 and 2016. He was responsible for conducting presence/absence surveys for tortoises in an area where both Agassiz's desert tortoises and Morafka's desert tortoises (*Gopherus morafkai*) occur and hybridize and managing a Cultural Resources

Survey and wetland delineation in support of the project. He also coordinated monitoring activities in support of geotechnical studies performed at the site.

Publications

Sandmeier, Franziska C. Chava L. Weitzman, K. Nichole Maloney, C. Richard Tracy, Nathan Nieto, Mike B. Teglas, Kenneth W. Hunter, Sally DuPré, C. M. Gienger, and Michael W. Tuma. 2017. Comparison of current methods for the detection of chronic mycoplasmal URTD in wild populations of the Mojave Desert tortoise (*Gopherus agassizii*). Journal of Wildlife Diseases 53(1):91–101.

Tuma, Michael W., Chris Millington, Nathan Schumaker, and Paul Burnett. 2016. Modeling Agassiz's desert tortoise population response to anthropogenic stressors. Journal of Wildlife Management 80:414–429.

Nagy, K. A., L. Scott Hillard, Michael W. Tuma, and David J. Morafka. 2015. Head-started desert tortoises (*Gopherus agassizii*): Movements, survivorship and mortality causes following their release. Herpetological Conservation and Biology 10:203–215.

Tuma, Michael. W. and Craig B. Stanford. 2014. Chapter 17: History of Human Interaction. In: D.C. Rostal, E. D. McCoy, and H. R. Mushinsky (Eds), Biology and Conservation of North American Tortoises. John Hopkins University Press, Baltimore, MD.

Nagy, K. A., Michael W. Tuma, and L. Scott Hillard. 2011. Shell hardness measurement in juvenile desert tortoises, *Gopherus agassizii*. Herpetological Review 42:191-195.

Tuma, Michael W. 2006. Range, habitat use, and seasonal activity of the yellow mud turtle (*Kinosternon flavescens*) in Northwestern Illinois: Implications for site-specific conservation and management. Chelonian Conservation and Biology 5:108-120.

Tuma, Michael W. 2006. Ethnoarchaeology of Subsistence behaviors within a rural African American community: implications for interpreting vertebrate faunal data from slave quarters areas of Antebellum plantation sites. Historical Archaeology 40:1-26.

Tuma, Michael W. 2004. Middle to Late Archaic Period changes in terrestrial resource exploitation along the Los Peñasquitos Creek Watershed in western San Diego County: vertebrate faunal evidence from the Scripps Poway Parkway Site (CA-SDI-4608). Journal of California and Great Basin Anthropology 24:53-68.

Amy L. Young, Michael W. Tuma, and Cliff Jenkins. 2001. The role of hunting to cope with risk at Saragossa Plantation, Natchez, Mississippi. American Anthropologist 103:692-704.

Tuma, Michael W. 1998. Slave subsistence at Saragossa: preliminary report on faunal data. Mississippi Archaeology 33:125-138.

Tuma, Michael W. 1993. Life History Notes - *Kinosternon flavescens*, multiple nesting. Herpetological Review 24:31.

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

Presentations

February 2019. Desert Tortoise Council 44th Annual Symposium. Variables affecting survival of juvenile desert tortoises after release from headstart pens at Edwards AFB, a preliminary report. Part 1. Size and growth (with Kristin H. Berry and Jeremy S. Mack).

February 2019. Desert Tortoise Council 44th Annual Symposium. Variables affecting survival of juvenile desert tortoises after release from headstart pens at Edwards AFB, a preliminary report. Part 2. Behaviors and home range (with Kristin H. Berry and Jeremy S. Mack).

November 2018. California Science Education Conference. The Desert tortoise as phenomenon in studying ecological issues (with Julie Bookman and Peter Coddington).

February 2018. Desert Tortoise Council 43rd Annual Symposium. Movements, growth, and survival of head-started, juvenile tortoises at Edwards Air Force Base (with Jeremy S. Mack, Kristin H. Berry, and Kemp Anderson).

February 2017. Desert Tortoise Council 42nd Annual Symposium. Ecological constraints imposed by burrowing behaviors drove the evolution of divergent sexual size dimorphism in the North American *Gopherus* tortoises.

August 2016. 14th Annual Symposium on the Conservation & Biology of Tortoises & Freshwater Turtles. Sexual size dimorphism in turtles: Implications for management of wild and captive populations.

February 2016. The Wildlife Society Western Section Annual Meeting. Modeling Agassiz's desert tortoise population response to anthropogenic stressors.

February 2016. Desert Tortoise Council 41st Annual Symposium. Evolution of sexually dimorphic traits in North American *Gopherus* tortoises.

February 2015. Desert Tortoise Council 40th Annual Symposium. Mortality and survival of juvenile Agassiz's desert tortoises at the Fort Irwin Study Site (with L. Scott Hillard and Kenneth A. Nagy).

February 2015. Desert Tortoise Council 40th Annual Symposium. Divergent evolution of sexual size dimorphism in North American *Gopherus* tortoises.

February 2013. Desert Tortoise Council 38th Annual Symposium. Simulating desert tortoise population response to anthropogenic stressors using individual-based, spatially explicit modeling techniques (with Chris Millington, Nathan Schumaker, and Paul Burnett).

August 2012. 7th World Congress of Herpetology. Individual-based, spatially explicit modeling of desert tortoise population response to anthropogenic threats (with Chris Millington, Nathan Schumaker, and Paul Burnett).

August 2012. Ecological Society of America 97th Annual Meeting. Modeling population response to anthropogenic threats for a long-lived reptile, the desert tortoise (with Chris Millington, Nathan Schumaker, and Paul Burnett).

July 2011. Joint Meeting of Ichthyologists and Herpetologists. Modeling habitat for desert tortoises in the northeastern Mojave Desert (with Emily Kochert and Paul Burnett).

February 2009. Desert Tortoise Council 35th Annual Symposium. Shell hardness index and rate of shell hardening in desert tortoises (with Kenneth A. Nagy and L. Scott Hillard).

February 2007. Desert Tortoise Council 32nd Annual Symposium. Head-starting desert tortoises: Fort Irwin Release Project 2007 (with Kenneth A. Nagy and L. Scott Hillard).

February 2006. Desert Tortoise Council 31st Annual Symposium. Head-starting desert tortoises: Fort Irwin Release Project (with Kenneth A. Nagy and L. Scott Hillard).

April 2002. Society for California Archaeology Annual Meeting. Vertebrate faunal evidence of Archaic Period subsistence changes at an inland San Diego County site.

January 2002. Society for Historical Archaeology Annual Meeting. Cultural aspects of the Upland South tradition as represented in the faunal assemblage of McConnell's Homestead (Site 15Bb75) (with Grant L. Day).

November 1999. Southeastern Archaeological Conference Annual Meeting. Ethnoarchaeological observation of the subsistence behaviors among a rural community of African Americans in southwest Mississippi.

November 1998. Southeastern Archaeological Conference Annual Meeting. Analysis of vertebrate faunal remains from the ImmokaKina'Fa' Site (22Le907) (with Susan L. Scott).

February 1998. Mississippi Academy of Sciences 1998 Annual Meeting. Slave subsistence patterns at a Natchez, Mississippi Antebellum cotton plantation: Evidence from zooarchaeological remains.

January 1998. Society for Historical Archaeology Annual Meeting. Deerskin trade and subsistence specialization in the Black Prairie: Evidence from a late Protohistoric Chickasaw site (with Susan L. Scott).

July 1996. Society for the Study of Amphibians and Reptiles Annual Meeting. Sexual maturity and reproduction of *Gopherus polyphemus* in southern Mississippi.

November 1995. Gopher Tortoise Council Annual Meeting. Estimation of home range for *Gopherus polyphemus* in southern Mississippi.

August 1995. Society for the Study of Amphibians and Reptiles Annual Meeting. Calculation of home range for *Gopherus polyphemus* in southern Mississippi.

August 1993. Society for the Study of Amphibians and Reptiles Annual Meeting. Ecology of the yellow mud turtle (*Kinosternon flavescens*) in Illinois.

Alternative Bio

The following bio differs significantly from the initial bio at the beginning of the resume.

