

APPENDIX H

Jurisdictional Aquatic Resources Report



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Jurisdictional Aquatic Resources Report



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Sapphire Solar Project Riverside County, California

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Table of Contents

1. Introduction	1
2. Project Description	4
2.1 Project Location.....	4
2.2 Project Features	4
3. Regulatory Setting.....	5
3.1 U.S. Army Corps of Engineers.....	5
3.2 California Water Quality Control Boards	6
3.3 California Department of Fish and Wildlife.....	8
4. Environmental Setting	10
4.1 Regional Setting.....	10
4.2 Soils and Geology	10
4.3 Precipitation	10
4.4 Hydrology	12
4.5 Vegetation Alliances.....	14
5. Methods	16
5.1 Desktop Investigations	16
5.2 Field Investigations.....	17
5.2.1 Wetland Determination	17
5.2.2 Waters Determination	17
5.3 Post-field Analysis and Mapping	19
6. Results	19
6.1 Ephemeral Dry Wash.....	21
6.2 Desert Dry Wash Woodland.....	21
6.3 Artificial Basins	21
6.4 Artificial Wetlands	22

6.5	Nonnative Riparian	22
7.	Jurisdictional Findings and Recommendations	23
7.1	Waters of the U.S.	23
7.2	Waters of the State	24
7.3	CDFW Resources	24
8.	Certification	25
9.	References	26

List of Tables

Table 4-1.	Vegetation Alliances and Other Cover Types	16
Table 6-1.	Aquatic Resources.	19
Table 7-1.	Summary of Aquatic Resources by Agency Jurisdiction.....	23

List of Figures

Figure 1-1.	Regional Setting	2
Figure 1-2.	Project Area.....	3
Figure 4-1.	Soils	11
Figure 4-2.	Annual Winter (October – March) Rainfall Summary (2011 to 2022).	12
Figure 4-3.	Annual Summer (April – September) Rainfall Summary (2011 to 2022).....	12
Figure 4-4.	Hydrology	13
Figure 4-6.	Vegetation Communities	15
Figure 6-1.	Aquatic Resources	20

Acronyms

ac	acre
AJD	Approved Jurisdictional Determination
amsl	above mean sea level
BESS	Battery Energy Storage System
BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGF	California Fish and Game Code
CGS	California Geological Survey
Cal-IPC	California Invasive Plant Council
CFR	Code of Federal Regulations
CWA	Clean Water Act
DRECP	Desert Renewable Energy Conservation Plan
EDFR	EDF Renewables Development, Inc
FACW	facultative wetland plant species
OBL	obligate wetland plant species
ft	feet
GIS	Geographic Information Systems
ha	hectares
HR	Hydrologic Region
HUC	Hydrologic Unit Code
kV	kilovolt
If	linear feet
LFR	linear facility route
LSAA	Lake and Streambed Alteration Agreement
MCV	Manual of California Vegetation
MESA	Mapping Episodic Stream Activity
NAIP	National Agriculture Imagery Program
NRCS	Natural Resources Conservation Service
NWPR	Navigable Waters Protection Rule
NVCS	National Vegetation Classification System
NWI	National Wetlands Inventory
OMB	Office of Management and Budget
OHWM	Ordinary High Water Mark
Project	Sapphire Solar Project
PV	Photovoltaic
RPW	relatively permanent waterbody
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
SCADA	Supervisory control and data acquisition
SCE	Southern California Edison

TNW	traditional navigable waters
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDR	Waste Discharge Requirement
WOTS	Waters of the State
WOTUS	Waters of the U.S.
WRCC	Western Regional Climate Center

1. Introduction

EDF Renewables Development, Inc (EDFR) on behalf of Sapphire Solar, LLC (Applicant) proposes to construct, operate, and maintain the Sapphire Solar Project (Project) in Riverside County, California (Figure 1-1). The Solar Project is located on approximately 1,082 acres (ac) (438 hectares [ha]) acres of private land and a series of linear features for access and transmission (Linear Facility Routes or LFRs) are located on approximately 41 ac (17 ha) of BLM administered land, for a combined acreage of 1,123 ac (Figure 1-2). The Applicant is pursuing a Conditional Use Permit and Public Use Permit from Riverside County for the Solar Project and a Right-of-Way Grant from the BLM for the LFRs. As such, Riverside County will serve as the California Environmental Quality Act (CEQA) lead agency and the BLM as the National Environmental Policy Act (NEPA) lead agency.

