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Aquatic Resources Delineation Report for the Soda Mountain Solar Project, San Bernardino County, California

JANUARY 2025



PREPARED FOR

Soda Mountain Solar LLC

PREPARED BY

SWCA Environmental Consultants

AQUATIC RESOURCES DELINEATION REPORT FOR THE SODA MOUNTAIN SOLAR PROJECT, SAN BERNARDINO COUNTY, CALIFORNIA

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SWCA Project No. 68347

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EXECUTIVE SUMMARY

On behalf of Soda Mountain Solar LLC, SWCA Environmental Consultants (SWCA) completed an aquatic resources delineation for the proposed Soda Mountain Solar Project (project), located approximately 6 miles southwest of Baker in San Bernardino County, California, on land managed by the Bureau of Land Management (BLM), centered at approximately 35.147316° N, 116.176306° W. The project includes installation of a new photovoltaic solar power generation facility to provide 300 megawatts of energy capacity by connecting to the existing 500-kilovolt transmission line and grid.

Desktop data, field data, remote sensing data, and modeling and machine learning were used to delineate aquatic resources potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) pursuant to Clean Water Act (CWA) Section 404 (for discharge of fill material into "waters of the United States"), the California Water Boards by the Lahontan Regional Water Quality Control Board (RWQCB) pursuant to the CWA Section 401 (for discharge of fill material into "waters of the United States") and the Porter Cologne Water Quality Control Act (Porter-Cologne) waste discharge requirements (for discharge into "waters of the State"), and the California Department of Fish and Wildlife (CDFW) pursuant to the California Fish and Game Code Section 1602 Lake and Streambed Alteration Program and its subsequent revisions (for substantial changes to "streambed").

This delineation has been conducted in accordance with the *Corps of Engineers Wetland Delineation Manual* (USACE 1987) and regional supplements, including A Field Guide to the Identification of the *Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a) and the *Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (USACE 2022). In addition, guidance from *USACE Ordinary High Water Mark Identification* Regulatory Guidance Letter No. 05-05 (USACE 2005) was considered.

Potential federal jurisdiction was assessed pursuant to the current Waters of the United States (WOTUS) *Conforming Rule*, which took effect September 8, 2023 (USACE and U.S. Environmental Protection Agency 2023) and is currently in effect in the State of California. Under several prior waters of the United States federal regulations, including the Rapanos Guidance regulatory regime (2006–2015; 2021–2023 in California), Navigable Waters Protection Rule (2020–2021), and the Revised Definition of Waters of the United States rule (January 2023), the aquatic features in the project site met the criteria for being non-relatively permanent waters and isolated (through application of the 2001 Solid Waste Agency of Northern Cook County case under Rapanos Guidance) and therefore are not federally jurisdictional (see prior USACE Approved Jurisdictional Determination [Soda Mountain Solar (SPL-2010-01042-SLP) dated June 5, 2013]). In application of the WOTUS *Conforming Rule*, aquatic features fail to connect to a Traditional Navigable Water and therefore are not federally jurisdictional.

The study area coincides with the BLM right-of-way and project site. The "review area" where the aquatic resources survey occurred includes the project's study area (2,670 acres) and an additional area beyond the disturbance area. In 2024 the California Energy Commission (CEC) became the California Environmental Quality Act Lead Agency, and the Review Area was expanded to include aquatic features within 250 feet of the disturbance area to meet CEC requirements.

The aquatic resource findings of this report are summarized below:

Review area, survey size:	3,418 acres
Review area, potential waters of the Unites States:	0 acre
Review area, potential non-wetland waters of the State/CDFW 1600:	643.4 acres

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ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
FAC	facultative
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
GIS	geographic information system
GPS	Global Positioning System
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	ordinary high water mark
project site	area where the project is proposed
review area	area surveyed for aquatic resources
ROW	right of way
RWQCB	Regional Water Quality Control Board
study area	parcels where the project would occur
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WOUS	waters of the United States features as defined and delineated
WOTUS	waters of the United States in reference to the WOTUS rule

1 INTRODUCTION

1.1 Contact Information

Applicant: Soda Mountain Solar, LLC.

Property Owner: United States Bureau of Land Management (BLM).

Agent:SWCA Environmental Consultants, Pasadena, California.Luis Aguilar, Professional Wetland Scientist (PWS), Principal Wetland Scientist.

1.2 Location and Desktop Review

1.2.1 Location

The project site is in San Bernardino County (**Figure 1**) near the city of Baker, within portions of Sections 1 and 11–14, Township 12 North, Range 7 East; Sections 25 and 36, Township 13 North, Range 7 East; and Sections 6, 7, 8, and 18, Township 13 North, Range 8 East, San Bernardino Meridian, California, as shown on the U.S. Geological Survey (USGS) San Bernardino 7.5-minute quadrangle (**Figure 2; Figure A-2 in Appendix A**). The project site is centered at approximately 35.147316°, - 116.176306° in the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert and extends approximately 8.5 miles along the southeast side of Interstate 15 (Mojave Freeway).

The project site occurs on the following San Bernardino County Assessor's Parcel Numbers (APN): 0543-24-117-0000, 0543-24-119-0000, 0543-20-107-0000, 0543-25-101-0000, 0543-20-110-0000, 054320-109-0000, 0543-25-112-0000, and 0543-21-118-0000.

The site may be reached by traveling east on Interstate 10 from Los Angeles, then taking Interstate 15 north approximately 166 miles and passing Barstow, exiting Rasor Road at the Rasor Road Services Shell Oil gas station (66150 Rasor Road, Baker, California 92309), and then following the unpaved portion of Rasor Road onto the project site.

The review area (approximately 3,418 acres; see **Figure 2**) is the area surveyed for indicators and characteristics that distinguish aquatic resources; it is larger than the 2,670-acre project site.



Figure 1. Project site vicinity.



Figure 2. Project site and review area on USGS 7.5-minute quadrangle base.

1.3 **Project Description**

The project includes installation of a new photovoltaic solar power generation facility with four array areas and a new 500-kilovolt generation tie line connected to the existing grid, to provide 300 megawatts of energy capacity.

The project includes four arrays where solar panels would be installed: East Array (341 acres), South Array 1 (205 acres), South Array 2 (632 acres), and South Array 3 (326 acres) (**Figure 3**). A substation pad would be constructed between East Array and South Array 1 adjacent to a laydown yard and equipment storage area. A switchyard would be installed near the end of the generation tie line. Inverters would be installed within the footprint of the arrays. Grading using heavy equipment would occur within portions of the arrays to prepare for construction, resulting in an estimated 71,000 cubic yards of cut and 91,000 cubic yards of fill, or 20,000 cubic yards of net fill. Two temporary laydown yards would be used to store equipment and project-related materials. Fences and gates would be installed to keep wildlife out of construction and work areas, and for permanent security.

A portion of the existing dirt access road (Rasor Road) would be graded to approximately 20 feet wide, compacted, and filled with cemented soil and gravel. New 16-foot-wide access roads would be established by grading within the arrays with turnaround end points. Concrete box culverts at road crossings would be 3 feet tall with four openings each 12 feet wide. Constructed low water crossings would be installed roughly at-grade of geotextile fabric and riprap.

Three constructed drainage channels with outlets would be installed between East Array and South Array 1, between South Array 1 and South Array 2, and between South Array 2 and South Array 3 to collect and manage water used for solar panel cleaning. Drainage Channel 1 would be 60 feet wide and 2,700 feet long, Channel 2 would be 80 feet wide and 4,984 feet long, and Channel 3 would be 60 feet wide and 8,056 feet long, and each would be 3 feet deep.

All water for construction dust control and solar panel cleaning would be imported from off-site. Eight temporary sediment detention basins of varied dimensions would be installed adjacent to the arrays. Temporary water diversion ditches installed across the site would control water and sediment during construction. Temporary (earthen) and permanent (earthen with fabric and riprap) water diversion berms (3 feet high \times 20 feet wide) would be constructed. Permanent berms would be located between Interstate 15 and the arrays to divert flows entering the site from under-highway culverts and road runoff. Standard Best Management Practices would be employed before and during construction, including drainage features described above and erosion control.



Figure 3. Draft design showing arrays and project components.

1.4 Desktop Review

Existing desktop information was reviewed to assess and summarize land use, weather, geology, soils, hydrology, vegetation, and general conditions of the site and its vicinity.

1.4.1 Land Use

The entire site is open space and managed by the Bureau of Land Management (BLM). An on-site dirt road, Rasor Road, provides vehicle access from the Rasor Road Services Shell Oil gas station (off-site) to the nearby Rasor Off-Highway Vehicle (OHV) Area (also off-site) which is managed by BLM. Rasor Road within the project site is a BLM ground transportation feature (Road AC8828). Although the project site is not within an OHV area, vehicle tracks and disturbance are prevalent across the project site in multiple areas, frequently coinciding with drainage areas.

Aerial imagery over multiple years was reviewed on Google Earth Pro, HistoricAerials.com, and University of California Santa Barbara Frame Finder online to assess landscape level conditions and use over time. Interstate 15 (Mojave Freeway) is a multi-lane highway established in 1966, which was formerly U.S. Route 91 which has been in place since prior to 1947, thus for at least the last 76 years. It is a highly used interstate providing access across the Mojave Desert from Southern California to Las Vegas, Nevada. Aerial imagery from 1952 and 1995 (**Figures 4 and 5; Figures A-4 and A-5a in Appendix A**) shows site conditions are overall unchanged, despite a 43-year difference between images.

1.4.2 Weather

The site is within the Mojave Desert, which is characterized by hot summer temperatures and cool winters. High temperatures in the summer typically exceed 100 degrees Fahrenheit, and the winter lows typically drop to freezing temperatures (National Park Service 2023). Large temperature fluctuations are typical within a day. The Mojave Desert has two distinct rainy periods per year (winter and late summer) with low annual precipitation. Most of the annual precipitation falls between November and April, with May and June being the driest months.

Total annual precipitation data from USGS Parameter elevation Regression on Independent Slopes Model (PRISM) Climate Data (USGS 2023a) between 1991 and 2020 was modeled between 4.2 and 4.4 inches at the project site (**Figure 6; Figure A-6 in Appendix A**).

Climate data from the closest National Oceanic and Atmospheric Administration local climatological data station database, Bicycle Lake Fort Irwin Army Air Field, California (Network ID: WBAN:03182), located approximately 26 miles northwest of the site at coordinates 35.28333°, -116.63333°, shows an annual precipitation range from a low of 0.96 inch in 2021 to a high of 6.76 inches in 2019. Average monthly precipitation in the same 9-year period ranges from a low of 0.08 inch in June to a high of 0.66 inch in January. Closer to the review area, the site received an average of 2.96 inches of annual precipitation over the previous 9 years (January 2014–December 2022) (National Oceanic and Atmospheric Administration 2023).



Figure 4. Project site on historic aerial image (1952; UCSB FrameFinder).



Figure 5. Project site on historic aerial image (1995; Google Earth Pro).



Figure 6. USGS PRISM data total annual precipitation.

The USACE Antecedent Precipitation Tool version 2 was run for the project center point to assess precipitation conditions during the winters of 2020, 2021, and 2022 and during the dates fields surveys were conducted in 2023. Weather stations used by the Antecedent Precipitation Tool include Barstow-Daggett AP (39 miles away), Barstow 4.2 NE (14 miles away), and Goldstone Echo #2 (29 miles away). Antecedent Precipitation Scores indicate how much drier or wetter conditions were that month compared with the 30-Year Normal Range (**Table 1**). Palmer's Drought Severity Index is used to interpret how drought may affect the Antecedent Precipitation Score and Condition. Precipitation conditions in the region varied by year and season with an overall trend from 2020 to 2023 of drier to wetter conditions. Overall conditions during the site visits in summer (dry season) were either normal or wetter than normal when compared with the 30-Year Normal Range (see **Table 1**).