FIRSTCARBON SOLUTIONS™

MICHAEL TUMA, PHD, CWB, RPA—SENIOR BIOLOGIST

1798.0029.Q On-Call Biological Monitoring Services for City of Chino Hills Public Works Department 2020

Michael Tuma, PhD, CWB, RPA, has more than 28 years of experience as a professional scientist in academic settings, agency positions, and as an environment consultant. He is a proficient project and client manager with experience in a diversity of market sectors, including land management, renewable energy, transportation, water infrastructure, gas and mineral extraction, and land development. Dr. Tuma has led teams in the implementation of studies and documentation in support of permitting and compliance with numerous environmental laws, including the Federal Endangered Species Act, California Endangered Species Act, NEPA, CEQA, and Migratory Bird Treaty Act, among many others. Dr. Tuma is an experienced leader and has supervised and mentored groups of biologists at environmental consulting companies and government agencies. He has directed teams on large and long-term projects and mentored junior staff on issues pertaining to project management, technical studies and documentation, and regulatory processes. He has led and mentored large groups of volunteers and international biologists on learning advanced data collection techniques and has experience leading a non-profit organization with more than 350 members. He has experience in a wide spectrum of technical biological work, including population and habitat modeling, among other surveys, assessments, and studies. His research interests include population biology, evolutionary ecology, herpetology, and applied conservation of reptiles and amphibians. He is an expert in implementing advanced field data collection techniques and methodologies during studies of reptiles and amphibians, including population monitoring, habitat assessments, translocation, head-starting, radio telemetry, protocol health assessments, collection of blood/tissue samples, morphometric measurements, and radiography. He has worked with a variety of species, including yellow mud turtles (*Kinosternon flavescens*), Agassiz's desert tortoises (*Gopherus agassizii*), and pancake tortoises (*Malacochersus tornieri*). Dr. Tuma has trained and directed teams of biologists who have carried out surveys, field data collection, and biological monitoring activities on dozens of projects throughout Southern California, including task orders for on-call contracts with municipalities, water agencies, and energy providers. He is skilled in project management, statistics, geographic information systems (GIS), and computer modeling.

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Mobile: 314-805-5566

EDUCATION

B.S., Physics and Astronomy, University of Rochester, 2022

B.A., Religious Studies, University of Rochester, 2022

SKILLS

-Scientific collection and management of field data

-Technical Writing

-Python for data analysis and data visualization

-Experimental conception and design

-Grant writing and coordination of award usage

Lucas South

BIOLOGIST

Lucas South is a current environmental professional and recent graduate from the University of Rochester, with a Bachelor of Science in Astrophysics. During their degree they gained extensive lab experience in experimental data collection and technical writing (3 years), winning 3 grants for their work in granular physics. More recently they have endeavored to apply their skills to the area of biological monitoring and conservation. They have experience in avian biological monitoring for a major environmental consulting firm during which they conducted field biological research in the Midwestern region. Most recently, Lucas has spent time collecting field data on mortalities of avian and bat species at wind energy farms.

Mr. South's educational background in physics and planetary science has led to an interest in researching more on environmental impacts on earth, especially in the context of continuing climate change. Their professional experience in biological monitoring has created a specific interest in avian species. They also seek to apply skills of data analytical techniques with Python and technical writing toward facilitating different research projects centered around the conservation of critical natural resources.

EXPERTISE

- **Biological Monitoring.** Mr. South has experience monitoring utilities and energy farms for living and deceased avian species.
- **Bird and Bat Identification.** Mr. South has experience in identifying migratory and resident bird and bat species throughout the Midwestern region, including identification of endangered species.
- **Data Acquisition.** Mr. South has experience with data acquisition systems that utilize GIS, as well as laboratory data management systems.
- **Data Management and Analysis.** Mr. South has significant expertise in conducting statistical analyses on data through the Python programming language, including the creation and usage of large data structures.
- **Scientific Writing.** Mr. South has expertise in writing scientific reports, presentations, and grant proposals, having contributed to 3 journal publications, and acquired 3 grants.

SELECT PROJECT EXPERIENCE

MidAmerican Wind Project WEST (2022) - As a Biological Field Technician for Western EcoSystems Technology Inc., Lucas's responsibilities were to provide quality data collection and to support their technician team. Duties included:

- Conducting biological monitoring and research on avian species and bats, both migratory and resident
- Maintaining strict data quality requirements while utilizing specialized field GIS equipment
- Conducting searcher efficiency and carcass persistence tests
- Coordinating with a team of avian biologists to confirm identifications and manage endangered species find responses
- Effectively communicating and coordinating with field team and wind farm managers to maintain field safety standards

Lead Research Assistant, Asteroid Environments Laboratory (2019-2022) - As a project leader in Dr. Quillen's astrophysics laboratory at the University of Rochester, Lucas's responsibilities were to design data taking procedures and strategically implement grant funding. Duties included:

- Creating scientific reports and presentations to communicate results of laboratory experiments
- Writing grant proposals and managing acquired funding to complete experimental goals while working with 8-10 collaborators
- Designing physics experiments that utilized an accelerometer array to obtain 150+ data sets
- Analyzing physical data using the Python language and creating data visualization tools, as well as creating theoretical models for data comparison

Publications

- ***Boulder Stranding in Ejecta Launched by an Impact Generated Seismic Pulse***, Wright, E., Quillen, A. C., South, L., Nelson, R. C., Sánchez, P., Martini, L., Schwartz, S. R., Nakajima, M., Asphaug, E., 2020, Icarus, 337, 113424.
- ***Ricochets on Asteroids: Experimental Study of Low Velocity Impacts into Granular Media***, Wright, E., Quillen, A. C., South, L., Nelson, R. C., Sánchez, P., Siu, J., Askari, H., Nakajima, M., Schwartz, S. R., 2020, Icarus, 351, 113963.
- ***Propagation and Attenuation of Pulses Driven by Low Velocity Normal Impacts in Granular Media,*** Quillen, A. C., Neiderbach, M., Suo, B., South, L., Wright, E., Skerrett, N., Sánchez, P., Cúñez, F. D., Miklavcic, P., Askari, H., 2022, Icarus, 115139.

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Matthew South

PRINCIPAL BIOLOGIST

Matthew South founded South Environmental in 2018. He is a certified wildlife biologist and certified arborist with 17 years of professional experience providing natural resources consulting services for a wide variety of clients that include residential, commercial, government, utility, infrastructure, research, and non-profit projects. For the last 13 years, Mr. South has been an environmental consultant in southern California acting as a Wildlife Biologist and Geographic Information System (GIS) Analyst. In early 2018 he started South Environmental and has since been supporting clients in Los Angeles, San Bernardino, and Riverside Counties.

Mr. South's background in ecology has led to a passion for conservation planning and resources assessments for the purpose of preservation and management. The integration of the latest technologies such as advanced GIS systems, mobile computing, and drone sensing allows him to innovate new data collection, analysis, and collaboration tools for the environmental sciences that produce more accurate data and better-informed resource managers.

EXPERTISE

- **Conservation and Management Planning.** Mr. South's has extensive experience preparing mitigation and monitoring plans, habitat conservation plans, and technical biological resources management plans that are compliant with federal, state, and local regulations. Mr. South is the only active NRCS TSP for Fish and Wildlife Plans Certified in California.
- **Biological Resources Assessment.** Mr. South has completed dozens of biological resources assessments throughout southern California.
- **Rare Plants and Arborist Services.** Mr. South has surveyed and assessed thousands of native and landscaped trees in southern California. He is a certified arborist with 5-years of tree survey experience working closely with some of the most experienced arborists in California. In addition, he has performed hundreds of hours of rare plant surveys and habitat assessments.
- **Wetland & Jurisdictional Delineations.** Mr. South has conducted dozens of jurisdictional and wetland delineations per the guidelines and methods from the US Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and the state Regional Water Quality Control Boards (RWQCB).
- **GIS.** Mr. South is an expert at spatial data collection and analysis using ESRI mobile and desktop software products and Trimble hardware.

