Biological Technical Report

Juniper Energy Project, Hinkley, San Bernardino County

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Prepared for:

JUNIPER ENERGY LLC
818 Crystal Springs Road
Hillsborough, California 94010
Contact: Keith McDaniels
650.288.6810

Prepared by:

DUDEK
1630 San Pablo Avenue, Suite 300
Oakland, California 94612
Contact: David Wickens
510.601.2514

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Acronyms and Abbreviations

Acronym	Definition
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CRPR	California Rare Plant Rank
CWA	Clean Water Act
FESA	federal Endangered Species Act
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
OHWM	ordinary high-water mark
project	Juniper Energy Project
RWQCB	Regional Water Quality Control Board
SBC RCIS	San Bernardino County Regional Conservation Investment Strategy
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

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Executive Summary

The proposed Juniper Energy Project (project) would consist of a new solar facility solar composed of two 4-megawatt photovoltaic power generating systems within the project site.

Biological field surveys for the project were conducted in 2022 by Dudek biologists. Surveys conducted within the project site included a wildlife habitat assessment, rare plant survey, vegetation mapping, jurisdictional aquatic resource delineation, and protocol-level desert tortoise (*Gopherus agassizii*) surveys. The project site contains four vegetation communities or land cover types: allscale scrub, unvegetated wash, disturbed habitat, and urban/developed. No special-status plant species were observed within the project site. The following special-status wildlife species was observed within the project site: LeConte's thrasher (*Toxostoma lecontei*).

Impacts are expected to jurisdictional aquatic resources and special-status wildlife species. Mitigation is provided to reduce impacts to these sensitive biological resources to a level that is less than significant.

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1 Introduction

This biological technical report describes the existing biological conditions present on site and an analysis of potential biological resource impacts associated with the proposed Juniper Energy Project (project) located in Hinkley, San Bernardino County, California (Figure 1, Project Location). Specifically, this report provides the project site location and description, a summary of the pertinent biological resource regulations, survey methods, existing biological resources, special-status biological resources, project impacts (direct and indirect), and project mitigation. The project impacts, avoidance, and mitigation measures are discussed in accordance with the California Environmental Quality Act (CEQA), Clean Water Act, Migratory Bird Treaty Act, and California Fish and Game Code, as well as in the context of the desert region of San Bernardino County.

1.1 Project Location and Site Description

The proposed 83-acre project site is located at 315 Roy Road in the unincorporated community of Hinkley, San Bernardino County (Figure 1). The project site lies within the U.S. Geological Survey Twelve Gauge and Lockhart quadrangles with a latitude of 34°59'58.71"N and longitude of 117°19'25.20"W. The project site occurs on Assessor's Parcel Number 0490-171-01-0000. The project is situated in a region characterized by solar thermal plants and high-voltage transmission lines. The project site is zoned Rural Living (RL) pursuant to the San Bernardino County General Plan (County of San Bernardino 2007a) and Development Code (County of San Bernardino 2007b).

The project site is currently vacant land containing native vegetation, located in the southwestern region of the Mojave Desert. There are two on-site land cover types, disturbed habitat and developed land, associated with an abandoned residence that occurs in the northern portion of the project site. Soils on site are characterized as Cajon Sand, 0% to 2% slopes; Cajon loamy sand, loamy substratum, 0% to 2% slopes; and Norob-Halloran complex, 0% to 5% slopes (USDA 2022a) (Figure 2, Soils and Hydrology). Soils mapped within the project site are considered partially hydric (USDA 2022a).

Topography within the project site is mostly flat with elevation ranges from approximately 2,116 feet above mean sea level in the southwestern portion of the site to 2,084 feet above mean sea level in the northeastern portion of the site. Adjacent land uses include the existing Lockhart solar facility to the north and east; two rural residential developments and a large thermal solar farm along the northern boundary; and undeveloped land along the eastern, southern, and western boundaries. Multiple high-voltage transmission lines run along the project site to the south.

The project site occurs within the Coyote–Cuddeback Lakes Hydrological Unit (HUC 18090207) in the Harper Valley Groundwater Basin (Figure 2). Surface flows within the immediate watershed of the project site drain into Harper Lake playa. However, the existing Lockhart solar facility may prevent surface flow within the project site from reaching Harper Lake. The Harper Lake playa is at the lowest part of an undrained desert basin, generally devoid of vegetation (USGS 2021). Additionally, there is a riverine U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory classification (USFWS 2022a) and an unnamed ephemeral U.S. Geological Survey National Hydrography Dataset flowline occurring within the project site (Figure 2).

1.2 Project Description

The project applicant proposes to construct and operate two 4-megawatt community solar photovoltaic power generating systems with battery storage capabilities on approximately 83 acres of land northwest of the unincorporated community of Hinkley. The project would generate electricity using solar photovoltaic modules mounted on single-axis trackers, which rotate to follow the sun's movement throughout the day. The modules would be arranged in north/south arrays spanning the project site. The systems would store electrical production in long-duration batteries, which would be located next to the solar arrays on less than 1 acre of the site. The battery storage systems would employ technology requiring no cooling system, have no risk of fires, and use no hazardous materials. Switchgear, a weather station, inverters, and transformers, located next to the batteries, would manage the system and convert power for distribution to the nearby transmission grid. Electrical conduit and transmission and collection lines would primarily be installed underground. An overhead electrical line connecting the site to the nearby electrical grid would be installed along a property controlled by Southern California Edison. Interior perimeter all-weather unpaved roads would provide access to the system. Security fencing would be installed along the perimeter of the project site.

1.3 Regulatory Setting

1.3.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by USFWS, the National Oceanic and Atmospheric Administration, and the National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. Under the provisions of Section 9 (16 USC 1538[a][1][B]) of FESA, it is unlawful to "take" any listed species. "Take" is defined in Section 3 (16 USC 1532[19]) of FESA as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

FESA allows for the issuance of "incidental take" permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of Habitat Conservation Plans on private property without any other federal agency involvement. Incidental take is defined as "take that results from, but is not the purpose of, carrying out an otherwise lawful activity" (USFWS 2004). Upon development of a Habitat Conservation Plan, USFWS can issue Incidental Take Permits (ITPs) for listed species.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations (CFR). The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in CFR Title 50, Section 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). On December 22, 2017, the Department of Interior issued a legal opinion (M-Opinion 37050) that

interpreted the above prohibitions as only applying to direct and purposeful actions of which the intent is to kill, take, or harm migratory birds; their eggs; or their active nests. Incidental take of birds, eggs, or nests that are not the purpose of such an action, even if there are direct and foreseeable results, was not prohibited. On January 7, 2021, USFWS published a final rule (the January 7th rule) that codified the previous administration's interpretation, which, after further review, was determined to be inconsistent with the majority of relevant court decisions and readings of the MBTA's text, purpose, and history. On May 5, 2021, USFWS published a proposed rule to revoke the January 7th rule, which would result in a return to implementing the statute as prohibiting incidental take. On July 19, 2021, USFWS announced the availability of two revised economic analysis documents for public review that evaluate the potential for the proposed rule to impact small entities, including businesses, governmental jurisdictions, and other organizations. The public review period on these documents ended on August 19, 2021. A final rule revoking the January 7th rule was published on October 4, 2021 and went into effect on December 3, 2021. In its summary of the October 4, 2021, final rule, USFWS explained that "the immediate effect of this final rule is to return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent and longstanding agency practice prior to 2017" (86 FR 54642).

Clean Water Act

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator to apply for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Based on a recent court case ordering vacation of the Navigable Waters Protection Rule, USACE and the U.S. Environmental Protection Agency halted implementation of the rule and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice. Per 40 CFR 230.3(s), "waters of the United States" are defined as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c) Which are used or could be used for industrial purposes by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

The USACE/U.S. Environmental Protection Agency Rapanos Guidance states that USACE will regulate traditional navigable waters, adjacent wetlands, and relatively permanent waters tributary to traditional navigable waters, and adjacent wetlands. Non-relatively permanent waters (those exhibiting less than 3 months of continuous surface flows) and their adjacent wetlands would be regulated if there is a significant nexus from the site.

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA, as well as the Porter–Cologne Water Quality Control Act (Porter–Cologne Act), California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine RWQCBs. A request for certification is submitted to the regional board at the same time that an application is filed with USACE.

1.3.2 State

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050–2068) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike FESA, under CESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained by a project applicant from the California Department of Fish and Wildlife (CDFW) under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of mitigation implementation, and monitoring of mitigation measures. For this project, take of Mohave ground squirrel would require a 2081 ITP from CDFW.

California Fish and Game Code

Under the California Fish and Game Code, CDFW provides protection from take for a variety of species, including fully protected species. According to Sections 3511 and 4700 of the California Fish and Game Code, which regulate birds and mammals, respectively, a fully protected species may not be taken or possessed without a permit from the California Fish and Game Commission, and incidental take of these species is not authorized. "Fully protected" is a legal protective designation administered by CDFW intended to conserve wildlife species that risk extinction within California. Lists have been created for birds, mammals, fish, amphibians, and reptiles.

According to California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders 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. Finally, Section 3513 states that is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. For the purposes of these state regulations, CDFW currently defines an active nest as one that is under construction or in use, and includes existing nests that are being modified. For example, if a hawk is adding to or maintaining an existing stick nest in a transmission tower, it would be considered to be active and covered under these California Fish and Game Code sections.

Under California Fish and Game Code Sections 1600–1616, CDFW has the authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake. CDFW also has the authority to regulate work that will deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects. Applications to CDFW must include a complete certified CEQA document.

The Native Plant Protection Act of 1977 (see Section 1900 et seq. of the California Fish and Game Code) directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the project proponent.

Porter-Cologne Water Quality Control Act

Pursuant to provisions of the Porter–Cologne Act, the RWQCBs regulate discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code Section 13260[a]). The State Water Resources Control Board defines a waters of the state as "any surface water or groundwater, including saline

waters, within the boundaries of the state" (California Water Code Section 13050[e]). As of April 2019, the State Water Resources Control Board has narrowed its definition of a waters of the state to include the following:

1. Natural wetlands.
2. Wetlands created by modification of a surface water of the state.
3. Artificial wetlands that meet any of the following criteria:
    a) Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration.
    b) Specifically identified in a water quality control plan as a wetland or other water of the state.
    c) Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape.
    d) Greater than or equal to 1 acre in size unless the artificial wetland was constructed and is currently used and maintained, primarily for one or more of the following purposes: industrial or municipal wastewater treatment or disposal; settling of sediment; detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial permitting program; treatment of surface waters; agricultural crop irrigation or stock watering; fire suppression; industrial processing or cooling water; active surface mining – even if the site is managed for interim wetlands functions and values; log storage; treatment, storage, or distribution of recycled water; maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or fields flooded for rice growing.

All waters of the United States are waters of the state. Wetlands, such as isolated seasonal wetlands, that are not generally considered waters of the United States are considered waters of the state if, "under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation" (SWRCB 2021). If a CWA Section 404 permit is not required for a project, the RWQCB may still require a permit (waste discharge requirements) for impacts to waters of the state under the Porter–Cologne Act.

1.3.3 Regional

San Bernardino County General Plan and Development Code

The County of San Bernardino General Plan contains the goals and policies that guide future development within San Bernardino County (County of San Bernardino 2007a). San Bernardino County is broken into three distinct geographic planning regions: the Valley, the Mountains, and the Desert. The project site occurs within the Desert Planning Region of San Bernardino County. The Desert Planning Region has two goals and policies: (1) to preserve open lands by working with the U.S. Bureau of Land Management, and (2) to ensure that off-highway vehicle use is managed to protect environmentally sensitive resources.

The project would also need to comply with the Development Code. The San Bernardino County Development Code (County of San Bernardino 2007b) implements the goals and policies of the General Plan. Section 88.01.060, Desert Native Plant Protection, of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code (Chapter 88.01 of the Development Code) and focuses on the conservation of specified desert plant species.

San Bernardino County Plant Protection and Management Code

Chapter 88.01 of the San Bernardino County Development Code provides regulatory and management guidance for plant resources within unincorporated areas of San Bernardino County, as well as within mixed public and private lands within San Bernardino County. The goal is to promote healthy plant community growth and the preservation of native species. In turn, the standardization of these practices helps with the conservation of natural waterways within San Bernardino County, and provides sustainable habitat for many local plant and wildlife species. This code primarily relates to tree and vegetation removal on public and private land within unincorporated areas of San Bernardino County.

Desert Native Plant Protection

Section 88.01.060 of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code and is focused on the conservation of specified desert plant species. Section 88.01.060 specifically states, "Removal of all plants protected or regulated by the Desert Native Plants Act (Food and Agricultural Code Section 80001 et seq.) shall comply with the provisions of the Act before the issuance of development permit or approval of a land use application. All members of the family Cactaceae (Cactus Family) require a permit for harvesting under the Desert Native Plants Act." This ordinance contains provisions for the protection of certain desert native plants, as follows:

- The following desert native plants with stems 2 inches or greater in diameter or 6 feet or greater in height:
  - *Psorothamnus spinosus* (smoketree).
  - All species of the genus Prosopis (mesquites).
- All species of the family Agavaceae (century plants, nolinas, yuccas).
- Creosote rings, 10 feet or greater in diameter.
- All Joshua trees.
- Any part of any of the following species, whether living or dead:
  - *Olneya tesota* (desert ironwood).
  - All species of the genus *Prosopis* (mesquites).
  - All species of the genus *Cercidium* (palo verdes).

Riparian Plant Conservation

Section 88.01.080 of the San Bernardino County Development Code is a subset of the Plant Protection and Management Code and is focused on promoting the health of riparian corridors in relation to their impact on waterways within the region, their use as habitat by various plant and wildlife species, and their stabilization of stream banks.

San Bernardino County Soil and Water Conservation Code

Chapter 88.02 of the San Bernardino County Development Code provides a regulatory framework to promote the health of soil communities within San Bernardino County, limit soil erosion potential, and preserve air quality. This code primarily regulates ground-disturbing activities within San Bernardino County.

SANBAG Countywide Habitat Preservation/Conservation Framework

As part of the Environment Element of the Countywide Vision, a Countywide Habitat Preservation/Conservation Framework Study (Phase 1) was prepared as a guidance document that outlines conservation issues and concerns, inventories existing conservation, identifies conservation opportunities, and itemizes data gaps associated with habitat conservation in San Bernardino County. The study identified conservation planning subareas, overarching principles, and recommendations to further develop a comprehensive approach to habitat preservation/ conservation across the incorporated cities, unincorporated San Bernardino County lands, and public lands (SANBAG 2015).

San Bernardino County Regional Conservation Investment Strategy

The San Bernardino County Regional Conservation Investment Strategy (SBC RCIS) is a voluntary, nonregulatory framework for conservation and mitigation actions in key regions of San Bernardino County. The County of San Bernardino, San Bernardino Council of Governments, and the Environment Element stakeholder group, in collaboration with the Southern California Association of Governments, developed the SBC RCIS based on biological and planning principles that arose from the Countywide Vision planning process. In an effort to streamline mitigation decisions and generate the best conservation outcomes, the SBC RCIS was developed to provide a regional, science-based conservation guidebook for use by public agencies, the development community, environmental groups, other interested entities, and the public when planning and carrying out conservation and mitigation actions in western San Bernardino County (County of San Bernardino et al. 2018).

The SBC RCIS covers the Valley Region, the Cajon Pass through the Mountain Region, and the western Desert Region. The conservation strategy was built around conservation elements and includes 7 habitat groups and 16 general vegetation communities supporting 52 focal species (County of San Bernardino et al. 2018).

Building off the landscape context and baseline biological information, the SBC RCIS is founded on conservation goals and objectives that structure and focus the conservation strategy on priority actions and areas. The conservation actions toolbox provides a suite of actions available for SBC RCIS users to select from based on their individual conservation or mitigation needs, and the prioritization guidelines provide decision support at a regional scale for optimizing the effectiveness of conservation and mitigation actions. Following approval by CDFW, the SBC RCIS can be used to support more informed conservation and mitigation decisions (County of San Bernardino et al. 2018).

2 Survey Methods and Limitations

Data regarding biological resources present within the project site were obtained through a review of pertinent literature and field surveys conducted in 2022, which are described in detail below.

2.1 Literature Review

Prior to conducting field surveys, Dudek biologists reviewed the latest CDFW California Natural Diversity Database (CDFW 2022a), the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2022a), and the USFWS Critical Habitat and Occurrence Data (USFWS 2022b) databases to identify special-status species and critical habitat that are known to occur or may potentially occur within the project site based on the physical characteristics of the project site (including biogeography, elevation, soils, and vegetation communities). The California Natural Diversity Database and California Native Plant Society queries were run for all species recorded within the Twelve Gauge and Lockhart U.S. Geological Survey 7.5-minute quadrangles and the surrounding 10 quadrangles. Plant identification was made with reference to the Jepson Flora Project (2022).

The following databases were reviewed prior to the jurisdictional delineation: historical aerial photographs (Google Earth Pro 2021; Historic Aerials 2021); U.S. Geological Survey's National Hydrography Dataset (USGS 2021); U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (USDA 2022a); and the USFWS National Wetland Inventory (USFWS 2022a). Google Earth was also used to assess current and historical presence or absence of flows and/or ponding on the project site (Google Earth Pro 2021).

2.2 Field Surveys

Biological field surveys for the project were conducted in 2022 by Dudek biologists. Surveys conducted within the project site included a wildlife habitat assessment, vegetation mapping, a formal jurisdictional delineation, rare plant survey, and a protocol-level survey for desert tortoise (*Gopherus agassizii*). Table 1 lists the survey dates, times, surveying biologists, and weather conditions for these surveys.

Table 1. Survey Conditions and Schedule

Date	Hours	Personnel	Survey Focus	Survey Conditions
04/07/2022	07:16 AM–12:52 PM	Sedona Maniak	Wildlife Habitat Assessment, Rare Plant Survey	48–83°F, 0% cc, 1 mph
04/07/2022	07:16 AM–12:52 PM	Anna Cassady	Vegetation Mapping, Jurisdictional Aquatic Resource Assessment	48–83°F, 0% cc, 1 mph
09/27/2022	08:00 AM–12:36 PM	Russell Sweet, Britney Schultz, Sarah Greely	Desert Tortoise Protocol Survey	67–95°F, 0% cc, 0-3 mph

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour (wind).

