Aquatic Resources Delineation

High Desert Solar Project

Victorville, San Bernardino County, California

Prepared For:

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December 7, 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

BESS	Battery energy storage system
BLM	Bureau of Land Management
BMPs	Best Management Practices
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Delineation Area
FAC	Facultative
FACW	Facultative wetland
FEMA	Federal Emergency Management Agency
FR	Federal Register
Gen-Tie	Generation-Tie Line
HUC	Hydrologic Unit Code
I-	Interstate
MESA	Mapping Episodic Stream Activity
MW	Megawatt
MWac?	Megawatt
NOAA	National Oceanic and Atmospheric Administration's
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
OHV	Off-highway vehicle
OHWM	Ordinary high-water mark"
Project	High Desert Solar Project
PV	Photovoltaic
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCE	Southern California Electric
SCLA	Southern California Logistics Airport
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Waters"
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
VMUS	Victorville Municipal Utility Services
VVWRA	Victor Valley Wastewater Reclamation Authority

1.0 INTRODUCTION

HDSI, LLC proposes construction and operation of a photovoltaic (PV) solar power plant and Generation-Tie Line (Gen-Tie) in the Victor Valley, within the City of Victorville, San Bernardino County, California. In support of the environmental review process for the project, ECORP Consulting, Inc. (ECORP) conducted an aquatic resources delineation within all of the project features, cumulatively considered as the Delineation Area (DA) for this report. The DA is based on the requirements to construct the proposed solar array and Gen-Tie, as well as the long-term, permanent footprint of the facility. The DA is larger than that encompassed by the proposed project footprint on purpose to show context for the drainages crossing project features. This report discusses context of the DA within publicly recorded wetland data, mapped watersheds, and soil mapping and provides the results of a field delineation within the DA completed by ECORP in 2018.

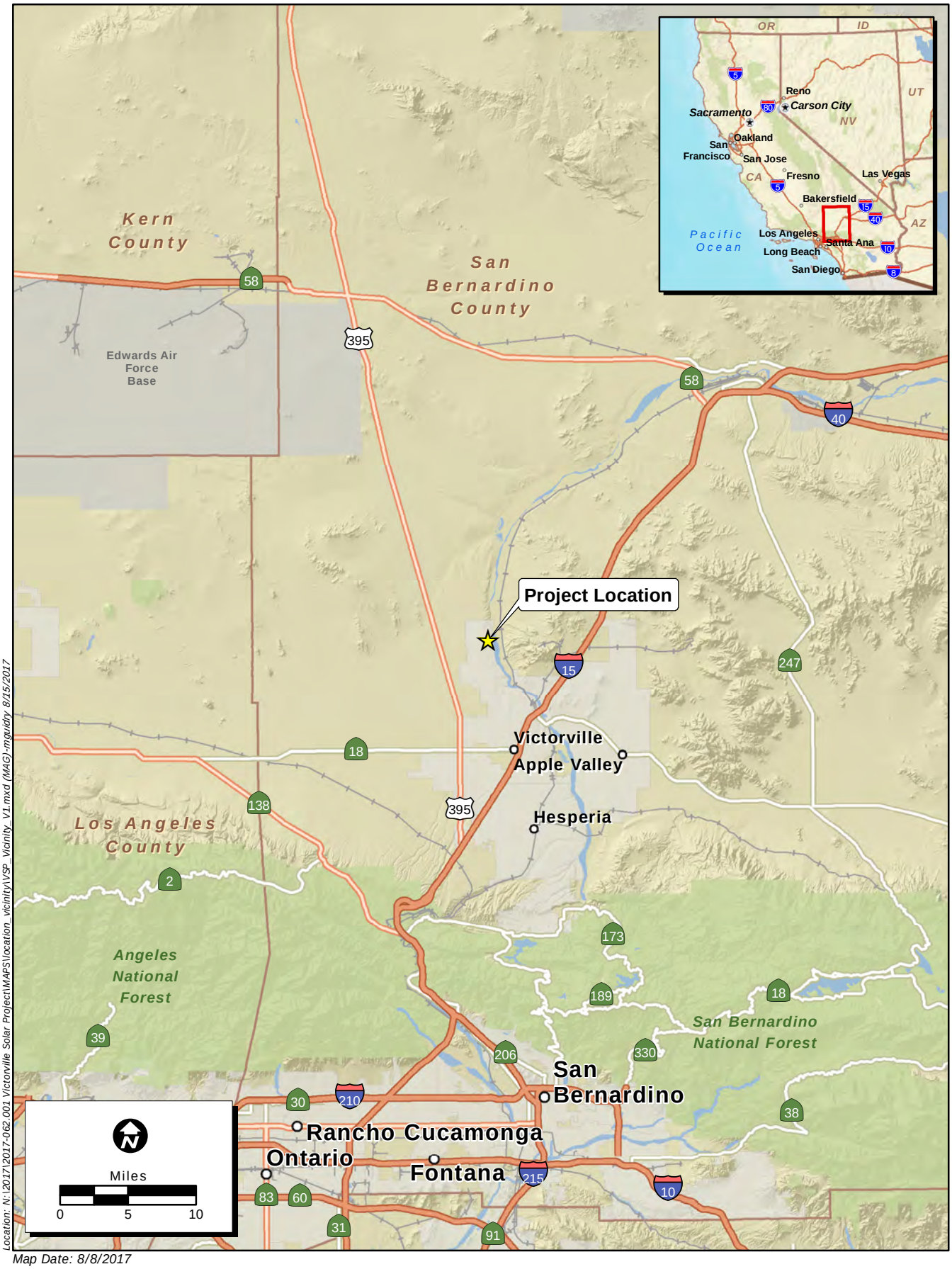
This report conforms to standards for describing potential jurisdictional waters identified within the site that may be regulated by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA), State Water Resources Control Board (SWRCB) pursuant to Section 401 of the federal CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. A Glossary of Terms used in this report can be found in Appendix A.

The information presented in this report provides data required by the USACE Los Angeles District's Minimum Standards for Acceptance of Aquatic Resources Delineations (USACE 2017). The potential Waters of the U.S. boundaries depicted in this report represent a calculated estimation of the jurisdictional area within the site, and are subject to modification following the USACE verification process. Limits of SWRCB jurisdiction generally follow those of the USACE. CDFW jurisdictional limits are slightly broader than USACE jurisdiction, to correspond to the broader definition of jurisdiction of the state.

1.1 Project Location

The Project is located in the northern portion of the City of Victorville immediately north of the Southern California Logistics Airport (SCLA) and approximately three miles north of the existing High Desert Power Plant. The DA is generally bounded by Desert Flower Road to the north, the Mojave River to the east and Helendale Road to the south and west (Figure 1. *Project Vicinity*; Figure 2. *Project Location*). The Project corresponds to Sections 2, 11, 13, 14 and 16, of Township 6 North, Range 5 West (San Bernardino Base and Meridian) of the U.S. Geological Survey (USGS) 7.5-minute "Helendale", "Victorville" and "Victorville NW" topographic quadrangles (USGS 2015).

The approximate center of the site is located at 34° 37 49.59" North and 117° 22' 11.94" West within the Bell Mountain Wash-Mojave River Watershed (Hydrologic Unit Code [HUC] 1809020807, USGS 1978) and within the Town of La Delta-Mojave River (HUC 180902080905, USGS 1978), South Lake-Fremont Wash (HUC 180902080603, USGS 1978) and Burkhardt Lake-Mojave River (HUC 180902080707, USGS 1978) subwatersheds.



Map Date: 8/8/2017
Service Layer Credits: Sources: USGS, ESRI, TANA, AND

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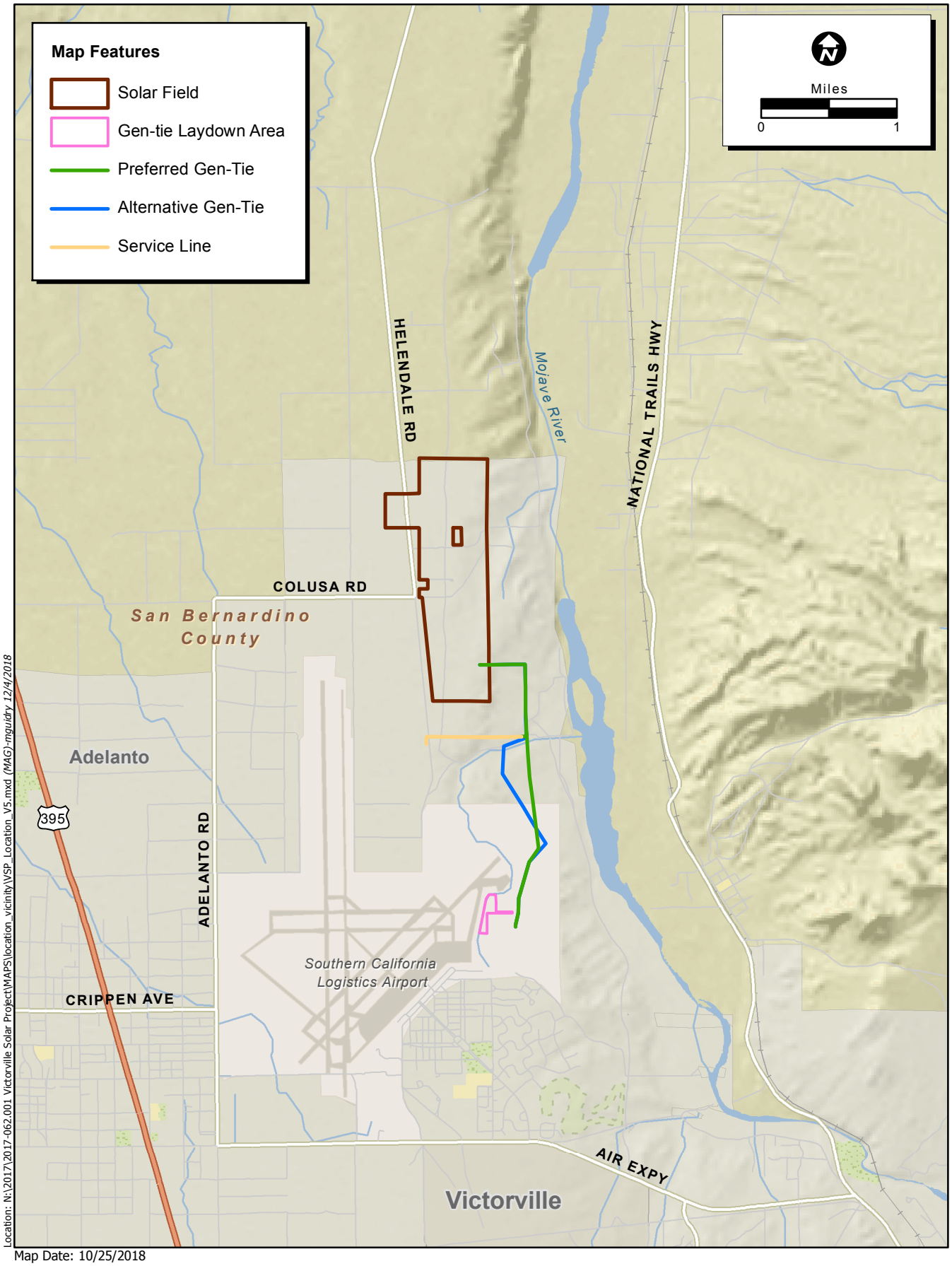
Figure 1. Project Vicinity

2017-062 High Desert Solar Project



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Map Date: 10/25/2018
Source: ESRI

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Figure 2. Project Location

2017-062 Victorville Solar Project

The Project is accessible from Los Angeles by driving east on Interstate (I-) 10, north on I-15 and north on U.S. Route 395. Turn right on Colusa Road and continue east for approximately 3.1 miles until arriving at the intersection of Colusa Road and Helendale Road. The Project is to the northeast and southeast of the intersection (Appendix B, *Directions to the Site*).

1.2 Project Description

The High Desert Solar Project (HDSP or Project) will be a nominal 108 megawatt (MWac) solar photovoltaic (PV) power facility and related substation with an integrated battery energy storage system (BESS), located in the City of Victorville, San Bernardino County, California. The HDSP will provide renewable energy and critically needed flexibility attributes needed to advance California's Renewable Portfolio Standard (RPS) goals, climate policies, and to enhance electrical grid reliability.

The Project will be developed on a total of approximately 614 acres (project site) consisting of an approximately 579 acre solar PV field, BESS, substation, and balance of system, collectively referred to as the **Solar Field Area**, and an approximately 35 acre corridor consisting of a 2.3 mile 230kV Gen-Tie line that will run east and then south in a defined and studied corridor to connect to the existing Victor-Caldwell 230kV line, upstream of the first pole on the Southern California Edison system. Additionally, a 1.7 mile 12.47kV service line will connect to the Victorville Municipal Utility Services (VMUS) system. This line will run as underbuilt with the 230kV line for the first mile and then diverge to the west and run on standard distribution utility poles to connect to VMUS at the Victorville Industrial Wastewater Treatment Facility south of the Solar Field Area. The Gen-Tie line and service line are collectively referred to as the **Interconnection Facilities**. The Interconnection Facilities will be located within linear corridors, 120 feet and 40 feet wide respectively, covering a total area of approximately 35 acres of which only a small portion will actually be disturbed.

An approximately 11-acre Gen-Tie Laydown Area has also been designated within the confines of the SCLA on a disturbed parcel of land. The laydown area is located adjacent to the High Desert Power Plant and near the southern end of the Gen-Tie line.

2.0 REGULATORY SETTING

2.1 Waters of the United States

This report describes potential Waters of the U.S., including wetlands that may be regulated by the USACE under Section 404 of the CWA.

2.1.1 Wetlands

Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

2.1.2 Other Waters

Other waters are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high-water mark" (OHWM). The OHWM is defined as the "*line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*" [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. The bank-to-bank extent of the channel that contains the water-flow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

2.2 Federal Clean Water Act

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to:

- placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction;
- site-development fills for recreational, industrial, commercial, residential, and other uses;
- causeways or road fills; and
- fill for intake and outfall pipes, and subaqueous utility lines [33 C.F.R. §328.2(f)].

In addition, Section 401 of the CWA (33 U.S. Code [USC] 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. Under Section 401 of the CWA, the SWRCB regulates any "surface water or groundwater, including saline waters, within the boundaries of the state." Where areas jurisdictional to the SWRCB and Waters of the U.S. are present, and will be impacted by a project, the project proponent must apply for a Water Quality Certification under Section 401 of the CWA with the RWQCB office that oversees the DA (Lahontan Region).

Substantial impacts to wetlands, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect wetlands (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits.

2.3 Jurisdictional Assessment

The Clean Water Rule (CWR) was published in June 2015, but implementation of the rule was stayed until September 2018. It is currently (2018) in effect for 22 states, including California, the District of Columbia,

and the U.S. territories. The CWR establishes categories of waters that are jurisdictional, waters that are excluded, and waters that require a case-specific significant nexus evaluation to determine if they are Waters of the U.S. By rule, the CWR defines Waters of the U.S. to include TNWs, interstate waters, and territorial seas, impoundments of jurisdictional waters, and tributaries and adjacent (i.e. bordering, contiguous, or neighboring) waters to TNW, interstate waters, or territorial seas (USACE and USEPA 2015).