The following report describes the results of an investigation and assessment to determine the presence of waters that may be subject to the Regional Water Quality Control Board (RWQCB) jurisdiction as waters of the State (WOTS) and the California Department of Fish and Wildlife (CDFW) jurisdiction under § 1602 of the California Fish and Game Code (CFGF). The primary purpose of this report is to provide the locations, extents, and estimation of impacts to potentially jurisdictional waters in support of compliance requirements under the RWQCB Water Quality Certification and Wetlands Program and the Lake and Streambed Alteration Program implemented by CDFW.

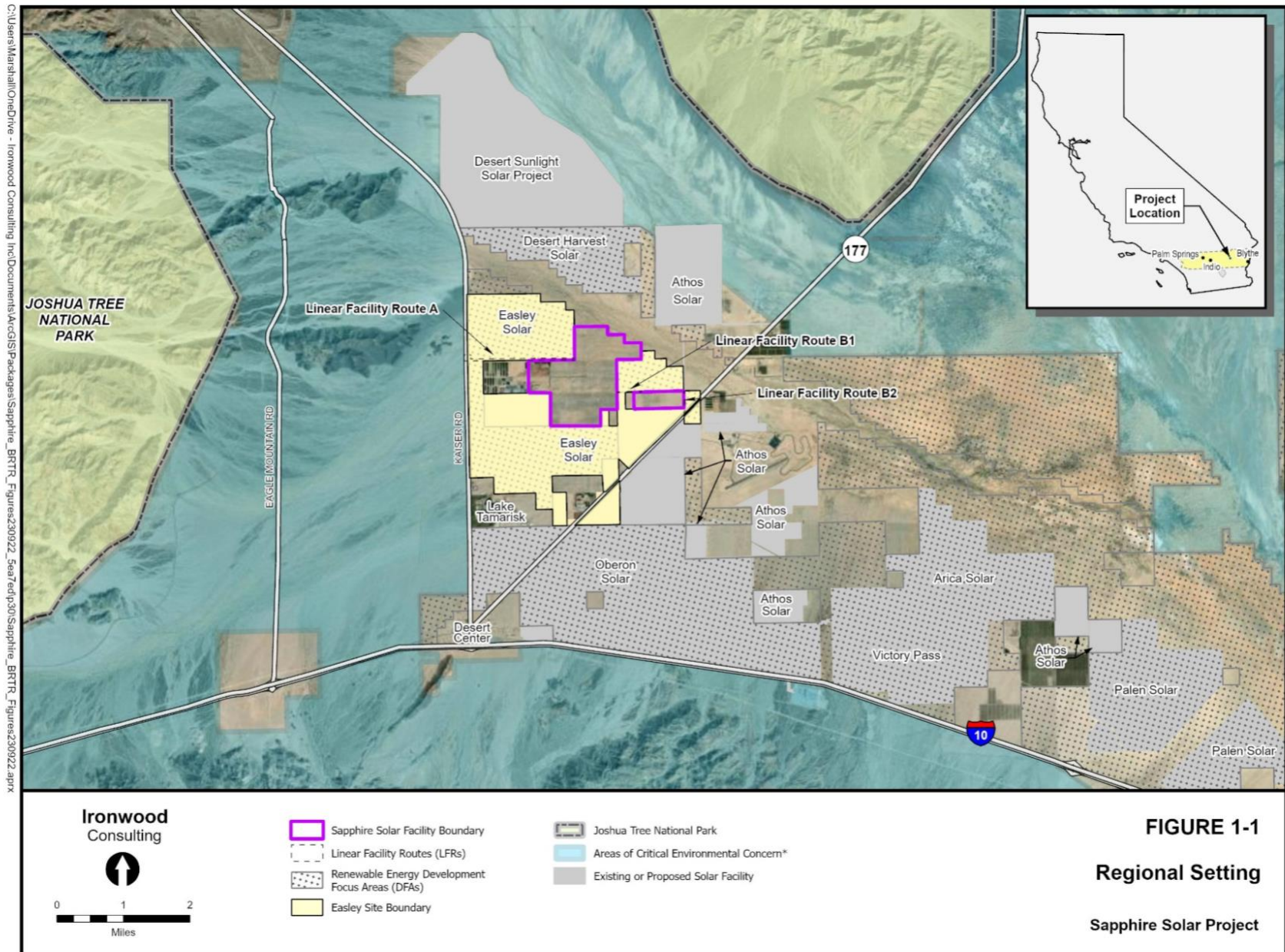


Figure 1-1. Regional Setting

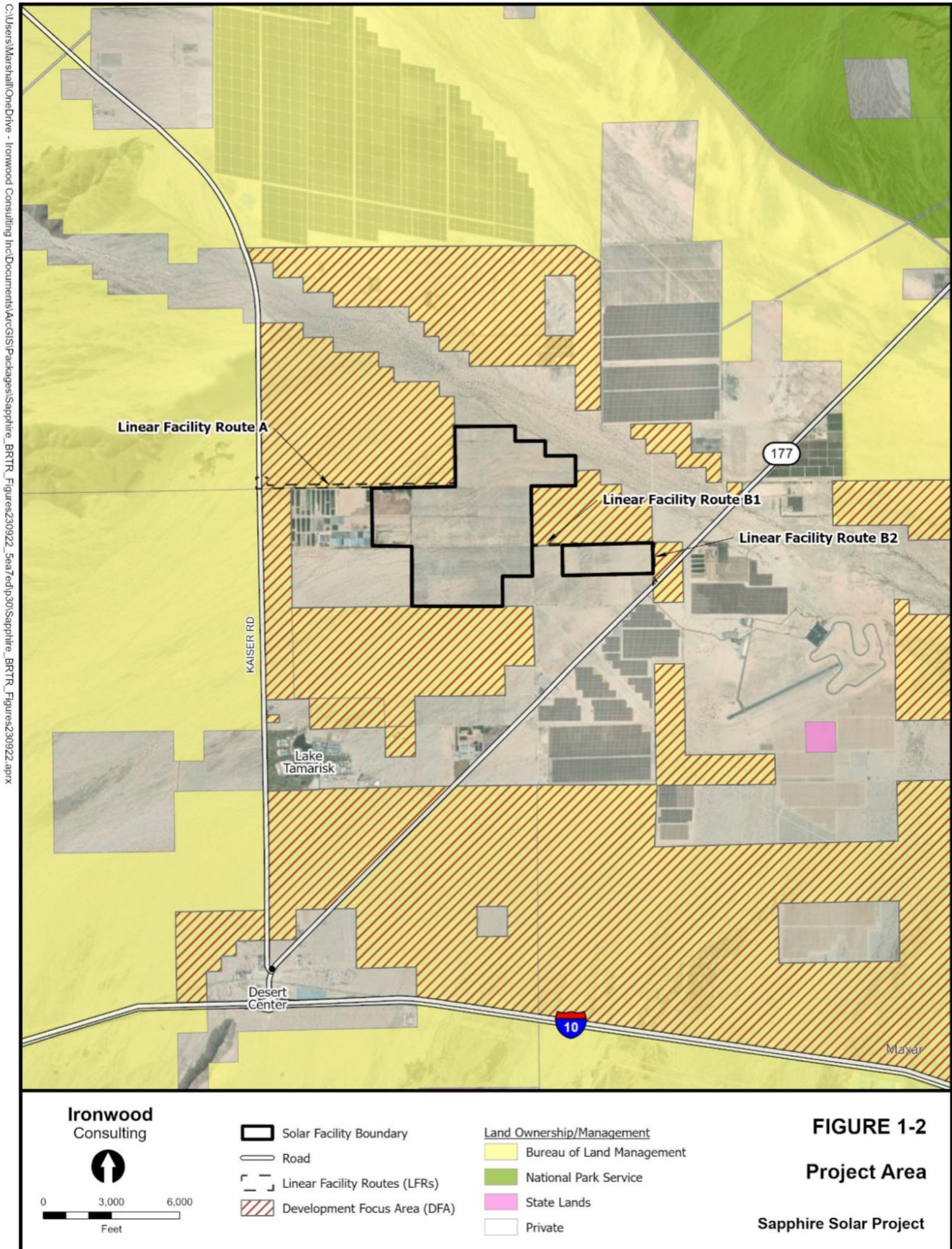


Figure 1-2. Project Area

2. Project Description

2.1 Project Location

The Project Area would encompass up to 1,123 ac within the Chuckwalla Valley in eastern Riverside County, California, and can be accessed from Kaiser Road or California State Route 177/Rice Road and it is approximately 3 miles north of Desert Center and less than 1 mile south of the existing Desert Harvest Solar Project (Figure 1-1). The Project location is depicted on the Victory Pass and East