EDUCATION

B.S., Wildlife Ecology, University of Wisconsin-Madison, 2004

CERTIFICATIONS

Certified Wildlife Biologist, The Wildlife Society 2014

ISA Certified Arborist (WE-12564A) 2019

Certified Technical Service Provider (TSP) for Fish and Wildlife Management Plans, USDA NRCS 2017

Authorized Desert Tortoise Biologist – Numerous BOs

Unmanned Aircraft System Pilot Certification, FAA #4177603

TRAINING

Wetland Delineation Training Course – The Wetland Institute (2014)

Southwest Willow Flycatcher Workshop, 2017

USGS Desert Tortoise Health Assessment and Tissue Collection Techniques Training, 2009

SELECT PROJECT EXPERIENCE

Southern California Edison (SCE) As-Needed Natural and Cultural Resources Services (2021-ongoing). As a subconsultant on this contract for multiple Primes (SWCA, EI, Rincon, Cardno, and ERM), South Environmental has focused its biological resources services on wetland delineations and permitting efforts for SCE throughout all its regions. From single pole delineations in roadside ditches to several hundred poles through miles of wet meadows in the Sierras, the projects vary in size and complexity as well as location. Primarily, delineations have been in the Sierras with the largest and most complex projects in Inyo and Mono Counties and several in Kern and Tulare. A few of the specific projects include

- Pickle Meadow: Aquatic Resources Delineation Report and Permitting for 300-poles located in a wet meadow behind Bridgeport Reservoir.
- Kern River: Wetland Delineation and Permitting for 15 pole replacements in Kernville.
- June Lake to Tom's Place: Wetland Delineation and Permitting for 40 poles spread through Inyo and Mono Counties.
- Cajon Wash: Jurisdictional Delineation and SBKR Assessment and Permitting for 10 pole replacements and realignment for a capital project located in SBKR Critical Habitat.
- Pipes Wash: Delineation and Permitting for 25-poles that are within Pipes Wash, a large ephemeral wash in the San Bernardino desert.

Southern California Gas (SCG) As-Needed Natural and Cultural Resources Services (2022-ongoing). As a subconsultant on this contract Mr. South has overseen the assessment numerous resources from single point locations to many miles of pipelines. More recently he has begun to conduct biological assessment in the coastal zone in Santa Barbara County as well as endangered species Biological Assessments (BAs) in support of Coastal Development Permits for SCG. Wetland delineation and permitting, biological resources assessments, and resources surveys and monitoring are services that Mr. South both provides personally and oversees a team of specialists that support the environmental impacts analysis and permitting for SCG.

California Department of Water Resources (DWR) As-Needed Environmental Compliance Services (2012-2018). As part of this contract while employed at another firm, Mr. South prepared conservation and biological resources planning documents as well as oversaw the implementation and compliance components of these documents. Most notably, Mr. South was the lead avian biologist for the billion-dollar Perris Dam Remediation Project where he prepared Avian Protection and Avoidance Plan, Feral Hog Management Plan, negotiated environmental mitigation and compensation with both the USFWS and CDFW biologists, conducted protocol surveys for endangered species such as least Bell's vireo, and oversaw the compliance monitoring efforts for the entire 5-years of project construction.

Los Angeles County Flood Control District and Department of Public Works As-Needed Environmental Compliance Services (2014-2018). As part of this contract while employed at another firm, Mr. South conducted dozens of biological resources assessments, focused surveys for special-status species, and monitored compliance for a wide variety of water infrastructure project. Notably, Mr. South was the lead biologist for the Eaton Dam Maintenance Projects and for a variety of vegetation management programs within sensitive waterways.

Appendix B:
Site Photographs

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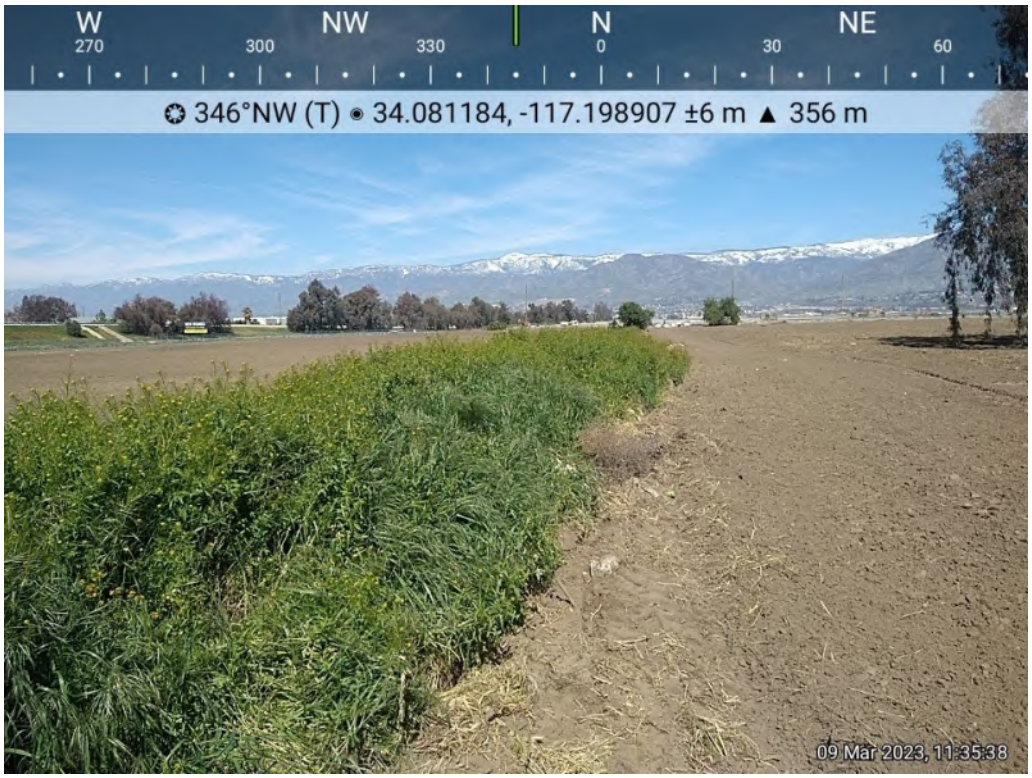
Photograph 1: View of site entrance via the gate on Pioneer Avenue.



Photograph 2: View of recently tilled soil and chain-link fence of site adjacent to Pioneer Avenue.



Photograph 3: View of utility poles and chain-link fence on the site adjacent to Highway 210.



Photograph 4: Untilled strip of land containing ruderal plants and forbs.



Photograph 5: Interior of the parcel featuring tilled soil and elderberry plants.



Photograph 6: Interior of the parcel featuring an out of use asphalt road.



Photograph 7: Small tract of untilled land on the northeast side of the parcel, supporting several burrows.



Photograph 8: An example of a burrow in the parcel, too large for SBKR and active with California ground squirrel activity.

Appendix C:
Special-status Species Tables

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Table 1: Special–status Plant Species Evaluated