According to the CWR, neighboring is defined as waters located within 100 feet of the OHWM of a jurisdictional feature, within the 100-year floodplain of a jurisdictional feature and within 1,500 feet of the feature, or within 1,500 feet of the high tide line of a TNW, interstate water, or territorial sea. Western vernal pools in California and several other location-specific aquatic feature types are evaluated on a case-by-case basis to determine whether they have a significant nexus to TNWs, interstate waters, or territorial seas (USACE and USEPA 2017).

Feature types that are categorically excluded from CWA jurisdiction include waste treatment systems, prior converted cropland, ditches with intermittent or ephemeral flow that are not relocated tributaries or excavated in a tributary, ditches that do not flow, directly or indirectly, into a jurisdictional water, artificially irrigated areas that would revert to dry land in the absence of irrigation, artificial, constructed lakes or ponds created by excavating and/or diking dry land, small ornamental waters, artificial reflecting or swimming pools created by excavating and/or diking dry land, water-filled depressions created in dry land incidental to mining or construction activities, erosional features such as gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways, and puddles (USACE and USEPA 2017).

2.4 Porter Cologne Water Quality Control Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" [Water Code 13260(a)].

2.4.1 Waters of the State

Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" [Water Code 13050 (e)]. The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.5 Section 1600 of the California Fish and Game Code

Under Section 1600 of the California Fish and Game Code, the CDFW regulates projects that propose to (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, (2) use material from the streambeds designated by the department, or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake designated by the department. If an existing fish or wildlife resource may be substantially adversely affected by that construction, CDFW shall notify the governmental agency or public utility of the existence of the fish or wildlife resource together with a description thereof and shall propose reasonable modifications in the proposed construction that will allow for the protection and continuance of the fish or wildlife resource, including procedures to review the operation of those protective measures.

It should be noted that within the California Code of Regulations, a streambed is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life." (Title 14, § 1.72). The definition further states "This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (ibid.). This definition does not supersede or replace the definition within Section 1600, but rather is additive to it.

Projects that affect the CDFW jurisdictional areas must submit a Notification of Lake or Streambed Alteration to their local office of the CDFW for processing. CDFW reviews the proposed actions and, if necessary, submits proposed measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed upon by CDFW and the Applicant is the Streambed Alteration Agreement (SAA). Projects that require a SAA often also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA overlap.

3.0 METHODS

This Aquatic Resources Delineation within the DA was conducted in accordance with regulations set forth in 33 CFR Part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (online edition), "Wetlands Delineation Manual," Environmental Laboratory, 1987 (Wetland Manual).
- USACE "Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest," 2001 (Arid Southwest Guidelines).
- USACE "Minimum Standards for Acceptance of Preliminary Wetlands Delineations," November 30, 2001 (Minimum Standards).
- USACE "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)," September 2008 (Arid West Supplement).

- USACE "Jurisdictional Determination Form Instructional Guidebook," May 30, 2007 (JD Form Guidebook).
- USACE and USEPA guidance (2007) and draft guidance on jurisdictional delineations (2011).

The biologists walked the entire DA and Gen-Tie alignment to determine the location and extent of potential jurisdictional Waters within the DA. They also searched the watershed and followed the channels upstream and downstream to determine flow-through paths and upstream flow contributions. The total area of jurisdiction was recorded in the field using a post-processing capable global positioning system device with sub-meter accuracy (Trimble GeoXT). See below for details concerning each respective agency methodology.

3.1 USACE Routine Determinations for Wetlands

This jurisdictional delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement) (USACE 2008a). The OHWM boundaries of potential Waters of the U.S. were delineated through aerial photograph interpretation and standard field methods (e.g. paired sample set analyses). Limits of the OHWM were recorded to the nearest foot, using GPS as well as aerial photographic interpretation.

The field surveys were conducted on January 25, 26 and 31, February 22, June 27, and August 20, 2018. A field meeting was held with the USFWS and CDFW on July 11, 2018, wherein additional information was gathered. Additional surveys were conducted on October 10, 2018 and November 26, 2018.

Field data regarding wetlands were recorded on Wetland Determination Data Forms – Arid West Region. A color aerial photograph (1"=300' scale, NAIP 2016) was used to assist with mapping and ground-truthing. *Munsell Soil Color Charts* (Munsell 2015) and the Web Soil Survey (Natural Resources Conservation Service [NRCS] 2018b) were used to aid in identifying hydric soils in the field. The Jepson Manual, 2nd Edition (Baldwin et al. 2012) was used for plant nomenclature and identification. In addition, the National Wetlands Inventory (NWI) (United States Fish and Wildlife Service [USFWS] 2017) was queried for previously mapped features on-site.

Where appropriate, paired sampling point locations were sampled to evaluate whether or not the vegetation, hydrology, and soils data supported a determination of wetland or non-wetland status. At each paired location, one point was located such that it was within the estimated wetland area, and the other point was situated outside the limits of the estimated wetland area. To be determined a wetland, the following three criteria must be met:

- A majority of dominant vegetation species are wetland-associated species;
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season; and
- Hydric soils are present.

3.1.1 Vegetation

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). The definition of wetlands includes the phrase "a prevalence of vegetation typically adapted for life in saturated soil conditions." Prevalent vegetation is characterized by the dominant plant species comprising the plant community (Environmental Laboratory 1987). The dominance test is the basic hydrophytic vegetation indicator and is applied at any sampling point location taken. The "50/20 rule" is used to select the dominant plant species from each stratum of the community. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of coverage and cumulatively totaled) that immediately exceed 50 percent of the total coverage for the stratum, plus any additional species that individually comprise 20 percent or more of the total cover in the stratum (HQUSACE 1992, USACE 2008a).

Dominant plant species observed at each sampling point are then classified according to their indicator status (probability of occurrence in wetlands) (Table 1), *North American Digital Flora: National Wetland Plant List* (Lichvar et al. 2016). If the majority (greater than 50 percent) of the dominant vegetation on a site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), the site is considered to be dominated by hydrophytic vegetation.

Table 1. Classification of Wetland-Associated Plant Species[1]

Plant Species Classification	Abbreviation	Probability of Occurring in Wetland
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands
Upland	UPL	Almost never occur in wetlands
Plants That Are Not Listed (assumed upland species)	N/L	Does not occur in wetlands in any region.

[1]Source: Lichvar et al. 2016

In instances where indicators of hydric soil and wetland hydrology are present, but the plant community fails the dominance test, the vegetation is re-evaluated using the Prevalence Index. The Prevalence Index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and weighting is by abundance (percent cover). If the plant community fails the Prevalence Index, the presence/absence of plant morphological adaptations to prolonged inundation or saturation in the root zone is evaluated.

3.1.2 Soils

A hydric soil is defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2018a). Indicators that a hydric soil is present include, but are not limited to, histosols, histic epipedon, hydrogen sulfide, depleted below dark surface, sandy redox, loamy gleyed matrix, depleted matrix, redox dark surface, redox depressions, and vernal pools.

At each sampling point a soil pit is excavated to the depth needed to document an indicator, to confirm the absence of indicators, or until refusal at each sampling point. The soil is then examined for hydric soil indicators. Soil colors are determined while the soil is moist using the *Munsell Soil Color Charts* (Munsell 2015). Hydric soils are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. These processes and the features in the soil that develop can be identified by looking at the color and texture of the soils.

3.1.3 Hydrology

Wetlands, by definition, are seasonally or perennially inundated or saturated at or near (within 12 inches of) the soil surface. Primary indicators of wetland hydrology include, but are not limited to: visual observation of saturated soils, visual observation of inundation, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, oxidized rhizospheres along living roots, aquatic invertebrates, water marks (secondary indicator in riverine environments), drift lines (secondary indicator in riverine environments), and sediment deposits (secondary indicator in riverine environments). The occurrence of one primary indicator is sufficient to conclude that wetland hydrology is present. If no primary indicators are observed, two or more secondary indicators are required to conclude wetland hydrology is present. Secondary indicators include, but are not limited to: drainage patterns, crayfish burrows, FAC-neutral test, and shallow aquitard. The occurrence of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

3.2 Ordinary High-Water Mark/Non-Wetland Waters

The discussion in this section briefly summarizes *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). OHWM indicators commonly found in the Arid West include a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the present of litter and debris. Resources needed to delineate OHWM include aerial photography and other imagery, topographic maps and other maps (e.g. geological, soil, vegetation), rainfall data, stream gage data, and existing delineations (if present). Field identification of the OHWM includes noting general impression of the vegetation species and distribution, geomorphic features present, surrounding upland land use and hydrologic alterations, and in-stream and floodplain structures. In the field, the process of delineating the OHWM includes the identification of a low-flow channel (if present), a transition to an active floodplain, and an active floodplain through the presence of geomorphic features (e.g. presence of an active floodplain, benches, break in bank slope, staining of rocks, litter or drift) and vegetation indicators (e.g. presence of

sparse/low vegetation, annual herbs, hydromesic ruderals, pioneer tree seedlings and saplings, xeroriparian species).

3.3 SWRCB Jurisdiction

The SWRCB does not publish a delineation method for identifying their jurisdictional limits, but in general their jurisdictional limits are identified. Section 401 identifies jurisdictional limits as any "surface water or groundwater, including saline waters, within the boundaries of the state." For the purposes of this delineation, the limits of SWRCB jurisdiction generally follow those of the USACE jurisdiction under Section 404. But based on the Porter-Cologne Water Quality Control Act where beneficial uses are designated or derived from areas outside of USACE jurisdiction additional areas, such as CDFW jurisdictional areas, may be mapped as well.

3.4 CDFW Jurisdiction

The delineation of CDFW jurisdiction follows the guidance and definitions contained within Section 1600 of the California Fish and Game Code, which connotes jurisdiction as a "river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." Delineators also used *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010), which is a science based technical reference on dryland stream forms and processes, and MESA – Mapping Episodic Stream Activity (Vyverberg and Brady 2013) to aid in determining the CDFW jurisdictional limits for the delineation. MESA is intended to assist in identification and mapping of episodic streams when water has perhaps been absent for several years.

Based the aforementioned guidance and experience, the limits of CDFW jurisdiction were mapped where there appeared to be regular surface flow that met a broad definition of stream or lake, based on physical and vegetative characteristics. CDFW jurisdiction may include jurisdictional habitat (riparian habitat), functionally related swales, first-order streams (Strahler 1952), single-thread channels, compound channels, braided channels, discontinuous and distributary channels, drainage networks, and floodplains. CDFW streambed widths were mapped to the nearest foot along each channel.

3.5 Weather Conditions During Survey

Weather conditions for the surveys were ideal, with clear to mildly cloudy skies, wind from 0 to 10 miles per hour, and temperatures ranging from 50 to 80 degrees Fahrenheit.

3.6 Limitations of the Survey

Limitations of the survey included:

- Due to the remoteness of the site and other factors, GPS accuracy was greater than one meter at times.
- Vegetation communities were dense in some locations, making ground conditions difficult to see. Especially where cactus species were prevalent.

4.0 ENVIRONMENTAL SETTING

4.1 Land Uses

The DA is almost entirely composed of undeveloped lands with a few scattered residences located in the general vicinity. Undeveloped lands are located to the east, west, north and south of the DA. The SCLA, constituting former George Air Force Base, is located to the south-southwest of the DA and west of the Gen-Tie line. The Bureau of Land Management owns one of the parcels just west of the Gen-Tie line. Victor Valley Wastewater Reclamation Authority (VVWRA) owns a portion of developed land surrounding the northern parts of the Gen-Tie line. Other parcels surrounding the Project area are privately owned.

The DA and surrounding undeveloped areas include the following upland land cover types: creosote bush scrub and allscale scrub. Vegetation within creosote bush scrub is dominated by native species including creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*) and four-wing saltbush (*Atriplex canescens*). Onsite vegetation within allscale scrub is dominated by native species including allscale (*Atriplex polycarpa*). The DA lacks wetland or riparian vegetation cover.

The solar array site itself is highly disturbed with remnants of former residences, evidence of trash dumping throughout much of the area, and a network of dirt roads. Vegetation is less disturbed within the Gen-Tie (both alternatives) and Service Line portions of the DA.

There is little to no vegetation present within the proposed Gen-Tie Laydown Area, except for weedy and non-native plant species. The few native species that exist are scattered and isolated from other, larger plant communities.

4.2 Topography

The DA is located within generally flat terrain in the northwest portion and the majority of the solar array site. In the eastern and southeastern portions of the array site, the topography moderately slopes toward the Mojave River. The topography is more varied within the Gen-Tie line, with several dendritic canyons sloping from west - east toward the Mojave River, and consolidating into small gullies and canyons, plus one larger gully. The Gen-Tie also traverses the graded and leveled VVWRA facility. The proposed laydown area is very flat, having been graded previously.

The entire Project is situated at an elevational range of approximately 2,660 - 2,790 feet above mean sea level in the Mojave Desert Subregion of the California Floristic Province Region of California (Baldwin et. al. 2012).

4.3 Hydrology

4.3.1 Watersheds

The DA is located within the Mojave River Watershed (HUC 18090208), encompassing 276 square miles within San Bernardino County, with the main waterbody of the watershed being the Mojave River. The Mojave River's headwaters are located in the San Bernardino Mountains, south of the City of Hesperia,

and the river flows in a mostly northerly direction to terminate near Baker, California. The main impoundment along the river's length is at Silverwood Lake, a reservoir created in 1971 as a part of the State Water Project that is currently managed for recreation and water supply. The river flows 26 miles from the Cedar Springs Dam (Silverwood Lake) in a northerly direction before passing to the east of the DA through a natural canyon. Major tributaries to the Mojave River near the DA include largely unnamed desert washes. All of the drainages in the DA flow in a west - east direction towards the Mojave River,

The subwatersheds present within the DA include the Town of La Delta-Mojave River (HUC 180902080707, USGS 1978), South Lake-Fremont Wash (HUC 180902080603, USGS 1978) and Burkhardt Lake-Mojave River (HUC 180902080706, USGS 1978) subwatersheds (Figure 3. *Watersheds*). All three of these subwatersheds share a connection with the Mojave River. The solar array is within the Town of La Delta-Mojave River and South Lake-Fremont Wash subwatersheds while the Gen-Tie and Service Lines are within the Town of La Delta-Mojave River and Burkhardt Lake-Mojave River subwatersheds.

4.3.2 National Wetlands Inventory

According to the NWI, there are two features mapped on the DA (Figure 4. *National Wetlands Inventory*). Both features also show up on USGS topographic mapping. Both features are classified as R4SBJ, based on the Cowardin Classification System (Cowardin et. al 1979). The R4SBJ classification is a code given to riverine systems that are intermittent (R4), contain a streambed (SB), and are intermittently flooded (J).

