DOCKETED	
Docket Number:	23-AFC-01
Project Title:	Morton Bay Geothermal Project (MBGP)
TN #:	252694
Document Title:	Morton Bay Geothermal Project Approved Jurisdictional Determination Request
Description:	N/A
Filer:	Lindsey Xayachack
Organization:	Jacobs
Submitter Role:	Applicant Consultant
Submission Date:	10/24/2023 10:19:47 AM
Docketed Date:	10/24/2023

Morton Bay Geothermal LLC
4124 NW Urbandale Drive
Urbandale, IA 50322

Jon Trujillo
General Manager, Geothermal Development

Carlsbad Field Office
Department of the Army, Corps of Engineers
San Diego and Imperial Counties Section
Los Angeles District, Regulatory Division
5900 La Place Ct., Suite 100
Carlsbad, CA 92008-8832

Re: Approved Jurisdictional Determination Request for Morton Bay Geothermal Project

To whom it may concern:

Morton Bay Geothermal LLC is proposing to construct the Morton Bay Geothermal Project (MBGP) in Imperial County, California (Figure 1 in Attachment 1). The Project will consist of a geothermal facility, nine production wells, and 11 injection wells. Production and injection wells will be connected to the geothermal facility by aboveground pipelines supported on metal pedestals in concrete foundations. A generation tie line will connect the site to a switching station. The California Energy Commission (CEC) is the California Environmental Quality Act (CEQA) Lead Agency for permitting and environmental review. Final approval is anticipated by October 2024, and construction is anticipated to start in spring 2025.

A portion of the study area has already been reviewed by the Environmental Protection Agency as a part of their evaluation of actions taken by the Imperial Irrigation District. I have attached a copy of the Administrative Order of Consent for your review (Attachment 3).

To identify potential permitting and mitigation needs, Morton Bay Geothermal LLC requests an approved jurisdictional determination for aquatic resources identified at the project site. To aid in your review of this request, this submittal includes:

- Attachment 1 - Request for Corps Jurisdictional Determination form
- Attachment 2 - MBGP Aquatic Resources Delineation Report
- Attachment 3 - Administrative Order of Consent between Imperial Irrigation District and the Environmental Protection Agency

I am the agent in obtaining the Corps of Engineers' determination. Please send your concurrence to the following address:

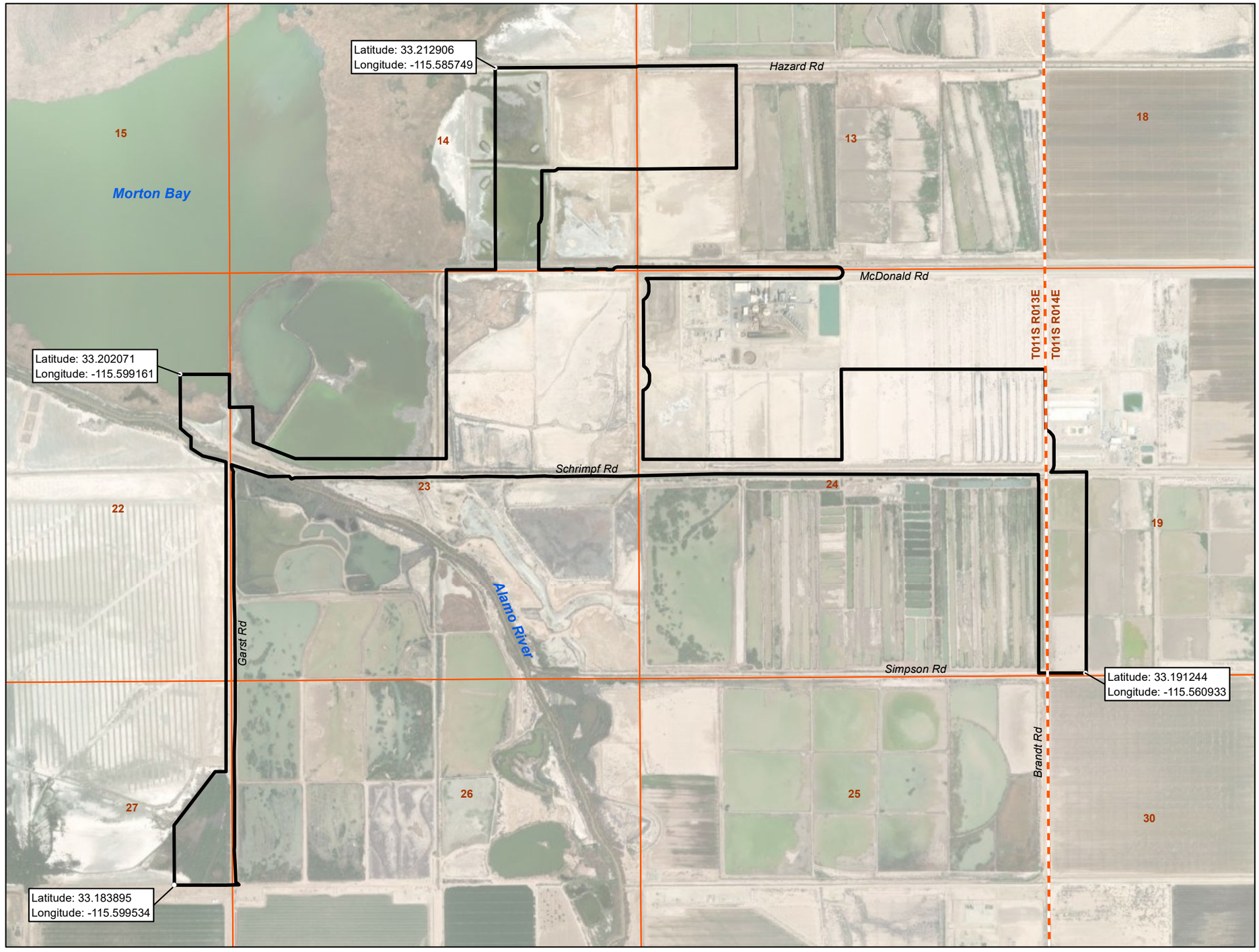
Jon Trujillo
Morton Bay Geothermal LLC
7030 Gentry Road
Calipatria, CA 92233

If you have any questions or need additional information, please contact Anoop Sukumaran at 760-348-4275 (email address: Anoop.Sukumaran@calenergy.com) or Jerry Salamy at (916) 769-8919 (email address: Jerry.Salamy@jacobs.com).

Sincerely,

Jon Trujillo
General Manager, Geothermal Development

Figure



Legend

- Review Area for Jurisdictional Determination (478.4 acres)
- Township Range Boundary
- Section Boundary

Basemap Source: Esri World Imagery

NAD_1983_StatePlane_California_VI_FIPS_0406_Feet
Projection: Lambert_Conformal_Conic
False_Easting: 6561666.666666666
False_Northing: 1640416.666666667
Central_Meridian: -116.25
Standard_Parallel_1: 32.78333333333333
Standard_Parallel_2: 33.88333333333333
Latitude_Of_Origin: 32.16666666666666
Linear Unit: Foot_US (0.3048006096012192)
USGS Quads: Niland, Obsidian Butte

N

0 0.125 0.25 0.5
Miles

Figure 1
Regional Vicinity Map
Approved Jurisdictional Determination Request
Morton Bay Geothermal Project
Imperial County, California

Jacobs

\\dc1vs01\GISProj\B\BHE_Renewables\Imperial_Valley\MapFiles\Delineation\MB\Approved_JD_Request_230822.mxd

Attachment 1
Request for Corps Jurisdictional Determination Form

U.S. ARMY CORPS OF ENGINEERS

REQUEST FOR CORPS JURISDICTIONAL DETERMINATION

***Authorities**: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332. **Principal Purpose**: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above. **Routine Uses**: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website. **Disclosure**: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

CORPS USE ONLY:
DATE RECEIVED:

PROJECT NO.:

1. PROPERTY LOCATION:

Street Address: Please see figure attachment

City/Township/Parish: Calipatria

County: Imperial County State: CA

Acreage of Parcel/Review Area for JD:

Section: 14 Township: 11S Range: 13E

Latitude: 33.202072 Longitude: -115.584065

(For linear projects, please include the center point of the proposed alignment.)

2.REQUESTOR CONTACT INFORMATION:

Typed or Printed Name: Jon Trujillo

Company Name: Morton Bay Geothermal LLC

Street Address: 7030 Gentry Road

City: Calipatria State: CA ZIP: 92233

Phone Number: (760) 604-0045

E-mail: Jon.Trujillo@calenergy.com

3. MAP: Please attach a survey/plat map and vicinity map identifying location and review area for the JD.

4. REASON FOR REQUEST (check as many as applicable):

- ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
- ☒ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
- ☒ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
- ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
- ☐ A Corps JD is required in order to obtain my local/state authorization.
- ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
- ☐ I believe that the site may be comprised entirely of dry land.
- ☐ Other:

5. TYPE OF DETERMINATION BEING REQUESTED:

- ☒ I am requesting an approved JD.
- ☐ I am requesting a preliminary JD.
- ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
- ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

6. OWNERSHIP DETAILS:

- ☐ I currently own this property.
- ☐ I plan to purchase this property.
- ☒ I am an agent/consultant acting on behalf of the requestor.
- ☐ Other (please explain:)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Signature: J Trujillo Date: October 4, 2023

Attachment 2
MBGP Aquatic Resources Delineation Report

Aquatic Resources Delineation Report

Morton Bay Geothermal LLC

Morton Bay Geothermal Project
October 5, 2023

Executive Summary

On behalf of Morton Bay Geothermal LLC, Jacobs completed a delineation of aquatic resources for the proposed Morton Bay Geothermal Project (Project) in Imperial County, California. The Project will consist of a geothermal facility, nine production wells, and 11 injection wells. Production and injection wells will be connected to the geothermal facility by aboveground pipelines supported on metal pedestals in concrete foundations. A generation tie-line will connect the site to a switching station.

A study to delineate aquatic resources potentially subject to regulation under Clean Water Act Sections 404 and 401 and California Fish and Game Code Sections 1600 et seq. was conducted for the proposed Project. The delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the Ordinary High Water Mark (OHWM) Regulatory Guidance Letter No. 05-05 (USACE 2005), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (USACE 2008), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008), *the Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010), and the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021). The boundaries of features potentially under FGC Section 1600 jurisdiction were delineated using *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-scale Solar Power Plants* (Brady and Vyverberg 2014) and A *Review of Stream Processes and Forms in Dryland Watersheds* (CDFG 2010).

The study area for the aquatic resource delineation is approximately 1,665.56 acres and encompasses all potential disturbance areas associated with Project construction, operations, and maintenance. Canals, drains, and other irrigation infrastructure operated by the Imperial Irrigation District (IID) were excluded from the delineation because they will not be impacted by Project implementation. The delineation identified approximately 58.78 acres of aquatic resources in the study area, including 18.14 acres of wetlands (two palustrine emergent and three palustrine scrub-shrub), 1.41 acre (1,589 linear feet) of watercourses (one perennial and one intermittent), and 39.23 acres of other aquatic resources (Morton Bay, two salt flats, and three excavated features). The boundaries of potential waters of the U.S. described and mapped in this report should be considered preliminary until verified by USACE.

Contents

Appendices

Tables

Figures

Acronyms and Abbreviations

°F	degree(s) Fahrenheit
amsl	above mean sea level
bgs	below the ground surface
CDFW	California Department of Fish and Wildlife
CFR	*Code of Federal Regulations*
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 Position System
IID	Imperial Irrigation District
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent marsh
Project	Morton Bay Geothermal Project
PSS	palustrine scrub-shrub
RWQCB	Regional Water Quality Control Board – Colorado River Basin
SR	State Route
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WoUS	Waters of the U.S.
WRCC	Western Regional Climate Center
WSC	Waters of the State of California

1 Introduction

On behalf of Morton Bay Geothermal LLC, Jacobs completed a delineation of aquatic resources for the proposed Morton Bay Geothermal Project (Project) in Imperial County, California. The Project will consist of a geothermal facility, nine production wells, and 11 injection wells. Production and injection wells will be connected to the geothermal facility by aboveground pipelines supported on metal pedestals in concrete foundations. A generation tie-line will connect the site to a switching station.

This report was prepared following the U.S. Army Corps of Engineers' (USACE) *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE Sacramento District 2016) and *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE South Pacific Division 2016). The boundaries of potential waters of the U.S. described and mapped in this report should be considered preliminary until verified by USACE.

2 Study Area Description

The study area for the aquatic resource delineation is approximately 1,665.56 acres and encompasses all potential disturbance areas associated with Project construction, operations, and maintenance. Canals, drains, and other irrigation infrastructure operated by the Imperial Irrigation District (IID) were excluded from the delineation because they will not be impacted by Project implementation.

The study area is near the southeastern shore of the Salton Sea, approximately 5.5 miles northwest of Calipatria in Imperial County, California (Appendix A, Figure 1). From Palm Springs, head east on Interstate 10 to the junction with California State Route (SR) 86, then head south approximately 12 miles to 66th Street. Turn east and travel 0.8 mile to the junction with SR 111. From here, turn south and follow SR 111 approximately 47.6 miles. Turn west at the junction with Sinclair Road, then travel 4.6 miles to Garst Road. Head north for 0.5 mile to the approximate center of the study area. The legal description includes Sections 19 and 30, Township 11S Range 14E (T11S, R14E); Sections 13, 14, 22, 23, 24, 26, 27, 33, 34 and 36, Township 11S Range 13E (T11S, R13E); and Sections 3 through 5, Township 12S Range 13E (T12S R13E).

The study area lies within an ecoregion known as the Salton Sink (CDFW 2022), which is defined by a low area surrounded by mountains with no outlet for flowing water. Much of the Imperial Valley is below sea level and is surrounded by mountain ranges. The Chocolate Mountains to the east and northeast reach elevations exceeding 2,000 feet above mean sea level (amsl), while the Santa Rosa Mountains to the west and northwest are approximately 4,500 feet amsl. The Salton Sea is the lowest point in the valley, at a current elevation of approximately 227 feet below (-227 ft) mean sea level.

2.1 Land Use

The dominant land use within the study area is agriculture, followed by geothermal energy facilities. Approximately 20 percent (588,416 acres) of Imperial County is irrigated for agricultural purposes (Imperial County 2015). Crops grown here are extremely diverse and include melons, cotton, assorted citrus, nuts and other fruits, and common vegetables such as lettuce, carrots, onions, tomatoes, cauliflower, and broccoli. Additional crops include alfalfa, Sudan grass, and other animal feed; sugar beets; and wheat and other grains.

2.2 Climate

Based on long-term data collected at Brawley, approximately 15.9 miles south-southeast of the southwestern corner of the Project area, precipitation levels peak from December through March (Table 1). The average low January temperature is 69.4 degrees Fahrenheit (°F), and the average high July temperature is 107.6°F (WRCC 2022). The total average annual precipitation is 2.65 inches.

Table 1. Monthly Climate Summary, Brawley, California (041048), 1910 to 2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	69.4	73.7	79.0	86.0	94.1	102.9	107.6	106.5	102.3	91.3	78.8	69.9	88.5
Average Min. Temperature (°F)	38.9	43.1	47.6	53.2	59.8	66.8	75.2	75.8	69.5	57.8	46.0	39.2	56.1
Average Total Precipitation (in.)	0.40	0.39	0.26	0.11	0.03	0.01	0.05	0.30	0.25	0.22	0.17	0.46	2.65

Source: WRCC 2022

2.3 Hydrology

The study area is located within the Salton Sea Watershed (18100200) hydrologic unit (USGS 2022a). The dominant hydrologic features in the study area include Morton Bay and the Alamo River. The Salton Sea was created when the Colorado River flooded in 1905 and ran uncontrolled through Imperial Valley, inundating 488 square miles of farmland. IID has operated the water delivery system since 1911 and maintains a large network of drains and canals within the study area (IID 2021) (Appendix A, Figure 2). The Salton Sea is a traditional navigable water under Section 404 (USACE – Los Angeles District 2001).

A review of National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) maps identified several reservoirs, excavated ponds, and areas of palustrine scrub-shrub (PSS) and palustrine emergent marsh (PEM) wetlands within the study area (USFWS 2022, USGS 2022b) (Appendix A, Figure 2).

The Project is covered by one Flood Insurance Rate Map, 06025C0725C. This map identifies the western portion of the study area contiguous with the Salton Sea as Zone A. The Federal Emergency Management Agency defines Zone A as "area subject to inundation by the 1 percent annual chance flood with no base flood elevation determined" (FEMA 2022).

2.4 Vegetation

The study area is within the Imperial/Lower Coachella Valleys Level IV ecoregion, as classified by Ecoregions of California (Griffith et al. 2016). The Colorado River deposited silt and sediments during the Quaternary period; these deposits make rich agricultural soils. With assistance from imported Colorado River water and an extensive canal system, cropland dominates the ecoregion's land cover. Vegetation in and around the study area consists of row crops, associated ruderal species, and wetlands fringing water features.

2.5 Soils

Soils within the study area formed primarily on flood plains and alluvial basin floors with surficial deposits consisting predominately of silty clay loams overlying fine sands of the Imperial soil group (USDA-NRCS 2022). The native surface clays likely exhibit moderate to high swell potential (Expansion Index, EI = 70 to 110). The clay is expansive when wetted and can shrink with moisture loss (drying). In addition, the native soil is severely corrosive to metals and contains sulfates and chlorides. Because of extensive irrigation in the vicinity and proximity to the Salton Sea, a perched water table often is present at depths of 0 to 80 inches, frequently at the surface during periods of heavy irrigation. A soil resource report for the study area is presented in Appendix B.

Lacustrine basin soils in the IID water service area formed on nearly level lakebeds in the vicinity of prehistoric Lake Cahuilla. These soils consist of silty clays, silty clay loams, and clay loams that are deep and highly calcareous, containing gypsum and soluble salts. The central areas of the IID water service area typically have fine-textured silts, which are primarily used for crops. Soils within Imperial County have no potential for farming unless irrigated, because of the dry climate. Continued agricultural use of soils within the IID water service area requires both irrigation and the installation of subsurface tile drains to transport water and salts that would otherwise build up in the soils and prevent crop growth (CH2M HILL 2002).

3 Regulatory Setting

The jurisdictional limits of regulatory agencies vary because of differing regulations and jurisdictional definitions. Sections 3.1, 3.2, and 3.3 describe USACE, Regional Water Quality Control Board – Colorado River Basin Region (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction over wetlands, watercourses, and other aquatic resources.

3.1 Clean Water Act Sections 404 and 401

The Clean Water Act (CWA) was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters through the elimination of discharges of pollutants. In support of this goal, the CWA established permit programs to control discharges into Waters of the US (WoUS) and provided the U.S. Environmental Protection Agency (EPA) and U.S. Army with regulatory authority to issue permits. Section 404 established a program to regulate the discharge of dredged or fill material into WoUS and requires the issuance of a permit for any activities resulting in such discharge unless an exemption applies. Section 401 requires any applicant for a federal license or permit that involves discharges into a navigable water (e.g., Section 404 permit) to also obtain a water quality certification demonstrating that the activity complies with the CWA. The USACE issues Section 404 permits, and the RWQCB issues Section 401 certifications.

The EPA and USACE are responsible for making all final jurisdictional determinations as to whether aquatic resources constitute WoUS. The definition for what constitutes a WoUS has been the subject of recent litigation and regulatory changes. On March 20, 2023, the final "Revised Definition of 'Waters of the United States'" rule went into effect. However, the final rule is not currently operative in certain states and for certain parties due to litigation. On May 25, 2023, the U.S. Supreme Court issued a decision in *Sackett v. Environmental Protection Agency ("Sackett v. EPA"*), holding that the CWA extends only to wetlands with a continuous surface connection to a WoUS. As a result, on August 29, 2023, the EPA and USACE issued amended regulatory language to conform the definition of "waters of the United States" to *Sackett v. EPA*. On September 8, 2023, the conformed definition became effective and is currently the operative definition for California. Aquatic resources that constitute WoUS are defined in Section 328.3 of Title 33 of the Code of Federal Regulations. WoUS include waters which are "currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce", and certain tributaries to, and wetlands adjacent to, those waters (*Code of Federal Regulations* Title 33, Section 328.3 [33 CFR 328.3]). WoUS can include lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. According to 33 CFR 328.4(c), the following are the limits of federal jurisdiction in non-tidal waters:

- In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHWM).
- When adjacent wetlands are present, the jurisdiction extends beyond the OHWM to the limit of the adjacent wetlands.
- When the WoUS consists only of wetlands the jurisdiction extends to the limit of the wetland.

Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(c)(16)). Under the amended *Revised Definition of Waters of the United States,* adjacent wetlands means wetlands that:

- Abut, meaning to touch at least at one point or side of, a water identified in Section 328.3(a)(1), (2), or (3);
- Are inundated by flooding from a water identified in Section 328.3(a)(1), (2), or (3) in a typical year;
- Are physically separated from a water identified in Section 328.3(a)(1), (2), or (3) only by a natural berm, bank, dune, or similar natural feature; or

- Are physically separated from a water identified in Section 328.3(a)(1), (2), or (3) of this section only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection between the wetlands and the water identified in Section 328.3(a)(1), (2) or (3) of this section in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

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 328.3(c)(4)).

Wetlands are important ecological resources that perform many functions including groundwater recharge, flood flow attenuation and conveyance, erosion control, and water quality improvement. They also provide habitat for many plants and animals, including sensitive species.

3.2 Porter-Cologne Water Quality Control Act

Through the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board (SWRCB) and RWQCB have jurisdiction over Waters of the State of California (WSC), which include WoUS but may also include isolated water bodies and non-federally jurisdictional wetlands. The SWRCB defines a wetland as (SWRCB 2021), "an area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation." Under this definition, potential WSC must meet at least two of the USACE parameters: the development of hydric soils can be assumed in areas with wetland hydrology sufficient to support a dominant hydrophytic vegetation community. Therefore, a wetland may be considered both a WoUS and a WSC by meeting all three parameters. Further, areas meeting two parameters typically considered upland under the WoUS definition may be considered a wetland under the SWRCB definition.