2.2.1 Vegetation Community and Land Cover Mapping

Vegetation mapping within the project site was conducted on April 7, 2022, by Dudek biologist Anna Cassady. Natural vegetation communities were mapped in the field following A Manual of California Vegetation (CNPS 2022b), where feasible. Vegetation communities and land covers were mapped in the field using a mobile data collection application. Vegetation surveys were conducted throughout the site on foot. Following the completion of fieldwork, vegetation polygons were digitized using ArcGIS, and GIS coverage was created. Acreage calculations of vegetation communities and land covers were determined using ArcGIS.

2.2.2 Flora and Fauna

The plant species encountered during the field survey were identified and recorded directly into a field notebook. Those species that could not be identified immediately were brought into the laboratory for further investigation. A compiled list of plant species observed on the project site is presented in Appendix A, Plant Species Observed. Latin and common names for plant species with a California Rare Plant Rank (CRPR) follow the California Native Plant Society's Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022a). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2022), and common names follow the California Natural Community List (CDFW 2021) or the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2022b).

Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly onto a field notebook. Binoculars (10 × 42) were used to aid in the identification of wildlife. Latin and common names of animals detected follow Crother (2017) for reptiles and amphibians, the American Ornithological Society (AOS 2020) for birds, Wilson and Reeder (2005) for mammals, and the North American Butterfly Association (NABA 2018) for butterflies. In addition to species actually detected during the surveys, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. A list of wildlife species observed on the project site is presented in Appendix B, Wildlife Species Observed.

2.2.3 Jurisdictional Aquatic Resource Delineation

The jurisdictional delineation was conducted by Dudek biologist Anna Cassady on April 7, 2022, and is included as Appendix C. Because the project site did not support any wetland vegetation, the delineation focused on mapping non-wetland waters. Site-specific topographical data were reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. The limits of aquatic resources were collected in the field using the ESRI Collector mobile application with sub-meter accuracy. The geographic extents were digitized in GIS using ArcGIS software. Remote sensing was not used for the delineation.

U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with ESRI Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM manual.

Due to the lack of hydric vegetation on the project site, no Wetland Determination Forms were taken. No USACE three-parameter wetlands were suspected to be present based on site review. USACE OHWM Forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. The Aquatic Resources Delineation Report is included as Appendix C.

Regional Water Quality Control Board

Waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2021). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters were delineated based on watercourse characteristics present in the field, which include surface flow, sediment transportation and sorting, physical indicators of channel forms, channel morphology, and riparian habitat associated with a streambed. Waters of the state (regardless of whether they appeared to be ephemeral or not) are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

California Department of Fish and Wildlife

The delineation defined areas under the jurisdiction of CDFW pursuant to Sections 1600–1603 of the California Fish and Game Code. CDFW streambeds are typically delineated at the width of the channel or lake measured at the top of bank or the extent of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

2.2.4 Focused Surveys for Sensitive Biological Resources

Special-status biological resources are defined as follows: (1) species that have been given special recognition by federal, state, or local agencies and organizations due to limited, declining, or threatened population sizes; (2) habitat types recognized by local and regional agencies as sensitive; (3) habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; (4) wildlife corridors and habitat linkages; or (5) biological resources that may or may not be considered special status, but are regulated under federal, state, and/or local laws.

Dudek qualified biologists conducted surveys and/or habitat assessments for the following sensitive biological resources: sensitive vegetation communities, jurisdictional aquatic resource delineation, focused surveys for special-status plants, and focused protocol-level surveys for desert tortoise. Incidental detections of other sensitive wildlife species, either through sight, calls, tracks, scat, or other signs, were also recorded. A summary of the dates and site conditions for the field efforts performed as part of this biological report are presented in Table 1 in Section 2.2, Field Surveys. The following sections provide specific details regarding each survey.

2.2.4.1 Focused Surveys for Special-Status Plants

A rare plant survey for special-status plant species was conducted on April 7, 2022, by Dudek biologist Sedona Maniak. Given the typical blooming periods of the special-status plant species potentially occurring within the project site based on soils, elevation, and vegetation communities, it was determined that all target special-status species could be surveyed in one pass in April. The survey methods conformed to the California Native Plant Society's Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), and the USFWS General Rare Plant Survey Guidelines (Cypher 2002). All plant species encountered during the field surveys were identified to subspecies or variety, if applicable, to determine sensitivity status. If special-status plant species were encountered, field personnel recorded data points demarcating the edge of the polygon and assessed population numbers using the Esri ArcGIS mobile application.

2.2.4.2 Protocol-Level Surveys for Desert Tortoise

Desert tortoise is a federally and state-listed threatened species. Based on a preliminary review, the entire project site is potentially suitable habitat for desert tortoise; therefore, a focused presence/absence protocol-level survey was conducted during the appropriate season according to USFWS survey protocols. Dudek biologists conducted protocol-level surveys for desert tortoise to determine the status of the species on site. To evaluate the impacts to desert tortoise, protocol surveys were conducted in accordance with USFWS's Preparing for any Action that may Occur within the Range or the Mojave Desert Tortoise (*Gopherus agassizii*) (USFWS 2018). As directed by the protocol, Dudek conducted surveys in September 2022 (Table 1). Biologists surveyed the site by walking approximately 10-meter-wide transects for 100% coverage of the project site. Weather conditions, time of day, and season were appropriate for the detection of desert tortoise.

2.3 Survey Limitations

Site visits were conducted during daylight hours. Complete inventories of biological resources present on a site often require numerous focused surveys at different times of day during different seasons. Some annual plant species require a certain amount and timing of rain to germinate and/or persist. The average rainfall in 2022 was below average, which has potential to limit the growth of flora. However, initial botanical reference surveys were conducted prior to focused special-status plant surveys, and therefore conditions were monitored prior to collecting data. Surveys for special-status plant species adequately covered flora that are known to bloom within the vicinity. Some species, such as nocturnal animals, are difficult to detect during the day. Other species may be present in such low numbers that they could be missed. Due to such timing and seasonal variations, survey results are not an absolute list of all species that the project site may support.

3 Results

3.1 Vegetation Communities and Land Covers

Based on species composition and general physiognomy, four vegetation communities or land cover types occur within the project site. Acreages for each vegetation community or land cover type are provided in Table 2, and their spatial distribution is shown in Figure 3, Biological Resources. Descriptions for each vegetation community or land cover type are provide below.

Table 2. Vegetation Communities and Land Covers within the Project Site

Vegetation Community/Land Cover Type	Ranking[1]	Total Acreage
Allscale scrub (*Atriplex polycarpha*, 36.340.04)	G4, S4	77.69
Unvegetated Wash	GNR, SNR	0.86
Disturbed Habitat	GNR, SNR	3.86
Urban/Developed	GNR, SNR	0.56
	Total	**82.97**

Notes: Totals may not sum due to rounding.

[1] In September 2020, CDFW published the Natural Communities List (CDFW 2021), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Core Methodology (NatureServe 2022). The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global and S = subnational). The numbers have the following meaning (NatureServe 2022):
1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure
GNR = unranked, global rank not yet assessed
SNR = unranked, subnational rank not yet assessed

Because NatureServe ranks vegetation communities at the global level, it has few rankings at the state or province level available. However, the Natural Communities List (CDFW 2021) includes state-level rarity rankings (i.e., the subnational [S] rank) for vegetation communities. This list is considered the authority for ranking the conservation status of vegetation communities in California. Natural Communities with ranks of S1–S3 are considered Sensitive Natural Communities to be addressed in the environmental review processes of CEQA (CDFW 2021).

3.1.1 Allscale Scrub

The allscale scrub (*Atriplex polycarpa*) alliance is recognized by the Natural Communities List (CDFW 2021). The allscale scrub alliance often occurs on dissected alluvial fans and rolling hills, as well as washes, playa lake beds and shores, terraces, and edges of large, low-gradient washes. Soils may be carbonate-rich and sandy, alkaline, or sandy clay loams (CNPS 2022b). Allscale scrub alliance communities include allscale as the sole or dominant shrub in the canopy. Allscale scrub has a continuous or open shrub canopy less than 3 meters (10 feet) in height with a variable ground layer (CNPS 2022b). Shrub species associated with the allscale scrub alliance occurring within the project site include cheesebush (*Ambrosia salsola*), Anderson's boxthorn (*Lycium andersonii*), peach thorn (*Lycium cooperi*), and creosote bush (*Larrea tridentata*). Understory plants occurring within the project site include redstem stork's bill (*Erodium cicutarium*) and Arabian schimus (*Schismus arabicus*). The allscale scrub alliance is ranked by CDFW (2021) as a G4S4 alliance, and is therefore not considered a sensitive biological resource by CDFW under CEQA (CDFW 2021).

3.1.2 Unvegetated Wash

Although not recognized by the Natural Communities List (CDFW 2021), unvegetated wash typically occurs on alluvium associated with riverine floodways. The nature of this community is one of periodic natural disturbance by flood action and deposition of alluvial sediments. The areas within the project site mapped as unvegetated wash are composed of a system of braided ephemeral channels carrying surface flows across the site from south to north. Unvegetated wash is not considered a sensitive vegetation community by CDFW under CEQA (CDFW 2021). However, these areas are typically regulated as non-wetland waters under RWQCB jurisdiction and as streambeds under CDFW jurisdiction.

3.1.3 Disturbed Habitat

Although not recognized by the Natural Communities List (CDFW 2021), disturbed habitat is an area that has been physically disturbed and is no longer recognizable as a native or naturalized vegetation association. These areas may continue to retain soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species. Disturbed habitat within the project site consists of dirt roads and the portion of the site previously occupied by a residence. Disturbed habitat is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2021).

3.1.4 Urban/Developed

Although not recognized by the Natural Communities List (CDFW 2021), urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported. Urban/ developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with large amounts of debris or other materials. Urban/developed land within the project site consists of the portion of the site previously occupied by a residence. Urban/developed land is not considered a sensitive biological resource by CDFW under CEQA (CDFW 2021).

3.2 Inventory of Plant and Wildlife Species

A total of 14 vascular plant species consisting of 10 native species (71%) and 4 non-native species (29%) were recorded during the surveys (see Appendix A). A total of 11 wildlife species were observed within the project site consisting of 8 bird species and 3 reptile species (see Appendix B).

3.3 Special-Status Plants

Plant species are considered special status if they have been listed or proposed for listing by the federal or state government as rare, endangered, or threatened ("listed species"), and/or identified as rare by the California Native Plant Society (particularly CRPR 1A, presumed extinct in California; CRPR 1B, rare, threatened, or endangered throughout its range; and CRPR 2, rare or endangered in California, more common elsewhere). An evaluation of known records in the Twelve Gauge and Lockhart quadrangles and the ten surrounding quadrangles (CDFW 2022a; CNPS 2022a; USFWS 2022b) was conducted to determine which species have been recorded in the project vicinity. In addition, Dudek biologists' knowledge of biological resources, the regional distribution of each species, and the results from focused surveys, as well as elevation, habitat, and soils present within the project site, were used to determine the potential for various special-status species to occur.

No special-status plant species were observed occurring within the project site during the 2022 survey effort. There are no other special-status plant species with a moderate to high potential to occur on the project site. A list of special-status plant species known to occur within the surrounding vicinity and the probability of their occurrence on the project site is provided in Appendix D.

3.4 Special-Status Wildlife

Special-status wildlife species are those listed as federally/state endangered or threatened, proposed for listing, fully protected by CDFW, or a California Species of Special Concern. An evaluation of known records in the Twelve Gauge and Lockhart quadrangles and the ten surrounding quadrangles (CDFW 2022a; USFWS 2022b) was conducted. Appendix E provides a summary of the special-status wildlife species documented within the project vicinity and their potential to occur on site based on the location of the site, species' range and distribution, and the vegetation communities found on site. Those special-status wildlife species that are not expected to occur or have low potential to occur on the project site are included in Appendix E but are discussed further in this document because no significant direct or indirect impacts are anticipated. In addition, there is no USFWS-designated critical habitat for any wildlife species within or directly adjacent to the project site (USFWS 2022b).

One special-status wildlife species, LeConte's thrasher (*Toxostoma lecontei*), was observed during the biological surveys conducted within the project site (Figure 3). Additionally, three special-status wildlife species, Mohave ground squirrel (*Spermophilus mohavensis*), burrowing owl (*Athene cunicularia*), and American badger (*Taxidea taxus*), have moderate or low potential to occur within the project site. These four species, as well as desert tortoise and desert kit fox (*Vulpes macrotis arsipus*), are discussed in detail below.

LeConte's Thrasher

One special-status wildlife species, LeConte's thrasher, was observed during the biological surveys conducted within the project site (Figure 3). LeConte's thrasher is a California Species of Special Concern. This species is an uncommon, non-migratory, medium-sized resident songbird (Sheppard 1996). LeConte's thrasher lives in the hottest and driest environments, relying on arthropods in soil, and is not known to drink water; it is associated with saltbush or creosote bush growths with smooth topography and little slope (Sheppard 1996; Terres 1980). LeConte's thrasher has potential to nest within scrub habitat on the project site.

Mojave Desert Tortoise

Desert tortoise is a federally and state-listed threatened species. Throughout most of the Mojave Desert, desert tortoises occur most commonly on gently sloping terrain with sandy gravel soils and where there is sparse cover of low-growing shrubs, which allows for the establishment of herbaceous plants. Soils must be friable enough for digging burrows, but firm enough so that burrows do not collapse (USFWS 2008). Protocol-level surveys were conducted within the project site for desert tortoise. No desert tortoise sign (e.g., feathers, whitewash, scat, carapace), individuals, or suitable tortoise burrows were observed. Five burrows were mapped during the initial survey, as shown in Figure 3. However, these burrows were all partially collapsed, inactive (i.e., cobwebs present), and deemed not suitable for desert tortoise.

Mohave Ground Squirrel

Mohave ground squirrel is a state-listed threatened species. Mohave ground squirrels generally inhabit areas where the soil is friable and sandy or gravelly (CDFW 2022b). Mohave ground squirrels occur in desert scrub habitats dominated by creosote bush and desert saltbush scrub at elevations of 1,800 to 5,000 feet above mean sea level (CDFW 2022b). The project site occurs within the south-central part of the historical range of Mohave ground squirrel (CDFW 2019). There is a core population area for Mohave ground squirrel in the Harper Lake area (Leitner 2015), and the limited trapping conducted within the project vicinity indicates that Mohave ground squirrel does occur within the Harper Lake area but is not abundant (CDFW 2022a). The Mohave ground squirrel U.S. Geological Survey habitat suitability model depicted in Figure 3 of the conservation strategy (CDFW 2019) ranks the majority of the project site as being unsuitable Mohave ground squirrel habitat, with a small portion of moderately suitable habitat overlapping the southwest corner of the project site. Therefore, based on occurrence data within the project vicinity and the vegetation communities present within the site, there is moderate potential for Mohave ground squirrel to occur within the project site.

Burrowing Owl

Burrowing owl is a California Species of Special Concern. The presence of burrows is the most essential component of burrowing owl habitat because they are required for nesting, roosting, cover, and caching prey (Coulombe 1971; Green and Anthony 1989; Haug et al. 1993; Martin 1973). In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Spermophilus beecheyi*). Burrowing owls may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse); useable burrows are available; and foraging habitat occurs in close proximity (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can be used for nesting and roosting. Although there is occurrence data within the project vicinity, due to the lack of suitable burrows or burrowing owl sign (e.g., feathers, whitewash, or individuals) observed during surveys, and the presence of dense shrub cover, there is low potential for burrowing owl to occur within the project site.

American Badger and Desert Kit Fox

American badger is a California Species of Special Concern. American badger occurs in open stages of most scrub communities with friable soils, and feeds mainly on rodents (CDFW 2022b). Five burrows were mapped during the initial survey, as shown in Figure 3. However, these burrows were all partially collapsed and deemed inactive (i.e., cobwebs present). Three of the burrows had approximately 12-inch diameters and could potentially be used by coyote (*Canis latrans*) or American badger. One burrow showed signs of claw marks. The other burrow was smaller (i.e., small-mammal sized) but had no sign of recent use. Therefore, based on the presence of burrows and vegetation communities and soils present within the site, there is moderate potential for American badger to occur within the project site.

Additionally, there is moderate potential for desert kit fox to occur within the project site. Although desert kit fox is not considered listed by USFWS or CDFW under any special-status designation, this species is considered a “fur-bearing mammal,” protected from take under the California Fish and Game Commission’s Mammal Hunting Regulations (Subdivision 2, Chapter 5), which effectively protects it from hunting and trapping. No hunting or trapping is proposed or would be allowed under future projects, and no future projects would be allowed take of this species.

3.5 Jurisdictional Aquatic Resource Delineation

Based on the aquatic resource delineation, approximately 0.86 acres (4,810 linear feet) of non-wetland waters of the state and streambeds were mapped within the project site, composed of braided ephemeral channels. Table 3 includes the acres and linear feet of non-wetland waters of the state mapped within the project site; the extent of potentially jurisdictional waters are depicted in Figure 3. Descriptions of the jurisdictional waters on the project site are described in further detail below. The Aquatic Resources Delineation Report is provided as Appendix C.

Table 3. Jurisdictional Aquatic Resources within the Project Site

Aquatic Resource Type	RWQCB/CDFW (acreage/linear feet)
Non-Wetland Water/Stream Channel	0.86/4,810
Total	**0.86/4,810**

RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife

Significant surface flow is both unpredictable and scarce in the arid desert environment. Substantial surface water is typically ephemeral and usually the result of flash-flood events. These events may result in stream channels taking the form of alluvial fans, discontinuous ephemeral channels, single-thread channels with floodplains, and compound (braided) channels (USACE 2008b). Within the project site there is a system of braided ephemeral channels carrying surface flows across the site from south to north toward Harper Lake, which is a dry lakebed or playa (Figure 3). However, the existing Lockhart solar facility may prevent surface flow from reaching Harper Lake.