Evidence for the northern NWI feature, crossing the southeast corner of the solar array site, was not observed during the survey. However, one small ephemeral pond was observed along the alignment of the NWI feature. Based on reviewing historical aerial photographs (1952, 1968, 1994, 2005, 2009, 2010, and 2012) there is no apparent channel within this location. However most of the USGS topographic maps reviewed (1957, 1966, 1969, 1975, 1993, 2012, and 2015) show the feature. Because evidence was absent during the field visit and in aerial photographs, our delineation does not include a stream at this location.

The southern NWI feature was observed during the survey and was determined to be an active stream channel, corresponding closely to the R4SBJ classification.

4.3.3 Preliminary Drainage Study

A drainage study for the High Desert Solar Project was completed in 2017 and revised in 2018 (Burns and McDonnell 2018) for the purpose of describing and documenting drainage management for the Project. For the hydrologic analysis, the site was divided into 12 separate subareas based on topographical features such as flowlines, ridges, and post-developed roads. Rainfall data for the site was collected through the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service – Precipitation Frequency Data Server.

According to this document, the increase in total combined peak flow and runoff volume between pre- and post- development conditions for the proposed High Desert Solar Project site for the 100-year, 24-hour design storm event were estimated at 42.6 cubic feet per second. For the preliminary grading and drainage design, retention areas and basins were designed to maintain the pre-developed flow rates, volumes, locations, and characteristics leaving the site in order to avoid adverse impacts downstream.

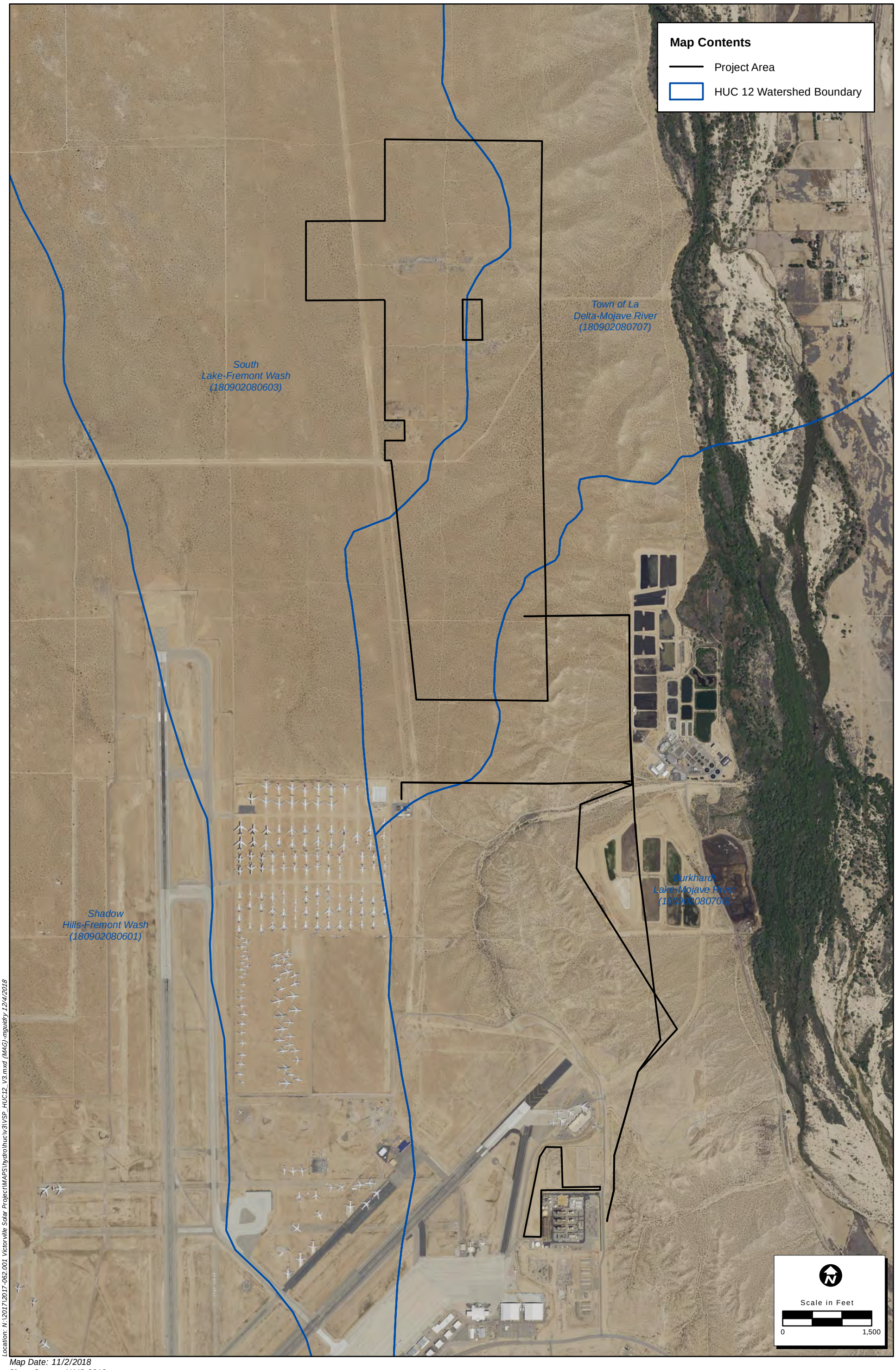

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Photo Source: NAIP 2016

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Figure 3. Watersheds

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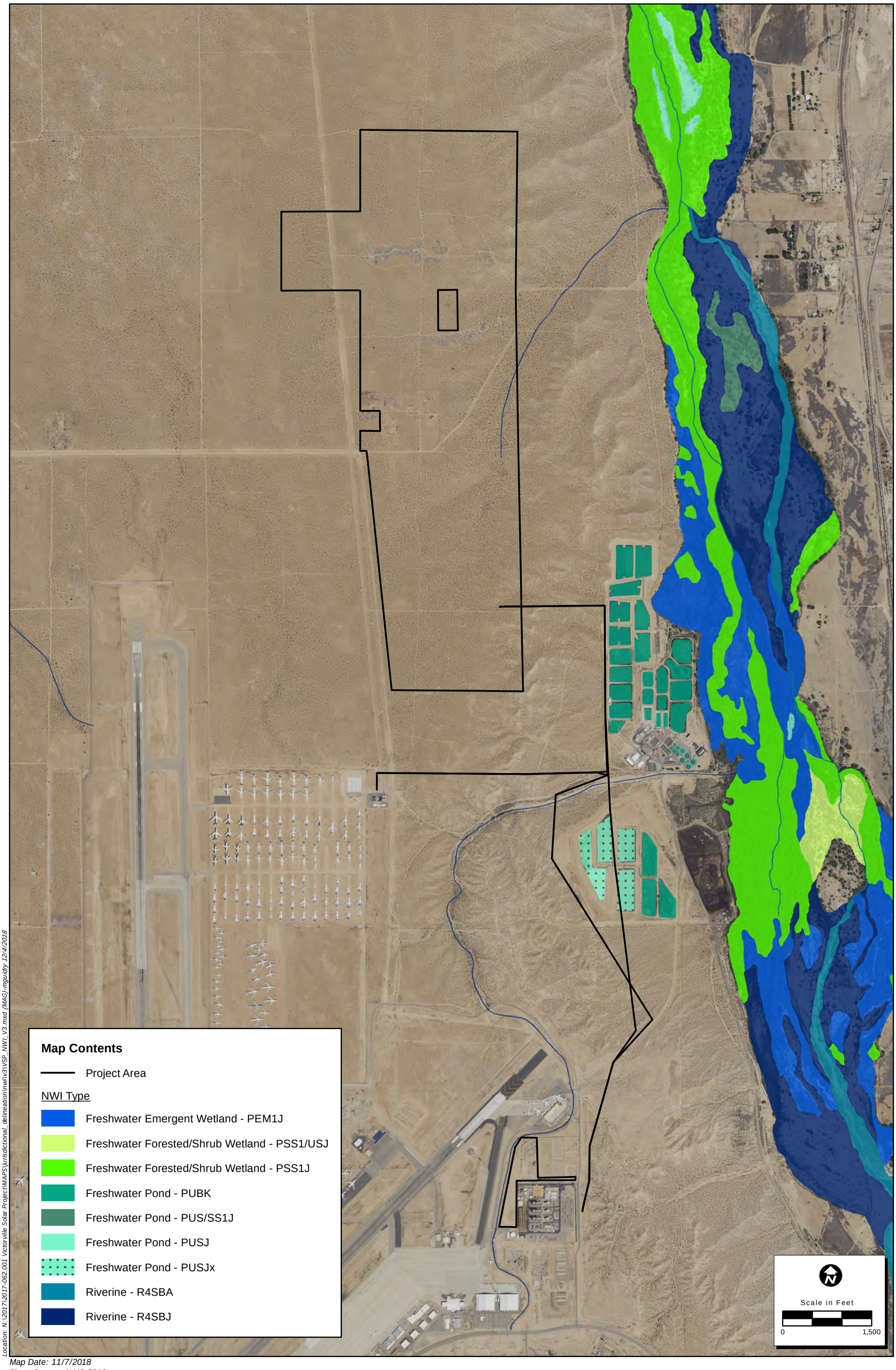

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Map Date: 11/7/2018
Photo Source: NAIP 2016

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Figure 4. National Wetlands Inventory

2017-062 Victorville Solar Project

The total retention on site is approximately 40 acre-feet. Riprap would also be employed at outfall locations to protect them from erosion. According to the document, grading will be minimized and existing drainage patterns on the site will be kept as close as possible to their existing conditions. Erosion potential seems within practical tolerances. However, the study recommended that full design consider cost-effective erosion control devices such as riprap and, to attenuate the relatively small increases in runoff, portions of the internal drives will be elevated to create retention areas; and storm water basins will be implemented downstream at the subarea outlets along the site perimeter. The proposed drainage controlling facilities within the solar array are to require future maintenance to ensure their functionality.

4.3.4 FEMA Mapping

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Number 06071C5150J covers the area of the site. The effective date of this map is August 28, 2008, and was last revised on September 2, 2016. The entire DA falls within Zone X, which is an area of minimal flood hazard that is defined as "determined to be outside the 0.2 percent annual chance floodplain." Zone X is not regulated by FEMA or the local floodplain administrator.

4.4 Soils

According to the Web Soil Survey (NRCS 2018b), six soil units, or types, have been mapped within the DA (Figure 5. *Natural Resources Conservation Service Soil Types*): Bryman Loamy Fine Sand, 0 to 2 percent slopes (105), Bryman Loamy Fine Sand, 2 to 5 percent slopes (106), Cajon Sand, 0 to 2 percent slopes (112), Cajon Sand, 2 to 9 percent slopes (113), Cajon Sand, 9 to 15 percent slopes (114), Haplargids – Calciorthids Complex, 15 to 50 percent slopes (130), and Mohave Variant Loamy Sand, 0 to 2 percent slopes (150).

- Bryman series consists of well drained soils that include soils that have formed in alluvium from granitic sources. Soils are formed on terraces and older alluvial fans and soil color is a pale brown to reddish brown.
- Cajon series consists of somewhat excessively drained soils that have formed in sandy alluvium from granitic rocks. Soils are formed in alluvial fans, fan aprons, fan skirts, inset fans and river terraces and soil color is a light gray to pale brown.
- Haplargids-Calciorthids series consists of well drained soils that have formed in alluvium from granitic sources. Soils are formed on fan remnants, backslope and side slope.
- Mohave series consists of well drained soils that have formed in mixed alluvium. Soils are formed in on fan terraces, basin floors and stream terraces and soil color is a light yellowish brown to brown.

None of the mapped soil series are considered hydric or conducive to flooding, pooling, ponding, or other water features (NRCS 2018). Although these results do not preclude the presence of unmapped microhabitats, there was no evidence of such unrecorded features in the field.

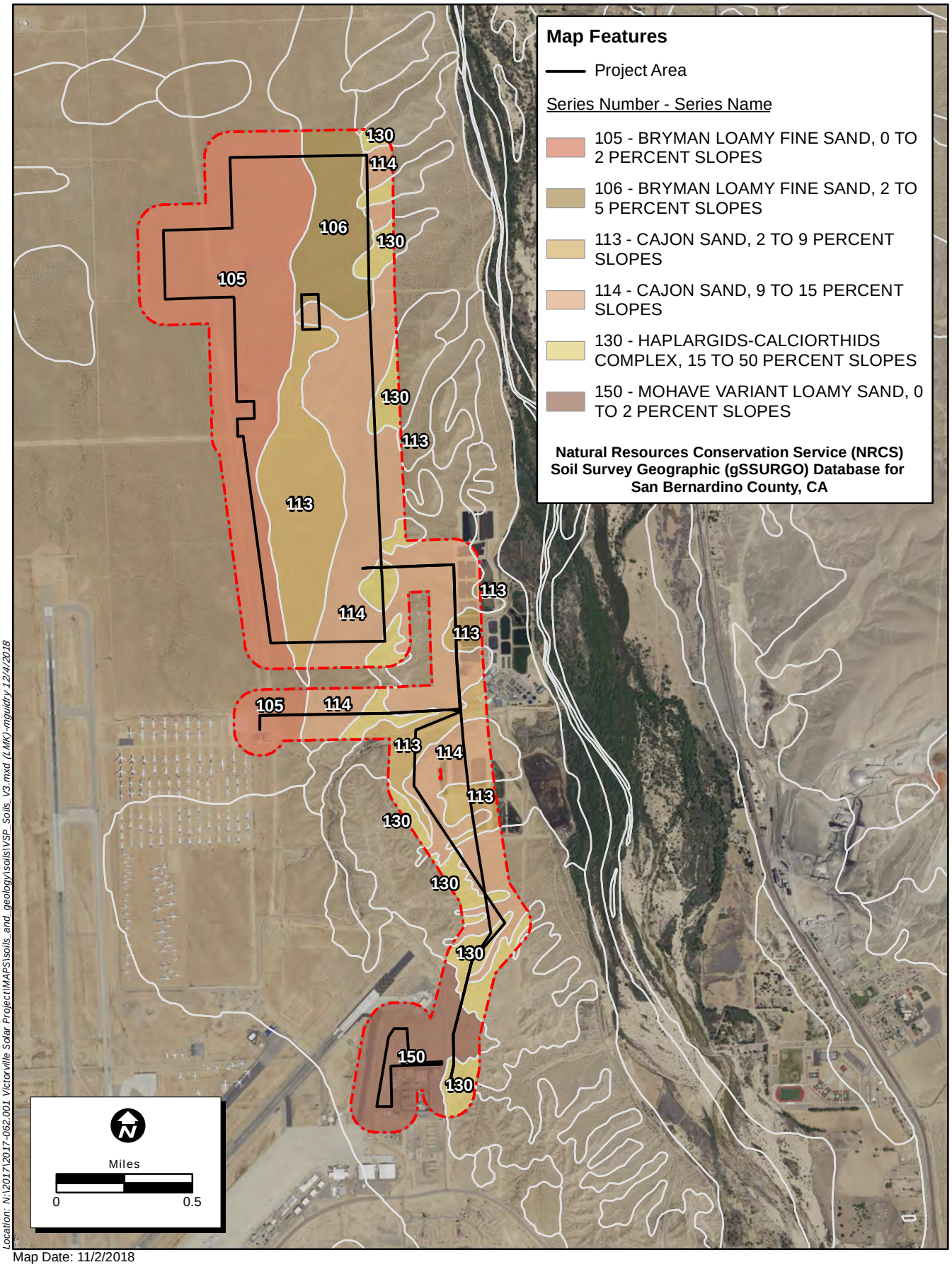

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Photo Source: NAIP 2016

Figure 5. NRCS Soils Map

4.5 Vegetation

The Project is located in the Mojave Desert region of the Desert Province in the southeastern portion of California, east of the California Floristic Province and south of the Great Basin Province (Baldwin, et al., editors. 2012). Creosote bush scrub is characteristic throughout this region. Its climates are unpredictable from year to year. The DA supports several different vegetation communities with varying levels of disturbance. Vegetation communities and other land cover types observed throughout the Project were typical of those found in the Mojave Desert: desert scrub communities, desert wash communities (vegetated and unvegetated drainages), disturbed lands, and developed areas (industrial).

