APPENDIX I
INVESTIGATION OF THE PRESENCE OF CORPS AND US EPA JURISDICTIONAL WATERS

Investigation of the Presence of Corps and US EPA Jurisdictional Waters Desert Quartzite Project Site Riverside County, California

Prepared for

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EXECUTIVE SUMMARY

At the request of First Solar Development, LLC (First Solar), Huffman-Broadway Group, Inc. (HBG) conducted an investigation of the geographic extent of wetlands and other waters at First Solar's proposed Desert Quartzite photovoltaic solar power generation facility site in Riverside County, California, that are potentially subject to:

(1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) regulation under Section 404 of the Clean Water Act (CWA) and

(2) Corps jurisdiction under Section 10 of the Rivers and Harbors Act.

The purpose of the investigation was to provide a detailed jurisdictional delineation in accordance with Corps methodology and guidelines that can be used by First Solar in determining the need to pursue project authorization from the Corps for development of a solar-photovoltaic generation facility onsite. The investigation covered a contiguous 5,002.8-acre study area (Study Area) in an unincorporated portion of eastern Riverside County. Appendix A, Figure 1, shows the general location of the Study Area.

Study Area Location and Background Information

The Study Area is in the Colorado Desert Section of the Sonoran Desert in an unincorporated part of Riverside County, California. The city of Blythe is about 6.5 miles to the east (Appendix A, Figure 1). The Study Area is approximately 0.46 mile south of Interstate I-10, and is northeast of the Mule Mountains, east of Milpitas Wash Road, and west of Palo Verde Valley and the Lower Colorado River (Appendix A, Figures 1 and 2). Approximate latitude and longitude coordinates for the center of the Study Area are 33.57895 / -114.756497.

The Study Area is on largely vacant, undeveloped land within the Palo Verde Mesa in eastern Riverside County.

- **Topography.** The Study Area is within portions of the Roosevelt Mine (1983) and Ripley (1952, rev.1975) USGS 7.5-minute quadrangles (Appendix A, Figure 2). The majority of the Study Area has relatively flat desert terrain. Elevations range from approximately 380.6 to 577.4 feet (116.0 to 176.0 meters) above mean sea level.
- **Soils.** The NRCS custom soil resources report In Appendix B indicates that the Study Area is within the Colorado Desert Area and Palo Verde Area NRCS soils mapping units. Nine soil types have been mapped within the Palo Verde Area portion of the Study Area (4,446.6 acres [89%]). The parent material / landform of more than 80% of these soils is mixed alluvium / alluvial fan remnants; the parent material / landform of about 14% of the soils is Eolian sands /sand sheets, with the remainder being mixed sand and gravel soils in the arroyos landform. No soils data have been collected for the Colorado Desert Area in the western 556.3 acres of the Study Area although HBG found soils in this unmapped area to be the same as or similar to the Palo Verde Area soils.

- **Hydrology.** The Study Area primarily lies within the Imperial Reservoir 8-digit Hydrologic Unit Code (HUC) watershed, HUC 15030104. The western tip of the Study Area, however, is in the South Mojave 8-digit HUC watershed (HUC 18100100). Figures 3 and 4 in Appendix A show HUC 8 and HUC 12 watersheds. Figure 5 shows National Hydrography Dataset (NHD) flowlines and flow directions for the Study Area and its vicinity. Most flow onto the Study Area is from the north-northwest, crossing the northernmost portion of the site.

  Surface and channel flooding can occur within the Study Area any time of year; however, many years can pass between surface flow events. If flow does occur, it typically runs within small localized areas before it infiltrates the soil. Flooding as a result of high intensity thunderstorms typically lasts only a few hours and typically occurs in localized areas.

- **Vegetation.** The Study Area is dominated by one distinctive vegetation type, creosote bush scrub, with a small amount of desert dry wash woodland (following the Holland 1986 California Vegetation Classification System).

- **Weather.** The Study Area has a desert climate with very hot, dry summers and mild winters based on review of WETS data (Appendix C). Average annual precipitation at the Blythe AP WETS Station for the period of record (1971 – 2000) is 4.02 inches. For the same period of record, the annual average temperature is 72° F; maximum temperatures in June, July, and August are between 104° F and 107° F.

Regulatory Framework

Section 2.0 describes the regulatory framework for jurisdictional delineations, describing the geographic extent of Corps jurisdiction under Section 404 of the Clean Water Act and definitions of “waters of the United States,” including wetlands; the geographic extent and limits of federal jurisdiction under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899; the key diagnostic criteria used for determining the presence of wetlands related to hydrophytic vegetation, hydric soil, and wetland hydrology; and the use of the ordinary high water mark (OHWM) to establish CWA jurisdictional limits in the absence of wetlands.

Delineation Method

This study consisted of both preliminary and detailed field investigations and data mapping followup at HBG’s office. The preliminary investigations identified areas onsite where waters of the US may potentially occur based on a March 2014 field reconnaissance and review of USGS topographic mapping, USGS National Hydrography Dataset (NHD) HUC 8 and HUC 12 mapping, NAIP orthorectified aerial photography, and an NRCS Custom soil resources report.

Detailed field investigations were conducted on foot within the Study Area during May 2014 and February 2015. The locations of field sampling points and OHWMs were documented in the field using a hand-held, Trimble XT global positioning system (GPS) unit with sub-meter accuracy after geoprocessing.

Wetlands. Field data to assess the presence or absence of wetland soil, hydrology and

vegetation conditions were collected in accordance with the regulations, policy, and methodology described in Section 2.0; field data were recorded on Wetland Determination Data Forms (Arid West Region).

Other Waters. Field data to assess the presence or absence of other waters of the US were recorded on OHWM Determination Data Forms. The locations of potential other waters of the US within the Study Area was determined using physical characteristics as described in Corps Regulatory Guidance Letter 05-05 to define an OHWM (e.g., evidence of erosion, drift, sediment deposition, change in plant community).

Mapping. Recorded GPS data were incorporated into a Geographic Information System (GIS) and georeferenced in overlay fashion onto a USGS topographic base map and March 2011 NAIP digital aerial photograph. This aerial photograph was orthorectified to a 1:25,000 USGS topographic base following national mapping standards. Active linear drainage features were mapped as line features due to their narrow width. The maps of areas potentially subject to Corps jurisdiction are presented in Appendix A, Figure 6. The GIS data and mapping were used to assist in the analysis, identification and digitization of the location and geographic extent of areas that would potentially qualify as waters of the United States.

Technical Findings

Wetlands. No areas were found within the Study Area that meet the technical criteria for wetlands described in Section 2.3.

Other Waters of the US. Physical characteristics indicative of high water associated with surface water flows were found along the sides of channel banks or streambeds of active ephemeral stream channels and an excavated ephemeral stream drainage. The physical characteristics found included water marks (in the form of bank scour, erosion and/or shelving), sediment deposits (linear deposits of fine-grained sediment), drift deposits (flow deposited woody and soft tissue plant debris), and a distinctive no vegetation / vegetation line or border. Field data for the Study Area are presented in Appendix E.

On the basis of the technical findings resulting from the field data analysis, it was determined that areas potentially subject to Corps and US EPA jurisdiction as other waters of the US occur within the Study Area. This determination was based on the presence of OHWMs found at the margins of streambeds / active floodplains, which are locally referred to as desert dry washes or arroyos. The OHWM determination is based on physical characteristics that represent stormwater flows that occur on a regular or frequent basis. These potential jurisdictional waters are summarized below in Table ES1 by NWI habitat type, type of water of the US, and length within the Study Area. Figure 6 in Appendix A provides mapping showing the locations of these potential jurisdictional waters. The “Corps Waters Upload Sheet” in Appendix G identifies the length and width of each potential water of the US.

Table ES1. Potential Waters of the US Found Within the Study Area		
Habitat Type[1]	**Corps / US EPA Type of Potential Waters of the US**	**Linear Feet**
Riverine	Other Waters of US	
Ephemeral Riverine Intermittent Streambed	Stream	40,349
Excavated Ephemeral Riverine Intermittent Streambed	Stream	1,583
Total		**41,932**
[1] Wetlands / Other waters of the US classified using the US Fish and Wildlife Service's *Classification System for Wetland and Deepwater Habitats* (Cowardin *et al*. 1979)		

RHA Navigable Waters Jurisdiction. No streambed areas were found to be subject to Section 10 RHA jurisdiction. The streambeds identified are not navigable waters subject to the ebb and flow of the tide, nor are they presently used, used in the past, or susceptible for use to transport interstate or foreign commerce.

Conclusions

Using the analysis in the Corps' Approved Jurisdictional Determination Form (Appendix G), it was determined that the potential jurisdictional waters identified in Table ES1 are isolated intrastate waters in that they lack a surface hydrologic connection to a Traditional Navigable Water either directly or indirectly through a Relatively Permanent Water or Non-Relatively Permanent Water. These potential jurisdictional waters do not meet the test for *jurisdictional* isolated waters. These waters do not meet the "significant nexus" standard; they are not currently used, were not used in the past, and are not susceptible to use in interstate or foreign commerce; nor would "the use, degradation or destruction of" these waters affect interstate or foreign commerce. Figure 7 shows the location of these waters. Table ES2 summarizes these findings.

Table ES2. Waters Found to be Potentially Excluded from Jurisdiction Within the Study Area				
Habitat Type[1]	**Corps / US EPA Potential Type of Waters of the US**	**Linear Feet**	**Rationale for Exclusion**	
Riverine			**Isolated Water**	**Lacks Interstate or Foreign Commerce Nexus**
Ephemeral Riverine Intermittent Streambed	Other Water	40,349	Yes	Yes
Excavated Ephemeral Riverine Intermittent Streambed	Other Water	1,583	Yes	Yes
Total		**41,932**		
[1] Wetlands / Other waters of the US classified using the US Fish and Wildlife Service's *Classification System for Wetland and Deepwater Habitats* (Cowardin *et al*. 1979)				

1.0 INTRODUCTION

1.1 Purpose and Scope of Work

At the request of First Solar Development, LLC (First Solar), Huffman-Broadway Group, Inc. (HBG) conducted an investigation of the geographic extent of wetlands and other waters at First Solar's proposed Desert Quartzite photovoltaic solar power generation facility site in Riverside County, California, that are potentially subject to

(1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) regulation under Section 404 of the Clean Water Act (CWA) and

(2) Corps jurisdiction under Section 10 of the Rivers and Harbors Act.

The purpose of the investigation was to provide a detailed jurisdictional delineation in accordance with Corps methodology and guidelines that can be used by First Solar in determining the need to pursue project authorization from the Corps for development of a solar-photovoltaic generation facility onsite. The investigation covered a contiguous 5,002.8-acre study area (Study Area) in an unincorporated portion of eastern Riverside County. Appendix A, Figure 1, shows the general location of the Study Area.

This study was conducted in accordance with *Code of Federal Regulations* (CFR) definitions of jurisdictional waters, the Corps' 1987 *Wetlands Delineation Manual*, the Corps' 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) ("Arid West Supplement"),* and supporting Corps and US EPA guidance documents. This investigation was conducted to seek a Corps Verified Jurisdictional Determination pursuant to applicable Corps guidance documents.

1.2 General Site Description

The Study Area is in the Colorado Desert Section of the Sonoran Desert in an unincorporated part of Riverside County, California. The city of Blythe is about 6.5 miles to the east (Appendix A, Figure 1). The Study Area is approximately 0.46 mile south of Interstate I-10, and is northeast of the Mule Mountains, east of Milpitas Wash Road, and west of Palo Verde Valley and the Lower Colorado River (Appendix A, Figures 1 and 2). Approximate latitude and longitude coordinates for the center of the Study Area are 33.57895 / -114.756497.

1.3 Contact Information

Applicant Contact	*Wetland and Biological Consultant*
Applicant: Roy Skinner First Solar Development, LLC 135 Main Street, 6th Floor San Francisco, California 94105 415.531.6909 (cell) • 415.935.2500 (office)	**Huffman-Broadway Group, Inc.** 828 Mission Avenue San Rafael, California 94901 **Contact***:* Terry Huffman, PhD 415.385.1045 thuffman@h-bgroup.com

1.4 Driving Directions to Study Area from Corps Office

From: US Army Corps of Engineers
Regulatory Division, Los Angeles Office
915 Wilshire Boulevard
Los Angeles, California 90017

To: Study Area

Route Changes	Directions	Miles
1	Head southeast on Wilshire Blvd toward S Figueroa St	
2	Take the 1st left onto S Figueroa St	**387 ft**
3	Turn left at the 3rd cross street onto W 5th St	**0.2 mi**
4	Continue straight to stay on W 5th St	**141 ft**
5	Take the exit toward **Adams Blvd**	**43 ft**
6	Keep right at the fork, follow signs for CA-110 N/Harbor Fwy N and merge onto CA-110 N/Harbor Fwy	**0.2 mi**
7	Merge onto CA-110 N/Harbor Fwy	**0.5 mi**
8	Take the US 101 exit toward Ventura/Interstate 5 S/Interstate 10 E/California 60 E	**0.1 mi**
9	Keep right at the fork, follow signs for I-10/San Bernardino/I-5/Santa Ana and merge onto US-101 S	**1.6 mi**
10	Keep left at the fork to continue on San Bernardino Fwy, follow signs for San Bernardino/Interstate 10 E	**1.3 mi**
11	Merge onto I-10 E	**212 mi**
12	Take the Mesa Dr exit toward Airport	**0.2 mi**
13	Turn right onto Mesa Dr	**0.4 mi**
14	Turn right to stay on Mesa Dr	**0.5 mi**
15	14005-14077 Mesa Dr	**0.0 mi**
Estimated Driving Time & Distance	About **3 hours 13 minutes**	**217 miles**

1.5 Environmental Setting

1.5.1 Topography

The Study Area is within portions of the Roosevelt Mine (1983) and Ripley (1952, rev.1975) USGS 7.5-minute quadrangles (Appendix A, Figure 2). The majority of the Study Area has relatively flat desert terrain. Elevations are shown in meters on the western approximately two-thirds of the map and in feet for the eastern third of the map. Elevations range from approximately 380.6 to 577.4 feet (116.0 to 176.0 meters) above mean sea level.

1.5.2 Land Use

The Study Area is on largely vacant, undeveloped land within the Palo Verde Mesa in eastern Riverside County.

1.5.3 Geology

The site is in the east-northeastern Colorado Desert Geomorphic Province. The San Andreas Fault defines the southwestern boundary of the eastern Colorado Desert while the San Bernardino Mountains form a less-defined boundary to the north. Review of recent aerial imagery and site photographs, and the NRCS custom soil report in Appendix B indicates that the area consists of active younger sediments with limited evidence of desert pavement in the northern margin of the Study Area. The active younger sediments are of Holocene age and consist of fine to coarse sand interbedded with clay, silt, and gravel. Topography in these areas tends to be consistent, relatively flat with 0 to 2 percent slopes with stream channels generally less than 1 foot deep. These shallow channels within the younger sediments likely exhibit frequent channel avulsion and lateral migration during flood flows.

Review of March 2011 aerial imagery, an onsite recognizance survey, the NRCS soils report, and site photographs indicates that three significant geologic environments occur within the Study Area:

- Older alluvial sediments with developed desert pavement
- Active younger sediments with no evidence of desert pavement
- Eolian sand sheets

Older Alluvial Sediments

Alluvial fan deposits composed of non-marine Pleistocene sediments extend into the Palo Verde Mesa from both the McCoy Mountains on the north-northwest slightly into the northernmost part of the Study Area and the Mule Mountains into the southwest portion of the Study Area. Desert pavement type deposits (manganese and iron oxidized coatings on cobbles and sand) occur on older alluvial fan material.

Active Younger Sediments

The active younger sediments are of Holocene age and consist of fine to coarse sand interbedded with clay, silt and gravel. There is no evidence of desert pavement. Topography in these areas tends to be consistent. Stream channels within the Study Area appear to be relatively active in terms of channel avulsion and lateral migration with channels generally less than 1 foot deep.

Eolian Sand Sheets

Aeolian sand sheets were described as follows by WorleyParsons (2010):

> Sand sheets (or plains) are flat or gently undulatory broad floors of tabular windblown sand deposits derived from accumulating sand ripple migration. The tabular deposits generally range in thickness from a few centimeters to a few meters. Some sand sheets, as in the southwestern U.S., are local deposits that extend only a few square kilometers in and around dune fields, where they are exposed on interdune floors and form the aprons or trailing margins of dune fields and along sand migration corridors. Sand sheet deposits are composed of gently inclined or nearly horizontal layers, each less than about a centimeter

thick, of coarse silt and very fine to medium sand separated by layers, one grain thick, of coarse sand and granules. Unlike dune sand, the unconsolidated sand and granules are closely packed and firm under foot. The surface is protected by a wind abrasion lag, one grain thick, of the coarsest particles that can be shifted by the wind, ranging from coarse sand to pea-size gravel. In any one place, however, the sizes of the lag particles are remarkably uniform, and the lag may be so closely packed that it forms a miniature desert pavement. In the Chuckwalla Valley, the wind abrasion lag often contains small gravel that may have been derived from burrowing animals moving coarser grained alluvial deposits containing gravel to the surface in the past ([*citation*]). The existence of a wind abrasion lag containing gravel from underlying alluvial units suggests that the surface is a minimum of a few thousand years old in order to provide sufficient time for burrowing animals to mix the near surface units over a relatively large area. Sand sheets in themselves indicate little about wind direction regimes, but the particle size of sand and gravel lag on ripple surfaces seems dependent on the strength of the winds in any given locality. Inactive sand sheet deposits near and at the surface however do provide evidence of past wind sand migration corridors.

1.5.4 Soils

Appendix B is an NRCS custom soil resources report for the Study Area. According to NRCS, the Study Area is within the Colorado Desert Area and Palo Verde Area NRCS soils mapping units. No soils data have been collected for the Colorado Desert Area, California (CA803), in the western 556.3 acres of the Study Area (USDA NRCS 2015). Although soils have not been mapped in this area, onsite observation of surface conditions and interpretation of aerial photography and NRCS soils mapping for the Palo Verde Area portion indicate that the soils found in this unmapped area are the same as or similar to the Palo Verde Area soils described below.

Nine soil types have been mapped within the Palo Verde Area, California (CA681), portion of the Study Area (4,446.6 acres [89%]) (USDA NRCS 2015). The soils and their parent materials and landforms are summarized below:

Soil type	**Parent Material / Landform**
Aco gravelly loamy sand (Ac)	Mixed alluvium / alluvial fan remnants landform
Aco sandy loam (Af)	Mixed alluvium / alluvial fan remnants landform
Carrizo gravelly sand (Ce)	Mixed sand and gravel / arroyo landform
Chuckawalla very gravelly silt loam (Ch)	Mixed alluvium / alluvial fan remnants landform
Orita fine sand (Oc)	Mixed alluvium / alluvial fan remnants landform
Orita gravelly fine sandy loam (Or)	Mixed alluvium / alluvial fan remnants landform
Rositas fine sand, 0 to 2 percent slopes (RoA)	Eolian sands / sand sheets landform
Rositas fine sand, 2 to 9 percent slopes (RoB)	Eolian sands / sand sheets landform
Rositas gravelly loamy sand, 0 to 2% slopes (RsA)	Eolian sands over mixed alluvium parent material / sand sheets on stream terraces landform

The parent material / landform of more than 80% of these soils is mixed alluvium / alluvial fan remnants; the parent material / landform of about 14% of the soils is Eolian sands /sand sheets, with the remainder being mixed sand and gravel soils in the arroyos landform. Depth to water for all soils is greater than 80 inches. The NRCS soils report indicates that the five alluvial fan remnant soils (Ac, Af, Ch, Oc, Or) are well-drained; the Carrizo gravelly sand (Ce) is "excessively drained," and the three Rositas soils (RoA, RoB, and RsA) are "somewhat excessively drained."

Note: The acreage given in the NCRS soil report does not include an approximately 160-acre area in the central portion of the Study Area that was added after the NRCS report was generated. Soils mapped in this area are Rositas fine sand, 0 to 2 percent slopes, Orita fine sand (Oc), and Orita gravelly fine sandy loam (Or).

1.5.5 Vegetation

The Study Area is dominated by one distinctive vegetation type, creosote bush scrub, with a small amount of desert dry wash woodland (following the Holland 1986 California Vegetation Classification System).

Creosote Bush Scrub

Plant species typical of the creosote bush scrub include creosote bush (*Larrea tridentata*), burro bush (*Ambrosia dumosa*), boxthorn (*Lycium* sp.), brittlebush (*Encelia farinose*), Schott's indigo bush (*Psorothamnus schottii*), and prickly pear cactus (*Opuntia* and *Cylindropuntia* sp.). The evergreen creosote bush is relatively uniformly spaced within the desert landscape where it occurs.

Desert Dry Wash Woodland

Plants species typical of the desert dry wash woodland vegetation type include blue palo verde (*Cercidium floridum*), ironwood (*Olneya tesota*), smoke tree (*Psorothamnus spinosa*), and desert willow (*Chilopsis linearis*). Desert dry wash woodland was found to occur within the Study Area adjacent to ephemeral dry wash areas having braided channels that support dynamic flow.

1.5.6 Climate

The Study Area has a desert climate with very hot, dry summers and mild winters based on review of WETS data (Appendix C). HBG obtained climate data for the Blythe, California AP WETS Station (CA158; US Army Corps of Engineers 2005). This WETS station is on Hobsonway Road within approximately 2 miles of the Study Area (Appendix A, Figure 1). Average monthly temperatures (° F) for the period of record (1971 – 2000) are presented in Table 1:

Table 1. Average Monthly Temperatures, Blythe, CA												
Month/ Temperature (° F)	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**Sept.**	**Oct.**	**Nov**	**Dec**
Average	54.2	58.9	63.9	71.0	78.9	88.4	93.7	92.5	86.0	74.0	61.1	53.5
Average Daily Maximum	66.6	72.0	77.6	85.7	93.9	104.1	107.2	105.4	99.6	88.0	74.7	66.0
Average Daily Minimum	41.7	45.7	50.2	56.2	63.9	72.6	80.2	79.5	72.4	60.0	47.4	40.9

Average annual precipitation at the Blythe AP WETS Station for the period of record (1971 – 2000) is 4.02 inches. Average precipitation for the winter months (October through March) is 2.36 inches. Precipitation data for January 2013 to January 2015 (Appendix C) indicate that precipitation ranged between normal and below normal rainfall, with January and November 2013, December 2014, and January 2015 having an above normal rainfall. These above normal rainfall periods for the 2013 – 2015 winter months result in stormwater runoff events that define the limits of jurisdiction within streams found within the Study Area.

1.5.7 Hydrology

The Study Area primarily lies within the Imperial Reservoir 8-digit Hydrologic Unit Code (HUC) watershed, HUC 15030104, more specifically in the HUC 12 Cinnabar Wash-Palo Verde Valley (HUC 150301040804) watershed. The western tip of the Study Area, however, is in the South Mojave 8-digit HUC watershed (HUC 18100100), specifically in the Wileys Well 12-digit watershed (HUC 181001005201). See Appendix A, Figures 3 and 4. Figure 5 shows National Hydrography Dataset (NHD) flowlines and flow directions for the Study Area and its vicinity overlain on a March 2011 aerial photograph. Most flow onto the Study Area is from the north-northwest, crossing the northernmost portion of the site.

Surface and channel flooding can occur within the Study Area any time of year; however, many years can pass between surface flow events. General winter and summer storms generate low amounts of precipitation that typically infiltrates the ground where it falls, with little or no surface flow generated. If flow does occur, it typically runs within small localized areas before it infiltrates the soil. Flooding as a result of high intensity thunderstorms typically lasts only a few hours at most and typically occurs in localized areas.

1.5.8 FEMA Flood Zone

The Federal Emergency Management Agency (FEMA) has not conducted a flood hazard analysis of the Study Area; no FEMA flood zone designation exists.

1.6 Disclaimer

Huffman Broadway Group, Inc., and First Solar Development, LLC, have made a good-faith

effort herein to thoroughly describe and document the presence of potential factors that the Corps may consider in asserting jurisdiction pursuant to Section 404 of the Clean Water Act. Nevertheless, First Solar reserves the right to challenge or seek revision to any areas over which the Corps may assert such jurisdiction, should such jurisdiction be further clarified or altered through formal guidance, assertions, or disclaimers of jurisdiction over other properties, court decisions, or other relevant actions.

2.0 REGULATORY BACKGROUND

This section describes the regulatory framework for jurisdictional delineations. Section 2.1 addresses Section 404 of the federal Clean Water Act, including the geographic extent of jurisdiction and the definitions of "waters of the United States" and wetlands (Section 2.1.1) and the limits of Section 404 jurisdiction (Section 2.1.2). Section 2.2 describes the geographic extent and limits of federal jurisdiction under Section 10 of the Rivers and Harbors Act of 1899 (Sections 2.2.1 and 2.2.2, respectively). Section 2.3 identifies the key diagnostic criteria for determining the presence of wetlands and Section 2.4 describes using an ordinary high water mark (OHWM) to establish CWA jurisdictional limits in the absence of wetlands.

2.1 Section 404 of the Clean Water Act

2.1.1 Geographic Extent of Jurisdiction for Section 404 of the Clean Water Act

Section 404 of the Federal Clean Water Act (33 U.S.C. 1251, et seq.) authorizes the Corps and US EPA to regulate activities that discharge dredged or fill material to wetlands and other waters of the United States.

Waters of the United States. As defined in Corps regulations (Title 33 *Code of Federal Regulations* [CFR] 328.3(a)), the term "waters of the United States" encompasses the following resources:

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 United States under the definition;
5. Tributaries of waters identified in above paragraphs (1-4);
6. The territorial seas; and
7. Wetlands adjacent to waters identified in above paragraphs (1-6) except waters that are themselves wetlands.
8. Waters of the United States 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 Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.
> ….

Wetlands. As defined in Corps regulations (33 CFR § 328.3(b)):

> The term *wetlands* means those areas that are inundated or saturated by surface or ground water 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 term "*under normal circumstances*" refers to situations in which the vegetation has not been substantially altered by human activities as defined in Appendix A of the Corps' 1987 *Wetlands Delineation Manual* (hereinafter *Corps 1987 Manual*).

Implicit in the definition is the need for a site to meet certain water, soil, and vegetation criteria to qualify as a jurisdictional wetland. These criteria and the methods used to determine whether they are met are described in the *Corps 1987 Manual.* See Section 2.3.

Ordinary High Water Mark. As defined by Corps regulations (33 CFR 328.3(e)):

> 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.

2.1.2 Limits of Section 404 CWA Jurisdiction

The following provides the regulatory definitions and criteria followed in determining the geographic extent or limit of potential EPA/Corps jurisdiction.

As described at 33 CFR Part 328.4, the geographic limits of relevant federal jurisdiction are defined in the following manner:

Non-Tidal Waters of the United States.

> The limits of jurisdiction in non-tidal waters: (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or (2) when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands. (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland. (33 CFR 328.4(c)).

> The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands." (33 CFR 328.3(c))

2.2 Section 10 of the Rivers and Harbors Act

2.2.1 Geographic Extent of Section 10 of the Rivers and Harbors Act Jurisdiction

As described by Corps regulation 33 CFR 322.1, Section 10 of the RHA of 1899 (33 U.S.C. 403) authorizes the Corps to regulate certain structures or work in or affecting navigable waters. Navigable waters are defined in 33 CFR 329.4:

> Navigable waters of the US are those waters subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or might be susceptible for use to transport interstate or foreign commerce.

Three factors must be examined when making a determination whether a waterbody is a navigable water (33 CFR 329.5): "… (a) past, present, or potential presence of interstate or foreign commerce; (b) physical capabilities for use by commerce…, and (c) defined geographic limits of the waterbody."

2.2.2 Limits of Section 10 RHA Jurisdiction for Rivers and Lakes

The geographic limits of relevant federal jurisdiction for a navigable river or lake, pursuant to RHA jurisdiction are defined in the following manner:

Rivers and Lakes: If a river or lake is determined to be "navigable" the regulatory jurisdiction extends laterally to the entire water surface and bed of a navigable lake or river, which includes all the land and waters below the ordinary high water mark. (33 CFR 329.11)

2.3 Wetlands Delineation Criteria

The *Corps 1987 Manual* identifies the key diagnostic criteria for determining the presence of wetlands. These are:

> *Wetland Hydrology*: Inundation or saturation to the surface during the growing season.
>
> *Hydric Soils:* Soils classified as hydric or that possess characteristics associated with reducing soil conditions.
>
> *Predominance of Wetland Vegetation:* Vegetation classified as facultative, facultative wet, or obligate according to its tolerance of saturated (i.e., anaerobic) soil conditions.

Specific criteria used to determine the presence or absence of wetland hydrology, soil, and vegetation conditions are described in the sections below.

2.3.1 Wetland Hydrology

The *Corps 1987 Manual* states that wetland hydrology conditions occur when a "site is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation." Whether a site meets either of these criteria is determined by the presence of diagnostic indicators of wetland hydrology, which include the following:

Table 2. Wetland Hydrology Indicators (*Corps 1987 Manual*)	
Primary Indicators	**Secondary Indicators**
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Drift Lines	Water-Stained Leaves
Water-Borne Sediment Deposits	FAC-Neutral Test
Drainage Patterns Within Wetlands	Local Soil Survey Data

A March 8, 1992, Corps memorandum entitled *Clarification and Interpretation of the 1987 Manual* provides further clarification:

> Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years may or may not be wetlands. Sites saturated to the surface for less than 5 percent of the growing season are non-wetlands.

Wetland hydrology indicators have also been further defined and described in the Corps 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement).* These indicators are similar to the indicators listed above from the 1987 Corps *Manual* and are presented in the following table.

Table 3. Wetland Hydrology Indicators *(Arid West Supplement)*		
Primary Indicators (*any one indicator is sufficient to make a determination that wetland hydrology is present*)		**Secondary Indicators** (*two or more indicators are required to make a determination that wetland hydrology is present*)
Surface Water (A1)	Water-Stained Leaves (B9)	Water marks (B1) (Riverine)
High Water Table (A2)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
Saturation (A3)	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Water Marks (B1) (Nonriverine)	Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Sediment Deposits (B2) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Drift Deposits (B3) (Nonriverine)	Oxidized Rhizospheres along Living Roots (C3)	Crayfish Burrows (C8)

Table 3. Wetland Hydrology Indicators *(Arid West Supplement)*		
Primary Indicators (*any one indicator is sufficient to make a determination that wetland hydrology is present*)		**Secondary Indicators** (*two or more indicators are required to make a determination that wetland hydrology is present*)
Surface Soil Cracks (B6)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)	Recent Iron Reduction in Tilled Soils (C6)	Shallow Aquitard (D3)
	Thin Muck Surface (C7)	FAC-Neutral Test (D5)

2.3.2 Hydric Soils

The *Corps 1987 Manual* states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions." According to the *Manual*, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions.

A February 20, 1992, Corps memorandum entitled *Regional Interpretation of the 1987 Manual* states that the most recent version of National Technical Committee for Hydric Soils (NTCHS) hydric soil criteria will be used (to make hydric soil determinations). These soil criteria specify at least 15 consecutive days of saturation or 7 days of inundation (flooding or ponding) during the growing season in most years.

The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some series, designated as hydric, have phases that are not hydric depending on water table, flooding, and ponding characteristics. As indicated above, like the NRCS, the Corps has typically accepted guidance for the identification of hydric soils developed by the National Technical Committee for Hydric Soils (NTCHS). The NTCHS, a working group organized by NRCS, has developed criteria for identifying and mapping hydric soils throughout the United States (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/use/hydric/?cid=nrcs142p2_053959). The NTCHS definition of a hydric soil states:

> *Hydric soil* means 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 [of the soil profile]. This definition includes soils that developed under anaerobic conditions in the upper part but no longer experience these conditions due to hydrologic alteration such as those hydric soils that have been artificially drained or protected (e.g., ditches or levees).

The most recent (2012) version of the NTCHS hydric soils criteria identifies those soils that are likely to meet this definition. These criteria, which are accepted by most state and federal agencies, are as follows:

1. All Histels except Folistels and Histosols except Folists; or

2. Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that:

   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States,[1] or

   b. Show evidence that the soil meets the definition of a hydric soil;

3. Map unit components that are frequently ponded for long duration or very long duration during the growing season that:

   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

   b. Show evidence that the soil meets the definition of a hydric soil; or

4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:

   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or

   b. Show evidence that the soils meet the definition of a hydric soil.

Terms used in the above definition are defined as follows:

- *Flooded* means a condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from the high tides, or any combination of sources.
- *Frequently flooded, ponded, saturated:* a frequency class in which flooding, ponding, or saturation is likely to occur often under usual weather conditions (more than 50 percent chance in any year, or more than 50 times in 100 years).

[1] United States Department of Agriculture, Natural Resources Conservation Service. 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

- *Long duration* means a duration class in which inundation for a single event ranges from 7 days to 1 month.
- *Map unit* means a collection of areas defined and named the same in terms of their soil components or miscellaneous areas or both.
- *Map unit components* means the collection of soils and miscellaneous areas found within a map unit.
- *Ponded* means a condition in which water stands in a closed depression. The water is removed only by percolation, evaporation, or transpiration.
- *Very long duration* means a duration class in which inundation for a single event is greater than 1 month.

On the basis of computer database searches for soils meeting the second criterion, NRCS has developed hydric soils lists for many parts of the country. Although they are useful for determining whether a particular soil series *has the potential to support current hydric soil conditions*, caution should be used when using these lists for site-specific hydric soil determinations. Many soils on the lists have ranges in water table depths and other characteristics that allow them to be either hydric or non-hydric depending on landscape position and other site-specific factors (e.g., soil clay content, depth to bedrock). Accordingly, hydric soils lists are good ancillary tools to facilitate wetland determinations, but are not a substitute for onsite investigations.

Field indicators of hydric soils are morphological properties known to be associated with soils that meet the definition of a hydric soil. Presence of one or more field indicator suggests that the processes associated with hydric soil formation have taken place on the site being observed. The field indicators are essential for hydric soil identification because once formed, they persist in the soil during both wet and dry seasonal periods. However, few hydric soil indicators identify soils at a site as being currently hydric in accordance with the NTCHS hydric soils criteria described above. Field indicators of hydric soil conditions include the following:

Table 4. Field Indicators of Hydric Soil Conditions
(Listing summarized from *Corps 1987 Manual* and Corps Guidance Documents)

1. Indicators of Historical Hydric Soil Conditions:	2. Indicators of Current Hydric Soil Conditions:
a. Histosols b. Histic epipedons; c. Soil colors (e.g., gleyed or low-chroma colors, soils with bright mottles (Redoximorphic features) and/or depleted soil matrix d. High organic content in surface of sandy soils e. Organic streaking in sandy soils f. Iron and manganese concretions g. Soil listed on county hydric soils list	a. Aquic or peraquic moisture regime (inundation and/or soil saturation for ≥7 continuous days) b. Reducing soil conditions (inundation and/or soil saturation for ≥ 7 continuous days) c. Sulfidic material (rotten egg smell)

The presence of one or more of the field indicators in "1 a, b c, and/or d" above suggests that historical processes associated with hydric soil development have taken place at a given site. These indicators are useful in determining if soils at a site were historically formed under hydric soil conditions because they persist in soils during both wet and dry periods and may remain for decades and even centuries after changes in site conditions occur that inhibit subsequent wetland development, such as the elimination of wetland hydrology (NRCS 1995). However, only the presence of field indicators "2 a, b, and/or c" confirms that hydric soils occur at a site during the period of observation.

Hydric soil indicators have also been further defined and described in the Corps 2008 *Arid West Supplement.* These indicators are similar to the indicators listed above from the 1987 Corps *Manual* and are presented in the following table.

Table 5. Hydric Soil Indicators (*Arid West Supplement*)

Hydric Soil Indicators		**Indicators for Problematic Hydric Soils ****
Histosol (A1) *	Sandy Redox (S5)	1 cm Muck (A9)
Histic Epipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5)	Depleted Matrix (F3)	** Indicators of hydrophytic vegetation and wetland hydrology must be present.
1 cm Muck (A9)	Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	
Sandy Gleyed Matrix (S4)		
* Denotes number of hydric soil indicator described in detail in *Arid West Supplement.*		

2.3.3 Prevalence of Wetland Vegetation

The *Corps 1987 Manual* states that the wetland vegetation conditions are met when the prevalent vegetation (i.e., more than 50 percent of vegetation cover or tree basal area) consists of macrophytes that are typically adapted to sites having wetland hydrologic and soil conditions (e.g., periodic or continuous inundation or soil saturation). Hydrophytic vegetation is defined as "plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (Cowardin *et al*. 1979). Hydrophytic vegetative species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Positive indicators of the presence of hydrophytic vegetation include:

1. More than 50 percent of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW"), or Facultative ("FAC") on lists of plant species that occur in wetlands (see Reed 1988);
2. Visual observations of plant species growing in sites of prolonged inundation or soil saturation; and

3. Reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils.

Hydrophytic vegetation indicators have been further defined and described in the Corps 2008 *Arid West Supplement.* These indicators include:

1. More than 50 percent of dominant plant species across all strata are OBL, FACW or FAC
2. Prevalence Index is ≤ 3.0 with indicators of hydric soils and wetland hydrology being present; and
3. Morphological adaptations

In classifying vegetation encountered in the Study Area, HBG relied on the April 2, 2014, *National Wetland Plant List: 2014 Wetland Ratings* (NWPL; Lichvar, et al.). The list is a comprehensive update of the *National List of Plant Species that Occur in Wetlands* (Reed 1988), and, as noted in the List's Abstract, "represents a collaborative effort between four Federal agencies, under the administrative responsibilities of the US Army Corps of Engineers, to update and administer the national list." Wetland ratings were developed for species for each of the 10 Corps regions. HBG used the wetland indicator status rankings for the Arid West Region. The new definitions of the NWPL wetland indicator status groups, presented below in Table 5, have been modified slightly from the previous definitions:

Table 6. 2014 National Wetland Plant List Indicator Definitions

Wetland Indicator Status Designations	Designation	Definition
Obligate Wetland (OBL)	Hydrophyte	Almost always occur in wetlands
Facultative Wetland (FACW)	Hydrophyte	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Hydrophyte	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Nonhydrophyte	Usually occur in non-wetlands, but may occur in wetlands
Upland (UPL)	Nonhydrophyte	Almost never occur in wetlands

Species that have an indicator status of OBL, FACW, or FAC are typically considered to be adapted for life in anaerobic soil conditions (Corps 1987) and are used as evidence of hydrophytic vegetation when they dominate plant community composition or cover. It is important to note that wetland indicator species assignments are approximations of wetland affinity based on a synthesis of submitted review comments, published botanical literature, and the field experience. For this reason and because many plants have properties that enable them to occur in a range of microhabitats (i.e., wetlands and non-wetlands), the presence of wetland indicator species is not unequivocal evidence of the presence of wetland hydrology and hydric soils. A positive indicator or indicators of wetlands should be emphasized, such as an assemblage of plants that can only be considered "hydrophytes" when they are growing in

water or partly drained hydric soils (not effectively drained hydric soils) (Corps 1987). For the reasons stated above, the 1987 Corps *Manual* does not solely rely on the presence of hydrophytic vegetation to make wetland determinations.

