APPENDIX E-4
JURISDICTIONAL DELINEATION REPORT

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Administrative Draft Jurisdictional Delineation Report

Daggett Solar Project

May 17, 2018

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Administrative Draft
Jurisdictional Delineation Report

Daggett Solar Project

May 17, 2018

Prepared By: Date: May 11, 2018

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Acronyms and Abbreviations

CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
GIS	geographic information system
I-40	Interstate 40
JSA	jurisdictional study area
OHWM	ordinary high water mark
NRCS	Natural Resources Conservation Service
NWP	Nationwide Permit
project	Daggett Solar Project
RWQCB	Regional Water Quality Control Board
TNW	traditional navigable waters
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WOUS	waters of the United States

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1 Introduction

NRG Renewables Daggett Solar Power 1 LLC, a subsidiary of NRG Renew, LLC, (Applicant) is proposing to develop the Daggett Solar Project in San Bernardino County, east of Daggett (Figure 1). The proposed project consists of constructing and operating a utility-scale, solar photovoltaic, electricity generation and energy storage facility that would produce up to 650 megawatts of power and would include up to 450 megawatts of battery storage capacity on approximately 3,500 acres of land (Figure 2). The project would utilize existing electrical transmission infrastructure adjacent to the existing Coolwater Generating Station, a recently retired natural gas-fired power plant, to deliver renewable energy to the electric grid.

This report summarizes the extent of United States (U.S.) Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act (CWA), RWQCB jurisdiction pursuant to the Porter-Cologne Water Quality Control Act and California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 et seq. of the California Fish and Game Code within the Daggett Solar Project (project) jurisdictional study area (JSA).

Figure 1. Regional Location

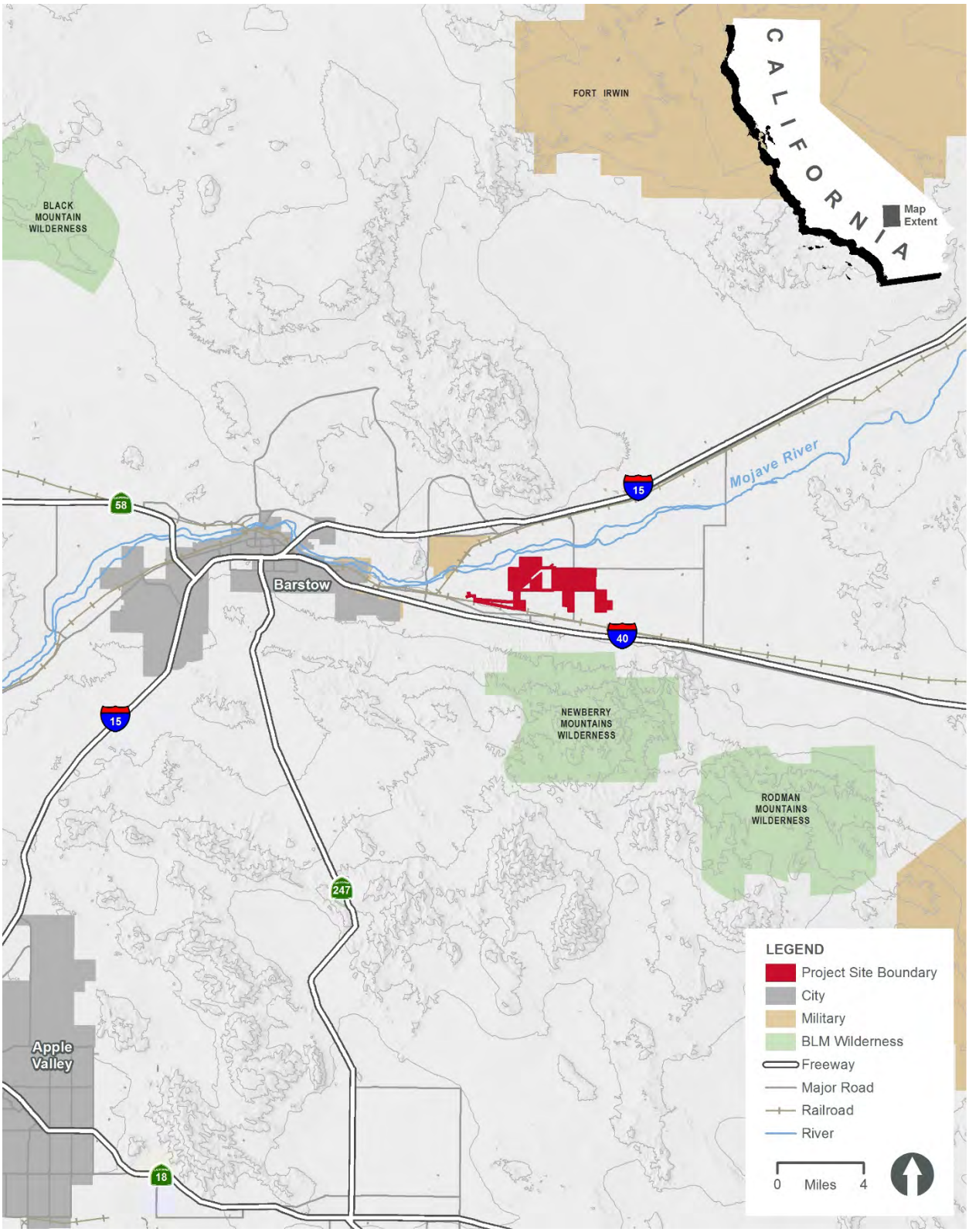
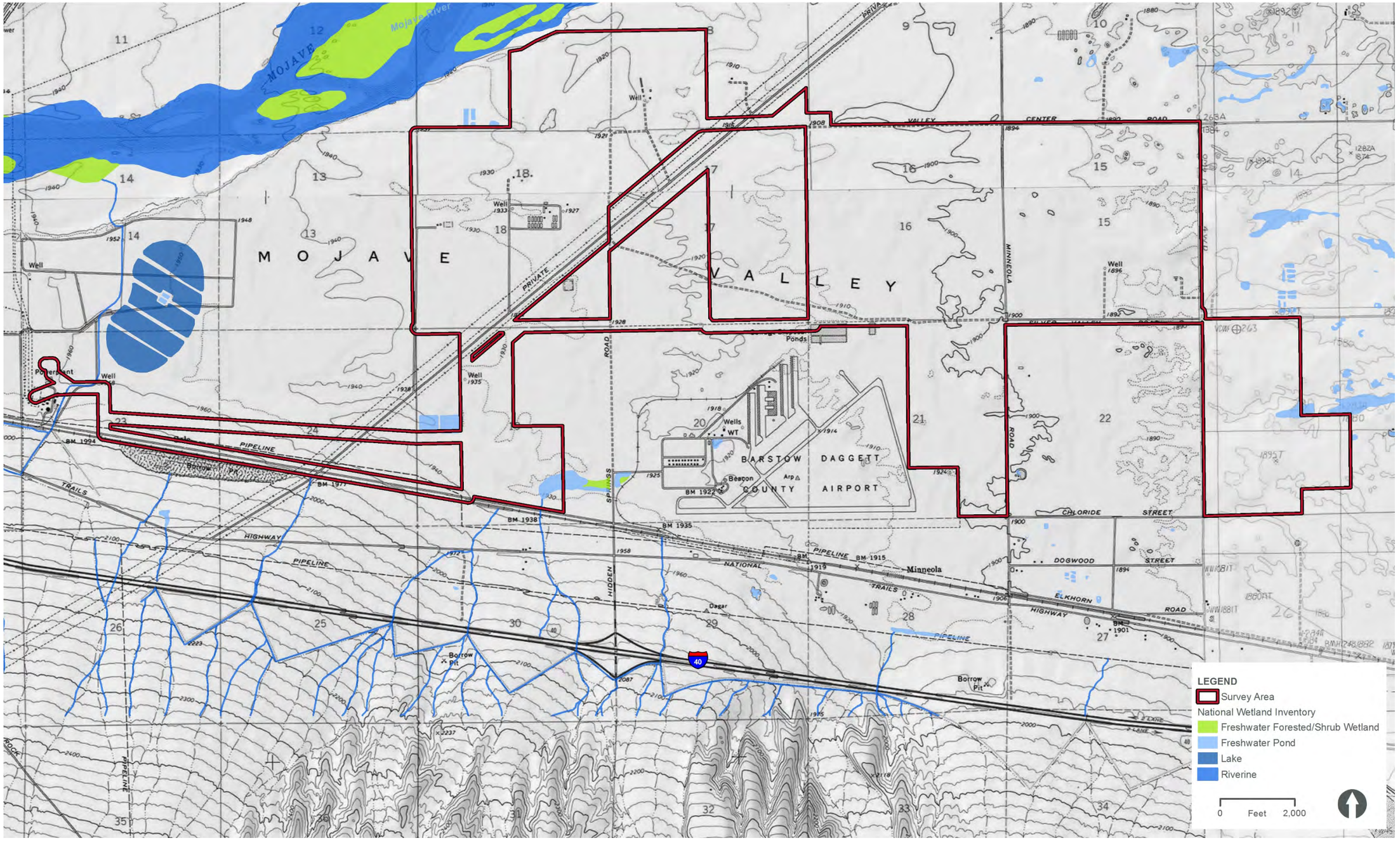


Figure 2. Project Site and National Wetland Inventory on USGS Topographic Mapping



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2 Regulatory Setting

2.1 Clean Water Act

2.1.1 United States Army Corps of Engineers

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into waters of the U.S. (WOUS) including wetlands. A discharge of fill material includes, but is not limited to, grading, placing riprap for erosion control, pouring concrete, and stockpiling excavated material into WOUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

A Final Clean Water Rule: Definition of "Waters of the United States" was published in the *Federal Register* on June 29, 2015 and became effective on August 28, 2015. After numerous lawsuits were filed challenging the regulation, a federal appeals court (6th Circuit) issued a nationwide stay of the Final CWA rule. In response, the EPA and USACE issued a joint memorandum in November 2015 that “agencies will implement the prior regulatory definition of "waters of the United States," as clarified by the 2008 Rapanos Guidance and that the agencies should follow the 2007 USACE-EPA joint memorandum on coordination, as modified by the January 2008 USACE memorandum (USACE and EPA 2007 and 2015; USACE 2008a.