Some portions of the Project boundaries are disturbed from unauthorized off-highway vehicle (OHV) use, trash dumping, and abandoned/dilapidated housing structures and remnant foundations.

Vegetation mapping was completed concurrently with the biological reconnaissance survey, using pedestrian surveys and assessments from key vantage points to characterize and map the vegetation communities and to identify any sensitive habitats within the Project boundaries. Vegetation mapping was conducted in consideration of the same protocols for the special-status plant surveys. The boundaries of the vegetation communities were drawn on field maps by hand and were then digitized into GIS to create the vegetation maps. Vegetation community type descriptions followed the designations in Sawyer et al. (2009) and Holland (1986).

Vegetation communities and land cover types identified during the biological reconnaissance survey included Mojave creosote bush scrub, which was the dominant vegetation community within the Project boundaries, along with desert saltbush scrub, Mojave Desert wash scrub, rabbitbrush scrub, disturbed land, and urban/developed land. No special-status habitats or vegetation communities were observed in the Project boundaries.

A list of plant species observed on-site is included in Appendix D.

4.6 Field Conditions

4.6.1 Seasonal Climate Variation

The DA and surrounding area are subject to both seasonal and annual variations in temperature and precipitation. Annual low temperatures occur in the winter and average in the low 50s (degrees Fahrenheit) and summer high temperatures average in the 90s (degrees Fahrenheit). Average annual precipitation is approximately 6.15 inches, which falls as rainfall (NOAA 2018a).

4.6.2 Field Conditions at the Time of Investigation

The primary delineation was conducted in the winter of 2017-2018, outside of the blooming season for many plant species. Follow up delineation work was conducted in the spring and summer of 2018. Although not all wetland plant species with potential to occur were in bloom at the time of the each survey, most plants were identifiable to species based upon at least the vegetative morphology. The survey was conducted at a preferred time of the year when conditions are wet enough to readily observe

hydrology and determine the presence of wetland hydrology and soils. A year prior to the first field survey (January 1 to 11, 2018), 4.5 inches of precipitation were recorded at the Victorville, CA reporting station (NOAA 2018a), located approximately 7.1 miles to the southeast of the main DA. The most recent significant precipitation event prior to the survey occurred between January 9 and 10, 2018 with a total of 0.69 inches of rain during that period. This was the last recorded precipitation event prior to the survey (NOAA 2018b).

5.0 JURISDICTIONAL DELINEATION RESULTS

All of the drainages within the DA flow toward the Mojave River, which is considered jurisdictional to USACE due to its navigability in portions of its reach along with its potential ties to interstate commerce. According to the Interstate Commerce Clause within the U.S Constitution, this makes the drainages on the DA that reach the Mojave River jurisdictional in nature, and thus potential Waters of the U.S. Drainages that don't reach the Mojave River, due to impoundments or barriers, are not considered to be potential Waters of the U.S., but are considered to still be under CDFW jurisdiction.

Presentation of the data follows standards recommended by the USACE for use in delineation mapping and based on previous delineations with local jurisdictions. The results are presented in two parts – the existing conditions (this section) and the project impacts (Section 6.0) discussion.

The following sections provide a discussion of jurisdictional and non-jurisdictional areas within the DA, including findings related to vegetative communities, topography, soils, hydrology, and wetlands for each of the geomorphic features.

5.1 Potential Waters of the U.S.

A total of 0.431 acre of potential Waters of the U.S. has been mapped within the DA, consisting of nearly 100 separate drainage features. No wetland Waters of the U.S. were found within the DA. For a presentation of impact calculations, refer to Table 2 below and Appendix G.

The solar array supports one natural feature that is considered a Water of the U.S. and corresponds with a mapped waterway in the NWI data. A second mapped waterway in the NWI data crosses the solar array but no Waters of the U.S. were identified along its length. Instead an isolated ephemeral pond that is considered to only be CDFW jurisdictional was the only aquatic resource found in that location (Figure 6, Sheet 1). There are other drainage features that were mapped within the solar array, but not considered to be Waters of the U.S. due to a lack of connection with the Mojave River.

In the Service line and Gen-Tie line, several Waters of the U.S. features were mapped. One Water of the U.S. feature mapped was associated within unnamed waterway that connects directly with the Mojave River as depicted on the USGS 7.5-minute "Victorville" topographic quadrangle (USGS 2015) and on NWI mapping (See Section 4.3.2). The remaining Waters of the U.S. features identified, along the Gen-Tie and Service Lines, were not located on any public record.

Within the proposed Gen Tie Laydown Area boundaries, no Waters of the U.S. were mapped.

A delineation map is presented as Figure 6. *Jurisdictional Delineation* (three separate sheets), depicting the overall project area. The northern part of the Gen-Tie Line and the Service Line support several natural features, most of which are considered to be Waters of the U.S., and are located in the eastern portions of the Project, draining towards the Mojave River or the VVWRA facility (Figure 6, Sheet 2). The southern part of the Gen-Tie Line (both alternatives) supports several natural features, most of which are considered to be Waters of the U.S., along with some developed features associated with the SCLA that also trend toward the Mojave River (Figure 6, Sheet 3). The proposed Gen-Tie Laydown Area does not support any features within its boundaries, but there are features jurisdictional to the USACE directly adjacent to the boundaries.

All delineated Waters of the U.S. features supported OHWM or other equivalent characteristics in the field. All features mapped as Waters of the U.S. either enter the Mojave River directly or enter other unnamed washes that then flow directly into the Mojave River. The Mojave River is a USACE-identified TNW, located approximately 0.5 mile east of the DA. Thus, the waters in the DA that are tributaries to the Mojave River are considered to have a significant nexus (affecting the chemical, physical, or biological integrity) with TNW and would therefore be jurisdictional to USACE.

Several ephemeral washes observed in the field do not connect directly to the Mojave River or tributaries to the Mojave River. These ephemeral washes likely contained a historic connection with the Mojave River or tributaries to the Mojave River but due to the development of the VVWRA complex to the east of the DA, these drainages are now blocked from continuing their historic flow path. These features are marked as CDFW-jurisdictional only on our mapping. These isolated, ephemeral washes do not convey sufficient waters to flood the VVWRA facility or to create alternative pathways to the Mojave River. Instead, they end along a dirt road within the VVWRA that has been bolstered by riprap and other Best Management Practices (BMPs) to collect and retain the minor flows that reach the facility. Due to the lack of rain in the area and short lengths of these five ephemeral washes, flows are not able to flow under or around the facility.

5.1.1 Wetlands

Wetlands were not identified on the DA. Hydrophytic vegetation and hydric soils were not suspected anywhere within the DA, based on observed physical characteristics of the surface soils and vegetation. Surface soils were generally sandy or silty with no high water table (A2), surface water (A1), saturation (A3) or other primary hydrology indicators of a wetland. A single secondary wetland hydrology indicator was present in the form of drainage patterns (B10) in most of the ephemeral washes, ditches and concrete-lined ditches and surface soil cracks (B6) were present in the ephemeral pond. However, the pond was considered to be isolated and clearly did not support wetland vegetation.

Of the plant species identified onsite, only mulefat (*Baccharis salicifolia*) and western sycamore (*Platanus racemosa*) had a moderate wetland indicator status (FAC) and were located within drainage features observed onsite. The status FAC indicates that these plant species can be found within a wetland up to 50 percent of the time they are seen, within the Arid West Region. Only a few individuals of both of these species were observed within the large ephemeral wash that crosses the Gen-Tie alignment.

Jurisdictional Delineation
Sheet 1

Map Features

- Project Area
- Reference Coordinate (NAD83)

Waters of the U.S.

- Ephemeral Wash

CDFW Type

- Ephemeral Pond
- Streambed

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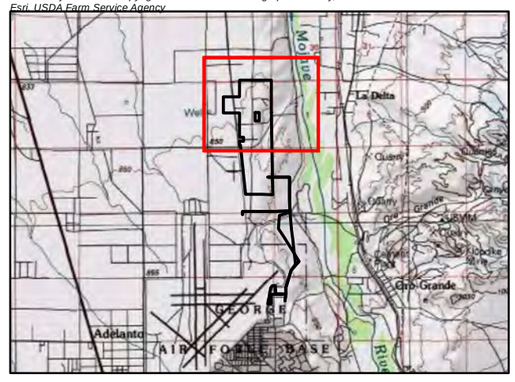

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2017-062 High Desert Solar Project

Scale in Feet
0 600

Photo Source: NAIP 2016

Map Date: 12/4/2018

Jurisdictional Delineation
Sheet 2

Map Features

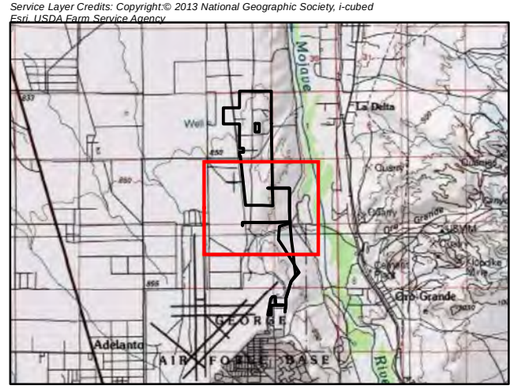
- Project Area
- Reference Coordinate (NAD83)
- Culvert

Waters of the U.S.

- Ephemeral Wash
- Ditch

CDFW Type

- Streambed
- Ditch



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2017-062 High Desert Solar Project

Scale in Feet
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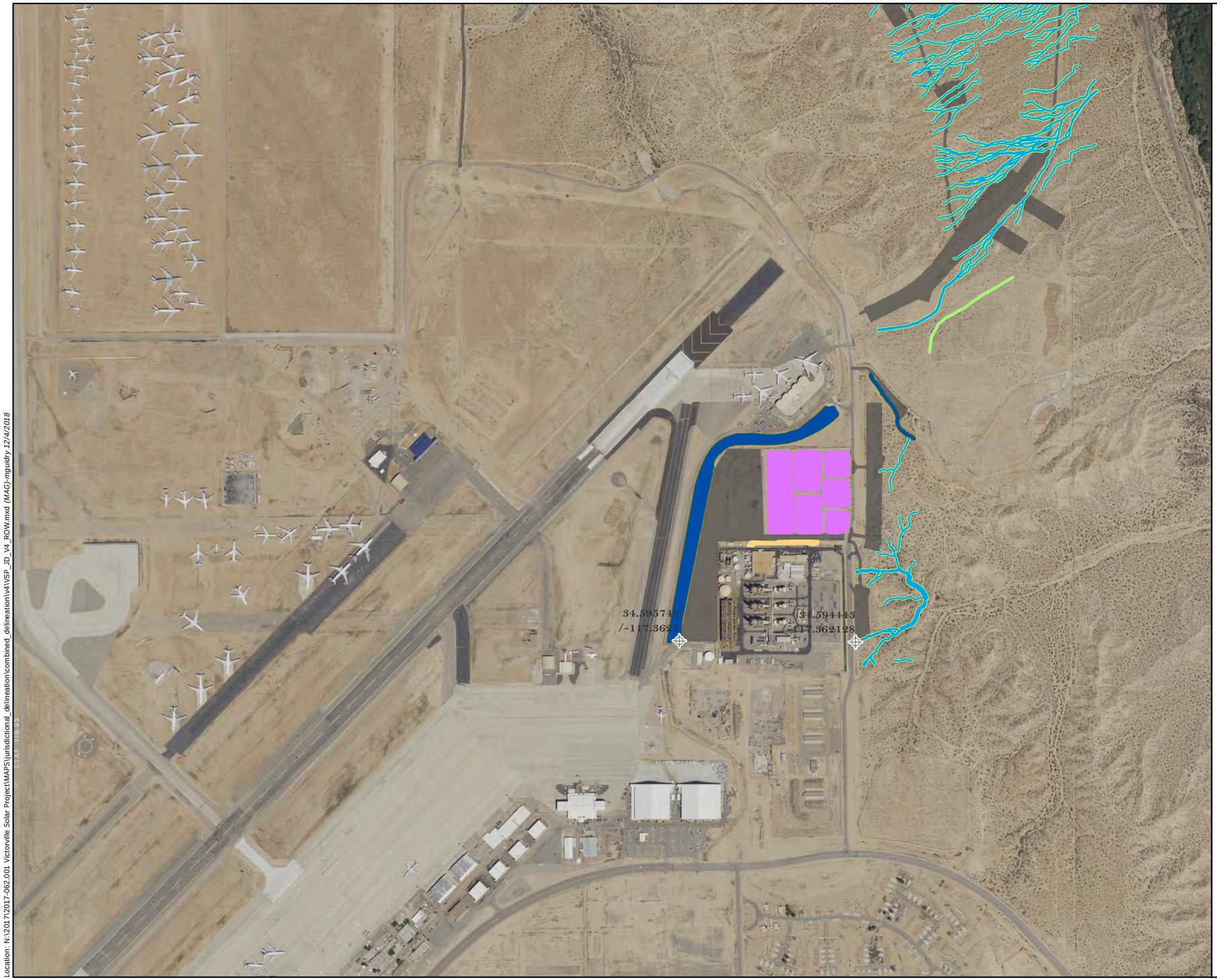
Photo Source: NAIP 2016

Map Date: 12/4/2018

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_ROW.mxd (MAG)-mguidry 12/4/2018

Jurisdictional Delineation
Sheet 3



Map Features

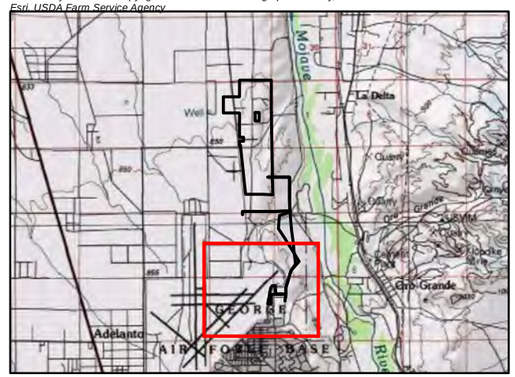
- Project Area
- Reference Coordinate (NAD83)

Waters of the U.S.