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Dicots					
Abronia villosa var. aurita chaparral sand–verbena	—	—	1B.1	Annual herb found in chaparral, coastal scrub, and desert dunes in sandy habitats. Elevation: 75–1600 m Bloom period: March–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Acanthoscyphus parishii var. parishii Parish's oxytheca	—	—	4.2	Annual herb found chaparral and lower montane coniferous forest. Can grow in gravelly or sandy places. Elevation: 1220–2600 m Bloom period: June–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Ambrosia pumila San Diego Ambrosia	—	—	1B.1	Perennial rhizomatous herb found in chaparral, coastal scrub, valley and foothill grassland, vernal pools. Elevation: 20–415 m Bloom period: April–October	**None.** Suitable habitat for this species is not present on or adjacent to the project site, and the soils on the project site have been subjected to numerous disturbances that would prevent its occurrence.
Androsace elongata ssp. acuta California androsace	—	—	4.2	Annual herb that occurs in chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland. Elevation: 150–1305 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Arenaria paludicola marsh sandwort	FE	SE	1B.1	Perennial stoloniferous herb found in marshes and swamps (freshwater or brackish). Elevation: 3–170 m Bloom period: May–August	**None.** There is no suitable habitat for this species on the project site. There is one historical record within 5 miles of the project site.
Artemisia palmeri San Diego sagewort	—	—	4.2	Annual herb found chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland. Elevation: 150–1305 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Astragalus hornii var. *hornii* Horn's milk–vetch	—	—	1B.1	Occurs on salty flats, alkali sinks, lake shores, and riparian habitats. Elevation: 60–300 m Blooming period: May–October	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on the project site. There is one historical record within 5 miles of the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Astragalus pachypus var. jaegeri Jaeger's milk–vetch	—	—	1B.1	Perennial shrub found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Can grow in rocky or sandy places. Elevation: 365–975 m Bloom period: December–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Atriplex coronata var. notatior San Jacinto Valley crownscale	FE	—	1B.1	Annual herb found in playas, valley and foothill grassland, and vernal pools in alkaline soils. Elevation: 139–500 m Bloom period: April–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Atriplex serenana var. davidsonii Davidson's saltscale	—	—	1B.2	Annual herb found in coastal bluff scrub and coastal scrub in alkaline soils. Elevation: 10–200 m Bloom period: April–October	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Berberis nevinii Nevin's barberry	FE	SE	1B.1	Occurs on steep, north–facing slopes or in low grade sandy washes in chaparral, cismontane woodland, coastal sage and Riversidean alluvial fan sage scrub, and riparian scrub habitats. Elevation: 290–1575 m Blooming period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are one recent and two historical records within 5 miles of the project site, and one historical record between 5 and 10 miles from the project site.
Castilleja cinerea ash–gray paintbrush	FT	—	1B.2	Perennial herb found in Mojavean desert scrub, meadows and seeps, pebble plain, pinyon and juniper woodland, and upper montane coniferous forest. Elevation: 1800–2960 m Bloom period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Castilleja lasiorhyncha San Bernardino Mountains owl's–clover	—	—	1B.2	Annual herb found in chaparral, meadows and seeps, pebble plain, riparian woodland, and upper montane coniferous forest in mesic soils. Elevation: 1300–2390 m Bloom period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Castilleja montigena Heckard's paintbrush	—	—	4.3	Perennial herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Elevation: 1950–2800 m Bloom period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Caulanthus simulans Payson's jewelflower	—	—	4.2	Annual herb found in chaparral and coastal scrub. Prefers granitic and sandy places. Elevation: 90–2200 m Bloom period: March–May	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Centromadia pungens ssp. *laevis* Smooth tarplant	—	—	1B.1	Occurs in alkali meadow, alkali scrub, and disturbed places in valley and foothill grassland, chenopod scrub, meadows, playas, and riparian woodland habitats. Elevation: 0–640 m Bloom period: April–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are three recent and two historical records within 5 miles of the project site, and two recent and two historical records between 5 and 10 miles from the project site.
Chloropyron maritimum ssp. *maritimum* Salt marsh bird's–beak	FE	SE	1B.2	Occurs in coastal salt marsh. Elevation: < 10 m Blooming period: May–October	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Chorizanthe leptotheca Peninsular spineflower	—	—	4.2	Annual herb found chaparral, coastal scrub, and lower montane coniferous forest. Prefers granitic places. Elevation: 300–1900 m Bloom period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Chorizanthe parryi var. *parryi* Parry's spineflower	—	—	1B.1	Occurs on sandy soils in chaparral, coastal sage and Riversidean alluvial fan sage scrub habitats. Elevation: 275–1220 m Blooming period: April–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site, and the soils on the Project site have been subjected to numerous disturbances that would prevent its occurrence. There are five recent and six historical records within 5 miles of the project site, and five recent and four historical records between 5 and 10 miles from the project site.
Chorizanthe xanti var. leucotheca white–bracted spineflower	—	—	1B.2	Mojavean desert scrub, pinyon and juniper woodland, coastal scrub. Often grows on sandy or gravelly places such as alluvial fans. Elevation: 365–1830 m. Blooming period: April – June	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one recent record between 5 and 10 miles from the project site.
Convolvulus simulans small–flowered morning–glory	—	—	4.2	Annual herb found in chaparral, coastal scrub, and valley and foothill grassland. Prefers clay, seeps, and serpentinite. Elevation: 30–740 m Bloom period: March–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	—	—	2B.2	Occurs on herbs including *Alternanthera*, *Dalea*, *Lythrum*, *Polygonum*, *Xanthium*. Elevation: +– < 500 m Blooming period: July–October	**None.** Suitable habitat and hosts for this species are not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Deinandra paniculata paniculate tarplant	—	—	4.2	Annual herb found in coastal scrub, valley and foothill grassland, and vernal pools. Prefers vernally mesic soil, but can be found in sandy places. Elevation: 25–940 m Bloom period: April–November	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Diplacus clevelandii Cleveland's bush monkeyflower	—	—	4.2	Perennial rhizomatous herb found in chaparral, cismontane woodland, and lower montane coniferous forest. Tends to grow in disturbed areas, as well as gabbroic places, openings, and rocky places. Elevation: 450–2000 m Bloom period: April–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Dodecahema leptoceras slender–horned spineflower	FE	SE	1B.1	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include *Encelia, Dalea, Lepidospartum*, etc. Sandy soils. Elevation: 200–765 m. Blooming period: April–May	**None.** Suitable habitat for this species is not present on or adjacent to the project site, and the soils on the Project site have been subjected to numerous disturbances that would prevent its occurrence. There are one recent (in 2021) and five historical records within 5 miles of the project site, and three historical records between 5 and 10 miles from the project site.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	FE	SE	1B.1	Occurs on sandy soils on river floodplains or terraced fluvial deposits in chaparral and coastal sage and Riversidean alluvial fan sage scrub habitats. Elevation: 180–700 m Blooming period: May–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site, and the soils on the Project site have been subjected to numerous disturbances that would prevent its occurrence. There are five recent (most recently in 2021) and three historical records within 5 miles of the project site, and eight recent and three historical records between 5 and 10 miles from the project site.
Eriophyllum lanatum var. obovatum southern Sierra woolly sunflower	—	—	4.3	Perennial herb found in lower montane coniferous forest and upper montane coniferous forest. Prefers loam and sandy places. Elevation: 1114–2500 m Bloom period: Jun–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Erythranthe exigua San Bernardino Mountains monkeyflower	—	—	1B.2	Annual herb found in meadows and seeps, pebble plain, and upper montane coniferous forest. Prefers clay and mesic soils. Elevation: 1800–2315 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Frasera neglecta pine green–gentian	—	—	4.3	Perennial herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Elevation: 1400–2500 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Galium californicum ssp. primum Alvin Meadow bedstraw	—	—	1B.2	Perennial herb chaparral lower montane coniferous forest. Elevation: 1350–1700 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Galium johnstonii Johnston's bedstraw	—	—	4.3	Perennial herb found in chaparral, lower montane coniferous forest, pinyon and juniper woodland, and riparian woodland. Elevation: 1220–2300 m Bloom period: Jun–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Helianthus nuttallii ssp. parishii Los Angeles sunflower	—	—	1A	Dicot perennial (rhizomatous) herb found in marshes and swamps, including coastal salt and freshwater marshes. Elevation: 10–1,675 m. Bloom period: August–October	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Heuchera caespitosa urn–flowered alumroot	—	—	4.3	Perennial rhizomatous herb found in cismontane woodland, lower montane coniferous forest, riparian forest (montane), and upper montane coniferous forest. Prefers rocky habitat. Elevation: 1155–2650 m Bloom period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Heuchera parishii Parish's alumroot	—	—	1B.3	Perennial rhizomatous herb found in alpine boulder and rock field, lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest. Can grow on carbonate, but prefers rocky habitat. Elevation: 1500–3800 m Bloom period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Horkelia cuneata var. puberula mesa horkelia	—	—	1B.1	Perennial herb found in chaparral, coastal scrub, and cismontane woodlands. Elevation: 70–810 m. Bloom period: February–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Hulsea vestita ssp. parryi Parry's sunflower	—	—	4.3	Perennial herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Elevation: 1370–2895 m Bloom period: April–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Ivesia argyrocoma var. argyrocoma silver–haired ivesia	—	—	1B.2	Perennial herb found in meadows and seeps in alkaline soils, pebble plain, and upper montane coniferous forest. Elevation: 1463–2960 m Bloom period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Juglans californica Southern California black walnut	—	—	4.2	Perennial deciduous tree found in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Elevation: 50–900 m Bloom period: March–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Lasthenia glabrata ssp. coulteri Coulter's goldfields	—	—	1B.1	Annual herb found in marshes and swamps, playas, and vernal pools. Elevation: 1–1220 m Bloom period: February–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Lepidium virginicum var. *robinsonii* Robinson's pepper–grass	—	—	4.3	Occurs on dry soils in chaparral and coastal sage and Riversidean alluvial fan sage scrub habitats. Elevation: 1–855 m Blooming period: January–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site, and the soils on the Project site have been subjected to numerous disturbances that would prevent its occurrence. There are two historical records within 5 miles of the project site, and four historical records between 5 and 10 miles from the project site.
Lycium parishii Parish's desert–thorn	—	—	2B.3	Perennial shrub found in coastal scrub and Sonoran Desert scrub. Elevation: 135–1,000 m. Blooming period: March–April	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Malacothamnus parishii Parish's bush–mallow	—	—	1A	The one record for this species is in an area that is now developed and urbanized, but it likely supported Riversidean alluvial fan sage scrub habitat at the time of observation in 1895.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Monardella macrantha ssp. hallii Hall's monardella	—	—	1B.3	Perennial rhizomatous herb found broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland. Elevation: 730–2195 m Blooming period: June–October	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are one recent and two historical records between 5 and 10 miles from the project site.