2.3.4 Difficult Wetland Situations in the Arid West

Some wetlands can be difficult to identify because wetland indicators may be missing or difficult to identify due to natural processes or recent disturbances. In accordance with the 1987 Corps Manual, these situations are defined as either Atypical Situations or Problem Areas. The term Atypical Situation, defined in Section F and Appendix A of the 1987 Corps Manual, "refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the parameter." HBG has interpreted the term "Significantly Disturbed" as used on the Wetland Determination Data Form – Arid West Region to signify an Atypical Situation. Problem Areas, defined in Section G of the 1987 Corps Manual, "are wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events." HBG has interpreted the term "Naturally Problematic" as used on the Wetland Determination Data Form – Arid West Region to signify a Problem Area. If a determination is made that an Atypical Situation or Problem Area exists, special procedures or additional analysis of factors affecting the site may need to be employed. Steps and procedures to address Atypical Situations and Problem Areas are outlined in Sections F and G of the 1987 Corps Manual and Section 5 of the *Arid West Supplement*.

2.4 Using an Ordinary High Water Mark to Establish CWA Jurisdictional Limits

The OHWM is the defining factor for jurisdiction for non-wetland, non-tidal waters of the US. (33 CFR 328.4(c)). And, because the OHWM should be representative of ordinary events that "occur on a regular or frequent basis" (See Section 2.4.2 and Appendix D; RGL 05-05(d)), the period of years for which the OHWM is assessed should be long enough to ensure that the range of surface water levels is representative, but also recent enough to incorporate changes in the watershed (e.g., dams, diversions) to ensure that an OHWM determination appropriately reflects hydrologic conditions and constraints as they now exist.[2]

Much Corps research exists for identifying the OHWM for non-tidal streams and rivers, particularly for intermittent and ephemeral streams in the Arid West.[3] In contrast to the high tide line, which is based upon the 19-year National Tidal Datum Epoch, the ordinary high water line for non-tidal streams is an approximation of the water level reached by the highest flows that are "ordinary" for a particular stream. The ordinary high water level for a given stream must have some probability of occurring regularly, and from a regulatory perspective, this

2 EPA regulatory guidance in the preamble to its 404(b)(1) Guidelines, and regulatory guidance published by the Corps of Engineers clarify that Clean Water Act jurisdiction is intended "to regulate discharges of dredged or fill material into the aquatic system as it exists and not as it may have existed over a record period of time."

3 See list at http://www.erdc.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/9254/Article/486085/ordinary-high-water-mark-ohwm-research-development-and-training.aspx.

probability of occurrence appears to range from 1 to 2 years in perennial channels to a probability of being reached or exceeded as rarely as once or twice per decade on average for ephemeral/intermittent channels in the Arid West (Lichvar et al, 2006, 2008).[4] [5] In other words, Corps guidance for streams suggests that a high water level that occurs as seldom as once every 10 years for a stream in the Arid West can be considered "ordinary" from a regulatory perspective in determining an OHWM.

2.4.1 Ephemeral/Intermittent Channels in the Arid West

For the Arid West, Curtis and Lichvar (2010)[6] described ephemeral/ intermittent channels, such as may be found in the Study Area, and emphasizes that evaluation and characterization of channel composition - the low-flow channel, the active floodplain, and the low terrace – facilitates identification of the OHWM.

> The three distinctive hydrogeomorphic surfaces in many ephemeral and intermittent channels are the low-flow channel, the active floodplain, and the low terrace (Figure 1). The distinguishing feature of the low-flow channel is the frequent absence of vegetation cover. Common indicators signifying a recent discharge, such as ripples or mudcracks, may also be present on the streambed. During low-discharge events in many streams, the low-flow channel often fills with sediment and migrates within the active floodplain, incising a new low-flow channel. Conversely, the extent of the active floodplain is a consistent and reliable feature within the channel. It is formed by the geomorphically effective discharge — a low -to moderate-discharge event in the Arid West — and is frequently identified by a break in slope indicating the outer extent of ordinary high discharges. Depending on the time that has passed since the last ordinary high event, the active floodplain often has early to mid-community successional stage vegetation. The sediment texture is generally coarser grained than that in the surrounding floodplain units. The low terrace is inundated less frequently than the active channel. It is characterized by well-established, late-stage vegetation, and the surface may show indications of desert pavement or surface relief.

4 Lichvar, R.W., D. Finnegan, M. Ericsson, and W. Ochs. 2006. *Distribution of Ordinary High Water Mark (OHWM) Indicators and Their Reliability in Identifying the Limits of "Waters of the United States" in Arid Southwestern Channels*. ERDC/CRREL TR-06-5. (http://www.crrel.usace.army.mil/techpub/CRREL_Reports/reports/TR06-5.pdf).

5 Lichvar, R.W. and S.M. McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual*. ERDC/CRREL TR-08-12. August. http://www.spk.usace.army.mil/Portals/12/documents/regulatory/pdf/Ordinary_High_Watermark_Manual_Aug_2008.pdf

6 Curtis, K.E. and R.W. Lichvar. 2010. *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. ERDC/CRREL TN-10-1. July. http://www.spl.usace.army.mil/Portals/17/docs/regulatory/JD/UpdatedDatasheetforIDOHWM_ERDC_2010.pdf

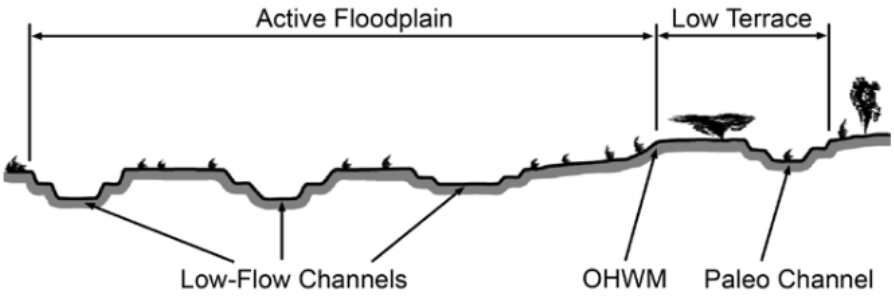

Figure 1. Example of a representative cross section identifying the hydrogeomorphic floodplain units in intermittent and ephemeral channels.

It is the consistent position of the boundary between the active floodplain and low terrace that is important to regulators. The low-flow channel, which migrates frequently and may be dry most of the time, is too undefined to be consistently delineated. However, characterizing each of these floodplain units helps develop an understanding of the channel dynamics that is crucial to identifying the OHWM.

2.4.1 Corps Regulatory Guidance Letter 05-05

Corps Regulatory Guidance Letter (RGL) 05-05 provides regulatory guidance to Corps staff nationwide regarding OHWM identification (Appendix D). This guidance, published December 7, 2005, quotes the definition for OHWM in 33 CFR 328.3(e) (see Section 2.1.1) and further states that:

a. In determining the location of the OHWM for non-tidal water bodies under the CWA (33 CFR 328.3(e)) or the Rivers and Harbors Act (33 CFR 329.11(a)(1)), districts should give priority to evaluating the physical characteristics of the area that are determined to be reliable indicators of the OHWM. Physical evidence to be evaluated includes those items listed in the definitions at 33 CFR Sections 328.3(e) and 329.11(a)(1). Because many types of water bodies occur with varying conditions, including topography, channel morphology and flow dynamics, districts may consider other physical characteristics indicative of the OHWM.

b. The following physical characteristics should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable:

Natural line impressed on the bank	Leaf litter disturbed or washed away
Shelving	Scour
Changes in the character of soil	Deposition
Destruction of terrestrial vegetation	Multiple observed flow events
Presence of litter and debris	Bed and banks
Wracking	Water staining

Vegetation matted down, bent, or absent	Change in plant community
Sediment sorting	

This list of OHWM characteristics is not exhaustive. Physical characteristics that correspond to the line on the shore established by the fluctuations of water may vary depending on the type of water body and conditions of the area. There are no "required" physical characteristics that must be present to make an OHWM determination. However, if physical evidence alone will be used for the determination, districts should generally try to identify two or more characteristics, unless there is particularly strong evidence of one.

c. Where the physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, districts may determine the OHWM by using other appropriate means that consider the characteristics of the surrounding areas, provided those other means are reliable.[7] Such other reliable methods that may be indicative of the OHWM include, but are not limited to, lake and stream gage data, elevation data, spillway height, flood predictions, historic records of water flow, and statistical evidence.

d. When making OHWM determinations, districts should be careful to look at characteristics associated with ordinary high water events, which occur on a regular or frequent basis. Evidence resulting from extraordinary events, including major flooding and storm surges, is not indicative of the OHWM. For instance, a litter or wrack line resulting from a 200-year flood event would in most cases not be considered evidence of an OHWM.

[7] In some cases, the physical characteristics may be misleading and would not be reliable for determining the OHWM. For example, water levels or flows may be manipulated by human intervention for power generation or water supply. For such cases, districts should consider using other appropriate means to determine the OHWM.

3.0 DELINEATION METHOD

The objective of this study was to determine the presence or absence of potential waters of the US regulated by the Corps and US EPA under Section 404 of the CWA and/or Section 10 of the rivers and Harbors Act. This study consisted of both preliminary and detailed field investigations, as detailed below in Sections 3.1.1 – 3.1.3, and, and data mapping followup at HBG's office.

3.1 Preliminary Investigations

Preliminary investigations consisted of identifying existing landforms within the Study Area (Appendix A, Figure 2) where waters of the US, including wetlands and other waters of the US, may potentially occur. These areas were identified during a March 2014 field reconnaissance and review of:

1. USGS topographic mapping (Figure 2 in Appendix A);
2. USGS National Hydrography Dataset (NHD) HUC 8 and HUC 12 mapping (Figures 3 and 4);
3. USGS NHD high-resolution mapping with flow arrows showing the direction and route of surface water flow (Figure 5);
4. March 2011 NAIP orthorectified aerial photography (Figure 6); and
5. NRCS Custom Soil Resources Report (Appendix B).

3.2 Detailed Field Investigations: Wetlands

Detailed field investigations to determine the presence or absence of wetlands were conducted on foot within the Study Area during May 2014 and February 2015 (Figure 2). Field data locations were memorialized as point features using a hand-held, Trimble XT global positioning system (GPS) unit with sub-meter accuracy after geoprocessing.

Field data regarding the presence or absence of wetland soil, hydrology and vegetation conditions were collected in accordance with the regulations, policy, and methodology described above in Section 2.0. Field data for Sampling Points were recorded on Wetland Determination Data Forms – Arid West Region (Appendix E).

3.3 Detailed Field Investigations: Other Waters

Detailed field investigations to determine the presence or absence of other waters of the US were conducted on-foot within the Study Area (Figure 2) during March 2014 and February 2015. Field data for Sample Points were recorded on OHWM Determination Data Forms (Appendix E). The location of potential other waters of the US within the Study Area was determined using physical characteristics as described in RGL 05-05 paragraphs (a) and (b) to define an OHWM (e.g., evidence of erosion, drift, sediment deposition, change in plant community). The location of field sampling points and the OHWM was documented in the field using a hand-held, Trimble XT global positioning system (GPS) unit with sub-meter accuracy after geoprocessing.

3.4 Mapping

Once field data collection was completed, recorded GPS data were incorporated into a Geographic Information System (GIS) and georeferenced in overlay fashion onto a USGS topographic base map and March 2011 NAIP digital aerial photograph. This aerial photograph was orthorectified to a 1:25,000 USGS topographic base following national mapping standards. Active linear drainage features were mapped as line features due to their narrow width. The maps of areas potentially subject to Corps jurisdiction are presented in Appendix A, Figure 6. The GIS data and mapping were used to assist in the analysis, identification and digitization of the location and geographic extent of areas that would potentially qualify as waters of the United States.

4.0 TECHNICAL FINDINGS

Sections 4.1 through 4.3 discuss technical findings regarding the presence or absence of the vegetation, soil, and hydrology indicators of wetland conditions observed within the Study Area. Section 4.4 discusses technical findings regarding the presence of physical characteristics indicative of an Ordinary High Water Mark (OHWM) within active ephemeral streams found within the Study Area. Field data are presented in Appendix E. The following table correlates the field data sample numbers in Appendix E with the sampling locations shown on the Figure 6 map sheets in Appendix A. Appendix F provides representative photographs and location mapping for field sample points and the overall Study Area.

Table 7. Data Point Location and Map Sheet Correlation Table

Appendix A, Figure 6 Map Sheet Number	Sampling Points Using Corps 2008 OHWM Data Sheets (Arid West)	Sampling Points Using Corps Wetland Determination Data Forms – Arid West Region
4	*R11 – R14; R22 – R27; R29 – R34; R40 – R41; R42 – R50; R51a – R51c; R52a – R52d;R53*	WR 52c
5	*R1 – R10;R11 – R14; R15 – R21; R22 – R27; R28; R29 – R34; R35 – R39; R40 – R41; R51a – R51c; R52a – R52d;*	WR 7a, WR 28, WR37, WR 38, WR 52c
8	*R54a – R54c*	WR 54a
14 (offsite)	*R55a, R55b*	--
Note: Shaded sampling point numbers are on overlapped portions of Sheets 4 and 5.		

4.1 Field Indicators of Wetland Vegetation

Study Area vegetation conditions were observed to be r*epresentative of the site during normal circumstances*. Normal circumstances are assumed for the Study Area based on: (1) onsite inspection, (2) review of WETS data (Appendix C), which indicate that precipitation conditions are typical of the past years of record, and (3) review of aerial photography and Landsat imagery over the past decade, which indicates that the vegetation has not been significantly disturbed. Vegetation was determined to *not be naturally problematic at the time of the field survey* given there have been no apparent shifts in soil or hydrology conditions within the past decade based on review of: (1) WETS data and (2) aerial photography and Landsat imagery.

Two vegetation types occur within the Study Area, creosote bush scrub and desert dry wash woodland. The majority of natural and manmade ephemeral drainages found within the Study Area occur within the creosote bush scrub vegetation type. The dominant plant species typical of this vegetation type – creosote bush (*Larrea tridentate*), burro bush (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*) – are classified as upland species for the Arid West by the 2014 *National Wetland Plant List* (Lichvar et al.).[8]

8 These plants are not listed in the wetland plant list; User Note 1 states: "Plant species not listed are considered UPL for wetland delineation purposes."

What appear to be remnants of desert dry wash woodland were observed in several locations within the Study Area. Although this vegetation type is typically associated with active drainages and commonly referred to as riparian vegetation, these woody shrub and tree species are classified as "upland" plant species for the Arid West by the 2014 *National Wetland Plant List* (Lichvar et al.). The National Wetlands Inventory classification indicates that the frequency of upland plants occurring within wetlands is about 1 percent. The dominant plant species typical of desert dry wash woodland – blue ironwood (*Olneya tesota*), palo verde (*Parkinsonia florida*), and smoke tree (*Psorothamnus spinosus*) – are not considered plants that can occur in wetland conditions. These plants occur in washes with braided channels that support dynamic flow. They possess a unique ability to survive in arid systems where ephemeral drainages convey limited periodic surface flows, as they can grow root systems that follow soil moisture to considerable depths. The presence of these phreatophytes is likely an indication of subsurface flow where they occur within the Study Area, given the lack of hydric soil and wetland hydrology indicators (see Sections 4.2 and 4.3). Given the patchy distribution of desert dry wash woodland as opposed to the large active drainage (R1) east of the Study Area (Appendix A, Figure 6, Sheet 5) with continuous desert dry wash woodland vegetation, it appears that stormwater runoff conditions and associated subsurface flows that would support desert dry wash woodland vegetation have changed within these areas either as a result of natural processes and / or various linear construction projects that have occurred upslope of the Study Area. These projects include the construction of major pipeline corridors, perimeter dirt access roads, and an interstate highway that traverse, in a perpendicular manner, the general direction of stormwater flow directed toward the Study Area.

On the basis of field observations within the Study Area, a dominance of wetland plant species or hydrophytes was not found. Given this technical finding, the criteria for wetland vegetation were not met as defined by current Corps' regulatory guidance, including the 2008 *Arid West Supplement.*

4.2 Field Indicators of Hydric Soils

Study Area soil conditions were observed to be *representative of the site during normal circumstances.* Normal circumstances are assumed for the Study Area based on: (1) onsite inspection, (2) review of WETS data (Appendix C) which indicates that precipitation conditions are typical of the past years of record, and (3) review of aerial photography and Landsat imagery over the past decade which indicate that the soils have not been significantly disturbed. Soil conditions were determined *not to be significantly disturbed* based on: (1) onsite inspection and (2) review of aerial photography and Landsat imagery over the past decade which indicates that the soils have not been significantly disturbed. The only exception is a small excavated drainage channel (Appendix A, Figure 6, Sheet 8). The potential determination of field indicators of hydric soils (wetland soils) was determined *not to be naturally problematic*.

Appendix B is an NRCS Custom Soil Resources Report with Study Area specific soil mapping and detailed soils descriptions. Onsite examination revealed that soils or substrates within both the natural and manmade streams and adjacent areas consist of alluvium primarily composed of well-drained sorted sands and gravel. On the basis of field observations within the Study Area

(Appendix E), soil indicators were not found that meet the hydric soils criteria defined by current Corps' regulatory guidance, including the 2008 *Arid West Supplement*.

4.3 Field Indicators of Wetland Hydrology Conditions

Study Area hydrology conditions were observed to be *representative of the site during normal circumstances*. Normal circumstances are assumed for the Study Area based on: (1) onsite inspection, (2) review of WETS data (Appendix C), which indicates that precipitation conditions are typical of the past years of record, and (3) review of aerial photography and Landsat imagery over the past decade, which indicates that the soils have not been significantly disturbed.

Hydrology conditions were determined to *not be significantly disturbed* based on: (1) onsite inspection and (2) review of aerial photography and Landsat imagery over the past decade, which indicates that the Study Area hydrology has not been significantly disturbed over the past decade. However, significant disturbance to the hydrology regime occurred more than a decade ago with the construction of buried pipelines, dirt access roads, and an interstate highway within the upslope watershed. Appendix A, Figures 3 and 4, show the location of USGS HUC 8 and 12 watersheds. Appendix A, Figure 5, provides USGS National Hydrography Dataset mapping of photo interpreted surface water flow patterns.

Field indicators of wetland hydrology conditions were determined to be naturally problematic.

Onsite observations revealed evidence of flooding within the low-lying streambeds or channels. The secondary hydrology indicators water marks (B1), sediment deposits (B2), and drift deposits (B3) were found associated with two distinctive landforms within the Study Area during field surveys: ephemeral stream and an excavated stream channel (Appendix E). These indicators, however, are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours, not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59, *Arid West Supplement*). No evidence of ponding or soil saturation for long to very long periods of time was observed. On the basis of the above-described soil observations, no evidence of a high water table was found within the upper 22 inches of soil. The lack of ponding and soil saturation conditions meeting the wetland hydrology criteria is a direct result of the well-drained alluvial soils.

On the basis of field observations within the Study Area, wetland hydrology indicators were not found that meet the wetland hydrology criteria defined by current Corps' regulatory guidance, including the 2008 *Arid West Supplement*.

4.4 Field Indicators of Ordinary High Water

For non-tidal waters of the United States, federal jurisdiction extends to the ordinary high water mark (OHWM) when no adjacent wetlands are present (33 CFR 328.4(c)(1)). The Corps definitions of OHWM applies to "waters of the United States" under the Clean Water Act (33 CFR 328.3(e)) and to "navigable waters of the United States" under the Rivers and Harbors Act

(33 CFR 329.11(a)(1)). These definitions are identical, and are defined as observable physical features, such as “a clean, natural line impressed on the bank” that result from fluctuations of water. The frequency and/or duration of such fluctuations are not defined. Importantly, however, the definitions state that the OHWM also is established by “other appropriate means that consider the characteristics of the surrounding areas” (citations above). The following describes the indicators of an OHWM found within the Study Area.

Although indicators of wetland hydrology conditions were not found within the Study Area, the hydrology field indicators observed during the wetlands evaluation provide evidence that active surface water flow occurs within natural ephemeral streams and excavated ephemeral stream drainages in the Study Area. The Appendix C WETS data confirm that above normal rainfall conditions occurred prior to the 2014 and 2015 site investigations. It is the above normal rainfall events that typically generate stream flow.

Appendix A, Figures 3 and 4, show the location of USGS HUC 8 and 12 watersheds. Appendix A, Figure 5, provides USGS National Hydrography Dataset mapping of photointerpreted surface water flow patterns.

As indicated in Section 2.0, an OHWM provides a technical basis for (a) determining the presence a potential water of the United States; and (b) defining the geographic extent of potential waters of the United States. Physical characteristics indicative of high water associated with surface water flows were found along the sides of channel banks or streambeds of active ephemeral stream channels and an excavated ephemeral stream drainage. The physical characteristics found included water marks (in the form of bank scour, erosion and/or shelving), sediment deposits (linear deposits of fine-grained sediment), drift deposits (flow deposited woody and soft tissue plant debris), and a distinctive no vegetation / vegetation line or border. Field data for the Study Area are presented in Appendix E. The map sheets in Appendix A, Figure 6 show the locations of the active ephemeral drainages found. Collectively groupings of these active channels provide indication of an active floodplain located at the downslope margin of an alluvial fan. The low flat relief made it difficult to define the active floodplain beyond the limits of the outer active channels within this floodplain. The locations of the active streambeds were documented on foot within the Study Area using a GPS instrument. The drainages were also documented downslope of the Study Area until no indicators of an OHWM could be found. It was apparent at the ends of these active streambeds that the former streambed had become filled with sediment and surface flow had ceased, likely infiltrated into the well-drained soil. There was no evidence of near surface flow or resurfacing of flows downslope.

On the basis of these technical findings, the active drainages depicted Figure 6 (Appendix A) have recognizable physical characteristics from which the lateral extent of surface water flow that occurs on a regular or frequent basis can be geographically delineated as OHWMs. Figure 6 is an indexed series of detailed map sheets of the Study Area, showing the active linear natural and manmade drainages and their measured OHWM widths that occur on a regular or frequent basis (i.e., potential jurisdictional areas).

5.0 AREAS POTENTIALLY SUBJECT TO FEDERAL JURISDICTION

This section presents the findings of this delineation with respect to the identification and geographic extent of habitat areas found that could potentially be regulated by the Corps and the US EPA as wetlands and or other waters of the US under Section 404 of the CWA and by the Corps under Section 10 of the RHA as navigable waters.

5.1 CWA Wetlands Jurisdiction

No areas were found within the Study Area that met the technical criteria for wetlands described in Section 2.3. The wetlands determination is based on an analysis of the technical findings in Sections 4.1 – 4.3, which summarize field evidence of the absence of the collective presence of hydric soil, wetland hydrology, and wetland vegetation indicators as required by the Corps' 1987 Manual, the *Arid West Supplement*, guidance documents, and Corps/US EPA regulations.

5.2 Other Waters of the US Jurisdiction

On the basis of the technical findings resulting from the field data analysis, it was determined that areas potentially subject to Corps and US EPA jurisdiction as other waters of the US occur within the Study Area. This determination was based on the presence of OHWMs found at the margins of streambeds / active floodplains, which are locally referred to as desert dry washes or arroyos. The OHWM determination is based on physical characteristics that represent stormwater flows that occur on a regular or frequent basis. Table 8 is a summary of these potential jurisdictional waters by NWI habitat type, type of water of the US, and length within the Study Area., Figure 6 in Appendix A provides mapping showing the locations of these potential jurisdictional waters. The "Corps Waters Upload Sheet" in Appendix G identifies the length and width of each potential water of the US.

Table 8. Potential Waters of the US Found Within the Study Area

Habitat Type[1]	Corps / US EPA Type of Potential Waters of the US	Linear Feet
Riverine	Other Waters of US	
Ephemeral Riverine Intermittent Streambed	Stream	40,349
Excavated Ephemeral Riverine Intermittent Streambed	Stream	1,583
Total		**41,932**

[1] Wetlands / Other waters of the US classified using the US Fish and Wildlife Service's *Classification System for Wetland and Deepwater Habitats* (Cowardin *et al*. 1979)

5.3 RHA Navigable Waters Jurisdiction

No streambed areas were found to be subject to Section 10 RHA jurisdiction. The streambeds identified are not navigable waters subject to the ebb and flow of the tide nor are they presently used, used in the past, or susceptible for use to transport interstate or foreign commerce.

6.0 CWA JURISDICTIONAL ANALYSIS

This section analyzes the potential for waters identified within the Study Area to constitute waters of the US subject to jurisdiction under the CWA. Following the analysis procedures in the Corps' Approved Jurisdictional Determination Form (Appendix G), it was determined that the potentially jurisdictional waters identified in Section 5.0 with OHWMs are isolated intrastate waters in that they lack a surface hydrologic connection to a Traditional Navigable Water either directly or indirectly through a Relatively Permanent Water or Non-Relatively Permanent Water. The potential jurisdictional waters assessed in the Review Area (aka Study Area) as outlined in the Appendix G "Corps Waters Upload Sheet" do not meet the test for jurisdictional isolated waters. These waters do not meet the "significant nexus" standard; they are not currently used, were not used in the past, and are not susceptible to use in interstate or foreign commerce; nor would "the use, degradation or destruction of" these waters affect interstate or foreign commerce. Figure 7 shows the location of these waters. Table 9 summarizes these findings.

Table 9. Waters Found to be Potentially Excluded from Jurisdiction Within the Study Area

Habitat Type[1]	Corps / US EPA Potential Type of Waters of the US	Linear Feet	Rationale for Exclusion	
Riverine			Isolated Water	Lacks Interstate or Foreign Commerce Nexus
Ephemeral Riverine Intermittent Streambed	Other Water	40,349	Yes	Yes
Excavated Ephemeral Riverine Intermittent Streambed	Other Water	1,583	Yes	Yes
Total		**41,932**		

[1] Wetlands / Other waters of the US classified using the US Fish and Wildlife Service's *Classification System for Wetland and Deepwater Habitats* (Cowardin *et al*. 1979)

7.0 REFERENCES

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APPENDIX A

Figures

Figure 1	Regional Map
Figure 2	USGS Topographic Map of the Jurisdictional Study Area
Figure 3	Southern Mojave and Imperial Reservoir USGS HUC 8 Hydrologic Units
Figure 4	USGS HUC 12 Watershed Units
Figure 5	USGS NHD 1:25K High Resolution Mapping With Flow Arrows Showing Direction and Route of Surface Water Flow
Figure 6	Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction (Index Map and Map Sheets 1 – 17)
Figure 7	Location of Areas Potentially Excluded from Corps and US EPA Jurisdiction as Waters of the US

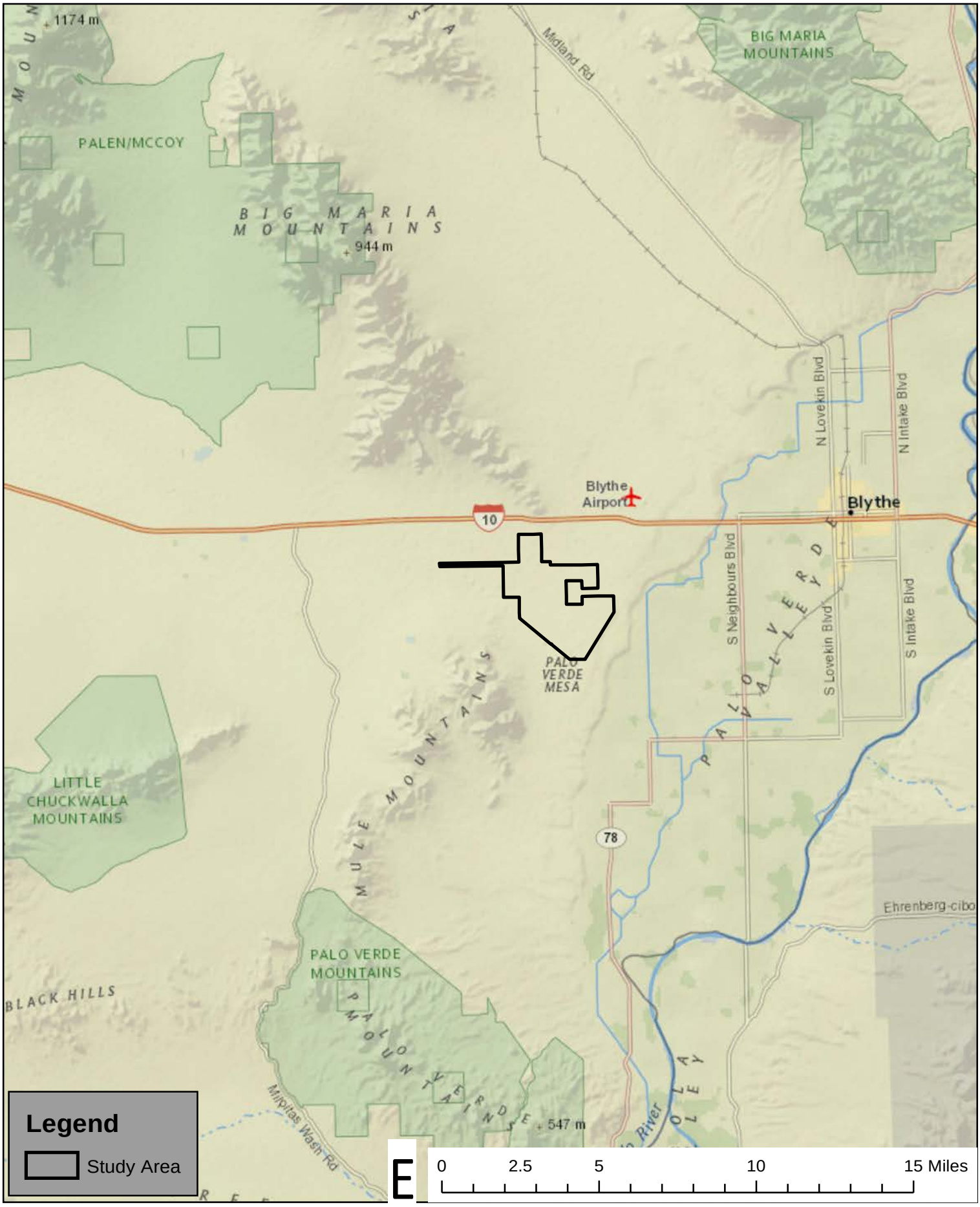

Figure 1. Regional Map, First Solar Site 5, Riverside County, California

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

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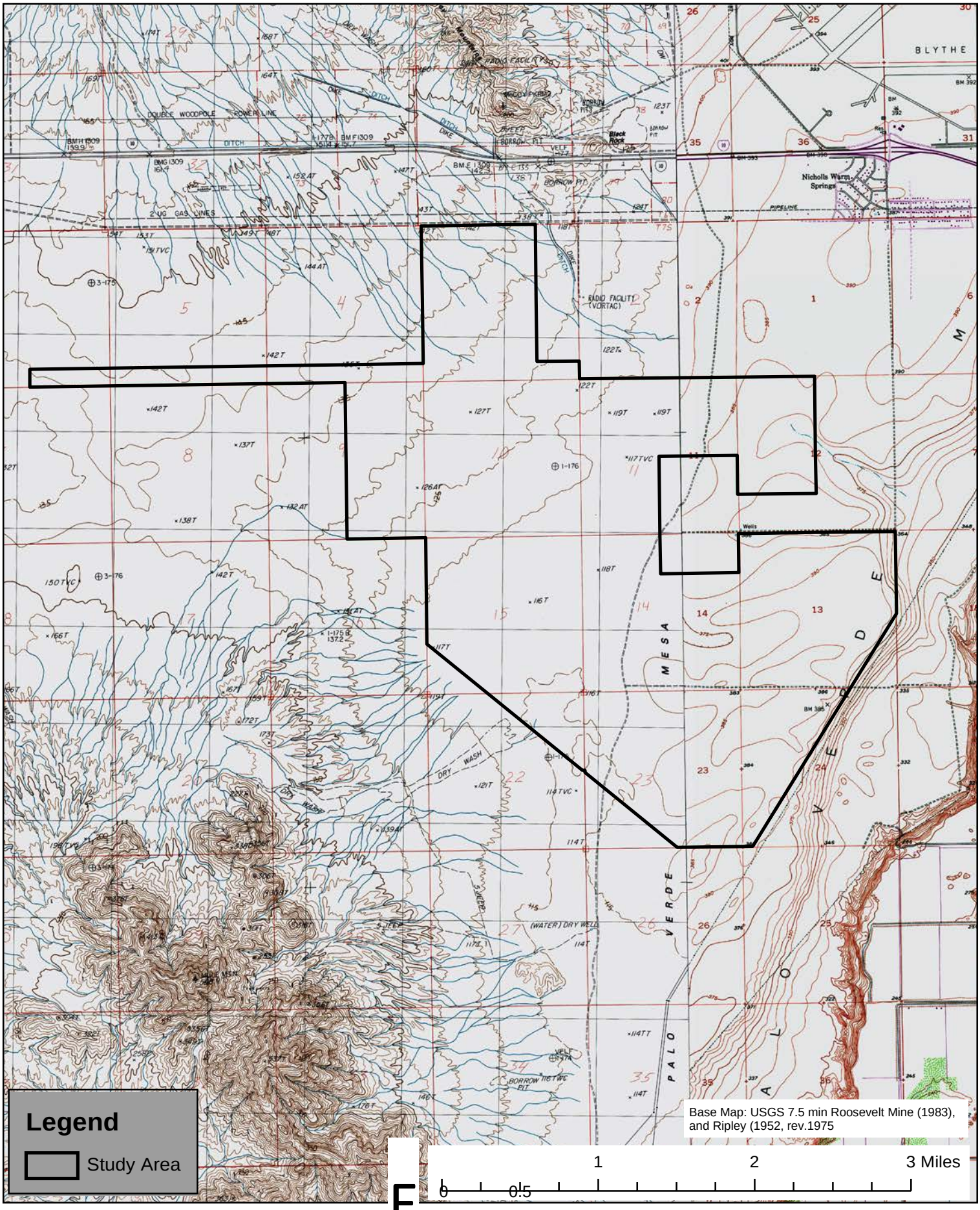