The results of the delineation concluded that there are non-wetland RWQCB jurisdictional waters of the state and CDFW jurisdictional streambeds within the project site. The project site does not contain any streams, wetland waters, or other waters that are subject to federal jurisdiction under Section 404 of the Clean Water Act. Ephemeral channels within the project site either dissipate, evaporating or infiltrating into the groundwater basin, or may continue to flow to Harper Lake during larger storm events. Harper Valley is considered a closed basin and functions as an isolated intrastate watershed system lacking the presence of a traditional navigable water. Therefore, all features within the project site were considered non-jurisdictional under USACE. This non-jurisdictional determination is pending USACE review.

3.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Wildlife corridors contribute to population viability by ensuring the continual exchange of genes between populations, which helps maintain genetic diversity; providing access to adjacent habitat areas, representing additional territory for foraging and mating; allowing for greater carrying capacity; and providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help to reduce the adverse effects of habitat fragmentation, representing a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and as avenues of gene flow for small animals such as reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat “islands” that function as steppingstones for dispersal.

The project site is located adjacent to the existing Lockhart solar facility to the north and east; two rural residential developments and a large thermal solar farm along the northern boundary; and undeveloped land along the eastern, southern, and western boundaries. There is a Desert Tortoise Conservation Area/Least Cost Corridor, which can provide a habitat mosaic containing viable populations of smaller terrestrial species (e.g., desert tortoise) and allow for gene flow through diffusion of populations over a period of generations, approximately 1,330 feet west of the project site. However, there are no established wildlife corridors or habitat linkages within the project site. As a result, the project site provides open space for wildlife movement while migrating or foraging, but does not appear to serve as a significant regional wildlife corridor. Because the project site does not provide for regional wildlife movement or serve as a regional wildlife corridor, the project is not expected to contribute to the impediment of local or seasonal movement of wildlife through the surrounding habitat.

4 Impact Analysis

The purpose of this chapter is to describe the direct and indirect impacts of the proposed project on special-status biological resources, and to provide the significance determinations for implementation of the proposed project.

4.1 Definition of Impacts

Based on the project description (Section 1.2), direct and indirect (including both short-term and long-term) impacts are defined as follows:

Direct impacts include the permanent loss of on-site habitat and the plant and wildlife species that it contains. There would be no temporary impacts associated with the proposed project. Direct impacts were quantified by overlaying the limits of the work areas on the biological resources map of the project site (Figure 4, Impacts to Biological Resources). Direct impacts would include permanent impacts associated with the solar arrays and access roads.

Indirect impacts refer to off-site and on-site effects that are short-term impacts (i.e., temporary) due to project construction, or long-term (i.e., permanent) due to the design of the project and the effects it may have on adjacent resources. For this project, indirect impacts would include short-term impacts during construction, such as additional dust and noise that could temporarily disrupt wildlife activities, construction-related soil erosion and runoff, and increased human presence (i.e., trash and noise). The project would be subject to the typical restrictions and requirements that address turbidity and water quality, including the federal Clean Water Act, National Pollution Discharge Elimination System, and Porter-Cologne Act, and would require preparation of a Stormwater Pollution Prevention Plan.

4.2 Direct Impacts

4.2.1 Vegetation Communities and Land Cover Types

Implementation of the proposed project would result in direct impacts to allscale scrub, unvegetated wash, disturbed habitat, and urban/developed, as depicted in Figure 4 and as listed in Table 4.

Table 4. Impacts to Vegetation Communities and Land Covers within the Project Site

Vegetation Community/Land Cover Type	Ranking[1]	Total Impact Acreage
Allscale scrub (*Atriplex polycarpha*, 36.340.04)	G4, S4	77.69
Unvegetated Wash	GNR, SNR	0.86
Disturbed Habitat	GNR, SNR	3.86
Urban/Developed	GNR, SNR	0.56
	Total	**82.97**

Notes: Totals may not sum due to rounding.

[1] In September 2020, CDFW published the Natural Communities List (CDFW 2021), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Core Methodology (NatureServe 2022). The conservation status of a vegetation community is designated by a number from 1 to 5,

preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global and S = subnational). The numbers have the following meaning (NatureServe 2022):
1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure
GNR = unranked, global rank not yet assessed
SNR = unranked, subnational rank not yet assessed

As stated in Section 3.1, Vegetation Communities and Land Covers, CDFW state rankings of 1, 2, or 3 are considered high priority for inventory or special-status, and impacts to these communities typically require mitigation. There are no vegetation communities considered sensitive biological resources by CDFW under CEQA within the project site. Therefore, impacts to the vegetation communities and land cover types within the project site would be less than significant and would not require mitigation. Impacts to unvegetated wash are discussed in Section 4.2.2, Jurisdictional Aquatic Resources, because this land cover type is regulated as non-wetland waters under RWQCB jurisdiction and as a streambed under CDFW jurisdiction, and impacts would require permits through those agencies.

4.2.2 Jurisdictional Aquatic Resources

Based on Dudek's Aquatics Resources Delineation, the proposed project would permanently impact 0.86 acres of non-wetland waters of the state under the jurisdiction of RWQCB and 0.86 acres of streambeds under the jurisdiction of CDFW. Note that the final boundaries of each agency's jurisdiction is determined by the aquatic resource agency and, therefore, impacts may be slighter higher or lower than what is stated herein. Figure 4 shows the location of impacts to jurisdictional resources. Table 5 provides the impact acreages by jurisdiction resource, jurisdiction, and type of impact.

Table 5. Impacts to Jurisdictional Aquatic Resources within the Project Site

Aquatic Resource Type	Impacts to RWQCB/CDFW Aquatic Resources (acreage/linear feet)
Non-Wetland Water/Stream Channel	0.86/4,810
Total Impacts	**0.86/4,810**

RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife

The project would require minimal grading, with minimal impact to existing drainage patterns and overall topography of the site. A remnant isolated segment of unnamed ephemeral stream is located on the project site. It contains a bed, banks, and evidence of flow trending in a north to northeast direction toward Harper Lake playa. The flow pattern becomes discontinuous, and it loses bed and banks and evidence of concentrated flow as it approaches the northern half of the property where an agricultural operation was located. The agricultural operation anthropogenically disturbed the ephemeral stream with permanent direct impacts via implementation of irrigated pastureland and construction of fences, farm roads, outbuildings, and other ancillary structures to support a ranching operation. However, the flow characteristics and functions of the off-site and downstream portions of the stream were removed altogether when the stream was filled to allow construction of a large solar energy facility (Lockhart solar facility) north and northeast of the project site. Removal of the off-site downstream segment of the stream eliminated any meaningful chemical, physical, and biological functions, values, and interchange between remnant segment of the stream on the project site and the Harper Lake playa. Lastly, unlike the Lockhart facility to the northeast, the proposed project would not mass grade the site or remove (fill) the remnant segment of stream.

The project would strategically locate certain elements (i.e., solar array structures) in the stream such that water would still be able to flow across the site via its current alignment. Therefore, impacts to jurisdictional aquatic resources would be less than significant. However, impacts would require resource agency (i.e., RWQCB and CDFW) permits for permanent impacts. The proposed project would require, prior to project implementation, state permitting from CDFW for a Streambed Alteration Agreement, required by California Fish and Game Code Section 1600 et seq., and from the RWQCB for a Waste Discharge Requirement. As compensation for direct permanent impacts to jurisdictional aquatic resources, the applicant would provide compensatory mitigation acceptable to the resource agencies (i.e., RWQCB and CDFW). If it is determined that compensatory mitigation is necessary, a Mitigation and Monitoring Plan would be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW.

4.2.3 Special-Status Plants

No special-status plant species were observed within the project site during the 2022 survey effort, and there are no other special-status plant species with a moderate to high potential to occur on the project site. Therefore, impacts to special-status plants are not anticipated with implementation of the proposed project.

Additionally, there are no plants within the project site that would be protected or regulated by the Desert Native Plants Act. Therefore, impacts to Desert Native Plants are not anticipated.

4.2.4 Special-Status Wildlife and Nesting Birds

LeConte's thrasher was observed within the project site (Figure 4). In addition, the following special-status species have not been detected on site, but have a moderate or low potential to occur: Mohave ground squirrel, burrowing owl, American badger, and desert tortoise. A discussion of direct impacts to these species and desert kit fox is provided below.

LeConte's Thrasher and Nesting Birds

LeConte's thrasher was observed during the biological surveys conducted within the project site, and this species has potential to nest within scrub habitat on the project site. Given the mobile nature of this species (i.e., they are likely to move away from the project site to use adjacent areas of equally suitable habitat), it is anticipated that project impacts would not result in direct impacts to birds outside of the nesting season. Additionally, because impacts to suitable nesting habitat would be small in comparison to the amount of suitable nesting habitat occurring in the surrounding area, impacts to suitable nesting habitat would be less than significant.

Potential direct impacts to nesting birds within the project site may occur if construction occurs during the breeding season. However, a pre-construction nesting bird survey during the breeding season (i.e., February 1 through September 1) as directed by **MM-BIO-1** (Nesting Bird Surveys) would avoid direct impacts to nesting birds in accordance with the MBTA and California Fish and Game Code. Therefore, implementation of **MM-BIO-1** (Nesting Bird Surveys) and **MM-BIO-5** (Education Programs) (see Chapter 5) would reduce impacts to LeConte's thrasher and other nesting birds to less than significant.

Mohave Ground Squirrel

There is moderate potential for Mohave ground squirrel to occur within the project site. To determine whether this species is present, a survey as described in the Mohave Ground Squirrel Survey Guidelines (CDFG 2010) and as directed by **MM-BIO-2** (Mohave Ground Squirrel Surveys) would be implemented. In the event that the surveys determine that Mohave ground squirrel is present within the areas to be either temporarily or permanently disturbed, the project applicant would be required to obtain an ITP from CDFW under Section 2081 of California Fish and Game Code. Unavoidable impacts to occupied suitable habitat would be compensated at a minimum of 1:1, through on- or off-site preservation with permanent protection and long-term funding, or through purchase of equivalent credits through a mitigation bank (if available), in addition to implementing all other measures and conditions of the ITP. Therefore, implementation of **MM-BIO-2** (Mohave Ground Squirrel Surveys) and **MM-BIO-5** (Education Programs) would reduce impacts to Mohave ground squirrel to less than significant. If surveys for Mohave ground squirrel are negative, then impacts to unoccupied habitat would be less than significant and would not require mitigation.

Burrowing Owl

There is low potential for burrowing owl to occur within the project site based on the lack of suitable burrows and burrowing owl sign. Therefore, to demonstrate that burrowing owl is absent, pre-construction surveys as described in the 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012) would be conducted by a qualified biologist as directed by **MM-BIO-3**. If burrowing owls are detected on site, a burrowing owl relocation plan shall be implemented and no ground-disturbing activities would be permitted within 200 meters (656 feet) of an occupied burrow during the breeding season (February 1 through August 31), unless otherwise authorized by CDFW. If avoidance of active burrows is infeasible, then before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and/or scoping, a qualified project biologist would implement a passive relocation program in accordance with the 2012 Staff Report on Burrowing Owl Mitigation, Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) (CDFG 2012). Therefore, implementation of **MM-BIO-3** (Burrowing Owl Pre-Construction Surveys) and **MM-BIO-5** (Education Programs) would reduce direct impacts to burrowing owl to less than significant. Additionally, because this species has low potential to occur based on lack of suitable burrows and burrowing owl sign, and because impacts would be small in comparison to the amount of suitable nesting habitat occurring in the surrounding area, impacts to habitat from project implementation would be less than significant.

American Badger and Desert Kit Fox

There is moderate potential for American badger and desert kit fox to occur within the project site. As directed by **MM-BIO-4**, a pre-construction survey for American badger and desert kit fox would be conducted on the project site within 10 days prior to the start of construction to determine the presence/absence of either species. If either species is discovered during the survey, an American Badger/Desert Kit Fox Mitigation and Monitoring Plan would be developed. Therefore, implementation of **MM-BIO-4** (American Badger and Desert Kit Fox Surveys) and **MM-BIO-5** (Education Programs) would reduce direct impacts to American badger and desert kit fox to less than significant. Additionally, because impacts to habitat would be small in comparison to the amount of suitable habitat occurring in the surrounding area, impacts to habitat from project implementation would be less than significant.

Mojave Desert Tortoise

No desert tortoise sign (e.g., feathers, whitewash, scat, carapace), individuals, or suitable tortoise burrows were observed during the protocol-level surveys conducted with the project site. Therefore, impacts to this species are not anticipated with project implementation. Additionally, because the desert tortoise surveys were negative, impacts to unoccupied habitat would be less than significant and would not require mitigation. **MM-BIO-5** (Education Programs) would be implemented during construction to ensure that direct impacts to desert tortoise are completely avoided.

4.2.5 Wildlife Corridors and Habitat Linkages

No significant direct permanent impacts would occur to wildlife movement or habitat linkages associated with project activities. Existing nearby habitat linkages and wildlife corridor functions would remain intact while construction activities are conducted and following project completion. Wildlife movement may be temporarily disrupted during the construction phase of the project, although this impact would be both localized and short-term. Nearby corridors that could support wildlife movement in the region, including the Desert Tortoise Conservation Area/Least Cost Corridor approximately 1,330 feet to the west, would not be impacted by the project. Further, the project site does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas. Therefore, impacts associated with wildlife movement, wildlife corridors, and wildlife nursery sites would be less than significant under CEQA.

4.3 Indirect Impacts

4.3.1 Vegetation Communities and Land Covers

Potential short-term indirect impacts on vegetation communities adjacent to the project site would include dust, construction-related soil erosion and runoff, and increased human presence (e.g., trash and noise). Indirect impacts to vegetation communities would be significant absent mitigation, and would be avoided with implementation of **MM-BIO-6** (Best Management Practices/Erosion/Runoff), which would require impacts to occur only within the disturbance limits, the use of best management practices, erosion control measures, and avoiding the use of toxic substances that could affect plant life.

Long-term indirect impacts to sensitive vegetation communities would be less than significant due to solar array maintenance occurring infrequently and would not affect off-site areas.

4.3.2 Jurisdictional Aquatic Resources

Indirect impacts to on-site and off-site jurisdictional waters could occur from accidental release of materials, such as debris, oil, or petroleum products, into jurisdictional waters during project construction. Implementation of **MM-BIO-6** (Best Management Practices/Erosion/Runoff) would reduce indirect impacts from project construction to less than significant by controlling site runoff and hazardous waste spills, and implementing best management practices.

Additionally, indirect impacts would be reduced through permit compliance and standard best management practices. Specifically, the project applicant would incorporate methods to control runoff, including a Stormwater

Pollution Prevention Plan to meet National Pollutant Discharge Elimination System regulations. Implementation of stormwater regulations is expected to substantially control adverse edge effects (e.g., erosion, sedimentation, habitat conversion) during and following construction both adjacent to and downstream of the project site. Typical construction best management practices specifically related to reducing impacts from dust, erosion, and runoff generated by construction activities would be implemented. During construction, material stockpiles would be placed such that they cause minimal interference with on-site drainage patterns. This would protect jurisdictional aquatic resources from being inundated with sediment-laden runoff.

Long-term indirect impacts to aquatic jurisdictional resources would be less than significant due to solar array maintenance occurring infrequently and would not affect off-site areas.

4.3.3 Special-Status Plant Species

Potential temporary indirect impacts to special-status plants would be similar to those described above for vegetation communities and would include decreased rigor from dust, invasive plant species, and accidental trampling. **MM-BIO-6** (Best Management Practices/Erosion/Runoff) would be implemented to avoid significant indirect impacts to special-status plants during construction.

Long-term indirect impacts would be less than significant due to solar array maintenance occurring infrequently and would not affect off-site areas.

4.3.4 Special-Status Wildlife Species and Nesting Birds

Most of the indirect impacts to vegetation communities previously described can also affect special-status wildlife. Breeding birds can be significantly affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities. Some bird species present or potentially present adjacent to work areas, including the special-status species LeConte's thrasher, may nest within the shrubs on site and within 250 to 500 feet of work areas. These species are protected under the MBTA. If nesting birds nest in off-site areas within 250 to 500 feet of a work area, short-term indirect impacts could occur if construction takes place during their breeding season (February 1 through September 1). Pre-construction nesting bird surveys during the breeding season are a condition of project approval and would avoid impacts to nesting birds in accordance with the MBTA and California Fish and Game Code (**MM-BIO-1,** Nesting Bird Surveys).

Although desert tortoise is not present within the project site, adjacent off-site areas occupied by desert tortoise can be significantly affected by construction-related trash that may attract ravens. To avoid any indirect impacts to desert tortoises potentially occurring within the surrounding area, the project would implement **MM-BIO-6** (Best Management Practices/Erosion/Runoff), which would require all trash and debris that may attract ravens to be fully contained.

Long-term (operational) indirect impacts to special-status wildlife would be less than significant due to solar array maintenance occurring infrequently and because it would not affect off-site areas.

4.3.5 Wildlife Corridors and Habitat Linkages

Construction-related short-term noise and work in the vicinity would be temporary and would not be expected to significantly disrupt wildlife movement due to ambient noise conditions and the ability for wildlife to continue to

move around the construction area during and after construction. Temporary disturbance to local species may occur but would not substantially degrade the quality or use of the vegetation communities in the vicinity. Work activities are not currently proposed during the nighttime. Therefore, implementation of the project would not result in significant indirect impacts to wildlife corridors and migratory routes.

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5 Avoidance, Minimization, and Mitigation

This section describes proposed project avoidance, minimization, and mitigation measures that would avoid or mitigate adverse and significant impacts to biological resources resulting from proposed project activities.

MM-BIO-1 Nesting Bird Surveys**.** In the event that construction activities occur during the nesting bird breeding season (February 1 through September 1), a qualified biologist shall conduct pre-construction surveys within 7 days prior to any on-site grading and construction activities in accordance with the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, and 3513. Pre-construction nesting bird surveys shall also cover a 500-foot buffer around the site, as feasible.

If occupied nests are found, then limits of construction to avoid occupied nests shall be established by the qualified biologist in the field with flagging, fencing, or other appropriate barriers (e.g., 250 feet around active passerine nests to 500 feet around active non-listed raptor nests), and construction personnel shall be instructed on the sensitivity of nest areas. The nest area shall be avoided until the nest is vacated and the juveniles have fledged and are no longer reliant upon the nest or parental care for survival, construction may proceed in the setback areas. If migratory birds are not detected during the pre-construction survey, no further measures would be required, and construction activities may proceed.