- Ephemeral Wash
- Ditch
- Non-jurisdictional Detention Basin
- Non-jurisdictional Ditch

CDFW Type

- Streambed
- Ditch
- Non-jurisdictional Detention Basin
- Non-jurisdictional Ditch



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2017-062 High Desert Solar Project

Scale in Feet
0 600

Photo Source: NAIP 2016

Map Date: 12/4/2018

Other FAC species that were observed, but were located outside of drainage features, included seaside barley (*Hordeum marinum*) and athel (*Tamarix aphylla*). The barley is a common introduced grass species and athel is a tree commonly used in desert landscaping. Both of these species were observed in association with developed and disturbed portions of the DA. There were also three plants recognized as FACU – blue wildrye (*Elymus glaucus*), Russian thistle (*Salsola tragus*), and allscale. The FACU designation indicates that a plant occurs in wetland situations about 25 percent of the time, but is mostly found in uplands.

All of the remaining plant species observed were either listed as upland plants with a UPL status or no indicator status, and are assumed therefore as upland plant species that do not occur within wetlands.

5.1.2 Other Waters

5.1.2.1 Ephemeral Wash

Ephemeral washes are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. The ephemeral washes within the DA were located within the eastern and southern portions of the DA as well as along the Gen-Tie line. These were the only ephemeral washes mapped within the DA.

Historically, drainages in the area flowed in a west - east direction, eventually flowing into the Mojave River. The ephemeral washes currently originate onsite or west of the DA from runoff of surrounding areas as well as other unnamed ephemeral washes.

The washes generally consisted of one-foot channels that supported little bed-and-bank morphology, and had weak OHWM indicators. Most of the features are periodic in nature, meaning that years can go by without a flow event within them. Within this portion of the Mojave River, these types of drainage features are common. When they do flow, sand is usually deposited along their length, leaving behind a clear bed that contains a different-colored material from the surrounding landscape. Because the flows down these features are temporary and usually end quickly, no incised banks are carved out. All of these features are dirt bottomed channels with little to no vegetation within them. Vegetation was largely absent from the channels or they contained upland plants such as creosote bush or white bursage, or grasses, all upland plant species.

Indicators of hydrology found within the washes included one secondary indicator - drainage patterns (B10). Drainage patterns are identified where flow patterns are visible on the soil surface, eroded into soil, or low vegetation bent in the direction of flow or absence of plant litter. These observations indicate some hydrology is present, but because it is only a secondary indicator, the observation does not indicate that wetland hydrology is present.

Potential anthropogenic influences on the drainage include OHV use and some limited trash dumping within the DA and adjacent areas. Very little sign of these influences was observed within the drainages, but rather were present within the surrounding landscape.

5.1.2.2 Ephemeral Pond

Ephemeral ponds are polygonal features that exhibit an OHWM. This feature typically pools runoff from surrounding upland areas for short periods of time during and immediately following rain events, and is not influenced by groundwater sources at any time during the year. The ephemeral pond was located within the eastern portion of the DA, within the solar array. This was the only ephemeral pond mapped within the DA.

The ephemeral pond sits at the bottom of a topographic low point within a small valley that runs southwest - northeast through the eastern portion of the DA. The feature is confined within the DA and does not show signs of flow beyond its location.

The ephemeral pond consists of an 80-foot-wide, shallow dirt-bottomed pond, with little to no vegetation. The pond was clearly defined by evidence of ponding water. Indicators of hydrology found within the wash include one primary indicator: surface soil cracks (B6). This indicates positive hydrology according to the USACE delineation guidelines. However, there were no soil indicators observed or suspected and vegetation was largely absent from the pond. In addition, the pond has no outlet and is considered to be isolated from other stream features observed. Because the feature appears to have no connection to the Mojave River, it was considered to be non-jurisdictional to the USACE.

Potential anthropogenic influences on the drainage include OHV use and some limited trash dumping within the DA and adjacent areas around the pond.

5.1.2.3 Ditches

Ditches are manmade linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Two types of ditches were encountered during the survey effort: common ditches, which contained earthen bottoms, and concrete-lined ditches. Ditches were located within the southern portions of the DA along the Gen-Tie alignment within or adjacent to developed areas.

Historically, drainages in the area flowed in a west-east direction, eventually flowing into the Mojave River. The ditches currently originate onsite or east of the DA along likely, historic drainage locations or on upland slopes to prevent erosion of developed areas.

The ditches consist of up to 15-foot-wide dirt-bottomed concrete-lined channels with little to no vegetation. The channels were clearly defined with OHWM and there was evidence of recent water flows. Indicators of hydrology found within the ditches include one secondary indicator: drainage patterns (B10). These observations indicate some hydrology is present, but because it is only a secondary indicator, the observation does not indicate that wetland hydrology is present. There were no soil indicators observed or suspected. Vegetation was largely absent from the channels or they contained upland plants such as creosote bush or Russian thistle.

Potential anthropogenic influences on the ditches include continued maintenance to keep them free of sediment and debris.

5.2 Potential SWRCB Jurisdiction

A total of 0.659 acre of CDFW jurisdiction is present within the DA consisting of ephemeral wash, vegetated streambed, ephemeral pond, and ditches, under California Fish and Game Code § 1600. This overlaps with the 0.391 acre mapped as Waters of the U.S. For a presentation of impact calculations, refer to Table 2 below and Appendix G. The vegetated streambed present was comprised of a sparse mix of common native shrubs including creosote bush and white bursage. Within the mapped features, there was one area in the largest wash that supported some western sycamore trees and mule fat in association with the streambed. These vegetation types would be considered to be jurisdictional to the CDFW, as mentioned below.

5.3 Potential CDFW Jurisdiction

Most of the waterways within the DA are considered to be single-thread channels, having little to no defined banks, but with a streambed defined by a sandy, dry bed that differs in texture from the surrounding landscape. Out-of-channel flow was not indicated in the field. It is unknown to what extent the sand deposits within most of these channels were due to sediment deposition during fluvial transport processes or due to Aeolian sand movements. Because the features were linear depressions, it is assumed that some level of stream activity is present within each feature.

Within the solar array site, there was one such streambed and an additional isolated ephemeral pond. The streambed is localized along the eastern portion of the site, running for approximately 700 feet from the interior of the site to the eastern boundary. This feature was barely perceptible in the field except in terms of its overall topography being shaped into a linear gully. The ephemeral pond is located in the southern half of the solar array site and supported a layer of alkali soils that may be semi-impervious. The pond was shallow, less than one foot in depth, and had a cracked soil surface similar to that of a desert playa when dry.

A total of 0.659 acre of CDFW jurisdiction is present within the DA, consisting of ephemeral wash, vegetated streambed, ephemeral pond and ditches under California Fish and Game Code Section 1600. This overlaps with the 0.391 acre mapped as Waters of the U.S. The vegetated streambed present was comprised of a sparse mix of common native shrubs, including creosote bush and white bursage. Within the mapped features, there was one area within the largest wash that supported western sycamore trees in association with the streambed. For a presentation of impact calculations, refer to Table 2 below and Appendix G.

Vegetated areas within a streambed are jurisdictional to the CDFW, where they are dependent on the stream's hydrology. Both the areas of western sycamore and of mule fat would be considered to be jurisdictional to the CDFW.

6.0 IMPACTS AND RECOMMENDATIONS

This section provides a discussion of expected impacts to both Waters of the U.S. and CDFW jurisdiction anticipated in association with the Project. The impacts would be due to either temporary or permanent activities of the Project. Temporary activities include those associated with construction access, pull lines needed for installation of power poles, stockpile areas, laydown areas, and other areas needed over the construction period of the Project, but not needed for the operation of the Project. Permanent impacts include permanent facilities, which in this case is the entire solar array, substations, pole locations along both the Service Line and Gen-Tie Line, and guy-wire locations. Note that there are paved access roads on the maps that are not to be improved. These are shown as 'No Impact (Existing Paved Road)' and are depicted to provide more detail concerning the Project.

For the Project, there will also be long-term maintenance impacts associated with maintenance of the solar array, Service Line, and Gen-Tie line. The maintenance activities would use the same access points and roads identified as temporary impacts for the purpose of this impact analysis. The intent is to use these roads, improving them to allow maintenance access, but to restore drainages that cross them to their previous state after maintenance has been conducted. Some of the dirt roads cross small ephemeral washes, and where these washes are crossed, geo-mats or another type of measure would be utilized to allow vehicles to cross the features. This procedure does not apply to the paved roads, which will not be modified for access purposes. The details of BMPs to be used for the access roads during the long-term maintenance period are still being developed.

Jurisdictional features that are impacted are depicted in Appendix E (seven sheets). Photographs taken within the DA of a sampling of the impacted features are included in Appendix F. The total acreage of impact to Waters of the U.S. associated with the Project includes 0.039 acre of permanent impacts and 0.77 acre of temporary impacts. The total acreage of impact to CDFW Jurisdiction associated with the Project includes 0.732 acre of permanent impacts and 0.97 acre of temporary impact.

6.1 Permanent Impacts

Permanent impacts for the Project are only associated with the solar array. The permanent acreages of impact to each jurisdictional feature are depicted below in Table 2.

Table 2. Solar Array Jurisdictional Features Impacts (Permanent Impacts)

Feature1	Length (USACE Only) (linear feet)	Waters of the U.S. Acreage (Non-Wetland)[2] (acres)	Cowardin Class	CDFW Jurisdictional Areas (acres)[2]
EP-01	N/A	0	PUB3	0.100
EW-01	789	0.039	R4SBJ	0.039
EW-02	N/A	0	R4SBJ	0.001
EW-03	N/A	0	R4SBJ	0.483
EW-04	N/A	0	R4SBJ	0.003
EW-09	N/A	0	R4SBJ	0.001

Table 2. Solar Array Jurisdictional Features Impacts (Permanent Impacts)

Feature1	Length (USACE Only) (linear feet)	Waters of the U.S. Acreage (Non-Wetland)[2] (acres)	Cowardin Class	CDFW Jurisdictional Areas (acres)[2]
EW-09	N/A	0	R4SBJ	0.001
EW-11	N/A	0	R4SBJ	0.014
EW-12	N/A	0	R4SBJ	0.048
EW-14	N/A	0	R4SBJ	0.042
TOTALS:	789	0.039	-	0.732

[1]EW=ephemeral wash, EP=ephemeral pond

[2]Acreages represent a calculated estimation and are subject to modification following the USACE, SWRCB or CDFW verification process.

6.2 Temporary Impacts

Temporary impacts due to the Project are associated with construction access, stockpiles, and other equipment along the Gen-Tie line (two alternatives) and Service Line and within the proposed Laydown Area. The temporary acreages of impact to each jurisdictional feature are identified per feature segment and per impact type; there are more than 100 different feature segments impacts, all of very small size, summarized in a table in Appendix G.

In summary, the proposed alternative would entail 0.34 acre of temporary impact to Waters of the U.S. (4,953 linear feet) and 0.58 acre of impact to CDFW jurisdiction.

6.3 Recommendations

Over the course of the development of this Project and its footprint, every effort has been made to minimize and avoid jurisdictional features. As a result, the vast majority of impacts are within the context of temporary construction and maintenance access.

Nevertheless, there is a need for regulatory permitting for both the temporary and permanent impacts of the Project if impacts cannot be completely avoided. Prior to construction of the Project, the Applicant will be required to quantify and document the potential effects on the jurisdictional drainages and obtain a CWA Section 404(b)(1) permit for the Project. USACE approval of Section 404 permit would be contingent upon receipt of a CWA Section 401 Water Quality Certification from the Lahontan RWQCB. Coordination with USACE and SWRCB will continue throughout the Project development process. In addition, portions of the Project impact area that affect areas jurisdictional to the CDFW would require application for and approval of a Streambed Alteration Agreement under the California Fish and Game Code (Section 1600).

There are no impacts associated with the use of the Gen-Tie Laydown Area that is being proposed. However, due to the proximity to potentially jurisdictional features it is recommended that, prior to use, a boundary should be established along the edge that ensures avoidance of adjacent features.

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LIST OF ATTACHMENTS

APPENDIX A

Glossary of Terms

Glossary of Terms

Term	Source	Page	Definition
Abutting	6	69	With respect to jurisdictional determinations, a wetland that is not separated from the tributary by an upland feature, such as a berm or dike, is "abutting."
Adjacent	7	N/A	The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other Waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."
Braided Channel	9	7-5	A watercourse with multiple active shallow channels that divide and rejoin to form a pattern of gently curved channel segments separated by exposed ephemeral islands or channel bars
CDFW	NA	NA	California Department of Fish and Wildlife
CEQA	NA	NA	California Environmental Quality Act
CFR	NA	NA	Code of Federal Regulations
CH	NA	NA	Critical Habitat
Channel	9	7-6	A defined course along which water flows perennially or episodically.
Clean Water Act (CWA) of 1972	NA	NA	Also known as the Federal Water Pollution Control Act (FWPCA) 33USCA Sections 1251 to 1387 (alternatively cited as Sections 101 – 607). The primary goal as defined in Section 1251(a) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Jurisdiction to regulate "Waters of the U.S.," vested under this Act include: Section 303 (Water Quality Standards and implementation Plans), Section 311 (Spill Program and Oil Pollution Act), Section 401 (State Water Quality Certification), Section 402 (National Pollutant Discharge Elimination System [NPDES]), Section 404 (permits for dredge or fill material).
Clean Water Act (CWA) Section 401	NA	NA	Section 401 State Water-Quality Certification: Provides that no Federal permit or license for activities that might result in a discharge to navigable waters may be issued unless a CWA Section 401 Water Quality Certification is obtained from or waived by States or authorized Tribes.
Clean Water Act (CWA) Section 404	NA	NA	Section 404 Dredged and Fill Material Permit Program: This program established a permitting system to regulate discharges of dredged or fill material into Waters of the U.S.
Compound Channel	9	7-6	Channels characterized by a single meandering, low-flow channel nested within a larger watercourse defined by a frequently shifting, channel network.
DA	NA	NA	Delineation Area
Discharge	4	11196	The term "discharge'' means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
Discontinuous Channel	9	7-6	A channel along which fluvial processes change from degradation to aggradation and a well-defined channel form is periodically lost along the stream length
Distributary Channels,	9	7-6	Channels flowing away from the main stream and generally not rejoining it.