3.3 California Fish and Game Code Sections 1600 et seq.

The CDFW has jurisdiction over the bed and bank of a lake or stream and associated wildlife and habitats as established in California Fish and Game Code Sections 1600–1616. In accordance with Section 1602 of the Code (Lake or Streambed Alteration), the CDFW regulates activities that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" and requires notification prior to such activities. In addition, Section 1603 of the Code states that "after the notification is complete, the department shall determine whether the activity may substantially adversely affect an existing fish and wildlife resource," and a Lake or Streambed Alteration Agreement may be pursued. These regulations were established to protect the wildlife resources that are associated with the riparian habitats that occur within and adjacent to ephemeral or year-round drainage systems. In practice, the CDFW generally interprets their jurisdictional limits to include the drainages extending from the top of the bank to the top of the bank and to the outer drip line in areas containing riparian vegetation.

4 Methods

4.1 Pre-field Investigation

General information on climate, vegetation, soils, hydrology, and existing wetlands were reviewed before the field survey. Data sources included U.S. Geological Survey (USGS) topographic maps, NWI (USFWS 2020), NHD (USGS 2016), U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (2022), and satellite imagery (ESRI 2022).

4.2 Field Survey

Jacobs biologists conducted the aquatic resources delineation in March 2022. Rachel Newton and Rebecca John surveyed the southwestern portion of the study area on March 1 and 2. Newton returned with Morgan King to survey the remaining areas on March 11 through 14. The field survey was limited to the 1,665.56-acre study area; IID-operated drains and canals within the study area were excluded from the delineation because they will not be impacted by Project implementation.

The survey methodology followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the Ordinary High Water Mark (OHWM) Regulatory Guidance Letter No. 05-05 (USACE 2005), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (USACE 2008), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008), and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010). The boundaries of features potentially under FGC Section 1600 jurisdiction were delineated using *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-scale Solar Power Plants* (Brady and Vyverberg 2014) and *A Review of Stream Processes and Forms in Dryland Watersheds* (CDFG 2010).

Wetland indicator statuses for plants were taken from The National Wetland Plant List, version 3.5 (USACE 2020). A list of each plant species identified during this delineation and its wetland indicator status is presented in Appendix C.

All mapping was conducted with a handheld Global Positioning System (GPS) unit with submeter accuracy. Data were collected in North American Datum of 1983 California State Plane Zone 6 in U.S. survey feet. Geographic information system (GIS) data were post-processed using ArcGIS 10.8.2.

5 Results

The field delineation identified approximately 58.78 acres of aquatic resources potentially under the jurisdiction of USACE and RWQCB in the study area. Detailed results of wetlands, watercourses, and other aquatic resources are presented in Tables 2-1, 2-2, and 2-3, respectively. Descriptions of the delineated features are presented in the following paragraphs. The results are also shown in Appendix A, Figure 4. Representative photographs are presented in Appendix D, and USACE wetland and OHWM data sheets are presented in Appendix E.

5.1 Wetlands

A total of 18.14 acres of wetlands were identified during the field delineation. Under the USACE delineation methodology, wetlands display evidence of three parameters: dominant hydrophytic vegetation, the presence of hydric soils, and evidence of wetland hydrology. Within the study area, locations meeting these parameters included two PEM and three PSS wetlands.

PEM-1A/B/C/D (0.64 acre) – PEM-1 is a fringe palustrine emergent wetland found along the banks of perennial stream PS-1 Alamo River (Appendix A, Figure 4E; Appendix D, Photos 6A, 6B and 7; Appendix E, S-7). Dominant herbaceous vegetation at this wetland includes giant-reed (*Arundo donax,* facultative wetland [FACW]. Saturation was evident at a depth of 8 inches below the ground surface (bgs), and the water table was encountered at 10 inches bgs. The soil profile consisted of 8 inches of brown sand (7.5YR 4/3) overlaying a gray clay matrix (2.5Y 6/1) with strong brown redoximorphic concentrations (7.5YR 4/6). This profile met the F3 Depleted Matrix soil indicator. PEM-1 has a continuous surface connection with the Alamo River, which flows northwest into the Salton Sea.

PSS-1 (0.48 acre) – PSS-1 a depressional/fringe palustrine scrub-shrub wetland found along L1UBH-1 Morton Bay (Appendix A, Figure 4E; Appendix D, Photo 9; Appendix E, S-9). Dominant woody vegetation at this wetland includes salt-cedar (*Tamarix* sp., facultative [FAC]). Herbaceous vegetation includes giant-reed and saltmarsh club-rush (*Schoenoplectus maritimus,* obligate [OBL]). Saturation and the water table were evident at a depth of 8 inches bgs. The soil profile consisted of a top layer of light brownish grey silty clay (2.5Y 6/2), followed by alternating layers of greenish gray (10Y 5/Gley 1 and 10Y 6/Gley 1) and grayish brown (10YR 5/2) clays with strong brown (7.5 YR 4/6) redoximorphic concentrations. This profile met the F3 Depleted Matrix soil indicator. PSS-1 has a continuous surface connection with Morton Bay and the Salton Sea.

PEM-2A/B (7.43 acres) – PEM-2 is a depressional/fringe palustrine emergent wetland found along L1UBH-1 Morton Bay (Appendix A, Figure 4E; Appendix D, Photos 13A and 13B; Appendix E, S-13). Dominant herbaceous vegetation at this wetland includes saltmarsh club-rush and southern cattail (*Typha domingensis,* OBL). At the time of the survey, surface water was approximately 2 inches deep. Soils were not investigated for this sample point but were assumed in the presence of dominant OBL vegetation and standing water. PEM-2 has a continuous surface connection with Morton Bay and the Salton Sea.

PSS-2A/B (0.67 acre) – PSS-2 is a depressional/fringe palustrine scrub-shrub wetland found along L1UBH-1 Morton Bay and the excavated lake L1UBHx-1 (Appendix A, Figure 4E; Appendix D, Photos 15A and 15B; Appendix E, S-15). Dominant woody vegetation at this wetland includes salt-cedar and iodine-bush (*Allenrolfea occidentalis,* FACW). Saturation was encountered at 10 inches bgs, and the water table at 14 inches bgs. The top 5 inches of the soil profile consisted of grayish brown (2.5Y 5/2) and strong brown (7.5YR 5/8) sand. The remainder of the soil profile contained olive gray (5Y 5/2) sandy clay with strong brown (7.5 YR 5/8) redoximorphic concentrations. PSS-2 has a continuous surface connection with Morton Bay and the Salton Sea.

PSS-3 (8.92 acres) – PSS-3 is a depressional/fringe palustrine scrub-shrub wetland found on the northeastern edge of Morton Bay (Appendix A, Figure 4K; Appendix D, Photos 27A and 27B; Appendix E, S-27). This wetland is dominated by salt-cedar, and saturation and the water table were encountered at 9 inches bgs. The soil profile consisted of light olive gray (5Y 6/2) clay with yellowish red (5YR 4/6) redoximorphic concentrations. The soil profile met the F3 Depleted Matrix indicator. This area is bordered

by constructed berms but has a continuous surface connection to Morton Bay and the Salton Sea through a small channel in the western berm.

Table 2-1. Summary of Wetlands Investigated within the Project Study Area

Feature ID	Description	Cowardin Classification*	Latitude / Longitude	Acreage within Study Area
PEM-1A	fringe	palustrine emergent	33.198696 / -115.59586	0.16
PEM-1B	fringe	palustrine emergent	33.198886 / -115.595927	0.22
PEM-1C	fringe	palustrine emergent	33.199288 / -115.59804	0.12
PEM-1D	fringe	palustrine emergent	33.199448 / -115.598	0.14
PSS-1	depressional/fringe	palustrine scrub-shrub	33.200402 / -115.598008	0.48
PEM-2A	depressional/fringe	palustrine emergent	33.201599 / -115.598818	5.36
PEM-2B	depressional/fringe	palustrine emergent	33.200181 / -115.596385	2.07
PSS-2A	depressional/fringe	palustrine scrub-shrub	33.199511 / -115.596142	0.21
PSS-2B	depressional/fringe	palustrine scrub-shrub	33.198996 / -115.594512	0.46
PSS-3	depressional/fringe	palustrine scrub-shrub	33.211227 / -115.584859	8.92
			Total Wetlands	18.14

* Cowardin et al. 1979.

5.2 Watercourses

Two watercourses were identified during the field delineation: the Alamo River and a ditch. These features totaled 1.41 acres (1,589 linear feet).

PS-1 (1.40 acre, 1,295 linear feet) – PS-1, the Alamo River, is an NHD-mapped perennial stream flowing southeast to northwest before terminating in the Salton Sea (Appendix A, Figure 4E; Appendix D, Photos 6A and 6B; Appendix E, S-6). Observed OHWM indicators include defined bed and bank, break in bank slope, and change in vegetation cover and composition. PS-1 is fringed by palustrine emergent wetland PEM-1, and averages 50 feet wide between OHWMs. The substrate was indiscernible at the time of the survey but is likely silt and sand.

Ditch-1 (0.01 acre, 294 linear feet) – Ditch-1 is an unmapped intermittent drainage flowing north to south through PUBC-1A toward Morton Bay (Appendix A, Figure 4E; Appendix D, Photo 12; Appendix E, S-12). Ditch-1 is approximately 2 feet wide between OHWMs and has an approximate depth of 6 inches. The substrate is silt and sand. Observed indicators include defined bed and bank and impressed line in the bank. This ditch appears to have been constructed to facilitate drainage away from the adjacent dirt road.

Table 2-2. Summary of Watercourses Investigated within the Project Study Area

Feature ID	Description	Flow Classification	Latitude / Longitude	Average Width of OHWM (ft)	Acreage within Study Area (linear ft)
PS-1 Alamo River	Alamo River	perennial	33.199033 / -115.596787	50	1.40 (1,295)
Ditch-1	constructed drainage	intermittent	33.200194 / -115.59715	2	0.01 (294)
				Total Watercourses	1.41 (1,589)

5.3 Other Aquatic Resources

A total of 39.23 acres of other aquatic resources were identified during the field delineation. Resources in this section meet two of the three USACE wetland delineation parameters and may qualify as WoUS or WSC. Within the study area, this includes Morton Bay, two salt flats, and three excavated waterbodies.

PUBC1A/B (3.70 acres) – PUBC-1 is a depressional/fringe salt flat occupying a transitional area between upland areas and fringing wetlands PSS-1 and PEM-2 along Morton Bay (Appendix A, Figure 4E; Appendix D, Photos 10A and 10B; Appendix E, S-10). This area is mapped by NWI as a lake (L2USC) and was previously inundated by the Salton Sea. Observed hydrologic indicators included a salt crust, and saturation and water table encountered at 8 inches bgs. The soil profile consisted of grayish brown (2.5Y 5/2) silty clay, gray (5Y 5/1) clay loam, and gray (2.5Y 6/1) clay with strong brown (7.5 YR 4/6) redoximorphic concentrations. The soil profile met the F3 Depleted Matrix indicator. This palustrine salt flat is seasonally flooded, has an unconsolidated bottom and no vegetation present. PUBC-1 has a continuous surface connection with Morton Bay.

L1UBH-1 (2.77 acres) – L1UBH-1, Morton Bay, is an NWI- and NHD-mapped waterbody forming part of the Salton Sea (Appendix A, Figure 4E; Appendix D, Photo14; Appendix E, S-14). Morton Bay has been impounded on its eastern shores and is presumed to have a depth of greater than 6 feet. Fringing herbaceous vegetation includes southern cattail and saltmarsh club-rush, and woody vegetation includes salt-cedar and iodine-bush. Morton Bay has a continuous surface connection with the Salton Sea outside the study area.

L1UBHx-1 (3.72 acres) – L1UBHx-1 is an NWI- and NHD-mapped excavated lake immediately east of Morton Bay (Appendix A, Figures 4E and 4F; Appendix D, Photo 18; Appendix E, S-18). This lake is fringed by palustrine scrub-shrub wetland PSS-2B and riparian vegetation consisting of salt-cedar and iodine-bush. Water depth is presumed to be greater than 6 feet. L1UBHx-1 is separated from Morton Bay by a constructed berm, but may have continuous surface connections through small breaches.

PUBFx-1 (2.13 acres) – PUBFx-1 is an NWI-mapped excavated semipermanently flooded pond (Appendix A, Figures 4H and 4I; Appendix D, Photo 21; Appendix E, S-21). PUBFx-1 appears to be managed for waterfowl hunting and likely receives hydrology through irrigation. At the time of the survey, water depth was approximately 2 feet. No wetland vegetation was present, but a riparian fringe of salt-cedar was observed. No continuous surface connection to the Salton Sea or the Alamo River was observed.

PUBFx-2 (16.23 acres) – PUBFx-2 is a semipermanently flooded palustrine excavation mapped by NWI as a lake (L2UBFx) (Appendix A, Figures 4J and 4K; Appendix D, Photo 26; Appendix E, S-26). At the time of the survey, water depth was approximately 18 inches and no vegetation was present. PUBFx-2 is separated from Morton Bay by a constructed berm; no continuous surface connection to Morton Bay was observed.

PUBC-2 (10.68 acres) – PUBC-2 is a depressional/fringe salt flat abutting PSS-3 at the northeastern end of the study area (Appendix A, Figure 4K; Appendix D, Photo 29; Appendix E, S-29). Observed hydrologic indicators include a salt crust, saturation at the soil surface, and the water table at 1 inches bgs. Water

approximately 5 inches deep covered 25 percent of the surface at the time of the survey. The soil profile consisted of light olive gray (5Y 6/2) clay with yellowish red (5YR 4/6) redoximorphic concentrations and met the F3 Depleted Matrix indicator. This palustrine salt flat is seasonally flooded, has an unconsolidated bottom and no vegetation present. PUBC-2 has a continuous surface connection with Morton Bay through a small channel.

Table 2-3. Summary of Other Aquatic Resources Investigated within the Project Study Area

Feature ID	Description	Cowardin Classification*	Latitude / Longitude	Acreage within Study Area
PUBC-1A	salt flat	seasonally flooded palustrine with unconsolidated bottom	33.200281 / -115.597388	2.97
PUBC-1B	salt flat	seasonally flooded palustrine with unconsolidated bottom	33.199078 / -115.59567	0.73
L1UBH-1	Morton Bay	impounded lake with unconsolidated bottom	33.201738 / -115.597986	2.77
L1UBHx-1	excavated lake	impounded excavated lake with unconsolidated bottom	33.198885 / -115.592297	3.72
PUBFx-1	waterfowl hunting pond	Semi-permanently flooded palustrine excavation with unconsolidated bottom	33.194103 / -115.562821	2.13
PUBFx-2	excavated salt flat	Semi-permanently flooded palustrine excavation with unconsolidated bottom	33.207713 / -115.584835	16.23
PUBC-2	salt flat	seasonally flooded palustrine with unconsolidated bottom	33.21202 / -115.584239	10.68
			Total Other Waters	39.23

* Cowardin et al. 1979.

6 References

Brady, R.H. III, and K. Vyverberg. 2014. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013. https://www.energy.ca.gov/publications/2014/methods-describe-and-delineate-episodic-stream-processes-arid-landscapes.

California Department of Fish and Game (CDFG). 2010. *A Review of Stream Processes and Forms in Dryland Watersheds.* December. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=25779.

California Department of Fish and Wildlife (CDFW). 2022. History of the Salton Sink. Available online: https://nrmsecure.dfg.ca.gov/FileHandler.ashx?DocumentID=8655.

CH2M HILL. 2002. IID Water Conservation and Transfer Project/ Draft Habitat Conservation Plan, Draft EIR/EIS. January.

Cowardin L.M., V.C. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS 79/31. Washington, D.C.

Curtis, K.E., and R.W. Lichvar. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y 87 1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912. http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf.

ESRI. 2022. USA National Agriculture Imagery Program (NAIP): Natural Color GIS layer.

Federal Emergency Management Agency (FEMA). 2022. Flood Insurance Rate Map for Imperial County Incorporated Areas. October 3. https://msc.fema.gov/portal/home.

Griffith, G.E., J.M. Omernik, D.W. Smith, T.D. Cook, E. Tallyn, K. Moseley, and C.B. Johnson. 2016. Ecoregions of California (poster): U.S. Geological Survey Open-File Report 2016–1021, with map, scale 1:1,100,000. http://dx.doi.org/10.3133/ofr20161021.

Imperial County. 2015. *Final Programmatic Environmental Impact Report Renewable Energy & Transmission Element Update*.

Imperial Irrigation District (IID). 2021. Imperial Irrigation District Public Water Map. https://mygis.iid.com/portal/apps/webappviewer/index.html?id=a33cfeb3714f4eb8a1c85320613a2d1b.

Lichvar, R.W. and S.M. McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center.

State Water Resources Control Board (SWRCB). 2021. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf.

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter. RGL 05-05. Ordinary High Water Mark (OHWM) Identification. December. http://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Army Corps of Engineers (USACE). 2020. National Wetland Plant List, version 3.5. U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH. https://wetland-plants.usace.army.mil/nwpl_static/v34/home/home.html.

U.S. Army Corps of Engineers (USACE) Los Angeles District. 2001. Memorandum for the Record: Jurisdictional Determination for the Salton Sea. January 24. https://www.spl.usace.army.mil/Portals/17/docs/regulatory/JD/NavigableWater/CA_TNW_Det/20010124_MFR-Jurisdictional%20Determination%20for%20Salton%20Sea.pdf?ver=rCGhvj0QovyOKeSgFVxRbg%3d%3d.

U.S. Army Corps of Engineers (USACE) Sacramento District. 2016. Minimum Standards for Acceptance of Aquatic Resource Delineation Reports. January. https://www.spk.usace.army.mil/Portals/12/documents/regulatory/jd/minimum-standards/Minimum_Standards_for_Delineation_with_Template-final.pdf.

U.S. Army Corps of Engineers (USACE) South Pacific Division. 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February. https://www.spd.usace.army.mil/Portals/13/docs/regulatory/standards/MapStand020816.pdf.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). 2022. Web Site for Official Soil Series Descriptions and Series Classification. February 25. https://soilseries.sc.egov.usda.gov/.

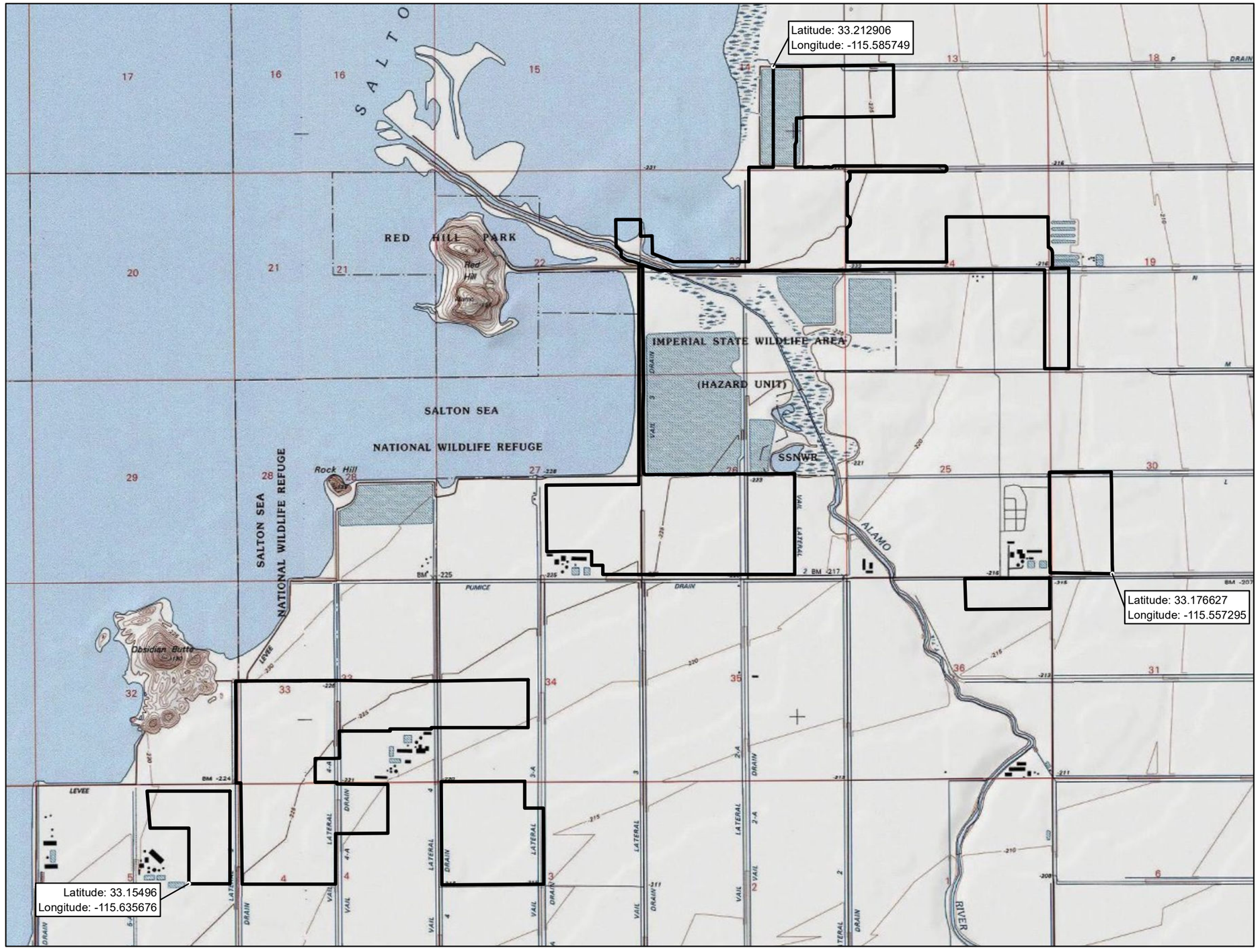
U.S. Fish and Wildlife Service (USFWS). 2022. National Wetlands Inventory (NWI) Data Download. February 25. http://www.fws.gov/wetlands/Data/Data-Download.html.

U.S. Geological Survey (USGS). 2022a. USGS Science in Your Watershed. October 3. https://water.usgs.gov/wsc/map_index.html.

U.S. Geological Survey (USGS). 2022b. National Hydrography Data Set (NHD). February 25. http://nhd.usgs.gov/.

Western Regional Climate Center (WRCC). 2022. Brawley, California (041048). Climatological Summary. October 3. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1048.