Figure 2. USGS Topographic Map of the Jurisdictional Study Area

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

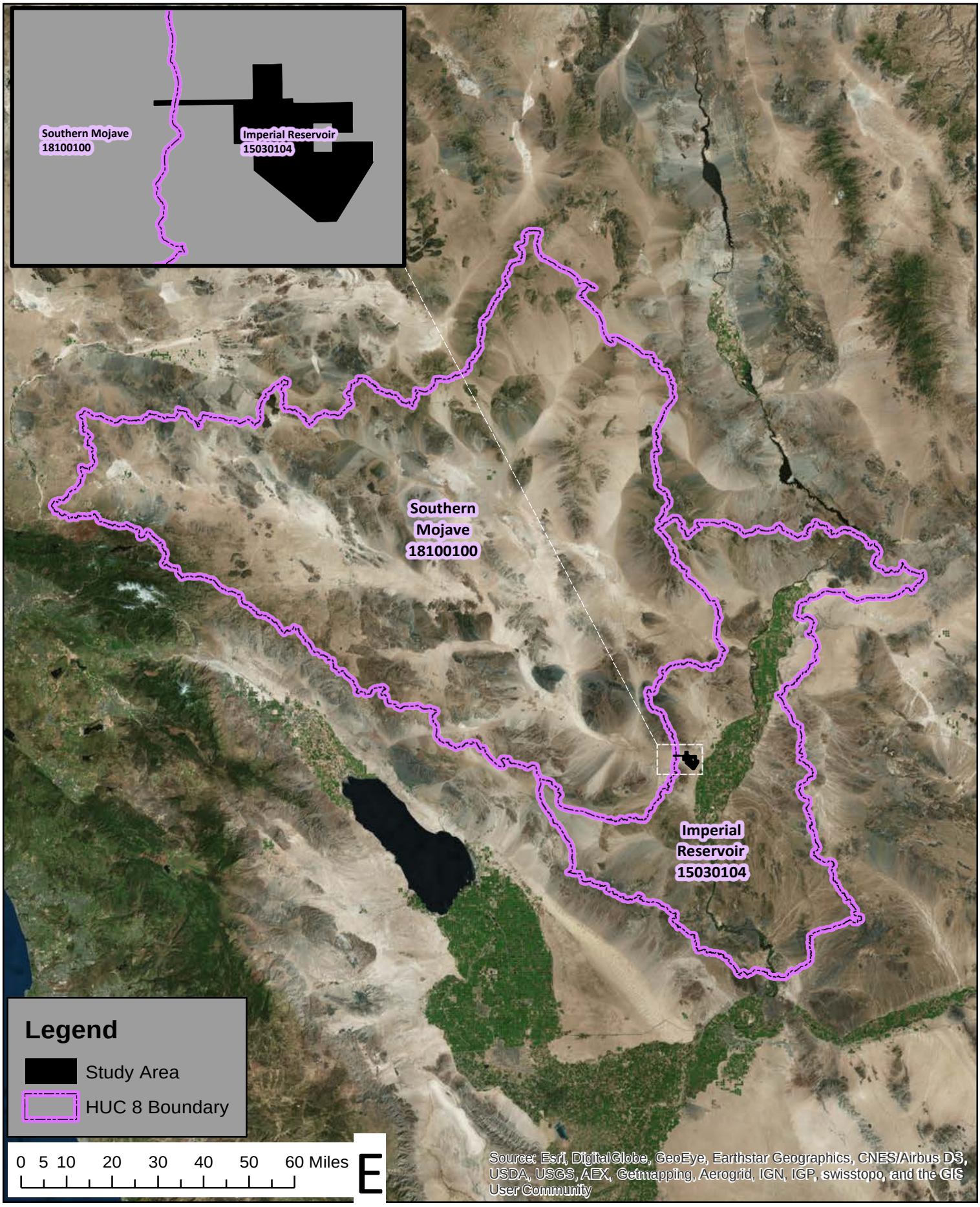

Figure 3. Southern Mojave and Imperial Reservoir USGS Hydrologic Units

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

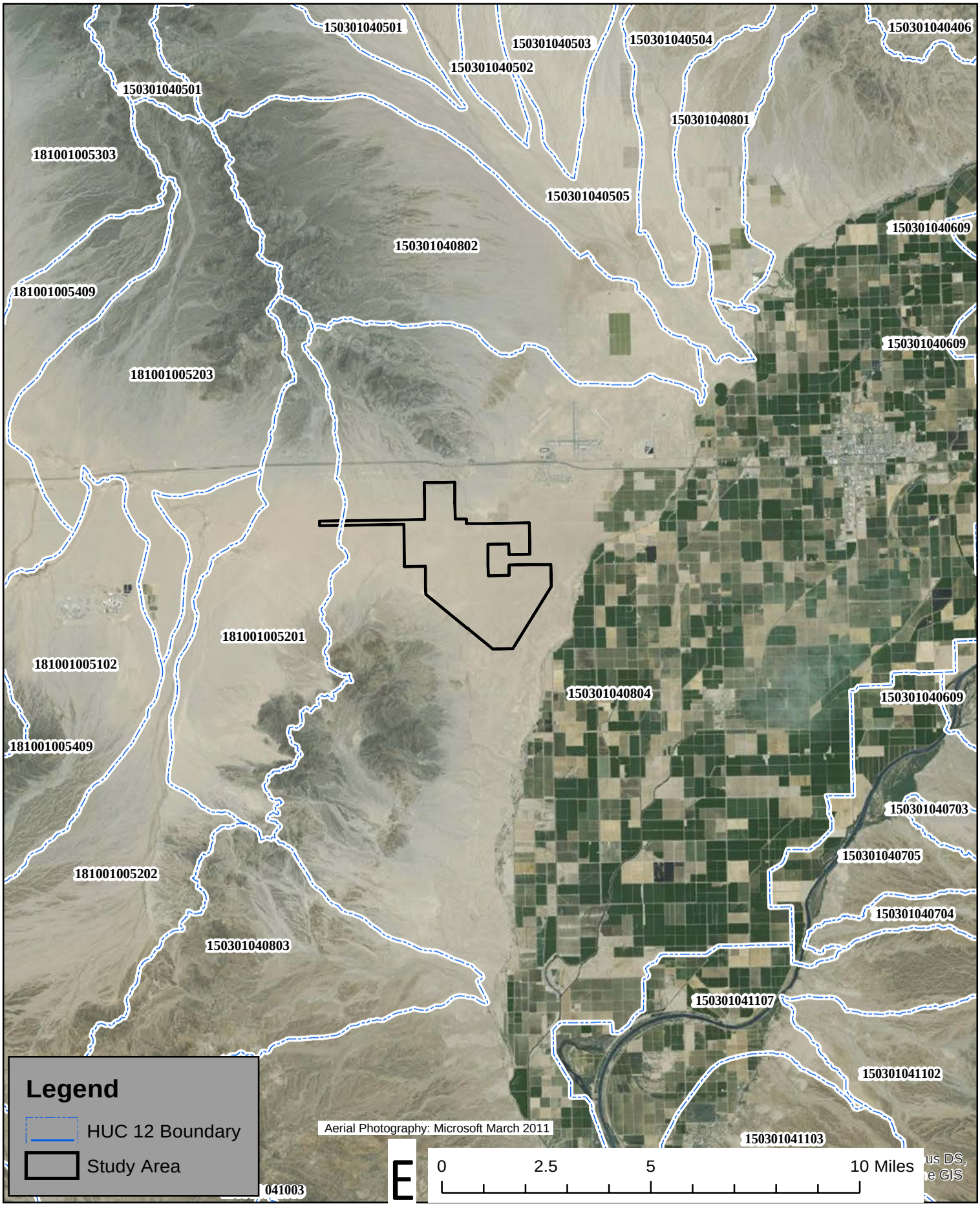

Figure 4. USGS HUC 12 Watershed Units

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Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

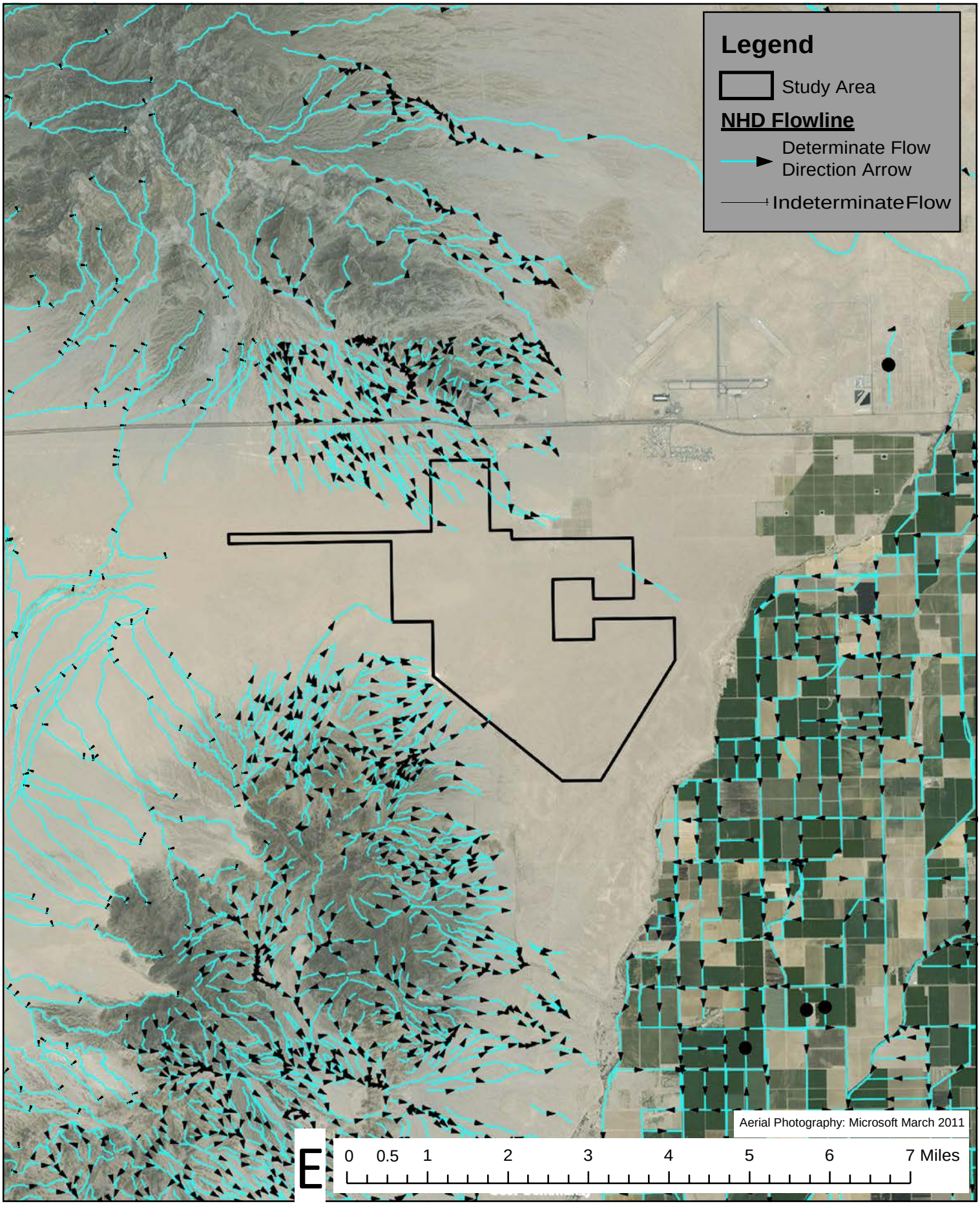

Figure 5. USGS NHD 1:25K High Resolution Mapping With Flow Arrows Showing Direction and Route of Surface Water Flow

Huffman-Broadway Group, Inc.
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Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

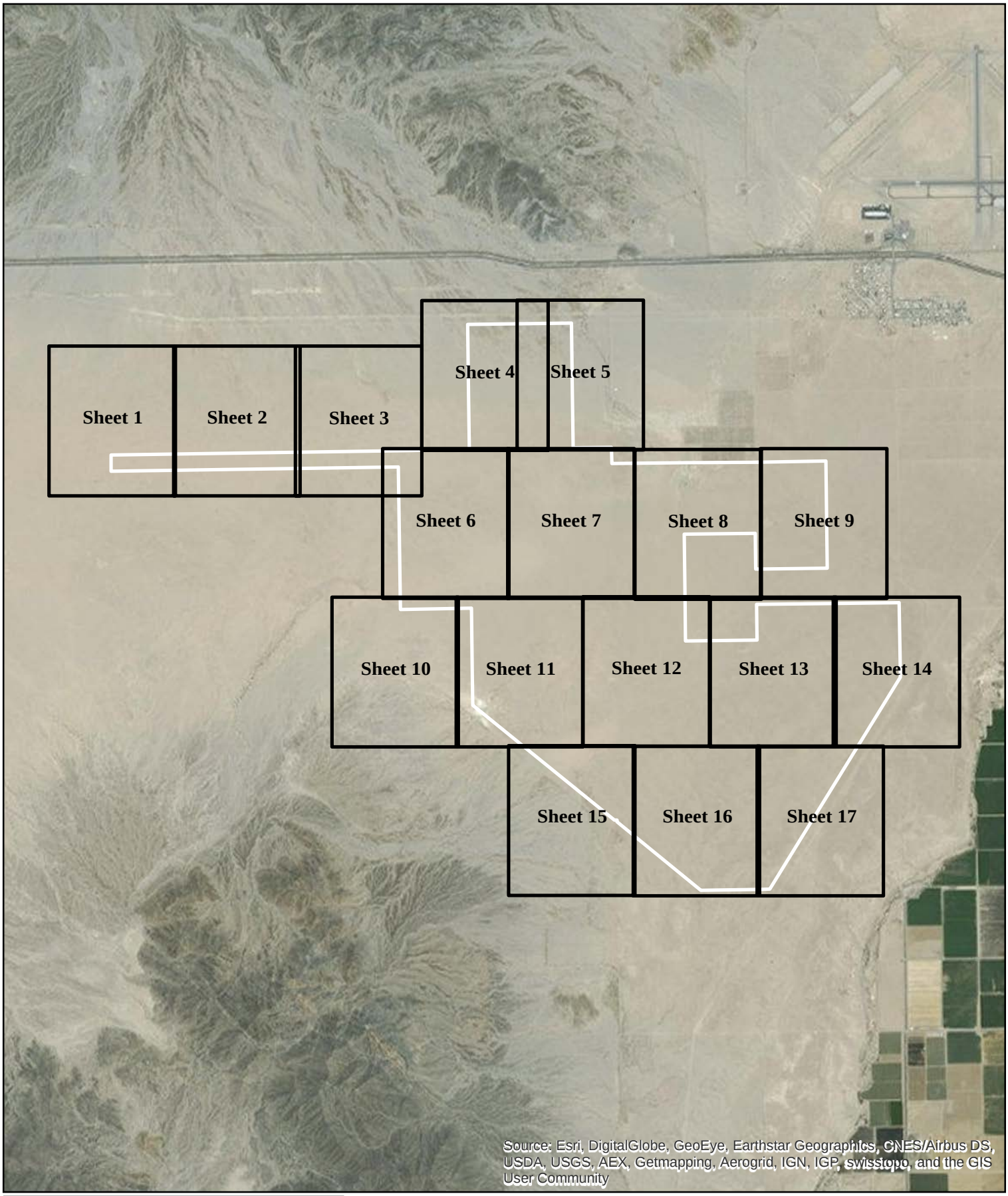

Figure 6. Potential Waters/Wetlands Subject to Corps/US EPA Section 404 Jurisdiction, Index Map

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 1

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 2

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

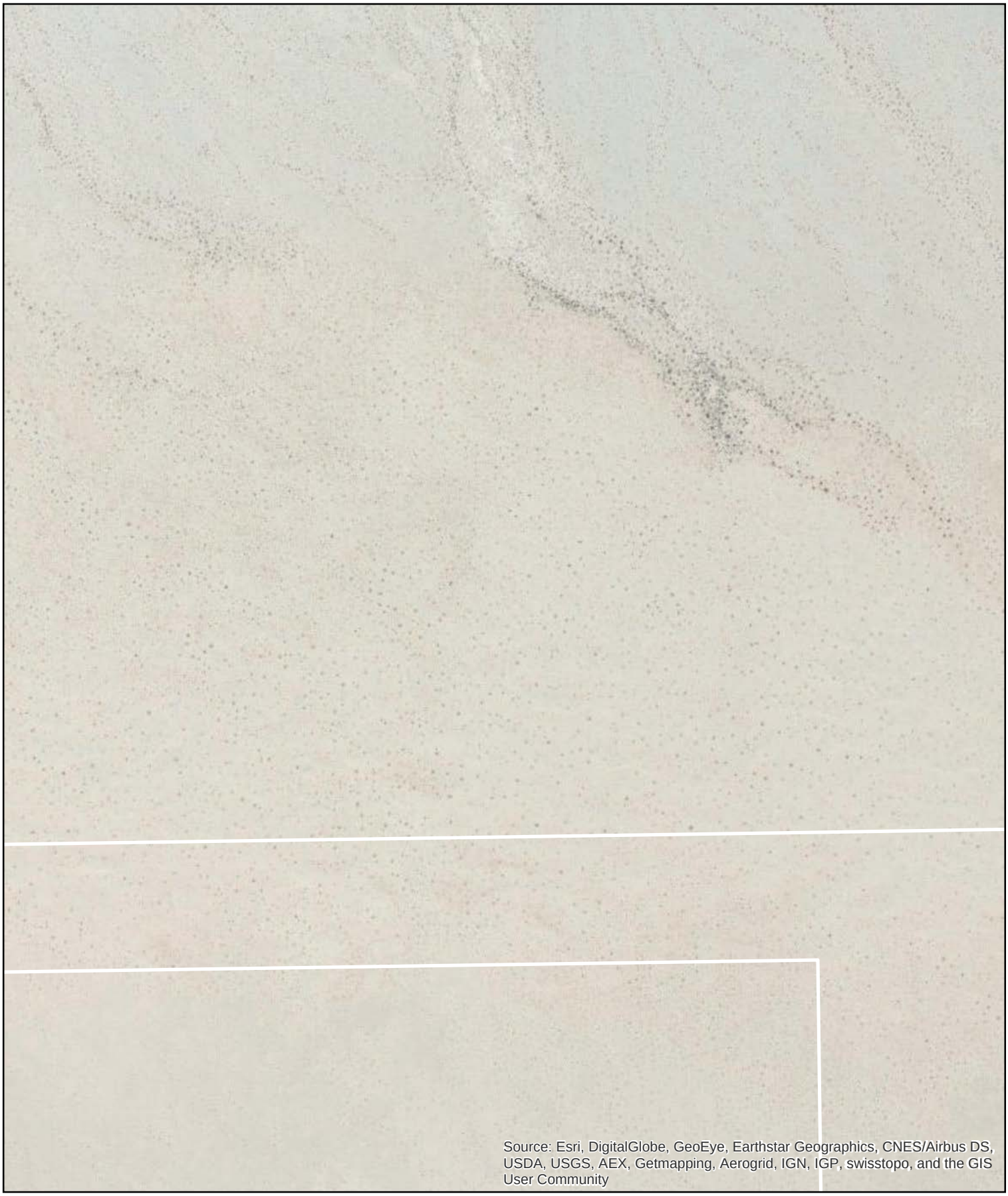

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 3

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 4

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

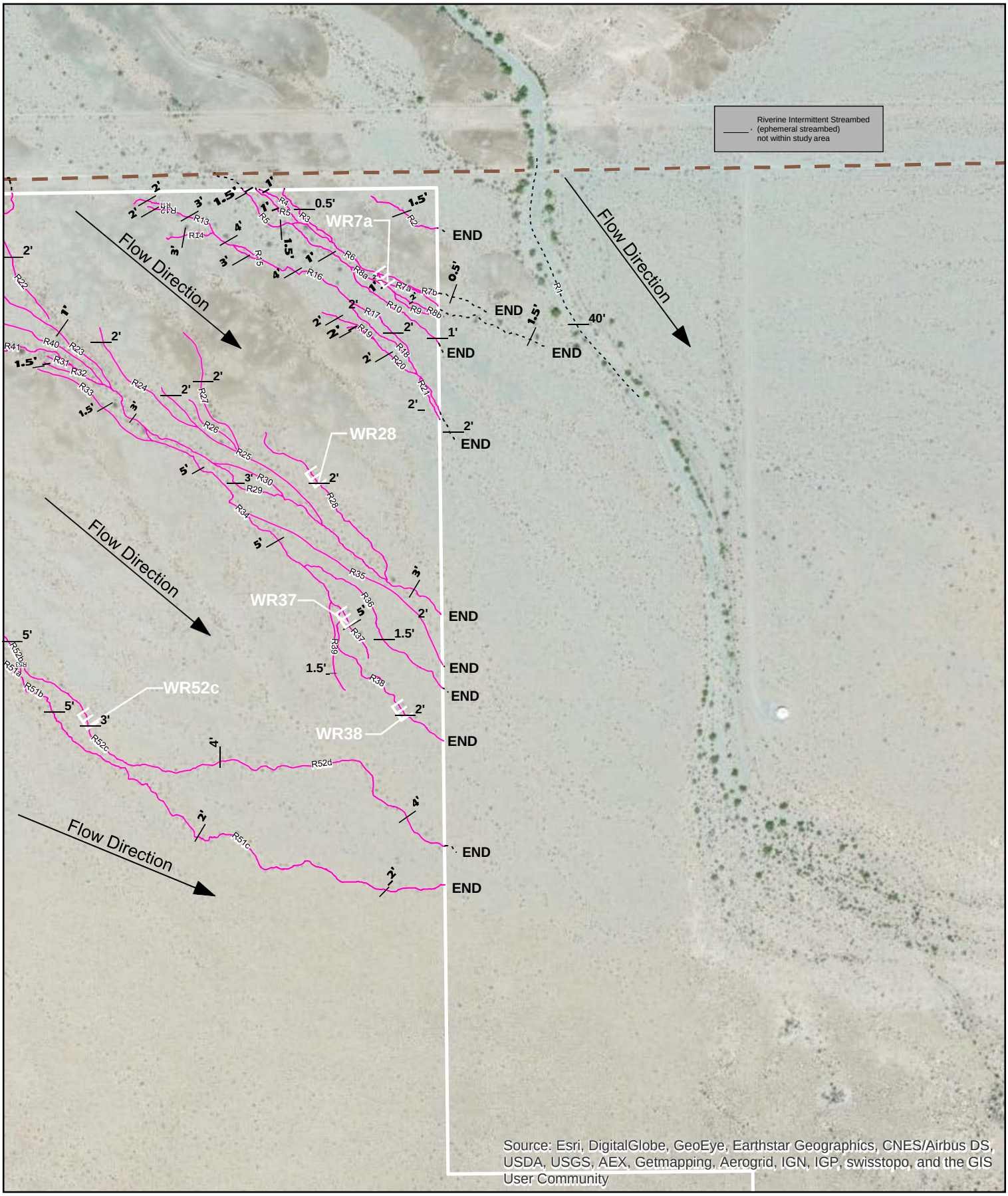

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 5

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Blythe, Riverside County, California