MM-BIO-2 Mohave Ground Squirrel Surveys**.** Focused surveys for Mohave ground squirrel shall be required to determine its presence or absence and any potential project effects to this species. Focused Mohave ground squirrel surveys shall be conducted either in accordance with the 2003 (updated in 2010) Mohave Ground Squirrel Survey Guidelines from the California Department of Fish and Wildlife (CDFW), or in accordance with any modified survey methodology as approved in writing by CDFW.

In the event that the surveys determine that Mohave ground squirrel is present within the areas to be either temporarily or permanently disturbed, the project applicant shall be required to obtain an Incidental Take Permit (ITP) from CDFW under Section 2081 of California Fish and Game Code. The ITP process shall be coordinated with the regional CDFW office. The ITP shall include an analysis of whether project impacts would jeopardize the continued existence of the species, provide suitable avoidance and minimization measures to reduce potential impacts, and provide adequate mitigation through conservation or mitigation banking.

MM-BIO-3 Burrowing Pre-Construction Owl Surveys. One pre-construction burrowing owl survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the project site shall be resurveyed. Surveys for burrowing owl shall be conducted in accordance with protocols established in the California Department of Fish and Wildlife (CDFW) 2012 Staff Report on Burrowing Owl Mitigation or current version.

If burrowing owls are detected, the Burrowing Owl Relocation Plan shall be implemented in consultation with CDFW. As required by the Burrowing Owl Relocation Plan, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers shall be established around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation or current version. No project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed.

Outside of the nesting season, passive owl relocation techniques approved by CDFW shall be implemented. Burrowing owls shall be excluded from burrows in the immediate project site and within a buffer zone by installing one-way doors in burrow entrances. These doors shall be placed at least 48 hours prior to ground-disturbing activities. The project site shall be monitored daily for 1 week to confirm owl departure from burrows prior to any ground-disturbing activities.

Where possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

MM-BIO-4 American Badger and Desert Kit Fox Surveys. A pre-construction survey for American badger and desert kit fox shall be conducted on the project site within 10 days prior to the start of construction to determine the presence/absence of either species. If either species is discovered during the survey, an American Badger/Desert Kit Fox Mitigation and Monitoring Plan shall be developed. The Mitigation and Monitoring Plan shall include avoidance and minimization measures to reduce potential impacts to either species, as well as compensatory mitigation to offset direct or indirect impacts. The plan shall be developed in consultation with CDFW. At a minimum, the plan shall do the following:

- Identify pre-construction survey methods for American badger and desert kit fox.
- Describe feasible pre-construction and construction-phase avoidance methods.
- Describe pre-construction and construction-phase relocation methods, including the possibility for passive relocation.
- For burrows that will not be impacted by the project, identify appropriate construction exclusion zones for both active and natal burrows.
- Coordinate survey findings prior to and during construction to meet the information needs of wildlife health officials in monitoring the health of kit fox populations.

MM-BIO-5 Education Program. An education program (Worker Environmental Awareness Program [WEAP]) for all persons employed or otherwise working at the project site shall be administered before performing any clearing and grubbing activities. The WEAP shall consist of a video presentation created by the qualified biologist that includes a discussion of the biology and status of desert tortoise, Mohave ground squirrel, burrowing owl, LeConte's thrasher, American badger, and kit fox, and about the other biological resources mitigation measures described in the California Environmental Quality Act document. Interpretation for non-English-speaking workers shall be provided, and the same instruction shall be provided to any new workers before they are authorized to perform clearing and grubbing activities at the project site. Upon completion of the WEAP, which

can be administered by the lead person from the construction crew, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent staff who will be conducting work at the project site.

MM-BIO-6 Best Management Practices/Erosion/Runoff. The construction limits shall be flagged prior to ground-disturbance activities, and all construction activities, including equipment staging and maintenance, shall be conducted within the flagged disturbance limits.

All vehicles and equipment shall be maintained in proper condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly handled or disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated staging area. Soil binding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.

All trash and food-related waste shall be placed in self-closing, animal-proof containers and removed at least once per week from the site to prevent overflow. The fully covered trash receptacles shall be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Workers shall not feed wildlife or bring pets to the project site. Construction work areas shall be kept clean of debris, such as cable, trash, and construction materials. All construction/contractor personnel shall collect all litter, vehicle fluids, and food waste from the project site on a daily basis.

6 References

AOS (American Ornithological Society). 2020. Checklist of North American Birds (online). Accessed April 2021. http://checklist.americanornithology.org/taxa.

CDFG (California Department of Fish and Game). 2010. *Mohave Ground Squirrel Survey Guidelines*. January 2003; minor process and contact changes in July 2010.

CDFG. 2012. *Staff Report on Burrowing Owl Mitigation.* March 7, 2012. Accessed January 31, 2020. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline.

CDFW (California Department of Fish and Wildlife). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. March 20, 2018. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline.

CDFW. 2019. *A Conservation Strategy for the Mohave Ground Squirrel Xerospermophilus mohavensis*. http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171301&inline.

CDFW. 2020. *Evaluation of a Petition from the Center for Biological Diversity to List Western Joshua Tree (Yucca Brevifolia) as Threatened Under the California Endangered Species Act*. State of California Natural Resources Agency Department of Fish and Wildlife Report to the Fish and Game Commission. February 2020.

CDFW. 2021. *List of Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form.* August 2021. Accessed April 2022. https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List.

CDFW. 2022a. California Natural Diversity Database (CNDDB). RareFind 5: Commercial version. CDFW, Biogeographic Data Branch. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx.

CDFW. 2022b. "California Wildlife Habitat Relationships (CWHR)" [information system]. Version 9.0. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

CNPS (California Native Plant Society). 2001. *CNPS Botanical Survey Guidelines*. Published December 9, 1983; revised June 2, 2001. http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf.

CNPS. 2022a. Rare Plant Inventory (online edition, v9-01 1.5). California Native Plant Society, Rare Plant Program. https://rareplants.cnps.org/.

CNPS. 2022b. *A Manual of California Vegetation*, Online Edition. California Native Plant Society, Sacramento, California. Accessed April 2022. http://www.cnps.org/cnps/vegetation/.

Coulombe, H.N. 1971. "Behavior and Population Ecology of the Burrowing Owl, *Speotyto cunicularia*, in the Imperial Valley of California." *Condor* 73:162–176.

County of San Bernardino. 2007a. *2006 General Plan Program, Final Environmental Impact Report and Appendices*. SCH No. 2005101038. February 2007. http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FinalEIR2007.pdf.

County of San Bernardino. 2007b. *County of San Bernardino 2007 Development Code*. Amended 2014. http://www.sbcounty.gov/Uploads/lus/DevelopmentCode/DC011614.pdf.

County of San Bernardino, San Bernardino Council of Governments, and Southern California Association of Governments. 2018. *Draft San Bernardino County Regional Conservation Investment Strategy*. Prepared by Dudek. December 2018. https://www.gosbcta.com/wp-content/uploads/2019/08/SBC_RCIS_Draft_December_018.pdf.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* FWS/OBS-79/31. Prepared for U.S. Fish and Wildlife Service. December 1979; reprinted 1992. http://www.fws.gov/wetlands/documents/classification-of-wetlands-and-deepwater-habitats-of-the-united-states.pdf.

Crother, B.I. 2017. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding*, edited by J.J. Moriarty. 8th ed. Society for the Study of Amphibians and Reptiles. https://ssarherps.org/wp-content/uploads/2017/10/8th-Ed-2017-Scientific-and-Standard-English-Names.pdf.

Cypher, E.A. 2002. *General Rare Plant Survey Guidelines*. Bakersfield, California: California State University, Stanislaus, Endangered Species Recovery Program. Revised July 2002. http://www.fws.gov/sacramento/ES/Survey-Protocols-Guidelines/Documents/rare_plant_protocol.pdf.

Gervais, J.A., D.K. Rosenberg, and L.A. Comrack. 2008. "Burrowing Owl (*Athene cunicularia*)." In *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*, edited by W.D. Shuford and T. Gardali, 218–226. Studies of Western Birds no. 1. California: Western Field Ornithologists (Camarillo), and California Department of Fish and Game (Sacramento). February 4, 2008. http://www.dfg.ca.gov/wildlife/nongame/ssc/birds.html.

Google Earth Pro. 2021. San Bernardino County, California. 34°59'58.71"N, 117°19'25.20"W. Image Google. Accessed April 2022.

Green, G.A., and R.G. Anthony. 1989. "Nesting Success and Habitat Relationships of Burrowing Owls in the Columbia Basin, Oregon." *Condor* 91:347–354.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. "The Burrowing Owl (*Speotyto cunicularia*)." In *The Birds of North America*, edited by A. Poole and F. Gill. Philadelphia, Pennsylvania: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Historic Aerials. 2021. Aerial Images. www.historicaerials.com.

Jepson Flora Project. 2022. Jepson eFlora. Berkeley, California: University of California. Accessed May 2022. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

Leitner, P. 2015. "Current Status of the Mohave Ground Squirrel (*Xerospermophilus mohavensis*): A Five-Year Update (2008–2012)." Endangered Species Recovery Program, California State University, Stanislaus, One University Circle, Turlock, California 95382. Published in *Western Wildlife* 2: 9–22.

Martin, D.J. 1973. "Selected Aspects of Burrowing owl Ecology and Behavior." *Condor* 75: 446–456.

NABA (North American Butterfly Association). 2018. "Checklist of North American Butterflies Occurring North of Mexico – Edition 2.4." Adapted from *North American Butterfly Association (NABA) Checklist and English Names of North American Butterflies*, eds. B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. 2nd ed. Morristown, New Jersey: NABA. Accessed April 2021. https://www.naba.org/pubs/enames2_4.html.

NatureServe. 2022. "NatureServe Core Methodology." https://www.natureserve.org/conservationtools/standards-methods/natureserve-core-methodology.

SANBAG. 2015. *San Bernardino Associated Governments Countywide Habitat Preservation/ Conservation Framework Development*. 8351 8-4. February 2015.

Sheppard, J.M. 1996. "LeConte's Thrasher (*Toxostoma lecontei*)." *The Birds of North America, Life Histories for the 21st Century*, No. 230, 1996. Eds. A. Poole and F. Gill. The Academy of Natural Sciences of Philadelphia.

SWRCB (State Water Resources Control Board). 2021. *State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Adopted April 2, 2019; revised April 6, 2021. https://www.waterboards.ca.gov/press_room/press_releases/2021/procedures.pdf.

Terres, J. K. 1980. *Audubon Society Encyclopedia of North American Birds*. Distributed by Random House. Chicago.

USACE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetlands Delineation Manual*. Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf.

USACE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046489.pdf.

USACE. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual.* ERDC/CRREL TR-08-12. Prepared by R.W. Lichvar and S.M. McColley. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. August 2008. https://apps.dtic.mil/dtic/tr/fulltext/u2/a486603.pdf.

USDA (U.S. Department of Agriculture). 2022a. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed April 2022. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

USDA. 2022b. Plants Database. USDA Natural Resources Conservation Service. Accessed April 2022. https://plants.sc.egov.usda.gov/home.

USFWS (U.S Fish and Wildlife Service). 2004. *Application of the "Destruction or Adverse Modification" Standard under Section 7(a)(2) of the Endangered Species Act.* Memorandum from M. Jones Jr. (Acting Director, USFWS) to USFWS regional directors (Regions 1–7) and manager of California–Nevada Operations Office. December 9, 2004.

USFWS. 2008. *Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise* (*Gopherus agassizii*). California and Nevada Region, Sacramento, California.

USFWS. 2018. *Preparing for any Action That May Occur within the Range of the Mojave Desert Tortoise* (*Gopherus agassizii*). October 26, 2018. https://www.fws.gov/sites/default/files/documents/Mojave%20Desert%20Tortoise_Pre-project%20Survey%20Protocol_2019.pdf.

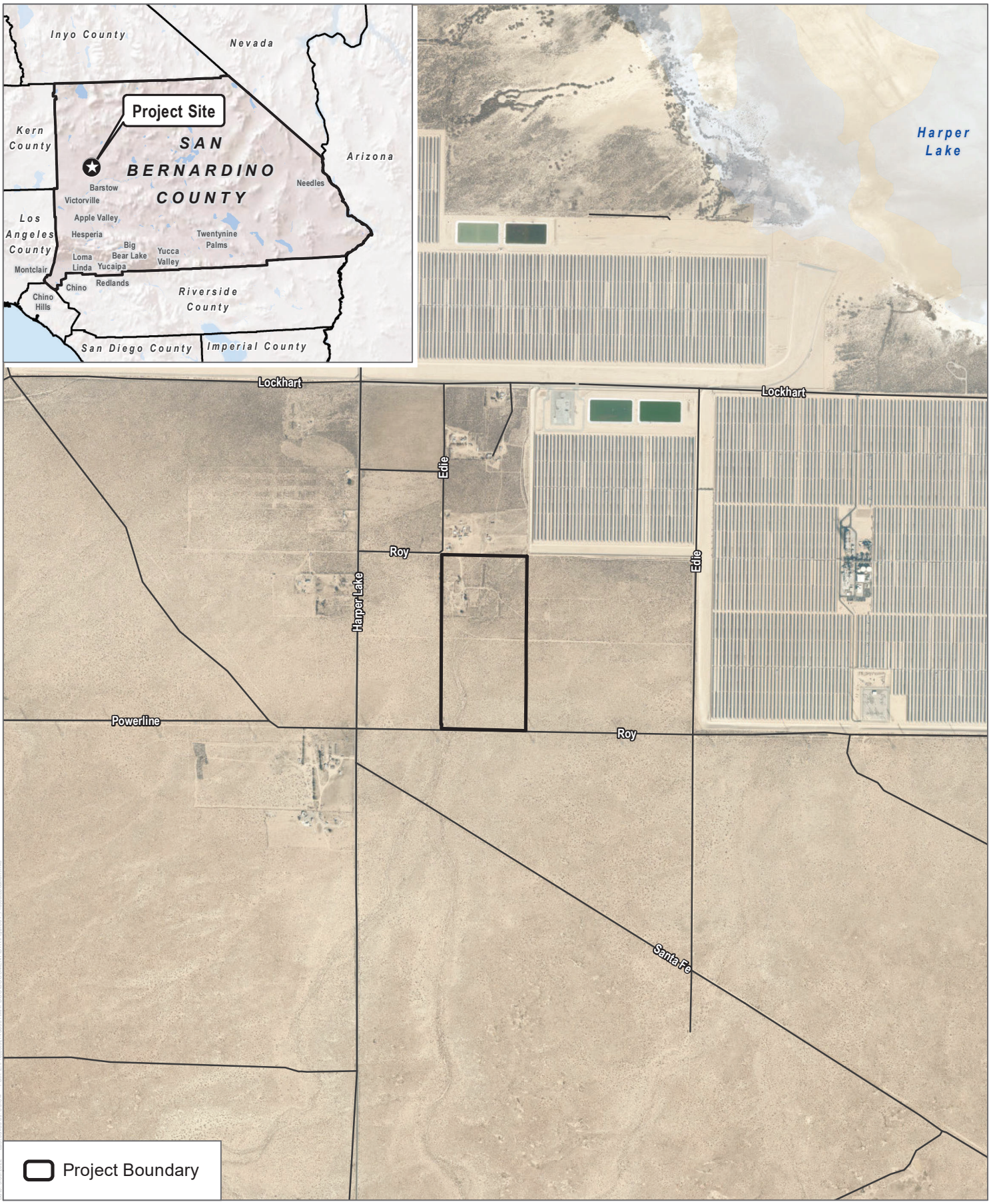
USFWS. 2022a. National Wetlands Inventory. Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service. Accessed April 2022. http://www.fws.gov/wetlands/Data/Mapper.html.

USFWS. 2022b. "Critical Habitat and Occurrence Data" [map]. USFWS Geospatial Services. Accessed April 2022. http://www.fws.gov/data.

USGS (U.S. Geological Survey). 2021. "National Hydrography Dataset" [digital GIS data]. Accessed April 2022. http://nhd.usgs.gov/.

Wilson, D.E., and D.M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*. 3rd ed. Baltimore, Maryland: Johns Hopkins University Press.