Appendix A
Figures



Legend

Aquatic Resources Study Area (1,665.56 acres)

Basemap Source: Esri, USA Topo Map
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

NAD_1983_StatePlane_California_VI_FIPS_0406_Feet
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False_Easting: 6561666.666666666
False_Northing: 1640416.666666667
Central_Meridian: -116.25
Standard_Parallel_1: 32.78333333333333
Standard_Parallel_2: 33.88333333333333
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Linear Unit: Foot_US (0.3048006096012192)
USGS Quads: Niland, Obsidian Butte

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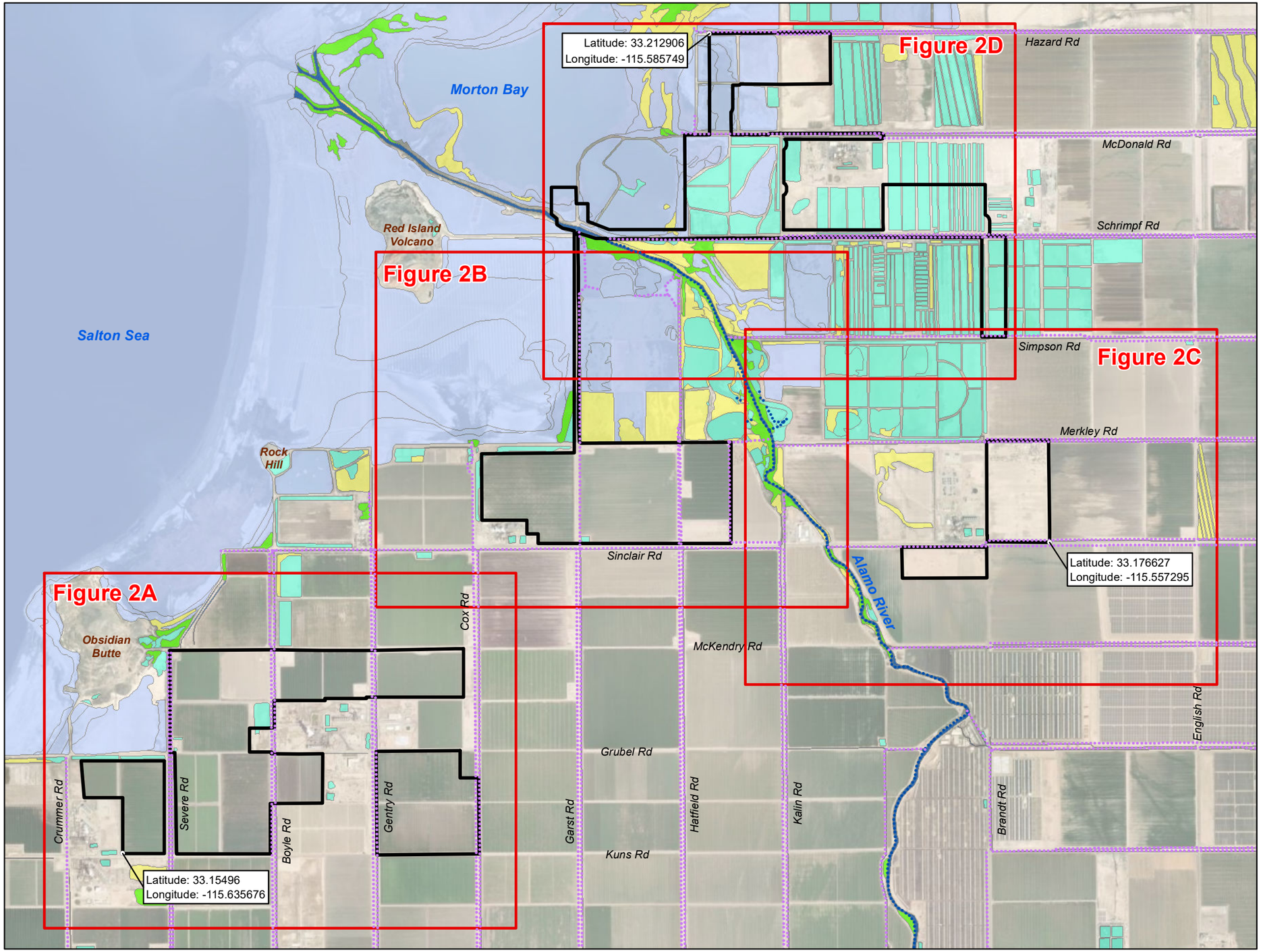
Miles

Figure 1
Regional Vicinity Map
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs



Legend

- Aquatic Resources Study Area (1,665.56 acres)
- Detail Map Extent

National Hydrography Dataset

- Canal or Ditch
- Stream or River

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

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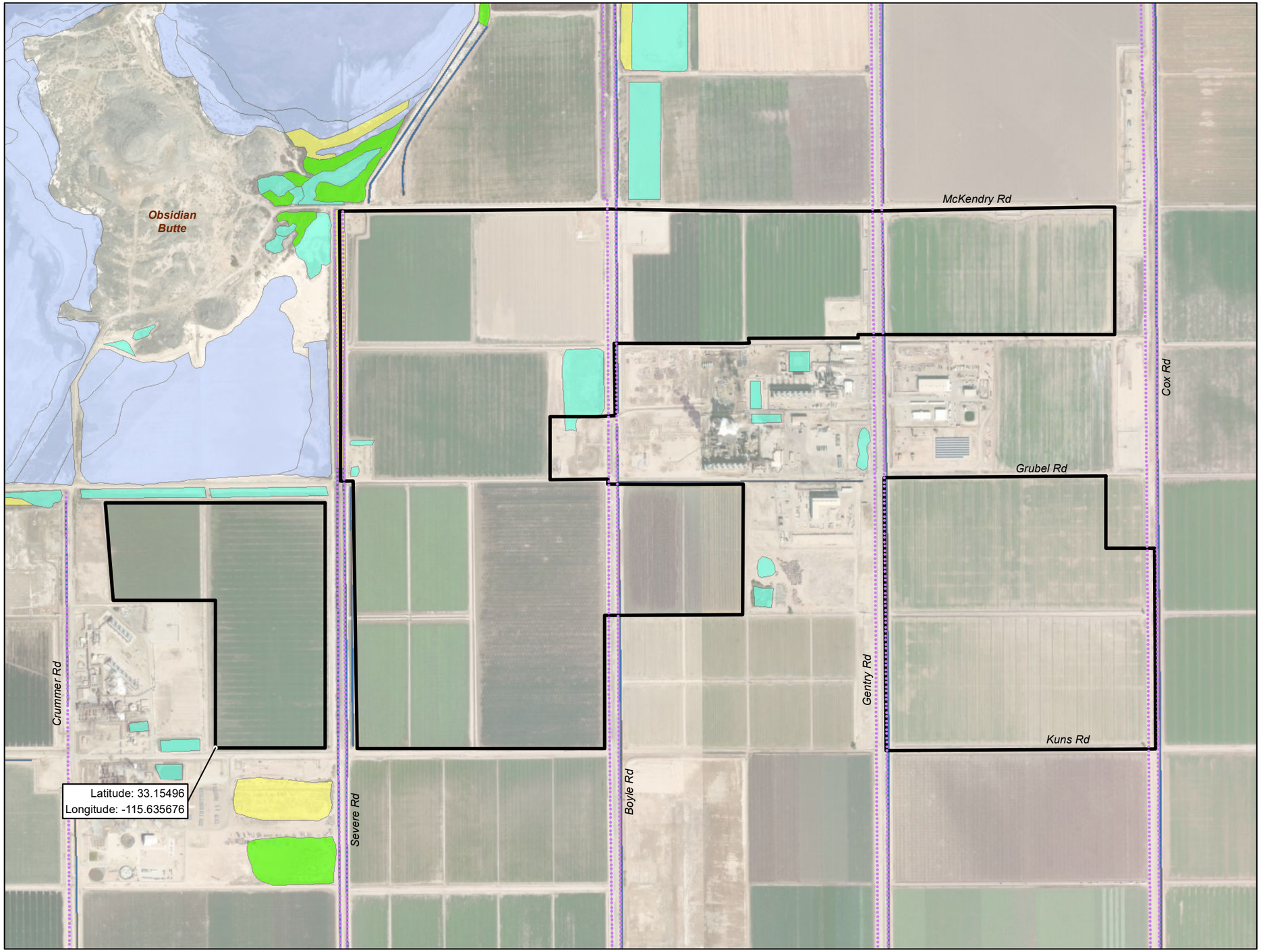
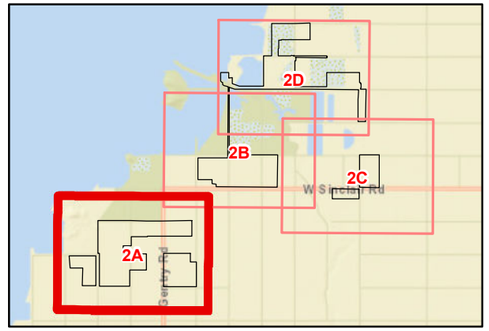
Miles

Figure 2 Overview
National Hydrography Dataset and National Wetland Inventory
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs





Legend

- Aquatic Resources Study Area

National Hydrography Dataset

- Canal or Ditch
- Stream or River

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

0 500 1,000 2,000
Feet

Figure 2A
National Hydrography Dataset and National Wetland Inventory
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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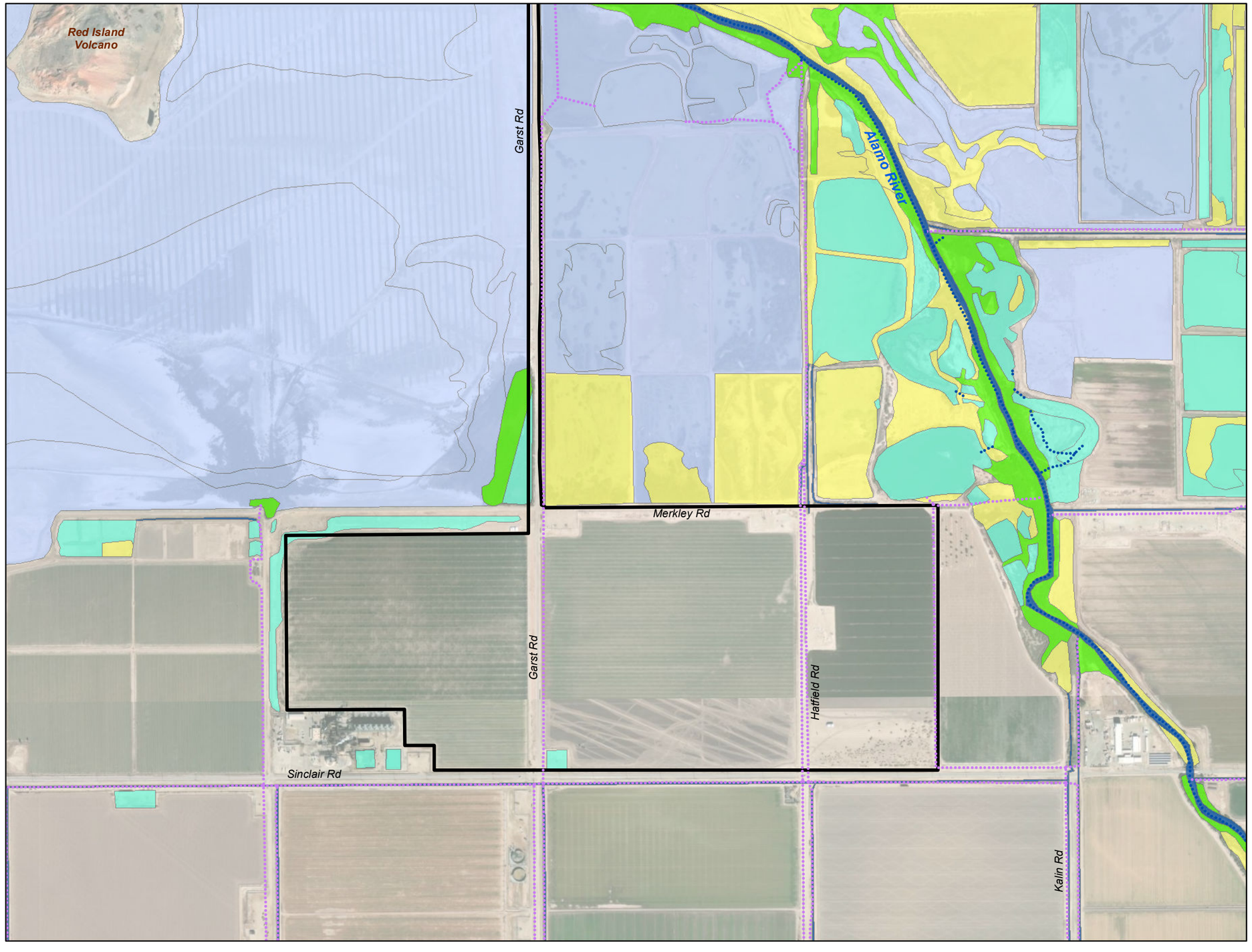

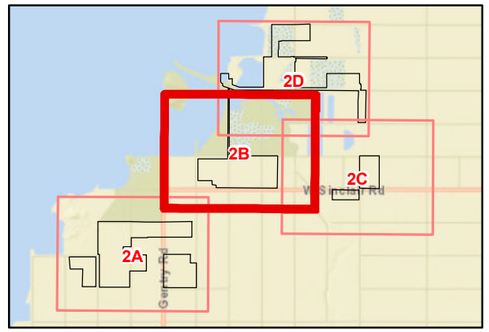

Legend

- Aquatic Resources Study Area

National Hydrography Dataset

- Canal or Ditch
- Stream or River

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

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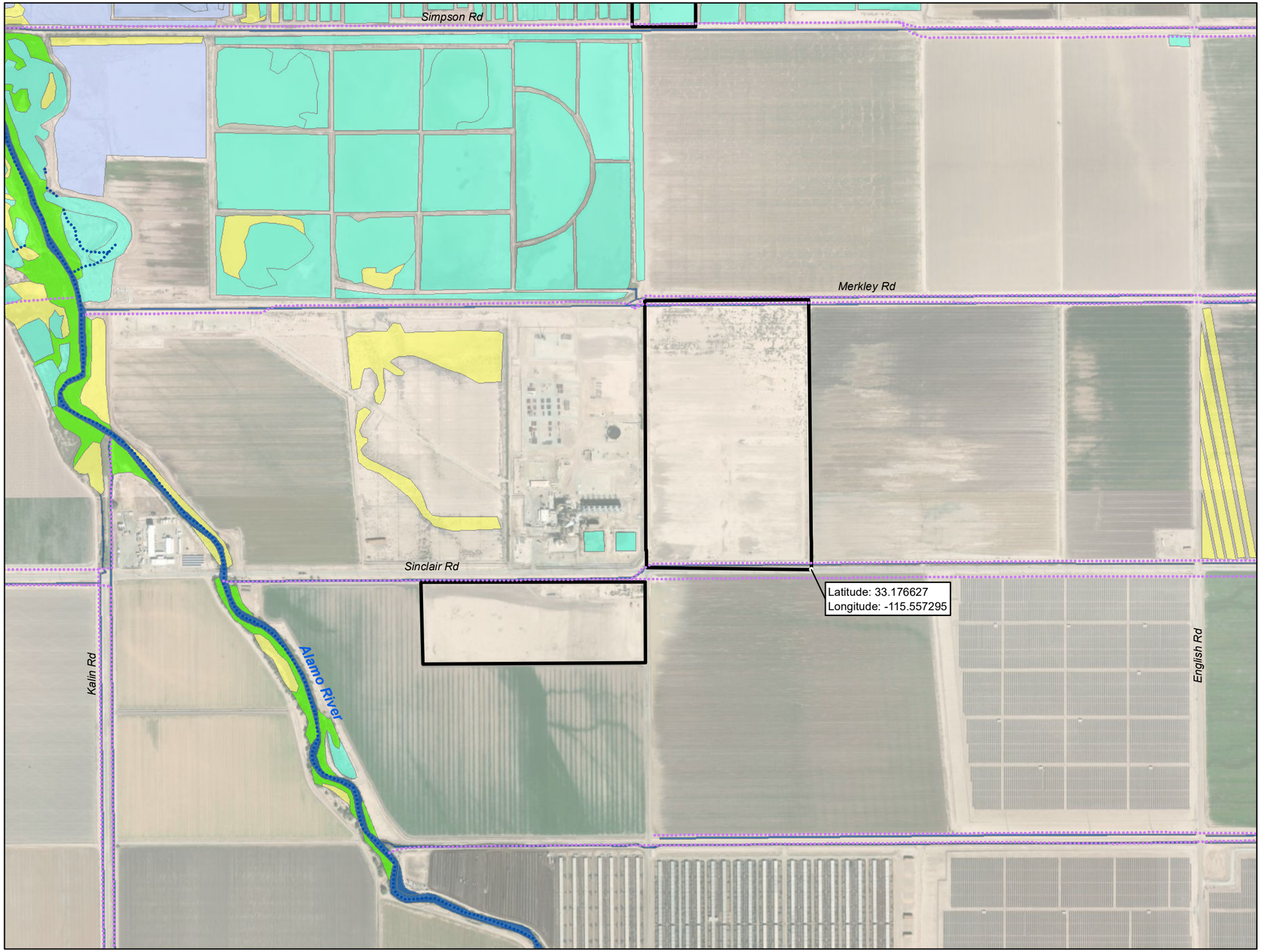
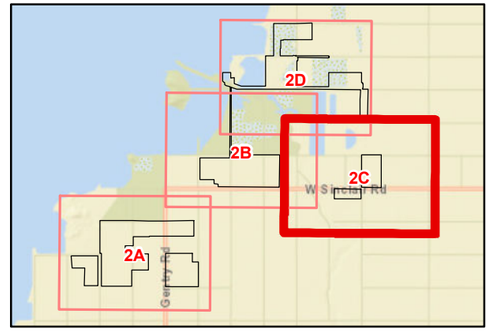
Feet

Figure 2B
National Hydrography Dataset and National Wetland Inventory
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs





Legend

- Aquatic Resources Study Area

National Hydrography Dataset

- Canal or Ditch
- Stream or River

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

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Feet

Figure 2C
National Hydrography Dataset and National Wetland Inventory
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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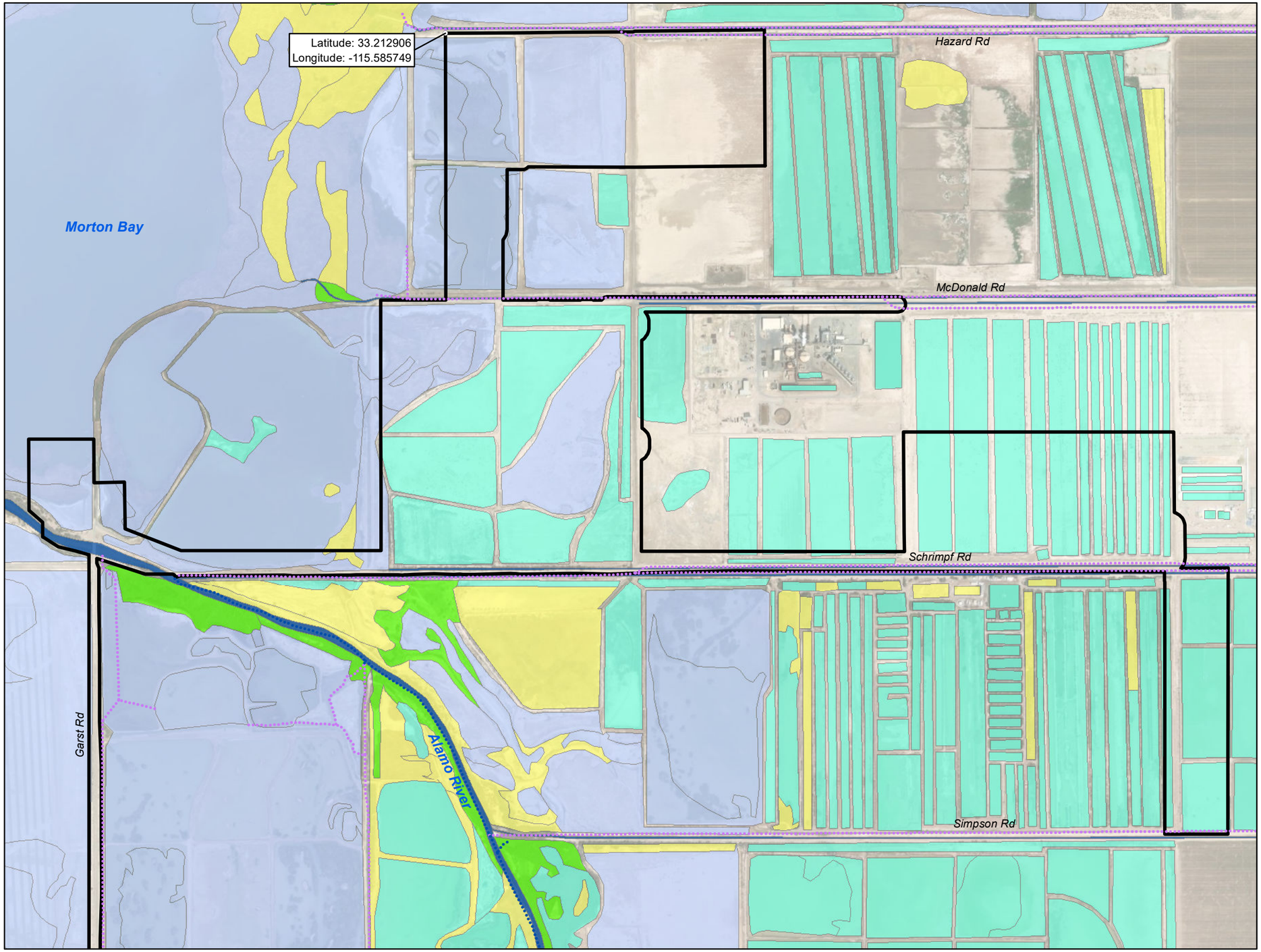