of Victory Pass 7.5' U.S. Geological Survey (USGS) topographic quadrangles on Sections 1, 2, and 6 of Township 5S, and Range 15E and Sections 34, 35, and 36 of Township 4s and Range 15E, San Bernardino Base and Meridian. The Project Area is within the Chuckwalla Valley ecoregion subarea of the Desert Renewable Energy Conservation Plan (DRECP) area (BLM 2015). The Solar Project would be located on privately owned lands; the LFRs would be located on public lands managed by BLM (Figure 1-2).

2.2 Project Features

The Solar Project would consist of the following components on private lands within the jurisdiction of Riverside County:

- Photovoltaic panels mounted on single axis trackers
- Inverters, converters, and transformers
- Electrical collection and communication lines
- 12-kilovolt (kV) distribution line for backup power
- Onsite electrical substation
- Battery storage system (BESS)
- Security fencing
- Operations and maintenance facility
- Up to three groundwater wells
- Meteorological station and albedometer weather station
- Microwave/communications tower
- Supervisory control and data acquisition (SCADA) system

The following components would collectively comprise the LFRs within the land use jurisdiction of the BLM Palm Springs South Coast Field Office:

- 230-kV gen-tie line
- Access roads
- Collector line routes

The Project would interconnect via a line tap on the existing Desert Harvest gen-tie line. Ultimately, power would be provided on existing lines to Southern California Edison (SCE) 230 kV Red Bluff Substation. No additional ground disturbance would result south of the line tap. Access to the Project Area would be via LFR A from Kaiser Road. An additional access road mainly for emergency services would be via LFR B from California State Route 177/Rice Road.

3. Regulatory Setting

3.1 U.S. Army Corps of Engineers

Section 404 of the Clean Water Act (CWA) is a federal law administered by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA; “agencies”) to protect the physical, biological, and chemical integrity of waters of the United States (WOTUS). Under provisions of the CWA, USACE administers the activities required by Section 404. These include the individual permit decisions, jurisdictional determinations, developing policy and guidance, and enforcing provisions of Section 404. WOTUS are defined in 33 CFR 328.3, which has been clarified following multiple Supreme Court decisions and agency issued supplemental guidance documents.