Date	Field Survey	PDSI Value*	PDSI Class	Season	Antecedent Precipitation Score/Condition
2020 January 15		-0.69	Incipient drought	Wet Season	17 (Wetter than Normal)
2021 January 15		-3.3	Severe drought	Wet Season	7 (Drier than Normal)
2022 January 15		-3.56	Severe drought	Wet Season	13 (Normal Conditions)
2023 January 15		1.18	Mild wetness	Wet Season	16 (Wetter than Normal)
2023 May 22	x	2.44	Moderate wetness	Dry Season	13 (Normal Conditions)
2023 June 12	x	2.63	Moderate wetness	Dry Season	16 (Wetter than Normal)
2023 September 6	x	3.14	Severe wetness	Dry Season	15 (Wetter than Normal)

Table 1. Antecedent Precipitation Tool Data for the Project Region

PDSI = Palmer's Drought Severity Index

1.4.3 Geology and Soils

The site is positioned in a low-lying historic alluvial fan basin valley dividing the northern and southern portions of the Soda Mountains. Geologic composition is defined by the California Geologic Survey as primarily young subsurface Quaternary-aged (late to middle Holocene era, 4,200 to 8,200 years ago) alluvial deposits (code Qyf) characterized as material above active wash made of partially developed soil profiles (**Figure 7; Figures A-7 in Appendix A**) (Lancaster et al. 2012).

Natural Resources Conservation Service (NRCS) State Soil Geographic (STATSGO 2) Digital General Soil Map online data (NRCS 2006) were reviewed to assess general climate information, wetness characteristics of soils, soil properties (frequency, duration, and timing of inundation), and soil classification (soil series and phases).

Four soil series are mapped within the review area (NRCS 2023): Tecopa-Rock outcrop-Lithic Torriorthents (s1126) (well-drained; calcareous; loamy), Rock outcrop (s1131) (somewhat excessively drained; calcareous; loamy), Rositas-Carrizo (s1137) (somewhat excessively drained), and Rillito-Gunsight (s1140) (somewhat excessively drained; loamy) (**Figure 8; Figure A-8 in Appendix A**). Soils within the review area are generally composed of Rositas-Carrizo soils which are very deep, excessively drained soils formed in mixed igneous alluvium. The series is extremely gravelly sand covered by approximately 70% gravel, which moderate alkalinity (pH 8.0) (NRCS 2023). Texture in the A horizon (top 5 centimeters) is coarse sand, sand, loamy sand, loamy coarse sand, sandy loam, or fine sandy loam.



Figure 7. California Geological Survey geologic material types primarily composed of young alluvial fan deposits in the project site.



Figure 8. Soil series types.

Soils in this region have high levels of calcium carbonate (lime), a natural cement-like material, often referred to as "caliche". Caliche forms in the soil profile of desert alluvial fan environments of arid regions because of water infiltration and evaporation. Its impermeability and presence can affect soil structure, hydrology, vegetation patterns, and other processes.

Aeolian processes play a role on the surface of the land within and outside drainages. Aeolian processes refer to the movement, transport, and deposition of sediment by the wind. Dry fine soil particles are picked up by strong winds and carried for varying distances before being deposited, leaving behind coarser material on the surface, causing deflation. These aeolian processes shape the overall desert landscape, including landforms, erosion, and sediment distribution. Further, the process contributes to the formation of desert pavement, a rocky dark surface covered with tightly packed pebbles and larger fragments. Weathering spanning hundreds or thousands of years causes the desert pavement to gradually become varnished with a polished, dark appearance. Areas of younger desert pavement also have tightly packed rocks and a darkened color, but they are relatively lighter in color than black varnished pavement.

1.4.4 Hydrology

The study area is situated in the Mojave Watershed (Hydrologic Unit Code [HUC]-8 18090208) and sub-watersheds (HUC-12 180902082502) (19,830 acres) and partially within HUC-12 180902082504 (21,888 acres) and HUC-12 180902081706 (21,809.75 acres) (**Figure 9**) (USGS 2023b). Hydrology in the vicinity generally flows from west to east and then once on-site drains in two diverging directions, with the northern portion of the site draining north, terminating in Soda Dry Lake, and the southern portion draining south, also terminating in Soda Dry Lake. Soda Dry Lake is a playa in the Mojave Desert that periodically holds water after rainfall and comprises salt and alkali deposits. Soda Dry Lake does not drain to waters of the United States (WOUS) or Traditional Navigable Water (TNW) (**Figure 10**). A small portion of the lower left corner of the site is part of the watershed that ultimately drains to Cronise Valley and East Cronise Lake, also a dry lakebed with no outlet that does not drain to a WOUS or TNW.

The study area is in the Soda Lake Valley groundwater basin surrounded by Soda Lake Valley Highlands, with a small area in the southern portion of the project site draining to East Cronise Lake, which is surrounded by Cronise Valley Highlands (**Figure 11**).

The study area is within a Federal Emergency Management Agency (FEMA) flood hazard area Zone D, which represents areas with possible but undetermined flood hazards (FEMA 2020).

Hydrology within these watersheds at the site have been historically disturbed following construction of Interstate 15; flow concentrates on the highway's north side and is conveyed through a series of underpass culverts directed onto the project site.

The USGS StreamStats (USGS 2003c) drainage area at the site includes the Soda Mountains, which are located on either side of the study area. StreamStats reports the drainage area as 24.7 square miles ranging in elevation from 989 to 3,642 feet with a mean basin elevation of 1,792 feet.

USGS StreamStats Peak Flow Statistics Flow Report data calculate the 50% flood event (2-year storm / return interval) at 52.2 cubic feet per second (Average Standard Error 214) and the 1% flood event (100-year storm / return interval) at 6,840 cubic feet per second (Average Standard Error 444). Conceptually, a 50% flood event appears as 52 cubic boxes each 1 cubic foot flowing past a single point every second. Similarly, a 1% flood event would appear as 6,840 cubic boxes each 1 cubic foot flowing past a single point every second. Bankfull Statistics Flow Report data of estimated channel width and depth are highly variable, between 20.5 and 39.4 feet wide and averaging 0.9 foot deep.



Figure 9. NHD HUC-12 watersheds and general flow directions.



Figure 10. Drainage flow paths from site to isolated dry lakes.



Figure 11. Groundwater basins.

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps shows the classification of aquatic resources including regime modifiers, flooding, and soil saturation characteristics (USFWS 2022). Fifteen linear NWI riverine features intersect or traverse the review area (**Figure 12**; **Figure A-12 in Appendix A**). The codes are shown below (**Table 2**).

Feature(s)	Code	Acres	Code Description
1 Riverine	R4SBjx	6.05	Riverine, Intermittent, Streambed, Intermittently Flooded*, Excavated
2–15 Riverine	R4SBj	51.4	Riverine, Intermittent, Streambed, Intermittently Flooded*

Table 2. NWI Features

*Intermittently Flooded: The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation.

USGS National Hydrography Dataset (NHD) maps show potential location and extent of watercourses and streams, drainage patterns, topographic models, and other hydrologic information. NHD features are mapped similar to NWI and are all categorized by NHD as having 'ephemeral' stream flow (**Figure 13**). As shown by NHD arrows, flow direction travels north in the northern section of the project and southeast in the southern portion.

The study area is within a portion of a large historic alluvial fan system dating back to the Quaternary era (Griffith et al. 2016). Portions of the multi-part historic alluvial fan system are abandoned amongst upland desert pavement and are intersected by Interstate 15 (Mojave Freeway) along the western extent of the project. Hydrologic connectivity of areas on the northwest side to the southeast side of Interstate 15 within the study area are highly modified by the intersecting freeway. This adjacent portion of Interstate 15 includes four large box culverts—Turtle Ditch, Opah Ditch, Marl Ditch, and Unnamed Ditch—under the freeway to convey upslope flows to downslope areas within the study area (**Figure 14; Figure A-14 in Appendix A**).

Freeway culvert Turtle Ditch is 17.5 feet wide, and there is about 5 feet between the surface ground level and the top of the culvert. Opah Ditch is the widest ditch at 77 feet, and there is between 4 and 7 feet between the surface ground level and the top of the culvert. Marl Ditch is 17.5 feet wide, and there is about 8 feet between the surface ground level and the top of the culvert. The Unnamed Ditch is 8 feet wide, and there is about 5 feet between the surface ground level and the top of the culvert. The Unnamed Ditch is 8 feet wide, and there is about 5 feet between the surface ground level and the top of the culvert. These culverts provide a total of 120 feet of width along the 4.3-mile (22,704 feet) section of freeway for any upslope flows to pass into the study area. A berm along the north side of the highway and subsequent ditch direct flows along the toe of the berm toward each of the culverts. As a result, hydrologic flows are significantly restricted, causing abnormal concentration of water on the upslope side of the freeway within a ditch and through the culverts at volumes and velocities different than historical conditions. Such concentrations of flow have caused these broad alluvial channels to be confined into concentrated singular channels at the culverts, which then disperse in the study area into compound channels.

The freeway slopes from approximately 1,500 feet at its southwest end to 1,300 feet at its northeast end, descending at an average 1% grade decline. In addition to the four large under-freeway culverts, the freeway itself serves as an impervious surface to concentrate and convey rainfall. The paved freeway includes a short paved elevated berm along its outer edge on the downslope side with constructed disruptions, or water conveyance flumes in the berm which convey water off the freeway into the study area. There are approximately 23 flumes each spaced between 400 and 1,300 feet apart along the freeway's edge (see Figure 13). Ten of the flumes have trees (approximately 12 feet in height) associated with topographic depressions immediately downslope of the flume.



Figure 12. NWI aquatic features.



Figure 13. NHD aquatic features and flow direction.



Figure 14. Features affecting hydrology.

As part of project-related studies, a hydraulic analysis was conducted to assess hydrology, with the results reported in the September 2023 *Soda Mountain Solar Project Stormwater Drainage Report, San Bernardino, California* (SWCA 2023). The analysis included the application of USACE's Hydrologic Engineering Center's River Analysis System (HEC-RAS) software, which is widely used for modeling, simulating, and analyzing channel hydraulics. HEC-RAS uses digital elevation model and precipitation data to produce an informed model of flow conditions. A copy of the final map showing the model's output for the 10-Year depth is provided in **Appendix B**.

1.4.5 Vegetation Communities

Ecoregions are described by the U.S. Environmental Protection Agency (EPA) as areas where ecosystems (type, quality, quantity of resources) are generally similar (Griffith et al. 2016). The study area is in the U.S. EPA Level III ecoregion, Mojave Basin and Range (code 14). The Mojave Basin and Range has a dry subtropical desert climate with hot summers and warm winters and is one of the hottest places on the continent. Desert vegetation is sparse and dominated by creosote bush (*Larrea tridentata*).

Vegetation community surveys conducted by SWCA in 2023 following *A Manual of California Vegetation* version 2 online (CNPS 2023) include the following vegetation communities ordered from most prevalent to least: Creosote Bush – White Bursage Scrub; Creosote Bush Scrub, Rigid Spineflower – Hairy Desert Sunflower (*Chorizanthe rigida – Geraea canescens* Desert Pavement Association); Cheesebush (Sweetbush Scrub) (*Ambrosia Salsola – Bebbia junc*ea Shrubland Alliance); and California joint fir – longleaf joint-fir scrub (*Ephedra californica – Ambrosia salsola* Association). Each constituent species and its wetland indicator rating are provided in **Table 3** (USACE 2020).

Scientific Name	Common Name	Wetland Indicator Status*
Ambrosia dumosa	White bursage scrub	Not listed
Ambrosia salsola	Cheesebush	Not listed
Chorizanthe rigida	Rigid spineflower	Not listed
Ephedra californica	California joint fir	Not listed
Ephedra trifurca	Longleaf joint fir scrub	Not listed
Geraea canescens	Hairy desert sunflower	Not listed
Larrea tridentata	Creosote bush	Not listed

Table 3. Vegetation Community Species

*The USACE National Wetland Plant List indicator status of 'Not listed' also typically infers the species is an upland species.

The study area is not located within or near USFWS-designated Endangered Species Act Critical Habitat. The closest Critical Habitat is desert tortoise (*Gopherus agassizii*) and is approximately 6.8 miles west and outside of the site.

1.5 Regulatory Background

1.5.1 Clean Water Act Section 404

The Clean Water Act (CWA) was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters by regulating discharges of pollutants. The CWA provides USACE and EPA the authority to issue permits for activities that may result in a discharge unless the activity is exempt.

The Definition of Waters of the United States (33 Code of Federal Regulations [CFR] 328) was revised by the 2023 WOTUS rule and its final rule amendment which took effect September 8, 2023 ('Conforming Rule') (Federal Register 61964 Volume 88 No. 173). In general, WOUS are waterbodies such as lakes, rivers, streams, wetlands, and ponds.