Glossary of Terms

Term	Source	Page	Definition
Flow Streams or Patterns			The number of channel forks commonly exceeds the number of channel confluences, creating a divergent distributary, rather than a convergent tributary drainage pattern
Drainage Network or System	9	7-7	All the streams and other waterbodies that drain a region and contribute flow to a larger stream or lake
ECORP	NA	NA	ECORP Consulting, Inc.
Ephemeral Stream	4	11196	An ephemeral stream has flowing water only during and, for a short duration, after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
ESA	NA	NA	Endangered Species Act
Facultative Plants (FAC)	1	14	Plants with a similar likelihood (estimated probability of 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Wetland Plants (FACW)	1	14	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Upland Plants (FACU)	1	14	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.
FEMA	NA	NA	Federal Emergency Management Agency
Floodplain	9	7-8	A relatively flat area of land associated with a stream and over which water and sediment flows when the capacity of the channel is exceeded
Gen-Tie	N/A	N/A	Generation-Tie Line
GIS	NA	NA	Geographical Information System
GPS	NA	NA	Global Positioning System
Historic Property	4	11196	Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization which meet the National Register criteria (36 CFR Part 60).
HPSR	NA	NA	Historic Properties Survey Report
HUC	NA	NA	Hydrologic Unit Code
Hydrological Units	8	1-3	As prescribed by the USGS, refers to the four levels of subdivisions, used for

Glossary of Terms

Term	Source	Page	Definition
			the collection and organization of hydrological data. The hierarchy of hydrological units include: (1) Regions (2) Subregions (3) Accounting Units, and (4) Cataloging Units. The identifying codes associated with these units are "hydrological unit codes."
Hydrological Units – Regions	8	3	The first level of USGS hydrological classification, which divides the Nation into 21 Major geographic areas. These geographic areas (hydrologic areas based on surface topography) contain either the drainage area of a major river, or the combined drainage areas of a series of rivers. Most of California is located within region "18." Notable exceptions include the Tahoe basin (Great Basin Region 16) and the Colorado River (Lower Colorado Region 15). All smaller hydrological units with the region begin with the region number (18).
Hydrological Units – Subregions	8	3	The second level of USGS hydrological classification, divides the 21 regions into 222 subregions (nationally). A subregion includes the area drained by a river system a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Within Region 18, the state of California includes 10 sub-regions.
Intermittent Stream	4	11196	An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
kV	N/A	N/A	Kilovolt
LF	NA	NA	Linear Feet
MRP	N/A	N/A	Middle River Power, LLC.
MW	N/A	N/A	Megawatt
NEPA	NA	NA	National Environmental Policy Act
NHPA	NA	NA	National Historic Preservation Act
Non-RPWs	NA	NA	Non-Relatively Permanent Waters
Non-tidal Wetland	4	11196	A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
NPDES	N/A	N/A	National Pollutant Discharge Elimination System
NRCS	NA	NA	Natural Resources Conservation Service
NWI	NA	NA	National Wetland Inventory
Obligate Wetland Plants (OBL)	1	14	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.

Glossary of Terms

Term	Source	Page	Definition
Obligate Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Ordinary High-Water Mark (OHWM)	7	N/A	The term "ordinary high-water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Perennial Stream	4	11197	A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Project	N/A	N/A	High Desert Solar Project
PV	N/A	N/A	Photovoltaic
Recurrence Interval	9	7-12	The average time interval between the occurrences of a hydrologic event of a given or greater magnitude
Relatively Permanent Water (RPW)	5	5,69	In the context of CWA jurisdiction post-*Rapanos*, a water body is "relatively permanent" if it flows year-round or its flow is continuous at least "seasonally," (e.g., typically three months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary.
Relevant Reach	6	40	With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically, this will include the tributary and all adjacent wetlands reaching downstream from the DA to the confluence with the next tributary or upstream to a similar confluence.
Riparian Area	4	11197	Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connects water bodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See General Condition No. 20, in the NWP.)
River Miles	6	53	The flowing distance between the water bodies in question. Typically not a straight line; rather, the measurement is based on how far the water will travel from water body A to water body B. For example, the water in a meandering tributary will flow further than water flowing in a channelized tributary provided the two water bodies are the same distance apart in the landscape.
RPWs	NA	NA	Relatively Permanent Waters
RWQCB	NA	NA	Santa Ana Regional Water Quality Control Board

Glossary of Terms

Term	Source	Page	Definition
Section 10 Water	NA	NA	See *Traditional Navigable Water*
Significant Nexus	5	40	In the context of CWA jurisdiction post-*Rapanos*, a water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecological and hydrological functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.
Single-thread Channel	9	7-13	A stream where flow is restricted to a single, discrete channel
SWRCB	NA	NA	State Water Resources Control Board
Streambed	4	11197	The substrate of the stream channel between the ordinary high-water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high-water marks, are not considered part of the streambed.
Stream Channelization	4	11197	The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the US.
Tidal Drainage	7	N/A	The term "tidal waters" means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.
Traditional Navigable Water (TNW)	6	68	A "traditional navigable water" includes all the "navigable Waters of the U.S.," defined in 33 CFR Section 329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. Per 33 CFR Section 329: Navigable Waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impede or destroy navigable capacity.
Tributary	6	69	A "tributary," as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries directly or indirectly into traditional navigable water. For the purposes of determining significant nexus with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream).
Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
USACE	NA	NA	United States Army Corps of Engineers

Glossary of Terms

Term	Source	Page	Definition
USDA	NA	NA	United States Department of Agriculture
USEPA	N/A	N/A	United States Environmental Protection Agency
USFWS	N/A	N/A	United States Fish and Wildlife Service
USGS	NA	NA	United States Geological Survey
Water body	4	11197	For purposes of the NWPs, a water body is a jurisdictional water of the US that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high-water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent—meaning bordering, contiguous, or neighboring—to a jurisdictional water body displaying an OHWM or other indicators of jurisdiction, that water body and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "water bodies" include streams, rivers, lakes, ponds, and wetlands.
Waters of the United States	7	N/A	The term "Waters of the U.S." means: (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: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as Waters of the U.S. under the definition; (5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(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 123.11(m) which also meet the criteria of this definition] are not Waters of the U.S..) and (8) Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the

Glossary of Terms

Term	Source	Page	Definition
			CWA, the final authority regarding CWA jurisdiction remains with the EPA.
Wetlands	1,2,7	N/A	The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The criteria for determining wetlands is set forth in the USACE Wetlands Delineation Manual (1987) and relevant Regional Supplements (Arid West, December 2006)

Sources:

1. USACE Wetlands Delineation Manual, January 1987.
2. USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, June 2001.
3. USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, September 2008.
4. FEDERAL REGISTER: Department of Defense; Department of the Army, Corps of Engineers, Re-issuance of Nationwide Permits; Notice, March 12, 2007.
5. USEPA/USACE Joint Memorandum: Clean Water Act Jurisdiction Following the US Supreme Court's Decision in Rapanos v. United States and Carabell v. United States, (June 5, 2007).
6. USACE Jurisdictional Delineation Form Instructional Guidebook; May 30, 2007.
7. Code of Federal Regulations (CFR): 33 CFR 328.3 Definitions of Waters of the United States and/or 33 CPR 329 Definitions of Navigable Waters of the United States.
8. USGS Hydrologic Unit Maps, US Geological Survey Water-Supply Paper 2294 (1994), by Paul R. Seaber, F. Paul Kapinos, and George L Knapp.
9. Vyverberg, Kris, and Roland H Brady III. 2013. MESA - Mapping Episodic Stream Activity. California Energy Commission, Publication Number: CEC-500-2014-013, Appendix G.

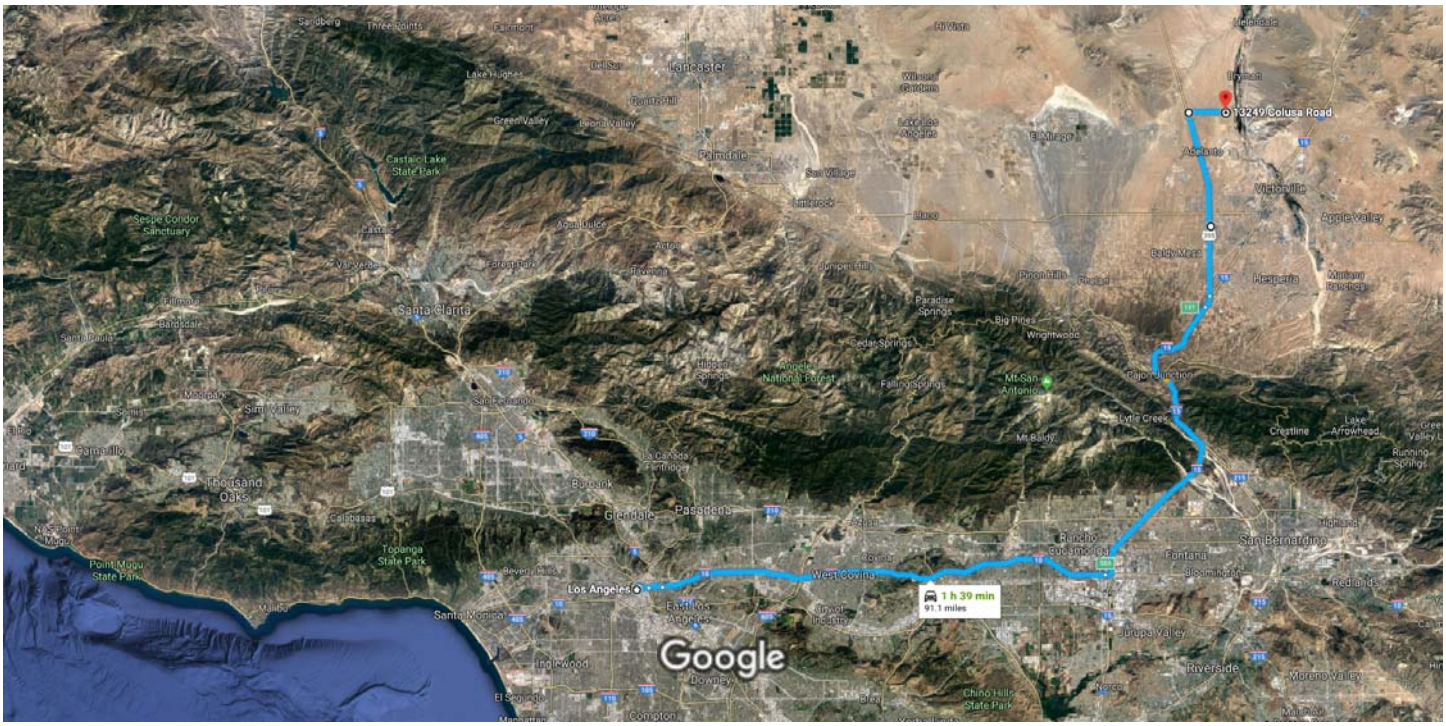
APPENDIX B

Directions to Site

Google Maps

Los Angeles, California to 13249 Colusa Rd, Adelanto, CA 92301

Drive 91.1 miles, 1 h 39 min



Imagery ©2018 Landsat / Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO, Data USGS, Data CSUMB SFML, CA OPC, Data LDEO-Columbia, NSF, NOAA, Map data ©2018 Google 5 mi

Los Angeles
California

Get on US-101 S from N Main St

2 min (0.5 mi)

1. Head southeast on W 1st St toward N Main St
   ⚠ May be closed at certain times or days

66 ft

2. Turn left at the 1st cross street onto N Main St
   ⚠ May be closed at certain times or days

0.3 mi

3. Turn right onto Aliso St

315 ft

4. Use the left 2 lanes to merge onto US-101 S via the ramp to Interstate 10 Fwy E/Interstate 5 Fwy S
   ⚠ Turn may not be allowed at certain times or days

0.2 mi

Follow I-10 E and I-15 N to US-395 N in Hesperia. Take exit 141 from I-15 N

1 h 7 min (71.8 mi)

5. Merge onto US-101 S

0.7 mi

6. Keep left at the fork to continue on San Bernardino Fwy, follow signs for San Bernardino/Interstate 10 E

1.2 mi

7. Continue onto I-10 E/San Bernardino Fwy

38.7 mi

8. Use the right 2 lanes to take exit 58A to merge onto I-15 N/Ontario Fwy toward Barstow/Las Vegas

Continue to follow I-15 N

30.0 mi

9. Take exit 141 for US-395 toward Adelanto/Bishop

1.1 mi

Continue on US-395 N. Drive to Colusa Rd in Victorville

32 min (18.9 mi)

10. Continue onto US-395 N

15.8 mi

11. Turn right onto Colusa Rd

3.1 mi

13249 Colusa Rd

Adelanto, CA 92301

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

APPENDIX C

Site Photographs

Below you will find a few representative photos of the site, organized by Solar Array, Gen-Tie Line and Laydown Area. Also some typical examples of ephemeral streams located within the Project Area as a whole. These photographs are intended to provide a representative view of the vegetation, topography, and drainage features present within and near the DA. Photos in this compendium are not specifically referenced on any mapping, but are described in general terms as to their location.

Photo 1 – Creosote Bush Scrub, Central Portion of Solar Array

Photo 2. Creosote Bush Scrub , Eastern Portion of Solar Array.

Photo 3 – Creosote Bush Scrub, Northern Portion of Solar Array

Photo 4 – Creosote Bush Scrub, Southern Portion of Solar Array

Photo 5. Creosote Bush Scrub with Joshua trees in southern section of Solar Array.

Photo 6 – Helendale Road, West Portion of Solar Array

Photo 7 – Abandoned building, Solar Array

Photo 8 – One of several disturbed areas, Solar Array

Photo 9. Ephemeral Pond (EP-2) facing southeast, Solar Array

Photo 10 – Ephemeral Stream (EW-1) facing west, Solar Array

Photo 11 – Gen-Tie Location near VVWRA Facility

Photo 12. Largest Stream in DA, along Gen-Tie line SW of VVWRA Facility.

Photo 13. Southern Portion of VVWRA Facility. Gen-Tie Line

Photo 14. Steep hills in southern section of the proposed Gen-Tie line.

Photo 15. Creosote Bush Scrub in southern section of the Gen-Tie line.

Photo 16. Western Portion of Proposed Laydown Area.

Photo 17. Eastern Portion of Proposed Laydown Area (Access Road).

Photo 18. Channel Adjacent to Western Part of Proposed Laydown Area.