On December 30, 2022, the agencies announced a final “Revised Definition of ‘Waters of the United States’” rule, which was published in the Federal Register on January 18, 2023, and went into effect on March 20, 2023 (January 2023 Rule). The Revised Definition of WOTUS was founded on the pre-2015 definition of waters of the U.S. and updated to reflect consideration of Supreme Court decisions, the science, and the agencies’ technical expertise. On October 3, 2022, the Supreme Court heard oral arguments in the case of *Sackett v. Environmental Protection Agency* (Sackett v. EPA), which considered the jurisdiction scope of waters of the U.S., and more specifically the connectedness of waterways and wetlands.

On May 25, 2023, the Supreme Court issued a decision on Sackett v. EPA interpreting the scope of the CWA. The Supreme Court’s 2023 holding is summarized as follows:

- “Waters” encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes.
- To qualify as WOTUS, waters must also be connected to traditional navigable waters.
- The CWA extends only to those wetlands that are as a practical matter indistinguishable from WOTUS, meaning that the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins.
- The significant nexus test is no longer applicable.
- Consistent with the Court’s decision in *Sackett*, this report focuses on whether aquatic features at the project site are relatively permanent and sufficiently connected to traditional navigable waters.

Subsequently, on August 29, 2023, the agencies issued a final rule to amend the final “Revised Definition of ‘Waters of the United States’” rule. The amended rule conforms with the definition of “waters of the U.S.” by the Supreme Court and parts of the January 2023 Rule were invalidated under the Supreme Court’s interpretation of the CWA. In the “Revised definition of ‘waters of the United States’ conforming rule (40 CFR 120.2 and 33 CFR 328.3), the agencies define (a) waters of the U.S. to include the following:

1. Waters which are:
 - a. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tides:
 - i. The territorial seas; or
 - ii. Interstate waters

2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under Paragraph (a)(5);
3. Tributaries of waters identified in paragraph (a)(1) or (2) that are relatively permanent, standing, or continuous flowing bodies of water,
4. Wetlands adjacent to the following waters:
 - i. Waters identified in paragraph (a)(1); or
 - ii. Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) and with a continuous surface connection to those waters.
5. Interstate lakes and ponds not identified in paragraph (a)(1) through (4) that are relatively permanent, standing or continuous flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3)

Wetlands are defined as “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include marshes, swamps, bogs, and similar areas” (Environmental Laboratory 1987).

“Adjacent” in the rulings means having a continuous surface connection.

Navigable Waters of the U.S. are defined as “those Waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 CFR Part 329.4). Navigable Waters include the open ocean, tidal bays, salt marshes, and some large rivers and lakes. The upstream limit of a navigable river is the head of navigation as designated by USACE (33 CFR Part 329.4).

Consistent with the Court’s decision in Sackett and current regulations, this report focuses on whether aquatic features at the project site are relatively permanent and sufficiently connected to traditional navigable waters.

3.2 California Water Quality Control Boards

The Porter-Cologne Water Quality Control Act (Porter-Cologne), Division 7 of the California Water Code, establishes the responsibilities and authorities of the nine Regional Water Quality Control Boards (RWQCBs) and the State Water Resources Control Board (SWRCB). This act establishes that the waters of the State shall be protected for use and enjoyment by the people of the State; that the activities and factors which may affect the quality of the waters of the State shall be regulated to attain the highest water quality. Porter-Cologne also names the RWQCBs to formulate and adopt water quality control plans for all areas within the region. In the State of California, SWRCB and RWQCBs, in conjunction with USACE, administer Section 401 of the CWA (33 U.S.C. 1341) in relation to permitting fill of federally jurisdictional waters. Additionally, beyond federal jurisdiction the SWRCB and the RWQCBs may exert regulatory authority over waters of the state, which are defined in Section 13050(e) of the Porter-Cologne Water Quality Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” This definition may include isolated wetlands and other waters that may be outside of federal jurisdiction, which may be subject to Waste Discharge Requirements (WDRs).