WOUS include navigable waters, certain non-wetland waters, and adjacent wetlands with a continuous surface connection to a WOUS. Non-wetland WOUS, such as streams, are delineated by the Ordinary High Water Mark (OHWM) and must have a continuous surface connection to a WOUS that has a continuous surface connection a TNW. Non-wetland WOUS streams may be relatively permanent waters or non-relatively permanent waters as determined by USACE. The OHWM is defined as "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" (33 CFR 329.11). In situations where an alluvial fan braided stream system has channels located close to one another with small upland areas in between, likened to capillaries of tissue, both the aquatic and upland areas may all be combined within the full outer bounds of the WOUS extent (see 9th Circuit court case Save Our Sonoran Inc. v. Flowers, 2004).

1.5.1.1 USACE JURISDICTIONAL DETERMINATION HISTORY

An Approved Jurisdictional Determination (AJD) reviewed by the USACE under *Rapanos Guidance* (2008c) for the Soda Mountain Solar Project, File Number SPL-2010-01042-SLP, was issued June 5, 2013, covering 411 acres of delineated features within a larger study area than the current revised project. The AJD found that flows on-site extend both northeast and southeast into Soda Dry Lake. In the AJD, USACE used jurisdictional report information submitted by Panorama Environmental Inc. dated November 2009 and 2013. USACE found acreages of the drainage areas (active floodplain) were "accurately calculated using GIS data and polygons". The USACE concluded the drainages were isolated non-relatively permanent waters that are tributary to an isolated, intrastate dry lake, and not ultimately tributary to a TNW. USACE concluded all 411 acres of delineated features as non-jurisdictional.

In addition to the AJD, USACE issued an associated *Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction* letter, and *Determination regarding requirement for department of the Army Permit* letter, both dated August 21, 2013, which expired 5 years later in 2018.

1.5.2 California Fish and Game Code Section 1600 et seq.

California Department of Fish and Wildlife (CDFW) in practice takes jurisdictional authority under the California Fish and Game Code (FGC) Sections 1600–1616 et seq. (CFGC 2017) of the bed and bank of lakes and streams that may support wildlife, aquatic life, and riparian habitat. The streambed is interpreted by CDFW to include the top of bank extending on one side of the aquatic feature to its opposite top of bank, and if riparian vegetation is present, extends to the riparian vegetation edge (drip line).

In dryland systems where sediment transport is high and flow conditions are variable, episodic channel configurations with multiple interconnected features occur across broad flat areas where the outer bounds of a defined bed and bank forms are typically subtle and lack topographic relief. In addition, the bed and bank bounds of single and compound channels may be shared or different depending on conditions. In these arid systems, it is common for channels to become abandoned and not be reengaged by flow events for years or decades. Relic channels, which may exhibit a topographic low relative to their surroundings, are evident by the lack of fluvial indicators and/or having transitioned into uplands.

Section 1602 of the FGC requires an entity to notify CDFW before commencing an activity that will "substantially divert or obstruct the natural flow, or substantially change or use any material from the bed, channel or bank of any river, stream, or lake." Following notification, CDFW determines whether a Lake and Streambed Alteration (LSA) Agreement is required.

1.5.2.1 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE PERMIT HISTORY

A CDFW LSA Agreement (File Number 1600-2016-0237-R6) was previously issued for the former project (slightly different scope), for 372.67 acres of impacts to jurisdictional streambed. No work was completed, and the LSA expired March 24, 2022. The project scope has since been reduced. The California Energy Commission (CEC) is the new California Environmental Quality Act (CEQA) Lead Agency for the Environmental Impact Report.

1.5.3 Water Board Waste Discharge Requirement

The California Water Boards regulate discharges of waste to protect the quality of waters of the State, broadly defined as "the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affects its use" (California Water Code Section 13050). All surface waters and groundwaters are considered waters of the State. All waters of the State are also managed for beneficial uses under California law. Examples of discharge of waste may include any deleterious material such as earthen materials (soil, silt, sand, clay, rock, or other organic or mineral material) and any other waste as defined.

The Water Board regulates "waters of the State" under both the CWA and the state Porter-Cologne Water Quality Control Act (California Code of Regulations Title 23). Because federally regulated WOUS are not present at the project site under Section 404 of the CWA, fill activities to waters of the State are regulated under the Porter-Cologne Water Quality Control Act, making the applicable permit the Waste Discharge Requirement.

Although federally regulated WOUS are not present, the Water Board and Lahontan Regional Water Quality Control Board (Lahontan RWQCB) apply methods in USACE delineation manuals to assess aquatic features. It is common practice for the Water Board to rely on the USACE's review and verification of delineations including AJDs. An AJD request for the project may be submitted to the USACE for re-verification that federal jurisdiction is absent, which if obtained would be shared with the Water Board.

The project is in the South Lahontan Basin area of the Mojave River Hydrologic Area, in Bulletin 118 Groundwater Basin 6-033 (Soda Lake Valley) (Water Board 2015). The Lahontan RWQCB implements the Water Quality Control Plan for the Lahontan Region (Basin Plan) and is a responsible agency pursuant to the CEQA.

1.5.3.1 WATER BOARD PERMIT HISTORY

A previous delineation was conducted in 2009 by URS and 2012 by Panorama Environmental Inc. The 2012 map shows waters of the State. Note, the prior 2013 project had included a groundwater draw component, which is no longer part of the current project. It is not known whether a Waste Discharge Requirement permit was drafted by the Water Board at the time.

Previous letter correspondence in 2012 from the Lahontan RWQCB indicates several Beneficial Uses of Water occur in the subject basin, including municipal and domestic supply, agricultural supply, groundwater recharge, freshwater replenishment, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, preservation of biological habitats of special significance, rare threatened and endangered species, spawning reproduction and development, water quality enhancement, and flood peak attenuation/flood water storage.

2 METHODS

2.1 Field Delineation Survey

2.1.1 Introduction

An aquatic resources delineation field survey was led by an experienced SWCA delineator and conducted by a team over 13 days, during May 22–26, June 12–16, and September 6–8, 2023. Data and photographs were recorded, along with location and heading. All data were recorded using the Esri ArcGIS Field Maps collector application paired to a Juniper Systems Geode GPS unit set to submeter accuracy. Following the collection of field data, data were reviewed and used to inform a delineation model. The delineation model was produced using several input data layers and delineator training data, which are discussed in Section 2.3 below.

In 2024 the California Energy Commission (CEC) became the California Environmental Quality Act Lead Agency and this ARDR was updated to include an expanded Review Area extending 250 feet from the edge of the Limits of Disturbance around the entire site. For some areas within the 250-foot area that were not previously mapped, a lead delineator mapped aquatic resources by desktop only. These features were incorporated into the maps and tables. In addition, to meet CEC mapping requirements maps were revised to display at a 1:24,000 scale.

This delineation has been conducted in accordance with the *Corps of Engineers Wetland Delineation Manual* (USACE 1987) and regional supplements, including *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a), *Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b), and *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (USACE 2022). In addition, guidance from USACE Ordinary High Water Mark Identification Regulatory Guidance Letter No. 05-05 (USACE 2005) was considered.

2.1.2 Transect Surveys

As described in Regulatory Guidance Letter 05-05 (USACE 2005) "where physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, the OHWM may be determined by using other appropriate means that consider the characteristics of the surrounding areas." Because many areas on the site have very subtle or inconclusive OHWM indicators, it was important to be able to recognize and categorize indicators associated with uplands and transitionary zones before setting out to identify the OHWM and streambed. Therefore, the first field visit included conducting a large-scale transect survey to understand site conditions and site-specific common indicators.

Based on field observation, the lead delineator prepared a data form including upland, out of channel, and fluvial indicators prevalent and distinguishable at the site, along with descriptions and photographic examples for the team. The purpose of the list was to facilitate rapid and consistent evaluation at each sample plot by multiple field delineators. The indicators for upland, out of channel, and fluvial indicators in each zone are summarized in **Table 4**.

Ten transects (Transects 1–10) were placed by desktop, oriented perpendicular to the direction of stream flow to capture indicators at points across hundreds of channels. Six transects were 2,000 meters long (T1, T2, T4, T5, T6, T8), one transect (T9) was 900 meters long, one transect (T10) was 600 meters long, and two transects were 1,400 meters long (T3 and T7), with each evaluation point placed approximately 50 meters apart, resulting in about 40 evaluation points per transect depending on transect length. For each transect, the surveyor recorded a data point every 50 meters. If a point was located between two or more different zones, the point location was shifted to capture just one zone type.

Category	Indicators
Upland – Desert pavement and dark in place substrates	Vesicular pores, caliche coatings layers or fragments, deflated surface of scattered pebbles on a sandy surface, pavement surface of interlocking pebbles, relict bars and swales infilled abandoned and weathering, fractured rock in place, rock varnish, rock weathering, rubified rock underside, surface rounding of landform, woody debris in place.
Upland – Out of channel upland zones abandoned or relic	Relic bar forms of gravel, bifurcated form around obstructions, drainage swales in between stream network, flow lineation of laminar sheet-flow, gravel oriented in direction of flow, mud cracks above stream network, organic drift delineating margins above channels, sediment ramp accumulation preventing flow from passing, sediment gravel sheet from lateral spread, sediment difference outside channels of finer sizes, vegetation channel alignment patterns, wrack caused by high flows jumping out of channels.
Fluvial – Channels supporting flow events	Cut bank, shelving, erosion, headcut, scour on banks, scour in channel bottom, secondary channel apparent from low-flow channels, water-cut benches, water level marks, vegetation alignment patterns, sediment sorting.

Table 4. Select Upland and Fluvial Indicators

Following this exercise, upland indicators were more distinguishable from fluvial indicators by delineators during field evaluation and delineation model field confirmation.

2.2 Remote Sensing

2.2.1 Introduction

Since the publication of the USACE Wetland Delineation Manual (USACE 1987), USACE has promoted and acknowledged the usefulness of remote sensing data in delineation assessments. Section B of the manual (Preliminary Data Gathering and Synthesis) indicates "remote sensing is one of the most useful information sources available for wetland identification and delineation," and refers to aerial photography including infrared, and recent satellite images. Similarly, the NRCS *Engineering Field Handbook* dedicates a chapter (Chapter 19, Hydrology Tools for Wetland Identification and Analysis) to the methodology and applicability of remote sensing imagery for examining aerial signatures for normal, wet, and dry years (NRCS 1997).

In addition, the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West* (*Version 2.0*) (USACE 2008b) includes suggesting review of remote sensing data to assess climate, drought conditions over time, and problematic vegetation situations. In 2016, USACE published *Synthesizing the Scientific Foundation for Ordinary High Water Mark Delineation in Fluvial Systems* (USACE 2016), which includes use of remote assessments to estimate channel and floodplain dimensions and upstream extent of the channel network. One method includes use of satellite images to delineate the extent of channel and floodplain edges while looking for differences in vegetation communities or topographic features where visible. The second method described includes use of high-resolution light detection and ranging (LiDAR) imagery "to detect topography commonly associated with the active channel," which is described as holding great promise for "accurate delineation of channel boundaries."

The USACE Regulatory Guidance Letter 05-05 (USACE 2005) acknowledges that "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. 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."

The USACE Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2016) requests that "if remote sensing tools were used to aid in the delineation, list what tools were used and provide a copy of the maps if possible."

Lastly USACE's most recent supplemental guidance, *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (USACE 2022), presents an approach, examples, and discussion on the application of remote sensing for delineation mapping. Examples include use of satellite imagery, topographic maps, geologic data, and LiDAR to evaluate sites, alongside field data collection and a weight of evidence approach.

Using the above guidance, remote sensing data, field data, and modeling were applied.

2.2.2 Drone Data and Local Relief Model

Publicly available LiDAR data are not widely available in the non-coastal regions of California. Even in inland areas where LiDAR is available, its resolution is too low (30 meter or 10 meter) for aquatic resource mapping. Therefore, SWCA flew a remotely operated aircraft (drone). The drone model is WingtraOne Gen II with a Sony camera capable of 1-centimeter horizontal absolute accuracy. The drone flights were conducted April 10, 11, and 12, 2023, across the review area to collect point cloud data. Imagery resolution was 1.8 centimeter/pixel \pm 4 centimeter on x/y axis and \pm 7 centimeter on z axis. Using software, the data were processed to create a seamless mosaic from multiple adjoining images, outliers removed, and 3D point coordinates produced. Finally, the data were used to reconstruct a Local Relief Model of surface terrain. The Local Relief Model is a representation of the local micro-topographic variation in elevation within a defined neighborhood radius, on a scale of -1 to 1. The dataset values were normalized to a grayscale spectral range, from 0 to 255 colors (lighter color to darker color), in preparation for multi-factor modeling. Zero represents a relative flat point with no topographic relief, whereas 255 represents the highest relative topographic relief.