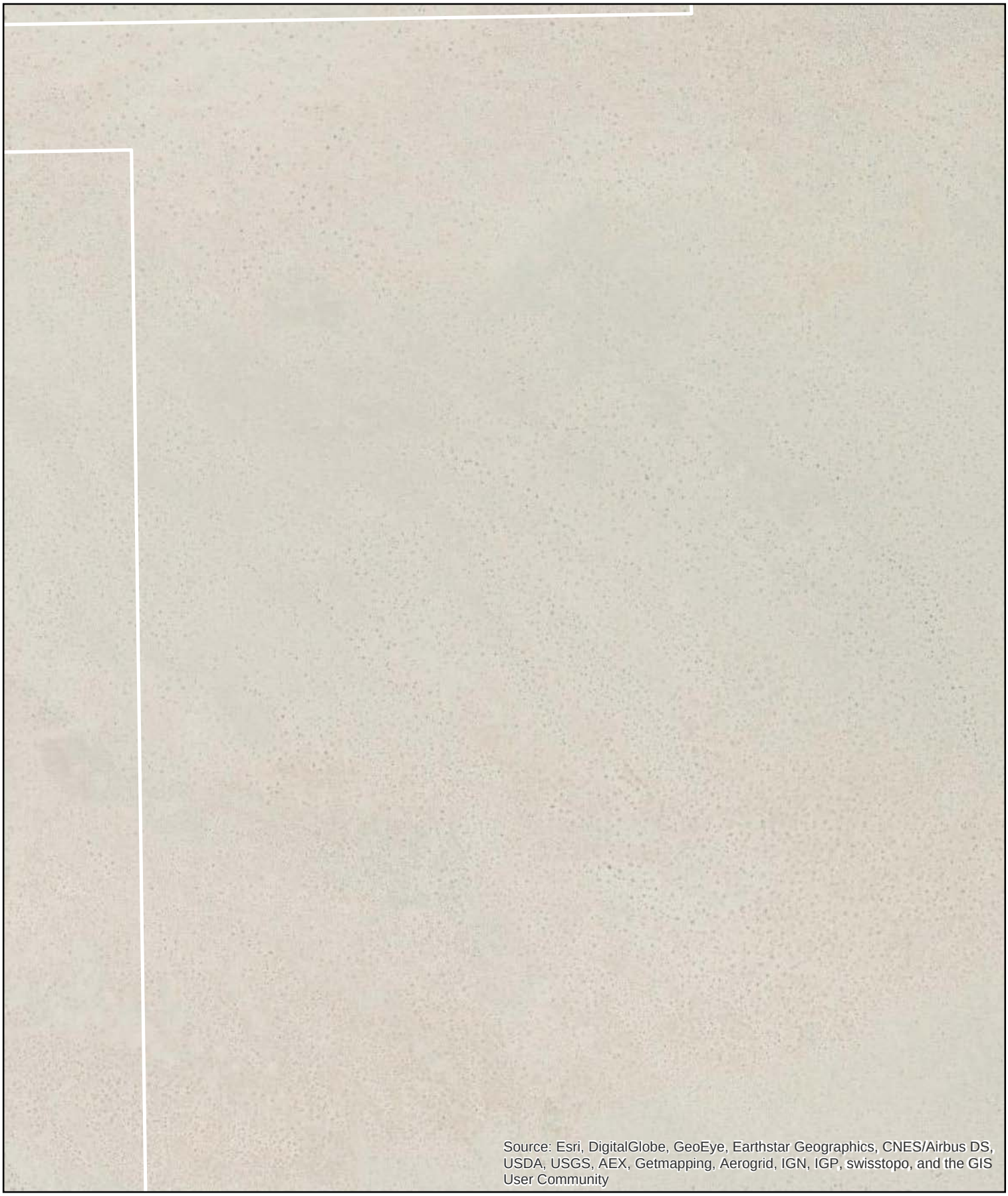


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 6

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

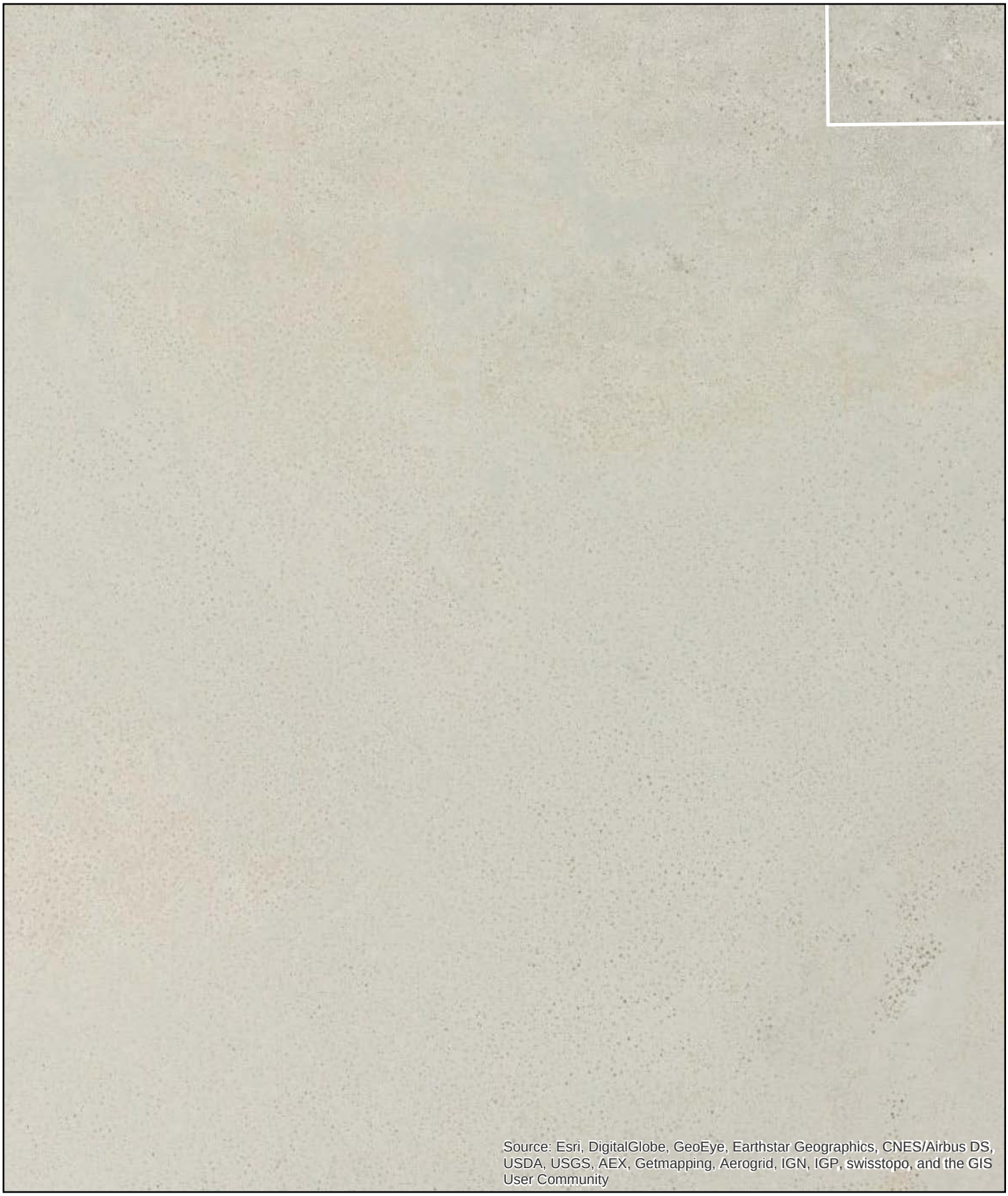


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 7

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 8

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 9

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

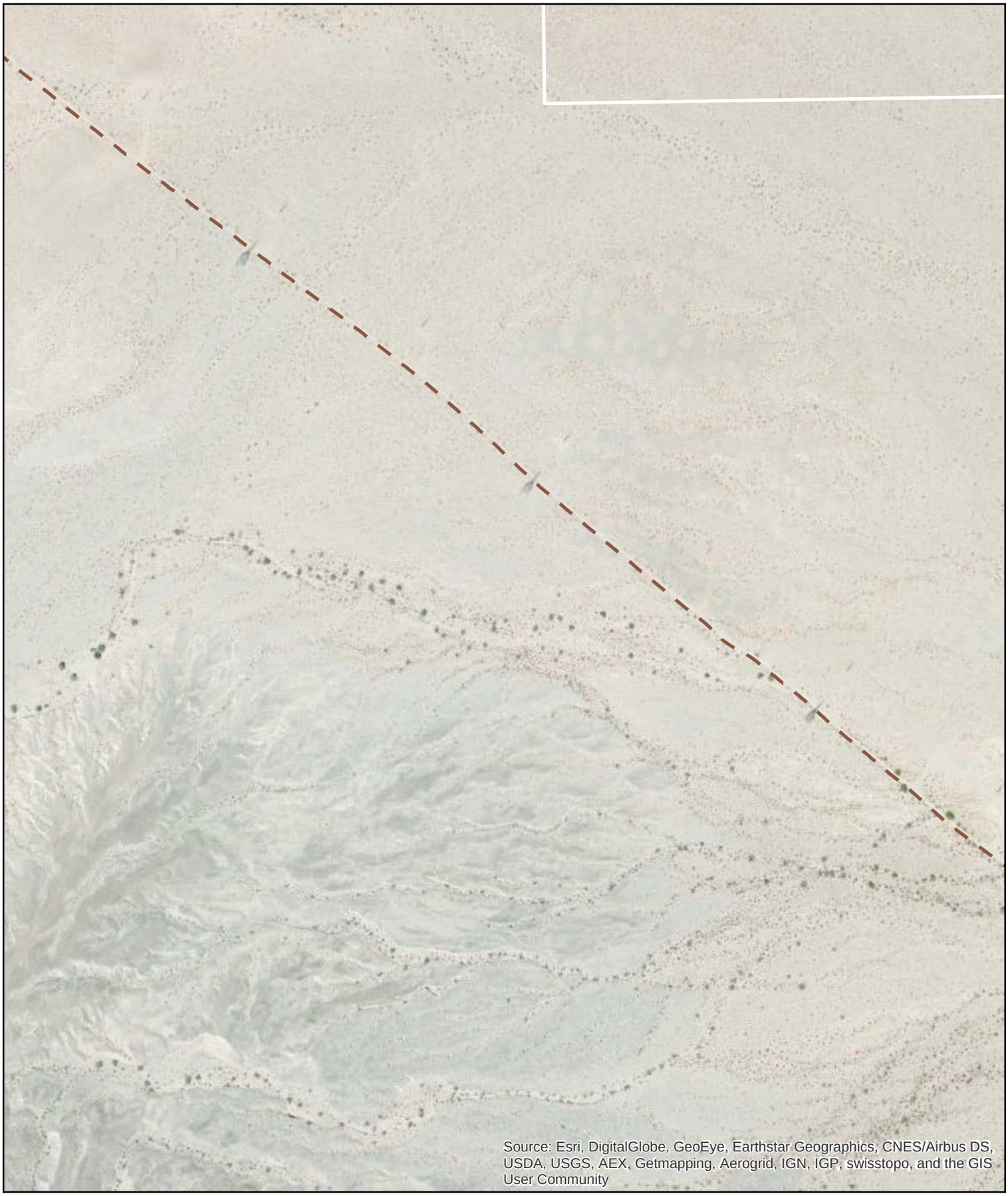


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 10

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

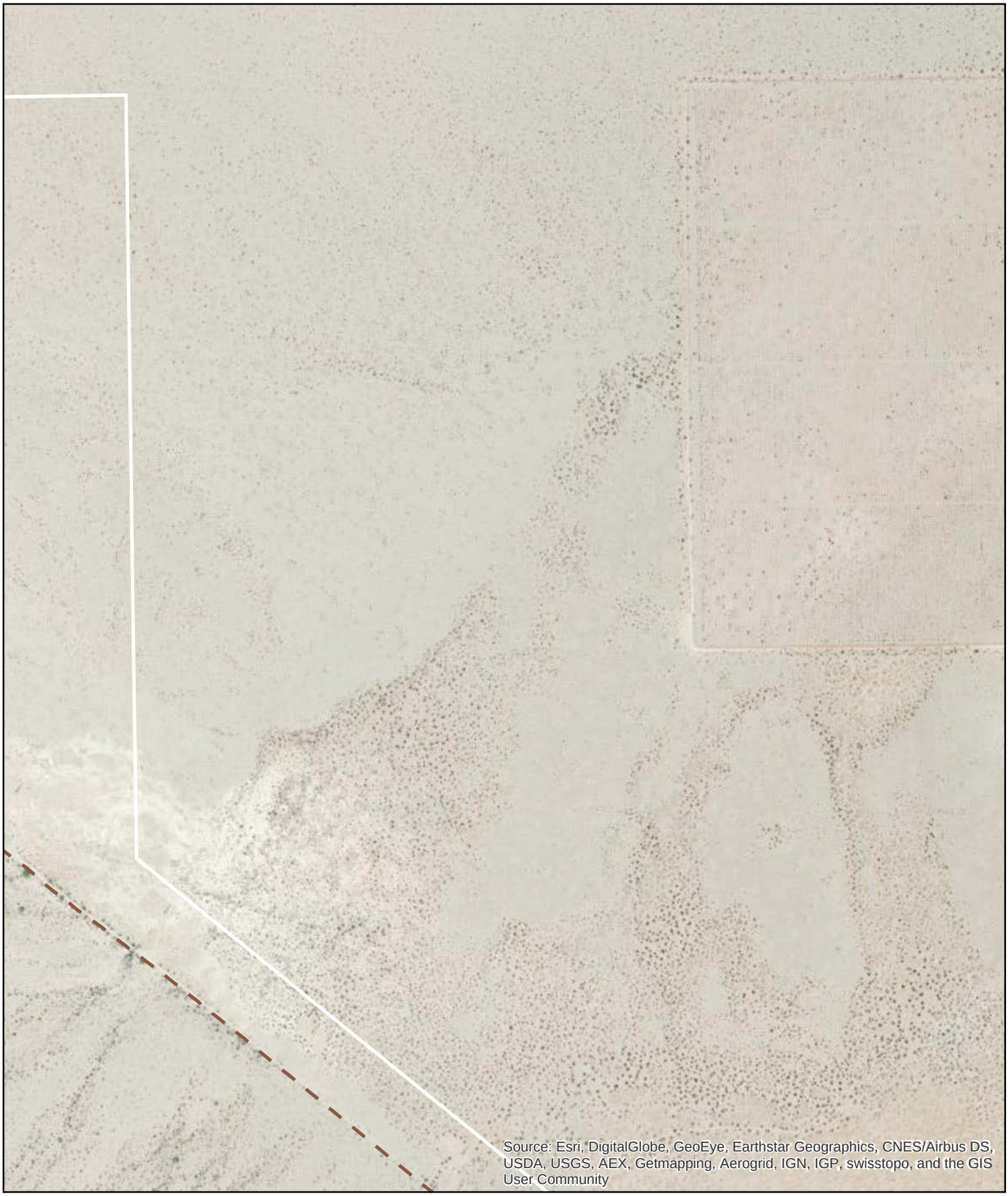


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 11

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

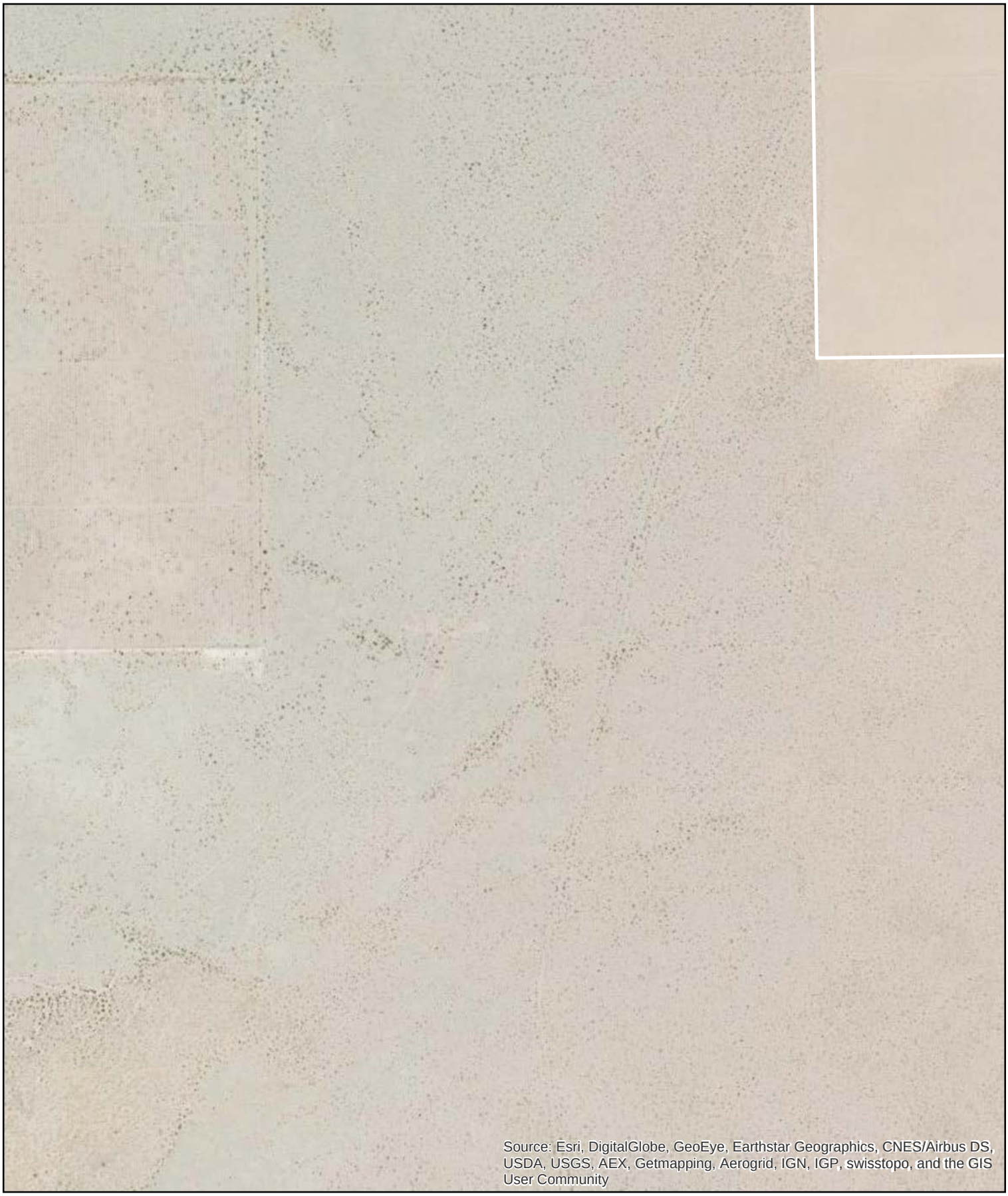


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 12

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 13

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

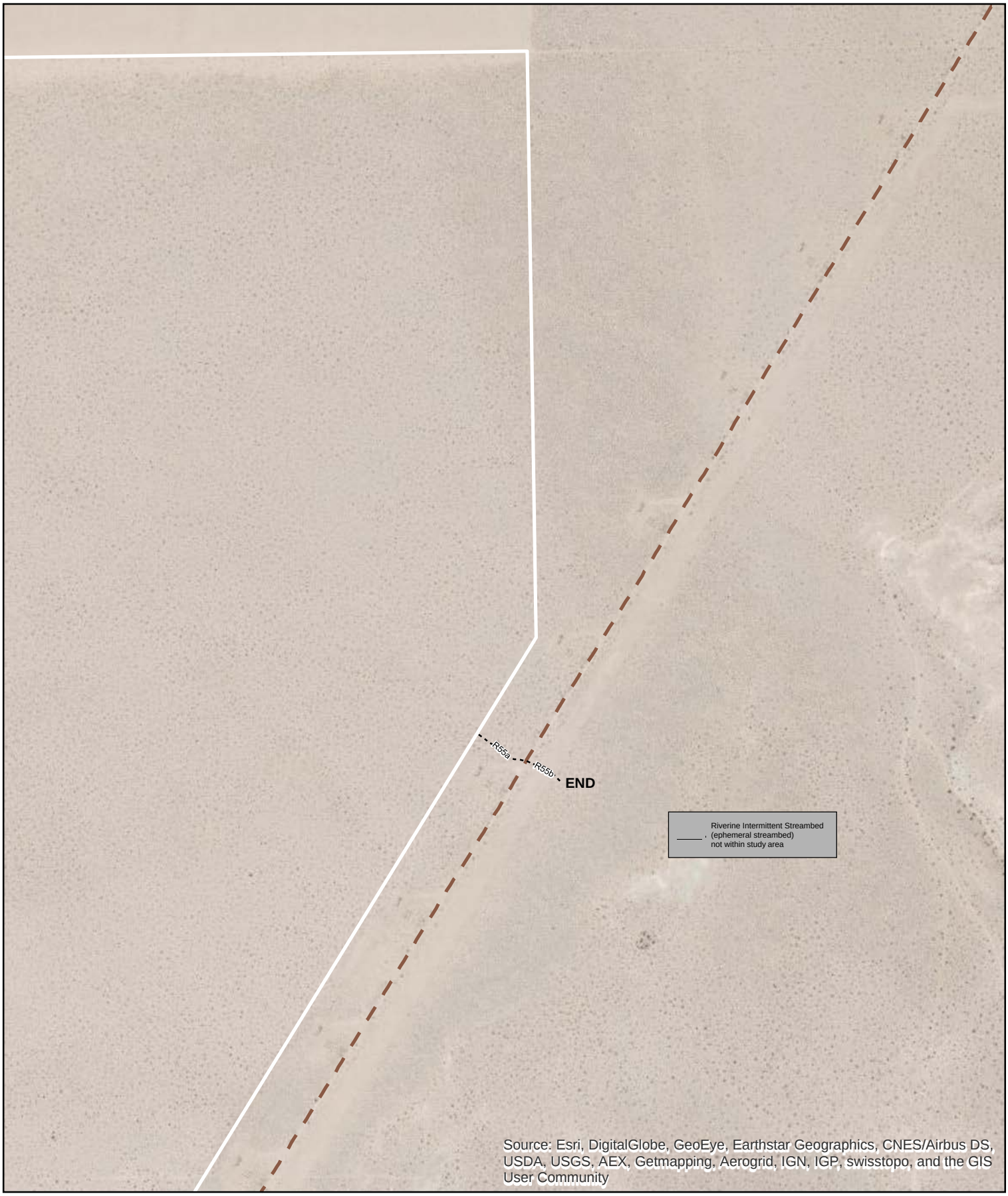


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 14

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 15

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

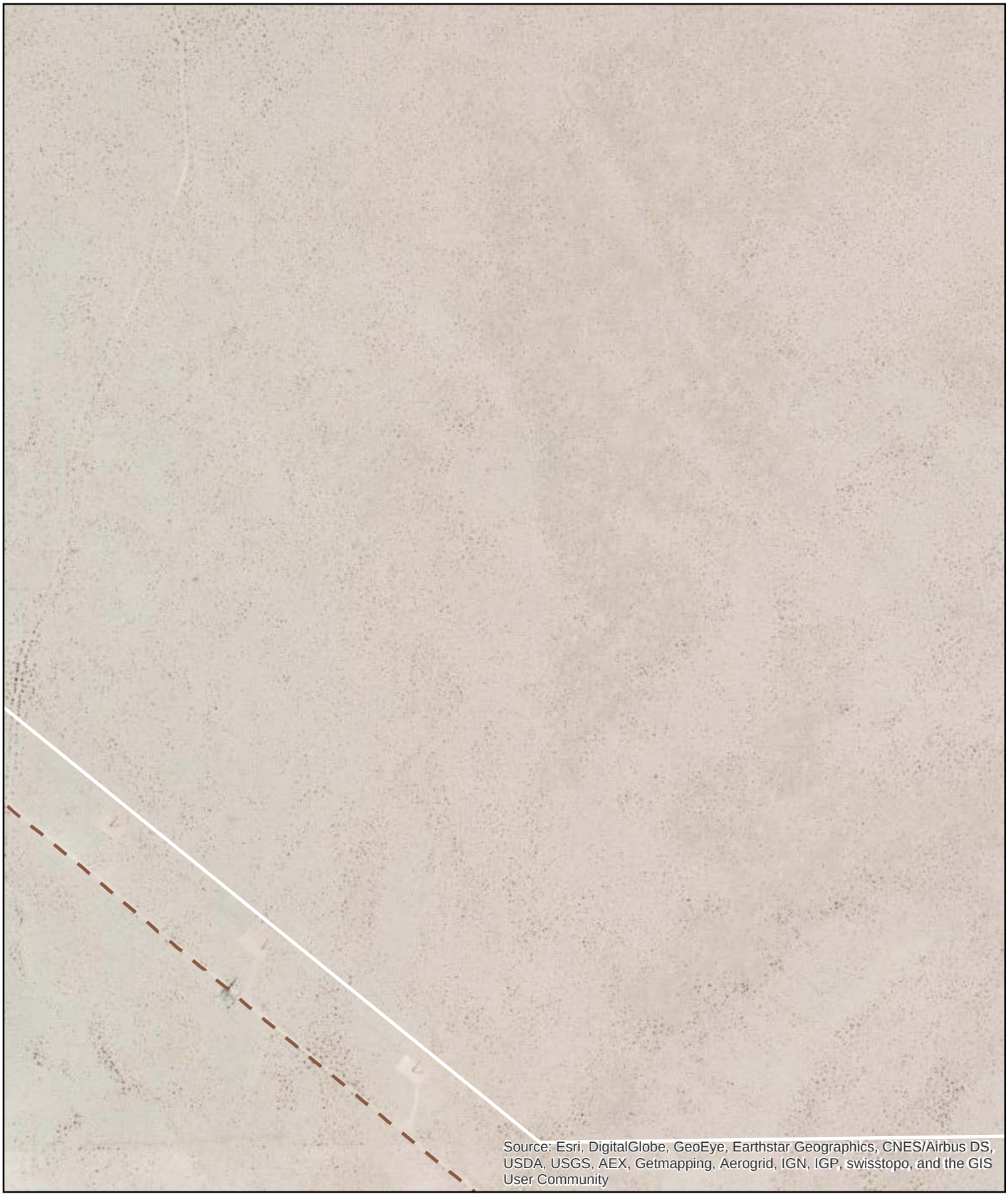
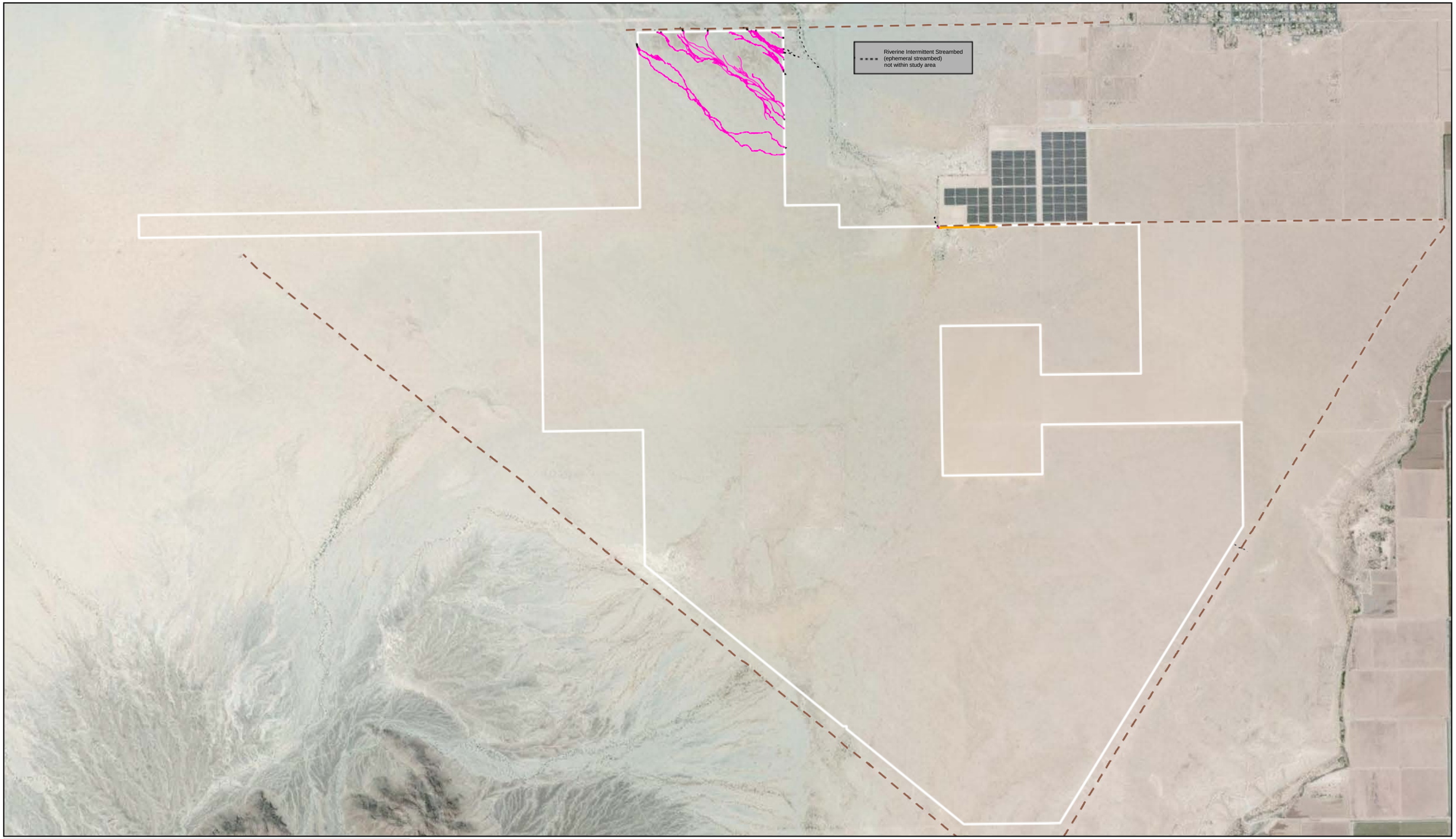


Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 16

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Figure 6. Potential Waters of the US Subject to Corps/US EPA Section 404 Jurisdiction, Sheet 17

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Aerial Photography: Microsoft March 2011

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Figure 7. Location of Areas Potentially Excluded from Corps and US EPA Jurisdiction as Waters of the US
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

APPENDIX B

NRCS Custom Soils Report

United States Department of Agriculture

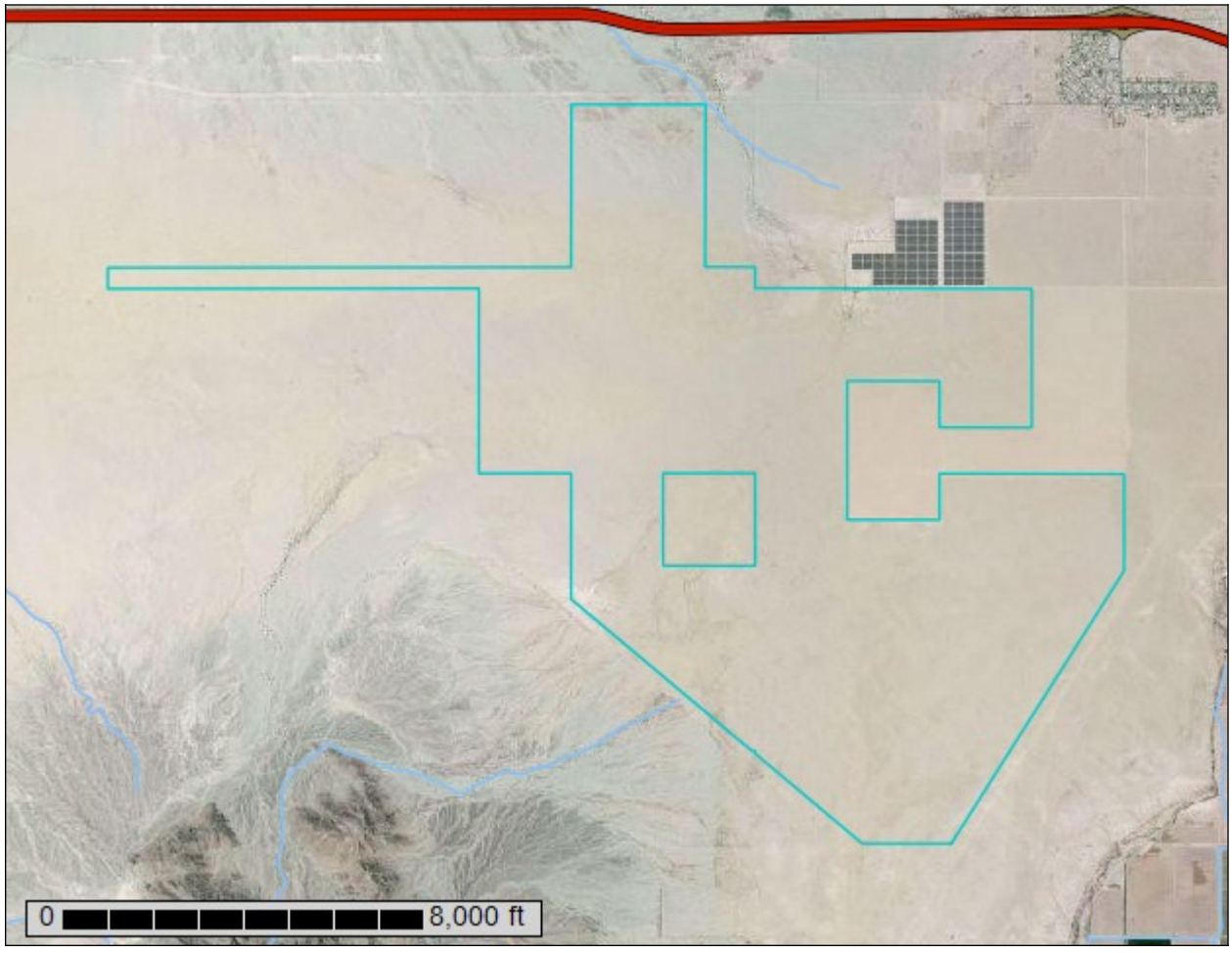
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Colorado Desert Area, California, and Palo Verde Area, California

Desert Quartzite Study Area



April 27, 2015

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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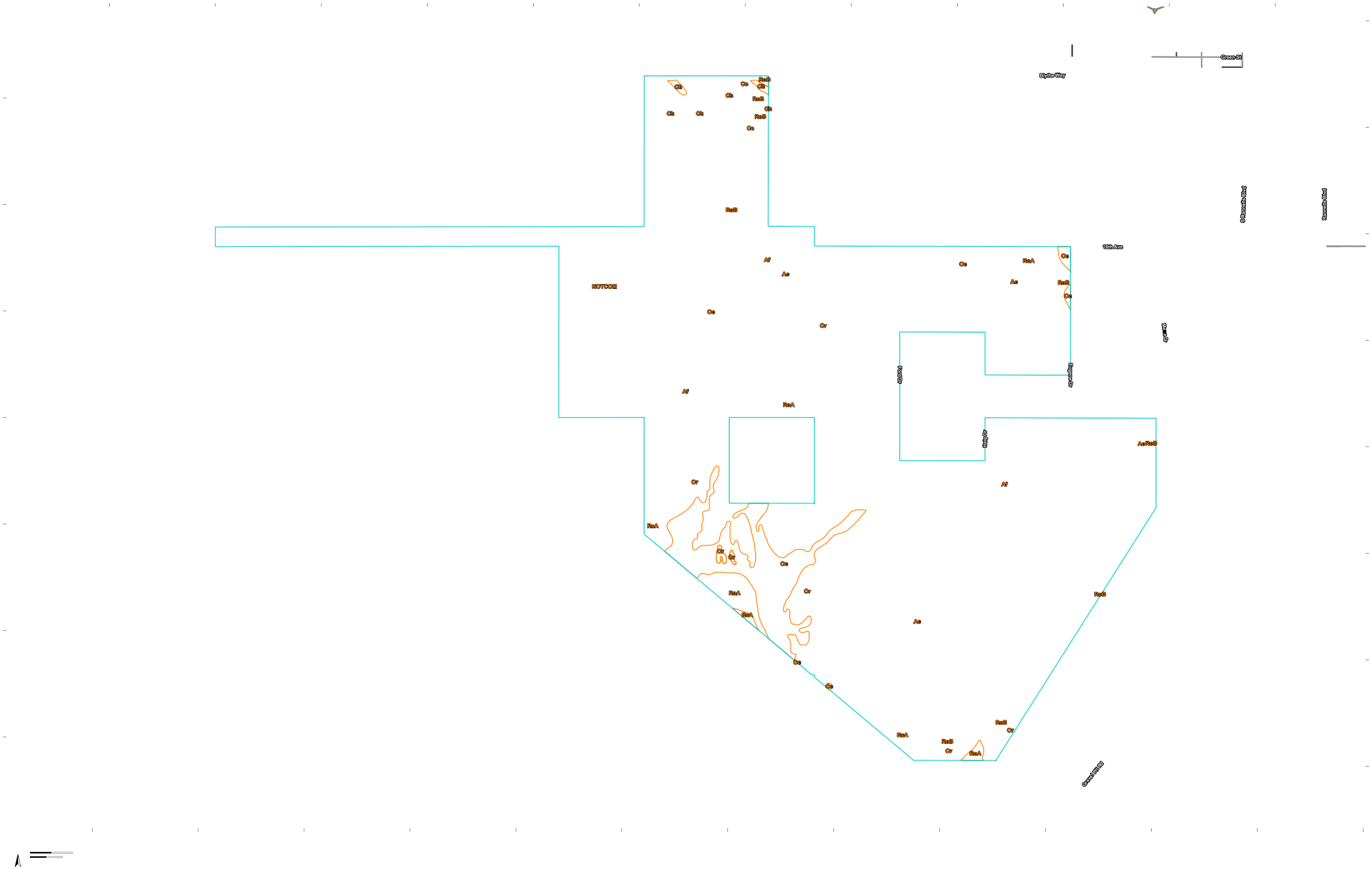
Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Green St
Blythe Way
S Rannells Blvd
Rannells Blvd
16th Ave
Ford Dr
NOTCOM
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RoA
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Oc
Or
Ch
AcRoB

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

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Background
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MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Colorado Desert Area, California
Survey Area Data: Version 4, Sep 17, 2014

Soil Survey Area: Palo Verde Area, California
Survey Area Data: Version 6, Sep 9, 2014

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 13, 2011—Apr 17, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Colorado Desert Area, California (CA803)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
NOTCOM	No Digital Data Available	556.3	11.5%
Subtotals for Soil Survey Area		**556.3**	**11.5%**
Totals for Area of Interest		**4,843.2**	**100.0%**

Palo Verde Area, California (CA681)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ac	Aco gravelly loamy sand	1,028.4	21.2%
Af	Aco sandy loam	1,459.1	30.1%
Ce	Carrizo gravelly sand	97.4	2.0%
Ch	Chuckawalla very gravelly silt loam	63.7	1.3%
Oc	Orita fine sand	358.2	7.4%
Or	Orita gravelly fine sandy loam	678.0	14.0%
RoA	Rositas fine sand, 0 to 2 percent slopes	162.1	3.3%
RoB	Rositas fine sand, 2 to 9 percent slopes	408.1	8.4%
RsA	Rositas gravelly loamy sand, 0 to 2 percent slopes	31.9	0.7%
Subtotals for Soil Survey Area		**4,287.0**	**88.5%**
Totals for Area of Interest		**4,843.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be

made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Colorado Desert Area, California

NOTCOM—No Digital Data Available

Map Unit Composition

Notcom: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Notcom

Properties and qualities

Palo Verde Area, California

Ac—Aco gravelly loamy sand

Map Unit Setting

National map unit symbol: hkwq
Elevation: 300 to 700 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Aco and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aco

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 3 inches: gravelly loamy sand
H2 - 3 to 18 inches: coarse sandy loam
H3 - 18 to 46 inches: sandy loam
H4 - 46 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A

Minor Components

Rositas, gravelly loamy sand

Percent of map unit: 8 percent

Aco, sandy loam
Percent of map unit: 7 percent

Af—Aco sandy loam

Map Unit Setting
National map unit symbol: hkwr
Elevation: 300 to 700 feet
Frost-free period: 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Aco and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aco

Setting
Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile
H1 - 0 to 3 inches: sandy loam
H2 - 3 to 18 inches: coarse sandy loam
H3 - 18 to 46 inches: sandy loam
H4 - 46 to 60 inches: fine sand

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups
Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A

Minor Components

Rositas, fine sand
Percent of map unit: 8 percent

Aco, gravelly loamy sand
Percent of map unit: 7 percent

Ce—Carrizo gravelly sand

Map Unit Setting
National map unit symbol: hkwt
Elevation: 300 to 450 feet
Mean annual precipitation: 2 to 8 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition
Carrizo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carrizo

Setting
Landform: Arroyos
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Mixed sandy and gravelly alluvium

Typical profile
H1 - 0 to 37 inches: gravelly sand
H2 - 37 to 47 inches: very cobbly sandy loam
H3 - 47 to 60 inches: very cobbly sandy loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: A

Minor Components

Chuckawala

Percent of map unit: 5 percent

Rositas

Percent of map unit: 5 percent

Badland

Percent of map unit: 5 percent

Ch—Chuckawalla very gravelly silt loam

Map Unit Setting

National map unit symbol: hkwv
Elevation: 400 to 1,000 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Chuckawalla and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chuckawalla

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 7 inches: gravelly silty clay loam
H3 - 7 to 16 inches: very gravelly clay loam
H4 - 16 to 60 inches: very cobbly fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Moderately saline to strongly saline (15.0 to 30.0 mmhos/cm)
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Rock land

Percent of map unit: 5 percent

Carrizo

Percent of map unit: 5 percent

Badland

Percent of map unit: 5 percent

Oc—Orita fine sand

Map Unit Setting

National map unit symbol: hkxb
Elevation: 370 to 500 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 days
Farmland classification: Prime farmland if irrigated and reclaimed of excess salts and sodium

Map Unit Composition

Orita and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orita

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile
H1 - 0 to 12 inches: fine sand
H2 - 12 to 22 inches: fine sandy loam
H3 - 22 to 68 inches: gravelly clay loam
H4 - 68 to 80 inches: gravelly fine sandy loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 6 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups
Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C

Minor Components

Orita, gravelly fine sandy loam
Percent of map unit: 8 percent

Carrizo, gravelly sand
Percent of map unit: 7 percent

Or—Orita gravelly fine sandy loam

Map Unit Setting
National map unit symbol: hkxd
Elevation: 370 to 500 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 days
Farmland classification: Prime farmland if irrigated and reclaimed of excess salts and sodium

Map Unit Composition
Orita and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orita

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 4 inches: Error
H2 - 4 to 10 inches: gravelly fine sandy loam
H3 - 10 to 22 inches: gravelly sand
H4 - 22 to 68 inches: gravelly fine sandy loam
H5 - 68 to 80 inches: gravelly clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 6 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Aco, gravelly loamy sand

Percent of map unit: 5 percent

Carrizo, gravelly sand

Percent of map unit: 5 percent

Orita, gravelly fine sandy loam

Percent of map unit: 5 percent

RoA—Rositas fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hkxj
Elevation: 220 to 500 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 to 310 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting

Landform: Sand sheets
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands

Typical profile

H1 - 0 to 3 inches: loamy fine sand
H2 - 3 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A

Minor Components

Gilman
Percent of map unit: 3 percent

Aco
Percent of map unit: 3 percent

Carrizo
Percent of map unit: 3 percent

Gilman, valley location
Percent of map unit: 3 percent

Indio
Percent of map unit: 3 percent

RoB—Rositas fine sand, 2 to 9 percent slopes

Map Unit Setting
National map unit symbol: hkxk
Elevation: 220 to 500 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 to 310 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting
Landform: Sand sheets
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands

Typical profile
H1 - 0 to 3 inches: fine sand
H2 - 3 to 72 inches: fine sand

Properties and qualities
Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups
Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A

Minor Components

Unnamed, low dunes
Percent of map unit: 8 percent

Unnamed, gravelly surface pavement
Percent of map unit: 7 percent

RsA—Rositas gravelly loamy sand, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hkxm
Elevation: 220 to 500 feet
Mean annual precipitation: 3 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 290 to 310 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting
Landform: Sand sheets on stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands over mixed alluvium

Typical profile
H1 - 0 to 10 inches: gravelly loamy sand
H2 - 10 to 72 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A

Minor Components

Unnamed, steeper slopes

Percent of map unit: 8 percent

Aco

Percent of map unit: 7 percent

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APPENDIX C

WETS Precipitation Analysis

Summary of WETS Analysis
WETS Station Data, 1971 – 2014
Monthly Total Precipitation Data, January 2013 – January 2015

Summary of Results Obtained from WETS Analysis		
Month	**Total Rainfall for Month**	**Normal Rainfall Determination (normal, above (>) or below (<))**
1/2013	0.77 in	> normal
2/2013	0.01 in	< normal
3/2013	0.03 in	< normal
4/2013	0.00 in	< normal
5/2013	0.00 in	< normal
6/2013	0.00 in	normal
7/2013	0.54 in	> normal
8/2013	0.66 in	normal
9/2013	0.57 in	> normal
10/2013	0.01 in	normal
11/2013	0.74 in	> normal
12/2013	0.01 in	normal
1/2014	0.00 in	< normal
2/2014	0.07 in	< normal
3/2014	0.04 in	normal
4/2014	0.00 in	normal
5/2014	0.01 in	< normal
6/2014	0.00 in	normal
7/2014	0.00 in	< normal
8/2014	0.58 in	normal
9/2014	0.11 in	normal
10/2014	0.03 in	normal
11/2014	0.00 in	< normal
12/2014	0.78 in	> normal
1/2015	0.57 in	> normal

WETS Station : BLYTHE AP, CA158 Creation Date: 10/09/2014
Latitude: 3337 Longitude: 11443 Elevation: 00395
State FIPS/County(FIPS): 06065 County Name: Riverside
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	Temperature (Degrees F.) avg daily min	Temperature (Degrees F.) avg	Precipitation (Inches) avg	Precipitation (Inches) 30% chance will have less than	Precipitation (Inches) 30% chance will have more than	Precipitation (Inches) avg # of days w/.1 or more	Precipitation (Inches) avg total snow fall
January	66.6	41.7	54.2	0.46	0.03	0.51	1	0.0
February	72.0	45.7	58.9	0.55	0.04	0.61	1	0.0
March	77.6	50.2	63.9	0.45	0.03	0.52	1	0.0
April	85.7	56.2	71.0	0.14	0.00	0.09	1	0.0
May	93.9	63.9	78.9	0.03	0.00	0.03	0	0.0
June	104.1	72.6	88.4	0.01	NA	NA	0	0.0
July	107.2	80.2	93.7	0.32	0.00	0.33	1	0.0
August	105.4	79.5	92.5	0.66	0.07	0.80	1	0.0
September	99.6	72.4	86.0	0.50	0.00	0.50	1	0.0
October	88.0	60.0	74.0	0.23	0.00	0.19	0	0.0
November	74.7	47.4	61.1	0.19	0.00	0.16	0	0.0
December	66.0	40.9	53.5	0.48	0.01	0.47	1	0.0
Annual	-----	-----	-----	------	2.87	4.74	--	----
Average	86.7	59.2	73.0	------	------	------	--	----
Average	-----	-----	-----	4.02	------	------	9	0.0

GROWING SEASON DATES

Probability	Temperature: 24 F or higher	Temperature: 28 F or higher	Temperature: 32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *			
70 percent *			

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1948-2014 prcp

Station : CA158, BLYTHE AP
------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
48							0.05	0.90	0.49	1.33	0.00	0.24	3.01
49	2.48	0.00	0.01	0.02	0.00	0.00	0.00	0.18	0.00	0.23	0.00	0.07	2.99
50	0.00	0.05	0.00	0.00	0.00	0.00	0.24	0.00	0.02	0.00	0.00	0.00	0.31
51	0.54	0.00	0.00	0.73	0.07	0.00	0.19	5.92	0.00	0.41	0.69	0.13	8.68
52	0.40	0.18	0.59	0.65	0.00	0.91	0.25	0.05	0.10	0.00	0.33	1.42	4.88
53	0.00	0.10	0.10	0.00	0.00	0.00	0.07	0.06	0.00	0.00	0.00	0.26	0.59
54	0.70	0.00	0.76	0.01	0.00	0.00	0.14	0.46	0.20	0.16	0.00	0.00	2.43
55	1.05	0.00	0.00	0.02	0.00	0.00	0.04	1.14	0.00	0.00	0.01	0.00	2.26
56	0.00	0.07	0.00	0.00	0.00	0.00	1.03	0.00	0.01	0.00	0.00	0.00	1.11
57	0.97	0.03	0.00	0.13	0.00	0.00	0.32	0.48	0.00	1.53	0.05	0.13	3.64
58	0.12	1.35	0.60	0.25	0.02	0.00	0.02	0.57	0.01	0.09	0.03	0.00	3.06
59	0.07	0.36	0.00	0.00	0.00	0.01	0.07	1.30	0.07	0.38	0.00	1.95	4.21
60	0.42	0.17	0.21	0.03	0.00	0.00	0.12	0.09	1.03	0.02	0.25	0.00	2.34
61	0.13	0.00	0.00	0.00	0.00	0.00	0.04	0.50	0.00	0.00	0.12	0.75	1.54
62	0.79	0.26	0.09	0.00	0.00	0.00	0.02	0.48	0.00	0.00	0.00	0.57	2.21
63	0.55	0.23	0.20	0.00	0.00	0.00	0.00	1.05	1.03	1.17	0.41	0.00	4.64
64	0.00	0.22	0.33	0.08	0.00	0.00	0.08	0.00	0.00	0.00	0.30	0.12	1.13
65	0.14	0.09	0.23	3.00	0.01	0.00	0.00	0.35	0.00	0.00	0.81	1.44	6.07
66	1.08	0.02	0.15	0.03	0.00	0.00	0.61	0.13	0.18	1.09	0.02	0.19	3.50
67	0.26	0.00	0.22	0.00	0.00	0.00	0.00	1.16	1.04	0.00	0.70	0.87	4.25
68	0.00	0.12	0.25	0.06	0.00	0.00	0.38	0.05	0.00	0.32	0.03	0.11	1.32
69	1.00	0.01	0.03	0.00	0.00	0.00	1.05	0.17	0.60	0.17	0.47	0.05	3.55
70	0.11	0.66	1.11	0.01	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.03	2.65
71	0.00	0.00	0.00	0.05	0.00	0.00	0.01	1.07	0.97	0.06	0.00	0.08	2.24
72	0.00	0.00	0.00	0.00	0.00	0.10	0.21	0.30	0.01	1.89	0.38	0.03	2.92
73	0.07	0.96	1.12	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.05	0.00	2.58
74	0.71	0.00	0.19	0.00	0.00	0.00	0.12	0.11	0.00	0.89	0.00	0.70	2.72
75	0.05	0.11	0.07	0.32	0.00	0.00	0.76	0.00	0.56	0.00	0.01	0.04	1.92
76	0.00	1.78	0.00	0.91	0.00	0.00	0.14	0.00	2.14	0.05	0.02	0.18	5.22
77	0.16	0.01	0.12	0.01	0.09	0.01	0.17	1.10	0.70	0.06	0.00	0.40	2.83
78	1.73	1.07	0.22	0.10	0.04	0.00	0.06	0.99	0.00	1.42	0.43	0.89	6.95
79	1.44	0.06	0.81	0.00	0.12	0.00	0.36	2.09	0.52	0.06	0.00	0.18	5.64
80	0.84	1.57	0.65	0.24	0.00	0.00	0.10	0.72	0.18	0.03	0.00	0.02	4.35
81	0.05	0.19	1.01	0.00	0.07	0.04	0.00	1.77	0.03			0.00	3.16
82	0.13	0.26	0.87	0.00	0.12	0.00	0.49	1.25	0.51	0.00	0.28	1.26	5.17
83	0.13	0.37	1.75	0.00	0.00	0.00	0.00	2.07	0.88	0.00	0.03	0.73	5.96
84	0.06	0.00	0.00	0.00	0.02	0.00	2.44	0.11	0.00	0.00	0.10	3.33	6.06
85	0.27	0.29	0.03	0.06	0.00	0.00	0.00	0.00	1.61	0.90	1.84	0.07	5.07
86	0.07	0.40	0.19	0.02	0.00	0.00	0.11	0.05	0.90	0.50	0.69	0.75	3.68
87	0.00	0.03	0.00	0.05	0.00	0.03	1.40	0.00	0.01	0.42	0.71	M0.68	3.33
88	0.42	0.61	0.02	0.98	0.00	0.00	0.00	0.83	0.00	0.07	0.00	0.00	2.93
89	1.08	0.00	0.06	0.00	0.00	0.00	0.32	0.15	0.01	0.00	0.00	0.00	1.62
90	0.14	0.01	0.21	0.00	0.02	0.00	0.22	1.47	0.13	0.06	0.00		2.26
91		0.76	1.24	0.00	0.00	0.00	0.01	0.28	1.52	0.14	0.04	0.31	4.30
92	0.78	1.59	2.15	0.28	0.03	0.00	0.00	1.93	0.00	0.20	0.00	2.20	9.16
93	2.33	2.19	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.87	0.01	5.62
94	0.01	0.29	0.68	0.02	0.12	0.00	0.69	0.14	0.00	0.00	0.06	1.23	3.24
95	2.29	0.32	0.49	0.09		0.00	0.05	1.37	0.08	0.00	0.00	0.00	4.69
96	0.10	0.27	0.09	0.00	0.22	0.00	0.00	0.00	0.85	0.01	0.04	0.01	1.59
97	0.47	0.00	0.00	0.06	0.00	0.00	0.61	0.03	2.05	0.01	0.03	1.06	4.32
98	0.28	3.03	1.29	0.01	0.01	0.00	0.05	0.47	0.52	0.04	0.16	0.21	6.07
99	0.00	0.34	0.00	1.00	0.04	0.00	1.20	0.00	0.74	0.00	0.00	0.00	3.32
0	0.00	0.08	0.38	0.00	0.00	0.01	0.00	1.03	0.00	0.00	M0.00	0.00	1.50
1	0.81	0.67	1.55	0.01	0.00	0.00	0.00	M0.00	0.00	0.00	0.11	0.03	3.18
2	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.75	0.04	0.03	0.00	0.86
3	0.11	1.08	0.28	0.08	0.00	0.00	0.06	0.00	0.07	0.00	0.33	0.00	2.01