Subsequently, in response to an Executive Order titled ‘‘Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States’ Rule,’’ (dated February 28, 2017), USACE and EPA published a proposed rule to rescind the Clean Water Rule and re-codify the regulatory text that existed prior to 2015 defining "waters of the United States" (*Federal Register* July 27 2017). EPA and USACE also issued a final rule adding a February 6, 2020 applicability date to the 2015 Rule (*Federal Register* February 8, 2018), which further clarifies that agencies are to administer the regulations in place prior to the 2015 rule until February 6, 2020, or until a new rule goes into effect.

Waters of the U.S.

The regulations in place prior to publication of the 2015 Final Clean Water Rule, defined the term “waters of the United States” as:

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, sand flats, 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 recreation 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) through (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) through (6) of this section.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

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 CWA, the final authority regarding CWA jurisdiction remains with the Environmental Protection Agency (EPA).

The limits of USACE jurisdiction in non-tidal waters extends to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses 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."

Wetlands

The term "wetlands" (a subset of "Waters of the U.S.") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987, the USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries followed by the Arid West Supplement in 2008 (Environmental Laboratory 1987). The methodology set forth in the 1987 Wetland Delineation Manual and Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

1. The plant community must be determined to be hydrophytic based on: (1) the dominance test applied using the 50/20 rule[1], or (2) where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be hydrophytic

[1] If a particular species accounts for more than 50% of the total coverage of vegetation in the stratum, or for at least 20% of the total coverage in the stratum which the species was found, that species is defined as dominant.

using the Prevalence Index test[2] based upon the indicator status (i.e., rated as facultative or wetter) in the National List of Plant Species that Occur in Wetlands(Reed 1988);

2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: (1) the formation of hydric soils; and (2) establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

Supreme Court Decisions

Solid Waste Agency of North Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* with respect to whether the USACE could assert jurisdiction over isolated waters (U.S. Supreme Court 2001). The Solid Waste Agency of North Cook County ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

Rapanos/Carabell

In the Supreme Court cases of *Rapanos* v. *United States*, 547 U.S. 715 (2006) and *Carabell* v. *United States*, No. 03-1700 (6th Cir. 2007) (herein referred to as *Rapanos*), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the *Rapanos* decision, the Corps will assert jurisdiction over traditional navigable waters (TNWs), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration and frequency of flow, proximity to TNWs, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

[2] A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present.

According to the USACE memorandum providing clarification on the limits of jurisdiction after the Rapanos decision (USACE 2008a), the USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands that generally do not carry a relatively permanent flow of water.

Jurisdictional Determinations

USACE Regulatory Guidance Letter 16-01 indicates that "while a landowner, permit applicant or other "affected party" can elect to obtain an approved jurisdictional determination, he or she can also elect to decline an approved JD, and instead obtain a USACE individual permit or general permit authorization based upon a preliminary jurisdictional determination, or in appropriate circumstances (such as authorizations by non-reporting general nationwide permit (NWP) authorizations) no jurisdictional determination whatsoever.

2.1.2 Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the federal CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters.

RWQCB also regulates discharge of waste to Waters of the State pursuant to California's Porter-Cologne Water Quality Control Act, enacted in 1969, which provides the legal basis for water quality regulation within California. Under this Act. "Waters of the state" is defined by the act as "any surface water or groundwater, including saline waters, within the boundaries of the state." Should the RWQCB determine that discharge of pollutants (including fill) is proposed to waters that meet the definition of 'Waters of the state' but not 'Waters of the U.S.,' waste discharge requirements would be required.

2.1.3 California Department of Fish and Wildlife

The State of California regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

> "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

Projects that require a Streambed Alteration Agreement (SAA) from the CDFW may also require a permit from the USACE under Section 404 of the CWA and a certification from the RWQCB under Section 401 of the CWA. In these instances, the conditions of the Section 404 permit, Section 401 certification, and the SAA may overlap.

3 Methodology

3.1 Literature Review

The following literature and materials were reviewed both prior to conducting delineation fieldwork and in the process of determining jurisdictional status of features identified in the field:

- Current and historical aerial photographs of the JSA to determine the potential locations of WOUS and other riparian areas (Google Earth 2018; NETR Online 2018)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil mapping data (USDA NRCS 2018a and 2018b)
- USGS topographical maps to determine the current or historical presence of any “blue line” drainages or other mapped water features (USGS 1953, 1970, 1971 and 1982)
- National Hydrography Dataset (USGS 2018)
- U.S. Fish and Wildlife Service National Wetlands Inventory data to identify areas mapped as wetland features (U.S. Fish and Wildlife Service 2018)

3.2 Field Investigation

A focused field survey of the JSA was conducted by HDR biologists Sarah Barrera and Ingrid Eich on April 5, 2018. All potential aquatic features identified during the literature review and during other field surveys conducted earlier in the year for the project (including burrowing owl) were investigated on foot. Representative photos of potential aquatic features were taken (Figure 4 through Figure 12). Upon completion of fieldwork, all data collected in the field were incorporated into GIS along with basemap data. The GIS data was then used to quantify the extent of potential jurisdictional features within the JSA.

3.2.1 United States Army Corps of Engineers Jurisdiction

All potential aquatic features were examined for indicators of an OHWM and wetland based upon 33 CFR 328.3(e) and the methods outlined in the *USACE Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008c).

When linear potential WOUS were encountered, widths were recorded (in feet) on 1:2,400-scale 0.3-meter resolution 2017 aerial maps based upon visible landmarks. Where notable features such as culverts were observed in the field but not visible on the aerial photograph, they were recorded with an ESRI Collector for ArcGIS application on an iPad connected to a global position system recorder with submeter accuracy. The OHWM was measured at locations where transitions were apparent. Indicators used to define the OHWM for each feature are described in Section 4. Other data recorded included bank-to-bank width, bank height and morphology, substrate type, and all vegetation within and adjacent to the feature.

3.2.2 Regional Water Quality Control Board Jurisdiction

RWQCB jurisdiction, for the purposes of CWA Section 401 Certification, is identical to USACE jurisdiction. In addition, the JSA was evaluated for isolated wetlands that would not be subject to federal jurisdiction but would be potentially regulated under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

3.2.3 California Department of Fish and Wildlife Jurisdiction

The limits of active streambed were defined based upon and the guidance provided in Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2014) and A Review of Stream Processes and Forms in Dryland Watersheds (Vyverberg, K. 2010). California Department of Fish and Game, Conservation Engineering. Sacramento, CA.

Features potentially subject to CDFW jurisdiction were mapped from top of bank to top of bank and examined for the presence of riparian vegetation.

3.2.4 Vegetation

Vegetation community types within the JSA were recorded during fieldwork conducted in 2017 in support of the General Biological Survey Report (HDR 2017). Vegetation communities were mapped according to *A Manual of California Vegetation,* second edition (Sawyer et al. 2009).

4 Results

4.1 Environmental Setting

4.1.1 Project Location

The JSA is located in San Bernardino County, is relatively flat and is generally bounded by the town of Daggett approximately 0.5 mile to the west; the Mojave River, Yermo, and Interstate 15 (I-15) to the north; Barstow-Daggett Airport, Route 66, and Interstate 40 (I-40) to the south; and Newberry Springs and Mojave Valley to the east (Figure 2).

The JSA is shown on three USGS 7.5-minute topographic quadrangles in California: *Yermo*, *Minneola* and *Newberry Springs (USGS 1970, 1971 and 1982)*. It is situated within Township 9 North and within Ranges 1 East and 2 East. The JSA is located within Sections 13, 23, and 24 in Range 1 East and Sections 7, 8, 15-19, 21, and 23 in Range 2 East. The project site is located at approximately latitude/longitude 34° 52' 0" N/116° 48' 0" W.

4.1.2 Topography

The project area is located adjacent to the Mojave River at elevations between approximately 1,870 feet above mean sea level (AMSL) on the southeastern edge of the project area to 1,970 feet AMSL on the western edge (Figure 2). The project area exhibits a gentle slope from south to north, toward the Mojave River, which is located north of the project area. Although relatively flat, the JSA exhibits microtopographic complexity in the form of creosote hummocks and eolian dunes interspersed with sandy flats.

4.1.3 Climate

Climate data available for the Daggett Airport (Barstow Daggett AP, California 042257) indicate that the area receives an average of 3.83 inches of rainfall per year (12/01/1943 through 06/09/2016). During the 2017-2018 rainfall year thus far to date (07/01/2017 through 5/15/2018), Daggett received 1.24 inches of rain, compared to 4.22 inches during the same time period the year prior; during the 2016-2017 rainfall year (07/01/2016 through 06/30/2017), nearby Barstow received 5.46 inches of rain, compared to an average annual rainfall of 5.27 inches (U.S. Climate Data 2018).

4.1.4 General Vegetation

The JSA consists of a mix of industrial sites, disturbed land associated with residential and agricultural uses, and lightly disturbed desert scrub areas. Agricultural areas consist of active and fallow agricultural fields, orchards with disturbed saltbush scrub, ornamental tamarisk windrows, and ruderal vegetation adjacent to the fields. Portions of the JSA that are less disturbed consist of saltbush scrub and creosote bush scrub with low shrub variety and sparse understories. The southeastern portion of the project area supports sand dunes with creosote bush scrub vegetation (HDR 2017).