Monardella pringlei Pringle's monardella	—	—	1A	Annual herb found in sandy soils in coastal scrub. Elevation: 300–400 m. Bloom period: May–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Nama stenocarpa mud nama	—	—	2B.2	Annual/perennial herb found in marshes and swamps. Elevation: 5–500 m Bloom period: January–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Nasturtium gambelii Gambel's water cress	FE	ST	1B.1	Occurs in freshwater and brackish marshes and at the margins of lakes and along streams in or just above the water level. Elevation: 5–330 m Blooming period: April–October	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Packera bernardina San Bernardino ragwort	—	—	1B.2	Perennial herb found in meadows and seeps in mesic or alkaline soils, pebble plain, and upper montane coniferous forest. Elevation: 1800–2300 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Perideridia parishii ssp. parishii Parish's yampah	—	—	2B.2	Perennial herb found in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest. Elevation: 1465–3000 m Blooming period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Phacelia mohavensis Mojave phacelia	—	—	4.3	Annual herb found in cismontane woodland, lower montane coniferous forest, meadows and seeps, and pinyon and juniper woodland. Can grow in gravelly and sandy soils. Elevation: 1400–2500 m Bloom period: April–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Phacelia stellaris Brand's star phacelia	—	—	1B.1	Annual herb found in coastal dunes and coastal scrub. Elevation: 1–400 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Pseudorontium cyathiferum Deep Canyon snapdragon	—	—	2B.3	Annual herb found in Sonoran desert scrub in rocky places. Elevation: 0–800 m Bloom period: February–April	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Quercus engelmannii Engelmann oak	—	—	4.2	Perennial deciduous tree found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elevation: 50–1300 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Ribes divaricatum var. *parishii* Parish's gooseberry	—	—	1A	Occurs in moist or riparian woodland habitat. Elevation: 60–310 m Blooming period: February–April	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Romneya coulteri Coulter's matilija poppy	—	—	4.2	Perennial rhizomatous herb found in chaparral and coastal scrub, often in burned areas. Elevation: 20–1200 m Bloom period: March–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Rupertia rigida Parish's rupertia	—	—	4.3	Perennial herb found in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble plain, and valley and foothill grassland. Elevation: 700–2500 m Bloom period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Senecio aphanactis chaparral ragwort	—	—	2B.2	Annual herb found in drying alkaline flats in chaparral, cismontane woodland, and coastal scrub. Elevation: 15–800 m. Bloom period: January–April	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There two recent records between 5 and 10 miles from the project site.
Senecio astephanus San Gabriel ragwort	—	—	4.3	Perennial herb found in coastal bluff scrub and chaparral. Prefers rocky places and slopes. Elevation: 400–1500 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Sidalcea hickmanii ssp. parishii Parish's checkerbloom	—	CR	1B.2	Perennial herb found in chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 1000–2499 m Blooming period: June–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Sidalcea malviflora ssp. *dolosa* Bear Valley checkerbloom	—	—	1B.2	Occurs in meadows and seeps in lower montane coniferous forest, riparian woodland, and upper montane coniferous forest habitats. Elevation: 1500–2300 m Blooming period: May–August	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Sidalcea neomexicana Salt spring checkerbloom	—	—	2B.2	Occurs in alkaline springs and marshes. Elevation: < 1500 m Blooming period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two historical records within 5 miles of the project site.
Sidalcea pedata bird–foot checkerbloom	FE	CE	1B.1	Perennial herb found in meadows and seeps and pebble plains. Elevation: 1600–2500 m Blooming period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Sidotheca caryophylloides chickweed oxytheca	—	—	4.3	Annual herb found in lower montane coniferous forest in sandy places. Elevation: 1114–2600 m Bloom period: July–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Streptanthus bernardinus Laguna Mountains jewelflower	—	—	4.3	Perennial herb found in chaparral and lower montane coniferous forest. Elevation: 670–2500 m Bloom period: May–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Streptanthus campestris southern jewelflower	—	—	1B.3	Perennial herb found in chaparral, lower montane forest, and pinyon and juniper woodland. Prefers rocky places. Elevation: 900–2300 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Symphyotrichum defoliatum San Bernardino aster	—	—	1B.2	Perennial, rhizomatous herb found in banks of ditches, streams, and springs in cismontane woodlands, coastal scrub, lower montane coniferous forests, meadows and seeps, marshes and swamps, and vernally mesic valley and foothill grasslands. Elevation: 2–2,040 m. Bloom period: July–November	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are three historical records between 5 and 10 miles from the project site.
Trichocoronis wrightii var. wrightii Wright's trichocoronis	—	—	2B.1	Annual herb found meadows and seeps, marshes and swamps, riparian forest, and vernal pools. Prefers alkaline soils. Elevation: 5–435 m Bloom period: May–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Ferns					
Asplenium vespertinum western spleenwort	—	—	4.2	Perennial rhizomatous herb found in chaparral, cismontane woodland, and coastal scrub in rocky habitats. Elevation: 180–1000 m. Bloom period: February–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Pelazoneuron puberulum var. sonorensis Sonoran maiden fern	—	—	2B.2	Perennial rhizomatous herb found in meadows and seeps. Elevation: 50–610 m Bloom period: January–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Monocots					
Allium howellii var. clokeyi Mt. Pinos onion	—	—	1B.3	Perennial bulbiferous herb found in great basin scrub, meadows and seeps, and pinyon and juniper woodland. Elevation: 1300–1850 m Bloom period: April–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Allium marvinii Yucaipa onion	—	—	1B.2	Perennial bulbiferous herb found in chaparral in clay and in openings. Elevation: 760–1065 m Bloom period: April–May	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Bouteloua trifida three–awned grama	—	—	2B.3	Perennial herb found in Mojavean desert scrub on carbonate and rocky places. Elevation: 700–2000 m Bloom period: May–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Brodiaea filifolia thread–leaved brodiaea	FT	SE	1B.1	Perennial herb (bulb) that occurs in openings on clay soils in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grasslands, and vernal pool habitats. Elevation: 15–1020 m Bloom period: March–June	**None.** Suitable habitat for this species is not present within the project site. There are two recent records between 5 and 10 miles from the project site.
Calochortus catalinae Catalina mariposa lily	—	—	4.2	Perennial bulbiferous herb found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevation: 15–700 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Calochortus palmeri var. palmeri Palmer's mariposa–lily	—	—	1B.2	Perennial bulbiferous herb found in chaparral, lower montane coniferous forest, and meadows and seeps. Prefers mesic soils. Elevation: 710–2390 m Bloom period: April–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Calochortus plummerae Plummer's mariposa–lily	—	—	4.2	Occurs on rocky and sandy sites, usually of granitic alluvial material, in coastal sage and Riversidean alluvial fan sage scrub, chaparral, valley and foothill grassland, cismontane woodland, and lower montane coniferous forest habitats. Can be very common after fire. Elevation: 100–1700 m Bloom period: May–July	**None.** Suitable habitat for this species is not present within the project site, and the soils on the project site have been subjected to numerous disturbances that would prevent its occurrence. There are two historical records within 5 miles of the project site, and eight recent and four historical records between 5 and 10 miles from the project site.
Calochortus simulans La Panza mariposa–lily	—	—	1B.3	Perennial bulbiferous herb found in chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland. Prefers granitic and sandy soils but can grow on serpentinite. Elevation: 325–1150 m Bloom period: April–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Carex comosa bristly sedge	—	—	2B.1	Perennial, rhizomatous herb found in coastal prairie, lake margins of marshes and swamps, and valley and foothill grasslands. Elevation: 0–625 m. Bloom period: May–September	**None.** Suitable habitat for this species is not present within the project site. There is one historical record between 5 and 10 miles from the project site.
Fimbristylis thermalis hot springs fimbristylis	—	—	2B.2	Perennial rhizomatous herb found in meadows and seeps. Elevation: 110–1340 m Bloom period: July–September	**None.** Suitable habitat for this species is not present within the project site. There is one recent record between 5 and 10 miles from the project site.
Fritillaria pinetorum pine fritillary	—	—	4.3	Perennial bulbiferous herb found in chaparral, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, and upper montane coniferous forest. Can grow in granitic and metamorphic soils. Elevation: 1735–3300 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Hordeum intercedens vernal barley	—	—	3.2	Annual herb found in coastal dunes, coastal scrub, valley and foothill grassland in depressions and saline flats, and vernal pools. Elevation: 5–1000 m Bloom period: March–June	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Imperata brevifolia California satintail	—	—	2B.1	Occurs in wet springs, meadows, streambanks, and floodplains Elevation: < 500 m Bloom period: September–May	**None.** Suitable habitat for this species is not present within the project site. There are one recent and one historical record within 5 miles of the project site.
Juncus duranii Duran's rush	—	—	4.3	Perennial rhizomatous herb found in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest. Prefers mesic soils. Elevation: 1768–2804 m Bloom period: July–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Lilium humboldtii ssp. ocellatum ocellated Humboldt lily	—	—	4.2	Perennial bulbiferous herb found in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland. Prefers openings. Elevation: 30–1800 m Bloom period: March–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Lilium parryi lemon lily	—	—	1B.2	Perennial bulbiferous herb found in lower montane coniferous forest, meadows and seeps, riparian forest, and upper montane coniferous forest. Prefers mesic soils. Elevation: 1220–2745 m Bloom period: July–August	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Muhlenbergia californica California muhly	—	—	4.3	Perennial rhizomatous herb found in chaparral, coastal scrub, lower montane coniferous forest, and meadows and seeps. Prefers mesic soils, seeps, and streambanks. Elevation: 100–2000 m Bloom period: June–September	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Muilla coronata crowned muilla	—	—	4.2	Perennial bulbiferous herb found in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and Pinyon and juniper woodland. Elevation: 670–1960 m Bloom period: March–April	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Piperia leptopetala narrow–petaled rein orchid	—	—	4.3	Perennial herb found in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest. Elevation: 380–2225 m Bloom period: May–July	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Schoenus nigricans black bog–rush	—	—	2B.2	Perennial herb found in marshes and swamps. Elevation: 150–2000 m Bloom period: August–September	**None.** Suitable habitat for this species is not present within the project site. There is one recent record between 5 and 10 miles from the project site.
Sphenopholis obtusata Prairie wedge grass	—	—	2B.2	Occurs in wet meadows, streambanks, and ponds. Elevation: 240–2870 m Blooming period: April–June	**None.** Suitable habitat for this species is not present within the project site. There is one historical record within 5 miles of the project site.
Yucca brevifolia Joshua tree	—	—	—	Fine, loose, well drained, and/or gravelly soils in Mojavean desert scrub and pinyon and juniper woodland. Elevation: 400–1800 meters Blooming period: February–April	**None.** Suitable habitat for this species is not present on or adjacent to the project site.