4	0.02	0.57	0.81	0.06	0.00	0.00	0.00	0.02	0.12	1.02	0.31	0.57	3.50
5	1.55	2.83	0.21	0.00	0.00	0.00	0.00	1.35	0.00	0.85	0.00	0.00	6.79
6	0.00	0.00	0.25	0.00	0.00	0.20	0.15	1.46	1.44	0.04	0.00	0.00	3.54
7	0.16	0.07	0.53	0.00	0.00	0.00	0.00	0.00	0.06	0.00	1.11	0.00	1.93
8	0.77	0.02	0.00	0.00	0.18	0.00	0.27	0.15	0.06	0.00	0.24	0.65	2.34
9	0.02	0.43	0.00	0.00	0.03	0.01	0.07	0.02	0.03	0.00	0.00	0.85	1.46
10	2.12	0.90	0.67	0.01	0.00	0.00	0.00	0.03	0.00	0.26	0.00	0.54	4.53
11	0.00	1.17	0.06	0.00	0.00	0.00	1.64	0.00	0.08	0.12	0.29	0.60	3.96
12	0.00	0.01	0.19	0.14	0.00	0.00	1.88	1.05	0.07	0.27	0.00	0.86	4.47
13	0.77	0.01	0.03	0.00	0.00	0.00	0.54	0.66	0.57	0.02	0.74	0.01	3.35
14	0.00	0.07	0.04	0.00	0.01	0.00	M0.00	0.49	0.11	M0.02			0.74

Blythe, CA

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Units: English | Metric

Table Graph Details

Actual Conditions For January 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	56	32	44	66	41	53	-9	82	1981	24	1976	0.00	0.0	0	21	0
2	61	37	49	66	41	54	-5	80	1981	27	2015	0.00	0.0	0	16	0
3	63	39	51	66	41	54	-3	78	1997	21	1974	0.00	0.0	0	14	0
4	61	33	47	66	41	54	-7	80	1981	23	1950	0.00	0.0	0	18	0
5	62	29	46	66	41	54	-8	79	1981	22	1972	0.00	0.0	0	19	0
6	63	37	50	66	42	54	-4	80	1962	25	1950	0.00	0.0	0	15	0
7	66	39	53	67	42	54	-1	85	1962	24	1971	0.00	0.0	0	12	0
8	74	43	59	67	42	54	5	84	1962	20	1971	0.00	0.0	0	6	0
9	72	45	59	67	42	54	5	80	1962	25	1971	0.00	0.0	0	6	0
10	63	46	55	67	42	54	1	80	1962	26	1971	0.00	0.0	0	10	0
11	54	33	44	67	42	55	-11	80	1986	27	1950	0.00	0.0	0	21	0
12	53	35	44	67	42	55	-11	79	1983	26	1962	0.00	0.0	0	21	0
13	52	25	39	67	42	55	-16	78	1996	25	2013	0.00	0.0	0	26	0
14	48	32	40	68	42	55	-15	80	1983	25	2007	0.00	0.0	0	25	0
15	54	34	44	68	42	55	-11	78	2014*	28	1987	0.00	0.0	0	21	0
16	63	38	51	68	42	55	-4	83	1976	29	1964	0.00	0.0	0	14	0
17	69	38	54	68	42	55	-1	82	2011*	25	2007	0.00	0.0	0	11	0
18	70	41	56	68	43	55	1	85	1971	30	2002	0.00	0.0	0	9	0
19	71	40	56	68	43	55	1	84	1971	29	1990	0.00	0.0	0	9	0
20	73	39	56	68	43	55	1	83	1971	30	2008	0.00	0.0	0	9	0
21	75	41	58	68	43	56	2	80	2009	30	1973	0.00	0.0	0	7	0
22	76	40	58	69	43	56	2	79	1994	31	1987	0.00	0.0	0	7	0
23	73	45	59	69	43	56	3	82	1950	30	1972	0.00	0.0	0	6	0
24	71	56	64	69	43	56	8	82	1951	29	1996	0.00	0.0	0	1	0
25	71	57	64	69	43	56	8	89	1951	31	1972	0.32	0.0	0	1	0
26	64	57	61	69	43	56	5	81	2003	30	2002	0.45	0.0	0	4	0
27	70	51	61	69	43	56	5	79	2003	29	1972	0.00	0.0	0	4	0
28	60	44	52	69	43	56	-4	80	2014*	29	1972	0.00	0.0	0	13	0
29	63	41	52	69	43	56	-4	81	1953	30	1975	0.00	0.0	0	13	0
30	66	40	53	70	43	56	-3	83	2003	26	1949	0.00	0.0	0	12	0
31	70	43	57	70	44	57	0	86	2003	30	1972	0.00	0.0	0	8	0

M = Missing

Blythe, CA

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Units: English | Metric

Table Graph Details

Actual Conditions For February 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	73	41	57	70	44	57	0	84	2003	28	2002	0.00	0.0	0	8	0
2	75	49	62	70	44	57	5	85	1963	31	1951	0.00	0.0	0	3	0
3	74	56	65	70	44	57	8	84	1963	23	1972	0.00	0.0	0	0	0
4	76	50	63	70	44	57	6	84	1963	26	2011	0.00	0.0	0	2	0
5	75	48	62	70	44	57	5	87	1983	33	1956	0.00	0.0	0	3	0
6	74	51	63	70	44	57	6	88	1963	30	1989	0.00	0.0	0	2	0
7	74	45	60	71	44	57	3	89	1996	31	1989	0.00	0.0	0	5	0
8	65	48	57	71	44	58	-1	88	1963	35	2002	0.00	0.0	0	8	0
9	62	42	52	71	45	58	-6	86	1996	30	1949	0.00	0.0	0	13	0
10	62	37	50	71	45	58	-8	87	1951	32	1986	0.00	0.0	0	15	0
11	62	44	53	71	45	58	-5	90	1957	33	1986	0.00	0.0	0	12	0
12	62	37	50	71	45	58	-8	85	1971	29	1965	0.00	0.0	0	15	0
13	70	36	53	72	45	58	-5	90	1957	31	1972	0.00	0.0	0	12	0
14	77	40	59	72	45	59	0	87	2015	31	1966	0.00	0.0	0	6	0
15	77	51	64	72	46	59	5	86	2014*	26	1990	0.00	0.0	0	1	0
16	79	46	63	72	46	59	4	87	1981	22	1990	0.00	0.0	0	2	0
17	77	41	59	72	46	59	0	88	1981	31	1956	0.00	0.0	0	6	0
18	75	42	59	73	46	59	0	93	1981	35	1967	0.00	0.0	0	6	0
19	67	45	56	73	46	60	-4	90	1981	31	1956	0.00	0.0	0	9	0
20	57	41	49	73	47	60	-11	86	1981	32	1990	0.01	0.0	0	16	0
21	62	35	49	73	47	60	-11	92	1977	32	1953	0.00	0.0	0	16	0
22	65	36	51	73	47	60	-9	88	1982	32	1955	0.00	0.0	0	14	0
23	72	36	54	74	47	60	-6	87	2002	31	1953	0.00	0.0	0	11	0
24	65	44	55	74	47	61	-6	90	1986	34	1996	0.00	0.0	0	10	0
25	67	42	55	74	48	61	-6	93	1986	32	1960	0.00	0.0	0	10	0
26	70	36	53	74	48	61	-8	92	1986	35	1977	0.00	0.0	0	12	0
27	69	48	59	75	48	61	-2	93	1986	30	1996	0.00	0.0	0	6	0
28	76	45	61	75	48	61	0	93	1986	31	1962	0.00	0.0	0	4	0

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For March 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	81	48	65	75	48	62	3	90	1986	34	1962	0.00	0.0	0	0	0
2	84	47	66	75	48	62	4	89	2009*	36	1997	0.00	0.0	0	0	1
3	82	51	67	76	49	62	5	90	1986	31	1971	0.00	0.0	0	0	2
4	80	52	66	76	49	62	4	88	1986	31	2002	0.00	0.0	0	0	1
5	80	49	65	76	49	63	2	91	1986	33	2002	0.00	0.0	0	0	0
6	81	51	66	76	49	63	3	92	1986	36	1977	0.00	0.0	0	0	1
7	75	48	62	77	49	63	-1	90	1960	37	1982	0.00	0.0	0	3	0
8	66	52	59	77	49	63	-4	91	1957	35	1969	0.03	0.0	0	6	0
9	71	47	59	77	50	63	-4	92	2004	34	1964	0.00	0.0	0	6	0
10	75	48	62	77	50	64	-2	95	1997	41	2010*	0.00	0.0	0	3	0
11	81	47	64	78	50	64	0	93	1997	38	1969	0.00	0.0	0	1	0
12	87	47	67	78	50	64	3	92	2007*	37	1990	0.00	0.0	0	0	2
13	91	51	71	78	50	64	7	95	2007	30	1956	0.00	0.0	0	0	6
14	95	54	75	78	50	64	11	95	2013	38	1952	0.00	0.0	0	0	10
15	93	55	74	79	50	64	10	94	2004	34	1977	0.00	0.0	0	0	9
16	95	59	77	79	51	65	12	98	2007	36	1963	0.00	0.0	0	0	12
17	90	56	73	79	51	65	8	99	2007	36	2002	0.00	0.0	0	0	8
18	87	56	72	79	51	65	7	94	1997	37	1979	0.00	0.0	0	0	7
19	89	57	73	79	51	65	8	96	1997	39	1977	0.00	0.0	0	0	8
20	88	56	72	80	51	65	7	99	2004	41	2012	0.00	0.0	0	0	7
21	87	63	75	80	51	66	9	100	2004	40	1987	0.00	0.0	0	0	10
22	86	59	73	80	51	66	7	98	2004	39	2006*	0.00	0.0	0	0	8
23	76	58	67	80	51	66	1	95	1956	43	2011*	0.00	0.0	0	0	2
24	81	48	65	81	51	66	-1	95	1956	37	1995	0.00	0.0	0	0	0
25	85	47	66	81	52	66	0	96	1981	41	1964	0.00	0.0	0	0	1
26	90	57	74	81	52	66	8	96	1988	40	1995	0.00	0.0	0	0	9
27	89	58	74	81	52	67	7	100	1986	36	1975	0.00	0.0	0	0	9
28	86	55	71	82	52	67	4	95	1986	40	1972	0.00	0.0	0	0	6
29	88	57	73	82	52	67	6	95	1971	37	1972	0.00	0.0	0	0	8
30	91	68	80	82	52	67	13	100	1971	38	1998	0.00	0.0	0	0	15
31	89	58	74	82	53	67	7	100	2011	38	1972	0.00	0.0	0	0	9

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For April 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	83	53	68	83	53	68	0	99	2011*	44	2010*	0.00	0.0	0	0	3
2	87	58	73	83	53	68	5	98	1966	40	1975	0.00	0.0	0	0	8
3	92	57	75	83	53	68	7	101	1961	40	1975	0.00	0.0	0	0	10
4	92	59	76	83	53	68	8	106	1961	41	1977	0.00	0.0	0	0	11
5	90	59	75	84	53	69	6	100	1989	42	1983	0.00	0.0	0	0	10
6	91	58	75	84	54	69	6	103	1989	43	2006	0.00	0.0	0	0	10
7	89	63	76	84	54	69	7	105	1989	44	1964	0.00	0.0	0	0	11
8	78	64	71	84	54	69	2	107	1989	42	1999	0.00	0.0	0	0	6
9	79	58	69	85	54	70	-1	102	1989	42	2011	0.00	0.0	0	0	4
10	82	59	71	85	55	70	1	101	1960	38	1975	0.00	0.0	0	0	6
11	91	49	70	85	55	70	0	99	2014*	44	2001	0.00	0.0	0	0	5
12	90	56	73	86	55	70	3	100	1990	44	1967	0.00	0.0	0	0	8
13	95	59	77	86	55	71	6	103	1985	40	1983	0.00	0.0	0	0	12
14	90	61	76	86	56	71	5	104	2002	46	1983	0.00	0.0	0	0	11
15	83	59	71	86	56	71	0	104	1962	46	2012	0.00	0.0	0	0	6
16	76	54	65	87	56	71	-6	104	1984	41	2009	0.00	0.0	0	0	0
17	76	56	66	87	57	72	-6	103	1987	44	1976	0.00	0.0	0	0	1
18	77	56	67	87	57	72	-5	104	1954	41	1963	0.00	0.0	0	0	2
19	85	51	68	88	57	72	-4	106	1980	44	1968	0.00	0.0	0	0	3
20	93	53	73	88	58	73	0	103	1980	46	1995	0.00	0.0	0	0	8
21	96	56	76	88	58	73	3	105	2012	42	1967	0.00	0.0	0	0	11
22	97	62	80	89	58	73	7	106	2012	41	1970	0.00	0.0	0	0	15
23	90	63	77	89	58	74	3	106	1949	44	2010*	0.00	0.0	0	0	12
24	92	56	74	89	59	74	0	105	1996	46	1964	0.00	0.0	0	0	9
25	88	60	74	89	59	74	0	102	1987	46	1989	0.00	0.0	0	0	9
26	93	60	77	90	59	75	2	106	1996	48	1971	0.00	0.0	0	0	12
27	99	61	80	90	60	75	5	106	1987	45	1963	0.00	0.0	0	0	15
28	102	65	84	90	60	75	9	106	1992	44	1970	0.00	0.0	0	0	19
29	106	67	87	91	60	76	11	107	1992	45	1984	0.00	0.0	0	0	22
30	102	69	86	91	61	76	10	105	1992	46	1967	0.00	0.0	0	0	21

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For May 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	96	67	82	91	61	76	6	105	1985	49	1990	0.00	0.0	0	0	17
2	91	68	80	92	61	76	4	105	1966	48	1967	0.00	0.0	0	0	15
3	95	61	78	92	62	77	1	103	2014*	50	1991	0.00	0.0	0	0	13
4	98	61	80	92	62	77	3	105	2004	49	1999	0.00	0.0	0	0	15
5	88	66	77	93	62	77	0	105	1997	45	1964	0.00	0.0	0	0	12
6	84	62	73	93	62	78	-5	108	1987	47	1988	0.00	0.0	0	0	8
7	81	60	71	93	63	78	-7	108	1989	46	1988	0.00	0.0	0	0	6
8	84	55	70	93	63	78	-8	109	2001	49	1964	0.00	0.0	0	0	5
9	89	59	74	94	63	79	-5	108	2001	50	1982	0.00	0.0	0	0	9
10	96	66	81	94	64	79	2	109	1960	48	1977	0.00	0.0	0	0	16
11	100	67	84	94	64	79	5	113	1960	50	1982	0.00	0.0	0	0	19
12	103	69	86	95	64	79	7	112	1996	50	1980	0.00	0.0	0	0	21
13	106	69	88	95	64	80	8	108	1996	50	1962	0.00	0.0	0	0	23
14	107	74	91	95	64	80	11	107	2013*	50	1998	0.00	0.0	0	0	26
15	101	63	82	96	65	80	2	107	2012*	53	1962	0.00	0.0	0	0	17
16	102	68	85	96	65	80	5	109	1997	52	1953	0.00	0.0	0	0	20
17	95	67	81	96	65	81	0	110	1997	53	1977	0.00	0.0	0	0	16
18	95	62	79	96	65	81	-2	110	1970	54	1977	0.00	0.0	0	0	14
19	99	66	83	97	66	81	2	113	2008	49	2011	0.00	0.0	0	0	18
20	96	72	84	97	66	81	3	111	2008	51	1949	0.00	0.0	0	0	19
21	101	65	83	97	66	82	1	110	2005	47	1975	0.00	0.0	0	0	18
22	103	71	87	98	66	82	5	113	2000	45	1971	0.00	0.0	0	0	22
23	96	65	81	98	66	82	-1	110	2001	50	1971	0.00	0.0	0	0	16
24	96	61	79	98	67	82	-3	112	2001	51	2010	0.00	0.0	0	0	14
25	97	65	81	99	67	83	-2	113	1951	51	1980	0.00	0.0	0	0	16
26	97	65	81	99	67	83	-2	112	1974	52	1996	0.00	0.0	0	0	16
27	95	68	82	99	67	83	-1	114	1951	50	1962	0.00	0.0	0	0	17
28	97	68	83	99	67	83	0	114	1983	52	1971	0.00	0.0	0	0	18
29	102	73	88	100	68	84	4	114	2000	43	1971	0.00	0.0	0	0	23
30	99	73	86	100	68	84	2	113	1984	56	1988	0.00	0.0	0	0	21
31	101	74	88	100	68	84	4	112	2012*	55	1991	0.00	0.0	0	0	23

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For June 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	109	74	92	101	68	84	8	114	2012	46	1980	0.00	0.0	0	0	27
2	109	74	92	101	68	85	7	112	1960	56	1983	0.00	0.0	0	0	27
3	104	73	89	101	69	85	4	113	1996	55	1971	0.00	0.0	0	0	24
4	104	73	89	102	69	85	4	114	1996	56	1998	0.00	0.0	0	0	24
5	107	72	90	102	69	85	5	116	1957	55	1999	0.00	0.0	0	0	25
6	112	74	93	102	69	86	7	114	2002	59	1993	0.00	0.0	0	0	28
7	114	77	96	102	70	86	10	117	1985	52	1993	0.00	0.0	0	0	31
8	108	84	96	103	70	86	10	118	1955	58	1998	0.00	0.0	0	0	31
9	107	73	90	103	70	87	3	118	1955	57	1995	0.00	0.0	0	0	25
10	110	73	92	103	70	87	5	116	1994	60	1969	0.00	0.0	0	0	27
11	106	77	92	104	71	87	5	114	1956	56	1976	0.00	0.0	0	0	27
12	108	77	93	104	71	87	6	116	1956	62	1998	0.00	0.0	0	0	28
13	108	77	93	104	71	88	5	115	1979	56	1998	0.00	0.0	0	0	28
14	106	78	92	104	72	88	4	117	1966	59	1997	0.00	0.0	0	0	27
15	107	77	92	105	72	88	4	117	2000	54	1962	0.00	0.0	0	0	27
16	107	74	91	105	72	89	2	116	1971	58	1990	0.00	0.0	0	0	26
17	108	73	91	105	73	89	2	116	1981	57	1995	0.00	0.0	0	0	26
18	108	74	91	106	73	89	2	118	1981	60	1995	0.00	0.0	0	0	26
19	104	73	89	106	73	90	-1	117	1961	61	1975	0.00	0.0	0	0	24
20	105	73	89	106	74	90	-1	118	1981	58	1975	0.00	0.0	0	0	24
21	106	74	90	106	74	90	0	116	2008*	64	1975	0.00	0.0	0	0	25
22	107	72	90	106	74	90	0	119	1960	65	2010*	0.00	0.0	0	0	25
23	105	76	91	107	75	91	0	118	1961	63	1998	0.00	0.0	0	0	26
24	102	74	88	107	75	91	-3	118	1994	63	1998	0.00	0.0	0	0	23
25	103	72	88	107	75	91	-3	122	1970	66	1991	0.00	0.0	0	0	23
26	107	79	93	107	76	92	1	122	1990	61	1965	0.00	0.0	0	0	28
27	110	78	94	107	76	92	2	121	1973	62	1996	0.00	0.0	0	0	29
28	120	83	102	108	76	92	10	123	1994	67	1991	0.00	0.0	0	0	37
29	119	90	105	108	77	92	13	121	1994	67	1997	0.00	0.0	0	0	40
30	115	86	101	108	77	92	9	119	1972	68	1997	0.00	0.0	0	0	36

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For July 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	115	90	103	108	77	93	10	118	1972	62	1982	0.00	0.0	0	0	38
2	112	87	100	108	78	93	7	119	2001	66	1995	0.00	0.0	0	0	35
3	116	89	103	108	78	93	10	119	1985	67	1979	0.00	0.0	0	0	38
4	110	86	98	108	78	93	5	121	1989	67	1956	0.00	0.0	0	0	33
5	104	86	95	108	79	93	2	118	1981	69	1987	0.00	0.0	0	0	30
6	109	82	96	108	79	94	2	117	1965	67	1994	0.00	0.0	0	0	31
7	114	85	100	108	79	94	6	117	1985	70	2005	0.00	0.0	0	0	35
8	115	86	101	109	79	94	7	119	1985	73	1949	0.00	0.0	0	0	36
9	107	86	97	109	80	94	3	118	1958	70	1987	0.00	0.0	0	0	32
10	103	83	93	109	80	94	-1	118	1973	72	1986	0.00	0.0	0	0	28
11	95	75	85	109	80	94	-9	118	1958	69	1974	0.21	0.0	0	0	20
12	104	78	91	109	80	94	-3	118	1985	71	2000	0.00	0.0	0	0	26
13	108	82	95	109	80	94	1	119	2005	66	1962	0.00	0.0	0	0	30
14	111	86	99	109	81	95	4	118	2003	73	2011*	0.00	0.0	0	0	34
15	113	87	100	109	81	95	5	117	2006*	71	2001	0.00	0.0	0	0	35
16	110	86	98	108	81	95	3	119	1960	69	1993	0.00	0.0	0	0	33
17	109	81	95	108	81	95	0	121	2005	64	1983	0.00	0.0	0	0	30
18	112	83	98	108	81	95	3	118	2005	67	1987	0.00	0.0	0	0	33
19	103	87	95	108	81	95	0	119	1961	62	1987	0.00	0.0	0	0	30
20	99	77	88	108	81	95	-7	118	1978	70	1993	0.09	0.0	0	0	23
21	89	76	83	108	81	95	-12	118	2006	69	1973	0.24	0.0	0	0	18
22	100	78	89	108	81	95	-6	120	2006	69	1995	0.00	0.0	0	0	24
23	103	82	93	108	81	95	-2	117	1981	69	1987	0.00	0.0	0	0	28
24	108	85	97	108	81	95	2	117	1980	73	1995	0.00	0.0	0	0	32
25	100	87	94	108	82	95	-1	117	2000	71	1993	0.00	0.0	0	0	29
26	104	87	96	108	82	95	1	118	1995	71	1986	0.00	0.0	0	0	31
27	109	87	98	108	82	95	3	120	1998	72	1993	0.00	0.0	0	0	33
28	110	84	97	108	82	95	2	123	1995	68	1987	0.00	0.0	0	0	32
29	108	76	92	108	82	95	-3	116	1972	64	1987	0.00	0.0	0	0	27
30	108	81	95	108	82	95	0	117	1995	73	1948	0.00	0.0	0	0	30
31	111	80	96	108	81	95	1	120	1972	72	2001	0.00	0.0	0	0	31

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For August 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	111	84	98	108	81	95	3	120	1972	70	1959	0.00	0.0	0	0	33
2	107	77	92	108	81	94	-2	118	1995	70	1976	0.00	0.0	0	0	27
3	108	76	92	107	81	94	-2	118	1998	68	1976	0.00	0.0	0	0	27
4	108	78	93	107	81	94	-1	118	1969	67	1976	0.00	0.0	0	0	28
5	103	78	91	107	81	94	-3	118	2000	70	1976	0.00	0.0	0	0	26
6	106	84	95	107	81	94	1	118	1995	66	1976	0.00	0.0	0	0	30
7	107	80	94	107	81	94	0	117	1980	68	1988	0.00	0.0	0	0	29
8	108	74	91	107	81	94	-3	119	1980	69	1999	0.00	0.0	0	0	26
9	107	73	90	107	81	94	-4	115	1995	68	2009	0.00	0.0	0	0	25
10	104	73	89	107	81	94	-5	116	2003	67	1949	0.00	0.0	0	0	24
11	105	72	89	107	81	94	-5	116	1962	70	1999	0.00	0.0	0	0	24
12	108	71	90	107	81	94	-4	116	1962	69	1949	0.00	0.0	0	0	25
13	107	74	91	107	81	94	-3	119	1960	66	1993	0.00	0.0	0	0	26
14	109	76	93	107	81	94	-1	117	1962	65	1968	0.00	0.0	0	0	28
15	111	86	99	107	80	94	5	115	1962	64	1993	0.00	0.0	0	0	34
16	114	85	100	107	80	94	6	116	1992	67	1980	0.00	0.0	0	0	35
17	113	85	99	107	80	94	5	116	1992	67	1980	0.00	0.0	0	0	34
18	110	88	99	107	80	93	6	115	1992	64	1976	0.00	0.0	0	0	34
19	108	88	98	107	80	93	5	114	1973	66	1976	0.00	0.0	0	0	33
20	112	83	98	107	80	93	5	113	1992	68	1980	0.00	0.0	0	0	33
21	110	85	98	107	80	93	5	116	1969	69	2014	0.00	0.0	0	0	33
22	105	81	93	107	79	93	0	116	1972	68	2014*	0.02	0.0	0	0	28
23	105	81	93	107	79	93	0	116	2011*	64	1968	0.00	0.0	0	0	28
24	100	76	88	106	79	93	-5	119	1985	66	1968	0.30	0.0	0	0	23
25	86	77	82	106	79	93	-11	115	1985	68	1973	0.02	0.0	0	0	17
26	93	72	83	106	79	93	-10	115	2011	66	1951	0.27	0.0	0	0	18
27	101	78	90	106	79	92	-2	115	2005	67	1973	0.00	0.0	0	0	25
28	106	83	95	106	78	92	3	118	1998	65	1973	0.00	0.0	0	0	30
29	99	83	91	106	78	92	-1	118	1948	66	1975	0.05	0.0	0	0	26
30	98	81	90	106	78	92	-2	116	1998	62	1957	0.00	0.0	0	0	25
31	103	83	93	106	78	92	1	119	1950	62	1992	0.00	0.0	0	0	28

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For September 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	105	83	94	105	78	91	3	121	1950	64	1966	0.00	0.0	0	0	29
2	108	80	94	105	77	91	3	118	1948	64	2000	0.01	0.0	0	0	29
3	106	78	92	105	77	91	1	118	1948	65	1964	0.00	0.0	0	0	27
4	100	81	91	105	77	91	0	115	1948	61	1985	0.12	0.0	0	0	26
5	109	78	94	105	76	91	3	113	1955	59	1976	0.00	0.0	0	0	29
6	109	79	94	104	76	90	4	114	1955	66	1992	0.01	0.0	0	0	29
7	95	78	87	104	76	90	-3	112	1994	60	1985	0.00	0.0	0	0	22
8	97	76	87	104	75	90	-3	116	1979	65	2010	0.25	0.0	0	0	22
9	100	75	88	104	75	89	-1	114	1993	62	1961	0.18	0.0	0	0	23
10	89	74	82	103	75	89	-7	114	1990	63	2005	0.00	0.0	0	0	17
11	96	73	85	103	74	89	-4	115	1990	61	1985	0.00	0.0	0	0	20
12	100	77	89	103	74	88	1	113	1971	59	1985	0.00	0.0	0	0	24
13	103	77	90	102	74	88	2	112	1971	58	1985	0.00	0.0	0	0	25
14	106	76	91	102	73	88	3	113	1971	60	2005	0.00	0.0	0	0	26
15	108	78	93	102	73	87	6	113	2000	61	2005	0.00	0.0	0	0	28
16	108	79	94	101	73	87	7	110	1962	61	1970	0.00	0.0	0	0	29
17	109	79	94	101	72	87	7	112	1962	61	1977	0.00	0.0	0	0	29
18	101	75	88	101	72	86	2	111	1980	57	1985	0.00	0.0	0	0	23
19	102	68	85	100	71	86	-1	113	1962	56	1985	0.00	0.0	0	0	20
20	103	68	86	100	71	85	1	108	1962	53	1971	0.00	0.0	0	0	21
21	102	73	88	99	70	85	3	108	2009*	59	1986	0.00	0.0	0	0	23
22	89	69	79	99	70	84	-5	110	1966	55	1988	0.00	0.0	0	0	14
23	96	66	81	99	70	84	-3	111	1966	56	2007	0.00	0.0	0	0	16
24	99	63	81	98	69	84	-3	109	2002	54	1986	0.00	0.0	0	0	16
25	98	70	84	98	69	83	1	110	1963	59	1993	0.00	0.0	0	0	19
26	86	64	75	97	68	83	-8	110	2010	53	1971	0.00	0.0	0	0	10
27	86	61	74	97	68	82	-8	110	2010	54	1971	0.00	0.0	0	0	9
28	91	60	76	96	67	82	-6	108	2009	55	1982	0.00	0.0	0	0	11
29	94	56	75	96	67	81	-6	110	1980	56	2013	0.00	0.0	0	0	10
30	96	59	78	96	66	81	-3	109	1980	51	2005	0.00	0.0	0	0	13

M = Missing

Actual Conditions For October 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	95	62	79	95	66	81	-2	111	1980	53	1971	0.00	0.0	0	0	14
2	94	63	79	95	66	80	-1	111	1980	52	1971	0.00	0.0	0	0	14
3	92	67	80	94	65	80	0	107	1987	49	2002	0.00	0.0	0	0	15
4	85	67	76	94	65	79	-3	107	1987	53	2002	0.00	0.0	0	0	11
5	85	65	75	93	64	79	-4	108	1987	52	2009	0.00	0.0	0	0	10
6	91	58	75	93	64	78	-3	110	1987	49	2009	0.00	0.0	0	0	10
7	89	56	73	93	63	78	-5	108	1987	49	2009	0.00	0.0	0	0	8
8	93	56	75	92	63	78	-3	106	1996	51	2011	0.00	0.0	0	0	10
9	76	59	68	92	63	77	-9	106	1996	46	1949	0.00	0.0	0	0	3
10	75	54	65	91	62	77	-12	107	1991	48	1949	0.01	0.0	0	0	0
11	82	50	66	91	62	76	-10	105	1965	M	M	0.00	0.0	0	0	1
12	84	53	69	91	61	76	-7	105	1999	50	2000	0.00	0.0	0	0	4
13	86	54	70	90	61	76	-6	106	1950	47	1969	0.00	0.0	0	0	5
14	85	60	73	90	61	75	-2	103	1961	50	1994	0.00	0.0	0	0	8
15	86	55	71	89	60	75	-4	103	1950	52	1986	0.00	0.0	0	0	6
16	83	59	71	89	60	74	-3	102	1958	49	1980	0.00	0.0	0	0	6
17	84	50	67	89	59	74	-7	M	M	46	1994	0.00	0.0	0	0	2
18	89	52	71	88	59	74	-3	104	2003	41	1971	0.00	0.0	0	0	6
19	89	51	70	88	59	73	-3	104	2003	41	1971	0.00	0.0	0	0	5
20	89	53	71	87	58	73	-2	103	2003	42	1949	0.00	0.0	0	0	6
21	91	52	72	87	58	73	-1	104	2003	44	1949	0.00	0.0	0	0	7
22	92	53	73	87	58	72	1	104	2003	44	1996	0.00	0.0	0	0	8
23	91	57	74	86	57	72	2	101	2003	39	1996	0.00	0.0	0	0	9
24	89	56	73	86	57	71	2	102	1959	42	1996	0.00	0.0	0	0	8
25	89	54	72	86	57	71	1	98	1965	44	1975	0.00	0.0	0	0	7
26	93	56	75	85	56	71	4	98	1965	41	1971	0.00	0.0	0	0	10
27	91	56	74	85	56	70	4	M	M	45	1971	0.00	0.0	0	0	9
28	79	61	70	84	55	70	0	98	1965	44	1996	0.00	0.0	0	0	5
29	73	50	62	84	55	69	-7	97	1965	33	1971	0.00	0.0	0	3	0
30	75	51	63	84	55	69	-6	95	1966	27	1971	0.00	0.0	0	2	0
31	78	46	62	83	54	69	-7	97	1966	29	1971	0.00	0.0	0	3	0

M = Missing

Actual Conditions For November 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	81	49	65	83	54	68	-3	95	1997	42	1972	0.00	0.0	0	0	0
2	82	49	66	82	53	68	-2	93	1997	38	1971	0.00	0.0	0	0	1
3	83	50	67	82	53	67	0	M	M	40	1979	0.00	0.0	0	0	2
4	78	47	63	81	53	67	-4	M	M	38	1956	0.00	0.0	0	2	0
5	73	52	63	81	52	67	-4	94	1980	43	1994	0.00	0.0	0	2	0
6	77	46	62	80	52	66	-4	94	1988	M	M	0.00	0.0	0	3	0
7	84	50	67	80	52	66	1	M	M	41	1993	0.00	0.0	0	0	2
8	83	46	65	80	51	65	0	92	1991	M	M	0.00	0.0	0	0	0
9	82	49	66	79	51	65	1	89	1995	41	2000	0.00	0.0	0	0	1
10	84	49	67	79	50	64	3	89	1980	M	M	0.00	0.0	0	0	2
11	88	52	70	78	50	64	6	M	M	36	1950	0.00	0.0	0	0	5
12	90	55	73	78	49	64	9	91	1999	32	1950	0.00	0.0	0	0	8
13	88	62	75	77	49	63	12	93	1999	35	1985	0.00	0.0	0	0	10
14	83	52	68	77	49	63	5	91	1999	32	2000	0.00	0.0	0	0	3
15	85	57	71	76	48	62	9	90	1999	39	1994	0.00	0.0	0	0	6
16	74	48	61	76	48	62	-1	88	1995	35	2000	0.00	0.0	0	4	0
17	73	47	60	75	47	61	-1	89	1995	35	1958	0.00	0.0	0	5	0
18	78	50	64	75	47	61	3	M	M	34	1958	0.00	0.0	0	1	0
19	75	49	62	74	47	60	2	M	M	35	1958	0.00	0.0	0	3	0
20	75	53	64	74	46	60	4	87	2006	27	1994	0.00	0.0	0	1	0
21	72	53	63	73	46	60	3	87	1950	33	1994	0.19	0.0	0	2	0
22	58	50	54	73	45	59	-5	88	1950	35	1992	0.52	0.0	0	11	0
23	59	50	55	72	45	59	-4	86	1949	M	M	0.03	0.0	0	10	0
24	64	49	57	72	45	58	-1	87	1995	34	1971	0.00	0.0	0	8	0
25	69	46	58	71	44	58	0	87	1950	32	1952	0.00	0.0	0	7	0
26	71	47	59	71	44	58	1	87	1995	M	M	0.00	0.0	0	6	0
27	71	51	61	71	44	57	4	86	1954	M	M	0.00	0.0	0	4	0
28	71	46	59	70	43	57	2	83	1949	30	1994	0.00	0.0	0	6	0
29	72	46	59	70	43	56	3	83	1953	33	1976	0.00	0.0	0	6	0
30	73	49	61	69	43	56	5	M	M	32	1975	0.00	0.0	0	4	0

M = Missing

Actual Conditions For December 2013

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	74	49	62	69	43	56	6	M	M	33	1952	0.00	0.0	0	3	0
2	68	44	56	69	42	55	1	82	1959	30	1991	0.00	0.0	0	9	0
3	78	45	62	68	42	55	7	83	1958	32	1991	0.00	0.0	0	3	0
4	64	44	54	68	42	55	-1	M	M	M	M	0.00	0.0	0	11	0
5	56	37	47	68	42	55	-8	80	1962	M	M	0.00	0.0	0	18	0
6	57	33	45	67	41	54	-9	81	1966	32	1972	0.00	0.0	0	20	0
7	63	35	49	67	41	54	-5	79	1995	M	M	0.00	0.0	0	16	0
8	55	39	47	67	41	54	-7	78	1996	29	1978	0.00	0.0	0	18	0
9	52	34	43	66	41	54	-11	80	1962	26	1978	0.00	0.0	0	22	0
10	56	32	44	66	41	54	-10	82	1950	25	1971	0.00	0.0	0	21	0
11	62	34	48	66	41	53	-5	81	1958	31	1994	0.00	0.0	0	17	0
12	71	42	57	66	41	53	4	M	M	24	1971	0.00	0.0	0	8	0
13	67	43	55	66	40	53	2	80	1995	30	1985	0.00	0.0	0	10	0
14	69	45	57	66	40	53	4	78	1952	29	2001	0.00	0.0	0	8	0
15	71	43	57	65	40	53	4	81	1977	24	1971	0.00	0.0	0	8	0
16	76	47	62	65	40	53	9	85	1980	26	2005	0.00	0.0	0	3	0
17	72	47	60	65	40	53	7	82	1998	29	2005	0.00	0.0	0	5	0
18	70	49	60	65	40	53	7	77	1950	30	1968	0.00	0.0	0	5	0
19	68	51	60	65	40	53	7	76	1999	25	1968	0.00	0.0	0	5	0
20	67	47	57	65	40	53	4	79	1950	29	2006*	0.01	0.0	0	8	0
21	67	41	54	65	40	53	1	76	1950	29	1968	0.00	0.0	0	11	0
22	67	38	53	65	40	53	0	77	1955	24	1968	0.00	0.0	0	12	0
23	69	43	56	65	40	53	3	82	1955	27	1968	0.00	0.0	0	9	0
24	73	44	59	65	40	53	6	81	2005	30	1968	0.00	0.0	0	6	0
25	73	50	62	65	41	53	9	77	1980	30	1953	0.00	0.0	0	3	0
26	72	42	57	65	41	53	4	79	1980	30	2002	0.00	0.0	0	8	0
27	71	39	55	65	41	53	2	80	1980	25	1987	0.00	0.0	0	10	0
28	64	39	52	65	41	53	-1	80	1980	27	1988	0.00	0.0	0	13	0
29	69	40	55	65	41	53	2	87	1980	28	2003	0.00	0.0	0	10	0
30	67	37	52	66	41	53	-1	83	1980	27	1988	0.00	0.0	0	13	0
31	68	34	51	66	41	53	-2	79	1980	26	1988	0.00	0.0	0	14	0