Figure 1 Project Location



SOURCE: ESRI Imagery 2022, County of San Bernardino 2021

DUDEK

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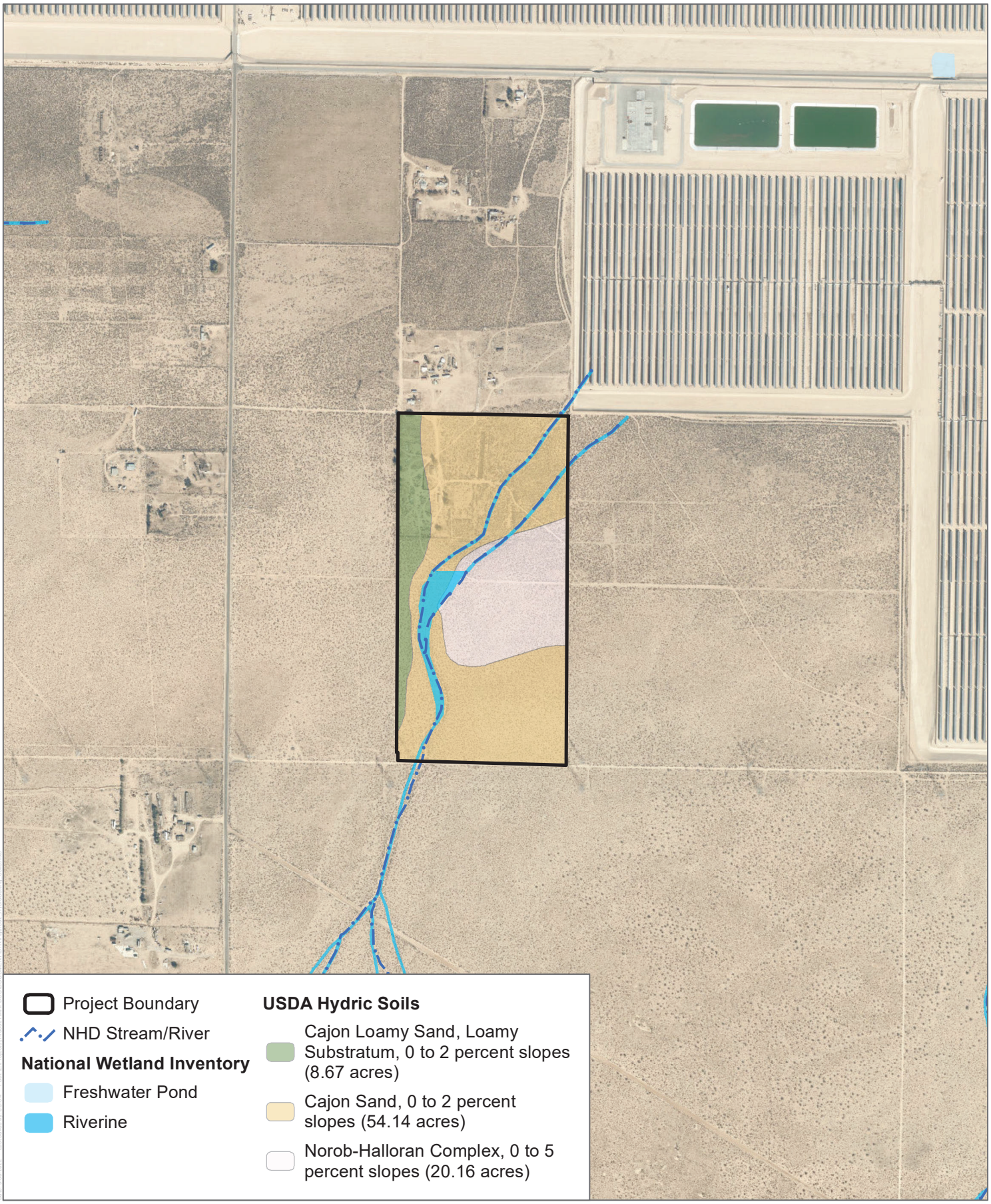
FIGURE 1

Project Location

Biological Technical Report for the Juniper Energy Project at 315 Roy Street, Hinkley, San Bernardino County

Figure 2 Soils and Hydrology



SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

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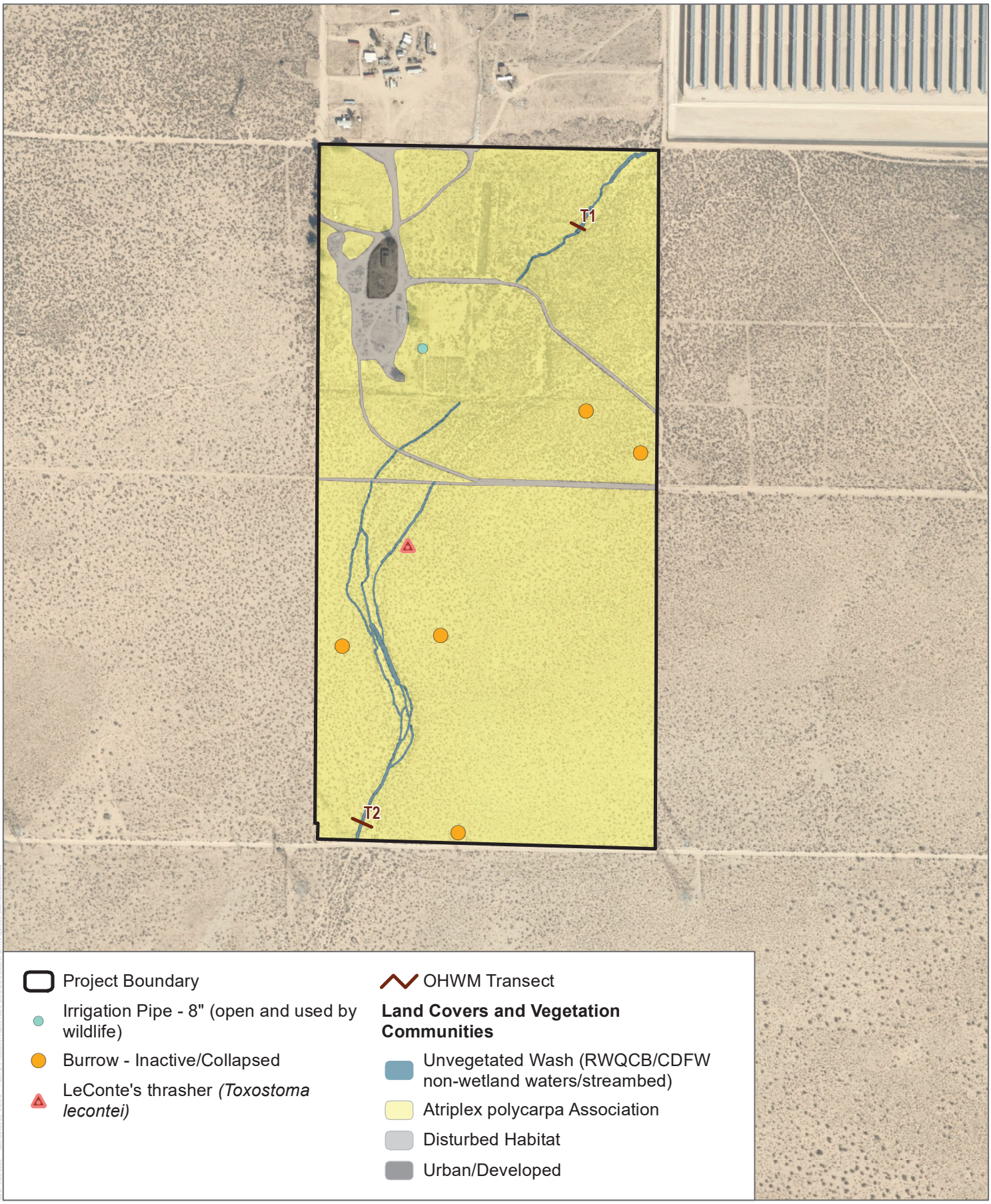
FIGURE 2

Soils and Hydrology

Biological Technical Report for the Juniper Energy Project at 315 Roy Street, Hinkley, San Bernardino County

Figure 3 Biological Resources



SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

DUDEK

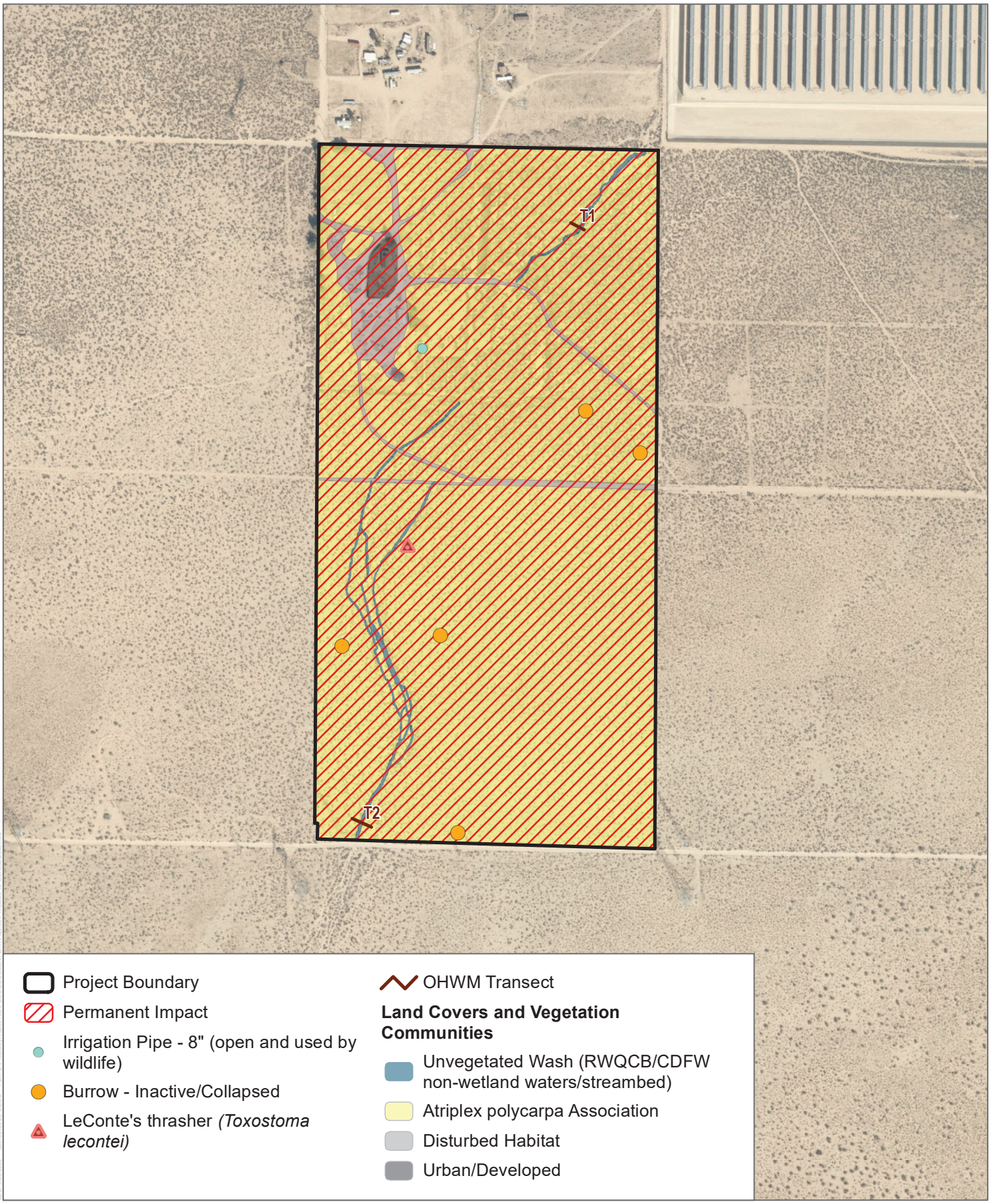
0 250 500 Feet

FIGURE 3

Biological Resources

Biological Technical Report for the Juniper Energy Project at 315 Roy Street, Hinkley, San Bernardino County

Figure 4 Impacts to Biological Resources



SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

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0 250 500 Feet

FIGURE 4

Impacts to Biological Resources

Biological Technical Report for the Juniper Energy Project at 315 Roy Street, Hinkley, San Bernardino County

Appendix A
Plant Species Observed

Vascular Species

Eudicots

ASTERACEAE — SUNFLOWER FAMILY

Ambrosia salsola — cheesebush

Chaenactis fremontii — pincushion flower

Malacothrix glabrata — smooth desertdandelion

BORAGINACEAE — BORAGE FAMILY

Cryptantha sp. — cryptantha sp.

BRASSICACEAE — MUSTARD FAMILY

* *Brassica tournefortii* — Tournefort's mustard

CACTACEAE — CACTUS FAMILY

Cylindropuntia echinocarpa — Wiggins' cholla

CHENOPODIACEAE — GOOSEFOOT FAMILY

Atriplex polycarpa — allscale

GERANIACEAE — GERANIUM FAMILY

* *Erodium cicutarium* — redstem stork's bill

POLEMONIACEAE — PHLOX FAMILY

Langloisia setosissima — Great Basin langloisia

SOLANACEAE — NIGHTSHADE FAMILY

Lycium andersonii — Anderson's boxthorn

Lycium cooperi — peach thorn

TAMARICACEAE — TAMARISK FAMILY

* *Tamarix ramosissima* — tamarisk

ZYGOPHYLLACEAE — CALTROP FAMILY

Larrea tridentata — creosote bush

Monocots

POACEAE — GRASS FAMILY

* *Schismus arabicus* — Arabian schismus

* Signifies introduced non-native species.

Appendix B
Wildlife Species Observed

Birds

Flycatchers

TYRANNIDAE — TYRANT FLYCATCHERS

Sayornis saya — Say's phoebe

Jays, Magpies and Crows

CORVIDAE — CROWS AND JAYS

Corvus corax — common raven

Mockingbirds and Thrashers

MIMIDAE — MOCKINGBIRDS AND THRASHERS

Mimus polyglottos — northern mockingbird

Toxostoma lecontei — LeConte's thrasher

Old World Sparrows

PASSERIDAE — OLD WORLD SPARROWS

* *Passer domesticus* — house sparrow

Pigeons and Doves

COLUMBIDAE — PIGEONS AND DOVES

Zenaida macroura — mourning dove

Starlings and Allies

STURNIDAE — STARLINGS

* *Sturnus vulgaris* — European starling

New World Sparrows

PASSERELLIDAE — NEW WORLD SPARROWS

Artemisiospiza nevadensis — sagebrush sparrow

Reptiles

Lizards

PHRYNOSOMATIDAE — IGUANID LIZARDS

Uta stansburiana — common side-blotched lizard

TEIIDAE — WHIPTAIL LIZARDS

Aspidoscelis tigris — tiger whiptail

CROTAPHYTIDAE — COLLARED LIZARDS

Gambelia wislizenii — long-nosed leopard lizard

* Signifies introduced non-native species.

Appendix C

Approved Jurisdictional Determination for the Juniper Energy Project

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

June 28, 2022 14339

Stephen Estes
Chief Regulatory Division
U.S. Army Corps of Engineers
Los Angeles Regulatory District
915 Wilshire Boulevard, Ste 1101
Los Angeles, California 90017

Subject: Approved Jurisdictional Determination for the Juniper Energy Project at 315 Roy Road, Hinkley, San Bernardino County, California

On behalf of Juniper Energy, Dudek is submitting this request for an Approved Jurisdictional Determination for the Juniper Energy Project (project) located in Hinkley, San Bernardino County, California. The project applicant is proposing to build a solar facility on approximately 83 acres on Assessor's Parcel Number 049017101. The entire site would be impacted by the project and, as noted in the delineation (see Attachment B), there are no waters of the United States regulated by the U.S. Army Corps of Engineers within the project site. The enclosed package serves as a request for an Approved Jurisdictional Determination. As part of this request submittal, the Aquatic Resource Delineation Report for the project and the following attachments are included for your review (all attachments are provided digitally):

- Figures
- Attachment A, Rapanos Approved Jurisdictional Determination Form
- Attachment B, Antecedent Precipitation Tool Output
- Attachment C, Data Sheets
- Attachment D, Review Area Photos
- Attachment E, Digital Data

Dudek, on behalf of Juniper Energy, hopes that the U.S. Army Corps of Engineers deems this request for an Approved Jurisdictional Determination complete and looks forward to your written response and approval. Thank you for reviewing this application package. Please let me know if you have any questions or require further information regarding the project. I can be reached at 510.601.2514 or dwickens@dudek.com.

Sincerely,

David Wickens
Senior Regulatory Specialist

cc: Keith McDaniels, Juniper Energy
Megan Enright, Dudek
Danielle Mullen, Dudek

Aquatic Resources Delineation Report

Juniper Energy Project

JUNE 2022

Prepared for:

JUNIPER ENERGY LLC
8181 Crystal Springs Road
Hillsborough, California 94010
Contact: Keith McDaniels

Prepared by:

DUDEK

1630 San Pablo Ave, Suite 300
Oakland, California 94612
Contact: David Wickens

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APPENDICES

FIGURES

TABLES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	antecedent runoff condition
CDFW	California Department of Fish and Wildlife
OHWM	ordinary high water mark
PDSI	Palmer Drought Severity Index
project	Juniper Energy Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1 Introduction

This Aquatic Resources Delineation Report was prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). This report and supporting attachments provide the 20 items listed in the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. This report presents the results of the jurisdictional aquatic resource delineation conducted by Dudek for the proposed Juniper Energy Project (project) located in unincorporated Hinkley, San Bernardino County, California. The delineation was conducted to identify and map existing aquatic resources potentially subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 USC 1344), waters of the state potentially subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, and stream and riparian habitats potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (collectively defined as jurisdictional aquatic resources).

1.1 Disclaimer Statement

This report presents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, RWQCB, and CDFW (i.e., regulatory agencies) within the identified review area using the current regulations, written policies, and guidance from these regulatory agencies. The potential jurisdictional boundaries described in this report are subject to verification by the regulatory agencies. Only the regulatory agencies can make a final determination on whether the features present are subject to USACE, RWQCB, and/or CDFW regulation. A request for an USACE Approved Jurisdictional Determination is provided as Attachment A.[1]

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1.[2] Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area.[3] Juniper Energy LLC is the project applicant and landowner.

Table 1. Contact Information

Project Applicant	Juniper Energy LLC	**Agent**	Dudek
Contact Name	Keith McDaniels	**Contact Name**	David Wickens
Address	818 Crystal Springs Road Hillsborough, California 94010	**Address**	1630 San Pablo Ave, Suite 300 Oakland, California 94612
Phone	650.288.6810	**Phone**	510.601.2514
Email	kmcdaniels@junipersolar.com	**Email**	dwickens@dudek.com

1 Minimum Standards Item 1 (Request for Jurisdictional Determination)
2 Minimum Standards Item 2 (Contact Information)
3 Minimum Standards Item 3 (Site Access Statement)

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2 Review Area Description and Landscape Setting

The approximately 83-acre review area[4] for the Juniper Energy Project is located on 315 Roy Road in unincorporated Hinkley, San Bernardino County (Figure 1, Project Location). The project site lies within the U.S. Geological Survey (USGS) Twelve Gauge and Lockhart quadrangles with a latitude of N 34°59′58.71″ and longitude of W 117°19′25.20″. The review area occurs on Assessor's Parcel Number 049017101. The review area (which is the same as the project site) is currently undeveloped land located in the southwestern region of the Mojave Desert, containing areas of native vegetation communities and disturbed land covers, at an elevation range of 2,116 feet to 2,084 feet above mean sea level. The review area is surrounded by rural land uses to the north and open space to the south, west, and east. The Lockhart solar facility occurs to the northeast of the review area.