4.1.5 Geology

The site is situated within the Mojave Desert Geomorphic Province in Southern California. Geologic structures within this Province trend mostly northwest, in contrast to the prevailing east-west trend in the neighboring Transverse Ranges Geomorphic Province to the west. The Mojave Desert Province extends into lower California, and is bounded by the Garlock Fault to the north, the San Andreas Fault to the west and Nevada and Arizona borders to the east. Surficial geologic units in the site consist mainly of Alluvium deposits in the western portion of the site and Dune sands in the eastern portion of the site of Recent Quaternary Age (Terracon 2017). The presence of creosote hummocks and eolian sand dunes along with the absence of fluvial transport, deposition or out-of-channel flow indicators within the JSA suggest that the site lies on an old inactive floodplain terrace (Brady and Vyverberg 2014)

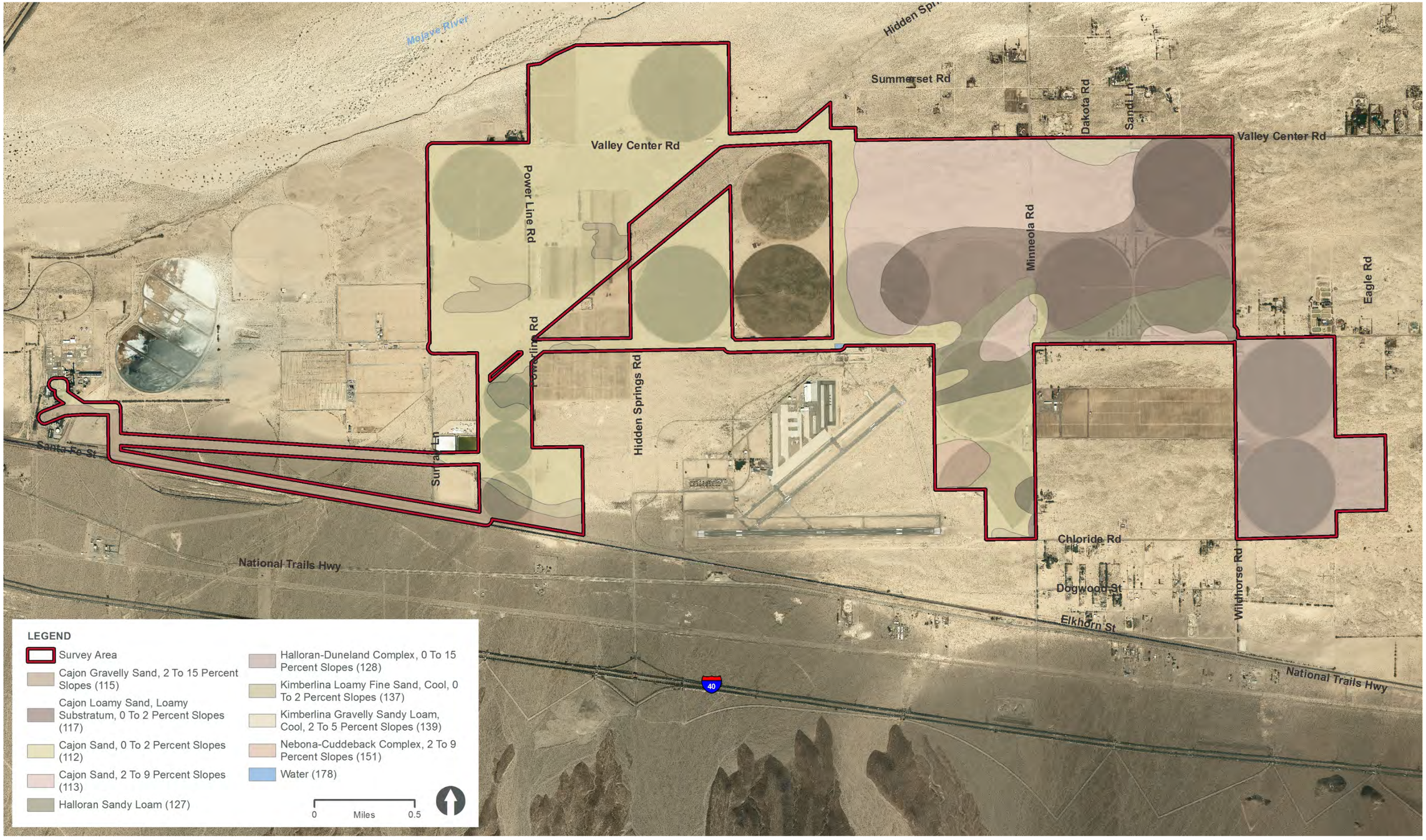
4.1.6 Soils

Soils within much of the JSA have been disturbed as a result of agricultural, residential, and industrial uses. Soils in the project area were mapped using the Natural Resources Conservation Service Web Soil Survey (USDA 2017a). The proposed project encompasses water and the following five different soil series (Figure 3):

- **Cajon Series** - This series consists of very deep, somewhat excessively drained soils that are formed in sandy alluvium from dominantly granitic rocks. These soils range from strongly alkaline to strongly saline-alkali. Runoff is negligible to low with rapid permeability. Cajon soils are formed on recent fans, fan skirts and aprons, and river terraces from 200 to 4,300 feet amsl on 0-15 percent slopes.
- **Halloran Series** - This series consists of deep, moderately well drained soils that formed in mixed alluvium. These soils range from mildly to moderately alkaline. Runoff is slow with moderately slow permeability. Halloran soils are formed on old alluvial terraces and depressional areas that have been overblown with irregularly spaced hummocks and small dunes which occupy 15 to 35 percent of the area and are mapped in some areas as a complex with Dune land. This complex occurs from 1,800 to 1,850 feet amsl on 0 to 2 percent slopes.
- **Kimberlina Series** - This series consists of very deep, well drained soils formed in mixed alluvium from dominantly igneous and/or sedimentary rocks. These soils are moderately alkaline. Runoff is medium with moderately rapid and moderate permeability. Kimberlina soils are formed from recent alluvial fans and flood plains from 1,800 to 4,100 feet amsl in the Mojave Desert on 0 to 9 percent slopes.
- **Nebona-cuddeback Series** - The Nebona series consists of shallow, well drained soils formed in mixed alluvium. These soils are mildly to moderately alkaline. Runoff is medium to rapid with moderately rapid permeability. Nebona soils are formed from old gravelly desert pavement covered terraces derived from nonmarine mixed alluvium from 2,200 to 3,000 feet amsl on 2 to 9 percent slopes.

  The Cuddeback series consists of well drained soils formed in alluvium from mixed sources. These soils are mildly to moderately alkaline. Runoff is medium to rapid with moderately slow permeability. Cuddleback soils are formed from old terraces and alluvial fans from 2,200 to 3,000 feet amsl on 2 to 9 percent slopes.

Figure 3. Soils



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- **Riverwash Series** - This series consists of generally rapid runoff that typically consists of sandy or gravelly cobble and boulder deposits. Soils of this series occurring on alluvial fans are considered hydric.

4.1.7 Hydrology

The project area is located within the Lower Mojave Hydrologic Sub-Area (628.50) of the Mojave Watershed (18090208). The sub-area is approximately 317.5 square miles and drains to the Mojave River. The site is located within the Mojave River Groundwater Basin, an approximately 1,400 square mile area that extends from the San Bernardino and the San Gabriel mountains in the south, Harper and Coyote lakes in the north, Antelope Valley to the west, and Daggett to the east. The primary source of groundwater recharge in the Mojave River groundwater basin is intermittent streamflow in the Mojave River, which typically occurs January through March, and from sporadic releases of imported water from the California State Water Project (USGS 2018).

Local Drainage

The only obvious, large surface drainage feature in or adjacent to the JSA is the Mojave River. To the south of that drainage, where project facilities would be located, there are no obvious or defined drainage features and the area has only very localized surface runoff. It appears that rainfall in that area quickly percolates into the soil.

Flooding

The project area is not located within the Federal Emergency Management Agency 100- or 500-year flood zones (FEMA 2016).

Groundwater

Based on a monitoring well located within the Barstow-Daggett Airport, identified by the California Department of Water Resources, recent groundwater levels are approximately 143 to 150 feet bgs (Terracon 2017).

4.2 Jurisdictional Delineation Results

As indicated in Section 4.1.5, the JSA lies on an old inactive floodplain terrace (Brady and Vyverberg 2014). Based on a review of National Wetlands Inventory data, National Hydrography Dataset, historic aerials and the USGS 7.5' topographic quadrangles for the project vicinity, any surface flows anticipated to traverse the JSA would originate in the Newberry Mountains to the south of the JSA (Appendix A Figures A and B). Based on typical alluvial fan morphology, where channel form is lost as flows proceed down the alluvial fan and dissipate on the valley floor, it is likely that defined stream channels were not present on the valley floor even before development of the valley including the Burlington Northern Santa Fe (BNSF) railroad constructed in the late 1800's and subsequent agricultural development. Additionally, Interstate-40, constructed in the early 1970's, National Trails Highway (Historic Route 66), and the railroad (which abuts a portion of the JSA) now interrupt surface flows from the south. Under current conditions, confined stream flows from the Newberry Mountains emerge and split into network of distributary watercourses as flows proceed down the alluvial fan. A system of berms constructed on the south side of Interstate-40 concentrate surface flows from these existing watercourses to the south and direct them beneath the highway through approximately 16 large undercrossings. The resulting concentrated flows appear to split again and

dissipate before encountering National Trails Highway and the BNSF railroad where signs of surface flow generally disappear.

Each railroad culvert and bridge situated between the Newberry Mountains and the JSA (Figure 4 through Figure 12) was closely examined for an OHWM and indicators of episodic flows. Indicators of OHWM or episodic flows (line impressed on the bank, water staining, mud cracks, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, organic drift, flow lineations, sediment sorting, sediment tails, cut banks, variation in vegetation, plastering, overturned rocks, ripple marks, levee ridges, scour) were absent at the culvert outlets and bridges confirming that little or no surface flow is passing through the various barriers to reach the site.

Because of these conditions, few aquatic features were identified within the JSA and those that are present are relics of past constructed drainage or irrigation features, erosional, artificially irrigated, or limited in function.

In total, six distinct linear features and several isolated desert flat areas were identified and analyzed for potential to be regulated under the Clean Water Act, Fish and Game Code or Porter-Cologne Act.

Feature Descriptions

Ditch A

Ditch A originates at the retired Coolwater Gas Power Plant property boundary and ends at a culvert that would carry surface flows to Feature A. Based on its absence on 1952 and 1970 aerial photography, the ditch was most likely constructed concurrent with or after construction of the power plant (Appendix A, Figures C and D). The ephemeral unvegetated ditch measures 55 feet long and exhibits a fine silt bed with a thin layer of cracked soils providing evidence of short-term inundation only (Figure 4 and Figure 5). Indicators of fluvial transport or OHWM (line impressed on the bank, water staining, shelving, changes in the character of soil, the presence of litter and debris, organic drift, flow lineations, sediment sorting, sediment tails, cut banks, variation in vegetation, plastering, overturned rocks, ripple marks, levee ridges, scour) are absent. Pursuant to USACE guidance following the Rapanos decision, this ephemeral ditch constructed in upland would not be regulated under the Clean Water Act. Based on the absence of fluvial transport indicators this ditch exhibits little if any aquatic function and would not be regulated by CDFW based on 2014 guidance regarding mapping episodic streams (Brady and Vyverberg 2014). RWQCB is not likely to assert jurisdiction over this feature based on the Porter-Cologne Act because this feature was constructed in upland and does not exhibit any indicators of fluvial transport or OHWM.