M = Missing

Actual Conditions For January 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	70	35	53	66	41	53	0	82	1981	24	1976	0.00	0.0	0	12	0
2	73	41	57	66	41	54	3	80	1981	28	1979	0.00	0.0	0	8	0
3	71	39	55	66	41	54	1	78	1997	21	1974	0.00	0.0	0	10	0
4	69	43	56	66	41	54	2	80	1981	23	1950	0.00	0.0	0	9	0
5	69	49	59	66	41	54	5	79	1981	22	1972	0.00	0.0	0	6	0
6	67	40	54	66	42	54	0	80	1962	25	1950	0.00	0.0	0	11	0
7	65	37	51	67	42	54	-3	85	1962	24	1971	0.00	0.0	0	14	0
8	67	38	53	67	42	54	-1	84	1962	20	1971	0.00	0.0	0	12	0
9	68	38	53	67	42	54	-1	80	1962	25	1971	0.00	0.0	0	12	0
10	69	39	54	67	42	54	0	80	1962	26	1971	0.00	0.0	0	11	0
11	71	40	56	67	42	55	1	80	1986	27	1950	0.00	0.0	0	9	0
12	75	44	60	67	42	55	5	79	1983	26	1962	0.00	0.0	0	5	0
13	74	48	61	67	42	55	6	78	1996	M	M	0.00	0.0	0	4	0
14	78	49	64	68	42	55	9	80	1983	M	M	0.00	0.0	0	1	0
15	78	48	63	68	42	55	8	M	M	28	1987	0.00	0.0	0	2	0
16	80	47	64	68	42	55	9	83	1976	29	1964	0.00	0.0	0	1	0
17	79	46	63	68	42	55	8	M	M	M	M	0.00	0.0	0	2	0
18	75	44	60	68	43	55	5	85	1971	30	2002	0.00	0.0	0	5	0
19	71	41	56	68	43	55	1	84	1971	29	1990	0.00	0.0	0	9	0
20	74	38	56	68	43	55	1	83	1971	M	M	0.00	0.0	0	9	0
21	78	43	61	68	43	56	5	M	M	30	1973	0.00	0.0	0	4	0
22	76	48	62	69	43	56	6	79	1994	31	1987	0.00	0.0	0	3	0
23	75	41	58	69	43	56	2	82	1950	30	1972	0.00	0.0	0	7	0
24	72	51	62	69	43	56	6	82	1951	29	1996	0.00	0.0	0	3	0
25	76	52	64	69	43	56	8	89	1951	31	1972	0.00	0.0	0	1	0
26	75	46	61	69	43	56	5	81	2003	30	2002	0.00	0.0	0	4	0
27	78	53	66	69	43	56	10	79	2003	29	1972	0.00	0.0	0	0	1
28	80	44	62	69	43	56	6	M	M	29	1972	0.00	0.0	0	3	0
29	78	47	63	69	43	56	7	81	1953	30	1975	0.00	0.0	0	2	0
30	82	53	68	70	43	56	12	83	2003	26	1949	0.00	0.0	0	0	3
31	71	54	63	70	44	57	6	86	2003	30	1972	0.00	0.0	0	2	0

M = Missing

Actual Conditions For February 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	64	43	54	70	44	57	-3	84	2003	28	2002	0.00	0.0	0	11	0
2	62	37	50	70	44	57	-7	85	1963	31	1951	0.00	0.0	0	15	0
3	65	44	55	70	44	57	-2	84	1963	23	1972	0.00	0.0	0	10	0
4	64	39	52	70	44	57	-5	84	1963	M	M	0.00	0.0	0	13	0
5	68	49	59	70	44	57	2	87	1983	33	1956	0.00	0.0	0	6	0
6	70	46	58	70	44	57	1	88	1963	30	1989	0.00	0.0	0	7	0
7	70	45	58	71	44	57	1	89	1996	31	1989	0.00	0.0	0	7	0
8	74	47	61	71	44	58	3	88	1963	35	2002	0.00	0.0	0	4	0
9	80	46	63	71	45	58	5	86	1996	30	1949	0.00	0.0	0	2	0
10	82	50	66	71	45	58	8	87	1951	32	1986	0.00	0.0	0	0	1
11	80	56	68	71	45	58	10	90	1957	33	1986	0.00	0.0	0	0	3
12	81	49	65	71	45	58	7	85	1971	29	1965	0.00	0.0	0	0	0
13	82	47	65	72	45	58	7	90	1957	31	1972	0.00	0.0	0	0	0
14	84	46	65	72	45	59	6	86	1957	31	1966	0.00	0.0	0	0	0
15	86	47	67	72	46	59	8	M	M	26	1990	0.00	0.0	0	0	2
16	81	53	67	72	46	59	8	87	1981	22	1990	0.00	0.0	0	0	2
17	85	46	66	72	46	59	7	88	1981	31	1956	0.00	0.0	0	0	1
18	84	50	67	73	46	59	8	93	1981	35	1967	0.00	0.0	0	0	2
19	84	50	67	73	46	60	7	90	1981	31	1956	0.00	0.0	0	0	2
20	77	54	66	73	47	60	6	86	1981	32	1990	0.00	0.0	0	0	1
21	77	51	64	73	47	60	4	92	1977	32	1953	0.00	0.0	0	1	0
22	77	45	61	73	47	60	1	88	1982	32	1955	0.00	0.0	0	4	0
23	82	46	64	74	47	60	4	87	2002	31	1953	0.00	0.0	0	1	0
24	81	47	64	74	47	61	3	90	1986	34	1996	0.00	0.0	0	1	0
25	79	48	64	74	48	61	3	93	1986	32	1960	0.00	0.0	0	1	0
26	80	50	65	74	48	61	4	92	1986	35	1977	0.00	0.0	0	0	0
27	82	52	67	75	48	61	6	93	1986	30	1996	0.00	0.0	0	0	2
28	82	61	72	75	48	61	11	93	1986	31	1962	0.07	0.0	0	0	7

M = Missing

Actual Conditions For March 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	70	54	62	75	48	62	0	90	1986	34	1962	0.04	0.0	0	3	0
2	71	45	58	75	48	62	-4	M	M	36	1997	0.00	0.0	0	7	0
3	77	48	63	76	49	62	1	90	1986	31	1971	0.00	0.0	0	2	0
4	80	56	68	76	49	62	6	88	1986	31	2002	0.00	0.0	0	0	3
5	83	55	69	76	49	63	6	91	1986	33	2002	0.00	0.0	0	0	4
6	86	59	73	76	49	63	10	92	1986	36	1977	0.00	0.0	0	0	8
7	84	58	71	77	49	63	8	90	1960	37	1982	0.00	0.0	0	0	6
8	82	62	72	77	49	63	9	91	1957	35	1969	0.00	0.0	0	0	7
9	83	55	69	77	50	63	6	92	2004	34	1964	0.00	0.0	0	0	4
10	86	47	67	77	50	64	3	95	1997	M	M	0.00	0.0	0	0	2
11	79	54	67	78	50	64	3	93	1997	38	1969	0.00	0.0	0	0	2
12	79	53	66	78	50	64	2	M	M	37	1990	0.00	0.0	0	0	1
13	81	52	67	78	50	64	3	M	M	30	1956	0.00	0.0	0	0	2
14	86	55	71	78	50	64	7	M	M	38	1952	0.00	0.0	0	0	6
15	88	55	72	79	50	64	8	94	2004	34	1977	0.00	0.0	0	0	7
16	86	59	73	79	51	65	8	M	M	36	1963	0.00	0.0	0	0	8
17	93	51	72	79	51	65	7	M	M	36	2002	0.00	0.0	0	0	7
18	77	56	67	79	51	65	2	94	1997	37	1979	0.00	0.0	0	0	2
19	81	50	66	79	51	65	1	96	1997	39	1977	0.00	0.0	0	0	1
20	81	46	64	80	51	65	-1	99	2004	M	M	0.00	0.0	0	1	0
21	86	47	67	80	51	66	1	100	2004	40	1987	0.00	0.0	0	0	2
22	84	52	68	80	51	66	2	98	2004	39	2006*	0.00	0.0	0	0	3
23	86	53	70	80	51	66	4	95	1956	M	M	0.00	0.0	0	0	5
24	91	54	73	81	51	66	7	95	1956	37	1995	0.00	0.0	0	0	8
25	91	54	73	81	52	66	7	96	1981	41	1964	0.00	0.0	0	0	8
26	79	59	69	81	52	66	3	96	1988	40	1995	0.00	0.0	0	0	4
27	76	49	63	81	52	67	-4	100	1986	36	1975	0.00	0.0	0	2	0
28	82	50	66	82	52	67	-1	95	1986	40	1972	0.00	0.0	0	0	1
29	88	51	70	82	52	67	3	95	1971	37	1972	0.00	0.0	0	0	5
30	83	60	72	82	52	67	5	100	1971	38	1998	0.00	0.0	0	0	7
31	84	52	68	82	53	67	1	M	M	38	1972	0.00	0.0	0	0	3

M = Missing

Actual Conditions For April 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	77	54	66	83	53	68	-2	M	M	M	M	0.00	0.0	0	0	1
2	71	50	61	83	53	68	-7	98	1966	40	1975	0.00	0.0	0	4	0
3	76	48	62	83	53	68	-6	101	1961	40	1975	0.00	0.0	0	3	0
4	81	46	64	83	53	68	-4	106	1961	41	1977	0.00	0.0	0	1	0
5	79	51	65	84	53	69	-4	100	1989	42	1983	0.00	0.0	0	0	0
6	86	58	72	84	54	69	3	103	1989	43	2006	0.00	0.0	0	0	7
7	90	53	72	84	54	69	3	105	1989	44	1964	0.00	0.0	0	0	7
8	95	56	76	84	54	69	7	107	1989	42	1999	0.00	0.0	0	0	11
9	98	59	79	85	54	70	9	102	1989	M	M	0.00	0.0	0	0	14
10	99	62	81	85	55	70	11	101	1960	38	1975	0.00	0.0	0	0	16
11	99	67	83	85	55	70	13	M	M	44	2001	0.00	0.0	0	0	18
12	91	58	75	86	55	70	5	100	1990	44	1967	0.00	0.0	0	0	10
13	92	58	75	86	55	71	4	103	1985	40	1983	0.00	0.0	0	0	10
14	87	63	75	86	56	71	4	104	2002	46	1983	0.00	0.0	0	0	10
15	91	54	73	86	56	71	2	104	1962	M	M	0.00	0.0	0	0	8
16	95	61	78	87	56	71	7	104	1984	M	M	0.00	0.0	0	0	13
17	92	60	76	87	57	72	4	103	1987	44	1976	0.00	0.0	0	0	11
18	85	65	75	87	57	72	3	104	1954	41	1963	0.00	0.0	0	0	10
19	89	66	78	88	57	72	6	106	1980	44	1968	0.00	0.0	0	0	13
20	94	67	81	88	58	73	8	103	1980	46	1995	0.00	0.0	0	0	16
21	99	65	82	88	58	73	9	M	M	42	1967	0.00	0.0	0	0	17
22	93	65	79	89	58	73	6	M	M	41	1970	0.00	0.0	0	0	14
23	88	58	73	89	58	74	-1	106	1949	M	M	0.00	0.0	0	0	8
24	91	58	75	89	59	74	1	105	1996	46	1964	0.00	0.0	0	0	10
25	91	65	78	89	59	74	4	102	1987	46	1989	0.00	0.0	0	0	13
26	77	58	68	90	59	75	-7	106	1996	48	1971	0.00	0.0	0	0	3
27	83	50	67	90	60	75	-8	106	1987	45	1963	0.00	0.0	0	0	2
28	90	56	73	90	60	75	-2	106	1992	44	1970	0.00	0.0	0	0	8
29	87	70	79	91	60	76	3	107	1992	45	1984	0.00	0.0	0	0	14
30	88	68	78	91	61	76	2	105	1992	46	1967	0.00	0.0	0	0	13

M = Missing

Actual Conditions For May 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	93	66	80	91	61	76	4	105	1985	49	1990	0.00	0.0	0	0	15
2	99	60	80	92	61	76	4	105	1966	48	1967	0.00	0.0	0	0	15
3	103	63	83	92	62	77	6	M	M	50	1991	0.00	0.0	0	0	18
4	103	66	85	92	62	77	8	105	2004	49	1999	0.00	0.0	0	0	20
5	98	65	82	93	62	77	5	105	1997	45	1964	0.00	0.0	0	0	17
6	80	61	71	93	62	78	-7	108	1987	47	1988	0.00	0.0	0	0	6
7	84	52	68	93	63	78	-10	108	1989	46	1988	0.00	0.0	0	0	3
8	87	57	72	93	63	78	-6	109	2001	49	1964	0.00	0.0	0	0	7
9	93	61	77	94	63	79	-2	108	2001	50	1982	0.00	0.0	0	0	12
10	94	63	79	94	64	79	0	109	1960	48	1977	0.00	0.0	0	0	14
11	83	65	74	94	64	79	-5	113	1960	50	1982	0.00	0.0	0	0	9
12	91	60	76	95	64	79	-3	112	1996	50	1980	0.00	0.0	0	0	11
13	92	70	81	95	64	80	1	108	1996	50	1962	0.00	0.0	0	0	16
14	95	69	82	95	64	80	2	M	M	50	1998	0.00	0.0	0	0	17
15	101	62	82	96	65	80	2	M	M	53	1962	0.00	0.0	0	0	17
16	106	66	86	96	65	80	6	109	1997	52	1953	0.00	0.0	0	0	21
17	107	70	89	96	65	81	8	110	1997	53	1977	0.00	0.0	0	0	24
18	104	71	88	96	65	81	7	110	1970	54	1977	0.00	0.0	0	0	23
19	98	69	84	97	66	81	3	M	M	M	M	0.00	0.0	0	0	19
20	89	63	76	97	66	81	-5	M	M	51	1949	0.00	0.0	0	0	11
21	86	54	70	97	66	82	-12	110	2005	47	1975	0.00	0.0	0	0	5
22	88	63	76	98	66	82	-6	113	2000	45	1971	0.00	0.0	0	0	11
23	91	67	79	98	66	82	-3	110	2001	50	1971	0.01	0.0	0	0	14
24	94	63	79	98	67	82	-3	112	2001	M	M	0.00	0.0	0	0	14
25	100	68	84	99	67	83	1	113	1951	51	1980	0.00	0.0	0	0	19
26	106	73	90	99	67	83	7	112	1974	52	1996	0.00	0.0	0	0	25
27	107	74	91	99	67	83	8	114	1951	50	1962	0.00	0.0	0	0	26
28	107	74	91	99	67	83	8	114	1983	52	1971	0.00	0.0	0	0	26
29	104	74	89	100	68	84	5	114	2000	43	1971	0.00	0.0	0	0	24
30	106	72	89	100	68	84	5	113	1984	56	1988	0.00	0.0	0	0	24
31	108	75	92	100	68	84	8	M	M	55	1991	0.00	0.0	0	0	27

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For June 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	103	74	89	101	68	84	5	114	2012	46	1980	0.00	0.0	0	0	24
2	110	71	91	101	68	85	6	112	1960	56	1983	0.00	0.0	0	0	26
3	102	70	86	101	69	85	1	113	1996	55	1971	0.00	0.0	0	0	21
4	105	72	89	102	69	85	4	114	1996	56	1998	0.00	0.0	0	0	24
5	106	68	87	102	69	85	2	116	1957	55	1999	0.00	0.0	0	0	22
6	108	68	88	102	69	86	2	114	2002	59	1993	0.00	0.0	0	0	23
7	103	69	86	102	70	86	0	117	1985	52	1993	0.00	0.0	0	0	21
8	108	72	90	103	70	86	4	118	1955	58	1998	0.00	0.0	0	0	25
9	110	75	93	103	70	87	6	118	1955	57	1995	0.00	0.0	0	0	28
10	105	82	94	103	70	87	7	116	1994	60	1969	0.00	0.0	0	0	29
11	107	74	91	104	71	87	4	114	1956	56	1976	0.00	0.0	0	0	26
12	109	73	91	104	71	87	4	116	1956	62	1998	0.00	0.0	0	0	26
13	109	75	92	104	71	88	4	115	1979	56	1998	0.00	0.0	0	0	27
14	102	70	86	104	72	88	-2	117	1966	59	1997	0.00	0.0	0	0	21
15	103	71	87	105	72	88	-1	117	2000	54	1962	0.00	0.0	0	0	22
16	105	74	90	105	72	89	1	116	1971	58	1990	0.00	0.0	0	0	25
17	102	76	89	105	73	89	0	116	1981	57	1995	0.00	0.0	0	0	24
18	98	68	83	106	73	89	-6	118	1981	60	1995	0.00	0.0	0	0	18
19	104	70	87	106	73	90	-3	117	1961	61	1975	0.00	0.0	0	0	22
20	109	73	91	106	74	90	1	118	1981	58	1975	0.00	0.0	0	0	26
21	109	79	94	106	74	90	4	116	2008*	64	1975	0.00	0.0	0	0	29
22	108	77	93	106	74	90	3	119	1960	65	2010*	0.00	0.0	0	0	28
23	106	70	88	107	75	91	-3	118	1961	63	1998	0.00	0.0	0	0	23
24	107	77	92	107	75	91	1	118	1994	63	1998	0.00	0.0	0	0	27
25	107	73	90	107	75	91	-1	122	1970	66	1991	0.00	0.0	0	0	25
26	106	79	93	107	76	92	1	122	1990	61	1965	0.00	0.0	0	0	28
27	103	74	89	107	76	92	-3	121	1973	62	1996	0.00	0.0	0	0	24
28	106	76	91	108	76	92	-1	123	1994	67	1991	0.00	0.0	0	0	26
29	107	81	94	108	77	92	2	121	1994	67	1997	0.00	0.0	0	0	29
30	109	81	95	108	77	92	3	119	1972	68	1997	0.00	0.0	0	0	30

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For July 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	109	85	97	108	77	93	4	118	1972	62	1982	0.00	0.0	0	0	32
2	108	81	95	108	78	93	2	119	2001	66	1995	0.00	0.0	0	0	30
3	108	86	97	108	78	93	4	119	1985	67	1979	0.00	0.0	0	0	32
4	103	86	95	108	78	93	2	121	1989	67	1956	0.00	0.0	0	0	30
5	106	86	96	108	79	93	3	118	1981	69	1987	0.00	0.0	0	0	31
6	109	83	96	108	79	94	2	117	1965	67	1994	0.00	0.0	0	0	31
7	111	82	97	108	79	94	3	117	1985	70	2005	0.00	0.0	0	0	32
8	110	87	99	109	79	94	5	119	1985	73	1949	0.00	0.0	0	0	34
9	103	84	94	109	80	94	0	118	1958	70	1987	0.00	0.0	0	0	29
10	109	84	97	109	80	94	3	118	1973	72	1986	0.00	0.0	0	0	32
11	107	78	93	109	80	94	-1	118	1958	69	1974	0.00	0.0	0	0	28
12	109	77	93	109	80	94	-1	118	1985	71	2000	0.00	0.0	0	0	28
13	112	86	99	109	80	94	5	119	2005	66	1962	0.00	0.0	0	0	34
14	104	86	95	109	81	95	0	118	2003	73	2011*	0.00	0.0	0	0	30
15	106	80	93	109	81	95	-2	117	2006*	71	2001	0.00	0.0	0	0	28
16	110	82	96	108	81	95	1	119	1960	69	1993	0.00	0.0	0	0	31
17	108	77	93	108	81	95	-2	121	2005	64	1983	0.00	0.0	0	0	28
18	105	80	93	108	81	95	-2	118	2005	67	1987	0.00	0.0	0	0	28
19	106	82	94	108	81	95	-1	119	1961	62	1987	0.00	0.0	0	0	29
20	105	77	91	108	81	95	-4	118	1978	70	1993	0.00	0.0	0	0	26
21	109	75	92	108	81	95	-3	118	2006	69	1973	0.00	0.0	0	0	27
22	112	75	94	108	81	95	-1	120	2006	69	1995	0.00	0.0	0	0	29
23	116	86	101	108	81	95	6	117	1981	69	1987	0.00	0.0	0	0	36
24	116	87	102	108	81	95	7	117	1980	73	1995	0.00	0.0	0	0	37
25	111	91	101	108	82	95	6	117	2000	71	1993	0.00	0.0	0	0	36
26	109	89	99	108	82	95	4	118	1995	71	1986	0.00	0.0	0	0	34
27	101	84	93	108	82	95	-2	120	1998	72	1993	0.00	0.0	0	0	28
28	108	84	96	108	82	95	1	123	1995	68	1987	0.00	0.0	0	0	31
29	109	84	97	108	82	95	2	116	1972	64	1987	0.00	0.0	0	0	32
30	113	87	100	108	82	95	5	117	1995	73	1948	0.00	0.0	0	0	35
31	114	89	102	108	81	95	7	120	1972	72	2001	0.00	0.0	0	0	37

M = Missing

Blythe, CA

Change Location: Enter a Postal Code, or City Go My Locations Add to My Locations

Units: English | Metric

Table Graph Details

Actual Conditions For August 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	110	87	99	108	81	95	4	120	1972	70	1959	0.00	0.0	0	0	34
2	96	79	88	108	81	94	-6	118	1995	70	1976	0.00	0.0	0	0	23
3	98	76	87	107	81	94	-7	118	1998	68	1976	0.00	0.0	0	0	22
4	97	71	84	107	81	94	-10	118	1969	67	1976	0.00	0.0	0	0	19
5	107	71	89	107	81	94	-5	118	2000	70	1976	0.00	0.0	0	0	24
6	106	75	91	107	81	94	-3	118	1995	66	1976	0.00	0.0	0	0	26
7	105	72	89	107	81	94	-5	117	1980	68	1988	0.00	0.0	0	0	24
8	104	74	89	107	81	94	-5	119	1980	69	1999	0.00	0.0	0	0	24
9	105	78	92	107	81	94	-2	115	1995	68	2009	0.00	0.0	0	0	27
10	107	83	95	107	81	94	1	116	2003	67	1949	0.00	0.0	0	0	30
11	109	86	98	107	81	94	4	116	1962	70	1999	0.00	0.0	0	0	33
12	101	82	92	107	81	94	-2	116	1962	69	1949	0.02	0.0	0	0	27
13	99	75	87	107	81	94	-7	119	1960	66	1993	0.06	0.0	0	0	22
14	105	83	94	107	81	94	0	117	1962	65	1968	0.00	0.0	0	0	29
15	107	82	95	107	80	94	1	115	1962	64	1993	0.00	0.0	0	0	30
16	108	85	97	107	80	94	3	116	1992	67	1980	0.00	0.0	0	0	32
17	111	88	100	107	80	94	6	116	1992	67	1980	0.00	0.0	0	0	35
18	98	82	90	107	80	93	-3	115	1992	64	1976	0.03	0.0	0	0	25
19	106	82	94	107	80	93	1	114	1973	66	1976	0.00	0.0	0	0	29
20	101	80	91	107	80	93	-2	113	1992	68	1980	0.15	0.0	0	0	26
21	99	69	84	107	80	93	-9	116	1969	69	2014	0.32	0.0	0	0	19
22	92	68	80	107	79	93	-13	116	1972	68	2014*	0.00	0.0	0	0	15
23	100	74	87	107	79	93	-6	116	2011*	64	1968	0.00	0.0	0	0	22
24	103	72	88	106	79	93	-5	119	1985	66	1968	0.00	0.0	0	0	23
25	104	81	93	106	79	93	0	115	1985	68	1973	0.00	0.0	0	0	28
26	103	83	93	106	79	93	0	115	2011	66	1951	0.00	0.0	0	0	28
27	104	79	92	106	79	92	0	115	2005	67	1973	0.00	0.0	0	0	27
28	109	79	94	106	78	92	2	118	1998	65	1973	0.00	0.0	0	0	29
29	111	76	94	106	78	92	2	118	1948	66	1975	0.00	0.0	0	0	29
30	112	76	94	106	78	92	2	116	1998	62	1957	0.00	0.0	0	0	29
31	111	80	96	106	78	92	4	119	1950	62	1992	0.00	0.0	0	0	31

M = Missing

Blythe, CA

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Table Graph Details

Actual Conditions For September 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	108	80	94	105	78	91	3	121	1950	64	1966	0.00	0.0	0	0	29
2	110	77	94	105	77	91	3	118	1948	64	2000	0.00	0.0	0	0	29
3	109	77	93	105	77	91	2	118	1948	65	1964	0.00	0.0	0	0	28
4	107	80	94	105	77	91	3	115	1948	61	1985	0.00	0.0	0	0	29
5	102	83	93	105	76	91	2	113	1955	59	1976	0.00	0.0	0	0	28
6	103	83	93	104	76	90	3	114	1955	66	1992	0.00	0.0	0	0	28
7	100	83	92	104	76	90	2	112	1994	60	1985	0.00	0.0	0	0	27
8	98	79	89	104	75	90	-1	116	1979	65	2010	0.01	0.0	0	0	24
9	91	76	84	104	75	89	-5	114	1993	62	1961	0.03	0.0	0	0	19
10	100	77	89	103	75	89	0	114	1990	63	2005	0.00	0.0	0	0	24
11	104	75	90	103	74	89	1	115	1990	61	1985	0.00	0.0	0	0	25
12	107	74	91	103	74	88	3	113	1971	59	1985	0.00	0.0	0	0	26
13	107	75	91	102	74	88	3	112	1971	58	1985	0.00	0.0	0	0	26
14	107	83	95	102	73	88	7	113	1971	60	2005	0.00	0.0	0	0	30
15	110	83	97	102	73	87	10	113	2000	61	2005	0.00	0.0	0	0	32
16	101	80	91	101	73	87	4	110	1962	61	1970	0.02	0.0	0	0	26
17	98	80	89	101	72	87	2	112	1962	61	1977	0.00	0.0	0	0	24
18	103	80	92	101	72	86	6	111	1980	57	1985	0.00	0.0	0	0	27
19	99	74	87	100	71	86	1	113	1962	56	1985	0.00	0.0	0	0	22
20	102	77	90	100	71	85	5	108	1962	53	1971	0.00	0.0	0	0	25
21	101	75	88	99	70	85	3	108	2009*	59	1986	0.00	0.0	0	0	23
22	101	71	86	99	70	84	2	110	1966	55	1988	0.00	0.0	0	0	21
23	104	73	89	99	70	84	5	111	1966	56	2007	0.00	0.0	0	0	24
24	105	74	90	98	69	84	6	109	2002	54	1986	0.00	0.0	0	0	25
25	105	75	90	98	69	83	7	110	1963	59	1993	0.00	0.0	0	0	25
26	99	83	91	97	68	83	8	110	2010	53	1971	0.05	0.0	0	0	26
27	93	70	82	97	68	82	0	110	2010	54	1971	0.00	0.0	0	0	17
28	87	64	76	96	67	82	-6	108	2009	55	1982	0.00	0.0	0	0	11
29	90	63	77	96	67	81	-4	110	1980	56	2013	0.00	0.0	0	0	12
30	93	63	78	96	66	81	-3	109	1980	51	2005	0.00	0.0	0	0	13

M = Missing

Blythe, CA

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Table Graph Details

Actual Conditions For October 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	95	65	80	95	66	81	-1	111	1980	53	1971	0.00	0.0	0	0	15
2	93	68	81	95	66	80	1	111	1980	52	1971	0.00	0.0	0	0	16
3	98	64	81	94	65	80	1	107	1987	49	2002	0.00	0.0	0	0	16
4	101	64	83	94	65	79	4	107	1987	53	2002	0.00	0.0	0	0	18
5	100	65	83	93	64	79	4	108	1987	52	2009	0.00	0.0	0	0	18
6	94	64	79	93	64	78	1	110	1987	49	2009	0.00	0.0	0	0	14
7	87	74	81	93	63	78	3	108	1987	49	2009	0.00	0.0	0	0	16
8	79	68	74	92	63	78	-4	106	1996	51	2011	0.02	0.0	0	0	9
9	92	67	80	92	63	77	3	106	1996	46	1949	0.01	0.0	0	0	15
10	93	66	80	91	62	77	3	107	1991	48	1949	0.00	0.0	0	0	15
11	96	68	82	91	62	76	6	105	1965	50	2013	0.00	0.0	0	0	17
12	99	64	82	91	61	76	6	105	1999	50	2000	0.00	0.0	0	0	17
13	92	64	78	90	61	76	2	106	1950	47	1969	0.00	0.0	0	0	13
14	93	57	75	90	61	75	0	103	1961	50	1994	0.00	0.0	0	0	10
15	91	61	76	89	60	75	1	103	1950	52	1986	0.00	0.0	0	0	11
16	89	61	75	89	60	74	1	102	1958	49	1980	0.00	0.0	0	0	10
17	92	69	81	89	59	74	7	101	2011*	46	1994	0.00	0.0	0	0	16
18	93	66	80	88	59	74	6	104	2003	41	1971	0.00	0.0	0	0	15
19	94	64	79	88	59	73	6	104	2003	41	1971	0.00	0.0	0	0	14
20	92	65	79	87	58	73	6	103	2003	42	1949	0.00	0.0	0	0	14
21	92	67	80	87	58	73	7	104	2003	44	1949	0.00	0.0	0	0	15
22	94	64	79	87	58	72	7	104	2003	44	1996	0.00	0.0	0	0	14
23	95	64	80	86	57	72	8	101	2003	39	1996	0.00	0.0	0	0	15
24	95	64	80	86	57	71	9	102	1959	42	1996	0.00	0.0	0	0	15
25	96	66	81	86	57	71	10	98	1965	44	1975	0.00	0.0	0	0	16
26	88	66	77	85	56	71	6	98	1965	41	1971	0.00	0.0	0	0	12
27	87	62	75	85	56	70	5	99	2008	45	1971	0.00	0.0	0	0	10
28	89	55	72	84	55	70	2	98	1965	44	1996	0.00	0.0	0	0	7
29	91	55	73	84	55	69	4	97	1965	33	1971	0.00	0.0	0	0	8
30	91	58	75	84	55	69	6	95	1966	27	1971	0.00	0.0	0	0	10
31	89	59	74	83	54	69	5	97	1966	29	1971	0.00	0.0	0	0	9

M = Missing

Blythe, CA

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Table Graph Details

Actual Conditions For November 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	78	60	69	83	54	68	1	95	1997	42	1972	0.00	0.0	0	0	4
2	74	52	63	82	53	68	-5	93	1997	38	1971	0.00	0.0	0	2	0
3	75	53	64	82	53	67	-3	95	2010	40	1979	0.00	0.0	0	1	0
4	78	60	69	81	53	67	2	94	2010*	38	1956	0.00	0.0	0	0	4
5	84	54	69	81	52	67	2	94	1980	43	1994	0.00	0.0	0	0	4
6	87	51	69	80	52	66	3	94	1988	42	2011	0.00	0.0	0	0	4
7	86	53	70	80	52	66	4	92	2007	41	1993	0.00	0.0	0	0	5
8	89	54	72	80	51	65	7	92	1991	40	2011	0.00	0.0	0	0	7
9	88	54	71	79	51	65	6	89	1995	41	2000	0.00	0.0	0	0	6
10	88	53	71	79	50	64	7	89	1980	39	2010	0.00	0.0	0	0	6
11	83	54	69	78	50	64	5	88	2013*	36	1950	0.00	0.0	0	0	4
12	79	54	67	78	49	64	3	91	1999	32	1950	0.00	0.0	0	0	2
13	78	52	65	77	49	63	2	93	1999	35	1985	0.00	0.0	0	0	0
14	77	55	66	77	49	63	3	91	1999	32	2000	0.00	0.0	0	0	1
15	81	50	66	76	48	62	4	90	1999	39	1994	0.00	0.0	0	0	1
16	67	53	60	76	48	62	-2	88	1995	35	2000	0.00	0.0	0	5	0
17	70	43	57	75	47	61	-4	89	1995	35	1958	0.00	0.0	0	8	0
18	71	44	58	75	47	61	-3	87	2008*	34	1958	0.00	0.0	0	7	0
19	73	41	57	74	47	60	-3	87	2008*	35	1958	0.00	0.0	0	8	0
20	74	43	59	74	46	60	-1	87	2006	27	1994	0.00	0.0	0	6	0
21	75	51	63	73	46	60	3	87	1950	33	1994	0.00	0.0	0	2	0
22	76	44	60	73	45	59	1	88	1950	35	1992	0.00	0.0	0	5	0
23	74	53	64	72	45	59	5	86	1949	35	2010	0.00	0.0	0	1	0
24	74	45	60	72	45	58	2	87	1995	34	1971	0.00	0.0	0	5	0
25	71	43	57	71	44	58	-1	87	1950	32	1952	0.00	0.0	0	8	0
26	76	44	60	71	44	58	2	87	1995	34	2010	0.00	0.0	0	5	0
27	80	47	64	71	44	57	7	86	1954	26	2010	0.00	0.0	0	1	0
28	78	45	62	70	43	57	5	83	1949	30	1994	0.00	0.0	0	3	0
29	77	43	60	70	43	56	4	83	1953	33	1976	0.00	0.0	0	5	0
30	77	49	63	69	43	56	7	82	2008	32	1975	0.00	0.0	0	2	0

M = Missing

Blythe, CA

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Table Graph Details

Actual Conditions For December 2014

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

Choose another location: Postal Code or City GO

Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	72	47	60	69	43	56	4	82	2008*	33	1952	0.00	0.0	0	5	0
2	67	57	62	69	42	55	7	82	1959	30	1991	0.00	0.0	0	3	0
3	64	57	61	68	42	55	6	83	1958	32	1991	0.08	0.0	0	4	0
4	73	54	64	68	42	55	9	80	2012*	35	2009*	0.00	0.0	0	1	0
5	73	52	63	68	42	55	8	80	1962	31	2009	0.00	0.0	0	2	0
6	76	58	67	67	41	54	13	81	1966	32	1972	0.00	0.0	0	0	2
7	78	51	65	67	41	54	11	79	1995	29	2011*	0.00	0.0	0	0	0
8	76	54	65	67	41	54	11	78	1996	29	1978	0.00	0.0	0	0	0
9	77	52	65	66	41	54	11	80	1962	26	1978	0.00	0.0	0	0	0
10	78	46	62	66	41	54	8	82	1950	25	1971	0.00	0.0	0	3	0
11	72	50	61	66	41	53	8	81	1958	31	1994	0.00	0.0	0	4	0
12	70	46	58	66	41	53	5	82	2010*	24	1971	0.03	0.0	0	7	0
13	66	43	55	66	40	53	2	80	1995	30	1985	0.00	0.0	0	10	0
14	65	39	52	66	40	53	-1	78	1952	29	2001	0.00	0.0	0	13	0
15	64	40	52	65	40	53	-1	81	1977	24	1971	0.00	0.0	0	13	0
16	61	40	51	65	40	53	-2	85	1980	26	2005	0.28	0.0	0	14	0
17	60	47	54	65	40	53	1	82	1998	29	2005	0.39	0.0	0	11	0
18	63	49	56	65	40	53	3	77	1950	30	1968	0.00	0.0	0	9	0
19	63	43	53	65	40	53	0	76	1999	25	1968	0.00	0.0	0	12	0
20	61	42	52	65	40	53	-1	79	1950	29	2006*	0.00	0.0	0	13	0
21	62	46	54	65	40	53	1	76	1950	29	1968	0.00	0.0	0	11	0
22	71	45	58	65	40	53	5	77	1955	24	1968	0.00	0.0	0	7	0
23	73	56	65	65	40	53	12	82	1955	27	1968	0.00	0.0	0	0	0
24	65	42	54	65	40	53	1	81	2005	30	1968	0.00	0.0	0	11	0
25	65	44	55	65	41	53	2	77	1980	30	1953	0.00	0.0	0	10	0
26	59	40	50	65	41	53	-3	79	1980	30	2002	0.00	0.0	0	15	0
27	59	40	50	65	41	53	-3	80	1980	25	1987	0.00	0.0	0	15	0
28	56	31	44	65	41	53	-9	80	1980	27	1988	0.00	0.0	0	21	0
29	58	29	44	65	41	53	-9	87	1980	28	2003	0.00	0.0	0	21	0
30	60	31	46	66	41	53	-7	83	1980	27	1988	0.00	0.0	0	19	0
31	50	35	43	66	41	53	-10	79	1980	26	1988	0.00	0.0	0	22	0

M = Missing

Blythe, CA

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Table Graph Details

Actual Conditions For January 2015

Reports from: BLYTHE, CA [BLH]

(Lat: 33.62 Lon:-114.72)

Choose another month / year: Month ▼ Year ▼ GO

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Enter a Different Station: station GO

Obs. Date	Act. High	Act. Low	Act. Avg	Norm. High	Norm. Low	Norm. Avg.	Norm. Dept.	Rec. High	Rec. Year	Rec. Low	Rec. Year	Precip. Amt	Snow Amt.	Snow Ground	Heat Deg Day	Cool Deg Day
1	51	27	39	66	41	53	-14	82	1981	24	1976	0.00	0.0	0	26	0
2	57	27	42	66	41	54	-12	80	1981	27	2015	0.00	0.0	0	23	0
3	58	29	44	66	41	54	-10	78	1997	21	1974	0.00	0.0	0	21	0
4	62	31	47	66	41	54	-7	80	1981	23	1950	0.00	0.0	0	18	0
5	69	40	55	66	41	54	1	79	1981	22	1972	0.00	0.0	0	10	0
6	74	42	58	66	42	54	4	80	1962	25	1950	0.00	0.0	0	7	0
7	75	43	59	67	42	54	5	85	1962	24	1971	0.00	0.0	0	6	0
8	76	51	64	67	42	54	10	84	1962	20	1971	0.00	0.0	0	1	0
9	75	46	61	67	42	54	7	80	1962	25	1971	0.00	0.0	0	4	0
10	71	53	62	67	42	54	8	80	1962	26	1971	0.00	0.0	0	3	0
11	69	49	59	67	42	55	4	80	1986	27	1950	0.05	0.0	0	6	0
12	70	55	63	67	42	55	8	79	1983	26	1962	0.00	0.0	0	2	0
13	70	51	61	67	42	55	6	78	1996	25	2013	0.00	0.0	0	4	0
14	70	51	61	68	42	55	6	80	1983	25	2007	0.00	0.0	0	4	0
15	71	42	57	68	42	55	2	78	2014*	28	1987	0.00	0.0	0	8	0
16	73	44	59	68	42	55	4	83	1976	29	1964	0.00	0.0	0	6	0
17	72	43	58	68	42	55	3	82	2011*	25	2007	0.00	0.0	0	7	0
18	74	42	58	68	43	55	3	85	1971	30	2002	0.00	0.0	0	7	0
19	73	44	59	68	43	55	4	84	1971	29	1990	0.00	0.0	0	6	0
20	75	43	59	68	43	55	4	83	1971	30	2008	0.00	0.0	0	6	0
21	74	52	63	68	43	56	7	80	2009	30	1973	0.00	0.0	0	2	0
22	68	47	58	69	43	56	2	79	1994	31	1987	0.00	0.0	0	7	0
23	69	41	55	69	43	56	-1	82	1950	30	1972	0.00	0.0	0	10	0
24	77	45	61	69	43	56	5	82	1951	29	1996	0.00	0.0	0	4	0
25	75	49	62	69	43	56	6	89	1951	31	1972	0.00	0.0	0	3	0
26	61	51	56	69	43	56	0	81	2003	30	2002	0.19	0.0	0	9	0
27	69	53	61	69	43	56	5	79	2003	29	1972	0.01	0.0	0	4	0
28	71	50	61	69	43	56	5	80	2014*	29	1972	0.00	0.0	0	4	0
29	71	57	64	69	43	56	8	81	1953	30	1975	0.00	0.0	0	1	0
30	67	56	62	70	43	56	6	83	2003	26	1949	0.32	0.0	0	3	0
31	69	53	61	70	44	57	4	86	2003	30	1972	0.00	0.0	0	4	0

M = Missing

APPENDIX D

Corps Regulatory Guidance Letter 05-05

Ordinary High Water Mark Identification

US Army Corps of Engineers

REGULATORY GUIDANCE LETTER

No. 05-05 **Date: 7 December 2005**

SUBJECT: Ordinary High Water Mark Identification

1. Purpose and Applicability

a. **Purpose.** To provide guidance for identifying the ordinary high water mark.

b. **Applicability.** This applies to jurisdictional determinations for non-tidal waters under Section 404 of the Clean Water Act and under Sections 9 and 10 of the Rivers and Harbors Act of 1899.