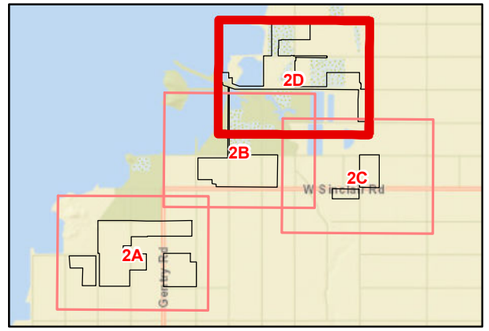

Legend

- Aquatic Resources Study Area

National Hydrography Dataset

- Canal or Ditch
- Stream or River

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

0 500 1,000 2,000
Feet

Figure 2D
National Hydrography Dataset and National Wetland Inventory
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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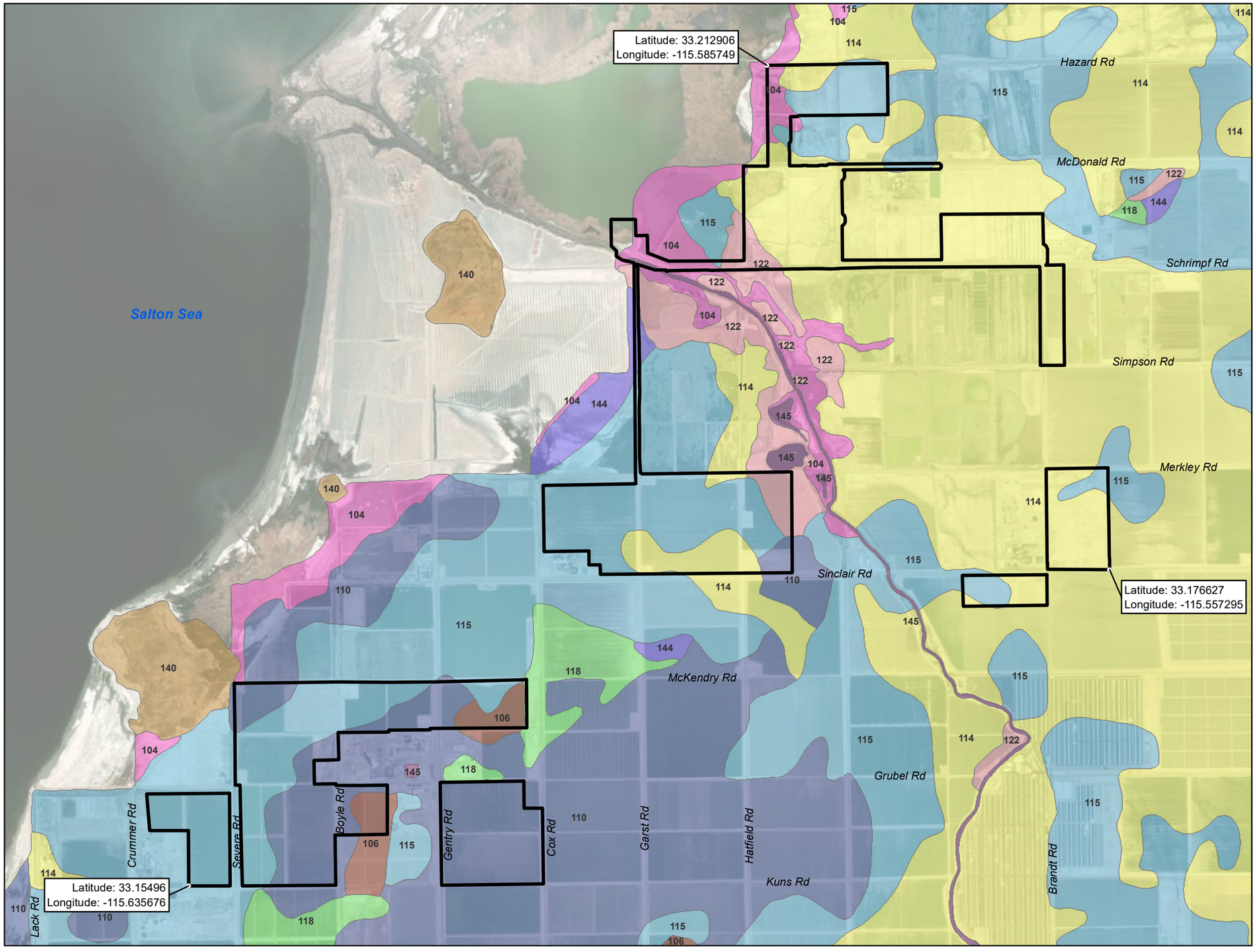

Legend

Aquatic Resources Study Area (1,665.56 acres)

Soils

- 102: Badland
- 104: Fluvaquents, saline
- 106: Glenbar clay loam, wet
- 110: Holtville silty clay, wet
- 114: Imperial silty clay, wet
- 115: Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- 118: Indio loam, wet
- 122: Meloland very fine sandy loam, wet
- 140: Torriorthents-Rock outcrop complex, 5 to 60 percent slopes
- 144: Vint and Indio very fine sandy loams, wet
- 145: Water
- No Data Available

Aerial Imagery: Maxar, 2022
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

0 0.25 0.5 1
Miles

Figure 3
NRCS Mapped Soil Units
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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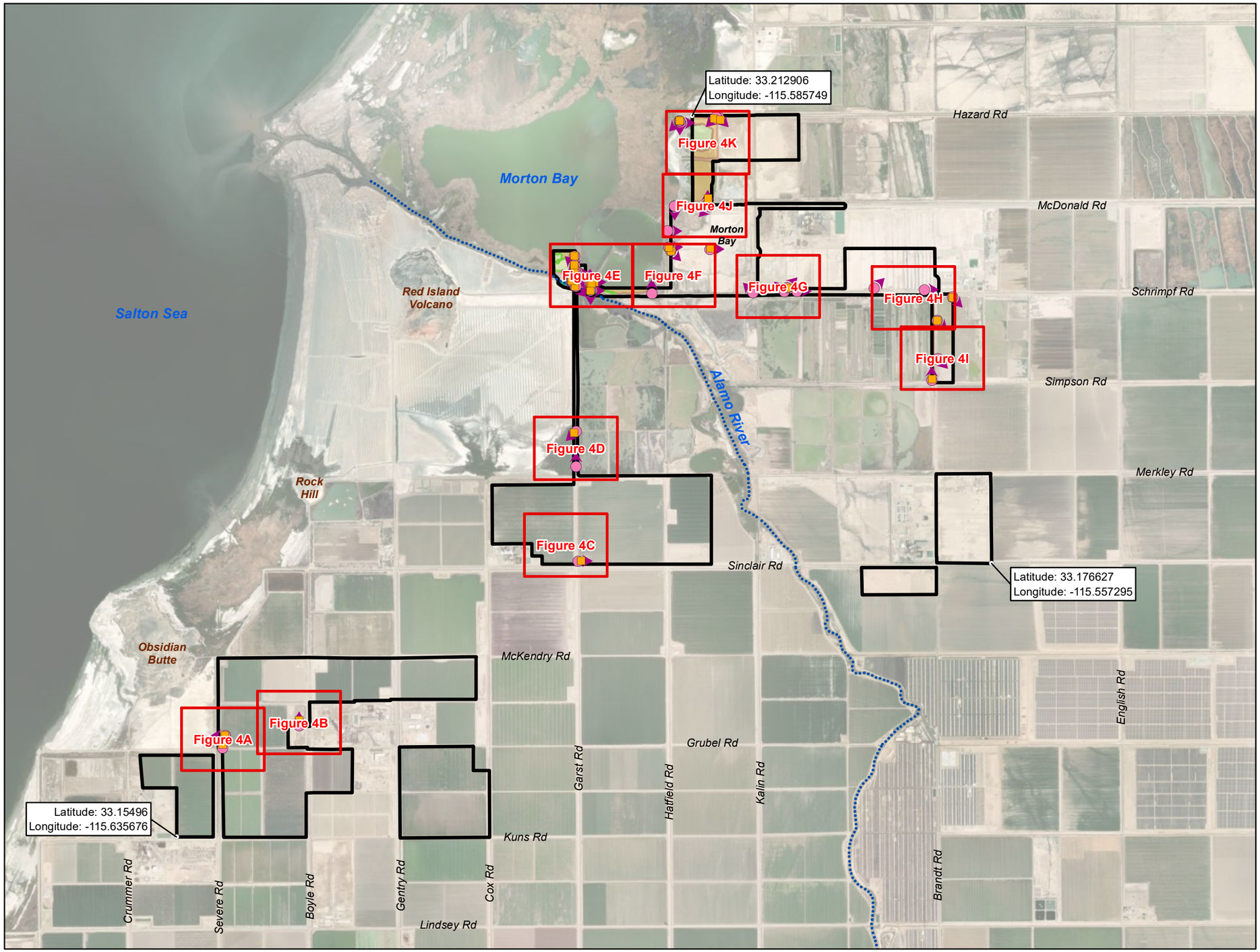

Legend

- Aquatic Resources Study Area (1,665.56 acres)
- Detail Map Extent
- Sample Point
- Photo Point

Delineated Features

- Wetlands (18.14 ac)
- Watercourses (1.41 ac; 1,589 lf)
- Other Aquatic Resources (39.23 ac)

Aerial Imagery: Maxar, 2022
Delineation completed on March 1, 2, 11, and 12, 2022, by Rachel Newton/Jacobs, Rebecca John/Jacobs, and Morgan King/Jacobs.
Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016.
Prepared by Kevin Grant/Jacobs on June 14, 2023.

N

0 0.25 0.5 1
Miles

Figure 4 Overview
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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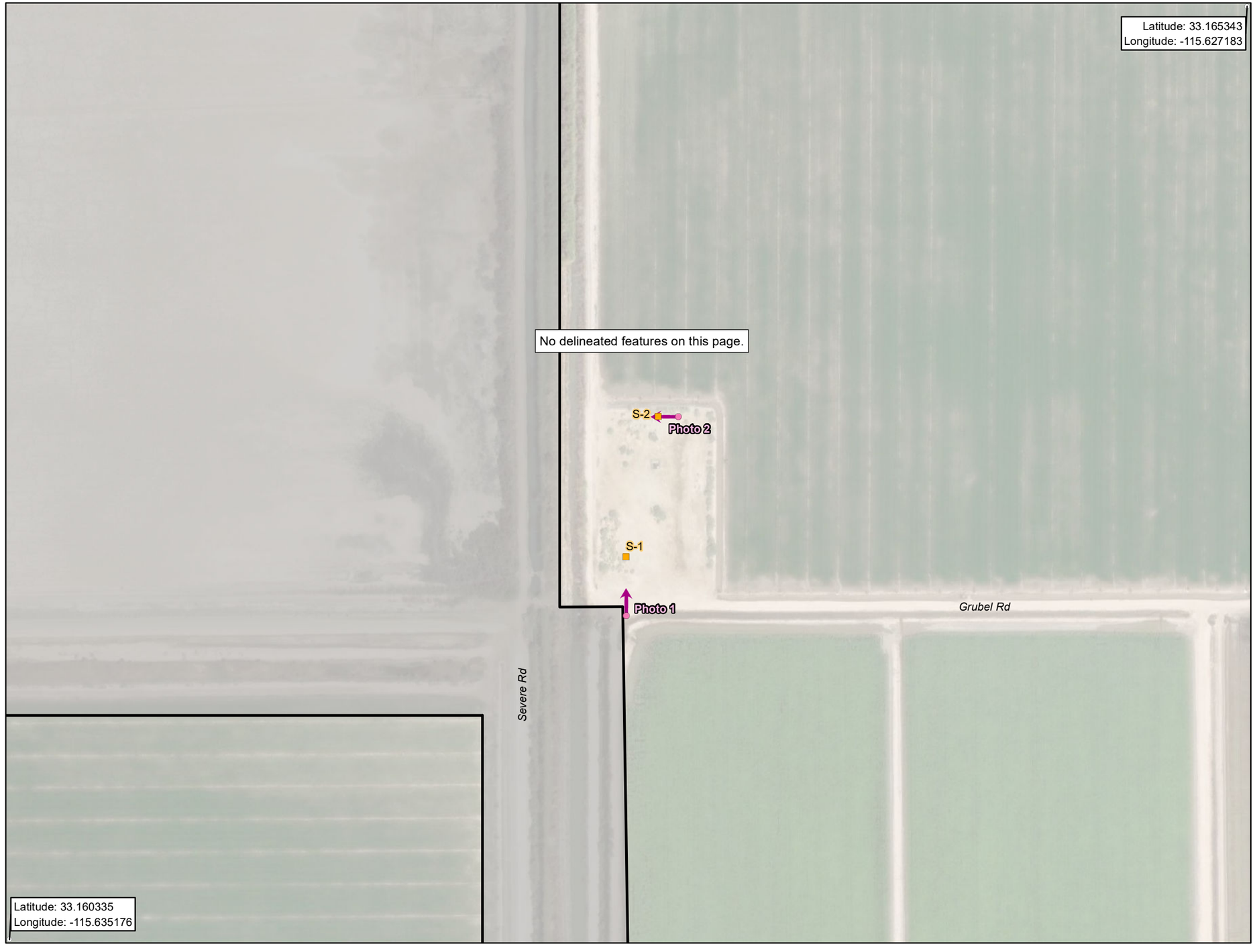

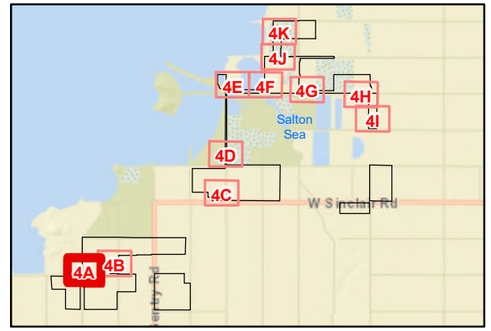

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
ac = acre
lf = linear feet

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N

0 100 200 400
Feet

Figure 4A
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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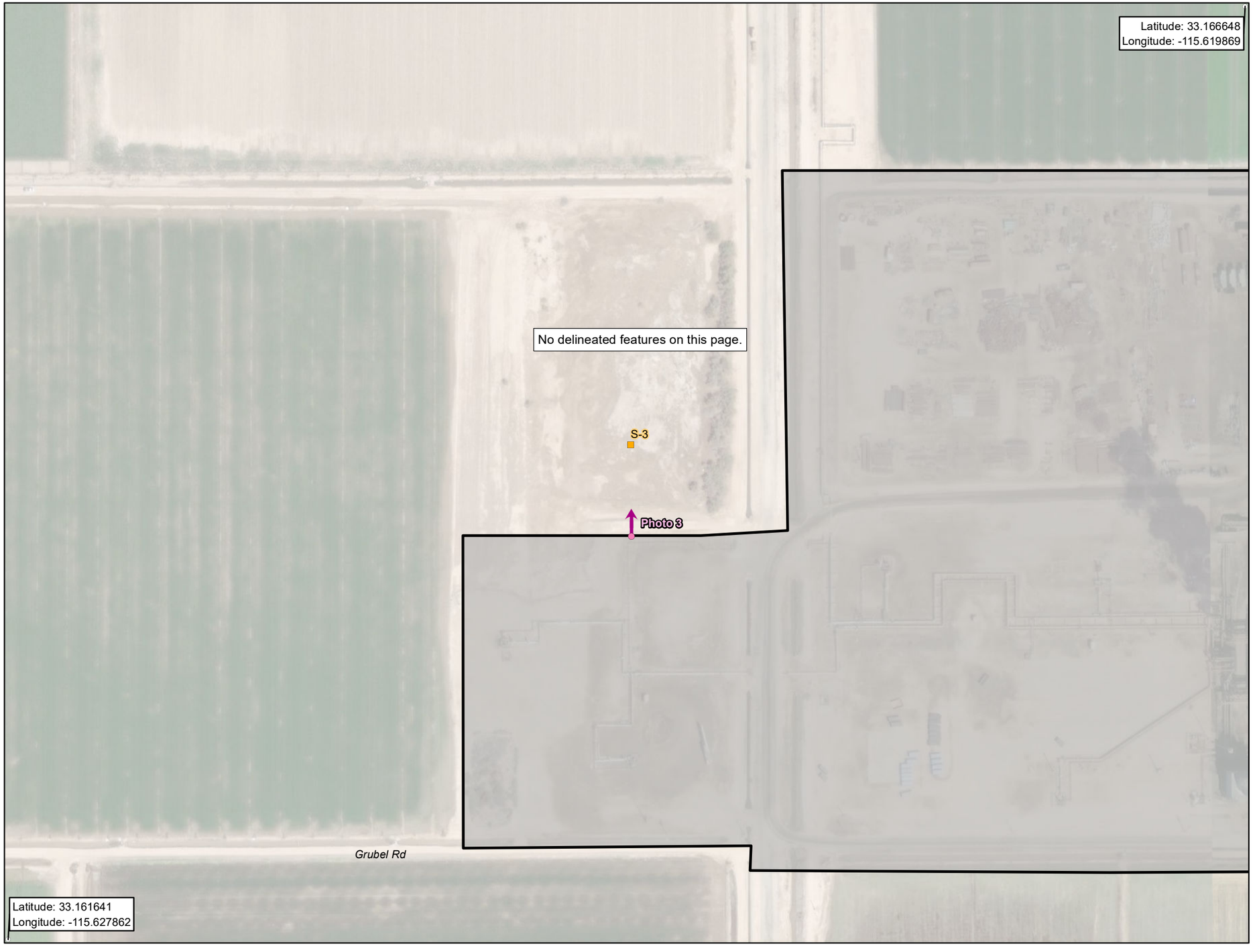

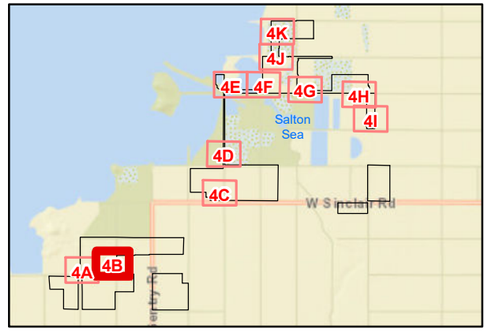

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4B
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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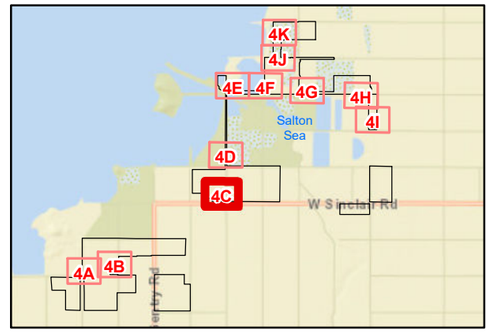

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
ac = acre
lf = linear feet

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N

0 100 200 400
Feet

Figure 4C
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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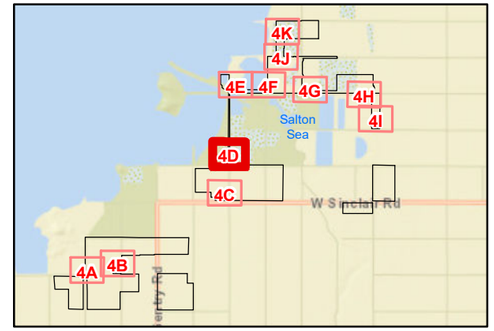

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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lf = linear feet

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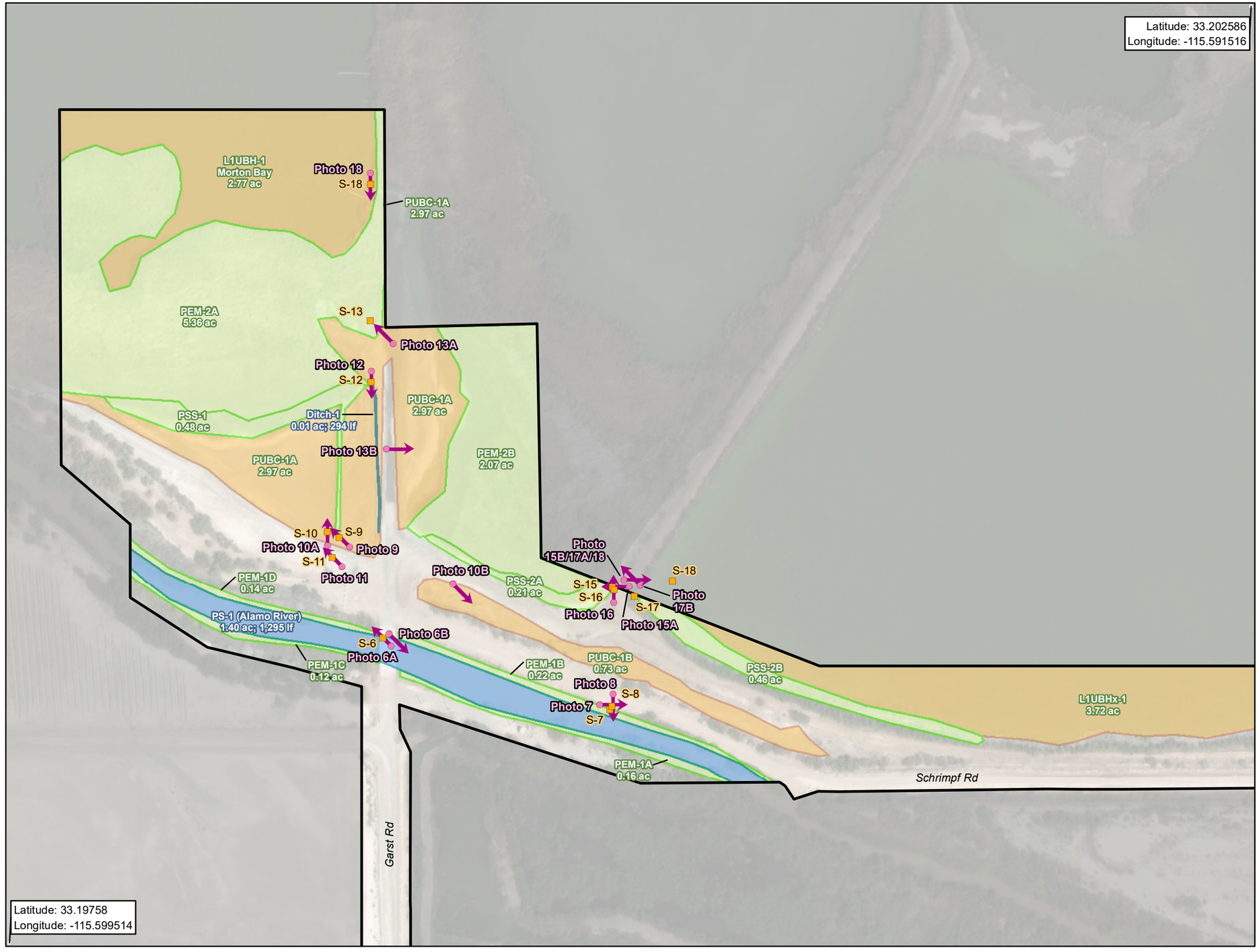
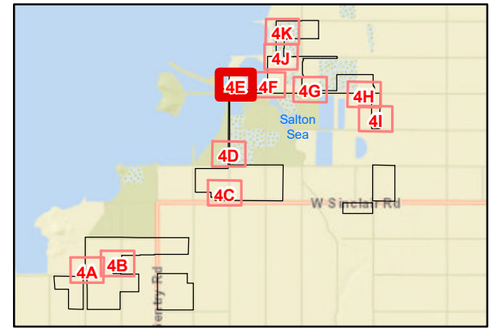
N