Scientific Name Common Name	Status			Habitat Description[4]	Potential to Occur and Rationale
	USFWS[1]	CDFW[2]	CNPS[3]		
Code Designations					
[1] Federal Status: 2020 USFWS Listing **ESU** = Evolutionary Significant Unit is a distinctive population. **FE** = Listed as endangered under the FESA. **FT** = Listed as threatened under the FESA. **FC** = Candidate for listing (threatened or endangered) under FESA. **FD** = Delisted in accordance with the FESA. **FPD** = Federally Proposed to be Delisted. **MBTA** = protected by the Migratory Bird Treaty Act **—** = Not federally listed				**[2] State Status: 2020 CDFW Listing** **SE** = Listed as endangered under the CESA. **ST** = Listed as threatened under the CESA. **SSC** = Species of Special Concern as identified by the CDFW. **FP** = Listed as fully protected under FGC. **CFG** = FGC =protected by FGC 3503.5 **CR** = Rare in California. **—** = Not state listed	**[3] CNPS: 2020 CNPS Listing** **Rank 1A** = Plants species that presumed extinct in California. **Rank 1B** = Plant species that are rare, threatened, or endangered in California and elsewhere. **Rank 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere. **Rank 3** = Plants about which we need more information—A Review List **Rank 4** = Plants of limited distribution—A Watch List **Blooming period:** Months in parentheses are uncommon.