2. General Considerations

a. **Regulation and Policy.** Pursuant to regulations and inter-agency agreement,[1] the U.S. Army Corps of Engineers (Corps) determines, on a case-by case basis, the extent of geographic jurisdiction for the purpose of administering its regulatory program. For purposes of Section 404 of the Clean Water Act (CWA), the lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. For purposes of Sections 9 and 10 of the Rivers and Harbors Act of 1899, the lateral extent of Federal jurisdiction, which is limited to the traditional navigable waters of the United States, extends to the OHWM, whether or not adjacent wetlands extend landward of the OHWM.

Corps regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

> "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 a 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."

1. Memorandum of Agreement between the Department of the Army and Environmental Protection Agency Concerning the Determination of the Geographical Jurisdiction of the Section 404 Program and the Application of the Exemptions under Section 404(f) of the Clean Water Act, January 19, 1989

This definition is virtually identical to the definition of the term "ordinary high water mark" found at 33 CFR Section 329.11(a)(1), describing the lateral extent of Federal jurisdiction over non-tidal traditional navigable waters of the United States subject to Sections 9 and 10 of the Rivers and Harbors Act of 1899 (RHA). When the definition from 33 CFR Section 329.11(a)(1) was reproduced at 33 CFR 328.3(e), the semi-colons of the former definition were mistakenly changed to commas in the latter definition. Consequently, the definition of "ordinary high water mark" in Part 328 is not as clear in meaning as is the definition of the same term in Part 329, even though the two definitions were to serve the same basic purpose (i.e., establishing the lateral extent of jurisdiction, in the absence of adjacent wetlands).[2]

Both definitions of the term "ordinary high water mark" begin by discussing physical characteristics that indicate the location of the OHWM on the shore of a water body. Furthermore, both OHWM definitions conclude with the statement the OHWM can be determined using "other appropriate means that consider the characteristics of the surrounding areas".[3] Prior to this Regulatory Guidance Letter (RGL), neither the Corps nor the U.S. Environmental Protection Agency has issued any additional clarifying national guidance for use by Corps regulatory program staff in identifying the location of the OHWM for the CWA on a case-by-case basis.[4]

b. **Practice.** In making OHWM determinations, Corps districts generally rely on physical evidence to ascertain the lateral limits of jurisdiction, to whatever extent physical evidence can be found and such evidence is deemed reasonably reliable. Physical indicators include the features listed in the definitions at 33 CFR Sections 328.3(e) and 329.11(a)(1) and other appropriate means that consider the characteristics of the surrounding areas. In addition, districts use other methods for estimating the line on the shore established by the fluctuations of water, including, but not limited to, lake and stream gage data, flood predictions, historic records of water flow, and statistical evidence. To the maximum extent practicable, districts generally use more than one physical indicator or other means for determining the OHWM.

3. <u>Guidance.</u>

a. In determining the location of the OHWM for non-tidal water bodies under the CWA or the RHA, districts should give priority to evaluating the physical characteristics of the area that are determined to be reliable indicators of the OHWM. Physical evidence to be evaluated includes those items listed in the definitions at 33 CFR Sections 328.3(e) and 329.11(a)(1). Because many types of water bodies occur with varying conditions, including topography, channel morphology and flow dynamics, districts may consider other physical characteristics indicative of the OHWM.

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2. CWA jurisdiction extends laterally landward of the OHWM to include all adjacent wetlands wherever such adjacent wetlands are present. This guidance addresses situations where no such adjacent wetlands exist.
3. Changes in the limits of waters of the U.S. are addressed in 33 CFR 328.5.
4 . On 3 June 1983 the Corps of Engineers' Chief Counsel distributed legal guidance to all Corps district and division counsel offices regarding certain legal questions relating to the geographic jurisdiction of Section 10 of the Rivers and Harbors Act of 1899, including questions relating to the OHWM.

b. The following physical characteristics should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable:

Natural line impressed on the bank	Sediment sorting
Shelving	Leaf litter disturbed or washed away
Changes in the character of soil	Scour
Destruction of terrestrial vegetation	Deposition
Presence of litter and debris	Multiple observed flow events
Wracking	Bed and banks
Vegetation matted down, bent, or absent	Water staining
	Change in plant community

This list of OHWM characteristics is not exhaustive. Physical characteristics that correspond to the line on the shore established by the fluctuations of water may vary depending on the type of water body and conditions of the area. There are no "required" physical characteristics that must be present to make an OHWM determination. However, if physical evidence alone will be used for the determination, districts should generally try to identify two or more characteristics, unless there is particularly strong evidence of one.

c. Where the physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, districts may determine the OHWM by using other appropriate means that consider the characteristics of the surrounding areas, provided those other means are reliable.[5] Such other reliable methods that may be indicative of the OHWM include, but are not limited to, lake and stream gage data, elevation data, spillway height, flood predictions, historic records of water flow, and statistical evidence.

d. When making OHWM determinations, districts should be careful to look at characteristics associated with ordinary high water events, which occur on a regular or frequent basis. Evidence resulting from extraordinary events, including major flooding and storm surges, is not indicative of the OHWM. For instance, a litter or wrack line resulting from a 200-year flood event would in most cases not be considered evidence of an OHWM.

e. Districts will document in writing the physical characteristics used to establish the OHWM for CWA and/or RHA jurisdiction. If physical characteristics are inconclusive, misleading, unreliable, or not evident, the Districts' written documentation will include information about the physical characteristics (or lack thereof) and other appropriate means that consider the characteristics of the surrounding areas, which it used to determine the OHWM.

f. To complete an approved jurisdictional determination, districts will have complete and accurate documentation that substantiates the Corps decision. At a minimum, decisions will be documented using the standardized jurisdictional determination information sheet established by

5. In some cases, the physical characteristics may be misleading and would not be reliable for determining the OHWM. For example, water levels or flows may be manipulated by human intervention for power generation or water supply. For such cases, districts should consider using other appropriate means to determine the OHWM.

Headquarters and provided to the districts on August 13, 2004 (or as further amended by Headquarters). Documentation will allow for a reasonably accurate replication of the determination at a future date. In this regard, documentation will normally include information such as data sheets, site visit memoranda, maps, sketches, and, in some cases, surveys and photographs documenting the OHWM.

4. **Duration.** This guidance remains in effect unless revised or rescinded.

DON T. RILEY
Major General, US Army
Director of Civil Works

APPENDIX E

Field Data

OHWM Field Data Sheets (Arid West)

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R1	5	40.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R2	5	1.5 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R3	5	0.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R4	5	1.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R5	5	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R6	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R7a	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R7b	5	0.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R8a	5	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R8b	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R9	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R10	5	1.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R11	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R12	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R13	5	3.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R14	5	3.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R15	5	3.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R16	5	4.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R17	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R18	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R19	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R20	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R21	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R22	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R23	5	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R24	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R25	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R26	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R27	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R28	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R29	5	3.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R30	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R31	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R32	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R33	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R34	5	5.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R35	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R36	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R37	5	5.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R38	5	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R39	5	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R40	4 & 5	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R41	4 & 5	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R42	4 & 5	3.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R43	4	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R44	4	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R45	4	1.5 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R46	4	3.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R47	4	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data												Comments
Date (M / D / Y)	Time (24-Hour)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	n/a	8	R48	4	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R49	4	1.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R50	4	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R51a	4	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R51b	5	5.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R51c	5	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	n/a	8	R52a	4	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data											Comments
Date (M / D / Y)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/05/14	8	R52b	4 & 5	5.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R52c	5	3.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R52d	4	4.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R53	4 & 5	5.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R54a	8	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R54b	8	2.0 ft	A	D	N	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	
05/05/14	8	R54c	8	2.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	

Reference: D = Drainage ; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

HBG OHWM Field Data Sheet (Arid West)

HGB Team # 1	Project Name: *Desert Quartzite*	HBG Sub-Basin # n/a	HUC 12 # 150301040804

Drainage Data												Comments
Date (M / D / Y)	Time (24-Hour)	GPS Unit #	Sample Point #	Map Sheet Ref #	OHW Width	Active (A) or Inactive (I) Channel	Up (U) / or Down (D) Slope from Road	Photo (Y/N)	Below OHWM	At OHWM	Above OHWM	Use note pages at back of notebook for comments. Put comment number in block below.
05/06/14	n/a	8	R55a	14	1.5 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	*Beginning of stream drainage; abuts, but is outside of study area; abruptly ends as shown with no evidence of shallow groundwater flow beyond end point.*
05/06/14	n/a	8	R55b	14	3.0 ft	A	D	Y	A: 1, 7, 10, 11, 12, 15, 18 D: 3	B: 6, 10, 11, 12 E: 10, 12	C: 10, 12 F: 16, 17, 18	*End of stream drainage; abuts, but is outside of study area*

Reference: D = Drainage ; M = Manmade; MD = Major Drainage; R = River

Potential Geomorphic OHWM Indicators

(A) Below OHW	(B) At OHW	(C) Above OHW
1) In-stream dunes 2) Crested ripples 3) Flaser bedding 4) Harrow marks 5) Gravel sheets to rippled sands 6) Meander bars 7) Sand tongues 8) Muddy point bars 9) Long gravel bars 10) Cobble bars behind obstructions 11) Scour holes downstream of obstructions 12) Obstacle marks 13) Stepped-bed morphology in gravel 14) Narrow berms and levees 15) Streaming lineations 16) Dessication/mud cracks 17) Armored mud balls 18) Knick Points	1) Valley flat 2) Active floodplain 3) Benches: low, mid, most prominent 4) Highest surface of channel bars 5) Top of point bars 6) Break in bank slope 7) Upper limit of sand-sized particles 8) Change in particle size distribution 9) Staining of rocks 10) Exposed root hairs below intact soil layer 11) Silt deposits 12) Litter (organic debris, small twigs and leaves) 13) Drift (organic debris, larger than twigs)	1) Desert pavement 2) Rock varnish 3) Clast weathering 4) Salt splitting 5) Carbonate etching 6) Depositional topography 7) Caliche rubble 8) Soil development 9) Surface color/tone 10) Drainage development 11) Surface relief 12) Surface rounding

Potential Vegetation OHWM Indicators

	(D) Below OHW	(E) At OHW	(F) Above OHW
Hydroriparian indicators	1) Herbaceous marsh species 2) Pioneer tree seedlings 3) Sparse, low vegetation 4) Annual herbs, hydromesic ruderals 5) Perennial herbs, hydromesic clonals	1) Annual herbs, hydromesic ruderals 2) Perennial herbs, hydromesic clonals 3) Pioneer tree seedlings 4) Pioneer tree saplings	1) Annual herbs, xeric ruderals 2) Perennial herbs, non-clonal 3) Perennial herbs, clonal and non-clonal co-dominant 4) Mature pioneer trees, no young trees 5) Mature pioneer trees w/upland species 6) Late-successional species
Mesoriparian indicators	6) Pioneer tree seedlings 7) Sparse, low vegetation 8) Pioneer tree saplings 9) Xeroriparian species	5) Sparse, low vegetation Annual herbs, hydromesic 6) ruderals 7) Perennial herbs, hydromesic clonals 8) Pioneer tree seedlings 9) Pioneer tree saplings 10) Xeroriparian species 11) Annual herbs, xeric ruderals	7) Xeroriparian species 8) Annual herbs, xeric ruderals 9) Perennial herbs, non-clonal 10) Perennial herbs, clonal and non-clonal codominent 11) Mature pioneer trees, no young trees 12) Mature pioneer trees, xeric understory 13) Mature pioneer trees w/upland species 14) Late-successional species 15) Upland species
Xeroriparian indicators	10) Sparse, low vegetation 11) Xeroriparian species 12) Annual herbs, xeric ruderals	12) Sparse, low vegetation 13) Xeroriparian species 14) Annual herbs, xeric ruderals	16) Annual herbs, xeric ruderals 17) Mature pioneer trees w/upland species 18) Upland species

Wetland Determination Data Forms – Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W 7a Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Fan Remnant Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.6016568498 Long: -114.767078005 Datum: WGS84 Soil Map Unit Name: Chuckawalla very gravelly silt loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation_____, Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation_____, Soil_____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes_____ No ✓	**Is the Sampled Area within a Wetland?** Yes_____ No ✓
Hydric Soil Present?	Yes_____ No ✓	
Wetland Hydrology Present?	Yes_____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1' x 1')			
1. Bromus rubens	3	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size:_____)			
1. None			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 97 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	
	(B)	

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is s;3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- – Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes_____ No ✓

Remarks:

SOIL

Sampling Point: W 7a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	7.5YR4/4	100					GSCL	gravely alluvium; some stratification of gravel and sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W-R28 Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Arroyos Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.5988807676 Long: -114.768189595 Datum: WGS84 Soil Map Unit Name: Carrizo gravelly sand NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation_____, Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation_____, Soil_____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes_____ No ✓	**Is the Sampled Area within a Wetland?** Yes_____ No ✓
Hydric Soil Present?	Yes_____ No ✓	
Wetland Hydrology Present?	Yes_____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3' x 3')			
1. Ambrosia dumosa	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:_____)			
1. None			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of: Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A)

_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is s;3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

– Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes_____ No ✓

Remarks:

Vegetation on top edge of low terrace or bench.

SOIL

Sampling Point: W-R28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	10YR4/3	100					DS	gravely coarse sand alluvium; stratification of gravel and sand and sand layers

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W-R37 Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Sand Sheets Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.5972083273 Long: -114.767831292 Datum: WGS84 Soil Map Unit Name: Rositas fine sand, 2 to 9 percent slopes: Ce = Carrizo gravelly sand NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation_____, Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation_____, Soil_____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes_____ No ✓	**Is the Sampled Area within a Wetland?** Yes_____ No ✓
Hydric Soil Present?	Yes_____ No ✓	
Wetland Hydrology Present?	Yes_____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1' x 1')			
1. Bromus rubens	5	Y	U
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size:_____)			
1. None			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is s;3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

– Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes_____ No ✓

Remarks:

SOIL

Sampling Point: W-R37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	7.5YR5/6	100					Sand	fine sand; surrounded by gravely coarser sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W R38

Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Fan Remnant Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.6016568498 Long: -114.767078005 Datum: WGS84 Soil

Map Unit Name: Chuckawalla very gravelly silt loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation_____, Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation_____, Soil_____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes_____ No ✓	**Is the Sampled Area within a Wetland?** Yes_____ No ✓
Hydric Soil Present?	Yes_____ No ✓	
Wetland Hydrology Present?	Yes_____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size:_____)			
1. Ambrosia dumosa	5	Y	U
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 1' x 1')			
1. Bromus rubens	2	Y	UPL
2. Pleuraphis rigida	5	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	7 = Total Cover		
Woody Vine Stratum (Plot size:_____)			
1. None			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 88 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	
	(B)	

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is s;3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

– Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes_____ No ✓

Remarks:

SOIL

Sampling Point: W R38

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	7.5YR4/4	100					GSCL	gravely alluvium; some stratification of gravel and sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W-R52c Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Fan Remnant Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.5961521464 Long: -114.771981989 Datum: WGS84 Soil Map Unit Name: Chuckawalla very gravelly silt loam NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation_____, Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation_____, Soil_____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes_____ No ✓	**Is the Sampled Area within a Wetland?** Yes_____ No ✓
Hydric Soil Present?	Yes_____ No ✓	
Wetland Hydrology Present?	Yes_____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:_____)			
1. None			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 3' x 3')			
1. Ambrosia dumosa	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 3' x 3')			
1. Bromus rubens	3	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size:_____)			
1. None			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 92 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of: Multiply by:

OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is s;3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

– Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes_____ No ✓

Remarks:

SOIL

Sampling Point: W-R52c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	7.5YR4/4	100					GSCL	gravely alluvium; some stratification of gravel and sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Possible Solar Farm Project City/County: Blythe/ Riverside Sampling Date: 2-13-15

Applicant/Owner: Client is First Solar State: CA Sampling Point: W R54a Investigator(s): TH Section, Township, Range:

Landform (hillslope, terrace, etc.): Fan Remnant Local relief (concave, convex, none): none Slope (%): < 2%

Subregion (LRR): LRR D Lat: 33.588761 Long: -114.753424 Datum: WGS84 Soil Map Unit Name: Aco gravelly loamy sand NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation____, Soil____, or Hydrology____significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation____, Soil____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes____ No ✓	**Is the Sampled Area within a Wetland?** Yes____ No ✓
Hydric Soil Present?	Yes____ No ✓	
Wetland Hydrology Present?	Yes____ No ✓	

Remarks:

Secondary hydrology indicators present in ephemeral streams. Flows are short lived for hours not days and give a false positive wetland indicator. See hydrology remarks.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:____)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:____)			
1. None			
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' x 5')			
1. Bromus rubens	1	N	UPL
2. Pleuraphis rigida	5	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	6 = Total Cover		
Woody Vine Stratum (Plot size:____)			
1. None			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 94 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	
	(B)	

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is s;3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- – Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes____ No ✓

Remarks:

SOIL

Sampling Point: W R54a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	7.5YR4/6	100					GS	gravely sand; some stratification of gravel and sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soil is well drained

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

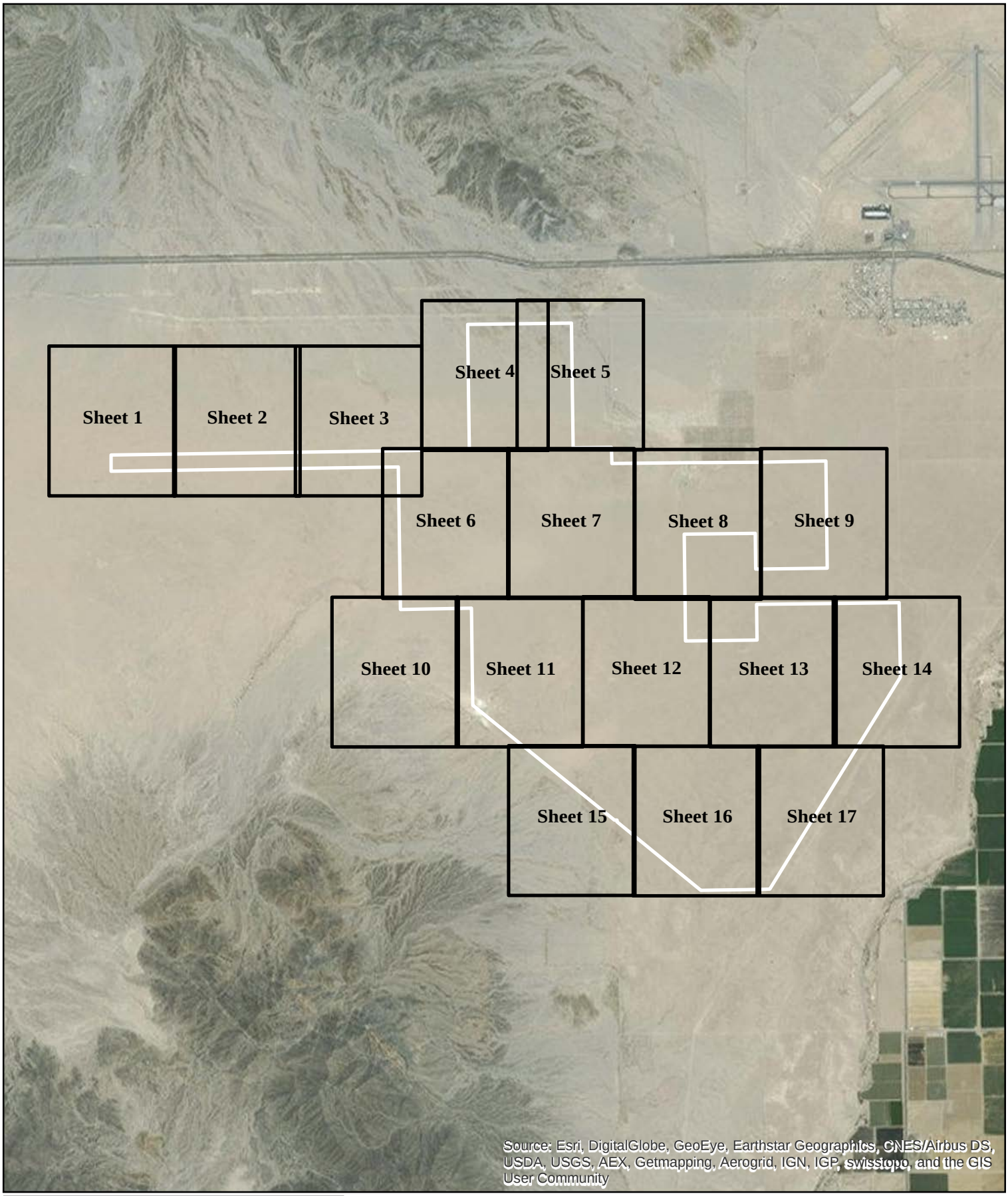
NA

Remarks:

The secondary indicators are not reflective of wetland conditions as they are typically formed during high rainfall events where flows last for hours not days. Wetland hydrology conditions occur when the soil is flooded, ponded, or inundated for 14 consecutive days or more during the growing season (page 59; 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)).

APPENDIX F

Onsite Photographs



Legend

Study Area

Map Sheet

N

0 2,000 4,000 6,000 8,000 10,000 Feet

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Photo Point Locations, Index Map

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E 1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 1
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Aerial Photography: Microsoft March 2011

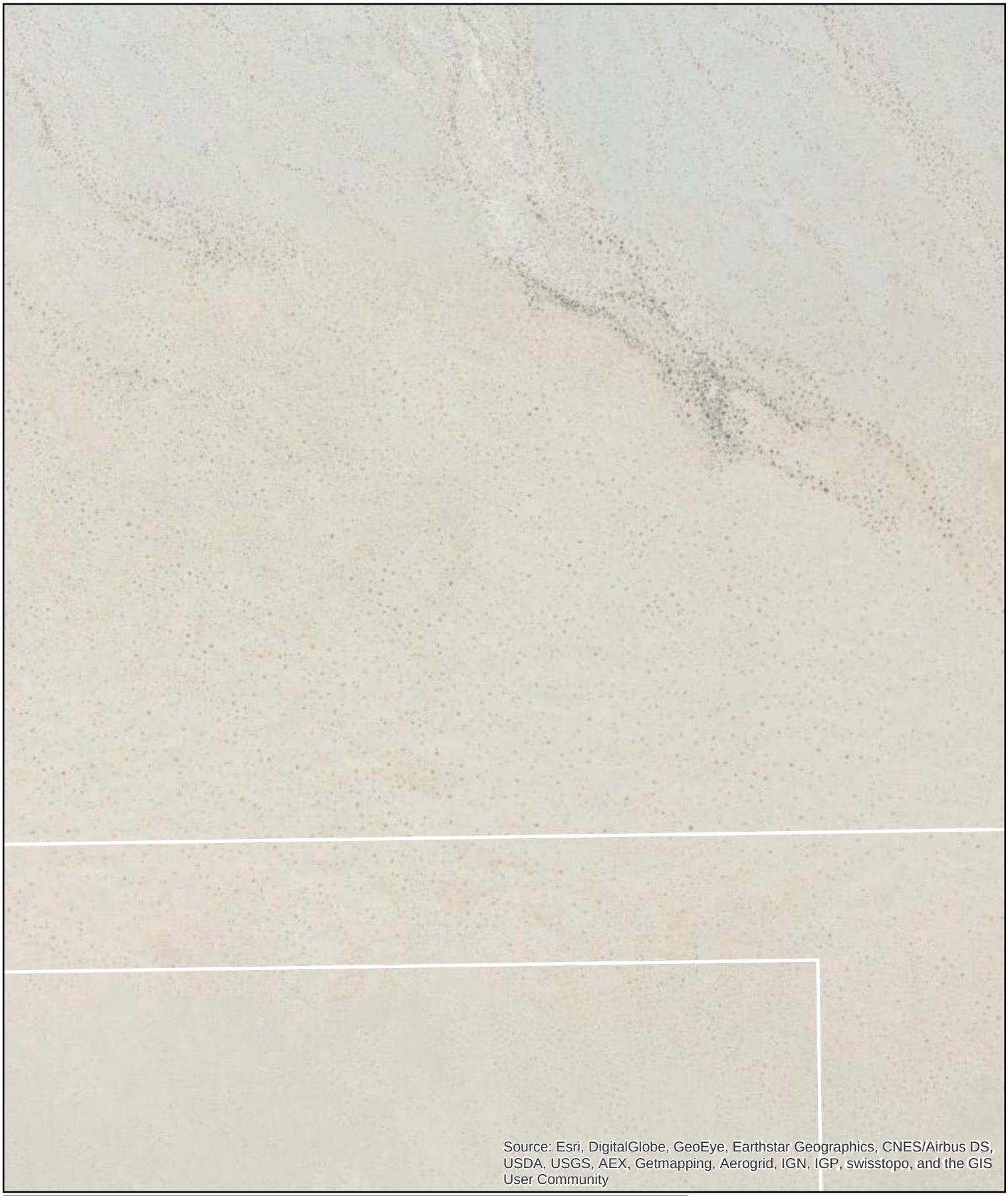
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 2
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



E

E

Aerial Photography: Microsoft March 2011

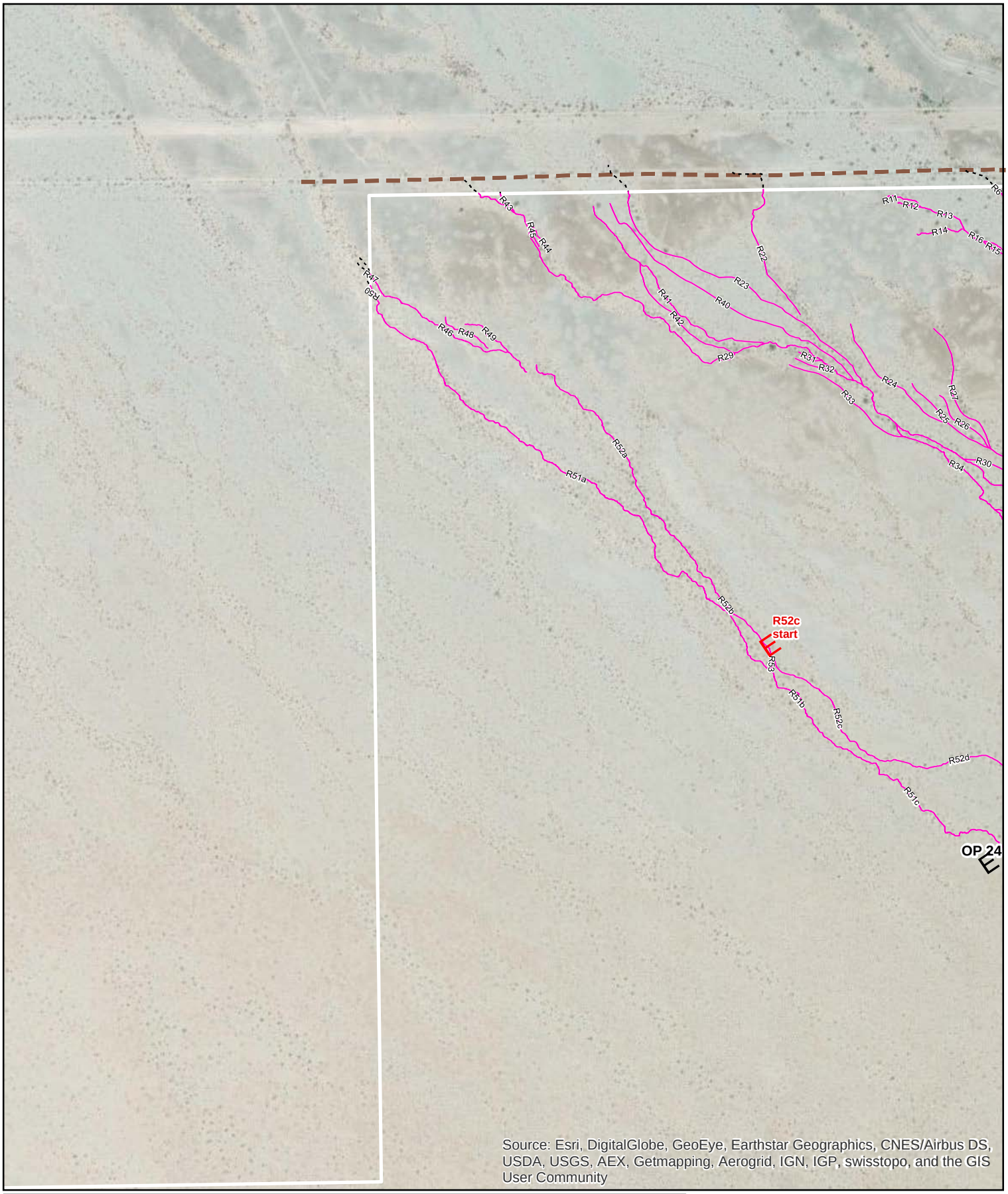
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 3
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Study Area

Dirt Roadway (barrier to surface water hydrology)

General Overview Site Photograph

Representative Stream Photograph

Riverine Intermittent Streambed (ephemeral stream)

Excavated Riverine Intermittent Streambed (excavated ephemeral stream)

Riverine Intermittent Streambed (ephemeral streambed) not within study area

Aerial Photography: Microsoft March 2011

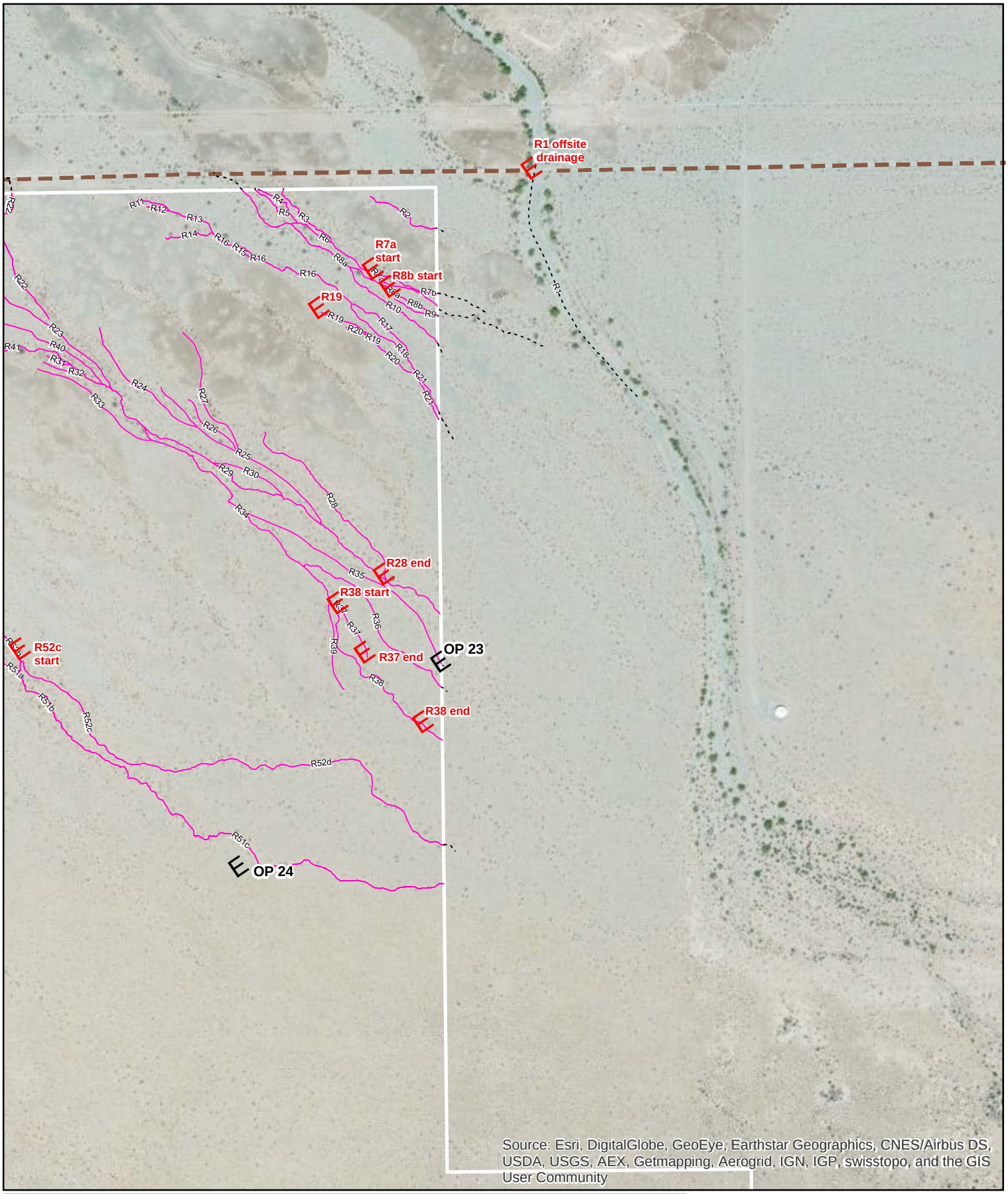
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 4

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Study Area

Dirt Roadway (barrier to surface water hydrology)

General Overview Site Photograph

Representative Stream Photograph

Riverine Intermittent Streambed (ephemeral stream)

Excavated Riverine Intermittent Streambed (excavated ephemeral stream)