2.2.3 Satellite Data

Satellite aerial imagery was ordered from SkySat, and images were collected in February 2023. Satellite data resolution is 50 centimeter/pixel (1 pixel = 20-inch square) and 4-band with wavelengths red, green, blue (RGB) and near infrared (NIR). This on-demand satellite imagery provides high-resolution recent imagery of site conditions, allowing review of current site conditions by desktop. The high-resolution satellite data were loaded onto field data collection tablets for viewing in the field during surveys. The spectrum scale is 0 to 255 colors and represents a scale of relative lightness and darkness.

2.2.4 Vegetation Density Model

The high-resolution satellite RGB and NIR color reflectance values of each spectral band were used to calculate vegetation indices with the Visible Atmospherically Resistant Index (VARI) model ([Green-Red])/[Green+Red-Blue]). VARI was selected because it reduces atmospheric scattering on the assessment. The VARI layer does not read well in an overview figure, so a similar map of the Normalized Difference Vegetation Index (NDVI) (model (NIR-Red)/(NIR+Red)) using the same data input data was produced (**Figure 15; Figure A-15 in Appendix A**). The result is a grayscale image with values ranging from -1 to 1, whereby higher values indicate denser vegetation, and lower values suggest sparse or stressed vegetation. Productive vegetation reflects more NIR and green light but absorbs more red and blue light using chlorophyll. Upland vegetation (primarily white bursage scrub and cheesebush) is prevalent across the site and is detected by the drone and represented in the NDVI. The dataset values were normalized to the grayscale spectral range, from 0 to 255 colors, in preparation for multi-factor delineation modeling.



Figure 15. NDVI showing relative vegetation density.
2.3 Modeling

2.3.1 Training Data

In preparation for further modeling, training data of both aquatic and non-aquatic (upland) features were mapped by one experienced delineator using field data and information from on-site evaluation. On-site data used included mapped lines and data points, fluvial and inactive indicator data, remote sensing data layers, and high-resolution satellite imagery. The delineator mapped all features within an approximately 100-acre sample area of the site. Features mapped were categorized as either upland desert pavement/elevated (**Figure 16** and **Figure 17**), inactive and relic channel forms lacking fluvial indicators (**Figure 18 and Figure 19**), or active channel (**Figure 20**). **Table 5** summarizes the data features.

Table 5.	Training	Data Features	
Table 5.	Iraining	Data Features	

Class	Symbology Color	Description
Upland desert pavement dark, varnished, or darkened	Dark gray	Dark and varnished desert pavement; darkened uplands transitioning to dark desert pavement; or highly elevated; only upland indicators are present.
Uplands between desert pavements and channel forms	Light gray	Lacking desert pavement and darkened surfaces and lacking fluvial indicators. Abandoned relic channel forms with only upland indicators may be present.
Channels forms	Blue	Containing weak or strong fluvial indicators marked primarily by light-colored sediments and sorting, subtle or major scour or erosion, and vegetation patterns associated with channel forms.



Figure 16. Upland desert pavement or darkened upland (Transect 1; 35.149484°, -116.189958°), representative photograph. Strong reliable upland indicators differentiate type.



Figure 17. Uplands less dark than desert pavement (Transect 2; 35.166258°, –116.17905°), representative photograph showing darkened deflated surface. Lack of fluvial indicators and presence of strong upland indicators differentiates type.



Figure 18. Uplands between desert pavements and channel forms (Transect 2; 35.158630°, -116.180109°), representative photograph showing deflated surface and lack of channel forms. Lack of fluvial indicators and presence of upland indicators differentiates type.



Figure 19. Channel forms abandoned (Transect 1; 35.155111°, -116.184718°), representative photograph showing relic channel forms and relic swales. Absent or unreliable weak fluvial indicators differentiates the type.



Figure 20. Channel forms active (Transect 1; 35.149950°, -116.189525°), representative photograph showing overturned rocks, sediment sorting, and strong vegetation alignment. The presence of reliable fluvial indicators in the field differentiates the type.

2.3.2 Machine Learning Assisted Modeling

2.3.2.1 MACHINE LEARNING PROCESS

Machine learning is a subset of artificial intelligence that allows computers to learn using data, find patterns, and make predictions. An experienced data analyst used ArcGIS modeling tools to provide a machine learning program access to project data along with the correct answers (from delineator training data). To increase the number of data sample points, the data were duplicated and rotated to create additional data samples. The high-resolution aerial imagery, Local Relief Model, grayscale color, VARI vegetation density, and training data were input into the machine learning assisted model for analysis by a neural network. The machine was asked to learn from the delineator training data and find patterns in the datasets to classify features into one of five categories (upland desert pavement, upland, upland transitional, inactive relic channel forms, and active channel).

Machine learning for multi-class classification uses what is called a confusion matrix for evaluating and reporting its performance (accuracy, precision, and recall). Performance includes assessing instances where features were correctly predicted by the model or not and are reported as true or false positive or negatives. In addition to performance, normalized data for each base data layer (Local Relief Model, grayscale color, and VARI vegetation density) were provided as inputs, and box-whisker plots were reviewed to assess the distribution and differences in elevation, color, and vegetation density, among five initial feature categories (upland desert pavement, upland, upland transitional, inactive relic channel forms, and active channel). The upland desert pavement and the active channel box plot median values were distinct from the other category medians. The upland and upland transitional categories trended similar to the upland desert pavement, whereas the inactive relic channel forms trended more similarly with the active channel.

The model was run to produce a delineation map for the entire review area. Overall machine performance was self-assessed at values higher than 85% correctness. It is important to note the machine learning predictions are similar to a multivariate model whereby the input layers are utilized to determine trends and find patterns; however, further statistical significance and error values were not analyzed because methods conducted by machine learning cannot be reduced to a discrete multi-variate model.

2.3.2.2 MODEL REFINEMENT

An experienced delineator reviewed the delineation model map in detail, its performance, and box plot distribution to assess delineation mapping appropriateness. Areas that could be improved were identified by the delineator. Corrections made included adjusting a color cast differential on the right half of the project from satellite imagery. In addition, further training data were produced of primary channels with strong OHWM linearity to assist the model in picking up channel system extents. Modeled data were reviewed during the last field site visit across the site specifically in the southernmost area of the project. Following field evaluation, additional training data were produced in areas where the model predictions could be improved to reflect site conditions and observations more accurately. To account for aquatic resource variation across the site and differences in sediment color, the delineator mapped an additional approximately 100 acres of example features across the review area for training. After the above data refinements, the layers were fed back to the model, whereby it was trained again, and the predictive mapping revised. The model and model refinement incorporated direction observations by delineators and knowledge about hydrologic indicators occurring on-site. In short, the field delineators used data collected, photos recorded, and experience to verify the model's extent, accuracy, and representation of the site to the best of their ability.

3 **RESULTS**

3.1 Field Data

3.1.1 Culverts

Interstate 15 intersects a large historic alluvial fan landscape, and culverts were constructed beneath the highway to collect and allow passage of upstream water from the north side of the highway to the south side (see **Figure 14**). Culvert widths were measured with a measuring tape and walked to assess hydrologic connectivity (**Table 6**). In addition to the culverts, large berms and the elevated highway prevent upstream water from passing through until diverted toward and through one of the culverts.

Ditch/Culvert	Location	Culvert Structure Width	Distance Between Culverts
Unnamed Ditch	35.142620°, -116.203046°	8.0 feet	1.2 miles
Marl Ditch	35.156067°, -116.190648°	17.5 feet	0.7 mile
Opah Ditch	35.164668°, -116.182698°	77.0 feet	1.2 miles
Turtle Ditch	35.179039°, -116.169775°	17.5 feet	0.5 mile

Table 6. Culverts and Dimensions

The only other direct upstream water source onto the project site is derived from highway runoff, which is allowed to exit the road prism at locations where the highway asphalt road berm has an exit point (water chute/flume), which directs accumulated rain off the road and onto the project site (**Figure 21**; **see Figure 14**).



Figure 21. Example of a highway water chute/flume where there is a break in the asphalt highway berm; view from the highway, facing the project site.

3.1.2 Transect Surveys

Transects surveys allowed for review of hundreds of drainages and hydrologic systems across the 2,670-acre site. Not every channel or feature was evaluated in the field. Many areas on-site contain desert pavement or upland areas between or closely bordering active channels. Each transect data point was compared with high-resolution aerial imagery in context of the hydrologic system and reviewed when refining the delineation model.

3.1.3 Rapid Ordinary High Water Mark Plots

The review area was evaluated in the field while viewing several remote sensing datasets (high-resolution aerial imagery, Local Relief Model, VARI vegetation density, and grayscale) on field tablets. After substantial desktop review and initial field data review, Rapid OHWM plot locations were selected to either confirm observations or gather more data to reach a conclusion. Photographs were recorded (**Figure 22**; **Figure C-22** and **Photographs C-1 through C-17** in **Appendix C**) and USACE Rapid OHWM Datasheets (**Appendix D**). Rapid OHWM datasheet results were collected and maintained for selected areas even if an OHWM was found to be absent.

Ten Rapid OHWM sampling plots were evaluated to document channel forms and the relevance, strength, and reliability of hydrologic data (**Table 7**; **Figure 23**; **Figure A-23 in Appendix A**).

All Rapid OHWM plots with a physical OHWM (rOHWM-02, rOHWM-03, rOHWM-05, rOHWM-07, rOHWM-08, rOHWM-09, rOHWM-10) included a break in slope, sediment sorting, changes in the character of the soil, and changes in vegetation type and/or density. Other indicators recorded include channel bars, shelving, instream bedload evidence, and wracking of organic litter.

For Rapid OHWM plots where evidence for an OHWM was lacking (rOHWM-0, rOHWM-04, rOHWM-06), indicators were absent, weak, and/or not reliable.



Figure 22. Photo-point map showing the location and direction of photographs (see Photographs C-1 through C-17 in Appendix C).

Plot point	Relative Location	Coordinates	Channel Form	Result
rOHWM-1	East Array. Within highly traveled dirt and degraded paved road.	35.179725°, -116.166012°	Channel form and indicators absent.	Indicators absent in road. OHWM absent.
rOHWM-2	Eastern edge of review area at base of mountains.	35.172081°, -116.15887°	Well-developed highly active multi- channel stream; 130 feet wide.	Strong indicators, reliable on aerial imagery. OHWM present; depth 3.5 feet.
rOHWM-3	East Array. East side of project.	35.166557, -116.168432	Shallow narrow drainage; 1.5 feet wide.	Moderate aerial definition reliability. OHWM present; depth 0.3 foot.
rOHWM-4	East Array.	35.169334°, -116.173413°	Poor definition with landscape rounding.	Weak active indicators and weak aerial signature. OHWM absent.
rOHWM-5	Downstream of Opah Ditch.	35.164413, -116.182409	Well-developed drainage with multiple low flow channels and indicators; 60 feet wide.	Strong indicators, reliable on aerial imagery. OHWM present; depth 3 feet.
rOHWM-6	South Array 2. Within highly traveled dirt road.	35.148987, -116.180009	Channel form and indicators absent.	Indicators absent in road and no aerial definition. OHWM absent.
rOHWM-7	Eastern edge of review area within main wash at base of mountains.	35.143198, -116.168067	Broad well-developed drainage with multiple low-flow channels and indicators; 275 feet wide.	Strong indicators. OHWM present; depth 1.5 feet.
rOHWM-8	South Array 3. Eastern edge of review area.	35.138014, -116.168682	Shallow narrow drainage with sediment sorting; 3 feet wide.	Moderate aerial definition reliability. OHWM present; depth 0.16 foot.
rOHWM-9	Adjacent to Rasor Road.	35.141901, -116.189309	Shallow wide channel bordered by uplands; 9 feet wide.	Moderate aerial definition reliability. OHWM present; depth 0.16 foot.
rOHWM-10	North of highway adjacent to dirt roads.	35.169095, -116.185545	Well-defined active drainage with multiple indicators; 32 feet wide.	Strong indicators, reliable on aerial imagery. OHWM present; 2 feet deep.