Notes:
[4] **Habitat Description:** Habitat description adapted from CNDDB and CNPS online inventory or other specified source.
[5] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source.

Sources:

California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed August 17, 2021.

California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special–Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed August 17, 2021, 2021.

California Native Plant Society (CNPS). 2021. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed August 17, 2021.

U.S. Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation. Website: https://ecos.fws.gov/ipac/. Accessed August 17, 2021.

Table 2: Special–status Wildlife Species Evaluated

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Amphibians				
Batrachoseps gabrieli San Gabriel slender salamander	—	—	Found under rocks, wood, and fern fronds, and on soil at the base of talus slopes.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Rana draytonii California red–legged frog	FT	— SSC	Occurs in mesic forests in valleys and foothills near ponds or streams. May also occur in grasslands and coastal sage and Riversidean alluvial fan sage scrub near aquatic habitat. Breeds in permanent or ephemeral water sources, including lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Near ephemeral wetland habitats, require animal burrows or other moist refuges for estivation when the wetlands are dry.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Rana muscosa Southern mountain yellow–legged frog	FE	FE SSC	Occurs in lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in montane habitat at elevations between 370–3,660 m. Prefers clear, deep pools in streams that range from rocky, steep drainages to those with a gentle gradient, marshy margins, and sod banks.	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on or adjacent to the project site. There is one historical record within 5 miles of the project site, and two recent and one historical records between 5 and 10 miles from the project site.
Spea hammondii Western spadefoot	—	— SSC	Occurs in open areas with sandy or gravelly soils in mixed woodlands, grasslands, coastal sage and Riversidean alluvial fan sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in ephemeral rain pools that do not contain bullfrogs, fish, or crayfish.	**Low.** Marginally suitable habitat for this species may be present in grassland areas on the project site adjacent to the channelized drainage. There are three recent records within 5 miles of the project site, and nineteen recent and one historical records between 5 and 10 miles from the project site.
Birds				
Accipiter cooperii Cooper's hawk	— MBTA	— WL; FGC	Occurs and nests in deciduous and mixed forests and open woodland habitats. Year–round resident in southern California.	**Moderate.** There is suitable nesting habitat for this species in the ornamental trees on and adjacent to the project site. There is one historical record within 5 miles of the project site, and one historical record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Aechmophorus occidentalis western grebe	— MBTA	— FGC	Breeds on freshwater lakes and marshes with extensive open water bordered by emergent vegetation. During winter they move to saltwater or brackish bays, estuaries, or sheltered sea coasts and are less frequently found on freshwater lakes or rivers.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Agelaius tricolor Tricolored blackbird	— MTBA	FT SSC; FGC	Occurs and nests in large freshwater marshes with dense stands of hydrophytic vegetation (cattails, bulrushes, etc.). Short–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and one recent record between 5 and 10 miles from the project site.
Aimophila ruficeps canescens Southern California rufous–crowned sparrow	— MTBA	— WL; FGC	Occurs and nests on steep, often rocky hillsides with grass and forb patches in coastal sage and Riversidean alluvial fan sage scrub and sparse mixed chaparral habitats. Year–round resident in southern California.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are five recent records within 5 miles of the project site, and ten recent records between 5 and 10 miles from the project site.
Aquila chrysaetos golden eagle	BGEPA MBTA	— FP; FGC	Forages in areas of rolling foothills, mountainous areas, sage–juniper flats, and desert. Cliff–walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Artemisiospiza belli belli Bell's sage sparrow	— MBTA	— WL; FGC	Breeds in coastal sagebrush, chaparral, and other open, scrubby habitats in Southern California mountains, deserts and valleys.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent records between 5 and 10 miles from the project site.
Athene cunicularia Burrowing owl	— MBTA	— SSC; FGC	Occurs and nests in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low–growing vegetation. A subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel. Short–distance migrant.	**Moderate.** Suitable nesting habitat for this species is present in the form of California ground squirrel colonies within the project site. There are two known records, from 1983 and 2006, within 5 miles of the project site. Both records are associated with airports. There are two recent records between 5 and 10 miles from the project site.
Baeolophus inornatus oak titmouse	— MBTA	— FGC	Occurs in warm, open, dry oak or oak–pine woodlands. Many will use scrub oaks or other brush as long as woodlands are nearby. Nests are built in tree cavities.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Buteo regalis ferruginous hawk	— MBTA	— WL; FGC	Grassland and arid shrublands with an abundance of prey species, such as pocket gophers, black–tailed jackrabbits, and desert cottontails. Will winter near cultivated fields that have an abundance of pocket gophers.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one recent record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Buteo swainsoni Swainson's hawk	— MBTA	FT FGC	Occurs and nests in grasslands with scattered trees, juniper–sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site. This species is believed to be locally extirpated.
Chamaea fasciata wrentit	— MBTA	— FG	Occurs in chaparral, oak woodlands, and bushland. Nests in 1 m high shrubs.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Coccyzus americanus occidentalis Western yellow–billed cuckoo	FT MTBA	SE FGC	Occurs and nests in riparian forest along the broad lower flood–bottoms of larger river systems. Found in riparian jungles of willow, often mixed with cottonwoods; understory consists of blackberry, nettles, and wild grape. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and one historical record between 5 and 10 miles from the project site.
Contopus cooperi Olive–sided flycatcher	— MTBA	— FGC	Breeds in montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Elanus leucurus white–tailed kite	— MTBA	— FP; FGC	Grasslands and open coastal scrub in coastal and valley lowlands; rarely found away from agricultural areas. Inhabits herbaceous, open stages of most habitats mostly in cismontane California. Year–round resident in southern California.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one recent record between 5 and 10 miles from the project site.
Empidonax traillii extimus Southwestern willow flycatcher	FE MTBA	SE FGC	Occurs and nests in dense riparian woodlands. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and one recent record between 5 and 10 miles from the project site.
Eremophila alpestris actia California horned lark	— MTBA	— WL; FGC	Occurs and nests in open areas with sparse vegetation. Year–round resident in southern California.	**Moderate.** Suitable foraging and nesting habitat for this species in the grassland habitat project site. There is one historical record within 5 miles of the project site.
Falco columbarius merlin	— MBTA	— WL; FGC	Nests in open and semi–open areas such as grasslands, open forests, and coastal areas as well as in towns and cities. Merlins often take over crow nests in conifers planted in residential areas, schoolyards, parks, and cemeteries. Merlins winter across the western and southern United States, along the Pacific Coast up to Alaska, where it typically forages in open habitats supporting natural vegetation communities.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one recent record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Geothlypis trichas sinuosa common yellowthroat	— MTBA	— FGC	Occurs in freshwater and salt marshes with nearby willow thickets. Nests in marshy areas that are usually higher off the ground.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Haliaeetus leucocephalus bald eagle	FD; BGEPA MTBA	— FGC	Breeds and winters in forested areas adjacent to large bodies of water. Nests are usually constructed below the crown of a tree, often the highest point where large branches join the bole of a tree.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Icteria virens Yellow–breasted chat	— MTBA	— SSC; FGC	Occurs and nests in riparian thickets of willow and other bushy tangles near watercourses. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and one historical record between 5 and 10 miles from the project site.
Icterus bullockii Bullock's oriole	— MTBA	— FGC	Occurs in riparian corridors, open woodland, and scrub forest. Nests are usually suspended on the outer branches of a tree.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Lanius ludovicianus Loggerhead shrike	— MTBA	— SSC; FGC	Occurs and nests in broken woodlands, savannah, pinyon–juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Moderate.** Suitable foraging and nesting habitat for this species may be present in the form of grasslands and ornamental trees within project site. There is one historical record within 5 miles of the project site.
Laterallus jamaicensis coturniculus California black rail	— MTBA	ST FP; FGC	Occurs and nests in freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Passerculus sandwichensis Belding's savannah sparrow	— MTBA	— FGC	Occurs in coastal salt marshes and other wetland edges. Nests in pickleweed salt marsh vegetation.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Picoides nuttallii Nuttall's woodpecker	— MTBA	— FGC	Occurs in oak woodlands, but also found in riparian woodlands.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Polioptila californica californica Coastal California gnatcatcher	FT MTBA	— SSC; FGC	Occurs and nests in arid washes, on mesas, and slopes in coastal sage scrub below 2500 ft. Year–round resident in California.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent and one historical records within 5 miles of the project site, and eight historical records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Selasphorus sasin Allen's hummingbird	— MBTA	— FGC	Breeds in moist coastal areas, scrub, chaparral, and forests. Winters in forest edge and scrub clearings with flowers.	**Low.** Marginal foraging and nesting habitat for this species occurs on and adjacent to the project site in ornamental vegetation.
Setophaga petechia Yellow warbler	— MTBA	— SSC; FGC	Occurs and nests in willow shrubs and thickets, cottonwoods, sycamores, ash, and alders, predominantly in riparian habitats. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and two recent records between 5 and 10 miles from the project site.
Spinus lawrencei Lawrence's goldfinch	— MBTA	— FGC	Inhabits and nests in arid, open woodlands and oak trees in chaparral.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Spizella atrogularis black–chinned sparrow	— MBTA	— FGC	Occurs in arid brushlands on rugged mountain slopes from sea level to almost 2,700 m. Winters in habitat similar to but downslope from breeding areas, with other populations inhabiting desert grasslands.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Toxostoma redivivum California thrasher	— MBTA	— FGC	Occurs in chaparral and nests in dense shrubs.	**None.** Suitable habitat for this species is not present on or adjacent to the project site.
Vireo bellii pusillus Least Bell's vireo	FE MTBA	SE FGC	Occurs and nests in low riparian habitat in the vicinity of water or in dry river bottoms. Long–distance migrant.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are four recent and two historical records within 5 miles of the project site, and six recent and two historical records between 5 and 10 miles from the project site.
Fish				
Catostomus santaanae Santa Ana sucker	FT	—	Endemic to Los Angeles basin south coastal streams. Are habitat generalists, but prefer sand–rubble–boulder bottoms, cool, clear water, and algae.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent and one historical records between 5 and 10 miles from the project site.
Gila orcuttii arroyo chub	—	— SSC	Native to the streams and rivers of the Los Angeles plain in Southern California. Arroyo chub are adapted to survive in streams that fluctuate between large winter storm flows, and low summer flows, and the low dissolved oxygen and wide temperature fluctuations. Feeds on plants such as algae and water fern, as well as insects and mollusks.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two historical records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Oncorhynchus mykiss irideus pop. 10 Steelhead–southern California DPS	FE	—	Occurs in Pacific coast streams, including the Santa Ana River.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Rhinichthys osculus ssp. 8 Santa Ana speckled dace	—	— SSC	Occurs in small springs, streams, large rivers, and deep lakes, including headwaters of the Santa Ana and San Gabriel Rivers.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two historical records within 5 miles of the project site, and one historical record between 5 and 10 miles from the project site.