0 100 200 400
Feet

Figure 4D
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs





Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
ac = acre
lf = linear feet

Aerial Imagery: Maxar, 2022
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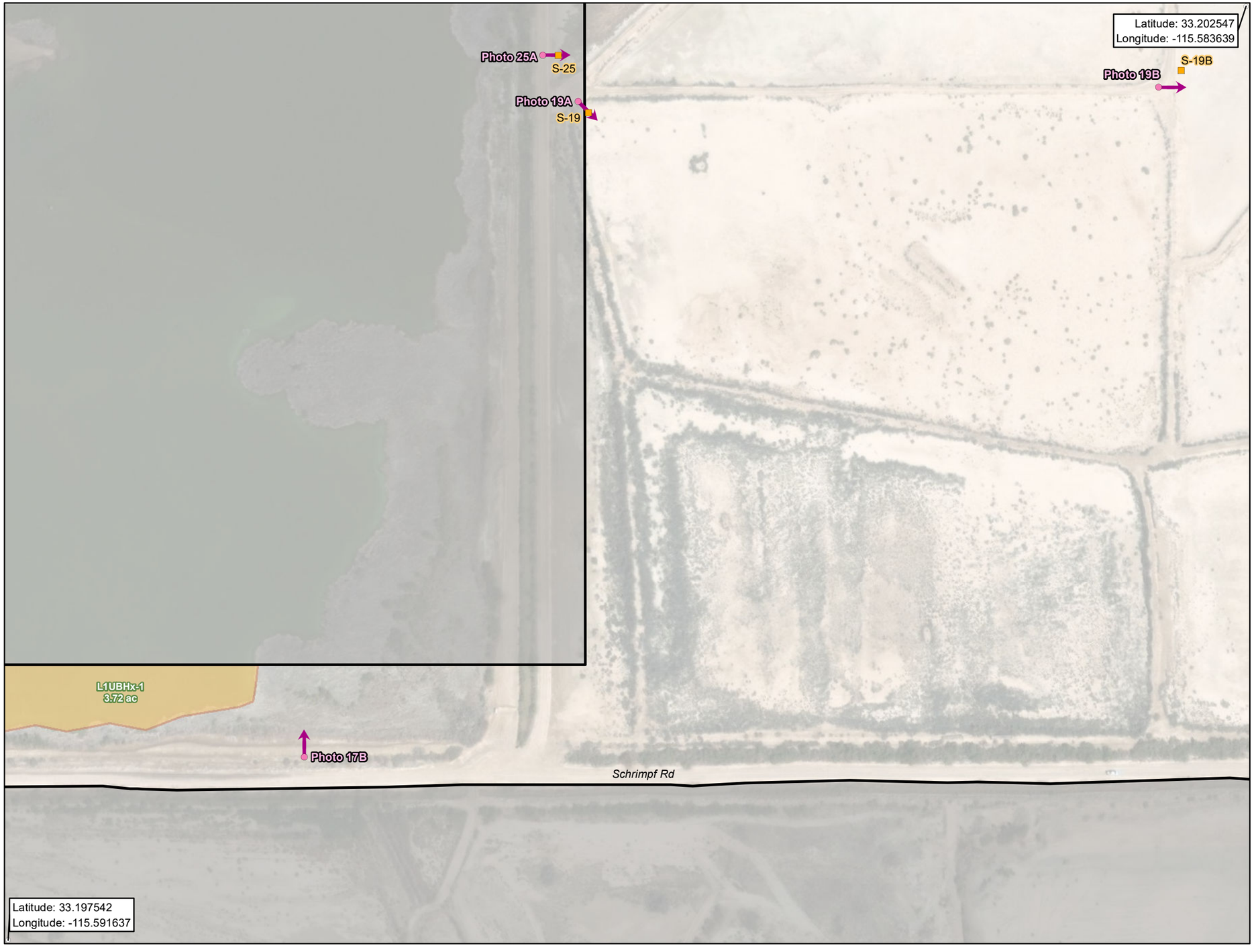
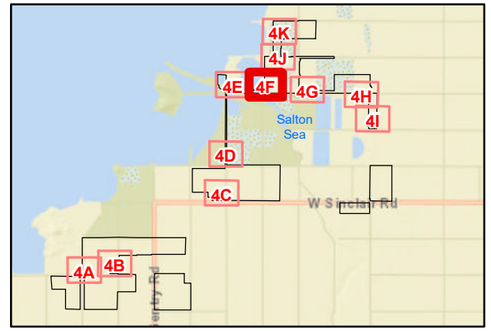
N

0 100 200 400
Feet

Figure 4E
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs





Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4F
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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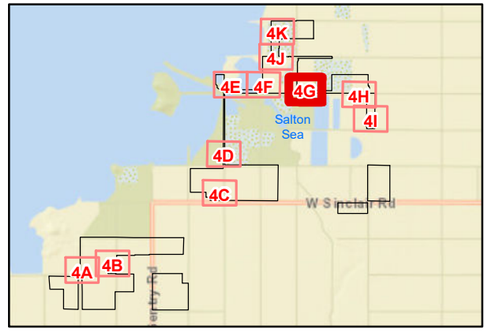

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4G
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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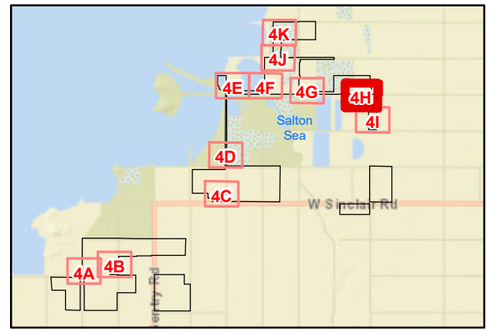

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4H
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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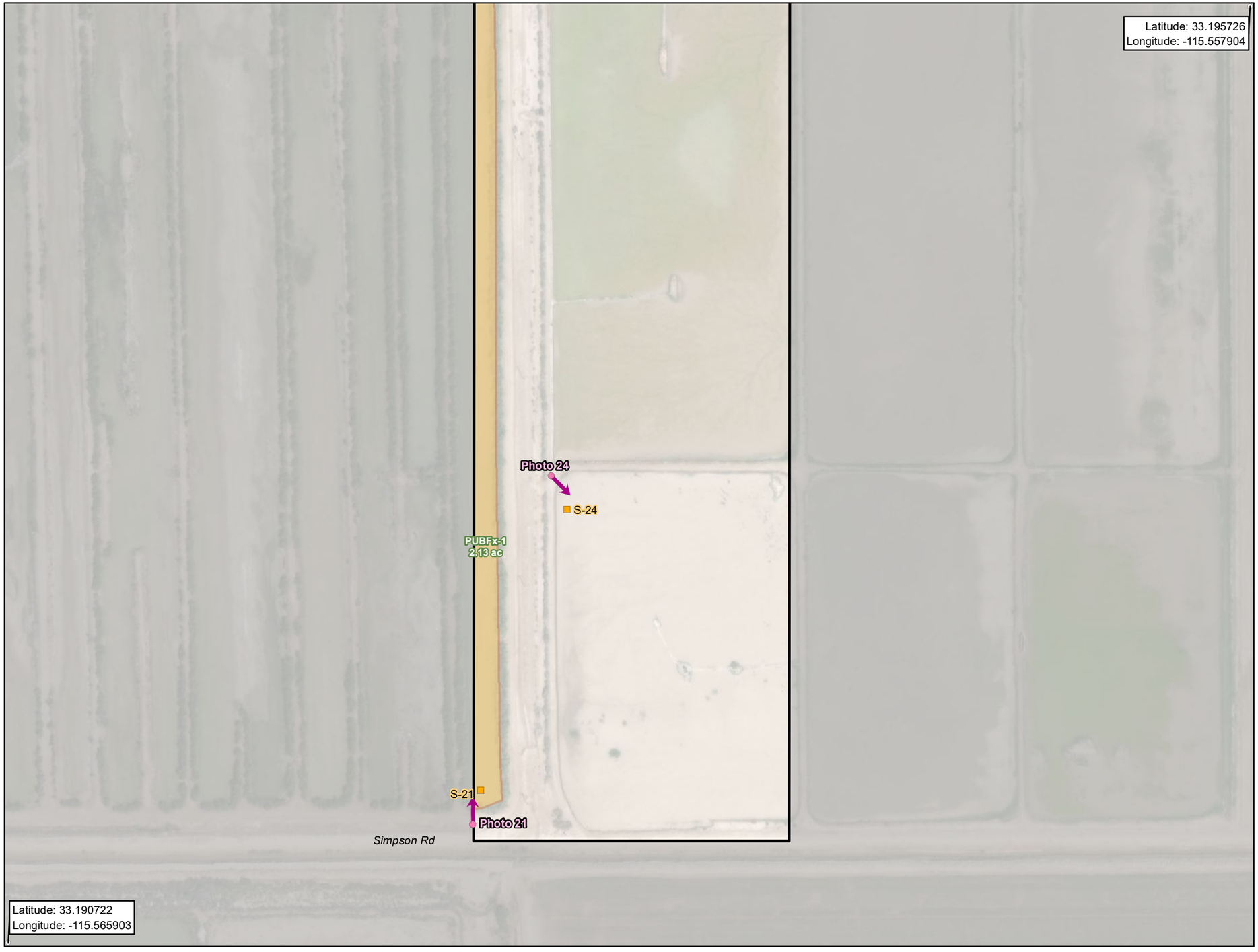

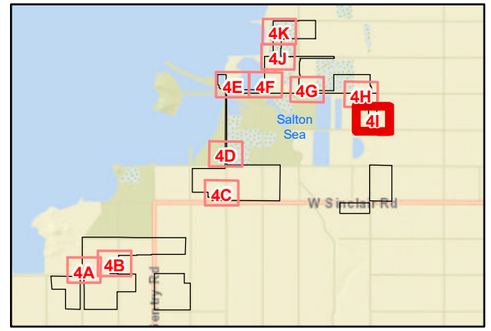

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

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N

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Feet

Figure 4I
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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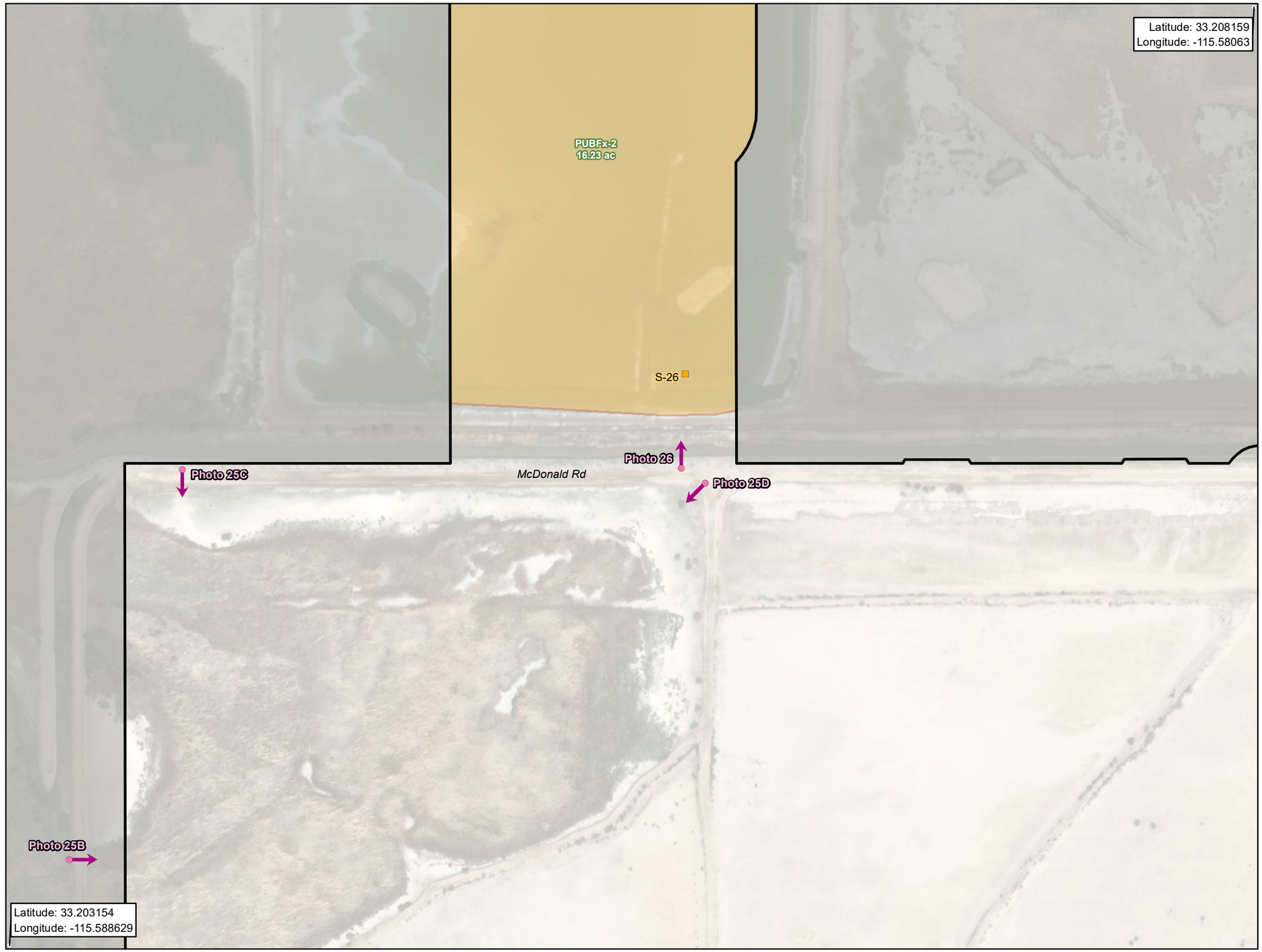

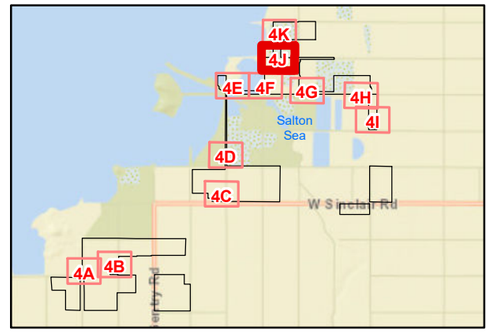

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4J
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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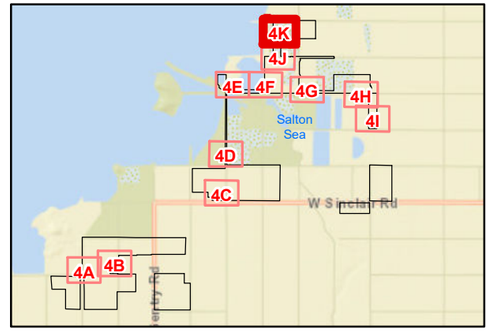

Legend

- Aquatic Resources Study Area
- Not within the Study Area
- Sample Point
- Photo Point

Delineated Features

- Wetlands
- Watercourses
- Other Aquatic Resources

Notes:
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N

0 100 200 400
Feet

Figure 4K
Potential Waters of the US
Aquatic Resources Delineation Report
Morton Bay Geothermal Project
Imperial County, California

Jacobs

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Appendix B
Soil Resource Report

United States Department of Agriculture

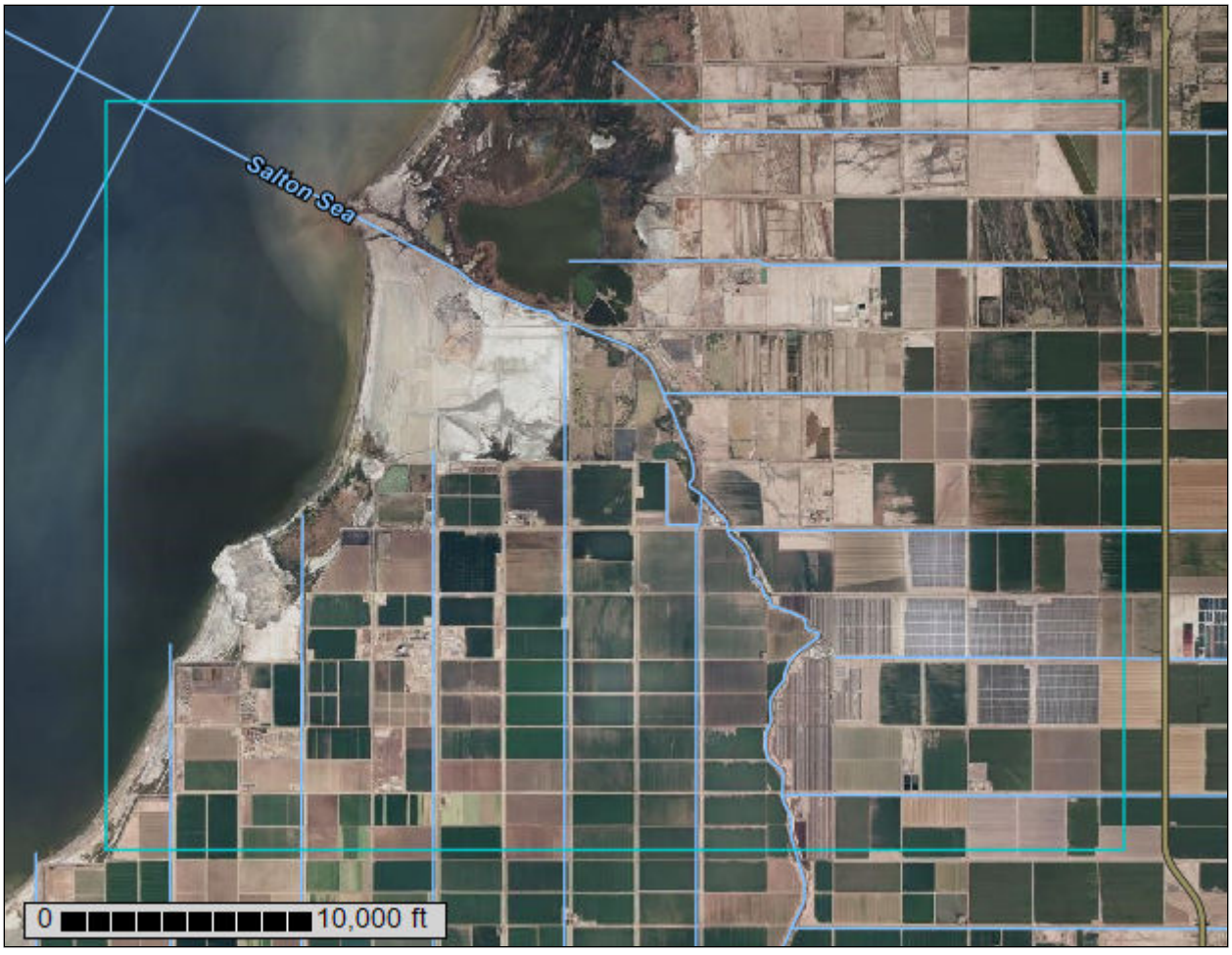
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Anza-Borrego Area, California; and Imperial County, California, Imperial Valley Area

Morton Bay Geothermal Project



March 17, 2023

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

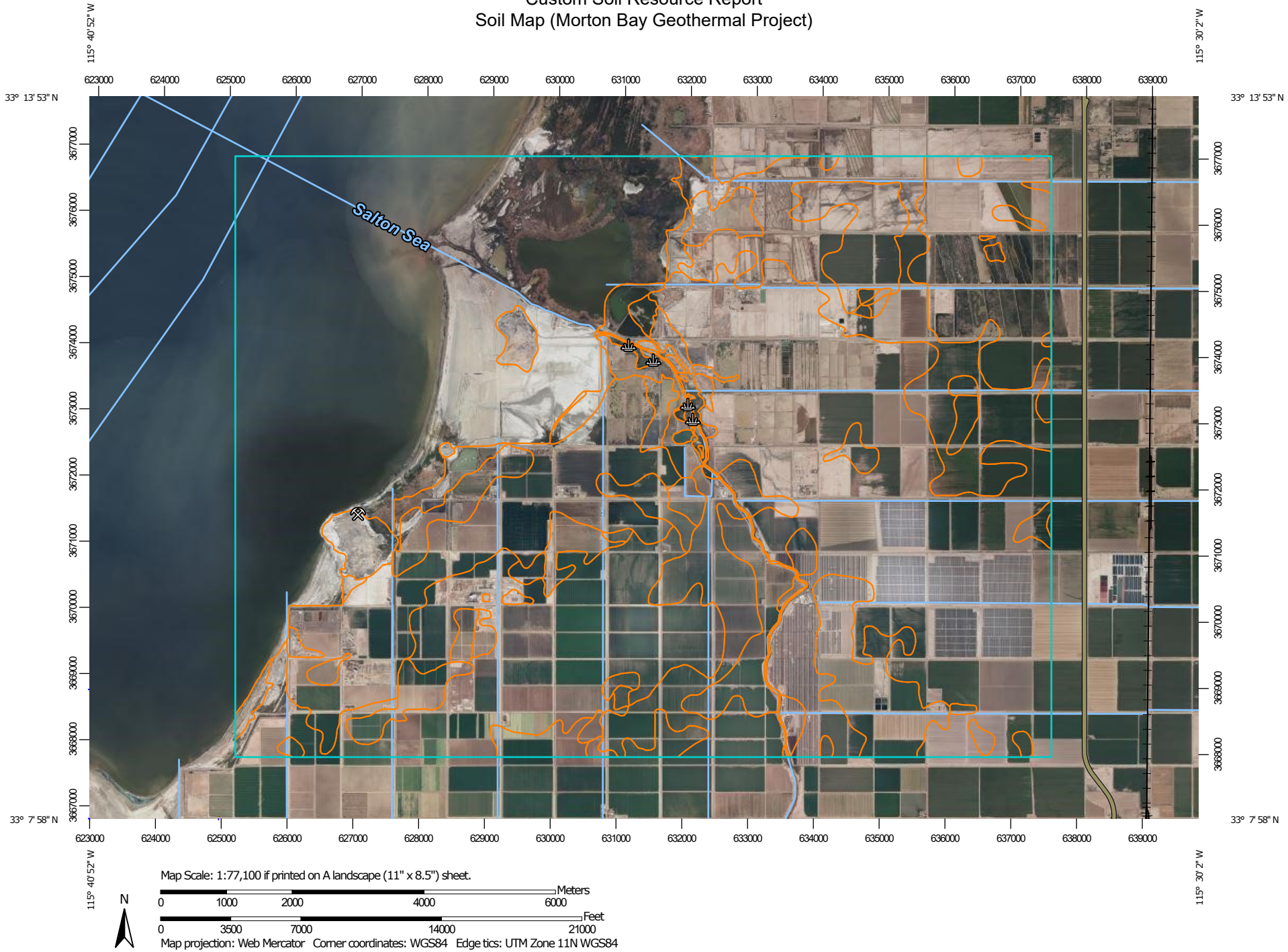
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map (Morton Bay Geothermal Project)



MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Anza-Borrego Area, California
Survey Area Data: Version 4, Sep 15, 2022

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 14, Sep 1, 2022

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

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

Date(s) aerial images were photographed: Feb 6, 2021—May 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Morton Bay Geothermal Project)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	7,846.7	28.1%
Subtotals for Soil Survey Area		**7,846.7**	**28.1%**
Totals for Area of Interest		**27,934.6**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
104	Fluvaquents, saline	614.0	2.2%
106	Glenbar clay loam, wet	141.6	0.5%
110	Holtville silty clay, wet	3,253.5	11.6%
114	Imperial silty clay, wet	8,578.8	30.7%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	6,250.7	22.4%
118	Indio loam, wet	372.4	1.3%
122	Meloland very fine sandy loam, wet	372.7	1.3%
140	Torriorthents-Rock outcrop complex, 5 to 60 percent slo pes	308.6	1.1%
144	Vint and Indio very fine sandy loams, wet	117.3	0.4%
145	Water	75.1	0.3%
Subtotals for Soil Survey Area		**20,084.6**	**71.9%**
Totals for Area of Interest		**27,934.6**	**100.0%**

Map Unit Descriptions (Morton Bay Geothermal Project)

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

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class.

Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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

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

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

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

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

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

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

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The

pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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

Anza-Borrego Area, California

NOTCOM—No Digital Data Available

Map Unit Composition

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

Description of Notcom

Properties and qualities

Imperial County, California, Imperial Valley Area

104—Fluvaquents, saline

Map Unit Setting

National map unit symbol: h8zb
Elevation: -230 to 150 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Fluvaquents, Saline

Setting

Landform: Basin floors
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Yes

Minor Components

Unnamed soils

Percent of map unit: 10 percent
Hydric soil rating: No

Rositas

Percent of map unit: 5 percent
Hydric soil rating: No

106—Glenbar clay loam, wet

Map Unit Setting

National map unit symbol: h8zd
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

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

Description of Glenbar, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 13 inches: clay loam
H2 - 13 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Indio
Percent of map unit: 5 percent
Hydric soil rating: No

Holtville
Percent of map unit: 5 percent
Hydric soil rating: No

Meloland
Percent of map unit: 5 percent
Hydric soil rating: No

110—Holtville silty clay, wet

Map Unit Setting
National map unit symbol: h8zj
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

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

Description of Holtville, Wet

Setting
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile
H1 - 0 to 17 inches: silty clay
H2 - 17 to 24 inches: clay
H3 - 24 to 35 inches: silt loam
H4 - 35 to 60 inches: loamy very fine sand

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Glenbar

Percent of map unit: 5 percent
Hydric soil rating: No

Imperial

Percent of map unit: 5 percent
Hydric soil rating: No

Indio

Percent of map unit: 3 percent
Hydric soil rating: No

Vint

Percent of map unit: 2 percent
Hydric soil rating: No

114—Imperial silty clay, wet

Map Unit Setting

National map unit symbol: h8zn
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Imperial, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: silty clay
H2 - 12 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Meloland

Percent of map unit: 4 percent
Hydric soil rating: No

Glenbar

Percent of map unit: 4 percent
Hydric soil rating: No

Holtville

Percent of map unit: 4 percent
Hydric soil rating: No

Niland

Percent of map unit: 3 percent
Hydric soil rating: No

115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h8zp
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Imperial, wet, and similar soils: 41 percent
Glenbar, wet, and similar soils: 40 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Imperial, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: silty clay loam
H2 - 12 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain

Hydric soil rating: No

Description of Glenbar, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Meloland

Percent of map unit: 10 percent
Hydric soil rating: No

Holtville

Percent of map unit: 9 percent
Hydric soil rating: No

118—Indio loam, wet

Map Unit Setting

National map unit symbol: h8zs

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

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

Description of Indio, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 72 inches: stratified loamy very fine sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Vint

Percent of map unit: 6 percent
Hydric soil rating: No

Meloland

Percent of map unit: 3 percent
Hydric soil rating: No

Holtville

Percent of map unit: 3 percent
Hydric soil rating: No

Glenbar

Percent of map unit: 3 percent
Hydric soil rating: No

122—Meloland very fine sandy loam, wet

Map Unit Setting

National map unit symbol: h8zx
Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

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

Description of Meloland, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 26 inches: stratified loamy fine sand to silt loam
H3 - 26 to 71 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum: 13.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups
Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Vint
Percent of map unit: 3 percent
Hydric soil rating: No

Imperial
Percent of map unit: 3 percent
Hydric soil rating: No

Indio
Percent of map unit: 3 percent
Hydric soil rating: No

Holtville
Percent of map unit: 3 percent
Hydric soil rating: No

Glenbar
Percent of map unit: 3 percent
Hydric soil rating: No

140—Torriorthents-Rock outcrop complex, 5 to 60 percent slo pes

Map Unit Setting
National map unit symbol: h90h
Elevation: -230 to 400 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Torriorthents and similar soils: 80 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Torriorthents

Setting
Landform: Hills
Landform position (three-dimensional): Side slope

Down-slope shape: Concave
Across-slope shape: Linear

Typical profile
H1 - 0 to 60 inches: variable

Properties and qualities
Slope: 5 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very high
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Very slightly saline to strongly saline (2.0 to 16.0 mmhos/cm)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Ecological site: R040XD009CA - Gravelly Fan Remnants And Fan Aprons, R040XD003CA - Rocky Slopes 2-4" p.z.
Hydric soil rating: No

Description of Rock Outcrop

Setting
Landform: Stream terraces
Down-slope shape: Concave
Across-slope shape: Linear

Typical profile
H1 - 0 to 10 inches: unweathered bedrock

Properties and qualities
Slope: 5 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

144—Vint and Indio very fine sandy loams, wet

Map Unit Setting
National map unit symbol: h90m
Elevation: -230 to 300 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Vint, wet, and similar soils: 50 percent
Indio, wet, and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 40 inches: loamy fine sand
H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Description of Indio, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 40 inches: stratified loamy very fine sand to silt loam

H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Meloland

Percent of map unit: 5 percent
Hydric soil rating: No

Rositas

Percent of map unit: 5 percent
Hydric soil rating: No

145—Water

Map Unit Composition

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

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C
Plant List from Mapped Aquatic Resources

Appendix C. Plant List from Mapped Aquatic Resources

Scientific Name	Common Name	Status[a,b]
Forbs		
Melilotus indicus	Indian sweet-clover	FACU
Portulaca oleracea	little-hogweed	FAC
Rumex fueginus	Tierra del Fuego dock	FACW
Rumex obtusifolius	bitter dock	FAC
Suaeda nigra	shrubby seepweed	OBL
Graminoids		
Arundo donax	giant-reed	FACW
Phalaris canariensis	common canary grass	FACU
Schoenoplectus maritimus	saltmarsh club-rush	OBL
Typha domingensis	southern cattail	OBL
Shrubs and Trees		
Allenrolfea occidentalis	iodinebush	FACW
Atriplex lentiformis	quailbush	FACU
Tamarix sp.	salt-cedar	FAC

Notes:

[a] Status follows *National Wetland Plant List, version 3.5* (USACE 2020).

[b] Indicator Status:
FAC = Occurs in wetlands and non-wetlands
FACU = Usually occurs in non-wetlands but may occur in wetlands
FACW = Usually occurs in wetlands but may occur in non-wetlands
OBL = Almost always occurs in wetlands

Appendix D
Representative Photographs

Appendix D. Representative Photographs

Photo 1: View to the north at **Sample Point 1.** Photo shows an area mapped by National Wetland Inventory (NWI) as a seasonally flooded palustrine excavation with unconsolidated shore (PUSCx), but no wetland indicators are present. March 1, 2022.

Photo 2: View to the west at **Sample Point 2.** Photo shows an area mapped by NWI as PUSCx, but no wetland indicators are present. March 1, 2022.

Photo 3: View to the north at **Sample Point 3.** Photo shows an area mapped by NWI as PUSCx, but no wetland indicators are present. March 1, 2022.

Photo 4: View to the east at **Sample Point 4.** Photo shows an area mapped by NWI as PUSCx, but no wetland indicators are present. March 14, 2022.

Photo 5A: View to the north at **Sample Point 5.** Photo shows an area mapped by NWI as palustrine scrub-shrub (PSS) and by National Hydrography Dataset (NHD) as an intermittent lake/pond, but no hydrology indicators are present. March 12, 2022.

Photo 5B: View to the southwest at **Sample Point 5.** Photo shows an area mapped by NWI as PSS and by NHD as an intermittent lake/pond, but no hydrology indicators are present. March 12, 2022.

Photo 6A: View to the northwest at **Sample Point 6.** Photo shows the NHD- and NWI-mapped perennial stream **PS-1**, **Alamo River**, flowing southeast to northwest toward the Salton Sea, with fringe palustrine emergent wetland PEM-1. March 12, 2022.

Photo 6B: View to the southeast at **Sample Point 6.** Photo shows the NHD- and NWI-mapped perennial stream **PS-1**, **Alamo River**, flowing southeast to northwest toward the Salton Sea, with fringe palustrine emergent wetland PEM-1. March 12, 2022.

Photo 7: View to the south at **Sample Point 7.** Photo shows fringe palustrine emergent wetland **PEM-1** on the banks of PS-1, Alamo River. March 12, 2022.

Photo 8: View to the east at **Sample Point 8.** Photo shows the paired upland point for Sample Point 7. March 12, 2022.

Photo 9: View to the northwest at **Sample Point 9.** The photo shows fringe/depressional palustrine scrub-shrub wetland **PSS-1** on Morton Bay. March 11, 2022.

Photo 10A: View to the north at **Sample Point 10.** The photo shows palustrine seasonally flooded salt flat **PUBC-1A** abutting PSS-1 and Morton Bay. March 11, 2022.

Photo 10B: View to the southeast of **PUBC-1B** separated by a road from PSS-2. March 11, 2022.

Photo 11: View to the northwest at **Sample Point 11.** Photo shows the paired upland point for Sample Point 9 and Sample Point 10. March 11, 2022.

Photo 12: View to the south at **Sample Point 12.** Photo shows **Ditch-1**, a constructed drainage leading from PUBC-1A to Morton Bay. March 12, 2022.

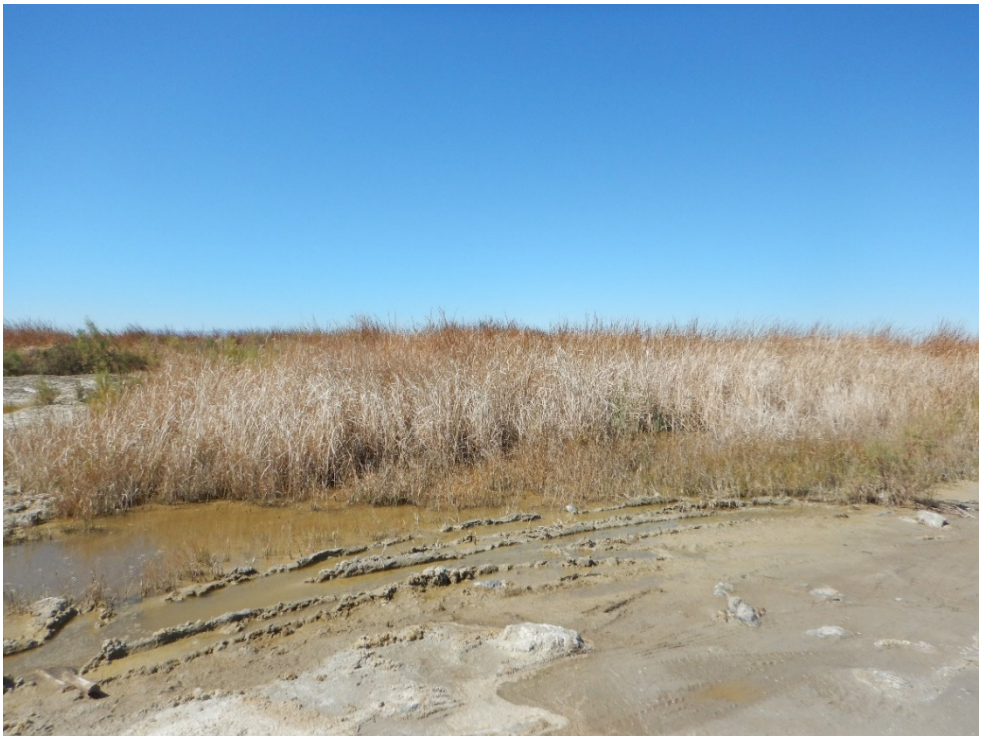


Photo 13A: View to the northwest at **Sample Point 13.** Photo shows fringe palustrine emergent wetland **PEM-2A** on Morton Bay. March 11, 2022.

Photo 13B: View to the east at **Sample Point 13.** Photo shows fringe palustrine emergent wetland **PEM-2B** (background) and **PUBC-1A** (foreground). March 11, 2022.

Photo 14: View to the south at **Sample Point 14.** The photo shows NWI-mapped **L1UBH-1, Morton Bay.** March 12, 2022.

Photo 15A: View to the west at **Sample Point 15.** The photo shows fringe palustrine scrub-shrub wetland **PSS-2A** on L1UBH-1, Morton Bay. March 12, 2022.

Photo 15B/17/18: View to the east of palustrine scrub shrub **PSS-2B**, riparian fringe (**Sample Point 17**), and **L1UBHx-1** (**Sample Point 18**)**.** March 12, 2022.

Photo 16: View to the north at **Sample Point 16.** The photo shows the paired upland point for Sample Point 15. March 12, 2022.

Photo 17B: View to the north of riparian area along L1UBHx-1. March 12, 2022.

Photo 19A: View to the southeast at **Sample Point 19.** The area is NWI-mapped as PUSCx and NHD-mapped as an intermittent reservoir. Surface soil cracks and hydric soils are likely relictual. March 12, 2022.

Photo 19B: View to the east of abandoned industrial pond mapped by NWI as PUSCx and by NHD as an intermittent reservoir. Surface soil cracks and hydric soils are likely relictual. March 12, 2022.

Photo 19C: View to the northwest of an abandoned industrial pond mapped by NWI as PUSCx and by NHD as an intermittent reservoir. Surface soil cracks and hydric soils are likely relictual. March 12, 2022.

Photo 20A: View to the northwest of an abandoned industrial pond mapped by NHD as an intermittent reservoir, but lacking hydric soil indicators. Surface soil cracks are indicative of historical hydrologic regime. March 12, 2022.

Photo 20B: View to the northeast at **Sample Point 20.** The area is NWI-mapped as PUSCx and NHD-mapped as an intermittent reservoir, but no hydric soil indicators are present. Surface soil cracks are indicative of historical hydrologic regime. March 12, 2022.

Photo 20C: View to the east of an abandoned industrial pond. The area is NWI-mapped as PUSCx and NHD-mapped as an intermittent reservoir, but no hydric soil indicators are present. Surface soil cracks are indicative of historical hydrologic regime. March 12, 2022.

Photo 20D: View to the northeast of an abandoned industrial pond. The area is NWI-mapped as PUSCx and NHD-mapped as an intermittent reservoir, but no hydric soil indicators are present. Surface soil cracks are indicative of historical hydrologic regime. March 12, 2022.

Photo 20E: View to the north of an abandoned industrial pond. The area is NWI-mapped as PUSCx and NHD-mapped as an intermittent reservoir, but no hydric soil indicators are present. Surface soil cracks are indicative of historical hydrologic regime. March 12, 2022.

Photo 21: View to the north at **Sample Point 21.** Photo shows NWI-mapped semipermanently flooded palustrine excavation **PUBFx-1** with fringe riparian area. March 12, 2022.

Photo 22: View to the southeast at **Sample Point 22.** Photo shows area mapped by NWI as a seasonally flooded palustrine excavation and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. March 12, 2022.

Photo 23: View to the southeast at **Sample Point 23.** Photo shows area mapped by NWI as a seasonally flooded palustrine excavation and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. March 12, 2022.

Photo 24: View to the southeast at **Sample Point 24.** Photo shows area mapped by NWI as a seasonally flooded palustrine excavation and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. March 12, 2022.

Photo 25A: View to the east at **Sample Point 25.** The photo shows an area meeting wetland criteria but lacking indicators of current hydrologic regime. Construction of the O-N Drain Connector in 2019 severed surficial hydrologic connectivity. March 12, 2022.

Photo 25B: View to the east of an area meeting wetland criteria but lacking indicators of current hydrologic regime. Construction of the O-N Drain Connector in 2019 severed surficial hydrologic connectivity. March 12, 2022.

Photo 25C: View to the south of an area meeting wetland criteria but lacking indicators of current hydrologic regime. Construction of the O-N Drain Connector in 2019 severed surficial hydrologic connectivity. March 12, 2022.

Photo 25D: View to the southwest of an area meeting wetland criteria but lacking indicators of current hydrologic regime. Construction of the O-N Drain Connector in 2019 severed surficial hydrologic connectivity. March 12, 2022.

Photo 26: View to the north at **Sample Point 26.** The photo shows NWI-mapped semipermanently flooded palustrine excavation **PUBFx-2** (background). March 12, 2022.

Photo 27A: View to the southwest at **Sample Point 27.** The photo shows depressional palustrine scrub-shrub wetland **PSS-3** in area mapped by NWI as L2USCx/L2UBFx. March 12, 2022.

Photo 27B: View to the east of depressional palustrine scrub-shrub wetland **PSS-3** in area mapped by NWI as L2USCx/L2UBFx. March 12, 2022.

Photo 28: View to the south at **Sample Point 28.** Photo shows the paired upland point for Sample Point 27. March 12, 2022.

Photo 29: View to the southwest at **Sample Point 29.** The photo shows palustrine seasonally flooded salt flat **PUBC-2**. The area is NWI-mapped as L2USCx, but surface water lacks sufficient coverage and depth to qualify as lacustrine. March 12, 2022.

Photo 30: View to the southeast at **Sample Point 30.** Photo shows an area mapped by NWI as L2USCx and by NHD as an intermittent reservoir, but soil and hydrology indicators are likely indicative of historical hydrologic regime. March 12, 2022.

Appendix E
USACE Wetland and OHWM Datasheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/1/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-1

Investigator(s): R. Newton, R. John Section, Township, Range: S33 T 11S R13E

Landform (hillslope, terrace, etc.): constructed terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.162391° Long: -115.631209° Datum: WGS84

Soil Map Unit Name: Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes NWI classification: PUSCx

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

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded palustrine excavation (PUSCx), but no wetland indicators are present. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Atriplex lentiformis	20	Y	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species 20	x 4 =	80
UPL species _____	x 5 =	_____
Column Totals: 20 (A)		80 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	7.5 YR 4/3	100					SiLo	~40% gravels/fill
3 - 18	7.5 YR 4/3	100					SiLo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Constructed area

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/1/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-2

Investigator(s): R. Newton, R. John Section, Township, Range: S33 T 11S R13E

Landform (hillslope, terrace, etc.): constructed terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.163147° Long: -115.630995° Datum: WGS84

Soil Map Unit Name: Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes NWI classification: PUSCx

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

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded palustrine excavation (PUSCx), but no wetland indicators are present. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Atriplex lentiformis	20	Y	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species 20	x 4 =	80
UPL species _____	x 5 =	_____
Column Totals: 20 (A)		80 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	7.5 YR 4/3	100					SiLo	~40% gravels
3 - 18	7.5 YR 4/3	100					SiLo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Constructed area

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/1/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-3

Investigator(s): R. Newton, R. John Section, Township, Range: S33 T 1S R13E

Landform (hillslope, terrace, etc.): cleared dirt parking lot? Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.164302° Long: -115.623849° Datum: WGS84

Soil Map Unit Name: Holtville silty clay, wet NWI classification: PUSCx

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

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded palustrine excavation (PUSCx), but no wetland indicators are present. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

No vegetation present. Area has been cleared of vegetation and may serve as parking for neighboring industries.

SOIL

Sampling Point: S-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 18	7.5 YR 4/3	100					SiLo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/14/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-4

Investigator(s): R. Newton, M. King Section, Township, Range: S26 T11S R13E

Landform (hillslope, terrace, etc.): manmade terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.177045° Long: -115.596687° Datum: WGS84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded palustrine excavation (PUSCx). No wetland indicators are present. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Constructed nature of the area likely precludes vegetative growth.

SOIL

Sampling Point: S-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 17	7.5 YR 4/3	100					SiCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

constructed area

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-5

Investigator(s): R. Newton, M. King Section, Township, Range: S27 T11S R13E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): D - Interior Deserts Lat: 33.187379 Long: -115.597304 Datum: WGS 84

Soil Map Unit Name: Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes NWI classification: PSS

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as palustrine scrub-shrub wetland (PSS) and by NHD as an intermittent lake/pond, but the area is lacking wetland hydrology indicators. This area was previously inundated by the Salton Sea, and hydric soils are likely relictual. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Tamarix sp.	85	Y	FAC
2.			
3.			
4.			
5.			
	85 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 85	x 3 =	255
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 85 (A)		255 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 7	2.5 Y 6/2	80					ClLo	
	2.5 Y 4/1	15	7.5 YR 4/6	5	C	M	ClLo	
7 - 18	5 YR 4/4	100					Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils are likely relictual from when this area was inundated by the Salton Sea.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ **No** ✓

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

Remarks:

S-6

PS-1 Alamo River | **OHWM Delineation Cover Sheet** | Page 1 of 2

Project: Morton Bay Geothermal Project **Date:** 3/12/22

Location: Imperial County, California **Investigator(s):** R Newton, M King

Project Description:
Study area includes all potential disturbance areas associated with proposed geothermal project

Describe the river or stream's condition (disturbances, in-stream structures, etc.):
PS-1 Alamo River flows southeast to northwest before terminating in the Salton Sea. The river is crossed by several bridges and likely receives hydrologic inputs from irrigation infrastructure.