Table 7. Rapid OHWM Sampling Plots



Figure 23. Rapid OHWM points.

3.2 Aquatic Resources Inventory

Aquatic resources mapped within the review area are all non-wetland waters. Potential wetlands were not present.

Features modeled captured the extent of both single channels and compound channels. Many channels that are relatively close to one another have upland desert pavement or other upland areas adjacent and in between channels. As a result, many channels near one another are separated by uplands and are therefore not included in the immediate channel system. The review area was divided into SubAreas (A, B, C, D, E, and F) to describe and categorize the variety of channels present (**Figure 24; Figure A-24 in Appendix A**).

The most prominent non-wetland channels and channel systems, which are the most prominent on the landscape or appear to convey the most flow, based on professional judgement and field observations, were highlighted by hand in GIS on a figure (**Figure 25; Table 8; Figure A-25 in Appendix A**). These highlighted prominent non-wetland channels are shown alongside the remaining non-prominent non-wetland channels.

The full delineation (**Figure 26**), aquatic resources with feature names (**Figure 27**), and zoomed-in delineation sheets for the aquatics resources inventory (**Figure E-26 and Figure E-27 in Appendix E**) are provided.



Figure 24. SubAreas within the review area.



Figure 25. Prominent and non-prominent channels.

Aquatic Resource Name	SubArea	Cowardin* Classification	Channel Width (feet)	Approximate Location (latitude/longitude)	Aquatic Resource size (acres)	Length (linear feet)
PROMINENT CHANNELS						
F-01 Non-wetland	А	Riverine	145.4	35.18324, -116.163929	4.60	1,005
F-02 Non-wetland	А	Riverine	57.2	35.18026, -116.163726	3.96	2,490
F-03 Non-wetland	А	Riverine	88.4	35.17061, -116.172104	10.53	5,187
F-04 Non-wetland	А	Riverine	37.7	35.17309, -116.165242	7.66	7,695
F-05 Non-wetland	А	Riverine	20.4	35.17061, -116.161447	0.65	1,167
F-06 Non-wetland	А	Riverine	35.5	35.16870, -116.164256	6.97	5,808
F-07 Non-wetland	А	Riverine	56.1	35.16477, -116.162051	2.69	1,241
F-08 Non-wetland	F	Riverine	101.6	35.17299, -116.189667	6.32	1,710
F-09 Non-wetland	В	Riverine	109.1	35.16350, -116.179489	20.86	8,043
F-10 Part 2 Non-wetland	С	Riverine	275.4	35.14479, -116.169260	50.68	7,608
F-10 Part 1 Non-wetland	В	Riverine	144.4	35.16139, -116.173073	7.70	2,324
F-11 Non-wetland	С	Riverine	57.5	35.15473, -116.185109	23.05	17,451
F-12 Non-wetland	С	Riverine	67.2	35.15404, -116.189206	6.04	3,917
F-13 Non-wetland	D	Riverine	43.3	35.14250, -116.202964	2.52	2,537
F-14 Non-wetland	E	Riverine	71.7	35.14076, -116.183009	56.74	33,968
Subtotal					210.97	102,151
NON-PROMINENT CHANNE	LS					
F-15 Group Non-wetland	А	Riverine	6.0	SubArea A	102.28	1,997
F-16 Group Non-wetland	В	Riverine	6.2	SubArea B	14.35	698
F-17 Group Non-wetland	С	Riverine	6.2	SubArea C	189.36	1,148
F-18 Group Non-wetland	D	Riverine	6.2	SubArea D	49.01	1,226
F-19 Group Non-wetland	E	Riverine	6.2	SubArea E	64.44	1,206
F-20 Group Non-wetland	F	Riverine	6.1	SubArea F	12.98	1,081
Subtotal					432.43	7,356
Grand Total					643.4	109,507

Table 8. Aquatic Resources within the Review Area

*Cowardin, 1979.



Figure 26. Aquatic resources inventory map.



Figure 27. Aquatic resources feature names.

SubArea A (non-wetland):

SubArea A is in the northern portion of the review area. In this section of the review area, overall flow direction is from south to north. SubArea A can be divided into two main areas: the east side and the west side.

The east side is a large flat area (average 0.7% decline) containing drainages from the adjacent eastern Soda Mountains. Several primary channels exit the mountain ranges and empty into the review area, ultimately spreading out laterally across the flattened topography. The first section of these channels closer to the base of the mountains may be described as single channels with strong OHWM indicators including a break in slope, change in sedimentation, and a change in vegetation pattern. As the channels continue, the flow spreads out laterally, creating multiple smaller channels. About halfway before reaching Arrowhead Road (see **Figure 14**) in the central portion of SubArea A, channels become less defined and OHWM indicators become weak or absent. Before reaching Arrowhead Road, OHWM indicators become inconclusive. On aerial imagery, the east side is overall lighter in color than most of the remaining review area and has upland areas that support an evenly spaced density of sparse upland vegetation.

Turtle Ditch (17.5 feet wide) concentrates upstream flow into SubArea A and into F-03. The west side of SubArea A is flat (average 2% decline) and drains from the highway toward the center, where it converges with Prominent Feature F-10 and flows north. Along the south side of Interstate 15 is a depressional ditch that also conveys flow from south to north, where it ultimately dissipates or exits the review area and flows north toward Soda Dry Lake.

One culvert, Turtle Ditch, and three highway water chutes convey into the review area of SubArea A.

SubArea A contains Prominent Features F-01, F-02, F-03, F-04, F-05, F-06, and F-07, totaling approximately 37.06 acres.

All remaining Non-prominent features (F-15 Group) in SubArea A total approximately 102.28 acres. These features exhibit weaker indicators of sediment sorting and a vegetation pattern where vegetation is generally sparse within channels and more prevalent outside channels.

SubArea B (non-wetland):

SubArea B is in the northern portion of the review area and is derived from the largest on-site culvert, Opah Ditch (77 feet wide). In SubArea B, the overall flow direction is from west to southeast. Opah Ditch concentrates upstream flow from outside the review area through the culvert, into the review area, across the review area, and east toward the main channel, F-10 Part 1, which then conveys flow south to Soda Dry Lake.

SubArea B is one of the lightest-colored sections of the review area on aerial imagery; lightness of color is often correlated with hydrologically active areas. Flows first exit Opah Ditch as a single channel (F-09) then spread out laterally into multiple channels, and then generally combine again prior to converging with the main channel (F-10 Part 1).

In the western portion of SubArea B just south of Interstate 15 is an upland area that is highly elevated and darkened in color where desert pavement is present. Between areas of this desert pavement are single narrow channels, which are included in the delineated features.

One culvert, Opah Ditch, and two highway water chutes convey flow into the review area of SubArea B.

SubArea B contains Prominent Feature F-09 totaling approximately 28.56 acres.

All remaining Non-prominent features (F-16 Group) in SubArea B total approximately 14.35 acres. These features exhibit indicators of hydrologic erosion, sediment sorting, and vegetation (creosote bush) channel alignment and robustness.

SubArea C (non-wetland):

SubArea C is in the south-central portion of the review area, where the majority of the upslope section is hydrologically restricted by the elevated Interstate 15 highway. One of the four large culverts, Marl Ditch (17.5 feet wide), conveys upstream flow entering the middle of SubArea C at the highway. As a result, two interrelated prominent features form (F-11 and F-12) conveying flows downslope toward Arrowhead Road. This portion of the site on aerial imagery shows a lightness in color, which can reflect more hydrologically active areas. Channels delineated within this area are shallow, compound, and spread out laterally as they dissipate and lose definition.

In the northwest corner of SubArea C is a large upland area with desert pavement and other uplands, depicted as dark in color on an aerial image and in the field. Similarly, in the southwestern portion of SubArea C are dozens of dark upland desert pavement areas and other upland areas that are elevated amongst delineated channels.

One culvert, Marl Ditch, and ten highway water chutes convey flow into the review area of SubArea C.

SubArea C contains Prominent Features F-10 Part 2, F-11 and F-12, totaling approximately 79.77 acres.

All remaining Non-prominent features (F-17 Group) in SubArea C total approximately 189.36 acres. These features exhibit indicators of sediment sorting and vegetation (creosote bush) channel alignment.

SubArea D (non-wetland):

SubArea D is in the southwestern portion of the review area, where the majority of the upslope section is hydrologically restricted by the elevated Interstate 15 highway. One of the four large culverts, Unnamed Ditch (8 feet wide), conveys upstream flow under the highway into the review area. As a result, a prominent feature forms (F-13), conveying flows downslope toward Rasor Road.

In the central portion of SubArea D is a large upland area with desert pavement and other uplands, depicted as dark in color on an aerial image and in the field. The southwesternmost portion of SubArea D toward the site's Rasor Road entrance is highly disturbed by vehicle use, sediment stockpiling, dumping of trash, and manipulated topography.

One culvert, Unnamed Ditch, and five highway water chutes convey into the review area of SubArea D.

SubArea D contains Prominent Feature F-13, totaling approximately 2.52 acres.

All remaining Non-prominent features (F-18 Group) in SubArea D total approximately 49.01 acres. These features generally exhibit fluvial erosion, indicators of sediment sorting, and absence of vegetation within channels.

SubArea E (non-wetland):

SubArea E is in the southern portion of the review area, where hydrology from its shallow sloping hillside appears largely unmanipulated. On the far side of the SubArea D hillside is another topographic valley, so hydrology within SubArea D is derived from its immediate mountain top only. At the base of the hillside is Rasor Road, a highly traveled dirt road that traverses the southern extent of the site and provides access to the off-site BLM OHV area. Rasor Road is a major hydrologic conveyance and is also a Prominent Feature F-14.

SubArea E contains Prominent Feature F-14, totaling approximately 56.74 acres.

All remaining Non-prominent features (F-19 Group) in SubArea E total approximately 64.44 acres. These features are generally very shallow and narrow, exhibiting indicators of sediment sorting and absence of vegetation within channels.

SubArea F (non-wetland):

SubArea F is on the north side of Interstate 15 within the review area and is the location of the proposed generation tie line. Hydrology in this region is overall unobstructed but flow direction appears to be substantially affected by several established dirt roads. One dirt road runs up the center of the generation tie review area. Flows exit the Soda Mountains from tributaries historically present, which are the source of the alluvial fan channel forms, sediment influx, and hydrology for the entire vicinity and all of the review area.

A large portion of SubArea F comprises upland desert pavement in its southern section and on the hill in its northern section. Once the hill begins, it rises at an approximate 11% incline across upland desert pavement very dark in color on an aerial image and in the field. Amongst the desert pavement are small narrow drainages that are highly confined.

SubArea F contains Prominent Feature F-08, totaling approximately 6.32 acres.

All remaining Non-prominent features (F-20 Group) in SubArea F total approximately 12.98 acres. These features with strong indicators of break in slope, erosion, sediment sorting, and vegetation channel alignment.

3.3 Potentially Jurisdictional Aquatic Resources

Potentially jurisdictional aquatic resources include prominent and non-prominent drainages. The review area contains a total of approximately 643.4 acres potential non-wetland RWQCB waters of the State and CDFW Jurisdiction/1600 (**Table 9**).

Under several prior waters of the United States federal regulations, including the Rapanos Guidance regulatory regime (2006–2015; 2021–2023 in California), Navigable Waters Protection Rule (2020–2021), and the Revised Definition of Waters of the United States rule (January 2023), the aquatic features in the project site met the criteria for being isolated (through application of the 2001 Solid Waste Agency of Northern Cook County case under Rapanos Guidance) and therefore were not federally jurisdictional. Under the WOTUS *Conforming Rule*, delineated waters would remain non-jurisdictional because they lack a continuous surface connection to a TNW. Because features on-site are not jurisdictional by USACE, there are 0 acres WOUS (**Table 9**).

Aquatic resources group	Non-wetland WOUS (acres / linear feet)*	Non-wetland waters of the State / CDFW Jurisdiction (acres / linear feet)	Potential impacts** to waters of the State / CDFW Jurisdiction (acres)
Prominent non-wetland drainages	0	210.97 (102,151)	117.96
Non-prominent non- wetland drainages	0	432.43 (7,356)	255.54
Total	0	643.40 (109,507)	373.5

Table 9. Potentially Jurisdictional Aquatic Resources and Impacts

* USACE previously determined in an AJD that features on-site are non-jurisdictional.