Under Porter-Cologne, the RWQCB may regulate discharge of waste. All parties proposing to discharge waste that could affect waters of the State must file a report of waste discharge with the appropriate RWQCB (§ 13260

of the California Water Code). The RWQCB would then respond to the report of waste discharge by issuing WDRs, or by waiving WDRs for the proposed discharge. The terms *Discharge of Waste* and *waters of the State* are broadly defined such that discharges of waste, including fill, any material resulting from human activity or any other discharge that may directly or indirectly affect WOTS. While all waters of the U.S. that are within the borders of California are also waters of the State pursuant to Porter-Cologne, the converse is not true. Waters of the U.S. are federally jurisdictional and legally distinct from waters of the State. While CWA Section 404 permits and Section 401 certifications are required when activity results in fill or discharge directly below ordinary high-water mark of waters of the U.S., any activity that results or may result in a discharge that directly or indirectly impacts waters of the State or the beneficial uses of those waters may be subject to WDRs.

Effective on May 28, 2020, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures include the following four primary components:

1. wetland definition
2. framework for determining if a feature that meets the wetland definition is a water of the state
3. wetland delineation procedures
4. procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities

The Procedures define a wetland as an area, which under normal circumstances, supports:

- continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both
- the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and
- the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Procedures describe a jurisdictional framework for aquatic features that meet the current, or any historic definition, of a wetland. The Water Boards rely on wetland area determinations that are verified by USACE following the methods described in the 1987 USACE Wetland Delineation Manual (Environmental Laboratory 1987) and regional supplements. The methods described are accepted for delineation of wetlands but modified only to allow for the fact that the lack of vegetation does not preclude the determination of an area meeting the definition of a wetland. Aquatic features that do not meet the definition of a wetland may still be regulated as a non-wetland water of the state (e.g., lakes, streams, and ocean waters) but the Procedures do not include guidance for jurisdictional determinations for other waters of the state.

The following wetlands are considered "waters of the state":

1. Natural wetlands
2. Wetlands created by modification of a surface water of the state
3. Artificial wetlands that meet any of the following criteria:
 - a. *Approved by an agency as compensatory mitigation for impacts to other waters of the state except where the approving agency explicitly identifies the mitigation as being of limited duration*
 - b. *Specifically identified in a water quality control plan as a wetland or other water of the state*

- c. *Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the landscape*
- d. *Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*
 - i. *Industrial or wastewater treatment or disposal*
 - ii. *Settling of sediment*
 - iii. *Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program*
 - iv. *Treatment of surface waters*
 - v. *Agricultural crop or stock watering*
 - vi. *Fire suppression*
 - vii. *Industrial processing or cooling*
 - viii. *Active surface mining – even if the site is managed for interim wetlands functions and values*

The Procedures set forth that waters of the State include all waters that meet the current or any historic definition of WOTUS. In other words, if at any time in the past a feature would have met the definition of waters of the U.S. pursuant to any current or historical federal rule, the feature would meet the current definition of waters of the State.

If WOTS are determined to be potentially temporarily or permanently affected by a proposed action, an application for dredge or fill permit is necessary. When considering project impacts and alternatives it is recommended to avoid WOTS to the greatest extent feasible, then minimize permanent impacts, and lastly compensate for impacts. The application should describe how the proposed action will not result in significant degradation of the water of the State. Applications should include all items listed in the Cal. Code Regs., title 23, § 3856, a delineation report, project start/end dates, maps, description of impacted waters, and alternatives analysis (unless exemption applies). Additional application requirements (e.g., supplemental field data, a draft compensatory mitigation plan, proposed water quality monitoring plan, or draft restoration plan for temporary impacts) may be necessary based on coordination with the appropriate RWQCB office.

3.3 California Department of Fish and Wildlife

Pursuant to § 1602 of CFGC, notification to the CDFW is required for any proposed activity that may substantially divert or obstruct a river, stream, or lake. § 1602(a) specifically provides that:

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

(1) The department receives written notification regarding the activity in the manner prescribed by the department...