Ditch B

Ditch B appears to be a remnant from past agricultural uses. It originates at Santa Fe Road just west of the transmission line corridor that traverses the JSA from southwest to northeast. It is visible on 1952 aerial photography and consists of two parallel berms constructed at grade roughly parallel to the BNSF railroad. The ditch exhibits a U-shape, is heavily vegetated and lacks indicators of fluvial processes or OHWM (Figure 4 and Figure 6). Based on the absence of an OHWM, indicators of fluvial processes and bed or bank, the feature is not subject to regulation by USACE, RWQCB or CDFW.

Desert Flats Exhibiting Cracked Soils

The project site exhibits many small unvegetated playas or pans exhibiting a shallow layer of cracked soils and, in some cases, a patchy salt crust, but no indicators of surface flows into or out of the feature. Based on field observations, they become inundated only for a very short duration after a rain event (less than 3 days) Representative photographs are provided in Figure 5, Figure 7, Figure 10 and Figure 11[3]. . These features exhibit no OHWM and no hydrologic connectivity with Mojave River and lack wetland vegetation and hydrology under normal circumstances, therefore not qualifying as USACE/RWQCB wetland or non-wetland WOUS. These features also exhibit no bed, bank or fluvial transport indicators, thus they do not qualify as streambed and would not be regulated by CDFW. RWQCB is not likely to assert jurisdiction over this feature under the Porter-Cologne Water Quality Act because they exhibit no signs of flow or sufficient inundation to qualify as a waters of the state.

Feature A

Feature A is located at the extreme western portion of the JSA where the gen-tie options tie into the existing substation (Figure 4 and Figure 5; Appendix A Figure E). It originates south of the JSA at National Trails Highway where sheet flow combines at a concrete drop structure to create an incised low flow channel. The channel bed exhibits sandy soils and supports Mojave Creosote Bush Scrub consistent with that occurring in adjacent upland areas. Feature A exhibits an OHWM based on change in soil character, presence of litter and debris, flow lines and shelving. However, these indicators end approximately 667 feet north of Santa Fe Street before the feature enters the JSA. Banks measure approximately 2 to 5 feet high. Bank width measures between 80 and 110 feet. However, similar to the OHWM, the bed, bank and fluvial transport indicators (flow lines, wrack, bars, sediment ramp, organic drift, cut banks) end soon after the OHWM ends and before entering the JSA and over 4,700 linear feet away from the Mojave River. Therefore, USACE, RWQCB and CDFW would not regulate this feature where it traverses the gen-tie line study area.

Feature B

Feature B was heavily disturbed by vehicular use; however, remnants of a less disturbed bank were intermittently visible. Based on aerial photography, this feature appears to originate south of the project within the Newberry Mountains (Appendix A Figure F). Within the JSA, it is located at the southern boundary at Santa Fe Road between Powerline road and Hidden Springs Road (Figure 4 and Figure 7). The channel bed there consists of sandy loam and is unvegetated until the defined banks and distinct soil characteristics disappear amongst upland vegetation. Banks, where present, measure approximately 2 feet high and are approximately 11 feet. Based on historic aerial photography, it is presumed that this feature exhibits an OHWM of up to 11 feet in width if left undisturbed. This ephemeral feature totals approximately 0.08 acre within the JSA and measures approximately 336 feet in length before ending over 2.3 miles away from the Mojave River.

There is no field evidence or evidence from current or historic aerial imagery that this channel has a hydrologic connectivity to the Mojave River or any other drainage feature. Therefore, it does not exhibit a significant nexus with a TNW or other water that could be regulated under Section 401 or 404 of the CWA.

[3] Only the most prominent examples are depicted on the delineation maps because additional delineation was considered unnecessary after determining that these features would not be subject to regulation.

Based on the presence of bed and bank and evidence from aerial photographs of fluvial transport function, this feature would be subject to regulation by CDFW under Section 1600-1616 of the California Fish and Game Code. Should USACE concur that this feature does not qualify as WOUS, the RWQCB is likely to assert jurisdiction over it under the Porter-Cologne Act because it exhibits a clear bed and bank and appears to regularly convey ephemeral flows.

Feature C

Feature C consists of two small one-foot-wide, unvegetated, ephemeral erosional rills that carry surface flows from the adjacent roadway to a small, isolated roadside depression (Figure 4 and Figure 5).

The roadside depression does not support hydrophytic vegetation or pond for a long duration. Therefore this feature does not qualify as a USACE wetland WOUS. Additionally, Feature C is a small localized feature with no hydrologic connectivity to the Mojave River or any other downstream features. Therefore, it would not exhibit a significant nexus with a TNW.

Although this feature exhibits indicators of fluvial transport including cut bank and wrack, this feature has extremely limits function. It carries sediment and water less than 25 feet where it is deposited in a roadside ditch which ponds for short durations (< three days based on field observations). Based on the very limited fluvial function associated with this erosional feature, it would not be subject to CDFW jurisdiction. The RWQCB is not likely to assert jurisdiction over this feature under the Porter-Cologne Act because it is an erosional feature and exhibits insufficient inundation to qualify as a water of the state.

Feature D

Feature D is located at the southern boundary of the JSA, just west of Minneola Road and east of Daggett Airport. It consists of two small, unvegetated ephemeral channels with an average one-foot-wide OHWM that convey surface water from an agricultural field to an isolated depression south of the agricultural field (Figure 4 and Figure 10). The isolated depression exhibits cracked soils and was observed to pond water for two day after a rain event that occurred during biological surveys. OHWM was indicated by shelving and flow lines. No salt crust is evident. Based on the 1970 aerial, provided in Appendix A Figure G, it is clear that the ephemeral channels did not exist prior to agricultural development. Therefore, the channels would not be expected to continue providing fluvial transport functions or exhibit an OHWM after agricultural activities are ceased. As a result, USACE, RWQCB, and CDFW would not regulate this feature.

Figure 4. Jurisdictional Delineation Key Map

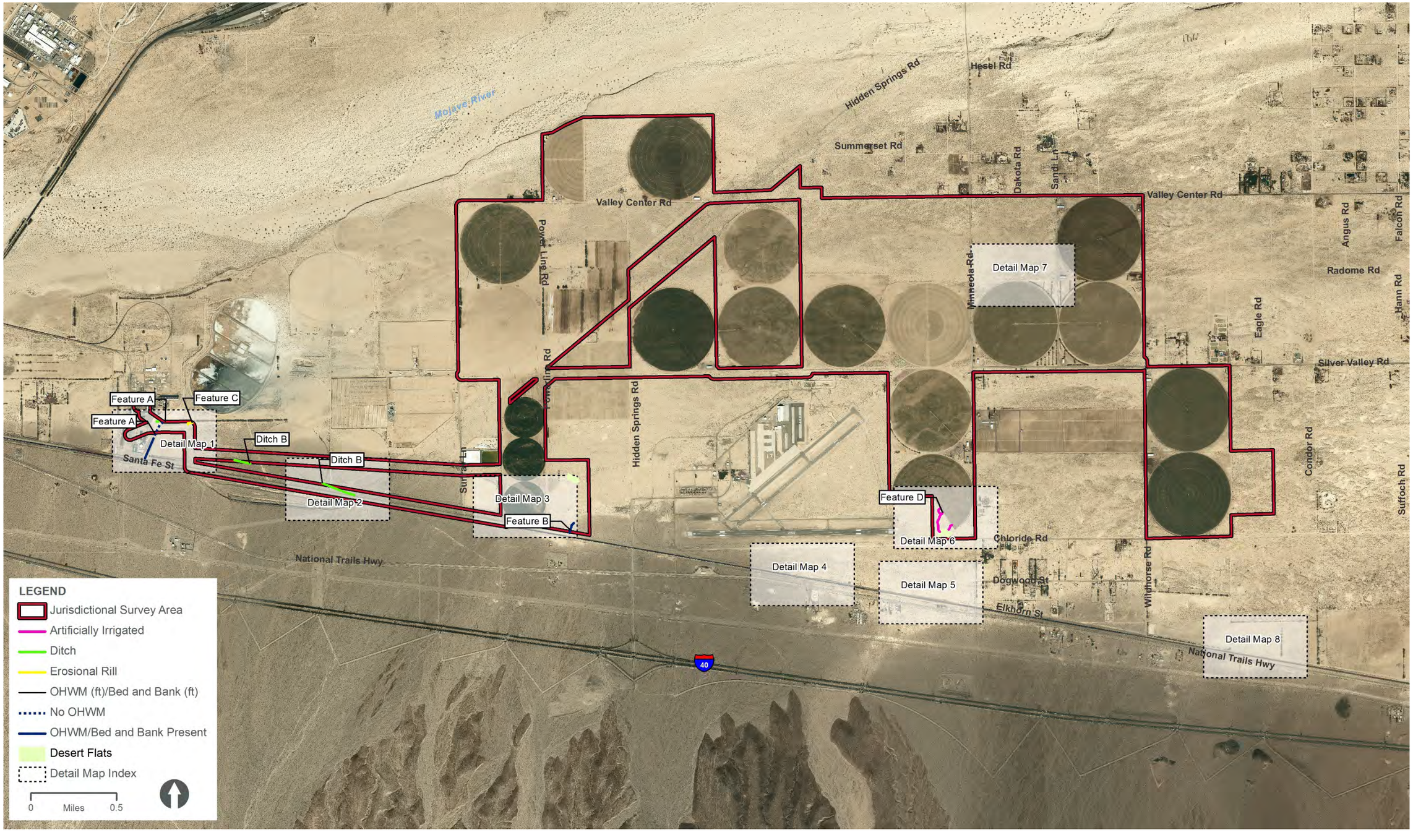

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Figure 5. Jurisdictional Delineation Detail Map 1