** Impacts include both project components and the Limits of Disturbance.

4 SUMMARY AND RECOMMENDATIONS

4.1 Summary

Potentially regulated prominent and non-prominent aquatic resources (F-01 - F-20) within the 3,418-acre review area total approximately 643.40 acres non-wetland RWQCB waters of the State and CDFW Jurisdiction/1600.

No potential WOUS occur on site.

An impact assessment describing project-related estimated impacts to non-wetland waters of the State and CDFW Jurisdiction/1600 is provided in a separate memo.

4.2 **Recommendations**

SWCA recommends an AJD request be submitted to USACE to verify and document that aquatic features are non-jurisdictional.

Impacts to waters of the State would require a RWQCB Waste Discharge Requirement permit under the Porter-Cologne Water Quality Control Act. Direct impacts are limited to surface water features; based on proposed project activities no groundwater permits would be needed. Compensatory mitigation for project-related impacts is expected to be required.

Impacts to CDFW Jurisdiction/1600 under Section 1602 requires a notification be submitted to CDFW for an LSA Agreement. CDFW also requires a complete CEQA Environmental Impact Report (EIR) for an LSA Agreement; the CEC is the CEQA Lead Agency. Compensatory mitigation for project-related impacts is expected to be required.

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APPENDIX A

California Energy Commission 1:24,000–Scale Maps

(Figures 2, 4, 5, 6, 8, 12, 14, 15, 23, 24, and 25)



Figure A-2. CEC subset maps. Project site and review area on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-2. CEC subset maps. Project site and review area on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-2. CEC subset maps. Project site and review area on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-4. CEC subset maps. Project site on 1952 aerial imagery (1 of 3) (UCSB FrameFinder).



Figure A-4. CEC subset maps. Project site on 1952 aerial imagery (2 of 3) (UCSB FrameFinder).



Figure A-4. CEC subset maps. Project site on 1952 aerial imagery (3 of 3) (UCSB FrameFinder).



Figure A-5. CEC subset maps. Project site on 1995 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-5. CEC subset maps. Project site on 1995 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-5. CEC subset maps. Project site on 1995 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-6. CEC subset maps. USGS PRISM data total annual precipitation on USGS quadrangle (1 of 4).



Figure A-6. CEC subset maps. USGS PRISM data total annual precipitation on USGS quadrangle (2 of 4).



Figure A-6. CEC subset maps. USGS PRISM data total annual precipitation on USGS quadrangle (3 of 4).



Figure A-6. CEC subset maps. USGS PRISM data total annual precipitation on USGS quadrangle (4 of 4).



Figure A-8. CEC subset maps. Soil series types on 2018 aerial imagery (1 of 3) (Google Earth Pro).


Figure A-8. CEC subset maps. Soil series types on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-8. CEC subset maps. Soil series types on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-12. CEC subset maps. NWI aquatic features on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-12. CEC subset maps. NWI aquatic features on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-12. CEC subset maps. NWI aquatic features on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-14. CEC subset maps. Features affecting hydrology on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-14. CEC subset maps. Features affecting hydrology on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-14. CEC subset maps. Features affecting hydrology on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-15. CEC subset maps. NDVI showing relative vegetation density on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-15. CEC subset maps. NDVI showing relative vegetation density on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-15. CEC subset maps. NDVI showing relative vegetation density on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-23. CEC subset maps. Rapid OHWM points on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-23. CEC subset maps. Rapid OHWM points on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-23. CEC subset maps. Rapid OHWM points on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-24. CEC subset maps. SubAreas within the review area on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-24. CEC subset maps. SubAreas within the review area on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-24. CEC subset maps. SubAreas within the review area on 2018 aerial imagery (3 of 3) (Google Earth Pro).



Figure A-25. CEC subset maps. Prominent and non-prominent channels on 2018 aerial imagery (1 of 3) (Google Earth Pro).



Figure A-25. CEC subset maps. Prominent and non-prominent channels on 2018 aerial imagery (2 of 3) (Google Earth Pro).



Figure A-25. CEC subset maps. Prominent and non-prominent channels on 2018 aerial imagery (3 of 3) (Google Earth Pro).

APPENDIX B

HEC-RAS Hydraulics Map



Figure B-1. Hydrologic Engineering Center's River Analysis System 10-year depth final map.

APPENDIX C

Photographs



Figure C-22. Photo-point location map (1 of 3).



Figure C-22. Photo-point location map (2 of 3).



Figure C-22. Photo-point location map (3 of 3).



Photo C-1. SubArea A. 35.180265°, -116.163726°. F-02 showing defined bed and bank.



Photo C-2. SubArea A. 35.170610°, −116.172104°. F-03 showing defined flow path.



Photo C-3. SubArea A. 35.173090°, -116.165242°. F-06 showing sediment sorting.



Photo C-4. SubArea F. 35.172997°, −116.189668°. F-08 showing sediment sorting and vegetation channel alignment.



Photo C-5. SubArea B. 35.163505°, −116.179489°. F-09 showing defined flow path and sediment sorting.



Photo C-6. SubArea B. 35.161390°, -116.173073°. F-10 Part 1 showing defined flow path, sediment sorting, vegetation channel alignment, and vegetation robustness.



Photo C-7. SubArea C. 35.154734°, -116.185109°. F-11 showing flow path, sediment sorting, vegetation channel alignment, and vegetation robustness.



Photo C-8. SubArea D. 35.142505°, −116.202964°. Unnamed Ditch culvert showing single channel with sediment sorting and support of large tree.



Photo C-9. SubArea C. 35.140763°, -116.183009°. F-14 along Rasor Road showing flow path, erosion, and sediment sorting.



Photo C-10. SubArea A. 35.178669°, −116.166293°. Degraded paved dirt road lacking hydrologic indicators; indicators present outside road prism.



Photo C-11. SubArea A. 35.178891°, −116.169520°. Turtle Ditch culvert single channel showing sediment sorting and supporting vegetation robustness.



Photo C-12. SubArea F. 35.165103°, -116.183429°. Opah Ditch culvert on north side of Interstate 15.



Photo C-13. SubArea C. 35.155902°, −116.190295°. Marl Ditch; view facing upstream.



Photo C-14. SubArea D. 35.138898°, −116.203269°. F-13 showing defined bed and bed, erosion, sediment sorting, and vegetation channel alignment.



Photo C-15. SubArea E. 35.134143°, -116.200189°. Non-prominent features showing flow path and sediment sorting.



Photo C-16. SubArea E. 35.136178°, −116.184420°. Non-prominent feature showing flow path and sediment sorting.


Photo C-17. SubArea F. 35.169139°, -116.186524°. Non-prominent feature showing flow path, erosion, vegetation channel alignment, and vegetation robustness.

APPENDIX D

Datasheets (Rapid OHWM Forms)