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☒ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

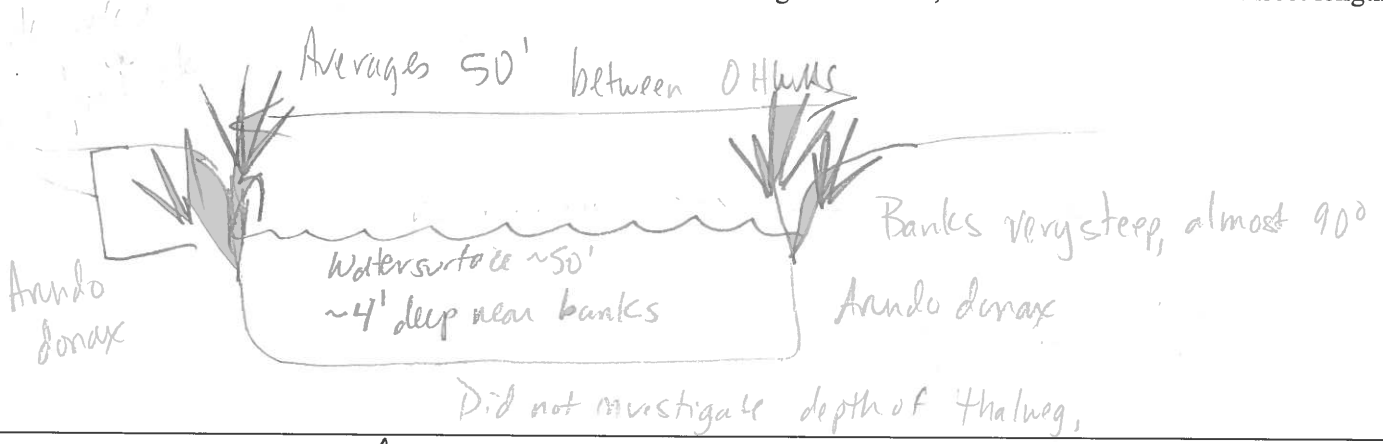
List and describe any other supporting information received/acquired:

NHD, NWI

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # S-6 Alamo River PSI **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM		100				N
Below OHWM	100					Y

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM			75	25
Below OHWM				100

Notes/Description: Arundo donax

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-7

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): streamside fringe Local relief (concave, convex, none): concave Slope (%): 20

Subregion (LRR): D - Interior Deserts Lat: 33.198821 Long: -115.595665 Datum: WGS84

Soil Map Unit Name: Fluvaquents, saline NWI classification: R2UBH

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Fringe palustrine emergent wetland PEM-1 on the banks of perennial stream PS-1 Alamo River. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Arundo donax	80	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species 80	x 2 =	160
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 80 (A)		160 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8	7.5 YR 4/3	100					Sa	
8 - 18	2.5 Y 6/1	85	7.5 YR 4/6	15	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-8

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): bankslope Local relief (concave, convex, none): none Slope (%): 50

Subregion (LRR): D - Interior Deserts Lat: 33.198839 Long: -115.595652 Datum: WGS85

Soil Map Unit Name: Fluvaquents, saline NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Paired upland point for PEM-1. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Arundo donax	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 20	x 2 = 40
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 20 (A)	40 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 18	7.5 YR 4/3	100					Sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/11/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-9

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): lacustrine fringe Local relief (concave, convex, none): minor concave Slope (%): 0-1

Subregion (LRR): D - Interior Deserts Lat: 33.199757 Long: -115.597395 Datum: WGS84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Depressional/fringe palustrine scrub-shrub wetland PSS-1 along Morton Bay in area mapped by NWI as L2USC. This wetland likely developed after the Salton Sea receded. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 x 20)			
1. Tamarix sp.	35	Y	FAC
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 x 5)			
1. Arundo donax	15	Y	FACW
2. Schoenoplectus maritimus	25	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 25	x 1 =	25
FACW species 15	x 2 =	30
FAC species 35	x 3 =	105
FACU species _____	x 4 =	
UPL species _____	x 5 =	
Column Totals: 75 (A)		160 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	2.5 Y 6/2	100					SiCl	
2 - 4	10 Y 5/Gley 1	90	7.5 YR 5/6	10	C	M	Cl	
4 - 5	10 YR 5/2	100					Cl	
5 - 18	10 Y 6/Gley 1	90	5 YR 4/6	10	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No _____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 8

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/11/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-10

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): exposed lake bed Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.199788 Long: -115.597471 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Seasonally flooded palustrine salt flat PUBC-1 occupying transitional area between wetlands fringing Morton Bay and constructed areas of higher topography. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

No vegetation present.

SOIL

Sampling Point: S-10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	2.5 Y 5/2	100					SiCl	
2 - 10	5 Y 5/1	80					ClLo	
	7.5 YR 4/6	10					Cl	
	2.5 YR 2.5/1	10					Cl	
10 - 18	2.5 Y 6/1	85	7.5 YR 4/6	15	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No _____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 8

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/11/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-11

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): road slope Local relief (concave, convex, none): none Slope (%): 15

Subregion (LRR): D - Interior Deserts Lat: 33.19965 Long: -115.597441 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Paired upland point for PSS-1 and Salt Flat-1, representative of upland area upslope of Morton Bay. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	5 Y 6/2	85	7.5 YR 6/8	15	C	M	SiSa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Redoximorphic features likely relictual from when this area was inundated by the Salton Sea.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

S-12

Ditch-1 **OHWM Delineation Cover Sheet** Page 1 of 2

Project: Morton Bay Geothermal Project **Date:** 3/12/22

Location: Imperial County, California **Investigator(s):** R Newton, M. King

Project Description:

Study area includes all potential disturbance areas associated with proposed geothermal project.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

Ditch-1 is a manmade drainage extending through an adjacent salt flat towards Morton Bay. This ditch may have been constructed to facilitate drainage away from the adjacent dirt road.

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☒ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

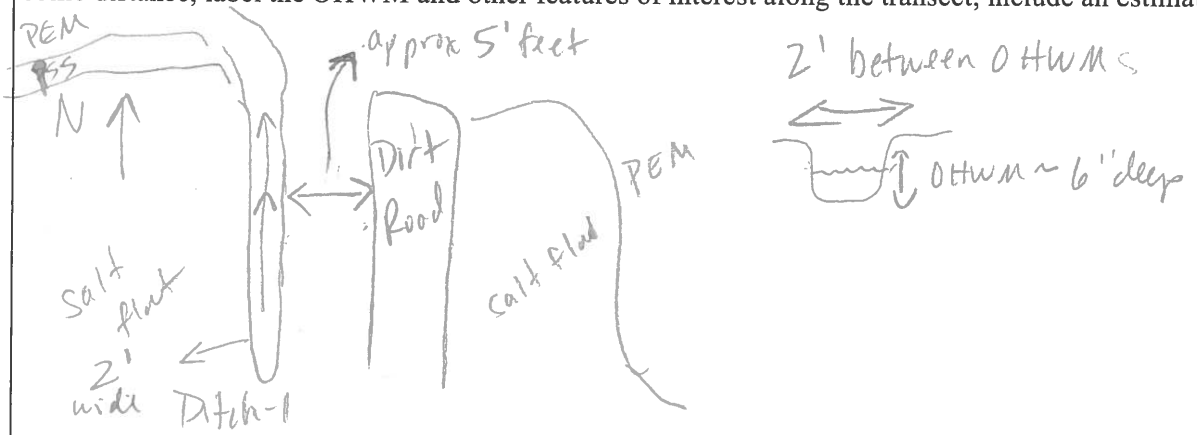
List and describe any other supporting information received/acquired:

NHD, NWI

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # S-12 Ditch-1 **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	70	30				N
Below OHWM	100					N

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM				100
Below OHWM				100

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/11/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-13

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): lake fringe Local relief (concave, convex, none): minor concave Slope (%): 0-1

Subregion (LRR): D - Interior Deserts Lat: 33.200924 Long: -115.597186 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USC

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Fringe palustrine emergent wetland PEM-2 along the shores of Morton Bay. Area is mapped by NWI as a lake, but this wetland likely developed after the Salton Sea receded. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Schoenoplectus maritimus	30	Y	OBL
2. Typha domingensis	40	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 70	x 1 =	70
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 70 (A)		70 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils not investigated: hydric soils assumed in presence of dominant OBL vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 2

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

High water table and saturation are assumed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal, LLC State: CA Sampling Point: S-14

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): lake Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.201662 Long: -115.597179 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L1UBH

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

NWI-mapped L1UBH-1, Morton Bay. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Typha domingensis	25	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 25	x 1 =	25
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 25 (A)		25 (B)

Prevalence Index = B/A = 100

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils not investigated. Hydric soils assumed in presence of OBL vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): > 6 feet

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-15

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): lacustrine fringe Local relief (concave, convex, none): minor convex Slope (%): 0-1

Subregion (LRR): D - Interior Deserts Lat: 33.199482 Long: -115.595645 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Fringe palustrine scrub-shrub wetland PSS-2 on the fringes of L1UBH-1 Morton Bay . The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 12 ft x 20 ft)			
1. Allenrolfea occidentalis	25	Y	FACW
2. Tamarix sp.	40	Y	FAC
3.			
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 25	x 2 = 50
FAC species 40	x 3 = 120
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 65 (A)	170 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	2.5 Y 5/2	100					Sa	
3 - 5	7.5 YR 5/8	80					Sa	
	2.5 Y 5/2	20					Sa	
5 - 18	5 Y 5/2	80	7.5 YR 5/8	20	C	M	SaCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-16

Investigator(s): R. Newton Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): bankslope Local relief (concave, convex, none): none Slope (%): 0-5

Subregion (LRR): D - Interior Deserts Lat: 33.199467 Long: -115.595635 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Paired upland point for S-15. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 12 x 20 ft.)			
1. Allenrolfea occidentalis	25	Y	FACW
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 25	x 2 = 50
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 25 (A)	50 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	7.5 YR 6/2	100					Sa	~20% road fill; Typha litter
3-19	7.5 YR 6/2	100					Sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-17

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): lake fringe Local relief (concave, convex, none): minor concave Slope (%): 0-2

Subregion (LRR): D - Interior Deserts Lat: 33.19943 Long: -115.595505 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USCx/L1UBHx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Potential PSS wetland found to be lacking hydric soil and wetland hydrology indicators. Area is riparian. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 12 ft x 20 ft)			
1. Tamarix sp.	75	Y	FAC
2.			
3.			
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 75	x 3 = 225
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 75 (A)	225 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-17

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	7.5 YR 4/3	100					Sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-18

Investigator(s): R. Newton, M. King Section, Township, Range: S22 T11S R13E

Landform (hillslope, terrace, etc.): impounded lake Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.201662 Long: -115.597179 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L1UBHx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

NWI-mapped excavated impounded lake L1UBHx-1. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Allenrolfea occidentalis	20	Y	FACW
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 20	x 2 =	40
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 20 (A)		40 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils not investigated. Hydric soils assumed in presence of FACW vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): > 6 feet

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

Area is impounded.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-19

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): abandoned industrial pond Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.201999 Long: -115.587884 Datum: WGS 84

Soil Map Unit Name: Meloland very fine sandy loam, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NHD as an intermittent reservoir and NWI as PUSCx. This sample point is representative of a series of industrial ponds likely abandoned when the Salton Sea began receding. Hydric soils and surface soil cracks are apparently relictual and do not reflect the current hydrologic regime. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Allenrolfea occidentalis	10	Y	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 10	x 2 =	20
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 10 (A)		20 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	7.5 YR 3/2	100					SiCl	
3 - 17	7.5 YR 4/2	95	5 YR 4/6	5	C	M	Sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Hydric soils are likely relictual and do not reflect the current hydrologic regime.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

Surface soil cracks and salt crust are likely relictual and do not reflect the current hydrologic regime.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-20

Investigator(s): R. Newton, M. King Section, Township, Range: S24 T11S R13E

Landform (hillslope, terrace, etc.): abandoned industrial pond Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.198964 Long: -115.576737 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NHD as an intermittent reservoir and NWI as PUSCx but no recent hydrology indicators are present. This sample point is representative of a series of industrial ponds likely abandoned when the Salton Sea began receding. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Allenrolfea occidentalis	20	Y	FACW
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 20	x 2 = 40
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 20 (A)	40 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 18	7.5 YR 4/3	100					SaCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Surface soil cracks are indicative of historical hydrologic regime.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-21

Investigator(s): R. Newton, M. King Section, Township, Range: S24 T11S R13E

Landform (hillslope, terrace, etc.): excavated pond Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): D - Interior Deserts Lat: 33.198964 Long: -115.562879 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUBFx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

NWI-mapped semipermanently flooded palustrine excavation PUBFx-1, managed for waterfowl hunting. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. .			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

No vegetation rooted in the pond.

SOIL

Sampling Point: S-21

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Soils assumed to be hydric based on standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): ~2 feet

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

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

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-22

Investigator(s): R. Newton, M. King Section, Township, Range: S19 T11S 14E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.198116 Long: -115.560882 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded excavated pond and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Rumex fueginus	20	Y	FACW
2. Melilotus indicus	8	Y	FACU
3. Portulaca oleracea	5	N	FAC
4.			
5.			
6.			
7.			
8.			
	33 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 67 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species 20	x 2 =	40
FAC species 5	x 3 =	15
FACU species 8	x 4 =	32
UPL species _____	x 5 =	_____
Column Totals: 33 (A)		87 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	7.5 YR 4/3	95	7.5 YR 4/2	5	C	M	SiCl	
4 - 18	7.5 YR 4/3	100					SiCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2

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

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

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

Surface water was present earlier during the delineation.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-23

Investigator(s): R. Newton, M. King Section, Township, Range: S19 T11S R14E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.196251 Long: -115.562361 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded excavated pond and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris canariensis	12	Y	FACU
2. Rumex fueginus	8	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 8	x 2 =	16
FAC species	x 3 =	
FACU species 12	x 4 =	48
UPL species	x 5 =	
Column Totals: 20 (A)		64 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-23

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 5	7.5 YR 4/3	95	7.5 YR 4/2	5	C	M	SiCl	
5 - 18	7.5 YR 4/3	100					SiCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 2

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Surface water was present earlier during the survey window.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-24

Investigator(s): R. Newton, M. King Section, Township, Range: S19 T11S R14E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.193044 Long: -115.562314 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: PUSCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as a seasonally flooded excavated pond and by NHD as an intermittent reservoir. This area is managed for waterfowl hunting and lacks hydric soil indicators. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Atriplex lentiformis	10	Y	FACU
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Melilotus indicus	10	Y	FACU
2. Rumex obtusifolius	12	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	22 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 78 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 12	x 3 = 36
FACU species 20	x 4 = 80
UPL species _____	x 5 = _____
Column Totals: 32 (A)	116 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-24

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	7.5 YR 4/3	95	7.5 YR 4/2	5	D	M	SiCl	
4 - 18	7.5 YR 4/3	100					SiCl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Surface soil cracks likely indicate historical hydrologic regime.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-25

Investigator(s): R. Newton, M. King Section, Township, Range: S23 T11S R13E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.202311 Long: -115.588074 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: L2UBFx/L2USCx

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

Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as excavated lakes. Construction of the O-N Drain Connector severed surficial hydrologic connectivity between this area and Morton Bay. Mitigation is required on the part of Imperial Irrigation District (see EPA Docket No. CWA-309(a)-22-002). The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Allenrolfea occidentalis	45	Y	FACW
2.			
3.			
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 45	x 2 = 90
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 45 (A)	90 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Dead Typha domingensis

SOIL

Sampling Point: S-25

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	2.5 Y 6/2	75	2.5 YR 3/4	25	C	PL	Sa	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

The O-N Drain Connector Project was constructed in 2019, and severed surficial hydrologic connectivity with Morton Bay. Hydrology indicators reflect the historical hydrologic regime.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-26

Investigator(s): R. Newton, M. King Section, Township, Range: S14 T11S R13E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.206209 Long: -115.584293 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: L2UBFx/L2USCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Semipermanently flooded palustrine excavation PUBFx-2. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-26

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Soils not investigated but assumed to be hydric in presence of standing water.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): ~18

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-27

Investigator(s): R. Newton, M. King Section, Township, Range: S14 T11S R13E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): minor concave Slope (%): 0-2

Subregion (LRR): D - Interior Deserts Lat: 33.212676 Long: -115.583677 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: L2USCx/L2UBFx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Palustrine scrub-shrub wetland PSS-3 in area mapped by NWI as excavated lakes. Representative sample point taken outside the study area. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Tamarix sp.	65	Y	FAC
2.			
3.			
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 65	x 3 = 195
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 65 (A)	195 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-27

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 9	5 Y 6/2	80	5 YR 4/6	20	C	M	Cl	
9 - 18	5 Y 5/2	40					Cl	
	5 Y 6/2	40	5 YR 4/6	20	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-28

Investigator(s): R. Newton, M. King Section, Township, Range: S14 T11S R13E

Landform (hillslope, terrace, etc.): toe of road slope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): D - Interior Deserts Lat: 33.212551 Long: -115.583054 Datum: WGS 84

Soil Map Unit Name: Imperial silty clay, wet NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Paired upland point for S-27. Representative sample point taken outside the study area. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-28

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	5 Y 6/2	100					SaCl	
3	shovel refusal							riprap

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ **No** ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-29

Investigator(s): R. Newton, M. King Section, Township, Range: S14 T11S R13E

Landform (hillslope, terrace, etc.): shallow excavation Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): D - Interior Deserts Lat: 33.21248 Long: -115.587016 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Seasonally flooded palustrine salt flat PUBC-2. Area is mapped by NWI as excavated lake, but surface water lacks sufficient coverage and depth. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-29

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 16	5 Y 6/2	80	5 YR 4/6	20	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): ~ 5

Water Table Present? Yes ✓ No ___ Depth (inches): 1

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

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

Surface water covers approximately 25% of the area.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Morton Bay Geothermal Project City/County: Imperial County Sampling Date: 3/12/22

Applicant/Owner: Morton Bay Geothermal LLC State: CA Sampling Point: S-30

Investigator(s): R. Newton, M. King Section, Township, Range: S14 T11S R13E

Landform (hillslope, terrace, etc.): shallow excavataion Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D - Interior Deserts Lat: 33.212498 Long: -115.586996 Datum: WGS 84

Soil Map Unit Name: Fluvaquents, saline NWI classification: L2USCx

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area mapped by NWI as excavated lake and by NHD as an intermittent reservoir but soil and hydrology indicators are likely indicative of historical hydrologic regime. The Antecedent Precipitation Tool determined the area was drier than normal at the time of sampling.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-30

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	5 Y 6/2	80	5 YR 4/6	20	C	M	Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

Hydric soils likely relictual and indicative of historical hydrologic regime.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ **No** ✓

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

Remarks:

Surface soil cracks and salt crust likely from historical hydrologic regime.

Attachment 3
Administrative Order of Consent between Imperial Irrigation District and the Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
75 Hawthorne Street
San Francisco, California 94105

IN THE MATTER OF:	)	DOCKET NO. CWA-309(a)-22-002
	)	
IMPERIAL IRRIGATION DISTRICT	)	**ADMINISTRATIVE ORDER ON CONSENT**
	)	
Imperial, California,	)	
	)	*Proceeding under section 309(a) of the Clean Water Act, 33 U.S.C. § 1319(a)*
Respondent.	)	
	)	

I. INTRODUCTION

1. This Administrative Order on Consent ("Consent Order") is entered into voluntarily by the United States Environmental Protection Agency, Region 9 ("EPA"), and the Imperial Irrigation District ("Respondent" or "IID").

2. EPA and Respondent recognize that this Consent Order was negotiated in good faith.

3. EPA and Respondent recognize that Respondent's participation in this Consent Order does not constitute an admission by Respondent of liability. Respondent neither admits nor denies the Findings of Fact and Determinations of Law set forth below, except to the extent that those allegations provide the EPA with a jurisdictional basis to enforce this Consent Order.

II. STATUTORY AUTHORITY

4. Section 309(a) of the Clean Water Act ("CWA"), 33 U.S.C. § 1319(a), provides that whenever the EPA finds that any person is in violation of any condition or limitation which implements section 301(a) of the CWA, 33 U.S.C. § 1311(a), the EPA may issue an order requiring such person to comply with such condition or limitation, and shall specify a time for compliance that the EPA determines to be reasonable.

5. The following Findings of Fact and Determinations of Law are made and this Administrative Compliance Order on Consent ("Consent Order") is issued pursuant to the authority vested in the EPA by section 309(a) of the CWA, 33 U.S.C. § 1319(a), as amended. This authority has been delegated to the Regional Administrator of the EPA, Region 9, and further delegated by the Regional Administrator to the Director of the Enforcement and Compliance Assurance Division of the EPA, Region 9.

III. STATUTORY AND REGULATORY FRAMEWORK

6. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of, *inter alia,* dredged and/or fill material from a point source into waters of the United States by any person except in compliance with a permit issued by the U.S. Army Corps of Engineers ("Corps") pursuant to section 404 of the Act, 33 U.S.C. § 1344.

7. Section 502(5) of the CWA, 33 U.S.C. § 1362(5), defines "person" to mean a "corporation, partnership, association, State" or "political subdivision of a State."

8. Section 502(6) of the CWA, 33 U.S.C. § 1362(6), defines "pollutant" to include, *inter alia*, "dredged spoil," "biological materials," "rock," "sand" and "cellar dirt."

9. Section 502(14) of the CWA, 33 U.S.C. § 1362(14), defines "point source" to include any discernable, confined and discrete conveyance… from which pollutants are or may be discharged."

10. Section 502(7) of the CWA, 33 U.S.C. § 1362(7), defines "navigable waters" as "waters of the United States, including the territorial seas."