Directions to the review area are as follows: from Interstate 15, exit CA-58 west. After 16 miles, head north onto Harper Lake Road. Turn right onto Roy Road after 5.5 miles.[5]

2.1 Soils[6]

Soils within the review area are characterized as Cajon Sand, 0% to 2% slopes; Cajon loamy sand, loamy substratum, 0% to 2% slopes; and Norob-Halloran complex, 0% to 5% slopes (USDA 2022a) (Figure 2). The Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks (USDA 2022a). Cajon soils are typically found on desert features such as alluvial fans, fan aprons, fan skirts, inset fans, and river terraces. The Norob series consists of very deep, moderately well drained soils that formed from mixed alluvium, with many areas having eolian deposits on the soil surface (USADA 2022b). These soils are typically observed in the Mojave Desert on features such as alluvial plains and alluvial flats. The Halloran series are deep, moderately well drained soils that formed in mixed alluvium dominantly from granitic sources (USDA 2022b). These soils are also located within the Mojave Desert and occur on old alluvial terraces and depressional areas and have slopes of 0% to 2%. All soils within the review area are considered partially hydric.

2.2 Vegetation

The review area is dominated by allscale scrub (77.69 acres). The review area also contains disturbed habitat, urban/developed areas, and an unvegetated wash. The review area does not support any hydrophytic vegetation or vegetation communities.

2.3 Watershed

The review area occurs within the Coyote-Cuddeback Lakes Hydrological Unit (HUC 18090207) in the Harper Valley Groundwater Basin (Figure 3, Hydrology). Significant surface flow is both unpredictable and scarce in the arid desert environment. Substantial surface water is typically ephemeral and usually the result of flash-flood events. These

4 Minimum Standards Item 10 (Description of Existing Field Conditions)
5 Minimum Standards Item 4 (Directions)
6 Minimum Standards Item 13 (Soil Descriptions)

events may result in stream channels taking the form of alluvial fans, discontinuous ephemeral channels, single-thread channels with floodplains, and compound (braided) channels (USACE 2008). Surface flows within the immediate watershed of the project drain into Harper Lake playa. However, the existing Lockhart solar facility may prevent surface flow within the review area from reaching Harper Lake. The Harper Lake playa is at the lowest part of an undrained desert basin, generally devoid of vegetation (USGS 2021).

2.4 Review Area Alterations, Current and Past Land Use

Most of the review area is undeveloped open space with a portion of the review area containing developed and disturbed areas associated with a previously occupied residence. Otherwise, the review area has experienced very little anthropogenic alteration.

3 Precipitation Data and Analysis[7]

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation date occurred in a drier, average, or wetter than normal period (USACE 2022a). To determine what constitutes a "typical year," USACE developed the APT. The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit and assist with completing the Wetland Determination Data Form.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from −4 (extreme drought) to +4 (very wet) (NOAA 2021) to assess drought conditions (i.e., PDSI Class). The APT determines wet vs. dry season based on related procedures provided in the applicable regional supplement for the review area (in this case, the Arid West Supplement). If the antecedent runoff condition (ARC) score is less than 10, then the antecedent precipitation condition is classified as drier than normal; normal conditions are present with an ARC score of 10 to 14; conditions are wetter than normal when an ARC score is greater than 14 (USACE 2022a).

Table 2 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and antecedent precipitation condition. Based on the APT output provided in Attachment B and summarized in Table 2, the precipitation and climatic conditions for the review area were within a drier than normal range during the time of the delineation.

Table 2. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
04/07/2022	Extreme drought	Dry season	6	Drier than normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

Additionally, according to the U.S. Department of Agriculture's Agricultural Applied Climate Information System (USDA 2022c), the area around the review area receives an average of 5 inches of precipitation annually.

[7] Minimum Standards Item 11 (Discussion of Hydrology)

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4 Investigation Methods[8]

The jurisdictional delineation was conducted by Dudek Biologist Anna Cassady on April 7, 2022. Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory data (USFWS 2021) were reviewed to determine if the review area contained any features mapped by USFWS. Additionally, the National Hydrography Dataset complied by the USGS was also reviewed (USGS 2021). Site-specific topographical data were reviewed in conjunction with aerials, both current and historical, to determine the potential presence of non-wetland waters. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device. Remote sensing was not used for the delineation.

4.1 U.S. Army Corps of Engineers

The USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps in conjunction with ESRI Collector on a mobile device. The widths of each non-wetland water were determined in the field according to the OHWM manual.

Due to the lack of hydric vegetation within the review area, no Wetland Determination Forms were taken. No USACE three-parameter wetlands were suspected to be present based on site review. USACE OHWM Forms were completed at representative cross-sections of non-wetland waters to capture their characteristics and widths. All data forms can be found in Attachment C.

4.2 Regional Water Quality Control Board

Waters of the state regulated by the RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2019). As described in these procedures, wetland waters of the state are mapped based on the procedures in USACE's 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and its 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a). Non-wetland waters are mapped at the OHWM based on the procedures defined in USACE's 2008 A Field Guide to Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

4.3 California Department of Fish and Wildlife

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

[8] Minimum Standards Item 8 (Dates of Field Work), Item 5 (Use of 1987 Manual, Regional Supplement, and OHWM guide), Item 12 (Statement Regarding Use of Remote Sensing), Item 18 (Data Forms) and Item 19 (Methods)

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5 Aquatic Resource Narrative[9]

5.1 U.S. Army Corps of Engineers Waters of the United States

Approximately 0.86 acres of non-wetland waters (4,810 linear feet) potentially regulated by USACE are present within the review area (Figure 4, Potential Jurisdictional Aquatic Feature).[10] Table 3 provides a detailed summary of aquatic resources delineated within the review area. Table 3 also includes a description of each feature identified within the review area; its Cowardin type, if available (Cowardin et al. 1979; USACE 2022b); any OHWM indicators present; and the acreage/linear feet. A copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is not submitted with this report because Table 3 in this section provides all of the information requested.[11] Photos of the potential aquatic features delineated within the review area, as well as additional areas reviewed for the presence of these resources, are provided in Attachment D.[12] The locations of these photos are shown on Figure 4.

Table 3. Potential Jurisdictional Aquatic Resources within the Review

Potential Resource	Cowardin[1]	OHWM Indicators	Acreage/Linear feet
Non-Wetland Water/ Stream Channel (NWW-01)	R6	CAST, CVS, BBS, W	0.86/4,810
		Total	**0.86/4,810**

Notes: NWW = non-wetland water; CAST = change in average sediment texture; CVS = change in vegetation species; BBS = break in bank slope; W=wracking.

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2022b). R6 = A wetland, spring, stream, river, pond or lake that only exists for a short period.

A system of braided ephemeral channels flows from the southwest corner to the northeast corner across the review area carrying surface flows. The braided channels dissipate (i.e., lose OHWM indictors) within the middle of the review area where there is a former residence, and dissipate off site prior to reaching Harper Lake (surface flow may be blocked by an existing solar facility). Indicators, including bed and bank (only present for the first 100 feet along the southern end), drainage swales, minor wracking, and sediment sorting, were observed in the field. Transect data collected at both ends of this system confirmed active fluvial processes throughout this area (Figure 4).

The mapped features carry surface flows across the site from south to north toward Harper Lake, which is a dry lakebed or playa (Figure 3). However, the existing Lockhart solar facility may prevent surface flow from reaching Harper Lake. Ephemeral channels within the project site likely dissipate, evaporate, or infiltrate into the groundwater basin, or may continue to flow to Harper Dry Lake during larger storm events. The Harper Valley is considered a closed basin and functions as an isolated intrastate watershed system lacking the presence of a traditional navigable water. Therefore, the review area does not contain any streams, wetland waters, or other waters that are subject to federal jurisdiction under Section 404 of the Clean Water Act.

9 Minimum Standards Item 6 (Aquatic Resource Narrative)
10 Minimum Standards Item 16 (Delineation Maps)
11 Minimum Standards Item 15 (ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet)
12 Minimum Standards Item 17 (Ground Photos)

5.2 Regional Water Quality Control Board Waters of the State

The feature described in Section 5.1, Waters of the United States, has been identified as waters of the state. This feature is subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. Unlike USACE, the RWQCB takes jurisdiction over isolated features.

5.3 California Department of Fish and Wildlife Jurisdiction

The feature described in Section 5.1 has been identified as a streambed potentially regulated by CDFW. Resources subject to the jurisdiction of CDFW pursuant to Section 1602 of the California Fish and Game Code include ephemeral, intermittent, and perennial stream channels, as well as lakes, including dry lakes or playas. Therefore, the feature mapped within the review area meets the definition of a CDFW regulated resource.

5.4 National Wetland Inventory

The USFWS National Wetland Inventory depicts a riverine feature, as well as a freshwater pond, as occurring within the review area (USFWS 2021) (Figure 3). The USGS National Hydrography Dataset depicts an unnamed ephemeral flowline occurring within the review area (USGS 2021) (Figure 3). The feature mapped during the delineation generally occurs within the same location as the features identified by the USFWS and USGS. However, portions of the feature are interrupted by roads and thus are not mapped contiguously as is shown in the National Wetland Inventory.

6 Results and Conclusions

Based on the jurisdictional delineation and review of relevant information provided in this Aquatic Resources Delineation Report, the 0.86 acres of non-wetland waters mapped within the review area are not subject to USACE jurisdiction due to the lack of connectivity to a traditional navigable water.

Those same 0.86 acres of non-wetland waters/streambed are regulated by both RWQCB and CDFW. This report can be used by those agencies to determine if they would regulate the features described herein. The geographic information system (GIS) data for the delineation are provided in Attachment E (digital only).

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7 References Cited

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. Prepared for U.S. Fish and Wildlife Service. December 1979. Reprinted 1992. http://www.fws.gov/wetlands/documents/classification-of-wetlands-and-deepwater-habitats-of-the-united-states.pdf.

NOAA (National Oceanic and Atmospheric Administration). 2021. Climate Division scale Palmer Drought Severity Index (PDSI) dataset.

SWRCB (State Water Resources Control Board). 2019. State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2, 2019; revised April 6, 2021. https://www.waterboards.ca.gov/press_room/press_releases/2021/procedures.pdf.

USACE (U.S. Army Corps of Engineers). 1987. Corps of Engineers Wetlands Delineation Manual. Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf.

USACE. 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046489.pdf.

USACE. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual. ERDC/CRREL TR-08-12. Prepared by R.W. Lichvar and S.M. McColley. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. August 2008. https://apps.dtic.mil/dtic/tr/fulltext/u2/a486603.pdf.

USACE. 2017. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. U.S. Army Corps of Engineers, Los Angeles District. March 16, 2017. https://www.spl.usace.army.mil/Portals/17/Users/251/43/2043/Final%20Delin%20report%20standards%203-16-2017.pdf?ver=2017-03-16-170513-523.

USACE. 2022a. Antecedent Precipitation Tool (APT) - v1.0.13. Accessed June 2022. https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/tag/v1.0.13.

USACE. 2022b. Cowardin Codes for ORM Data Entry. Accessed June 2022. https://www.spa.usace.army.mil/Portals/16/docs/civilworks/regulatory/Bulk%20Upload/Bulk%20Data%20Cowardin.pdf.

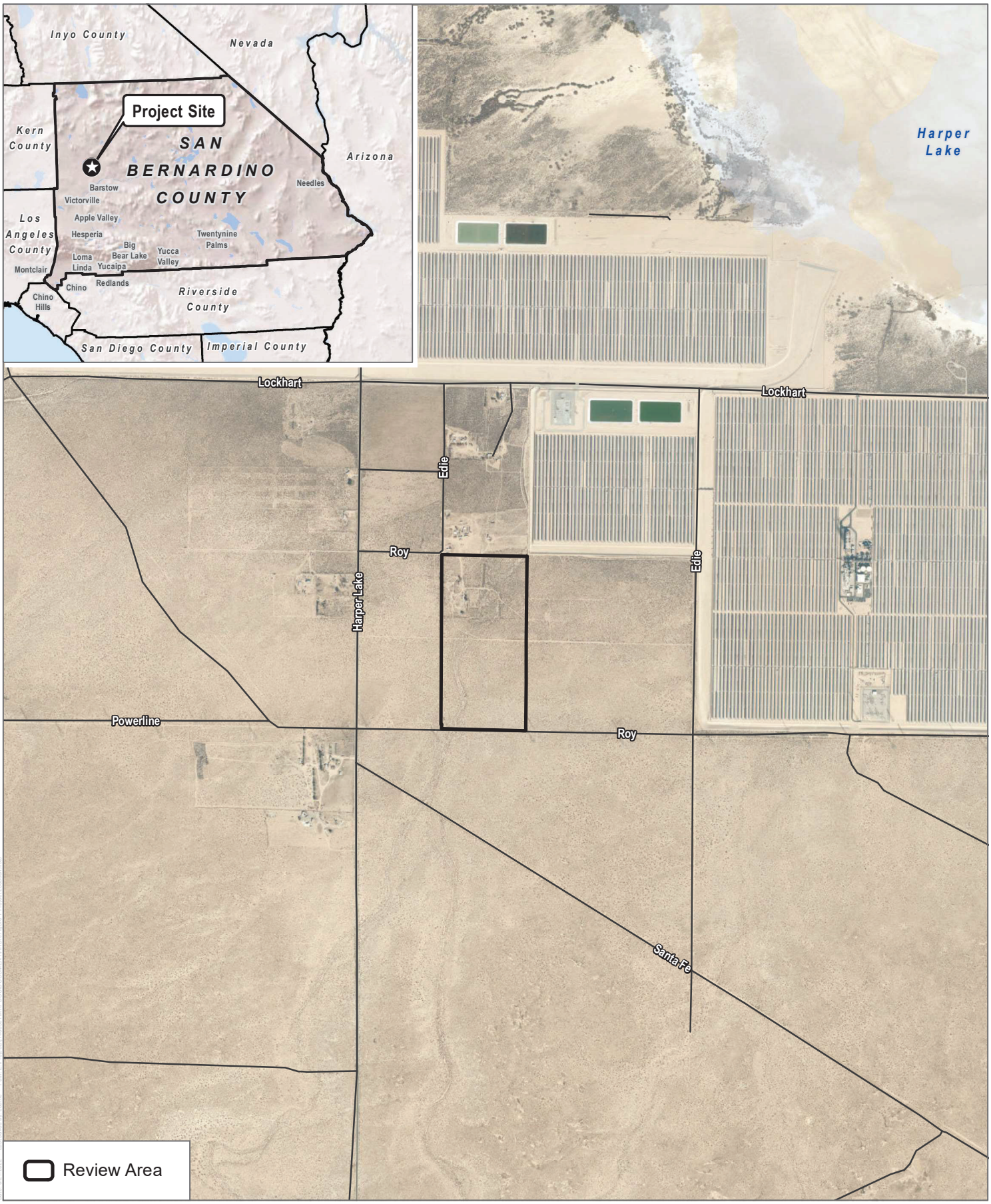
USDA (U.S. Department of Agriculture). 2022a. Web Soil Survey. USDA, Natural Resources Conservation Service, Web Soil Survey Staff. Accessed April 2022. http://websoilsurvey.nrcs.usda.gov/.

USDA. 2022b. "State Soil Data Access (SDA) Hydric Soils List." Accessed June 2022. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1389479.html#reportref.

USDA. 2022c. Agricultural Applied Climate Information System (AgACIS). http://agacis.rcc-acis.org/.

USFWS (U.S. Fish and Wildlife Service). 2021. "National Wetland Inventory" [map]. Accessed October 2021. http://www.fws.gov/data.

USGS (U.S. Geological Survey). 2021. "National Hydrography Dataset" [digital GIS data]. Accessed August 2021. http://nhd.usgs.gov/.



SOURCE: ESRI Imagery 2022, County of San Bernardino 2021

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Aquatic Resource Delineation Report for the Juniper Energy Project

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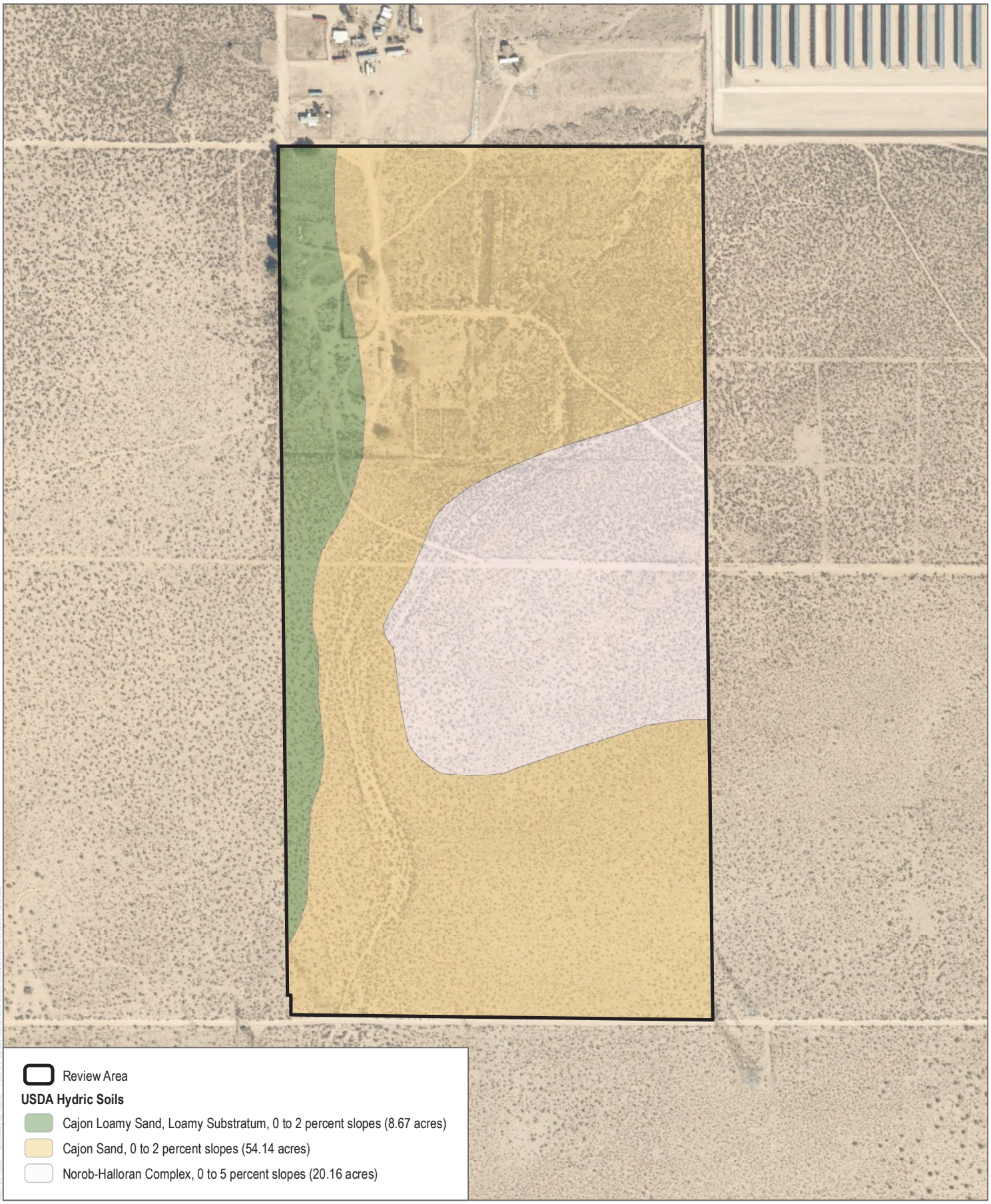

SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

DUDEK

0 250 500 Feet

FIGURE 2

Soils

Aquatic Resource Delineation Report for the Juniper Energy Project

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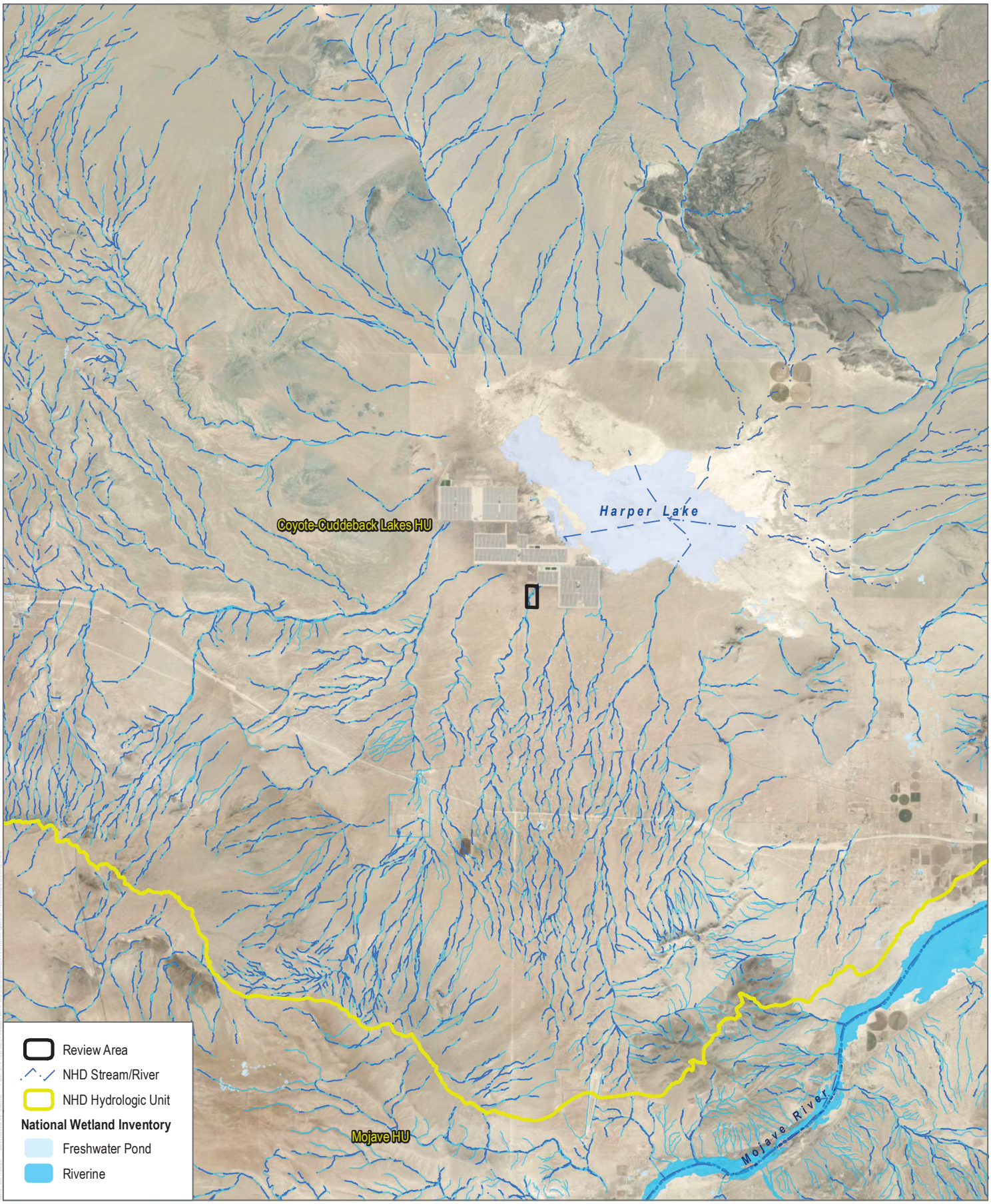

SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

DUDEK

0 2.5 5 Miles

FIGURE 3

Hyrdrologic Setting

Aquatic Resource Delineation Report for the Juniper Energy Project

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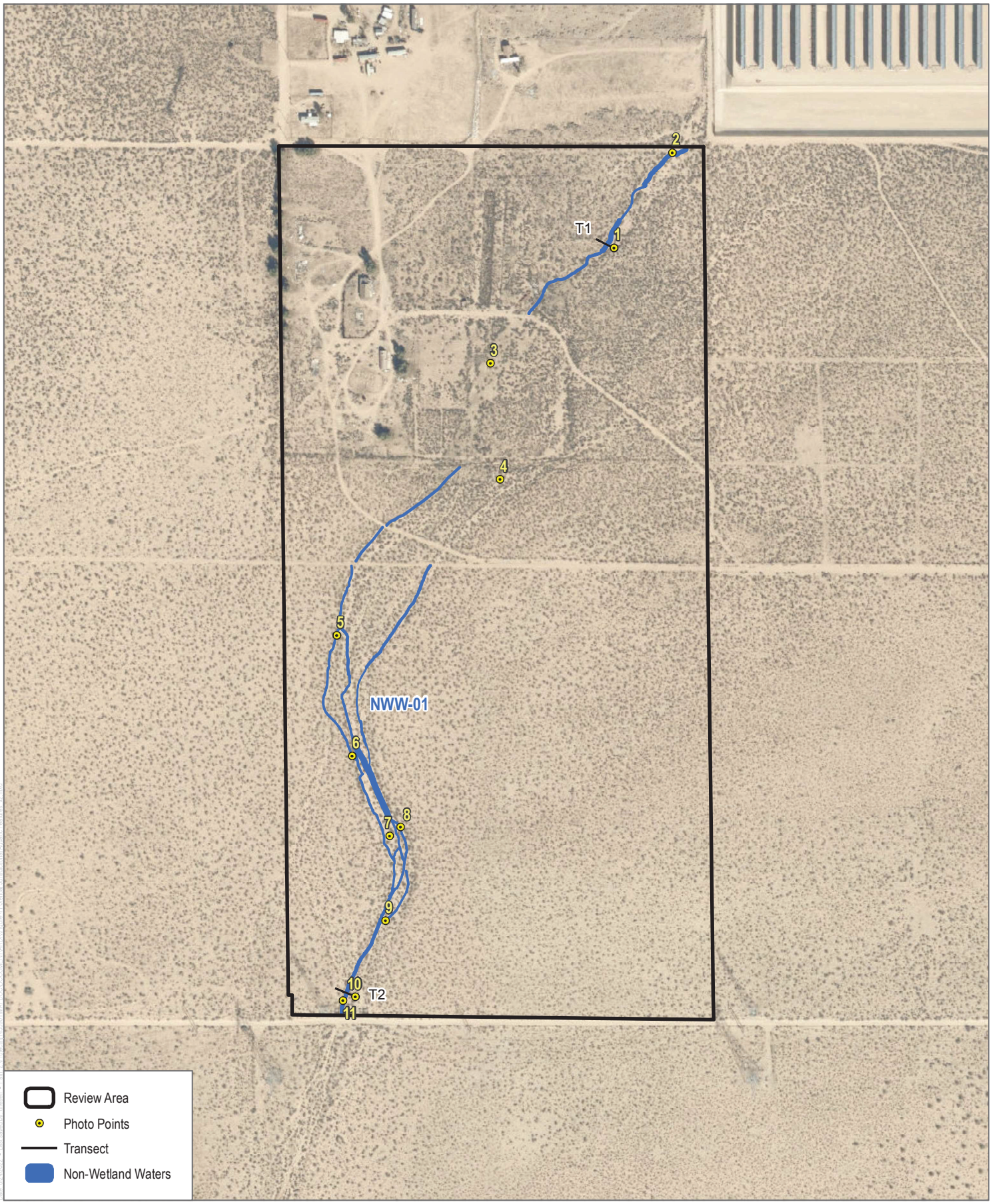

SOURCE: ESRI Imagery 2022, County of San Bernardino 2021, USGS 2021, USFWS 2021, USDA 2008

DUDEK

0 250 500 Feet

FIGURE 4

Potential Jurisdictional Aquatic Feature

Aquatic Resource Delineation Report for the Juniper Energy Project

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Attachment A

Rapanos Approved Jurisdictional Delineation Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: CA County/parish/borough: San Bernardino County City: Hinkley
Center coordinates of site (lat/long in degree decimal format): Lat. 34°59'58.71"° **N**, Long. 117°19'25.20"° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: San Timoteo Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 801.61
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): April 7, 2022

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Not Applicable.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **The non-wetland waters mapped within the review area are not subject to USACE jurisdiction due to the lack of connectivity to a traditional navigable water**.

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☒ Non-wetland waters (i.e., rivers, streams): **0.86 acres, 4,810** linear feet, **3-18** width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: .
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: USGS El Casco 7.5' Topographic Quadrangle Map.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA 2019.
☒ National wetlands inventory map(s). Cite name:USFWS NWI 2019.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):Refer to Figure 3 in Appendix A of ARDR.
or ☒ Other (Name & Date):Refer to Appendix C in ARDR.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

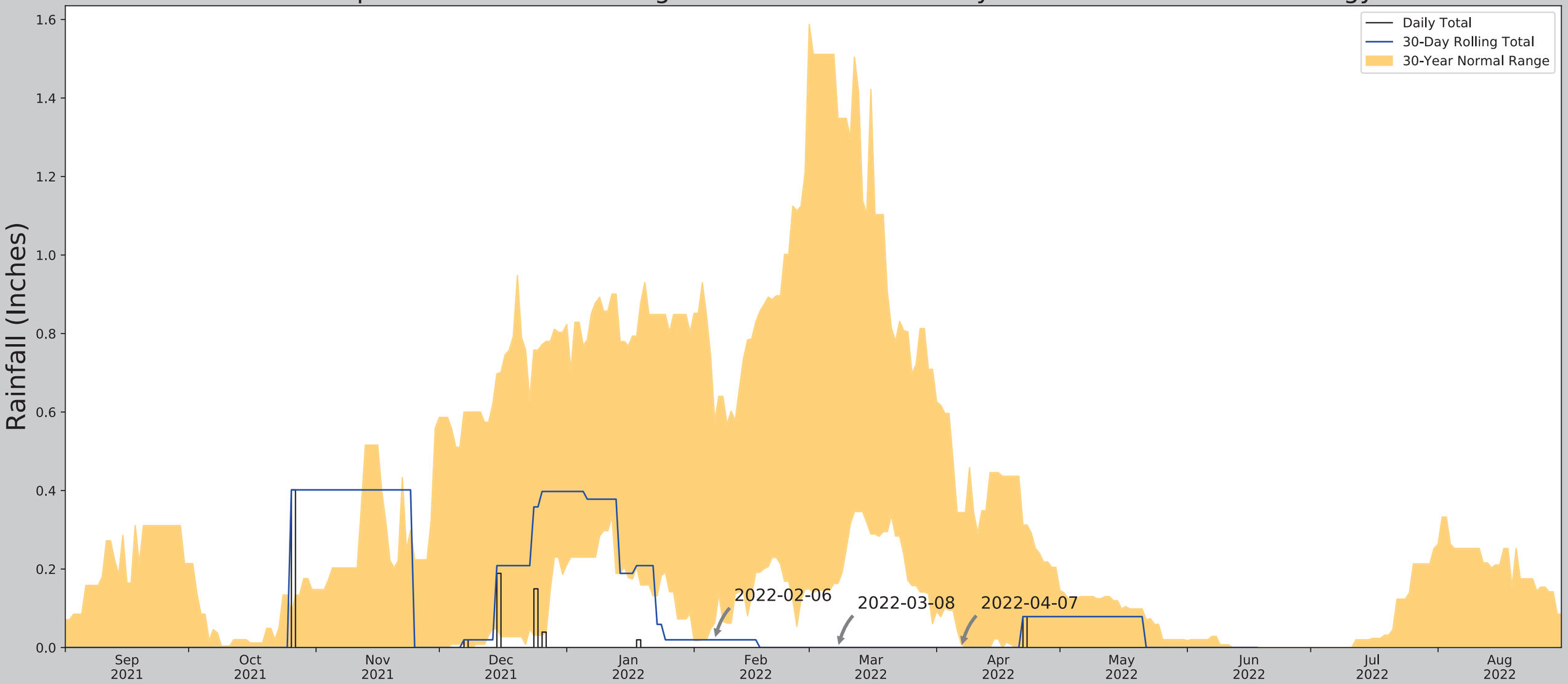
B. ADDITIONAL COMMENTS TO SUPPORT JD:
A system of braided ephemeral channels flows from the southwest corner to the northeast corner across the review area carrying surface flows. The braided channels dissipate (i.e., lose OHWM indictors) within the middle of the review area where there is a former residence, and dissipate off site prior to reaching Harper Lake (i.e., surface flow may be blocked by an existing solar facility). The mapped features carry

surface flows across the site from south to north toward Harper Lake, which is a dry lakebed or playa (Figure 3). However, the existing Lockhart solar facility may prevent surface flow from reaching Harper Lake. Ephemeral channels within the project site likely dissipate, evaporate or infiltrate into the groundwater basin, or may continue to flow to Harper Dry Lake during larger storm events. The Harper Valley is considered a closed basin and functions as an isolated intrastate watershed system lacking the presence of a traditional navigable water. Therefore, the review area does not contain any streams, wetland waters, or other waters that are subject to federal jurisdiction under Section 404 of the Clean Water Act.

Attachment B

Antecedent Precipitation Tool Output

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.999642, -117.323667
Observation Date	2022-04-07
Elevation (ft)	2099.32
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-07	0.008268	0.343701	0.0	Dry	1	3	3
2022-03-08	0.163386	1.348032	0.0	Dry	1	2	2
2022-02-06	0.062205	0.576378	0.019685	Dry	1	1	1
Result							Drier than Normal - 6

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

BARSTOW 3.0 W	34.88, -117.118	2229.003	14.284	129.683	8.28	303	0
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	18.102	70.628	9.424	572	23
BARSTOW	34.8928, -117.0219	2220.144	18.617	120.824	10.627	10231	66
EDWARDS AFB NORTH AUX FLD	34.9883, -117.8647	2283.137	30.634	183.817	19.416	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	32.097	182.325	20.296	246	1

Attachment C

Data Sheets

T-01

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Hinkley
Project Number:
Stream: NWN-01
Investigator(s): Anna Cassady

Date: 4/7/2022
Town:
Photo begin file#:

Time:
State:
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

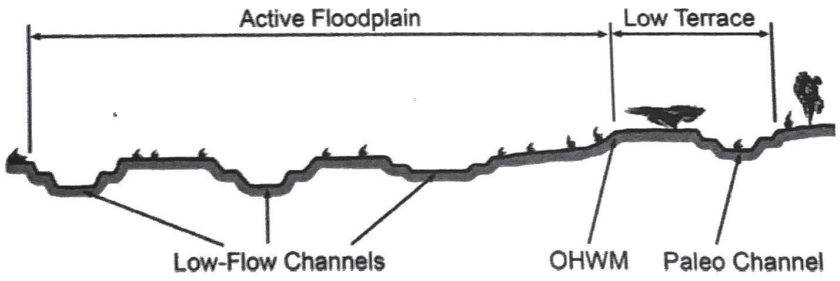
Potential anthropogenic influences on the channel system: [redacted]. Misc dirt roads and debris throughout system.

Brief site description: Salt bush scrub in relatively flat topography

Checklist of resources (if available):

- ☑ Aerial photography
  - Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

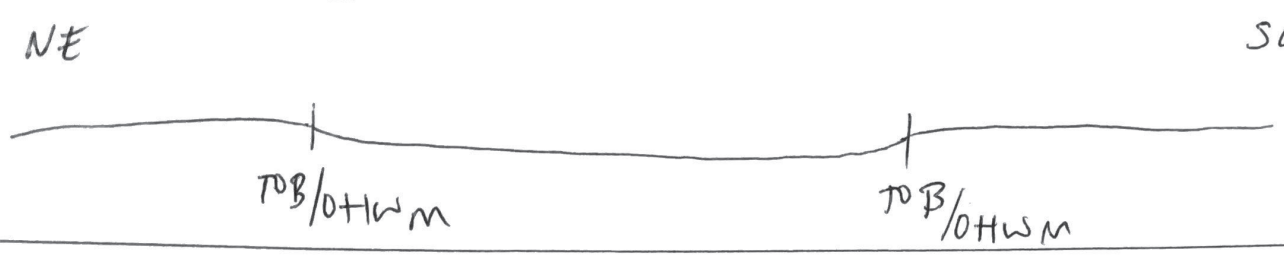


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ☑ GPS
   - ☐ Other:

oject ID: Cross section ID: T-01 Date: 4-7-22 Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [ ] Break in bank slope
- [x] Other: wracking
- [ ] Other: _____

Comments:

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 0 % Tree: 0 % Shrub: 2 % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [x] Surface relief
- [x] Other: change in sediment texture
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM indicators intermittently present throughout drainage. Potentially from an impediment in flow caused by the solar site to the north.