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Location (lat/long): 35.179725, -116.166012	-	Investigator(s)) Bonnie a	nd Luis	
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Project ID #: Soda mtn_#01		
Step 4 is additional information	in needed to support this determination? I Yes 🗌 No If yes describe and attach information to d	latasheet
Remote sensing data.		ata sheet.
Step 5 Describe rationale for Ic OHVM Rationale: Change in sedir OHVM width (ft): 51	location of OHWM mentation, vegetation, and topography.	
OHWM depth (ft): 0.5	M. Universitated	
Dominant vegetation at OHVM: La	aurea tridentata, Ambrosia sp.	
Dominant vegetation above OHWM	M: L. tridentata	
Additional observations or n	notes	
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RAPID ORDINARY HIGH WATER	y Corps of Engineers (I MARK (OHWM) FIELD	USACE)	ATA SHEET	From Approved - OMB No. 0710-0025
The proponent ag	ency is Headquarters USAC	E CECW-CO-R.		Expires: 01-31-2025
The public reporting burden for this pollection	AGENCY DISC			onse including the time for
reviewing instructions, searching existing data information. Send comments regarding the bu Services, at <u>whs.mc-alex.esd.mbx.dd-dod-infr</u> law, no person shall be subject to any penalty number.	a sources, gathering and ma rden estimate or burden red ormation-collections@mail.m for failing to comply with a o	intaining the data needed, i uction suggestions to the D <u>ul</u> , Respondents should be collection of information if it	and completing and epartment of Defension aware that notwiths does not display a c	reviewing the collection of se Washington Headquarters tanding any other provision of currently valid OMB control
Project ID #. Soda Mtn	Site Name: #02		Date and Tim	e: 09/06/2023 21:05
Location (at/ong): 35 172081 -116 15887		Investigator(s), Bonnie a	ndluis	
2022101 (10001g), 2017 2001, 4110, 1000		investigator(s): Donnie a		
Step 1 Site overview from remote and online r Check boxes for online resources u gage data 2 LiDAR 2 ge	esources sed to evaluate site: ologic maps	Describe land o Were there any r Open space. Augu	se and flow condit ecent extreme even st 2023 storm.	ions from online resources. ts (floods or drought)?
🗹 climatic data 🗹 satellite imagery 🛛 🗹 li	and use maps			
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Step 3 Check the boxes next to the indicate OHWM is at a transition point, there the drop-down menu next to e	ors used to identify the loc fore some indicators that are	ation of the OHWM.	may be just below	and above the OHWM. From
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Project ID #. Soda mountain_02				
Step 4 Is additional information nee	ded to support this determination? Ves	□ No	If yes, describe and attach information to datashe	et:
Remote sensing.				-
Step 5 Describe rationale for locationale for	on of OHWM			_
OHVM Rationale: Change in sedimenta	tion, vegetation, and topography.			
OHVMM width (it): 130 OHVMM depth (it): 3.5				
Dominant vegetation below OHWM: Lar	rea and Ambrosia			
Dominant vegetation above OHVM: Un	vegetated			
Additional observations or notes	() () () () () () () () () () () () () (
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Project ID #: Soda Mtn Sile Name: #03 Date and Time: 04/07/2023 17:28 Location flakforg): 35.168557, -116.168432 Investigrator(s): Bornie and Luis Step 1 Site overview from remote and online resources: Describe land use and flow conditions from online resources. Jage data Date and Time: 04/07/2023 17:28 Jage data Describe land use and flow conditions from online resources. Jage data Describe land use and flow conditions from online resources. Were there any recent activeme events (floods or drought)? Step 2 Site contine resources. Were there any recent activeme events (floods or drought)? Step 2 Site contine resources. Were there any recent activeme events (floods or drought)? Step 2 Site contine resources. Other: Step 2 Site contine resources events (floods or drought)? Other: Step 2 Check the boxes next to the indicators used to identify the location of the OHVM. OHVM is at a transition point, therefore some indicators is not are used to idermine location may be just below and above the OHVM. From the do-down request to schedule spectrate control to schedule spectrate over the other schedule spectrate control is above the otherway and to be apperiate control on the indicator spectrate control in the data or by selecting either just below V; at 'x' or or be took is a transition point, therefore some indicators is an are used to idermine location may be just below and above the OHVM. From the do-down request at transition (go to useg ind	The public reporting burden for this collection of in reviewing instructions, searching existing data so information. Send comments regarding the burder Services, at <u>whs.mc-alex.esd.mbx.dd-dod-inform</u> law, no person shall be subject to any penalty for number.	AGENCY DISC aformation, 0710-OHWM urces, gathering and main n estimate or burden redu- ation-collections@mail.m failing to comply with a c	LOSURE NOTICE , is estimated to average 3 ntaining the data needed, uction suggestions to the D y, Respondents should be ollection of information if it	0 minutes per resp and completing and lepartment of Defens aware that notwiths does not display a d	onse, including the time for reviewing the collection of se, Washington Headquarters tanding any other provision of currently valid OMB control
Location (latitong): 35.166657, -116.168432 Investigator(s): Bornie and Luis Step 1 Site overview from remote and online resources used to evaluate site:	Project ID #. Soda Mtn Site	e Name; #03		Date and Tim	e: 05/07/2023 17.28
Step 1 Sile overview from remote and colline resources. Check boxes for online resources used to evaluate site: gage data @ LDAR @ geologic maps immediate @ statilite magey @ land use maps immediate @ statilite magey @ land use maps immediate @ statilite magey @ land use maps in enable holds @ statilite mages in enable holds @ statilite mages in space August 2023 stom. Describe land use maps immediate @ statilite mages immediate @ statilite mages immediate @ statilite mages @ land use maps in control base in control of the indicators when the channel disper, deposition all and erosional features, and changes in channel form, such as bridges, riprap, landsildes, rockfalls etc. Step 2 Sile conditions fund assessment. First look for changes in channel disper, deposition of the OHMM. OHWM is at a transition point, therefore some indicators when doel on of the OHMM. OHWM is at a transition point, therefore some indicators in that are used to determine location may be just below by, sit 's', or just above 'a' the OHMM. Geto page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log. Genomphile Indicators @ on the baset 'x @ on the baset 'x	Location (lat/long): 35.166557, -116.168432		Investigator(s)) Bonnie a	nd Luis	20.00
Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and changes in two densities. Step 3 Check the boxes next to the indicators used to identify the location of the OHVM. OHVMM is at a transition point, therefore some indicators intare used to identify the location may be just below and above the OHVM. From the drop down menu next to each indicator, select the spropriate location of the indicator by selecting either just below 'b', st' x', or just above 'b', st' x', or just above 'a' the OHVM. Go to page 2 to describe overall rationale for location of OHVM, write any additional observations, and to attach a photo log. Geomorphic indicators Break in stope: x Channel bar: write bank: x a theking (berms) on bar: Break in berms: geopation heditad and on bar: write barns: geopation heditad and the bards: so (g. the bank is grave) in thirdicators (g. the bards: so	Step 1 Site overview from remote and online resources used Check boxes for online resources used gage data Ø LiDAR Ø geolog I climatic data Ø satellite imagery Ø land i Ø aenal photos Ø topographic maps O Other:	urces I to evaluate site: ic maps usemaps	Describe land u Were there any Open space. Augu	ise and flow condit recent extreme even st 2023 storm	ions from online resources. ts (floods or drought)?
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Vegetation Indicators Ø Change in vegetation type and/or density: x förbå to: Check the appropriate boxes and select the general vegetation the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain. graminoids to: Ø vegetation absent to: Woody shrubs: @ woody shrubs to: Ø Wracking/presence of organic litter; b: Ø vegetation absent to: Woody Shrubs @ deciduous trees to: Ø Wracking/presence of iarge wood: Ø vegetation absent to: Woody Shrubs © coniferous trees to: D Leaf litter disturbed or washed away: Ø noss to: Ø vegetation matted down and/or bent: Ø Weathered clasts or bedrock? Dther observed indicators? Describe': Laurea fridentata more robust on bank.	Go to page 2 to describe overall rationale Geomorphic Indicators Break in slope: x on the bank: x undersut bank: valley bottom: Dther: Shelving: x Shelving: x shelf al top of bank. x	for location of OHWM, w Channel bar: Channel bar: shelving (berms) unvegetated: vegetation trans sediment trans upper limit Minstream bedforms transport evidence: b) on bar: altion (go to veg: indicators) altion (go to sed. indicators) of deposition on bar: and other bedload	erosional in attach a erosional i marks, scour, Sediment Indicato	iher just below 'b', at 'x', or a photo log. bedload indicators (e.g., obstacle smoothing, etc.) mnels: rs ment iharacter of soll: *
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Step 4 Is additional information ne	eeded to support this determination? Ves Do If ves describe an	d attach information to datasheet
Remote sensing data.		
Step 5 Describe rationale for loca	tion of OHWM	
OHVM Rationale: Change in sedimen	tation, vegetation, and topography.	
OHWM width (ft): 1.5 OHWM depth (ft): 0.3		
Dominant vegetation below OHWM: U	nvegetation	
Dominant vegetation at OHWW: Unve Dominant vegetation above OHWM: Li	getated aurea tridentata.	
Additional observations or note	S	
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U.S. Army	Corps of Engineers (L	JSACE)		From Approved -
RAPID ORDINARY HIGH WATER M	ARK (OHWM) FIELD	IDENTIFICATION D	ATA SHEET	OMB No. 0710-0025
The proponent ager	ncy is Headquarters USAC	E CECW-CO-R.		Expires: 01-31-2025
	AGENCY DISC	LOSURENOTICE		
The public reporting burden for this collection of reviewing instructions, searching existing date as information. Send comments regarding the burd Services, at <u>whs mc-alex asd mbx dd-dod-inform</u> law, no person shall be subject to any penalty for any no penalty subject to any penalty subject to any penalty subject any no penalty subject to any penalty subject any no penalty subject	information, 0710-OHWM cources, gathering and mai ien estimate or burden redu nation-collections@mail.m or failing to comply with a c	is estimated to average 3 ntaining the data needed, i uction suggestions to the D i). Respondents should be ollection of information if it	0 minutes per resp and completing and Department of Defense aware that notwiths does not display a c	onse, including the time for reviewing the collection of se. Washington Headquarters, tanding any other provision of currently valid OMB control
Number.			Data and Ten	- 00/07/20/20 10:20
Project ID #. Sola Mountain Si	Ite Name: #04		Date and this	e, 09/07/2023 18,39
Location (lat/long): 35.169334116.173413		Investigator(s): Bonnie a	and Luis	
Step 1 Site overview from remole and online res Check boxes for online resources use	sources ed to evaluate site:	Describe land u Were there any i	use and flow condit recent extreme even	ions from online resources. ts (floods or drought)?
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Project ID #. Soua mountain_04		
Step 4 Is additional information need	led to support this determination? 🗌 Yes 🛛 No 🛛 If yes, describe and at	ttach information to datasheet:
Step 5 Describe rationale for location OHVM Rationale: No ohwm present. Lac	n of OHWM k in strength and reliability of indicators.	
OHVM width (ft): OHVM depth (ft): Dominant vegetation below OHVM: Na Dominant vegetation at OHVM: Na		
Dominant vegetation above OHWM: Na		
Additional observations or notes	<u>.</u>	
Location not dostinct from adjacent lansc	ape.	
Attach a photo log of the site. Use th	e table below, or attach separately.	
Attach a photo log of the site. Use th Photo log attached? 2 List photographs and include des	e table below, or attach separately. Yes INo If no, explain why not scriptions in the table below.	
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U.S. Army	Corps of Engineers (I	USACE)		From Approved -
RAPID ORDINARY HIGH WATER N	ARK (OHWM) FIELD	IDENTIFICATION D	ATA SHEET	OMB No. 0710-0025
The proponent age	ency is Headquarters USAC	E CECW-CO-R.		Expires: 01-31-2025
- Contractor of the second second	AGENCY DISC	CLOSURENOTICE	and a state of the second	and the second second
The popular eporting burgen to this collection a reviewing instructions, searching existing data information. Send comments regarding the bur Services, at <u>whs.ma-alex esd.mbx.dd-ddd-info</u> law, no person shall be subject to any penalty number.	sources, gathering and mai den estimate or burden red rmation-collections@mail.m for failing to comply with a c	in taining the data needed, i intaining the data needed, i uction suggestions to the D j). Respondents should be collection of information if it	and completing and epartment of Defense aware that notwiths does not display a	reviewing the collection of se, Washington Headquarters tanding any other provision of surrently valid OMB control
Project ID # Sada Min			Data and Tim	06/02/2022 18:52
	Site Name: #05		Date and This	6, 00/00/2023 10,02
Location (lat/long); 35.164413, -116.182409		Investigator(s) Bonnue	and Luis	
Step 1 Site overview from remote and online re	esources	Describe land u	ise and flow condit	ions from online resources.
Check boxes for online resources us	sed to evaluate site;	Open space. Augu	recent extreme even ist 2023 storm.	its (floods or drought)?
⊐ gege cener c⊒ LIDAR t⊉ geo V climatic data V satellite imagenu VII	nd use maps			
	er:			
as action provos car topographic maps L1 Oth				
orep a check the boxes next to the moleard	is used to identify the loca	ation of the OHWM.		
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Project ID #: Soda Mountain_05				
Step 4 Is additional information ne	eeded to support this determination?	No No	If yes, describe and attach inform	ation to datasheet:
				-
Stan 5 Describe rationale for loca	tion of OHMM			
OHWM Rationale: Change in sedimen OHWM width (ft): 60 OHWM depth (ft): 3	lation, vegetation, and topography.			
Dominant vegetation below OHWM: Large	arrea tridentata and ambrosia salsola			
Dominant vegetation above OHWM: L	arrea tridentata			
Additional observations or note	s			
Attach a photo log of the site. Use	the table below, or attach separately.			
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RAPID ORDINARY HIGH WATER MAI The proponent agence	orps of Engineers (U RK (OHWM) FIELD y is Headquarters USAC	JSACE) IDENTIFICATION D E CECW-CO-R.	ATA SHEET	From Approved - OMB No. 0710-0025 Expires: 01-31-2025
The public reporting burden for this collection of in reviewing instructions, searching existing data sou information. Send comments regarding the burden Services, at <u>whs.mc-alex.esd.mbx.dd-dod-informa</u> law, no person shall be subject to any penalty for number.	AGENCY DISC formation, 0710-OHWM urces, gathering and main n estimate or burden redu- ation-collections@mail.m failing to comply with a c	LOSURE NOTICE , is estimated to average 3 ntaining the data needed, juction suggestions to the D ju. Respondents should be ollection of information if it	0 minutes per resp and completing and epartment of Defens aware that notwiths does not display a	onse, including the time for reviewing the collection of se, Washington Headquarters tanding any other provision of currently valid OMB control
Project ID'#: Soda Mountain Silte	Name: #06		Date and Tim	e: 05/07/2023 18:15
Location (lat/long): 35.148987, -116.180009	-	Investigator(s)) Bonnie a	nd Luis	100.00
Step 1. Site overview from remote and online resources used Check boxes for online resources used gage data IDAR geologi I climatic data Isatellite imagery I and u I aenel photos Ø topographic maps O Other:	urces to evaluate site; ic maps usemaps	Describe land u Were there any Degraded roadbed	ise and flow condit recent extreme even I. Vehicle use. August 2	ions from online resources. ts (floods or drought)? 2023 storm.
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A REAL PROPERTY AND A REAL	06		
Step 4 Is additional information	on needed to support this determination?	No No	If yes, describe and attach information to datasheet:
Step 5 Describe rationale for OHVM Rationale: Na OHVM width (ft): OHVM depth (ft): Dominant vegetation below OHV Dominant vegetation at OHVM: 1 Dominant vegetation above OHV	location of OHWM M: Na Na M: Na		
Additional observations or Road does not convey parallel fic	notes ow.		
Attach a photo log of the site Photo log attached List photographs and inclu Number photographs in th	Use the table below, or attach separately. 1? If no, explain why not ude descriptions in the table below. he order that they are taken. Attach photographs	s and inclu	de annotations of features.
Attach a photo log of the site Photo log attached List photographs and inclu Number photographs in th Photo Number 06	Use the table below, or attach separately. Yes No If no, explain why not de descriptions in the table below. The order that they are taken. Attach photographs Photograph description Upslope. Photo direction is perpendic	s and inclu ular to road	de annotations of features.
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RAPID ORDINARY HIGH WATER MA	RK (OHWM) FIELD	DIDENTIFICATION D	ATA SHEET	Dimis No. 0/10-0025
The proponent agenc	y is Headquarters USAC	E CECW-CO-R.		expires: 01-31-2025
The public reporting burden for this collection of in reviewing instructions, searching existing data so information. Send comments regarding the burder Services, al <u>whs.mc-alex.esd mbx.dd-dod-informa</u> law, no person shall be subject to any penalty for number.	AGENCT DISC nformation, 0710-OHWM urces, gathering and main n estimate or burden red ation-collections@mail.m failing to comply with a c	1, is estimated to average 3 intaining the data needed, i uction suggestions to the D ji). Respondents should be collection of information if it	0 minutes per resp and completing and epartment of Defens aware that notwiths does not display a <	onse, including the time for reviewing the collection of se Washington Headquarters tanding any other provision of surrently valid OMB control
Project ID # Soda Mountain Site	Name: #07		Date and Tim	e: 09/07/2023 19:49
Location (lat/long): 35.143198, -116.168067		Investigator(s): Bonnie a	nd Luis	
		and the second		
Step 1 Site overview from remote and online resources used Check boxes for online resources used I gage data I LIDAR I climatic data I satellite imagery I climatic data I climatic data	urces to evaluate site: ic maps use maps	Describe land u Were there any r Open space. Augu	se and flow condit ecent extreme even st 2023 storm.	ions from online resources. ts (floods or drought)?
El aenal proces el topographic maps				
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Step 4 Is additional information need			
Step 4 13 additional mormation need	ad to support this datarmination?		If use describe and attach information to datasheat
Remote sensing data	ed to support this determination? En res		in yes, describe and attach mormation to datasheet.
Step 5 Describe rationale for location OHVM Rationale: Change in sedimentatio OHVM width (ft): 275 OHVM depth (ft): 1.5	r of OHWM on, vegetation, and topography.		
Dominant vegetation below OHWM: L. trid	entata and A. salsola.		
Dominant vegetation at OHWM: Dominant vegetation above OHWM: L. tric	lentata		
Dominian regelation above or run. c. an			
Additional observations or notes			
Attach a photo log of the site. Use the	e table below, or attach separately.		
Photo log attached?	Yes 🛛 No If no, explain why not		
List photographs and include des	criptions in the table below		
	sorptions in the table below.		
Number photographs in the orde	r that they are taken. Attach photographs	and inclu	de annotations of features.
Number photographs in the orde	r that they are taken. Attach photographs	and inclu	de annotations of features.
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RAPID ORDINARY HIGH WATER MA	RK (OHWM) FIELD	IDENTIFICATION D	ATA SHEET	OMB No. 0710-0025
The proponent agence	by is Headquarters USAC	E CECW-CO-R.		Expires: 01-31-2025
The public reporting burden for this collection of in reviewing instructions, searching existing data so information. Send comments regarding the burder Services, at <u>whs.mc-alex.esd mbx.dd-dod-inform</u> law, no person shall be subject to any penalty for number.	AGENCY DISC nformation, 0710-OHWM surces, gathering and mai n estimate or burden redu ation-collections@mail.m failing to comply with a c	LOSURE NOTICE is estimated to average 3 intaining the data needed, a cition suggestions to the D ii). Respondents should be ollection of information if it	0 minutes per resp and completing and epartment of Defen aware that notwiths does not display a	onse, including the time for reviewing the collection of se. Washington Headquarters tanding any other provision of surrently valid OMB control
Project ID #: Soda Mountain Site	e Name: #08		Date and Tim	e: 09/07/2023 19:14
Location (lat/long); 35.138014, -116.168682		Investigator(s)) Bonnie a	nd Luis	
Step 1 Site overview from remote and online resources used Check boxes for online resources used gage data IDAR geolog Z climatic data satellite imagery India Z aenel photos IZ topographic maps Other:	ources 1 to evaluate site: jic maps usemaps	Describe land u Were there any r Open space. Augu	ise and flow condit ecent extreme even st 2023 storm.	ions from online resources. ts (floods or drought)?
OHWM is at a transition point, therefore the drop-down menu next to each just above 'a' the OHWM. Go to page 2 to describe overall rationale Geomorphic indicators	some indicators that are indicator, select the appr for location of OHWM, w	used to determine location opriate location of the India rite any additional observat	n may be just below cator by selecting eil tions, and to attach a	and above the OHWM. From ther just below 'b', at 'x', or a photo log.
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	Shelving (berms	on bar:	Terrorite.	
undercut bank:	unvegetated:		Sediment Indicato	innels:
Amery borrow	U vegetation trans	ition (go to veg. indicators)		
Differ:Rounded Banks. Lower elevation than	L sediment trans	llon (go to sed. Indicators)	LI Soll develop	nent
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	transport evidence: b	and other bedload	L Muderacks:	
manual level manuale berms or levels:		ad indicators (c =		canidit-sized distribution
cther berms:	imbricated clasts, gr	avel sheets, etc.) b	Sand, Pebble	non (neninti saya ta Mealnu)
 Comparison of the second se	🔲 Bedforms (e.g., poo	ls, riffles, steps, etc.);	🖸 Upper limi	t of sand-sized particles
Vegetation Indicators			Sill deposits	
Change in vegetation type and/or density: x	🗖 forbs to			
Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs).	graminoids to:		Ancillary indicat	tors
Describe the vegetation transition looking from the middle of the channel, up the banks, and into the	woody shrubs to:		Wracking/pre	sence of organic litter b
floodplain,	deciduous trees to	6-	Presence of	arge wood:
and fit from an	Coniferous trees to	6	Leaflitter dis	turbed or washed away:
Vegetation absent to: Woody Shrubs		and the second	🛛 Water stainin	and the second se
☑ vegetation absent to: Woody Shrubs □ moss to:	Vegetation matted d	iown and/or bent:		g:
Vegetation absent to: Woody Shrubs	Vegetation matted of Exposed roots below	w intact soil layer:	C Weathered c	g: lasts or bedrock?