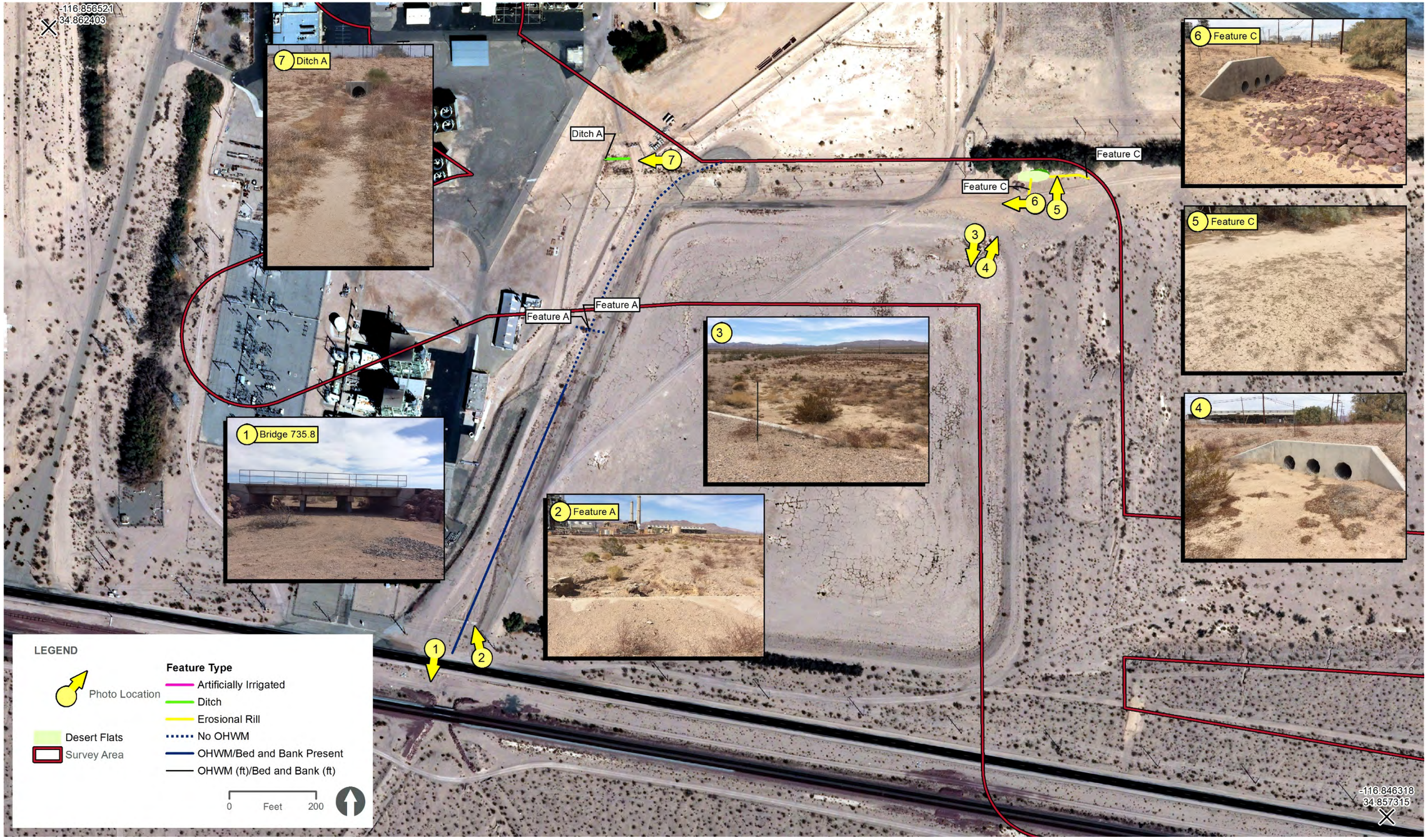

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Figure 6. Jurisdictional Delineation Detail Map 2

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Figure 7. Jurisdictional Delineation Detail Map 3

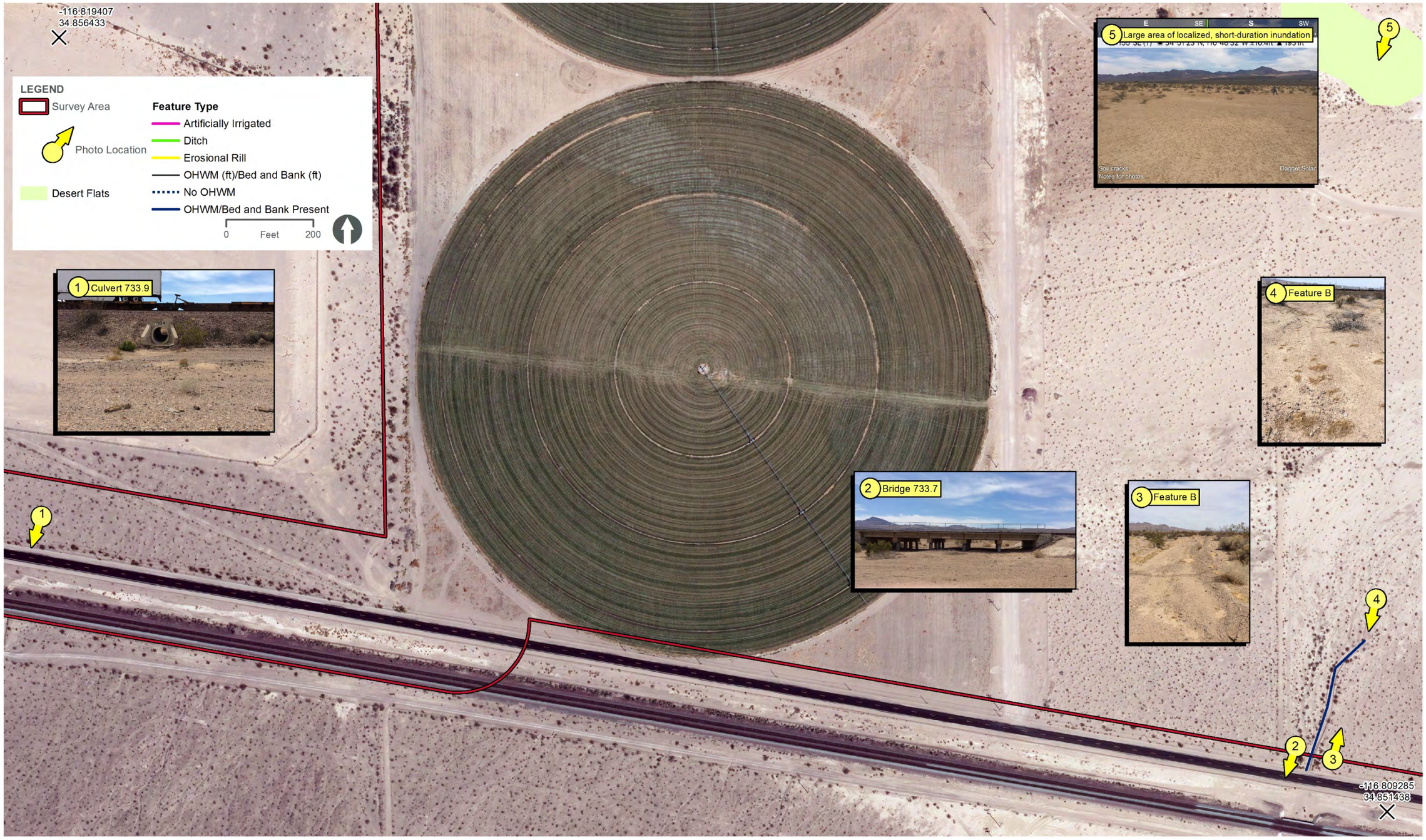

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Figure 8. Jurisdictional Delineation Detail Map 4

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Figure 9. Jurisdictional Delineation Detail Map 5

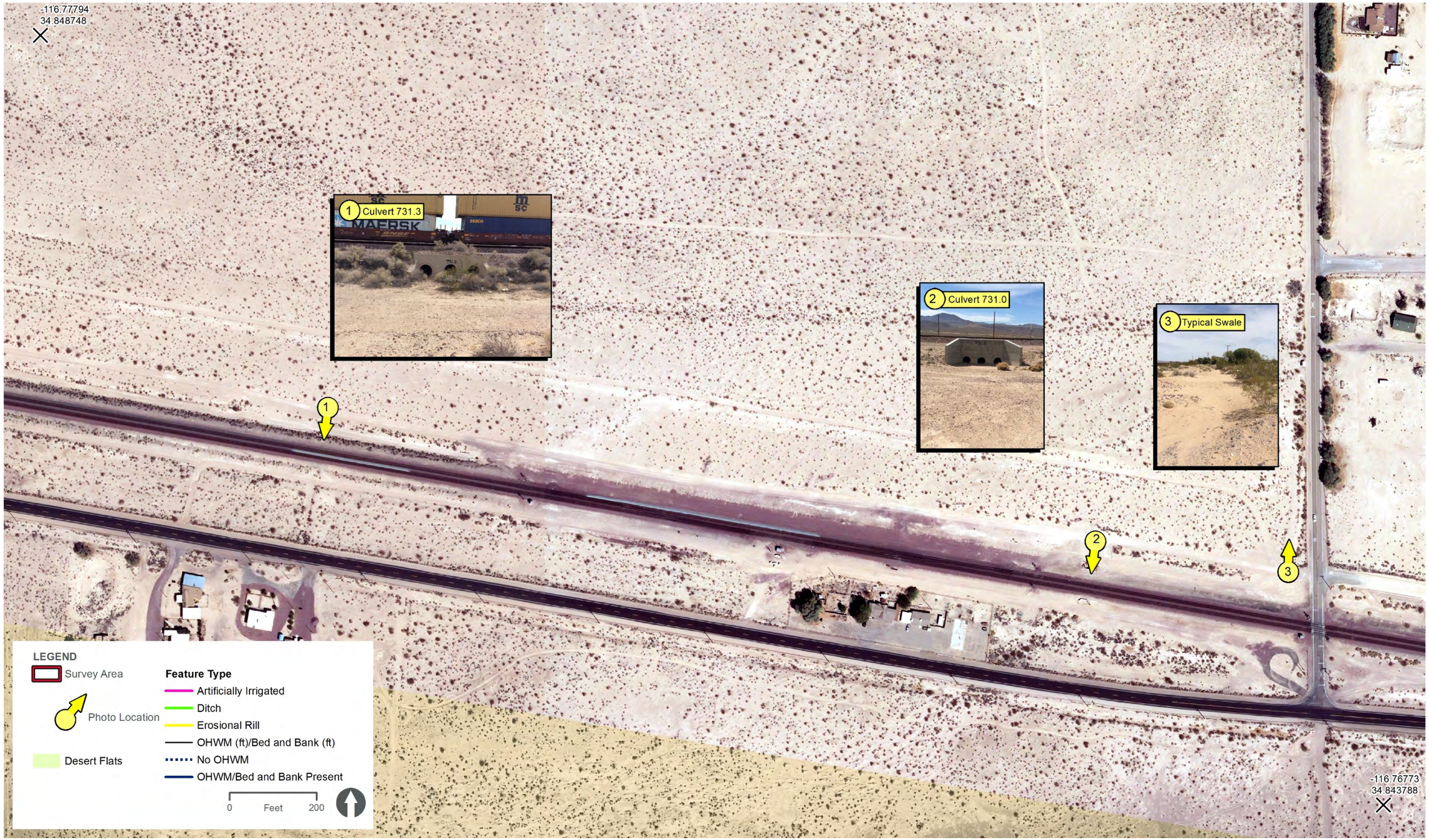

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Figure 10. Jurisdictional Delineation Detail Map 6