Insects				
Bombus crotchii Crotch bumble bee	—	CE	Occurs in grassland and scrubland habitats. Nests in abandoned rodent burrows.	**Low.** Marginal habitat for this species is present on and adjacent to the project site. There is one recent (from 2020) and one historical record within 5 miles of the project site, and three recent and two historical records between 5 and 10 miles from the project site.
Danaus plexippus Monarch Butterfly	—	—	Occurs in temperate climates, such as eastern and western North America and undergoes long–distance migration. Lays eggs on obligate milkweed host plant (primarily Asclepias spp.)	**Low:** The host plant for this species (milkweed) is absent from the project site, therefore it would only occur there as a transient.
Euchloe hyantis andrewsi Andrew's marble butterfly	—	—	Occurs in yellow pine forest. Hostplants are *Streptanthus bernardinus* and *Arabis holboellii var pinetorum*.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Eugnosta busckana Busck's gallmoth	—	—	Unknown habitat requirements, but probably inhabits a variety of grassland and scrub habitats.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are no known records within 5 miles of the project site. This species is believed to be locally extirpated.
Euphydryas editha quino Quino checkerspot butterfly	FE	—	Occurs in grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodland, and semi–desert scrub habitats. Larval host plants are native species of plantain.	**None.** Project site is outside of the known range of the species, and there is no suitable habitat on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Neolarra alba white cuckoo bee	—	—	Unknown habitat requirements, but probably inhabits a variety of grassland and scrub habitats. Parasitizes nests of other bees.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Rhaphiomidas terminatus abdominalis Delhi Sands flower–loving fly	FE	—	Occurs on fine sandy soils of the Delhi series (primarily Delhi fine sand), often on wholly or partly sand dunes stabilized by sparse native vegetation.	**None.** There is no suitable habitat present within the project site due to lack of Delhi series soils and its associated vegetation communities. There are fourteen recent and six historical records within 5 miles of the project site.
Mammals				
Antrozous pallidus Pallid bat	—	— SSC	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Species is very sensitive to disturbance of roosting sites.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	—	— SSC	Occurs in sandy, herbaceous areas, usually in association with rocks or coarse gravel, in coastal sage and Riversidean alluvial fan sage scrub, chaparral, and grasslands.	**Low.** Marginal habitat for this species is present on and adjacent to the project site. There are five recent and three historical records within 5 miles of the project site, and three recent and five historical records between 5 and 10 miles from the project site.
Dipodomys merriami parvus San Bernardino kangaroo rat	FE	CE SSC	Occurs on sandy loam substrates on first terraces and floodplains of washes in Riversidean alluvial fan sage scrub habitat.	**Moderate.** Marginally suitable habitat for this species is present on–site and potential kangaroo rat burrows and tracks were observed on the project site. There are ten recent and two historical records within 5 miles of the project site and mostly in Riversidean alluvial fan sage scrub habitat. One record from 2004 was in a recently disked agricultural field. There are six recent and two historical records between 5 and 10 miles from the project site.
Dipodomys stephensi Stephens' kangaroo rat	FE	ST	Occurs primarily in annual and perennial grasslands, but also occurs in coastal sage scrub with sparse canopy cover. Can burrow into firm soil.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site, and ten historical records between 5 and 10 miles from the project site.
Eumops perotis californicus Western mastiff bat	—	— SSC	Occurs in many open, semi–arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two historical records within 5 miles of the project site, and three historical records between 5 and 10 miles from the project site.
Lasiurus xanthinus Western yellow bat	—	— SSC	Occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in skirts of dead fronds in both native and non-native palm trees.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are three historical records within 5 miles of the project site, and four historical records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Leptonycteris yerbabuenae lesser long–nosed bat	—	— SSC	Occurs in arid regions such as desert grasslands and shrub land. Roosts in caves, mines, rock crevices, trees and shrubs, and abandoned buildings.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.
Lepus californicus bennettii San Diego black–tailed jackrabbit	—	— SSC	Occurs primarily in arid regions with short grass including open grasslands, agricultural fields, and sparse coastal scrub. Nests under bushes or shrubs that have shallow depressions.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are seven recent and one historical record between 5 and 10 miles from the project site.
Neotoma lepida intermedia San Diego desert woodrat	—	— SSC	Occurs in rock outcrops, rocky cliffs, and slopes in coastal sage and Riversidean alluvial fan sage scrub with moderate to dense canopies.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent and one historical records within 5 miles of the project site in Riversidean alluvial fan sage scrub habitat, and there are one recent and one historical records between 5 and 10 miles from the project site.
Nyctinomops femorosaccus Pocketed free–tailed bat	—	— SSC	Occurs in pine–juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian habitats. Roosts in caves, crevices, mines, tunnels, and man–made structures.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Onychomys torridus ramona southern grasshopper mouse	—	— SSC	Occurs in desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site.
Perognathus alticola alticola white–eared pocket mouse	—	— SSC	Occurs in pine forests, mixed chaparral, and sagebrush.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are three recent and five historical records between 5 and 10 miles from the project site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	—	— SSC	Occurs in open areas with fine, sandy soils in lower elevation grasslands and coastal sage and Riversidean alluvial fan sage scrub habitats.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record within 5 miles of the project site in Riversidean alluvial fan sage scrub habitat, and there are six recent and two historical records between 5 and 10 miles from the project site.
Taxidea taxus American badger	—	— SSC	Occurs in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Requires sufficient food sources (rodents), friable soils, and open, uncultivated ground. Digs large burrows.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles of the project site. This species is believed to be locally extirpated.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Reptiles				
Anniella stebbinsi Southern California legless lizard	—	— SSC	Occurs in moist, loose soil in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans.	**Moderate.** Suitable habitat for this species may be present in ruderal habitats on and adjacent to the project site. There are six recent and two historical records within 5 miles of the project site, and eleven recent and six historical records between 5 and 10 miles from the project site. The regular and recent disking of the project site likely make the area less suitable for occurrence of this species.
Arizona elegans occidentalis California glossy snake	—	— SSC	Occurs in areas of rocky washes and loose, sandy soils and for burrowing in desert scrub grassland, coastal sage and Riversidean alluvial fan sage scrub, and chaparral habitats. Prefer open sandy areas with scattered brush, but also found in rocky areas.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are three recent records within 5 miles of the project site in Riversidean alluvial fan sage scrub habitat. There are five historical records between 5 and 10 miles from the project site.
Aspidoscelis hyperythra Orange–throated whiptail	—	— WL	Occurs primarily on coarse soils in open coastal sage and Riversidean alluvial fan sage scrub habitat.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are six recent and one historical records within 5 miles of the project site, and five recent and five historical records between 5 and 10 miles from the project site.
Aspidoscelis tigris stejnegeri San Diegan tiger whiptail	—	— SSC	Occurs in dry, open areas with sparse foliage in coastal sage and Riversidean alluvial fan sage scrub, chaparral, woodland, and riparian habitats.	**Moderate**. Species was observed on a parcel adjacent to the project site during a biological survey by FCS in 2020. There are three recent records (from 2014, 2015, and 2016) within 5 miles of the project site. One observation was in an area that supported remnant Riversidean fan sage scrub and annual grassland habitat near a storm drainage. There are six recent and one historical records between 5 and 10 miles from the project site.
Charina umbratical Southern rubber boa	—	FT	Occurs in rocks and logs or other debris in oak–conifer and mixed–conifer forests at elevations between 5,000 and 8,200 ft.	**None.** Project site is outside of the known elevational range of the species, and there is no suitable habitat on or adjacent to the project site. There are four recent and eight historical records within 5 miles of the project site, and five recent and five historical records between 5 and 10 miles from the project site.
Coleonyx variegatus abbotti San Diego banded gecko	—	— SSC	Prefers rocky areas in coastal sage and chaparral.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one historical record between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Crotalus ruber Red–diamond rattlesnake	—	— SSC	Occurs in arid, rocky areas in creosote scrub, coastal sage and Riversidean alluvial fan sage scrub, chaparral, oak and pine woodlands, grasslands, on cultivated areas.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent records within 5 miles of the project site, and one recent and two historical records between 5 and 10 miles from the project site.
Emys marmorata western pond turtle	—	— SSC	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There is one recent record between 5 and 10 miles from the project site.
Phrynosoma blainvillii Coast horned lizard	—	— SSC	Occurs in open areas with sandy soil and low vegetation in grasslands, coniferous forests, woodlands, and chaparral.	**Low.** There is marginal habitat for this species on and adjacent to the project site. There are four historical records within 5 miles of the project site, and six historical records between 5 and 10 miles from the project site.
Salvadora hexalepis virgultea coast patch–nosed snake	—	— SSC	Occurs in brushy or shrubby vegetation. Dependent on small mammal burrows.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent records between 5 and 10 miles from the project site.
Thamnophis hammondii Two–striped gartersnake	—	— SSC	Occurs in rocky areas near water sources such as pools and streams in oak woodland, willow, coastal sage and Riversidean alluvial fan sage scrub, scrub oak, sparse pine, chaparral, and brushland habitats.	**None.** Suitable habitat for this species is not present on or adjacent to the project site. There are two recent records within 5 miles of the project site. These observations were in an area supporting Riversidean alluvial fan scrub and chaparral habitats near a large, rocky wash. There are three recent and three historical records between 5 and 10 miles from the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		

Code Designations

[1] Federal Status: 2020 USFWS Listing		[2] State Status: 2020 CDFW Listing	
ESU	= Evolutionary Significant Unit is a distinctive population.	**SE**	= Listed as endangered under the CESA.
FE	= Listed as endangered under the FESA.	**ST**	= Listed as threatened under the CESA.
FT	= Listed as threatened under the FESA.	**SSC**	= Species of Special Concern as identified by the CDFW.
FC	= Candidate for listing (threatened or endangered) under FESA.	**FP**	= Listed as fully protected under FGC.
FD	= Delisted in accordance with the FESA.	**FGC**	= protected by FGC 3503.5
FPD	= Federally Proposed to be Delisted.	**CE**	= Candidate endangered under the CESA.
MBTA	= protected by the Migratory Bird Treaty Act	**—**	= Not state listed
—	= Not federally listed		

Notes:
[3] **Habitat Description**: Habitat description adapted from CNDDBor other specified source
[4] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source.

Sources:

California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed August 17, 2021.

California Department of Fish and Wildlife (CDFW). 2021. CNDDB RareFind 5 California Natural Diversity Database Query for Special–Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed August 17, 2021.

U.S. Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation. Website: https://ecos.fws.gov/ipac/. Accessed August 17, 2021.

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