Project ID #: Soda Mountain_08			
Step 4 ls additional information	nearded to support this determination?		formation to datasheet
Remote eensing	receded to support this determination? En res	Li No in yes, describe and attachin	ionnation to datasheet.
Step 5 Describe rationale for loc OHWM Rationale: Change in vegeta OHWM width (ft): 3 OHWM depth (ft): 0.167 Dominant vegetation below OHWM: Dominant vegetation at OHWM:	ation of OHWM tion, sedimentation, and topography. None		
Dominant vegetation above OHVMI:	Larrea		
Attach a photo log of the site. Us Photo log attached? List photographs and include Number photographs in the o	e the table below, or attach separately. Yes No If no, explain why not descriptions in the table below. order that they are taken. Attach photographs a Photograph description	and include annotations of features.	
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RAPID ORDINARY HIGH WATER MA	orps of Engineers (U RK (OHWM) FIELD y is Headguarters USAC	JSACE) IDENTIFICATION D E CECW-CO-R.	ATA SHEET	From Approved - OMB No. 0710-0025 Expires: 01-31-2025
The public reporting burden for this collection of in reviewing instructions, searching existing data so information. Send comments regarding the burder Services, at <u>whs.mc-alex.esd.mbx.dd-dod-informa</u> law, no person shall be subject to any penalty for number.	AGENCY DISC formation, 0710-OHWM urces, gathering and main the stimate or burden redu- tion-collections@mail.m failing to comply with a c	LOSURE NOTICE is estimated to average 3 nataring the data needed, uction suggestions to the D J. Respondents should be ollection of information if it	0 minutes per resp and completing and lepartment of Defens aware that notwithst does not display a c	onse, including the time for reviewing the collection of se, Washington Headquarters tanding any other provision of currently valid OMB control
Project ID #. Soda Mountain Site	Name: #09		Date and Tim	e: 05/06/2023 22:37
Location (lat/long): 35.141901, -116.189309		Investigator(s)) Bonnie a	nd Luis	
Step 1 Site overview from remote and online resources used Check boxes for online resources used gage data I LIDAR I geologi I climatic data I satellite imagery I land u I aenal photos II topographic maps I Other:	urces to evaluate site; ic maps icemaps	Describe land u Were there any Open space. Augu	ise and flow condit recent extreme even st 2023 storm.	ions from online resources. ts (floods or drought)?
the drop-down menu next to each just above 'a' the OHWM. Go to page 2 to describe overall rationale Geomorphic indicators Break in slope: x	for location of OHWM, w	opriate location of the Indi rite any additional observa	cator by selecting eit tions, and to attach a marks, scour,	her just below 'b', at' x', or a photo log. bedioad indicators (e.g., obstacle smoothing, etc.)
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valley parton: Other:Shallow depth with sedimentation as Shelving:	U vegetation trans	ittion (go to veg. Indicators) ittion (go to sed. Indicators) of deposition on bar:	Soil develop	nent: haracter of soil: #
skelf al top of bank natural levee: natural levee:	Instream bedforms transport evidence: b	and other bedload	Muderacks:	oanidik-sized districture
direr berms:	Bedforms (e.g., por	avel sheets, etc.) ls, riffles, steps, etc.);	Upperlimi	from Pebble to Cooble
Vegetation Indicators				
Change in vegetation type and/or density: x Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain,	forbs to: graminoids to: woody shrubs to: deciduous trees to		Ancillary Indicat	tors sence of organic litter, b large wood:
	coniferous trees to	a:	Leaflitter dist	turbed or washed away:
Vegetation absent to: Woody Shrubs	Vegetation matted o	w intact soil layer:	C Weathered d	g: lasts or bedrock?

100000 00 00 0000 00000		
Sten 4 is additional information	n needed to support this determination?	to datasheat
Remote sensing data		to datasneet.
Step 5 Describe rationale for k OHVM Rationale: Change in sedir	ocation of OHWM mentation, vegetation, and topograchy.	
OHVM width (ft): 9		
Dominant vegetation below OHWM	M: Unvegetated	
Dominant vegetation at OHWM: An	mbrosia sp	
Dominant vegetation above OHWM	M: Laurea tridentata	
Additional observations or n	notes	
Attach a photo log of the site.	Use the table below, or attach separately	
Attach a photo log of the site. I	Use the table below, or attach separately.	
Attach a photo log of the site. I Photo log attached?	Use the table below, or attach separately. View I Yes I No If no, explain why not de descriptions in the table below.	
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Attach a photo log of the site. t Photo log attached? List photographs and includ Number photographs in the Photo Number rohwm#9	Use the table below, or attach separately. P P If no, explain why not de descriptions in the table below. e order that they are taken. Attach photographs and include annotations of features. Photograph description #9 Photos	
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U.S. Army C	orps of Engineers (l	USACE)		From Approved -
RAPID ORDINARY HIGH WATER MA	RK (OHWM) FIELD	IDENTIFICATION D	ATA SHEET	OMB No. 0710-0025
The proponent agence	y is Headquarters USAC	E CECW-CO-R.	and the grade of	Expires: 01-31-2025
and the second second second second	AGENCY DISC	CLOSURENOTICE		
The public reporting burden for this collection of in reviewing instructions, searching existing data so information. Send comments regarding the burder Services, at <u>whs.mc-alex esd.mbx.dd-dod-informa</u> law, no person shall be subject to any penalty for number.	normation, 0/10-OHWM urces, gathering and main n estimate or burden redu ation-collections@mail.m failing to comply with a c	h, is estimated to average 3 intaining the data needed, i uction suggestions to the D j). Respondents should be collection of information if it	o minutes per resp and completing and Department of Defense aware that notwiths does not display a	onse, including the time for reviewing the collection of se, Washington Headquarters tanding any other provision of currently valid OMB control
Drainet ID # Sada Maustain	Name #10		Data and Tim	- 06/02/2022 16:21
	Name, wit		Date and min	6, 05/06/2023 10,21
Location (lat/long): 35.169095116.185545		Investigator(s)) Bonnie a	and Luis	
Class 1 City and and the second sector and well as a second	interiore.	Departies local of	and Barris and H	laura france a silica anno anno a
Check boxes for online resources used	to evaluate site;	Were there any r	recent extreme even	its (floods or drought)?
🗹 gage data 🗹 LiDAR 🛛 🗹 geolog	ic maps	Open space. Augu	ist 2023 storm.	and the second se
🗹 climatic data 🗹 satellite imagery 🛛 🖾 land u	use maps			
aenal photos 🗹 topographic maps 🛛 🗍 Other:				
Stan 2 Olto sandilizate during field approximate E	inst look for abandon in al	hourd during domantional	and provinceal factor	mat and should be
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Project ID #. Soda mur#10			
Step 4 Is additional informati	on needed to support this determination?	No 🛛	If yes, describe and attach information to datasheel
Step 5 Describe rationale for OHVM Rationale:	r location of OHWM		
OHVVM width (ft): 32			
OHVVM depth (ft): 2 Dominant vegetation below OHV	VM: L. tridentata and Ambrosia sp.		
Dominant vegetation at OHWM:	L. tridentata		
Dominant vegetation above OHV	vivi: L. Indentata.		
Additional observations or	notes		
Attach a photo log of the site	. Use the table below, or attach separately.		
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APPENDIX E

Aquatics Resources Inventory Delineation Sheets



Figure E-26. Aquatic resources inventory delineation sheet (1 of 3).



Figure E-26. Aquatic resources inventory delineation sheet (2 of 3).



Figure E-26. Aquatic resources inventory delineation sheet (3 of 3).



Figure E-27. Aquatic resources feature names (1 of 3).



Figure E-27. Aquatic resources feature names (2 of 3).



Figure E-27. Aquatic resources feature names (3 of 3).