Photo 19 – Example of Ephemeral Wash, Gen-Tie Line

Photo 20 – Example of Ephemeral Wash, Gen-Tie Line

Photo 21 – Example of Ephemeral Wash, Gen-Tie Line

Photo 22 – Example of Ephemeral Wash, Gen-Tie Line

Photo 23 – Example of Ephemeral Wash, Gen-Tie Line

Photo 24 – Example of Ephemeral Wash, Access Road near VVWRA (CDFW-only)

APPENDIX D

Plant Species Observed On-Site

Scientific Name	Common Name	Wetland Indicator Status[1]
VASCULAR PLANTS		
GYNOSPERMS (GNETALES)		
EPHEDRACEAE	**EPHEDRA FAMILY**	
Ephedra nevadensis	Nevada jointfir	N/L
Ephedra viridis	mormon tea	N/L
ANGIOSPERMS (EUDICOTS)		
APIACEAE	**CARROT FAMILY**	
Lomatium mohavense	Mojave lomatium	N/L
APOCYNACEAE	**DOGBANE FAMILY**	
Asclepias fascicularis	whorled milkweed	N/L
ASTERACEAE	**SUNFLOWER FAMILY**	
Acamptopappus sphaerocephalus	golden head	N/L
Adenophyllum cooperi	Cooper's dogweed	N/L
Ambrosia ancanthicarpa	annual bur-sage	N/L
Ambrosia dumosa	burrobush	N/L
Ambrosia salsola	cheesebush	N/L
Artemisia dracunculus	wild tarragon	N/L
Baccharis salicifolia	mulefat	FAC
Calycoseris parryi	yellow tackstem	N/L
*Centaurea solstitialis**	yellow starthistle	N/L
Chaenactis fremontii	Fremont's pincushion	N/L
Chaenactis sp.	pincushion	N/L
Chaenactis xantiana	fleshy pincushion	N/L
Chaenactis stevioides	desert pincushion	N/L
Dicoria canescens	desert dicoria	N/L
Eriophyllum wallacei	Wallace's woolly daisy	N/L
Ericameria cooperi	Cooper's goldenbush	N/L
Ericameria nauseosa	rubber rabbitbrush	N/L
Lasthenia californica subsp. *californica*	California goldfields	N/L
Lasthenia gracilis	needle goldfields	N/L
Layia glandulosa	white tidy tips	N/L
Leptosyne californica	California coreopsis	N/L
Lessingia glandulifera var. *peirsonii*	Peirson's lessingia	N/L
Logfia depressa	dwarf cottonrose	N/L
Malacothrix glabrata	desert dandelion	N/L
Malacothrix coulteri	snake's head	N/L
Rafinesquia neomexicana	New Mexico plumeseed	N/L
Senecio flaccidus	shrubby ragwort	N/L
Stephanomeria parryi	Parry's wirelettuce	N/L
Stephanomeria pauciflora	desert straw	N/L
Tetradymia stenolepis	Mojave cottonthorn	N/L
BORAGINACEAE	**BORAGE FAMILY**	
Amsinckia tessellata	bristly fiddleneck	N/L
Amsinckia sp.	fiddleneck	N/L
Cryptantha circumcissa	cushion cryptantha	N/L
Cryptantha dumetorum	bush loving cryptantha	N/L
Cryptantha micrantha	purple root cryptantha	N/L
Cryptantha nevadensis	Nevada cryptantha	N/L
Cryptantha pterocarya var. *pterocarya*	wingnut cryptantha	N/L
Heliotropium curassavicum	salt heliotrope	N/L
Nama demissa	purplemat	N/L

Pectocarya linearis subsp. *ferocula*	slender pectocarya	N/L
Pectocarya penicillata	winged combseed	N/L
Pectocarya setosa	moth combseed	N/L
Phacelia crenulata var. *ambigua*	heliotrope phacelia	N/L
Phacelia fremontii	Fremont's phacelia	N/L
Tiquilia plicata	fanleaf crinklemat	N/L
BRASSICACEAE	**MUSTARD FAMILY**	
*Brassica nigra**	black mustard	N/L
Brassica sp.	mustard	N/L
*Brassica tournefortii**	Saharan mustard	N/L
Caulanthus sp.	jewelflower	N/L
*Descurainia sophia**	flix weed	N/L
Descurainia sp.	mustard	N/L
Dithyrea californica	California shieldpod	N/L
*Hirschfeldia incana**	short podded mustard	N/L
Lepidium flavum	yellow pepperweed	UPL
Lepidium lasiocarpum	shaggyfruit pepperweed	N/L
Lepidium sp.	pepperweed	N/L
*Sisymbrium altissimum**	tumble mustard	N/L
*Sisymbrium irio**	London rocket	N/L
Streptanthella longirostris	long beaked twist flower	N/L
CACTACEAE	**CACTUS FAMILY**	
Cylindropuntia echinocarpa	Wiggins' cholla	N/L
Cylindropuntia ramosissima	branched pencil cholla	N/L
Opuntia basilaris var. *basilaris*	beavertail cactus	N/L
CHENOPODIACEAE	**GOOSEFOOT FAMILY**	
Atriplex canescens	fourwing saltbrush	N/L
Atriplex polycarpa	allscale	FACU
Grayia spinosa	hopsage	N/L
Krasheninnikovia lanata	winter fat	N/L
*Salsola tragus**	Russian thistle	FACU
CUCURBITACEAE	**GOURD FAMILY**	
Cucurbita palmata	coyote gourd	N/L
EUPHORBIACEAE	**SPURGE FAMILY**	
Croton californicus	desert croton	N/L
Euphorbia albomarginata	whitemargin sandmat	N/L
Euphorbia sp.	spurge	N/L
Stillingia paucidentata	Mojave toothleaf	N/L
FABACEAE	**LEGUME FAMILY**	
Astragalus didymocarpus var. dispermus	notch leaved locoweed	N/L
Astragalus lentiginosus var. *variabilis*	freckled milkvetch	UPL
Astragalus sp.	milkvetch	N/L
Glycyrrhiza cf. *lepidota*	wild licorice	N/L
Lupinus bicolor	bicolored lupine	N/L
Lupinus odoratus	Mojave lupine	N/L
Parkinsonia florida	blue paloverde	N/L
Psorothamnus arborescens sp.	indigo bush	N/L
Psorothamnus arborescens var. *minutifolius*	little leaved mojave indigo bush	N/L
Senna covesii	Coves' cassia	N/L
GERANIACEAE	**GERANIUM FAMILY**	
*Erodium cicutarium**	redstem stork's bill	N/L
LAMIACEAE	**MINT FAMILY**	

Scutellaria mexicana	bladder sage	N/L
LOASACEAE	**LOASA FAMILY**	
Mentzelia albicaulis	whitestem blazingstar	N/L
Mentzelia sp.	blazingstar	N/L
Mentzelia veatchiana	Veatch's blazingstar	N/L
MALVACEAE	**MALLOW FAMILY**	
Eremalche exilis	white mallow	N/L
Sphaeralcea ambigua	apricot mallow	N/L
MELANTHIACEAE	**BUNCHFLOWER FAMILY**	
Toxicoscordion brevibracteatum	desert death camas	N/L
MELIACEAE	**MAHOGANY FAMILY**	
*Melia azedarach**	China berry tree	N/L
MONTIACEAE	**MINER'S LETTUCE FAMILY**	
Calyptridium monandrum	pussy paws	N/L
MYRTACEAE	**MYRTLE FAMILY**	
Eucalyptus sp.*	eucalyptus	N/L
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**	
Abronia villosa var. *villosa*	desert sand verbena	N/L
Mirabilis laevis var. *retrorsa*	desert four o'clock	N/L
ONAGRACEAE	**EVENING PRIMROSE FAMILY**	
Camissonia campestris subsp.	Mojave sun cups	N/L
Chylismia claviformis	clavate fruited primrose	N/L
Chylismia sp.	primrose	N/L
Eremothera boothii subsp. *condensata*	evening-primrose	N/L
Eremothera boothii subsp. *desertorum*	Booth's desert suncup	N/L
Oenothera californica subsp. *californica*	California evening primrose	N/L
Oenothera cf. *deltoides*	birdcage evening primrose	N/L
PAPAVERACEAE	**POPPY FAMILY**	
Eschscholzia californica	California poppy	N/L
Eschscholzia minutiflora subsp. *minutiflora*	pygmy poppy	N/L
PLATANACEAE	**SYCAMORE FAMILY**	
Platanus racemosa	western sycamore	FAC
POLEMONIACEAE	**PHLOX FAMILY**	
Eriastrum eremicum subsp. *eremicum*	desert wool star	N/L
Eriastrum sp.	woolly star	N/L
Gilia minor	little gilia	N/L
Gilia sp.	gilia	N/L
Linanthus dichotomus subsp.	evening snow	N/L
Linanthus parryae	sandblossoms	N/L
Loeseliastrum matthewsii	desert calico	N/L
Loeseliastrum schottii	Schott's calico	N/L
Loeseliastrum sp.	calico	N/L
POLYGONACEAE	**BUCKWHEAT FAMILY**	
Centrostegia thurberi	Thurber's spineflower	N/L
Chorizanthe brevicornu var. *brevicornu*	brittle spineflower	N/L
Chorizanthe rigida	rigid spiny herb	N/L
Eriogonum brachypodum	Parry's buckwheat	N/L
Eriogonum elongatum	longstem buckwheat	N/L
Eriogonum fasciculatum	California buckwheat	N/L
Eriogonum fasciculatum var. *polifolium*	eastern Mojave buckwheat	N/L
Eriogonum gracillimum	rose and white buckwheat	N/L
Eriogonum inflatum	desert trumpet	N/L

Eriogonum maculatum	spotted buckwheat	N/L
Eriogonum nidularium	whisk broom	N/L
Eriogonum pusillum	yellow turbans	N/L
Eriogonum reniforme	kidneyleaf buckwheat	N/L
Eriogonum sp.	buckwheat	N/L
Oxytheca perfoliata	roundleaf oxytheca	N/L
Rumex hymenosepalus	canaigre dock	N/L
SOLANACEAE	**NIGHTSHADE FAMILY**	
Datura wrightii	jimsonweed	N/L
Lycium andersonii	water jacket	N/L
Lycium cooperi	peach thorn	N/L
TAMARICACEAE	**TAMARISK FAMILY**	
*Tamarix aphylla**	athel tamarisk	FAC
ZYGOPHYLLACEAE	**CALTROP FAMILY**	
Larrea tridentata	South American creosote bush	N/L
*Tribulus terrestris**	puncture vine	N/L
ANGIOSPERMS (MONOCOTS)		
AGAVACEAE	**CENTURY PLANT FAMILY**	
Yucca brevifolia	Joshua tree	N/L
THEMIDACEAE	**BRODIAEA FAMILY**	
Dichelostemma capitatum	school bells	N/L
POACEAE	**GRASS FAMILY**	
*Bromus diandrus**	ripgut brome	N/L
Bromus madritensis subsp. *rubens**	red brome	UPL
*Bromus tectorum**	cheatgrass	N/L
Elymus glaucus	blue wildrye	FACU
*Hordeum marinum**	barley	FAC
*Schismus barbatus**	common Mediterranean grass	N/L
Stipa hymenoides	indian ricegrass	UPL

* - non-native

[1]Wetland Indicator Status Codes

OBL – Obligate Wetland; Almost always

FACW – Facultative Wetland; Usually

FAC – Facultative; Occur in wetlands and

FACU – Facultative Upland; Usually occur

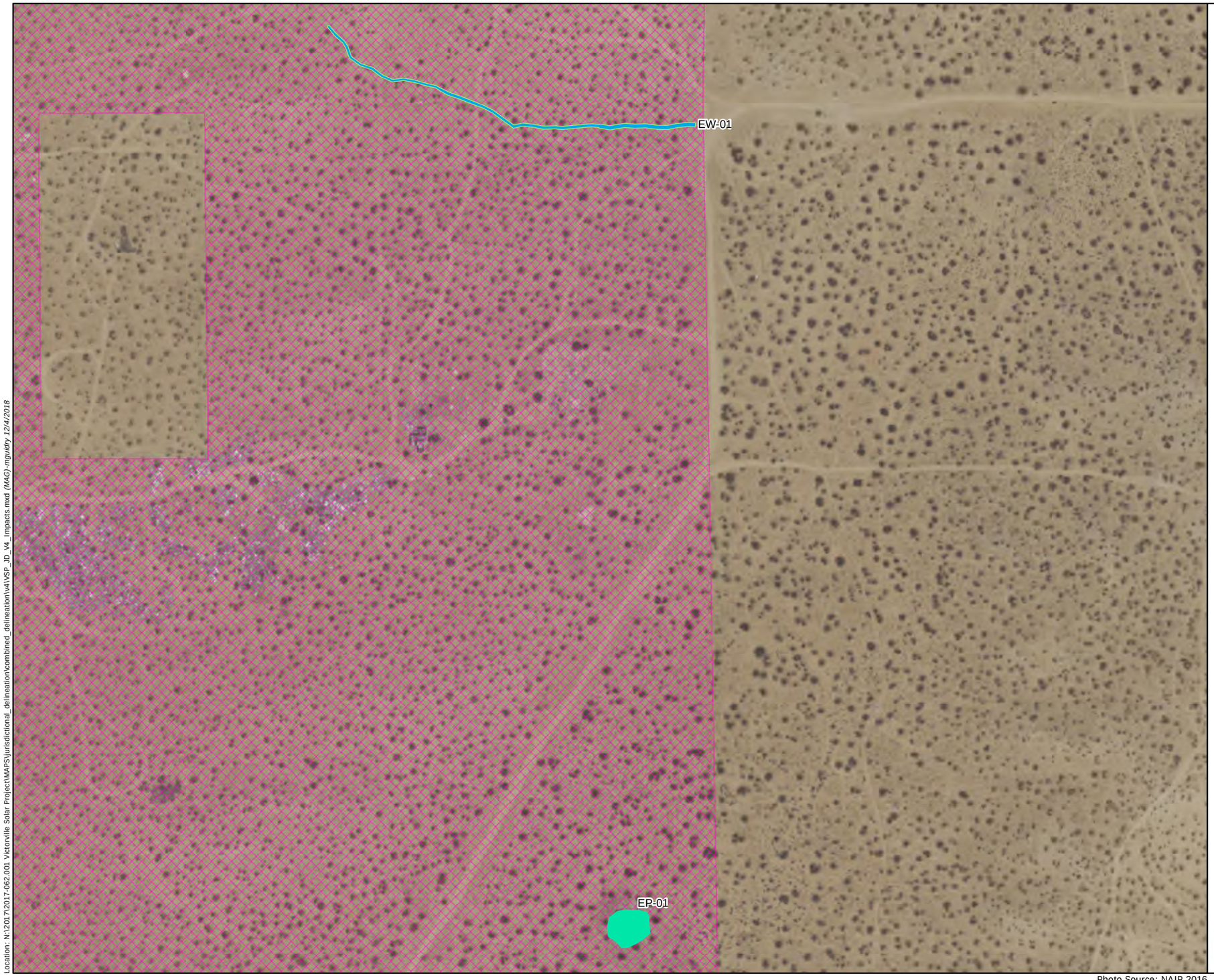
UPL – Obligate Upland; Almost never

N/L – Plants that are Not Listed; Does not occur in wetlands in any region

APPENDIX E

Jurisdictional Delineation - Impacts

Jurisdictional Delineation Impacts (Sheet 1 of 7)



Map Features

Project Area (Preferred Alternative)

Permanent Impact

Impacted Waters of the U.S.