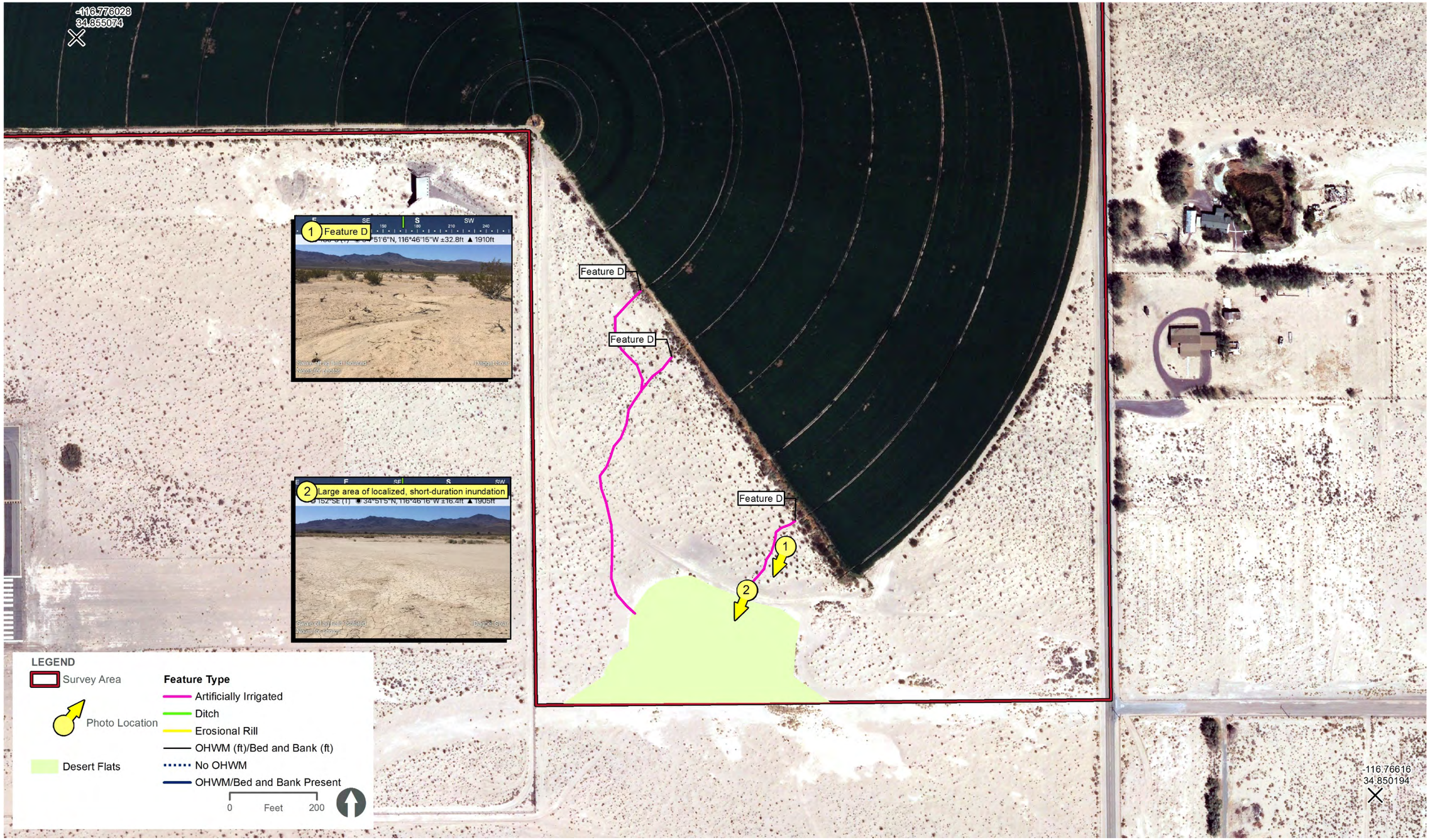

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Figure 11. Jurisdictional Delineation Detail Map 7