11. 33 C.F.R. § 323.2(c) defines "dredged material" as "material that is excavated or dredged from waters of the United States." The term "discharge of dredged material" means "any addition of dredged material into, including any redeposit of dredged material other than incidental fallback within, the waters of the United States." 33 C.F.R. § 323.2(d)(1).

12. 33 C.F.R. § 323.2(e)(1) defines "fill material" as "material placed in waters of the United States where the material has the effect of: (i) Replacing any portion of a water of the United States with dry land; or (ii) Changing the bottom elevation of any portion of a water of the United States."

IV. FINDINGS OF FACT AND DETERMINATIONS OF LAW

13. Respondent IID is a California public agency organized under the California Irrigation District Law and a "person" within the meaning of section 502(5) of the CWA, 33 U.S.C. § 1362(5).

14. On or around August 26, 2019 through at least September 23, 2019, IID engaged in construction of the O-N Drain Connector Project (Project) on an easement it holds over real property (Property) owned by Magma Power Company Inc. (Owner) and located west of Davis Road, north of Schrimpf Road and south of McDonald Road, east of Morton Bay, northwest of the City of Calipatria, in Section 23, Township 11 South, Range 13 East, in Imperial County, California.

15. The Project consisted of the construction of one eastern drain bank and a portion of one western drain bank extending from the drain banks of IID's "O Drain" at its terminus toward IID's "N Drain" in a north-to-south direction, stopping at an existing roadway along the northern side of the N Drain. Additionally, a pipeline was installed in that existing roadway to connect the drainage channel of the drain banks to the N Drain. The existing drain banks of the O Drain have eroded and deteriorated moving the terminus inland and discharges at the terminus of the O Drain no longer reach the Salton Sea. The eastern drain bank was improved by IID with an earthen roadway. The western drain bank was not completed and no water was diverted from the O Drain into the drainage channel. The O Drain continues to discharge at its terminus.

16. The boundary of the project area (Site) as submitted by Respondent is depicted in Exhibit A to this Consent Order.

17. The Site contains wetlands which drain northwest towards the Salton Sea. The Salton Sea and its adjacent wetlands are all "waters of the United States" within the meaning of Section 502(7) of the CWA, 33 U.S.C. § 1362(7).

18. On November 5, 2020, inspectors from EPA Region 9 and the U.S. Army Corps of Engineers (Corps) inspected the Site and confirmed that Respondent had operated equipment such as dump trucks and graders to conduct earthmoving activities at the Site that had resulted in the discharge of fill to approximately 1 acre of wetlands. The Project further caused indirect impacts to approximately 20 acres of wetlands located to the east of the Project by severing the intermittent hydrological connection between those wetlands and Morton Bay.

19. On February 10, 2021, following the site visit, EPA Region 9 requested additional information from Respondent. On March 10, 2021, Respondent provided EPA Region 9 with information showing the purpose, scope, and extent of work at the Site related to the Respondent's earthmoving activities.

20. On September 16, 2021, following delivery to Respondent of a draft of this Consent Order, EPA Region 9 provided its November 5, 2020 Inspection Report to Respondent by email communication.

21. As a result of the earthmoving activity at the Property, Respondent discharged earthen materials that constituted "pollutants" under section 502(6) of the CWA, 33 U.S.C. § 1362(6).

22. The earthmoving equipment used by Respondent to discharge fill material to waters of the United States at the Property were "point source[s]" within the meaning of section 502(14) of the CWA, 33 U.S.C. § 1362(14).

23. Respondent did not apply for or obtain a permit from the Corps pursuant to section 404 of the CWA, 33 U.S.C. § 1344, for the discharges of fill material to waters of the United States at the Property.

24. Based on its November 5, 2020 inspection of the Site, information provided by the Corps, and information provided by the Respondent, EPA alleges that Respondent discharged fill material without authorization under section 404 of the CWA, 33 U.S.C. § 1344, to approximately one (1) acre of wetlands and indirectly impacted approximately 20 acres of wetlands on the Property subject to CWA regulation.

25. EPA alleges that, by discharging fill material into waters of the United States at the Property without CWA permit authorization, Respondent violated section 301(a) of the CWA, 33 U.S.C. § 1311(a).

V. ORDER FOR COMPLIANCE ON CONSENT

26. Based on the foregoing Findings of Fact and Determinations of Law and pursuant to the authority of section 309(a) of the CWA, 33 U.S.C. § 1319(a), IT IS HEREBY ORDERED and AGREED that Respondent shall:

27. Prohibition of Discharge: Respondent shall not discharge any additional pollutants, including fill material, into any waters of the United States at the Site except in compliance with this Consent Order or a permit issued pursuant to the CWA.

28. Submission of Restoration Work Plan: No later than ninety (90) days after the Consent Order's Effective Date, Respondent shall submit a draft Restoration Plan to the EPA for review and approval. The draft Restoration Plan shall conform to the conceptual description attached hereto as Exhibit B, and include the following:

a. Removal. A plan for (i) the removal of the fill material from the directly-impacted waters of the United States (i.e., approximately 1 acre) and the restoration of hydrology thereto, and (ii) the restoration of hydrology to the indirectly impacted waters of the United States at the Property (i.e., approximately 20 acres), with detailed information regarding the following:

(1) scaled site surveys and drawings of the areas subject to fill removal and restoration (Restoration Areas), and the dimensions of those areas (e.g., berm 1, berm 2);

(2) the dimensions for each of the areas referred to in (a)(1) above should include the length, width, depth, height, and area;

(3) an estimate of the volume of fill material to be removed;

(4) a schedule, with milestone dates for key activities to commence and a final completion date for fill removal and active planting activities no later than one year after issuance of all local, state and federal approvals required for implementation of the Restoration Plan;

(5) a list of any heavy earthmoving equipment to be used;

(6) the name(s) and contact information for the person(s) and/or contractor(s), if any, that will complete the work under this Consent Order; and

(7) identification of suitable upland locations for the placement of the excavated fill material, either temporarily or permanently.

b. Revegetation. A plan for the revegetation of the waters of the United States in the Restoration Areas, including success criteria such as percent survival, percent native plant coverage, percent non-native plant coverage. If success criteria are not met at the end of a reporting year, an adaptive management plan must be submitted to EPA that identifies the corrective actions Respondent will take to ensure success criteria are achieved;

c. Monitoring. A 2-Year Monitoring Plan describing the re-vegetation, including photographs and other documentation, to demonstrate success criteria are achieved; and

d. Best Management Practices (BMPs). A list of the BMPs (including silt fences, silt curtains, work practices, etc) Respondent will employ during the restoration activities to reduce or prevent: (1) the discharge of sediment and other pollutants to waters of the United States, including wetlands; and (2) soil compaction and damage to existing vegetation. Respondent shall notify EPA of any BMP failure and plans to repair or replace those BMPs.

29. Approval of Restoration Plan. EPA may disapprove the draft Restoration Plan in whole or in part and require revisions to it. If EPA disapproves the draft Restoration Plan, Respondent shall address all deficiencies identified by EPA and resubmit the draft Restoration Plan for EPA's approval within the timeframe specified in EPA's disapproval, which timeframe shall allow at least sixty (60) days for Respondent to revise and resubmit the draft Restoration Plan. Upon full approval of an Approved Restoration Plan by EPA, Respondent shall implement the Approved Restoration Plan according to the approved schedule.

30. Coordination with Corps of Engineers: During its review of the draft Restoration Plan, EPA will encourage the Corps and other permitting agencies (U.S. Fish and Wildlife Service, California

Department of Fish and Wildlife, Regional Water Quality Control Board) to review the draft Restoration Plan to increase the likelihood that, once approved by EPA, the activities in the Approved Restoration Plan can successfully be permitted by the Corps (i.e., under section 404 of the CWA, 33 U.S.C. § 1344) and such other agencies (i.e., under their respective statutory and regulatory responsibilities).

31. Notification to EPA: At least seven (7) days prior to commencing ground-disturbing activities on the Site under the Approved Restoration Plan, Respondent must notify the EPA representative identified in paragraph 38.

32. Annual Monitoring Reports: By December 31st of each year following completion of the removal and revegetation at the Restoration Areas, Respondent shall submit an annual monitoring report to the EPA representative identified in paragraph 38. Respondent shall submit an annual monitoring report by December 31st for at least two years of monitoring or until success criteria identified in the Approved Restoration Plan are met. Each annual report must detail the results of that year's monitoring activities.

33. Completion Report: Within thirty (30) days of completing (i) the removal of fill material (including fill that disrupted by hydrologic connection between Morton Bay and the indirectly impacted wetlands) and (ii) any active revegetation efforts, as required by the Restoration Plan, Respondent shall provide the EPA a Completion Report, which must include photographs of Restoration Area conditions before and after completion of such activities and demonstrate compliance with the Approved Restoration Plan, including success criteria. EPA may disapprove the Completion Report in whole or in part and require revisions to it. If EPA disapproves the Completion Report, Respondent shall address all deficiencies identified by EPA and resubmit the Completion Report for EPA's approval within thirty (30) days of receipt of EPA's disapproval or such later time as EPA may provide in its disapproval.

34. Alternative Mitigation. Should circumstances arise that prevent Respondent from implementing the Approved Restoration Plan, Respondent shall notify EPA in writing of these circumstances and, no later than 120 days after the Consent Order's Effective Date or such later date as EPA may approve, propose to EPA for its approval a Draft Alternative Mitigation Plan that provides for alternative on- or off-site mitigation of the 21 acres of wetlands impacted at the Site, as described in paragraph 18 above, at a 3:1 ratio, *i.e.*, 63 acres of mitigation.

a. Draft Alternative Mitigation Plan. The draft Alternative Mitigation Plan shall include, at a minimum: (i) scaled site surveys and drawings of the Mitigation Area where Respondent proposes to provide the alternative mitigation; (ii) success criteria; (iii) a schedule, with milestone dates for key activities; (iv) a final completion date for alternative mitigation activities that is no later than one year after issuance of all local, state and federal approvals required for the proposed alternative mitigation and in any case no later than three (3) years from the Effective Date of this Consent Order; (v) the name(s) and contact information for the person(s) and/or contractor(s), if any, that will complete the work under the Alternative Mitigation Plan; and (vi) identification of suitable upland locations for the placement of any excavated fill material, either temporarily or permanently; (vii) a 2-5 year Monitoring Plan, depending on the nature of the alternative mitigation proposed, including photographs and other documentation, to demonstrate success criteria are achieved; (viii) a list of best management practices (BMPs) that Respondent will employ during mitigation activities; and (ix) a draft restrictive covenant recorded in the chain of title to preserve the wetlands within the alternative Mitigation Area.

b. Approval of Alternative Mitigation Plan. EPA may disapprove the draft Alternative Mitigation Plan in whole or in part and require revisions to it. If EPA disapproves the draft Alternative Mitigation Plan, Respondent shall address all deficiencies identified by EPA and resubmit the draft Alternative Mitigation Plan for EPA's approval within the timeframe specified in EPA's disapproval, which timeframe shall allow at least sixty (60) days for Respondent to revise and resubmit the draft Alternative Mitigation Plan. Upon full approval by EPA Respondent shall implement the Alternative Mitigation Plan according to the approved schedule.

c. Restrictive Covenant. A restrictive covenant shall be recorded for the Mitigation Area described in the approved Alternative Mitigation Plan no later than one year after issuance of all local, state and federal approvals required for the proposed alternative mitigation and in any case no later than three (3) years from the Effective Date of this Consent Order.

VI. FINAL REPORT

35. Within thirty (30) calendar days after Respondent believes it has fully completed and implemented the compliance actions required by Part V of this Consent Order, including the attainment of success criteria set forth in the Restoration Plan or Alternative Mitigation Plan, Respondent shall certify that all requirements have been completed and shall submit to the EPA a final report (Final Report) that includes a description, including photographs, as appropriate, and timeline of all of actions taken by Respondent to achieve compliance with this Consent Order.

36. If, after review of the Final Report, the EPA concurs that all the requirements of this Consent Order have been adequately completed and implemented, the EPA will provide notice to Respondent of this concurrence.

37. If, after review of the Final Report, the EPA determines that any requirement has not been completed and implemented in accordance with this Consent Order, the EPA shall so notify Respondent, provide a list of deficiencies, and require Respondent to modify its actions as appropriate to correct such deficiencies. If so required and subject to the approval of Owner, Respondent shall implement the modified requirement(s) and submit a revised Final Report to the EPA.

VII. SUBMISSIONS AND RECORD RETENTION

38. Respondent shall submit all written communications, including progress reports and the Final Report, electronically, in an electronic format that allows documents to be searchable by key word. Respondent shall send all submittals to the following e-mail addresses. Submissions will be deemed made on the date they are sent electronically.

Scott McWhorter
U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division (ECAD-3-2)
mcwhorter.Scott@epa.gov

Rich Campbell
U.S. Environmental Protection Agency
Office of Regional Counsel (ORC-2)
campbell.rich@epa.gov

39. All reports, notifications, documentation, and submittals required by this Consent Order shall be signed by a duly authorized representative of Respondent as specified by 40 C.F.R. § 122.22 and shall include the following statement:

> "I certify under the penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

40. Respondent shall preserve and retain all records and documents now in its possession or control, or which come into its possession or control, that relate in any manner to the performance of the tasks in this Consent Order, until five (5) years after termination of this Consent Order. Respondent shall also instruct its agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the tasks in this Consent Order.

VIII. GENERAL PROVISIONS

41. This Consent Order is binding on Respondent and its officials, officers, directors, partners, agents, employees, attorneys, successors and assigns, and on all persons, independent contractors, consultants and contractors acting in concert with Respondent.

42. Respondent shall provide a copy of this Consent Order to any successor in interest to its control, operation, or any other interest it owns in any portion of the Restoration Areas, or Alternative Mitigation Area, at least thirty (30) calendar days prior to the transfer, and shall simultaneously notify the EPA in writing, via e-mail, that such notice has been given.

a. As to the Restoration Areas, EPA acknowledges that Respondent does not own fee title to the Restoration Areas and that the foregoing obligation shall apply only to the extent of Respondent's interest in the Restoration Areas. Respondent shall condition the transfer of control, operation or any other interest it holds in any portion of the Site or the Restoration Areas (other than any relinquishment of Respondent's easement over the site) and any contract related to the performance of the compliance activities described in Part V upon successful execution of this Consent Order.

b. Within fourteen (14) calendar days after the effective date of this Consent Order or the date of contracting, whichever is later, Respondent shall provide a copy of this Consent Order to all contractors and/or consultants to perform any of the compliance activities described in Part V, i.e., either the Approved Restoration Plan or the Alternative Mitigation Plan.

43. This Consent Order is not and shall not be construed to be a permit under the CWA, nor shall it in any way relieve or affect Respondent's obligations under the CWA, or any other applicable federal or state laws, regulations, and/or permits. Compliance with this Consent Order shall be no defense to any actions commenced pursuant to such applicable laws, regulations, or permits, nor does it constitute a release.

44. Issuance of this Consent Order is not an election by the EPA to forego any remedies available to it under the law, including without limit any administrative, civil or criminal action to seek penalties, fines, or other appropriate relief under the CWA. The EPA reserves all available legal and equitable rights and remedies to enforce any violations cited in this Consent Order, and the right to seek recovery of any costs and attorney fees incurred by the EPA in any actions against Respondent for non-compliance with this Consent Order.

45. This Consent Order shall in no way affect the rights of the EPA or the United States against any person not a party hereto.

46. This Consent Order shall in no way limit or affect the EPA's authority to obtain information, and to enter, inspect, sample or monitor compliance under any law, permit, court order or agreement.

47. The provisions of this Consent Order shall be severable. If any provision is declared by a court of competent jurisdiction to be unenforceable, then the remaining provisions shall remain in full force and effect.

48. Failure to comply with the terms of this Consent Order may result in liability for statutory civil penalties under section 309(d) of the CWA, 33 U.S.C. § 1319(d), as modified by 40 C.F.R. Part 19. Upon suit by the EPA, a United States District Court may impose such penalties if the court determines that Respondent has violated the CWA as described above and failed to comply with the terms of this Consent Order. In determining the amount of any penalty the court will consider the seriousness of the violations, the economic benefit (if any) resulting from the violations, any history that Respondent may have of such violations, any good faith efforts that Respondent has made to comply with legal requirements, the economic impact a penalty may have upon Respondent, and such other matters as justice may require.

49. In accordance with section 309(a)(4) of the CWA, 33 U.S.C. § 1319(a)(4), EPA will provide notice and a copy of this Consent Order to the State of California upon execution.

50. The undersigned signatory for Respondent certifies that he or she is authorized to execute this Consent Order and legally bind the Respondent.

51. Respondent consents to and agrees not to contest the EPA's authority or jurisdiction to issue and enforce this Consent Order. Respondent waives any and all remedies, claims for relief and otherwise available rights to judicial or administrative review that Respondent may have with respect to any issue of fact or law set forth in this Consent Order, including any right of judicial review under Chapter 7 of the Administrative Procedure Act, 5 U.S.C. §§ 701-706.

52. For purposes of the identification requirement in section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 162-21(b)(2), performance of the compliance activities called for under Part V of this Consent Order is "restitution," "remediation," or "required to come into compliance with the law."

IX. MODIFICATION

53. Any request for modification by Respondent shall include the reason(s) for the request and a timeline for completion. Modification of this Consent Order shall be in writing and shall take effect only

upon approval by the EPA. Failure by Respondent to implement any modified requirement(s) shall be a violation of this Consent Order.

X. TERMINATION

54. After completing all conditions of this Consent Order, Respondent may request in writing that the EPA terminate this Consent Order. Such request shall include a discussion of why termination is appropriate. The EPA shall either agree to the request and terminate the Consent Order or reject the request and provide a written response to Respondent containing the EPA's reasons for not terminating the Consent Order. The EPA's decision not to terminate the Consent Order shall not foreclose Respondent's opportunity to make additional termination requests at a later date.

XI. EFFECTIVE DATE

55. This Consent Order shall become effective on the date it is signed by the EPA.

IT IS SO AGREED AND ORDERED:

FOR RESPONDENT IMPERIAL IRRIGATION DISTRICT:

James C. Hanks

Name

President

Title

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 9:

AMY MILLER-BOWEN

Digitally signed by AMY MILLER-BOWEN
Date: 2022.05.23 21:28:07 -07'00'

Amy C. Miller-Bowen, Director
Enforcement and Compliance Assurance Division

Of Counsel:

Richard Campbell
Office of Regional Counsel
U.S. EPA Region 9

Map Features

Connector Drain - 5.77 acres

Impacts to Date (20.702 acres)

Direct - 0.903 acres

Indirect - 19.799 acres

Photo Source: NAIP 2020
Boundary Sources: Impact Area - IID
Delineator(s): Kieth Kwan and Daniel Wong
Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Los Angeles District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

ECORP: N:\2019\2019-209 IID Drain Intertie\MAPS\Preserve_Impact\IID_Impacts_20211026.mxd (AMW)-amyers 10/26/2021

Map Date: 10/26/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 300 600

Exhibit A. Impacts to Aquatic Resources

2019-209 IID O-N Drain Intertie

Exhibit B

Conceptual Restoration Plan

IID will prepare a Restoration Plan for EPA review and approval to guide removal of non-permitted fill placed by IID in Waters of the U.S. (WOTUS) at the O to N Connector Drain Project Site (Site) east of Morton Bay and the Salton Sea, in Imperial County, CA. In removing the fill, pre-Project wetland hydrology is intended to be restored to directly and indirectly impacted WOTUS, as described in previous documents submitted by IID to the EPA and the US. Army Corps of Engineers (USACE) and shown in **Exhibit A**. The Restoration Plan will include a monitoring program to ensure and document that goals and objectives defined in the Restoration Plan are met over a 2-year monitoring period.

Specifically, the Restoration Plan will:

- Identify Project Goals and Objectives to guide restoration activities.
- Describe how fill will be removed from WOTUS and stored at an appropriate upland location.
- Propose restoration of pre-Project topographic elevations to provide passive (gravity fed) wetland hydrology to the ~1-acre fill removal areas, and to the ~20-acre wetland complex east of and adjacent to the fill removal locations.
- Propose a mix of both active and passive revegetation strategies. Active revegetation will likely include installation of cattail propagules/plugs within restored direct impact areas. Passive revegetation will likely be achieved with restoration of wetland hydrology to the indirectly impacted wetland to the east of the connector drain.
- Identify success criteria to ensure that wetland services that existed at the Project Site prior to the non-permitted action are restored to pre-Project conditions levels, or better.
- Propose a Monitoring and Reporting strategy.
- Describe equipment necessary for Restoration implementation
- Include a Project implementation schedule, with targeted milestones.
- Include an Adaptive Management strategy and contingency measures to be implemented by IID if Restoration objectives are not met over the 2-year monitoring period.

Key to IID's successful implementation of the Final/Approved Restoration Plan is a firm understanding of Restoration Project permitting. EPA has offered to assist IID in defining this regulatory compliance pathway. IID will complete necessary project permitting to support the implementation of the approved Restoration Plan.

From: NoReplyTo@mail.mil
To: Newton, Rachel
Subject: [EXTERNAL] [DoD SAFE] JOHNSON.SHARI.LYNN has picked up your drop-off!
Date: Monday, October 23, 2023 1:22:02 PM

This is an automated message sent to you by the DoD SAFE service.

The drop-off you made (claim ID: 6wQ6WuSD6MfTMXMR) has been picked-up.

The file "MBGP_AJD-Request Package_20231005.pdf" was picked up by you, the sender.

Note: You will not be notified about any further pick-ups of files in this drop-off by this recipient.

Full information about the drop-off:

Claim ID:	6wQ6WuSD6MfTMXMR
Drop-off Submitted:	2023-10-23 19:50:42 UTC
Drop-off Completed:	2023-10-23 19:50:47 UTC

Note:

Hi Shari

The attached file contains a request for an approved jurisdictional determination for the Morton Bay Geothermal Project.

Thank you,

Rachel Newton

— Sender —

Name:	Rachel Newton
Organization:	Guest
Email Address:	rachel.newton@jacobs.com

— File —

Name:	MBGP_AJD-Request Package_20231005.pdf
Description:	AJD request package
Size:	28.3 MB
SHA-256 Checksum:	8FD2D6E1C9BD7BD177A13F81927D4792F46757B3D33A262B29088C4DD51D17AB
Content Type:	application/pdf