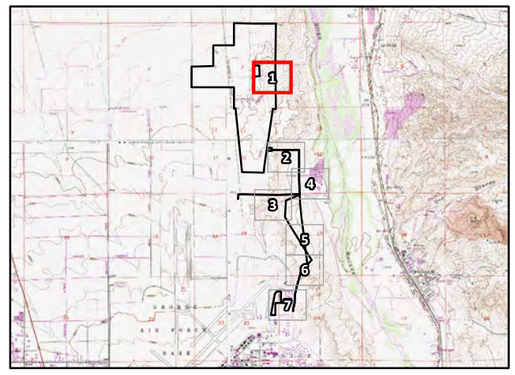
Ephemeral Wash

Impacted CDFW Jurisdiction

Ephemeral Pond

Streambed

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-062 High Desert Solar Project

Scale in Feet
0 200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

Jurisdictional Delineation Impacts (Sheet 2 of 7)

Map Features

Project Area (Preferred Alternative)

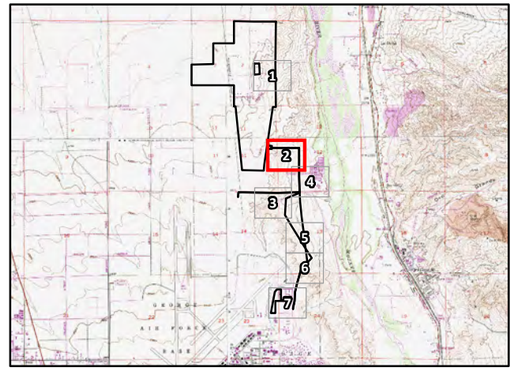
- Permanent Impact
- Temporary Impact

Impacted CDFW Jurisdiction

- Streambed
- Ditch

EW-02
EW-04
EW-03
EW-05
D-01
EW-06
EW-07
EW-08
EW-09
EW-10
D-02
EW-11
D-03
EW-12
EW-14
EW-13
EW-15

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineationV4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

2017-062 High Desert Solar Project

Scale in Feet
0
200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Jurisdictional Delineation Impacts (Sheet 3 of 7)

Map Features

Project Area (Preferred Alternative)

- Permanent Impact
- Temporary Impact
- No Impact (Existing Paved Road)

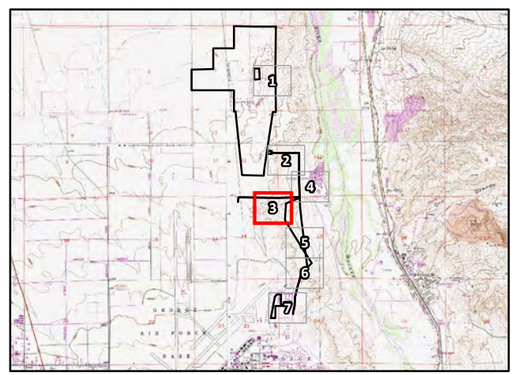
Impacted Waters of the U.S.

- Ephemeral Wash

Impacted CDFW Jurisdiction

- Streambed

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



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Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

2017-062 High Desert Solar Project

Scale in Feet
0 200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Jurisdictional Delineation Impacts (Sheet 4 of 7)

Map Features

Project Area (Preferred Alternative)

Permanent Impact

Temporary Impact

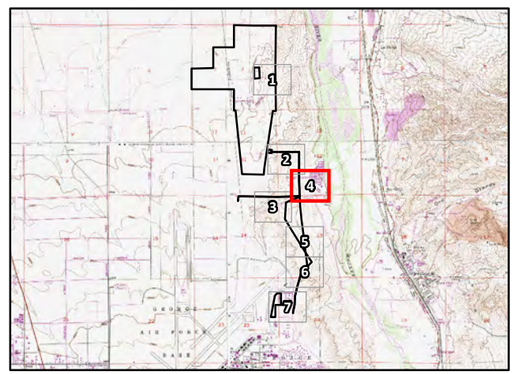
Impacted Waters of the U.S.

Ephemeral Wash

Impacted CDFW Jurisdiction

Streambed

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-062 High Desert Solar Project

Scale in Feet
0 200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

Jurisdictional Delineation Impacts (Sheet 5 of 7)

Map Features

Project Area (Preferred Alternative)

- Permanent Impact
- Temporary Impact
- Culvert_V4
- Reference Coordinate (NAD83)

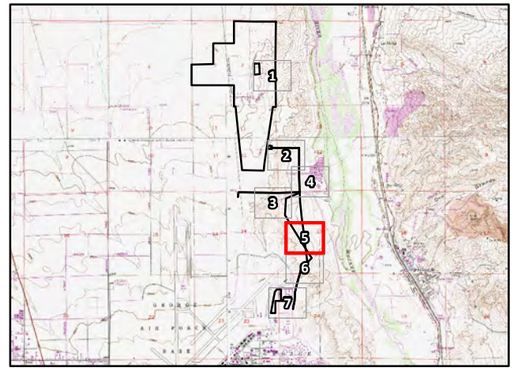
Impacted Waters of the U.S.

- Ephemeral Wash
- Ditch

Impacted CDFW Jurisdiction

- Streambed
- Ditch

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



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ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

2017-062 High Desert Solar Project

Scale in Feet
0 200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Jurisdictional Delineation Impacts (Sheet 6 of 7)

EW-82
EW-81
EW-83
EW-84
EW-85
EW-87
EW-88
EW-89
EW-90
EW-91
EW-92
EW-93

Map Features

Project Area (Preferred Alternative)

Permanent Impact

Temporary Impact

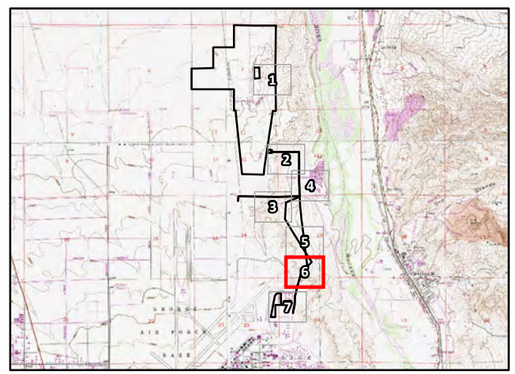
Impacted Waters of the U.S.

Ephemeral Wash

Impacted CDFW Jurisdiction

Streambed

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_V4_Impacts.mxd (MAG)-mguidry 12/4/2018

2017-062 High Desert Solar Project

Scale in Feet
0
200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Jurisdictional Delineation Impacts (Sheet 7 of 7)

Map Features

Project Area (Preferred Alternative)

- Permanent Impact
- Temporary Impact
- Reference Coordinate (NAD83)

Impacted Waters of the U.S.

- Ephemeral Wash

Impacted CDFW Jurisdiction

- Streambed

EW-94

EW-95

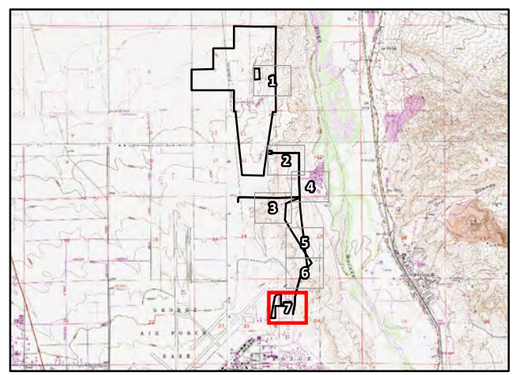
EW-96

EW-97

34.595742
/-117.3627

34.594443
/-117.362128

USGS 24k Quadrangles: Victorville, Victorville NW, Adelanto and Helendale



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2017-062 High Desert Solar Project

Scale in Feet
0 200

Photo Source: NAIP 2016

Map Date: 11/7/2018

Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\jurisdictional_delineation\combined_delineation\v4\VSP_JD_v4_Impacts.mxd (MAG)-mguidry 12/4/2018

APPENDIX F

Photographs of Impacted Features

Below you will find a few representative photos of jurisdictional drainage features being impacted within the DA, including both the Solar Array and Gen-Tie Line. Many features are not included in this compendium because they were not photographed or they were of similar form as those depicted. Photos in this compendium are referenced on the Jurisdictional Impact Mapping (Appendix E). The features are described as USACE and CDFW Jurisdictional or as CDFW-Jurisdictional only, and as to their impact type (Permanent or Temporary Impacts).

\

Photo 1. Ephemeral Wash (EW-1), USACE and CDFW Jurisdictional, Solar Array (Permanent Impact)

Photo 2. Ephemeral Pond (EP-2), CDFW Jurisdictional Only, Solar Array (Permanent Impact)

Photo 3 – EP-2, Showing Cracked Soils Associated with Pond

Photo 4 – EW-3, CDFW Jurisdictional Only (Permanent Impact)

Photo 5. EW-11, CDFW Jurisdictional Only (Permanent Impact)

Photo 6. EW-12, CDFW Jurisdictional Only (Permanent Impact)

Photo 7. EW-14, CDFW Jurisdictional Only (Permanent Impact)

Photo 8. EW-15, CDFW Jurisdictional Only (Temporary Impact)

Photo 9. EW-50, USACE and CDFW Jurisdictional (Temporary Impact)

Photo 10. EW-68, USACE and CDFW Jurisdictional (Temporary Impact)

Photo 11. EW-84, USACE and CDFW Jurisdictional (Temporary Impact)

Photo 12. EW-91, USACE and CDFW Jurisdictional (Temporary Impact)

Photo 13. EW-94, USACE and CDFW Jurisdictional (Temporary Impact)

Photo 14. EW-95, USACE and CDFW Jurisdictional (Temporary Impact)

APPENDIX G

Temporary Impacts Calculations By Feature

Temporary Impacts (Service Line, GenTie Lines)

Feature Number	Stream Flow	Cowardin Class	Class of Aquatic Resource	Service Line (Both Alternatives)		Proposed Gen-Tie Line		Alternative Gen-Tie Line		Proposed Linear Feet (Waters of the U.S. Only)	Alternative Linear Feet (Waters of the U.S. Only)
				Waters of the U.S. (ac.)	CDFW Jurisdiction (ac.)	Waters of the U.S. (ac.)	CDFW Jurisdiction (ac.)	Waters of the U.S. (ac.)	CDFW Jurisdiction (ac.)		
Ephemeral Washes (Prefix EW-)											
5	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00676	0.00000	0.00676	N/A	N/A
6	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00449	0.00000	0.00449	N/A	N/A
7	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00122	0.00000	0.00122	N/A	N/A
10	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00304	0.00000	0.00304	N/A	N/A
13	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00084	0.00000	0.00084	N/A	N/A
15	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00152	0.00000	0.00152	N/A	N/A
16	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00432	0.00000	0.00029	N/A	N/A
17	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00104	0.00000	0.00116	N/A	N/A
18	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00048	0.00000	0.00048	N/A	N/A
19	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00100	0.00000	0.00100	N/A	N/A
20	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00019	0.00000	0.00113	N/A	N/A
21	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00012	0.00000	0.00031	N/A	N/A
22	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00187	0.00187	0.01931	0.01931	30	172
23	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00161	0.00161	0.00000	0.00000	0.00000	0.00000	69	69
24	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00303	0.00303	0.00000	0.00000	0.00000	0.00000	64	64
25	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00011	0.00011	0.00000	0.00000	0.00000	0.00000	1	1
26	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00033	0.00104	0.00000	0.00000	0.00000	0.00000	13	13
27	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00244	0.00244	0.00000	0.00000	0.00000	0.00000	33	33
28	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00126	0.00384	0.00000	0.00000	0.00000	0.00000	55	55
29	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00319	0.00949	0.00000	0.00000	0.00000	0.00000	136	136
30	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.18043	0.29139	0.00000	0.00000	0.00000	0.00000	814	814
31	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00017	0.00056	0.00017	0.00056	5	5
32	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00501	0.01233	0.00510	0.01233	73	73

33	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00188	0.00188	0.00188	0.00188	44	44
35	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00801	0.00801	0.04251	0.04251	782	782
36	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.01644	0.01644	N/A	147
38	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00393	0.00393	N/A	26
40	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00325	0.00980	N/A	143
41	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.01260	0.01260	N/A	75
45	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00000	0.00371	N/A	N/A
46	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00000	0.00079	N/A	N/A
47	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00221	0.00221	N/A	47
48	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.02746	0.02758	0.02746	0.02758	604	604
49	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00774	0.00774	0.00774	0.00774	193	193
50	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.01139	0.01139	0.01139	0.01139	266	266
51	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00049	0.00148	0.00049	0.00148	20	20
52	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00056	0.00056	0.00056	0.00056	24	24
53	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00142	0.00047	0.00142	20	20
54	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00046	0.00046	0.00046	0.00046	20	20
55	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00031	0.00031	0.00031	0.00031	12	12
56	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00050	0.00149	0.00050	0.00149	21	21
57	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00047	0.00047	0.00047	19	19
58	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00076	0.00229	0.00076	0.00229	31	31
59	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00093	0.00093	0.00093	0.00093	18	18
60	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00152	0.00152	0.00152	0.00152	19	19
61	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00046	0.00046	0.00046	0.00046	19	19
62	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00055	0.00055	0.00055	0.00055	23	23
63	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00222	0.00222	0.00222	0.00222	39	39
64	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00053	0.00053	0.00053	0.00053	22	22
65	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00103	0.00103	0.00103	0.00103	20	20
66	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00507	0.01520	0.00277	0.00832	220	120

67	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00056	0.00167	0.00056	0.00167	23	23
68	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00374	0.01121	0.00279	0.00836	160	120
69	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00352	0.00352	0.00352	0.00352	26	26
70	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00119	0.00119	0.00119	0.00119	18	18
71	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00047	0.00047	0.00047	21	21
72	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00229	0.00229	0.00229	0.00229	36	36
73	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00431	0.00431	0.00431	0.00431	66	66
74	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00048	0.00048	0.00048	0.00048	20	20
75	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00125	0.00125	0.00125	0.00125	24	24
76	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00017	0.00017	N/A	6
77	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00077	0.00077	N/A	33
78	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00057	0.00057	0.00057	0.00057	24	24
79	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00120	0.00120	0.01060	0.01060	24	195
80	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00052	0.00052	0.00052	0.00052	22	22
81	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00048	0.00048	0.00048	0.00048	20	20
82	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00047	0.00047	0.00047	20	20
83	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00049	0.00049	0.00049	0.00049	20	20
84	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00047	0.00047	0.00047	20	20
85	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00045	0.00045	0.00045	0.00045	19	19
86	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.01632	0.01632	N/A	188
87	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00059	0.00059	0.00059	0.00059	26	26
88	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00142	0.00142	0.00000	0.00000	60	N/A
89	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00048	0.00048	0.00048	0.00048	20	20
90	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00047	0.00047	0.00047	0.00047	19	19
91	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00570	0.00570	0.00000	0.00000	122	0
92	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.01117	0.01117	0.00000	0.00000	117	0
93	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00017	0.00017	0.00795	0.00795	2	168
94	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00098	0.00098	0.00098	0.00098	20	20

95	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00797	0.00797	0.00797	0.00797	34	34
96	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00521	0.00521	0.00521	0.00521	79	79
97	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00186	0.00186	0.00186	0.00186	27	27
			TOTAL	0.19240	0.31295	0.13834	0.19436	0.24170	0.29942	4818	5523
Ditches (Prefix D-)											
1	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.05242	0.00000	0.05242	N/A	N/A
2	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.01127	0.00000	0.01127	N/A	N/A
3	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00001	0.00000	0.00001	N/A	N/A
4	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00728	0.00728	0.00000	0.00000	120	N/A
5	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00000	0.00000	0.00124	0.00124	N/A	17
6	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0.00000	0.00000	0.00375	0.00375	0.00375	0.00375	15	15
			TOTAL	0.00000	0.00000	0.01103	0.07473	0.00499	0.06869	135	32
			GRAND TOTAL	0.19240	0.31295	0.14937	0.26909	0.24669	0.36810	4953	5555