Riverine Intermittent Streambed (ephemeral streambed) not within study area

Aerial Photography: Microsoft March 2011

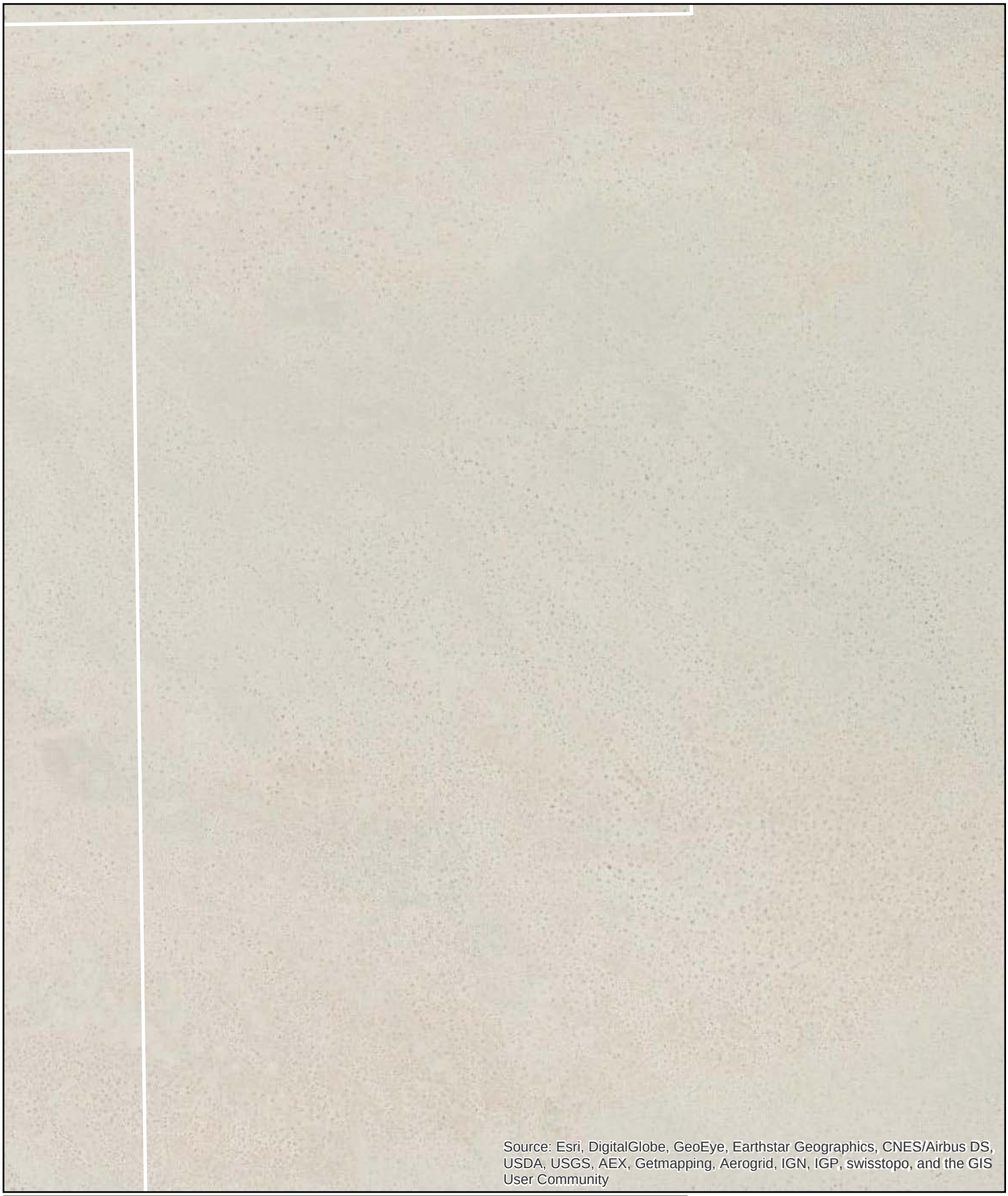
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 5

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



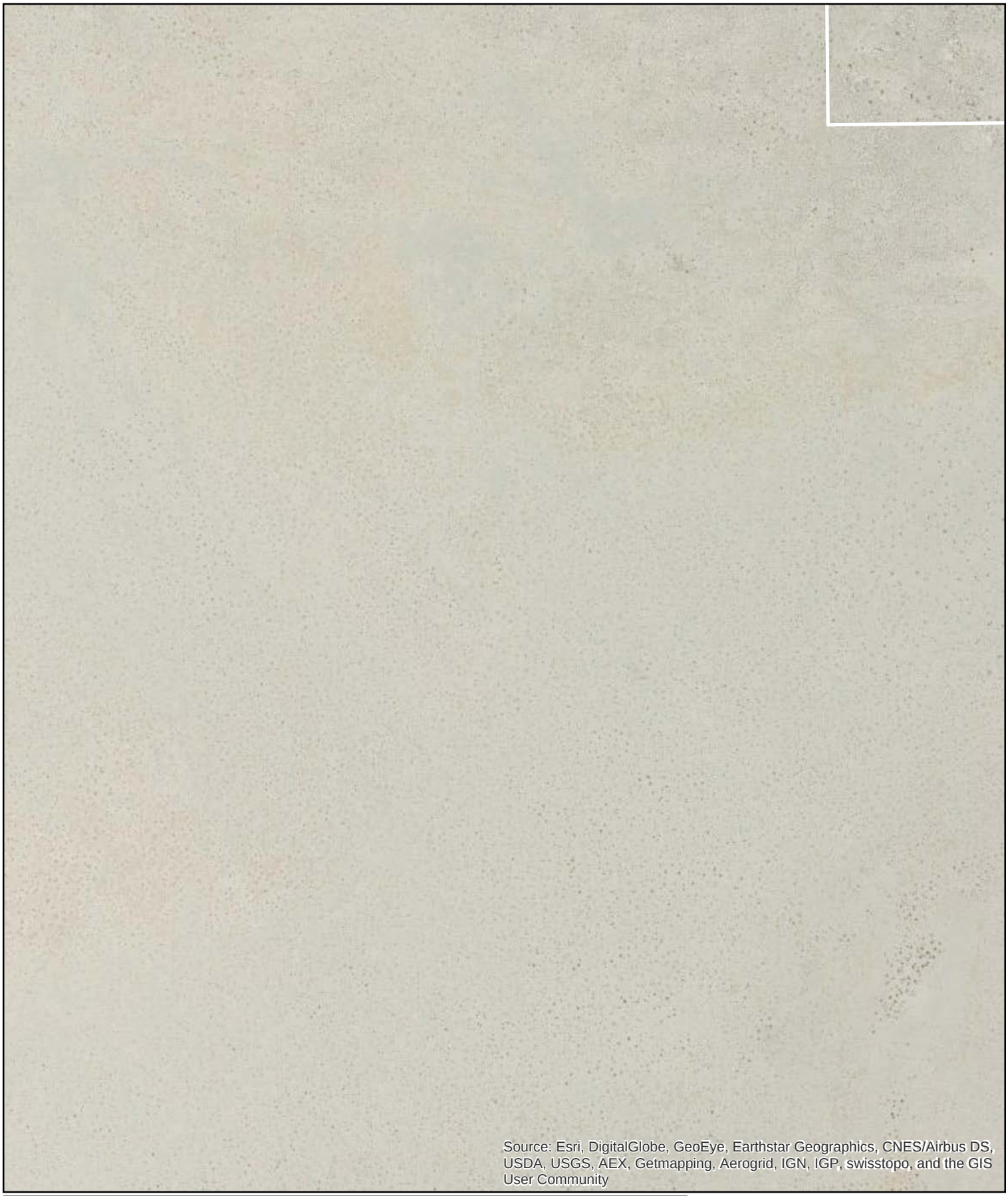
Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E 1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 6
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

E

E

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 7
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Study Area

Dirt Roadway (barrier to surface water hydrology)

General Overview Site Photograph

Representative Stream Photograph

Riverine Intermittent Streambed (ephemeral stream)

Excavated Riverine Intermittent Streambed (excavated ephemeral stream)

Riverine Intermittent Streambed (ephemeral streambed) not within study area

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 8

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Study Area
Dirt Roadway (barrier to surface water hydrology)
General Overview Site Photograph
Representative Stream Photograph
Riverine Intermittent Streambed (ephemeral stream)
Excavated Riverine Intermittent Streambed (excavated ephemeral stream)
Riverine Intermittent Streambed (ephemeral streambed) not within study area

Aerial Photography: Microsoft March 2011

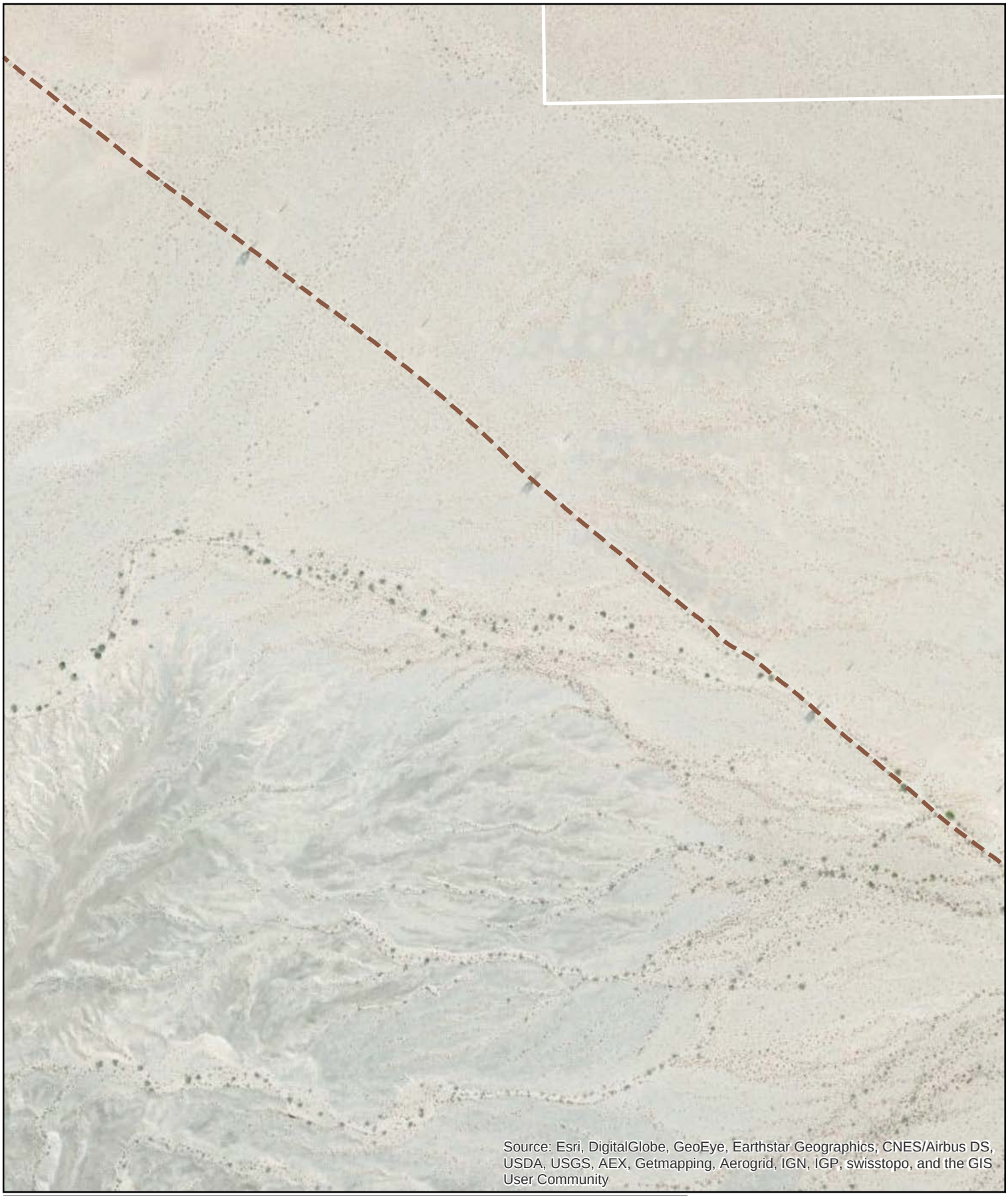
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Photo Point Locations, Sheet 9

Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

0 100 200 300 400 500 Feet
1 inch = 600 feet

E



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E

Aerial Photography: Microsoft March 2011

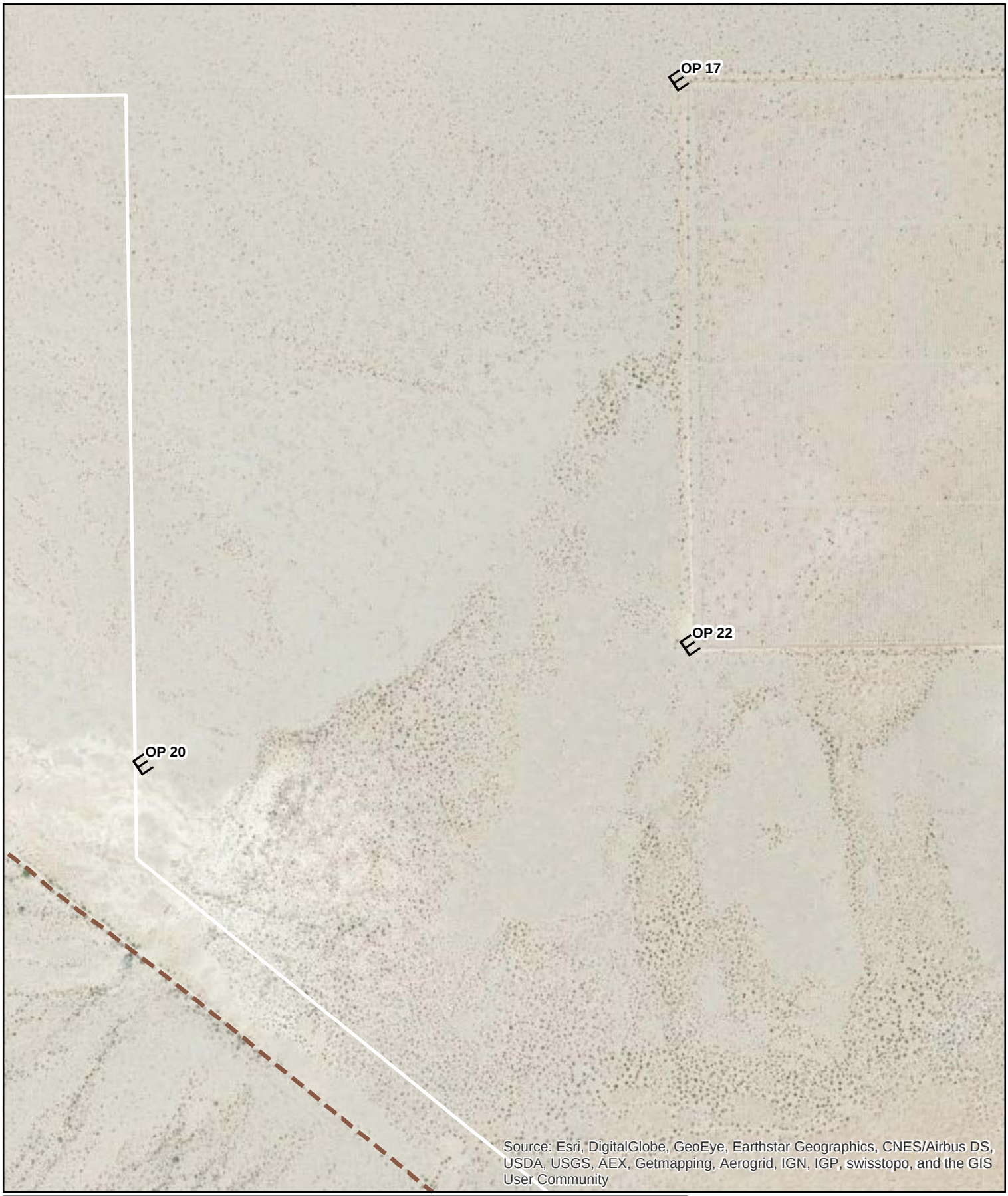
Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

E

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 10
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 11
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 12
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

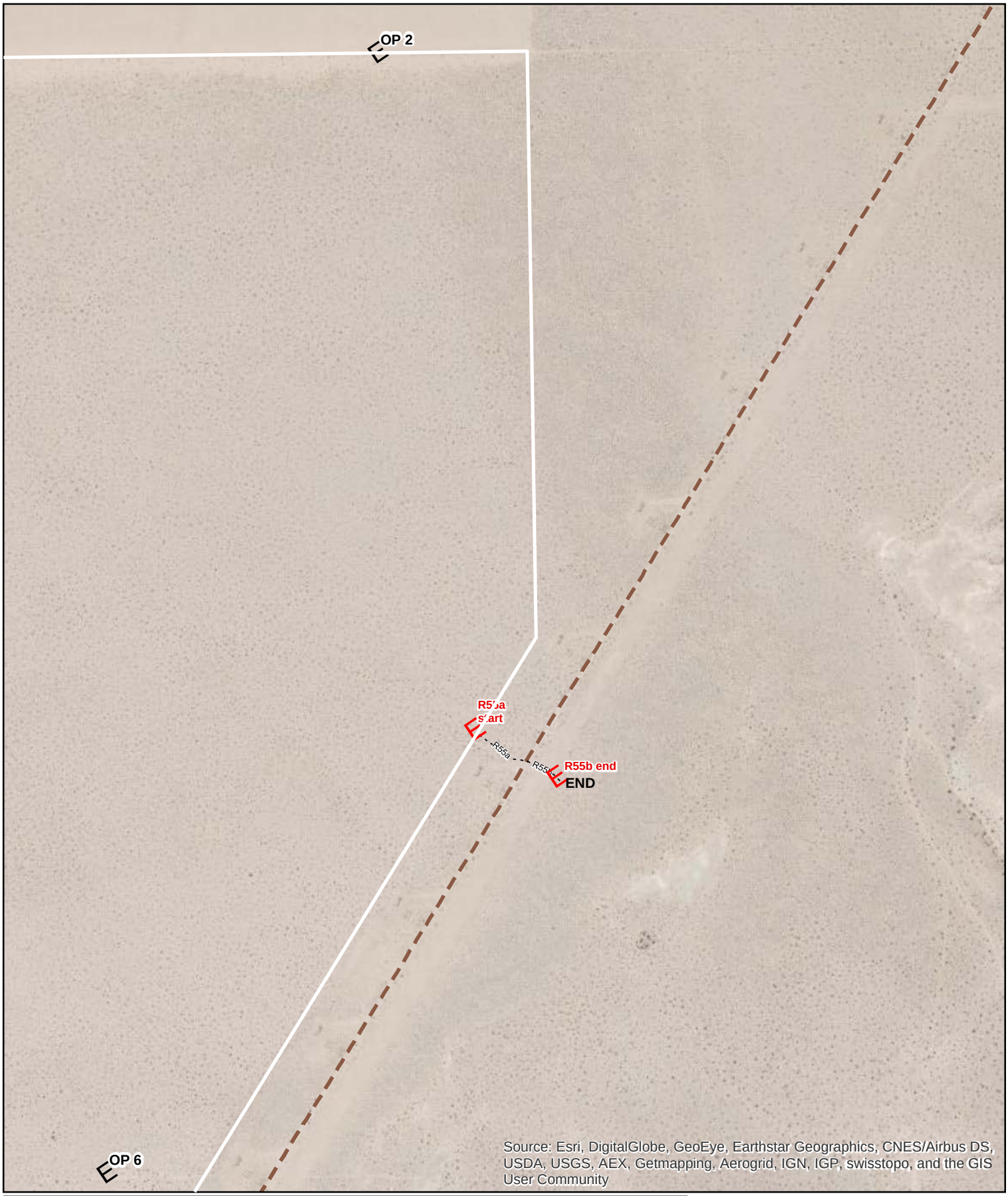
Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 13
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 14
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

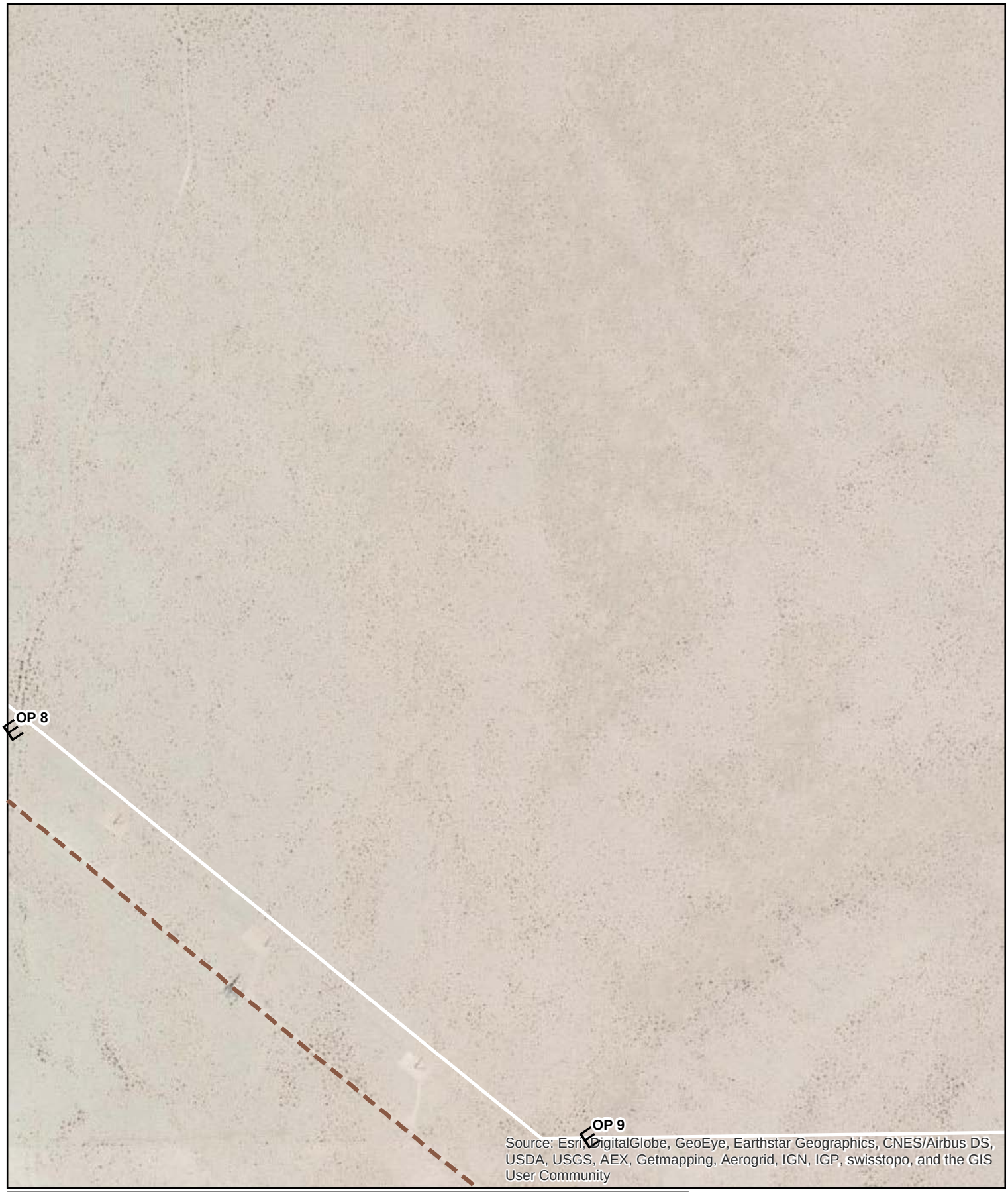
Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 15
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California



Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 16
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

Aerial Photography: Microsoft March 2011

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

1 inch = 600 feet

0 100 200 300 400 500 Feet

Photo Point Locations, Sheet 17
Desert Quartzite Solar Farm Project,
Blythe, Riverside County, California

R1 Offsite Drainage

R7A Start

R8B Start

R19 Start

R28 End

R37 End

R38 End

R38 Start

R52C Start

R54A Looking South

R54C End

R55A Start

R55B End

OP 2

OB 3

OP 4 East

OP 4 West

OP 5 East

OP 5 West

OP 6 East

OP 6 North

OP 6 West

OP 7 East

OP 8 East

OP 8 West

Figure 1OP 8

OP 9 North

OP 10 NW

OP 11

OP 12

OP 13

OP 14 South

OP 15 South

OP 15 West

OP 15 East

OP 15

OP 16 NE

OP 17 North

OP 17 South

OP 17 West

OP 17

OP 18 North

OP 19

OP 20

OP 21

OP 22

OP 23

OP 24

OP 25

APPENDIX G

Corps-Approved Jurisdictional Determination Form and Waters Upload Sheet

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

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

SECTION I: BACKGROUND INFORMATION

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

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: CA County/parish/borough: Riverside City: Blythe
Center coordinates of site (lat/long in degree decimal format): Lat. 114.756497° **N**, Long. 33.57895° **W**.
Universal Transverse Mercator: 11
Name of nearest waterbody: Colorado River;
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Colorado River
Name of watershed or Hydrologic Unit Code (HUC): HUC 12 Cinnabar Wash-Palo Verde Valley; 150301040804
☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

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

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Pick List** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: No; Waters not used or susceptal for use to transport interstate or foreign commenrce..

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Pick List** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

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

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 41,932 linear feet: 0.5 - 5.0 width (ft) and/or 2.24 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      Elevation of established OHWM (if known):Varies; empemeral riverine streambeds.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **Waters identified with OHWM lack hydrologic connection (surface or near surface) with no direct or indirect conection to TNW.**.

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

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

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

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

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

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

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

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

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

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

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

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

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

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: NO intrastate waters only.

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

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

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

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

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

Primary tributary substrate composition (check all that apply):

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

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

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

Surface flow is: **Pick List.** Characteristics: No information available.

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

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

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

☐ Discontinuous OHWM.[7] Explain: .

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

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

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

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

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

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

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

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

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

(b) General Flow Relationship with Non-TNW:

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

Surface flow is**: Pick List**

Characteristics: .

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

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

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

(d) Proximity (Relationship) to TNW

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

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

Flow is from: **Pick List.**

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

(ii) Chemical Characteristics:

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

Identify specific pollutants, if known: .

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

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

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

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

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

For each wetland, specify the following:

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

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

C. SIGNIFICANT NEXUS DETERMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Identify water body and summarize rationale supporting determination: .

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

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

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **These waters do not meet the "Significant Nexus" standard; they are not currently used, were not used in the past, and are not susceptible to use in interstate or foreign commerce; nor would "the use, degradation or destruction of" these waters affect interstate or foreign commerce..**

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

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☒ Non-wetland waters (i.e., rivers, streams): **41,932**linear feet, **0.5 - 5.0** width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: .
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Roosevelt Mine (1983), and Ripley (1952, rev.1975) USGS 7.5-minute quadrangles.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation:2015 NRCS On-line Soil Resources Report.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:None.
☐ 100-year Floodplain Elevation is:None(National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):March 2011.
or ☒ Other (Name & Date):On-site Photos taken 2014.
☐ Previous determination(s). File no. and date of response letter: .
☒ Applicable/supporting case law:Rapanos.
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify):see waters upload sheet attached..

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Corps Waters Upload Sheet

Waters_Name	Cowardin_Code	HGM_Code	Area (acres)	Linear (ft)	Waters Types	Latitude(dd nad83)	Longitude dd nad83)	Local_Waterway	width (OHWM) (ft)
R2	R6	RIVERINE	0.0132231	384	ISOLATED	33.60256320670	-114.76691263900	Cinnabar Wash-Palo Verde Valley	1.50
R3	R6	RIVERINE	0.0043159	376	ISOLATED	33.60255814590	-114.76851577800	Cinnabar Wash-Palo Verde Valley	0.50
R4	R6	RIVERINE	0.0047291	206	ISOLATED	33.60280524950	-114.76892049600	Cinnabar Wash-Palo Verde Valley	1.00
R5	R6	RIVERINE	0.0061524	268	ISOLATED	33.60272309850	-114.76896205900	Cinnabar Wash-Palo Verde Valley	1.00
R6	R6	RIVERINE	0.0397039	1153	ISOLATED	33.60183865080	-114.76741373600	Cinnabar Wash-Palo Verde Valley	1.50
R7a	R6	RIVERINE	0.0115243	251	ISOLATED	33.60165684980	-114.76707800500	Cinnabar Wash-Palo Verde Valley	2.00
R7b	R6	RIVERINE	0.0009871	86	ISOLATED	33.60156200000	-114.76657600000	Cinnabar Wash-Palo Verde Valley	0.50
R8a	R6	RIVERINE	0.0139118	606	ISOLATED	33.60198603230	-114.76794349000	Cinnabar Wash-Palo Verde Valley	1.00
R8b	R6	RIVERINE	0.0106061	231	ISOLATED	33.60143463590	-114.76681366800	Cinnabar Wash-Palo Verde Valley	2.00
R9	R6	RIVERINE	0.0089532	260	ISOLATED	33.60135891520	-114.76687288000	Cinnabar Wash-Palo Verde Valley	1.50
R10	R6	RIVERINE	0.0130624	569	ISOLATED	33.60134752140	-114.76711955300	Cinnabar Wash-Palo Verde Valley	1.00
R11	R6	RIVERINE	0.0089532	195	ISOLATED	33.60277794910	-114.77085859900	Cinnabar Wash-Palo Verde Valley	2.00
R12	R6	RIVERINE	0.0049587	108	ISOLATED	33.60269549950	-114.77077110100	Cinnabar Wash-Palo Verde Valley	2.00
R13	R6	RIVERINE	0.0171488	249	ISOLATED	33.60257235130	-114.77024036000	Cinnabar Wash-Palo Verde Valley	3.00
R14	R6	RIVERINE	0.0158402	230	ISOLATED	33.60237028370	-114.77030893100	Cinnabar Wash-Palo Verde Valley	3.00
R15	R6	RIVERINE	0.0097107	141	ISOLATED	33.60210860670	-114.76944525800	Cinnabar Wash-Palo Verde Valley	3.00
R16	R6	RIVERINE	0.0730946	796	ISOLATED	33.60188340790	-114.76885547500	Cinnabar Wash-Palo Verde Valley	4.00
R17	R6	RIVERINE	0.0179522	391	ISOLATED	33.60115960870	-114.76730833100	Cinnabar Wash-Palo Verde Valley	2.00
R18	R6	RIVERINE	0.0314509	685	ISOLATED	33.60061340790	-114.76687919200	Cinnabar Wash-Palo Verde Valley	2.00
R19	R6	RIVERINE	0.0130395	284	ISOLATED	33.60120368310	-114.76786859000	Cinnabar Wash-Palo Verde Valley	2.00
R20	R6	RIVERINE	0.0190083	414	ISOLATED	33.60084394560	-114.76735337900	Cinnabar Wash-Palo Verde Valley	2.00
R21	R6	RIVERINE	0.0103306	225	ISOLATED	33.60019093760	-114.76663556100	Cinnabar Wash-Palo Verde Valley	2.00
R22	R6	RIVERINE	0.0323691	705	ISOLATED	33.60218804170	-114.77309309200	Cinnabar Wash-Palo Verde Valley	2.00
R23	R6	RIVERINE	0.035101	1529	ISOLATED	33.60179190710	-114.77348249100	Cinnabar Wash-Palo Verde Valley	1.00
R24	R6	RIVERINE	0.0315886	688	ISOLATED	33.60040069980	-114.77105928800	Cinnabar Wash-Palo Verde Valley	2.00
R25	R6	RIVERINE	0.0466942	1017	ISOLATED	33.59951212120	-114.76952425600	Cinnabar Wash-Palo Verde Valley	2.00
R26	R6	RIVERINE	0.0162534	354	ISOLATED	33.59986259900	-114.76998750900	Cinnabar Wash-Palo Verde Valley	2.00
R27	R6	RIVERINE	0.0306703	668	ISOLATED	33.60030112250	-114.77015089700	Cinnabar Wash-Palo Verde Valley	2.00
R28	R6	RIVERINE	0.0456382	994	ISOLATED	33.59888076760	-114.76818959500	Cinnabar Wash-Palo Verde Valley	2.00
R29	R6	RIVERINE	0.3070248	4458	ISOLATED	33.60053472420	-114.77192446900	Cinnabar Wash-Palo Verde Valley	3.00
R30	R6	RIVERINE	0.0173554	378	ISOLATED	33.59927570560	-114.76939551100	Cinnabar Wash-Palo Verde Valley	2.00
R31	R6	RIVERINE	0.0041667	121	ISOLATED	33.60073971570	-114.77234950000	Cinnabar Wash-Palo Verde Valley	1.50
R32	R6	RIVERINE	0.0067493	196	ISOLATED	33.60063557540	-114.77227224800	Cinnabar Wash-Palo Verde Valley	1.50
R33	R6	RIVERINE	0.0225551	655	ISOLATED	33.60021076700	-114.77174218700	Cinnabar Wash-Palo Verde Valley	1.50
R34	R6	RIVERINE	0.1563361	1362	ISOLATED	33.59888308490	-114.76970072100	Cinnabar Wash-Palo Verde Valley	5.00
R35	R6	RIVERINE	0.055831	1216	ISOLATED	33.59798006460	-114.76787168300	Cinnabar Wash-Palo Verde Valley	2.00
R36	R6	RIVERINE	0.0326446	948	ISOLATED	33.59725254070	-114.76748268000	Cinnabar Wash-Palo Verde Valley	1.50
R37	R6	RIVERINE	0.0316804	276	ISOLATED	33.59720832730	-114.76783129200	Cinnabar Wash-Palo Verde Valley	5.00
R38	R6	RIVERINE	0.0427456	931	ISOLATED	33.59656116270	-114.76741391300	Cinnabar Wash-Palo Verde Valley	2.00
R39	R6	RIVERINE	0.0150138	436	ISOLATED	33.59702852040	-114.76815917000	Cinnabar Wash-Palo Verde Valley	1.50
R40	R6	RIVERINE	0.0337695	1471	ISOLATED	33.60146160230	-114.77365272100	Cinnabar Wash-Palo Verde Valley	1.00

R41	R6	RIVERINE	0.0782369	1136	ISOLATED	33.60178338500	-114.77469199500	Cinnabar Wash-Palo Verde Valley	3.00
R42	R6	RIVERINE	0.0453857	659	ISOLATED	33.60127786040	-114.77438465900	Cinnabar Wash-Palo Verde Valley	3.00
R43	R6	RIVERINE	0.0039256	114	ISOLATED	33.60279910310	-114.77700216900	Cinnabar Wash-Palo Verde Valley	1.50
R44	R6	RIVERINE	0.0044421	129	ISOLATED	33.60235958590	-114.77651288200	Cinnabar Wash-Palo Verde Valley	1.50
R45	R6	RIVERINE	0.0043388	126	ISOLATED	33.60238874570	-114.77658443500	Cinnabar Wash-Palo Verde Valley	1.50
R46	R6	RIVERINE	0.0652204	947	ISOLATED	33.60123497790	-114.77807526600	Cinnabar Wash-Palo Verde Valley	3.00
R47	R6	RIVERINE	0.0003214	7	ISOLATED	33.60186900000	-114.77909900000	Cinnabar Wash-Palo Verde Valley	2.00
R48	R6	RIVERINE	0.0061983	270	ISOLATED	33.60114789690	-114.77763369400	Cinnabar Wash-Palo Verde Valley	1.00
R49	R6	RIVERINE	0.0060836	265	ISOLATED	33.60109107210	-114.77731624800	Cinnabar Wash-Palo Verde Valley	1.00
R50	R6	RIVERINE	0.001056	23	ISOLATED	33.60167779300	-114.77912025300	Cinnabar Wash-Palo Verde Valley	2.00
R51a	R6	RIVERINE	0.0079201	69	ISOLATED	33.59679392450	-114.77299939600	Cinnabar Wash-Palo Verde Valley	5.00
R51b	R6	RIVERINE	0.1355372	2952	ISOLATED	33.59928377080	-114.77609871100	Cinnabar Wash-Palo Verde Valley	2.00
R51c	R6	RIVERINE	0.0467172	407	ISOLATED	33.59636714270	-114.77259344700	Cinnabar Wash-Palo Verde Valley	5.00
R52a	R6	RIVERINE	0.1020661	2223	ISOLATED	33.59459210680	-114.76969840400	Cinnabar Wash-Palo Verde Valley	2.00
R52b	R6	RIVERINE	0.0567952	1237	ISOLATED	33.59958275190	-114.77527072200	Cinnabar Wash-Palo Verde Valley	2.00
R52c	R6	RIVERINE	0.0780533	680	ISOLATED	33.59756075620	-114.77368120900	Cinnabar Wash-Palo Verde Valley	5.00
R52d	R6	RIVERINE	0.0643939	935	ISOLATED	33.59615214640	-114.77198198900	Cinnabar Wash-Palo Verde Valley	3.00
R53	R6	RIVERINE	0.1474747	1606	ISOLATED	33.59547817540	-114.76851253500	Cinnabar Wash-Palo Verde Valley	4.00
R54a	R6	RIVERINE	0.0024334	53	ISOLATED	33.58844300000	-114.75322000000	Cinnabar Wash-Palo Verde Valley	2.00
R54b	R6	RIVERINE	0.0523875	1141	ISOLATED	33.58838100000	-114.75132000000	Cinnabar Wash-Palo Verde Valley	2.00
R54c	R6	RIVERINE	0.0202938	442	ISOLATED	33.58838791650	-114.74884243500	Cinnabar Wash-Palo Verde Valley	2.00
			2.2421258	**41932**					

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1451 RESEARCH PARK DRIVE, SUITE 100
RIVERSIDE, CALIFORNIA 92507-2154

February 18, 2016

Terry Huffman, PhD
Huffman-Broadway Group, Inc.
828 Mission Avenue
San Rafael, California 94901

SUBJECT: Approved Jurisdictional Determination regarding geographic jurisdiction for the Desert Quartzite Project (SPL-2014-00535-JEM)

Dear Dr. Huffman:

I am responding to your request (File No. SPL-2014-00535-JEM) dated May 8, 2015, on behalf of First Solar Development, LLC, for an approved Department of the Army jurisdictional determination (JD) for the Desert Quartzite Solar Project site, located near the city of Blythe, Riverside County, California. The approximately 3,900 acre site is situated south of Interstate 10, approximately 8 miles southwest of Blythe, with centered coordinates of approximately 33.579 N, -114.756 W.

Based on your submitted materials, additional field data (October, 2015), and other jurisdictional determinations and available information, I have determined waters of the United States do not occur on the project site.

The aquatic resources identified as ephemeral streambeds and excavated ephemeral streambeds (both riverine) in project documentation you provided are intrastate isolated waters with no apparent interstate or foreign commerce connection. As such, these aquatic resources are not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Clean Water Act. Other federal, state, and local laws may apply to activities at the referenced project site. In particular, you may need authorization from the California State Water Resources Control Board, the California Department of Fish and Wildlife, and/or the U.S. Fish and Wildlife Service.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the particular project site identified in your request, and is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Thank you for participating in the regulatory program. If you have any questions, please contact me at 951-276-6624 x263 or via e-mail at James.E.Mace@usace.army.mil. Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

James E. Mace
Senior Project Manager
South Coast Branch
Regulatory Division