T-02

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Hinkley **Project Number:** **Stream:** **Investigator(s):** Anna Cassady	**Date:** **Town:** **Photo begin file#:**	**Time:** **State:** **Photo end file#:**
Y ☑ / N ☐ Do normal circumstances exist on the site?	**Location Details:**	
Y ☐ / N ☑ Is the site significantly disturbed?	**Projection:** **Datum:** **Coordinates:**	

Potential anthropogenic influences on the channel system:

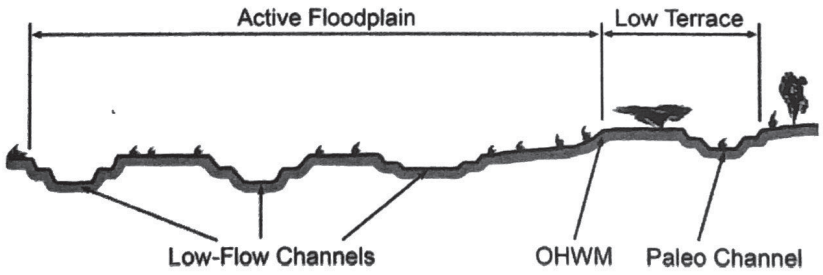
Misc dirt roads

Brief site description: Saltbush scrub in flat topography

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

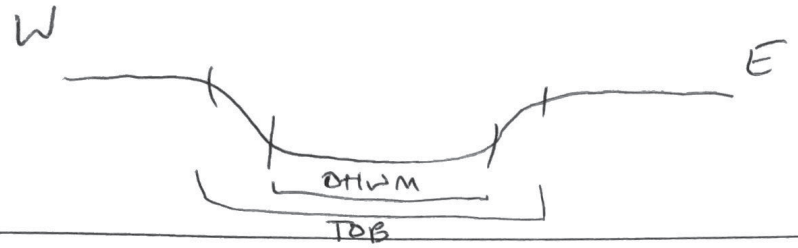


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☑ GPS
   - ☐ Digitized on computer
   - ☐ Other:

ect ID: Cross section ID: T-02 Date: Time:

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: wracking
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 5 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [x] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Attachment D

Review Area Photos

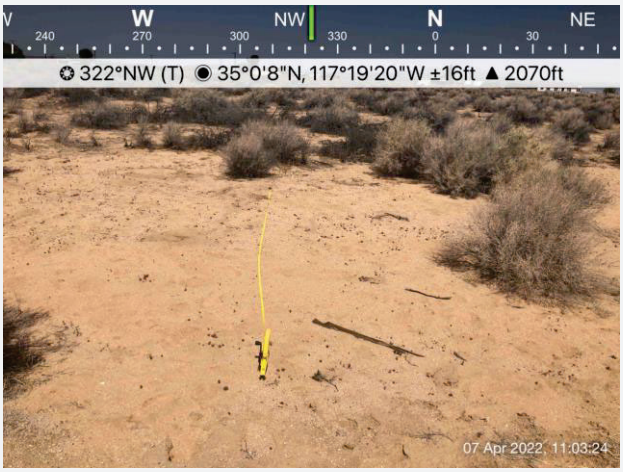


Photo 1. Transcect 1, facing northwest.

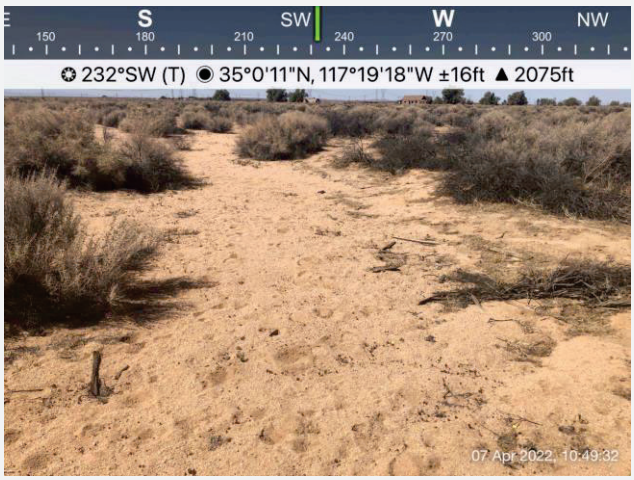


Photo 2. Northern boundary of review area, facing southwest.

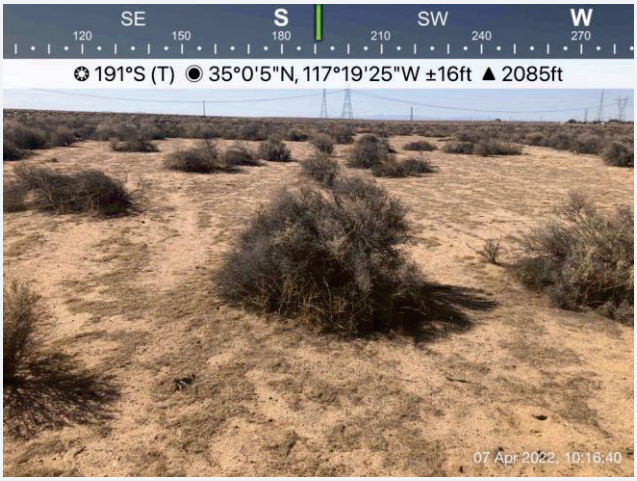


Photo 3. Review area with no OHWM indicators.

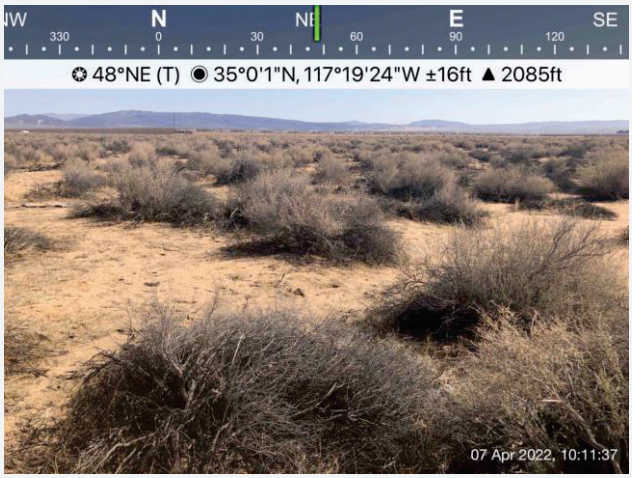


Photo 4. Review area with no OHWM indicators.

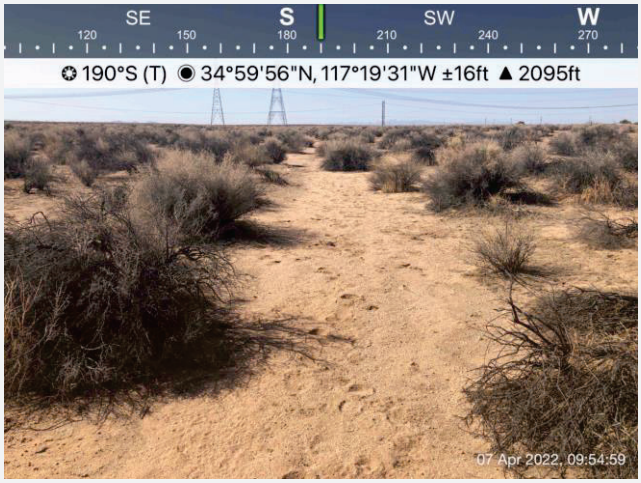


Photo 5. NWW-1, facing south.

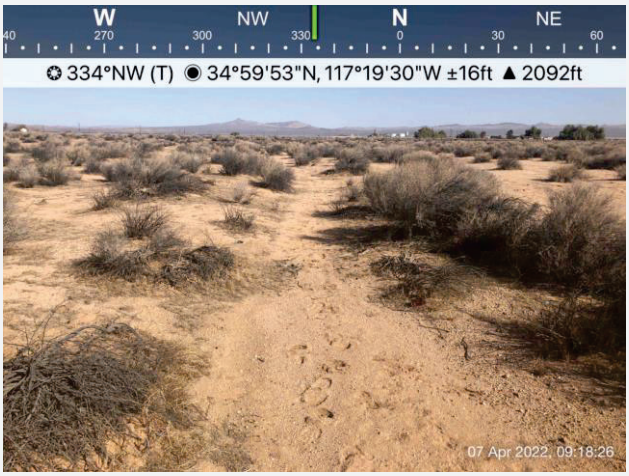


Photo 6. NWW-1, facing northwest.

Photo 7. NWW-1, facing north.

Photo 8. NWW-1, facing south.

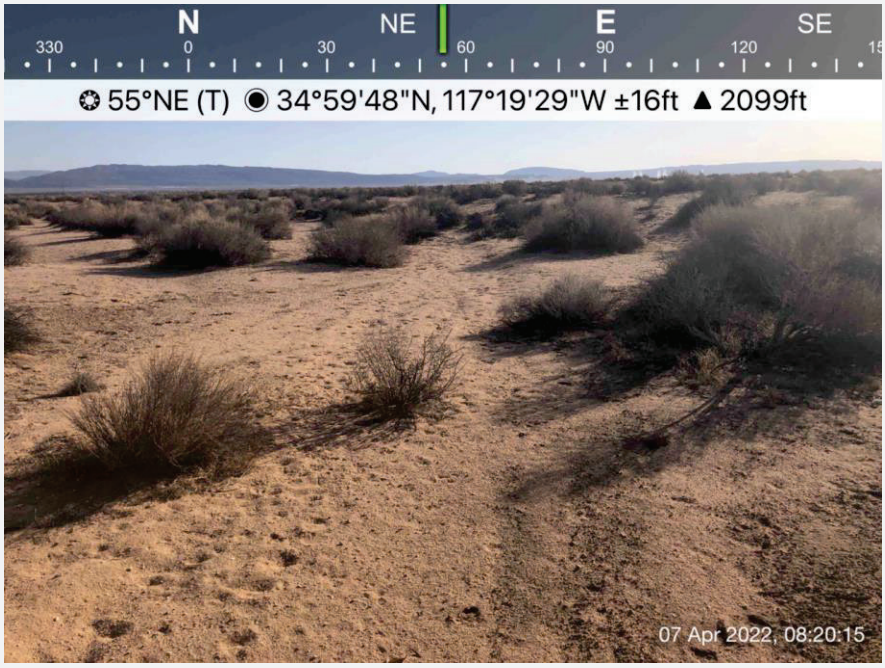


Photo 9. NWW-1, facing northeast.

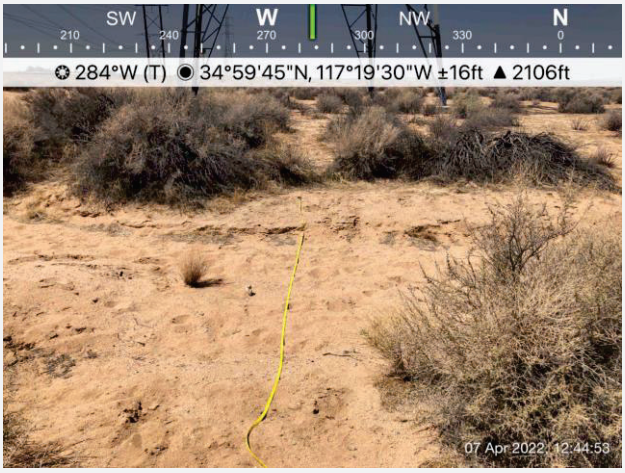


Photo 10. Transect 2, facing west.

Photo 11. Southern boundary of review area, facing north.

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Attachment E

Digital Data (provided via Email)

Appendix D

Special-Status Plant Species Observed or Potentially Occurring within the Project Site

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Canbya candida	white pygmy-poppy	None/None/4.2	Joshua tree "woodland," Mojavean desert scrub, Pinyon and juniper woodland; Granitic, Gravelly, Sandy/annual herb/Mar–June/1,965–4,790	Low potential to occur. Species not observed during rare plant survey.
Chorizanthe spinosa	Mojave spineflower	None/None/4.2	Chenopod scrub, Joshua tree "woodland," Mojavean desert scrub, Playas; Alkaline (sometimes)/annual herb/Mar–July/20–4,265	Low potential to occur. Species not observed during rare plant survey.
Cymopterus deserticola	desert cymopterus	None/None/1B.2	Joshua tree "woodland," Mojavean desert scrub; Sandy/perennial herb/Mar–May/2,065–4,920	Low potential to occur. Species not observed during rare plant survey.
Diplacus mohavensis	Mojave monkeyflower	None/None/1B.2	Joshua tree "woodland," Mojavean desert scrub; Gravelly (sometimes), Sandy (sometimes), Washes (often)/annual herb/Apr–June/1,965–3,935	Low potential to occur. Species not observed during rare plant survey.
Eriophyllum mohavense	Barstow woolly sunflower	None/None/1B.2	Chenopod scrub, Mojavean desert scrub, Playas/annual herb/Mar–May/1,640–3,145	Low potential to occur. Species not observed during rare plant survey.
Lycium torreyi	Torrey's box-thorn	None/None/4.2	Mojavean desert scrub, Sonoran desert scrub; Rocky, Sandy, Streambanks, Washes/perennial shrub/(Jan–Feb)Mar–June(Sep–Nov)/-,165–4,000	Low potential to occur. Species not observed during rare plant survey.
Mentzelia tridentata	creamy blazing star	None/None/1B.3	Mojavean desert scrub; Gravelly, Rocky, Sandy/annual herb/Mar–May/2,295–3,850	Not expected to occur. The site is outside of the species' known elevation range.
Muilla coronata	crowned muilla	None/None/4.2	Chenopod scrub, Joshua tree "woodland," Mojavean desert scrub, Pinyon and juniper woodland/perennial bulbiferous herb/Mar–Apr(May)/2,195–6,430	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Pediomelum castoreum	Beaver Dam breadroot	None/None/1B.2	Joshua tree "woodland," Mojavean desert scrub/perennial herb/Apr–May/2,000–5,000	Low potential to occur. Species not observed during rare plant survey.
Sclerocactus polyancistrus	Mojave fish-hook cactus	None/None/4.2	Great Basin scrub, Joshua tree "woodland," Mojavean desert scrub/perennial stem/Apr–July/2,095–7,610	Low potential to occur. Species not observed during rare plant survey.
Yucca brevifolia	western Joshua tree	None/SC/CBR	Great Basin grassland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland, Sonoran desert scrub, Valley and foothill grassland/perennial leaf succulent/Apr–May/ 1,310–6,560	Not expected to occur. Perennial species not observed during rare plant survey. Additionally, site occurs outside of CDFW Distribution for this species.

Appendix E

Special-Status Wildlife Species Observed or Potentially Occurring within the Project Site

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. Suitable aquatic habitat is not present on the project site or in the vicinity.
Reptiles				
Gopherus agassizii	Mojave desert tortoise	FT/ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Not expected to occur. There are local, recent records of the species within the project vicinity; however, no sign or suitable burrows were observed during the 2022 protocol-level survey.
Uma scoparia	Mohave fringe-toed lizard	None/SSC	Loose wind-blown sand dunes, flats with sandy hummocks, washes, and banks of rivers	Not expected to occur. Suitable habitat is not present on the project site or in the vicinity.
Birds				
Aquila chrysaetos (nesting & wintering)	golden eagle	None/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur (nesting and wintering). Suitable nesting habitat is not present on the project site or in the vicinity; however, the species may forage in the area.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Moderate potential to occur. There are local, recent records of the species and suitable habitat is present; however, no sign of the species was observed during the initial survey or during the desert tortoise surveys.
Charadrius alexandrinus nivosus (nesting)	western snowy plover	FT/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur (nesting). Suitable habitat is not present on the project site or in the vicinity.
Charadrius montanus (wintering)	mountain plover	None/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Not expected to occur (wintering). Suitable aquatic habitat is not present on the project site or in the vicinity.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Suitable habitat is not present on the project site or in the vicinity.
Falco mexicanus (nesting)	prairie falcon	None/WL	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Not expected to occur (nesting). Suitable nesting habitat is not present on the project site or in the vicinity; however, the species may forage in the area.
Lanius ludovicianus (nesting)	loggerhead shrike	None/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Low potential to occur. Limited suitable habitat within the site and species was not observed during the habitat assessment.
Rallus obsoletus yumanensis	Yuma Ridgway's rail	FE/FP, ST	Freshwater marsh dominated by Typha spp., Scirpus spp., Schoenoplectus spp., and Bolboschoenus spp.; mix of riparian tree and shrub species along the marsh edge; many occupied areas are now man-made, such as managed ponds or effluent-supported marshes	Not expected to occur. Suitable habitat is not present in the project site.
Toxostoma lecontei	LeConte's thrasher	None/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Observed within the site during the initial survey in April 2022 and during the desert tortoise survey in September 2022.This species has high potential to nest within the on-site desert scrub habitat.
Fishes				
Siphateles bicolor mohavensis	Mohave tui chub	FE/FP, SE	Lacustrine ponds or pools; 4 feet min water depth; freshwater flow; mineralized and alkaline environment; habitat for aquatic invertebrate prey and egg attachment substrate; Ruppia maritima preferred for egg attachment and thermal refuge in summer months	Not expected to occur. Suitable aquatic habitat is not present on the project site or in the vicinity.
Mammals				
Lasionycteris noctivagans	silver-haired bat	None/None	Old-growth forest, maternity roosts in trees, large snags 50 feet aboveground; hibernates in hollow trees, rock crevices, buildings, mines, caves, and under sloughing bark; forages in or near coniferous or mixed deciduous forest, stream or river drainages	Not expected to occur. Suitable habitat is not present in the project site.
Microtus californicus mohavensis	Mojave river vole	None/SSC	Wet, weedy, herbaceous areas along the Mojave River	Not expected to occur. Suitable habitat is not present in the project site.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Spermophilus (Xerospermophilus) mohavensis	Mohave ground squirrel	None/ST	Desert scrub habitats including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub	Moderate potential to occur. There are local, recent records of the species and suitable habitat is present; however, no small burrows were observed during the initial survey.
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Moderate potential to occur. There are local, recent records of the species; however, no suitable badger burrows were observed during the desert tortoise surveys.
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/None	Open grassland and scrub communities supporting suitable floral resources.	Low potential to occur. Limited floral resources occur within the site.
Bombus occidentalis	western bumble bee	None/None	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease	Not expected to occur. Suitable habitat is not present in the project site.