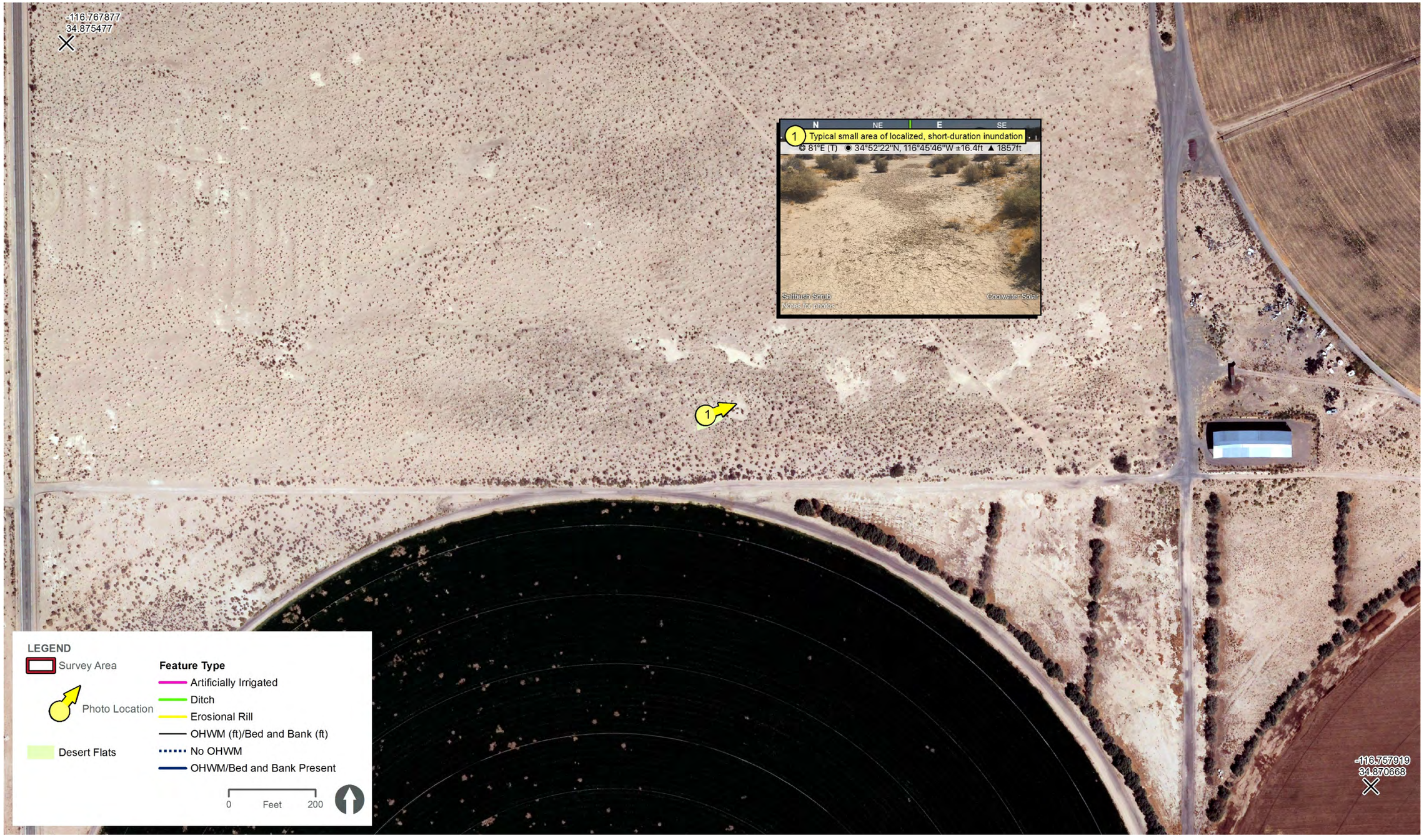

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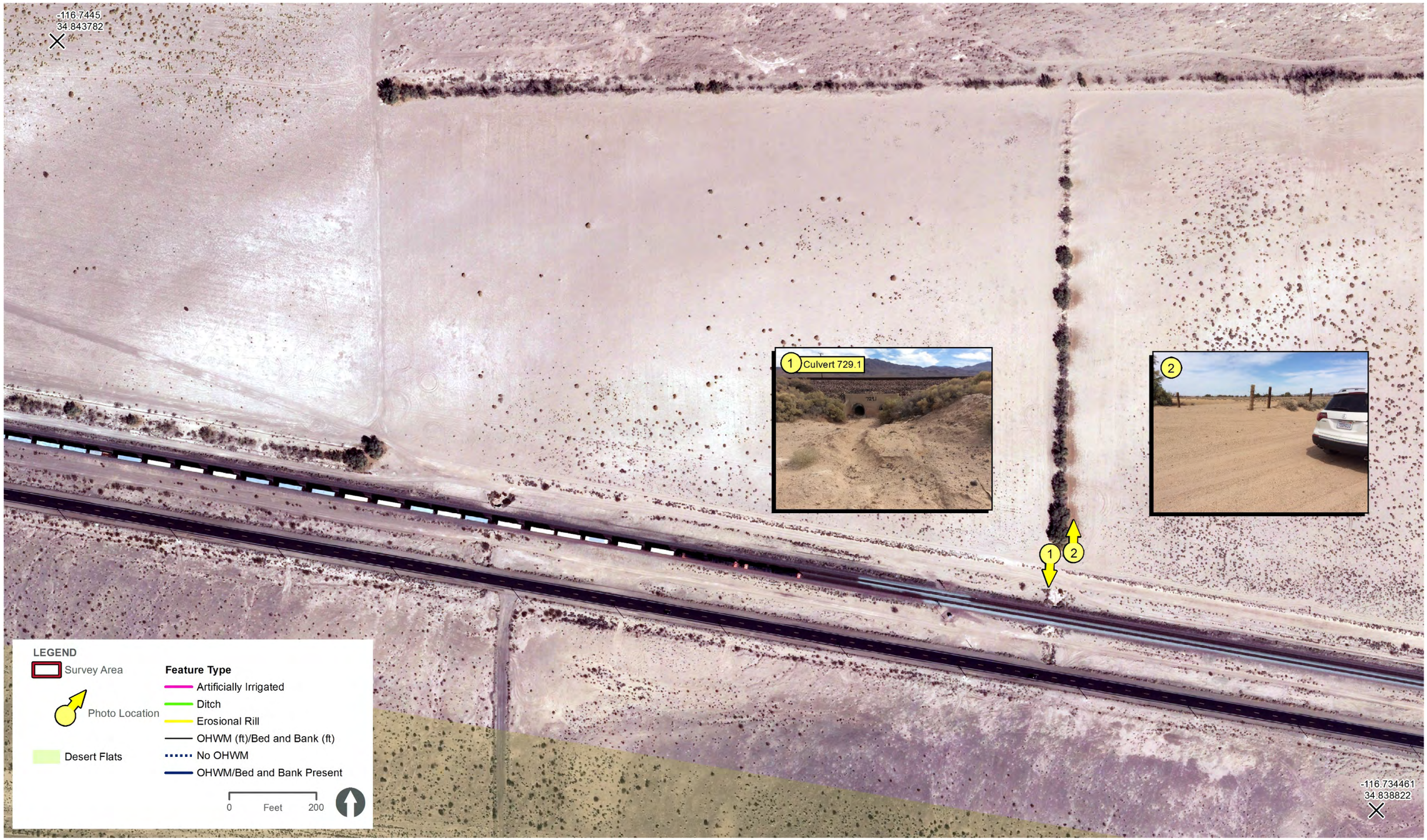
Figure 12. Jurisdictional Delineation Detail Map 8



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5 Conclusions

5.1 Potential Waters of the U.S.

The JSA includes two ephemeral features that exhibit an OHWM but otherwise would not be regulated.

- Feature C consists of two small erosional features that carry surface flows from the adjacent roadway to a small, isolated roadside depression.
- Feature D originates from irrigation of adjacent agricultural operations.

Erosional rills and artificially irrigated features generally are not subject to regulation pursuant to USACE Guidance (USACE 2008a) and therefore generally do not require a Section 401 or 404 authorization for discharge of fill material.

A third channel, Feature A, exhibits an OHWM, however that OHWM ends south of the gen-tie line study area. Therefore, the project is not anticipated to result in discharge of fill to this feature.

Finally, Feature B is an approximately 365-foot long channel within the project area totaling about 0.08 acres. That water course is very disturbed and has no clear field evidence of an OWHM; however, based on intermittent cut banks and historic aerial photography, it is presumed to have an OHWM in the absence of disturbance; therefore, this feature has the potential to be regulated under Section 401 and 404 of the CWA. However, the channel is an isolated feature, as it is more than 2.3 miles from and does not have a significant nexus to the Mojave River or any other potentially regulated water. Isolated features that do not have a significant nexus to TNW or other regulated waters generally are not regulated under Sections 401 and 404 pursuant to current CWA regulations (USACE 2008a).

If placement of fill material into this feature cannot be avoided to construct the solar facility and associated infrastructure (such as the perimeter road), an approved jurisdictional determination from the USACE could be requested to document that further compliance required under Sections 401 or 404 of the Clean Water Act would not be necessary. Such a request might be necessary for this project to confirm that there are no waters within the JSA regulated by RWQCB under Section 401 of the CWA.

Alternatively, the project could be authorized under NWP 51 for Land-Based Renewable Energy Generation Facilities using a preliminary jurisdictional determination that treats Feature B as if it was subject to regulation. Although no notification is required by NWP 51 when loss of non-wetland WOUS are less than 0.1 acre, this NWP is not pre-certified by the RWQCB. Therefore, a 401 certification would still be required.

These findings represent our professional opinion based on the most current guidance and experience of our regulatory specialists. Only the regulatory agencies can make a final determination of the regulatory status of an aquatic feature.

5.2 CDFW Streambed

The JSA includes three ephemeral features exhibiting bed and bank or indicators of fluvial processes (Features B, C and D). Two of these are channels that are not regulated by CDFW under Section 1600 of the California Fish and Game Code.

- Feature D is artificially irrigated and would cease to have active fluvial processes after irrigation ends.
- Feature C consists of two small erosional features with very limited fluvial function.

A third channel, Feature A, exhibits bed and bank, however that bed and bank ends south of the gen-tie line study area. Therefore, the project is not anticipated to result in substantial modification of this feature.

Finally, Feature B will be regulated by CDFW under Section 1600 because it has evidence of a bed and bank and indicators of fluvial transport based on historic aerial photography. This feature flows for approximately 365 feet immediately north of Powerline Road and along and near the edge of one parcel included in the project. Substantial modification of this feature would require a CDFW Streambed Alteration Agreement. Note that Section 1600 regulations do not consider whether a water feature is isolated.

These findings represent our professional opinion based on the most current guidance and experience of our regulatory specialists. Only the regulatory agencies can make a final determination of the regulatory status of an aquatic feature.

5.3 Potential RWQCB-Regulated Waters

The only feature that RWQCB is likely to assert jurisdiction over under the Porter-Cologne Act is Feature B. Should USACE concur that Feature B does not qualify as WOUS, the RWQCB is likely to assert jurisdiction over it under the Porter-Cologne Act because it exhibits a clear bed and bank and appears to regularly convey ephemeral flows. If RWQCB asserts jurisdiction over this feature under the Porter-Cologne Act, then waste discharge requirements may be required if the project cannot avoid impacting this feature.

These findings represent our professional opinion based on the most current guidance and experience of our regulatory specialists. Only the regulatory agencies can make a final determination regarding the regulatory status of an aquatic feature.

6 List of Preparers

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Appendix A. Historic Aerial Photographs and USGS Topographic Quadrangles

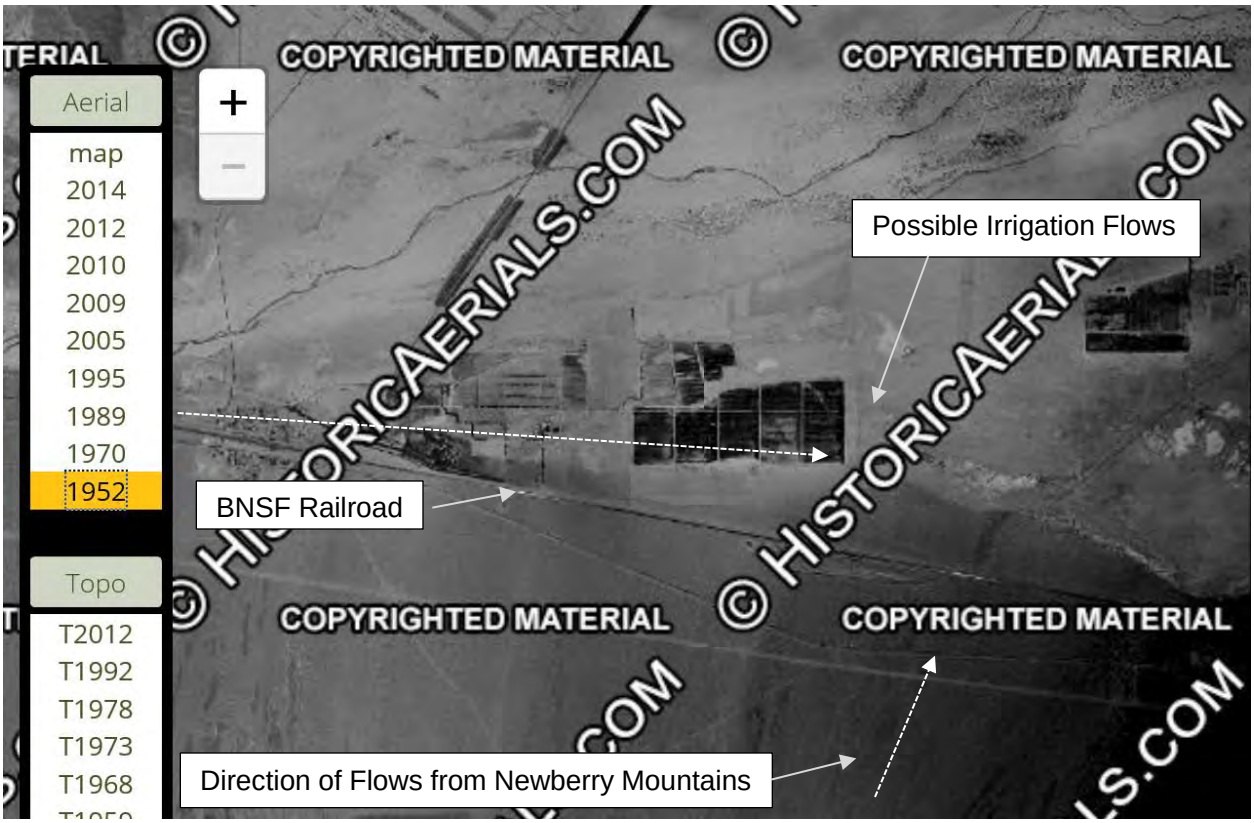

Figure A. 1952 Aerial Photograph. Note the lack of obvious stream channels reaching north of the railroad. There is evidence of irrigation based on the 1957 topographic mapping visible in Figure B below

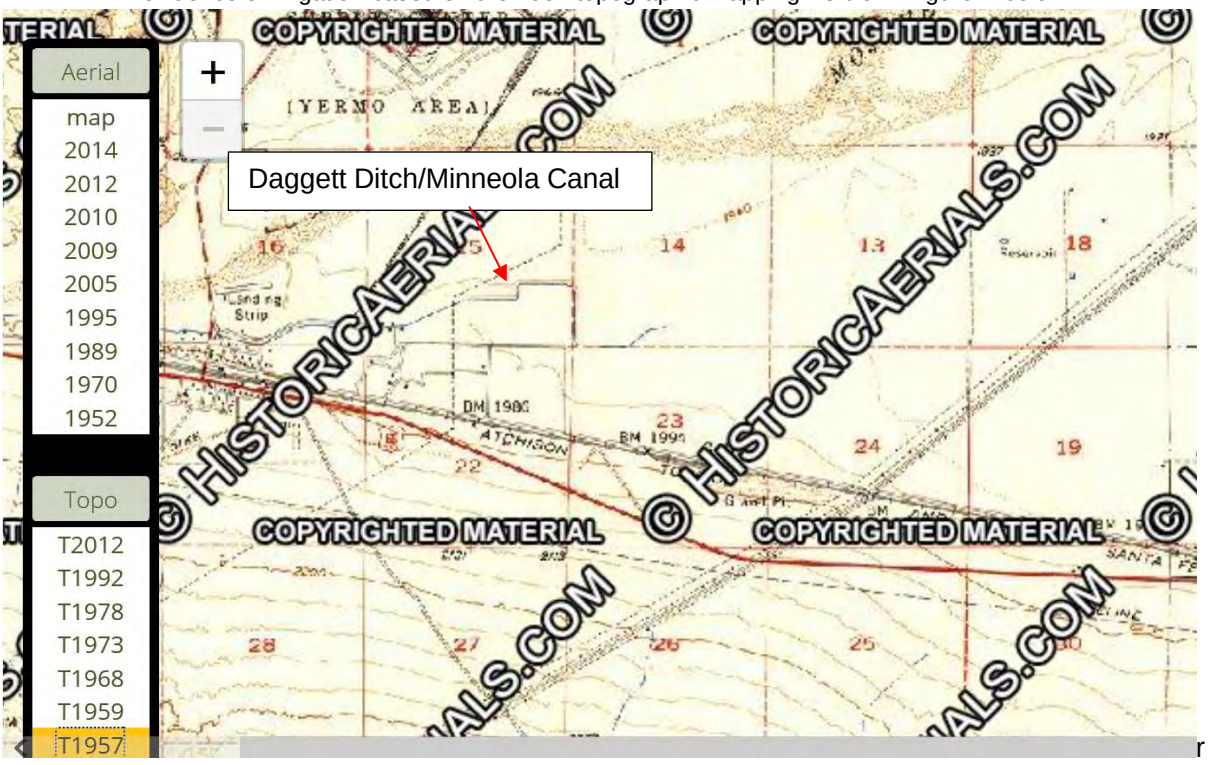

Figure B. 1957 USGS Topographic Mapping. Note the lack of defined channel features with the exception of the blue-line originating to the west of Daggett, possibly indicating an irrigation ditch

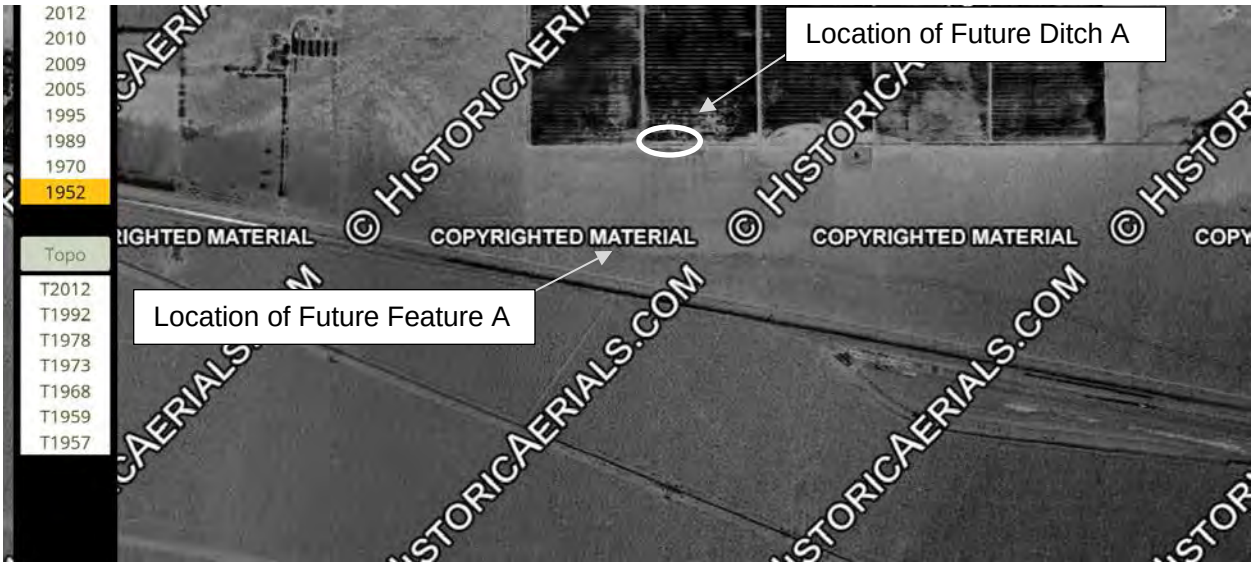

Figure C. 1952 Aerial Photograph in the vicinity of the Coolwater Gas Power Plant. Note the absence of features present in the current condition

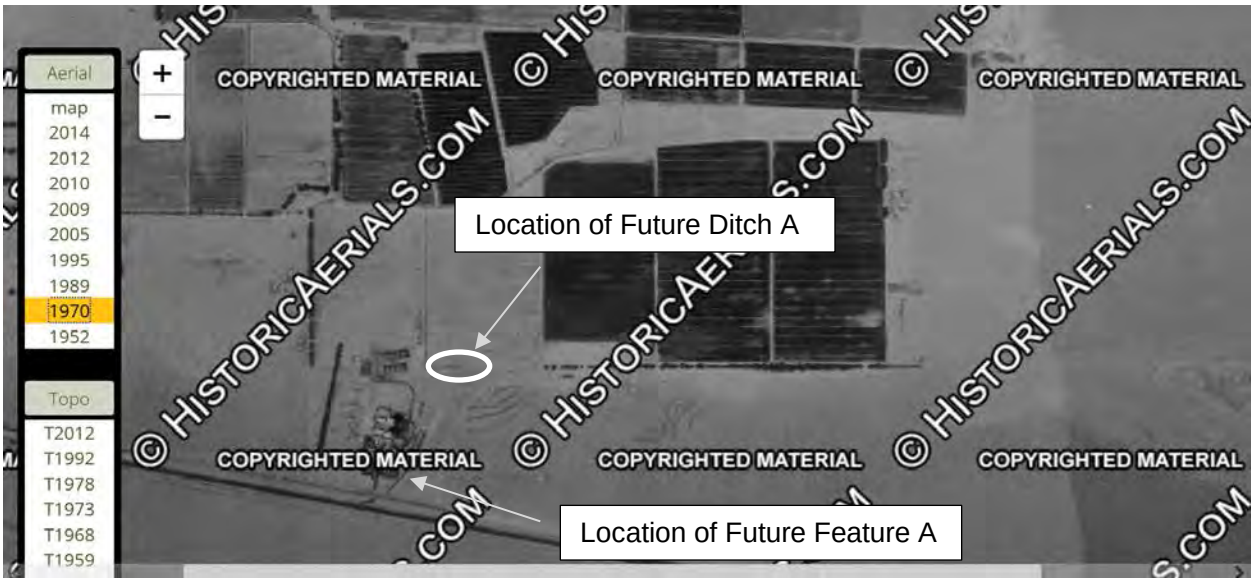

Figure D. 1970 Aerial Photograph in the vicinity of the Coolwater Gas Power Plant. Note the absence of features present in the current condition

Figure E: Feature A looking south from within the JSA. Note the absence of bed, bank, OHWM and fluvial transport processes

Figure F: 2005 Aerial Photography. Note that Feature B originates off-site from the south based on this aerial, ending where bed and bank disappear in the field

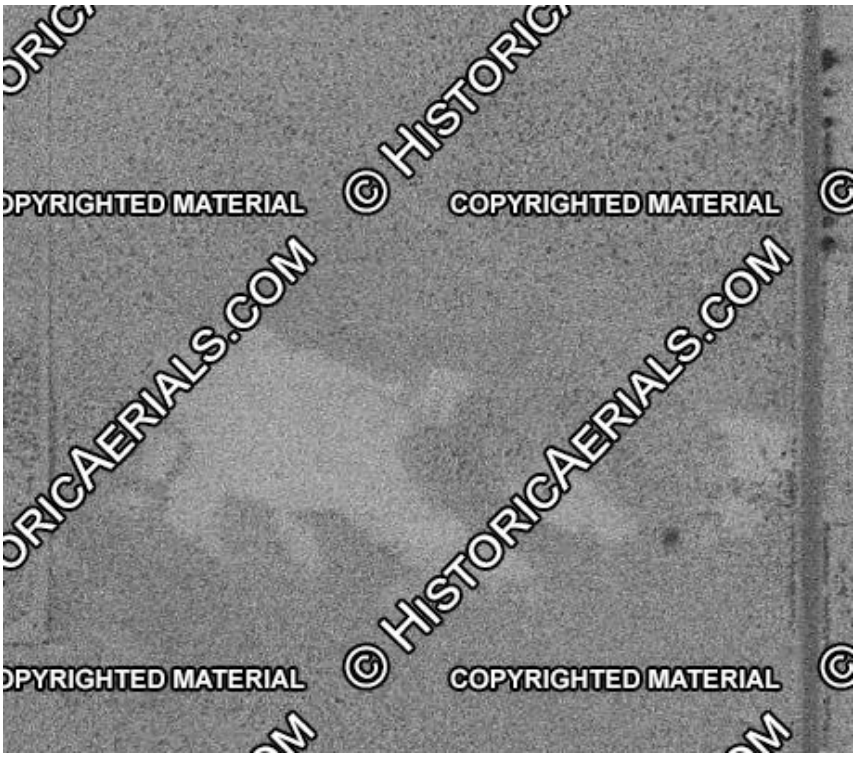

Figure G 1970 Aerial Photograph – Vicinity of Feature D

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