The program developed by CDFW to implement this notification process is generally referred to as the LSAA Program (the acronym LSAA represents a Lake and Streambed Alteration Agreement). CDFW traditionally defines a stream (including creeks and rivers) as a “body of water that flows at least periodically or

intermittently through a bed or channel having banks and supports fish or other aquatic life.” A stream includes watercourses with surface or subsurface flow that supports or has supported riparian vegetation. CDFW's definition of lakes include natural lakes or man-made reservoirs. Areas within CDFW jurisdiction include riparian habitats associated with watercourses, where “riparian habitat” is not defined in the statute or regulations (Title 14, Section 1.72) but typically refers to vegetation associated with a stream channel. The limits of jurisdiction include perennial, intermittent, and ephemeral watercourses, desert washes, and watercourses with subsurface flows, and include the outermost edge of riparian vegetation or the top of bank of streams or lakes, whichever is wider. Furthermore, the term stream can include canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Generally, CDFW jurisdiction is often extended to include areas that exhibit any one of the three wetland indicators – vegetation, soils, or hydrology.

Following notification, CDFW may require an LSAA prior to any activity that would substantially affect an existing fish or wildlife resource. CDFW's issuance of an LSAA is subject to CEQA certification.

4. Environmental Setting

4.1 Regional Setting

The Project Area is located in the western extent of Chuckwalla Valley in the Colorado Desert, north of Desert Center, east of Palm Springs and west of Blythe. The elevation of Chuckwalla Valley ranges from less than 350 feet above mean sea level (amsl) at Ford Dry Lake to approximately 1,800 feet amsl west of Desert Center and along the upper portions of the alluvial fans that surround the valley perimeter. The surrounding mountains rise to over 3,000 feet amsl.

The topography of the Project Area generally slopes downward toward the northeast at a gradient of less than 1 percent. Ground surface elevations at the Project Area range from approximately 550 feet amsl in the eastern solar parcel to 660 feet amsl near the western end of the parcel. Anthropogenic impacts and land uses near the Project Area include aquaculture, transportation (Kaiser Road, Rice Road/SR 177), agricultural, renewable energy (both existing and proposed), energy transmission, historical military operations, and recreational development.

4.2 Soils and Geology

Soils mapped in the Project Area consist of primarily one soil type per the United States General Soils Map - Vaiva-Quilotosa-Hyder-Cipriano-Cherioni map unit (Figure 4-1), which are generally sandy and/or alluvial materials derived from granite, gneiss, metamorphic, rhyolite, and/or volcanic parent material (NRCS 2023). These soils are generally well-drained to somewhat excessively drained and experience medium to rapid runoff and moderate permeability. The California Geological Survey (CGS) published the Geologic Atlas of California between 1958 and 1969. The Salton Sea sheet (Geologic Atlas Map 13, 1967) provides a geological map for eastern Riverside County that is consistent with geologic units across the entire state. The geological map unit "Qal," characterized as recent alluvium consisting of recently deposited sand, silt, clay, and gravel, occurred across the entire Project Area. Within the Project Area, these map units occur within the lower alluvial fans emanating from the Chuckwalla Mountains and Eagle Mountains and are located upslope of aeolian sand transport zones at lower elevations.

4.3 Precipitation

Precipitation data were obtained from the Western Regional Climate Center (WRCC 2023) for the most proximate stations to the Project Area: Blythe Airport and Eagle Mountain weather stations (approximately 40 miles and 10 miles from the Project Area, respectively). Available annual rainfall data from 2011 to 2022 were totaled and averaged for winter (October through March) and summer (April through September; Figure 4-2 and Figure 4-3). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and highest summer rainfall occurred between April and September 2012. For comparison, average historical winter precipitation recorded since the 1940's was about 2.1 inches, and average summer historical summer precipitation was about 1.4 inches.

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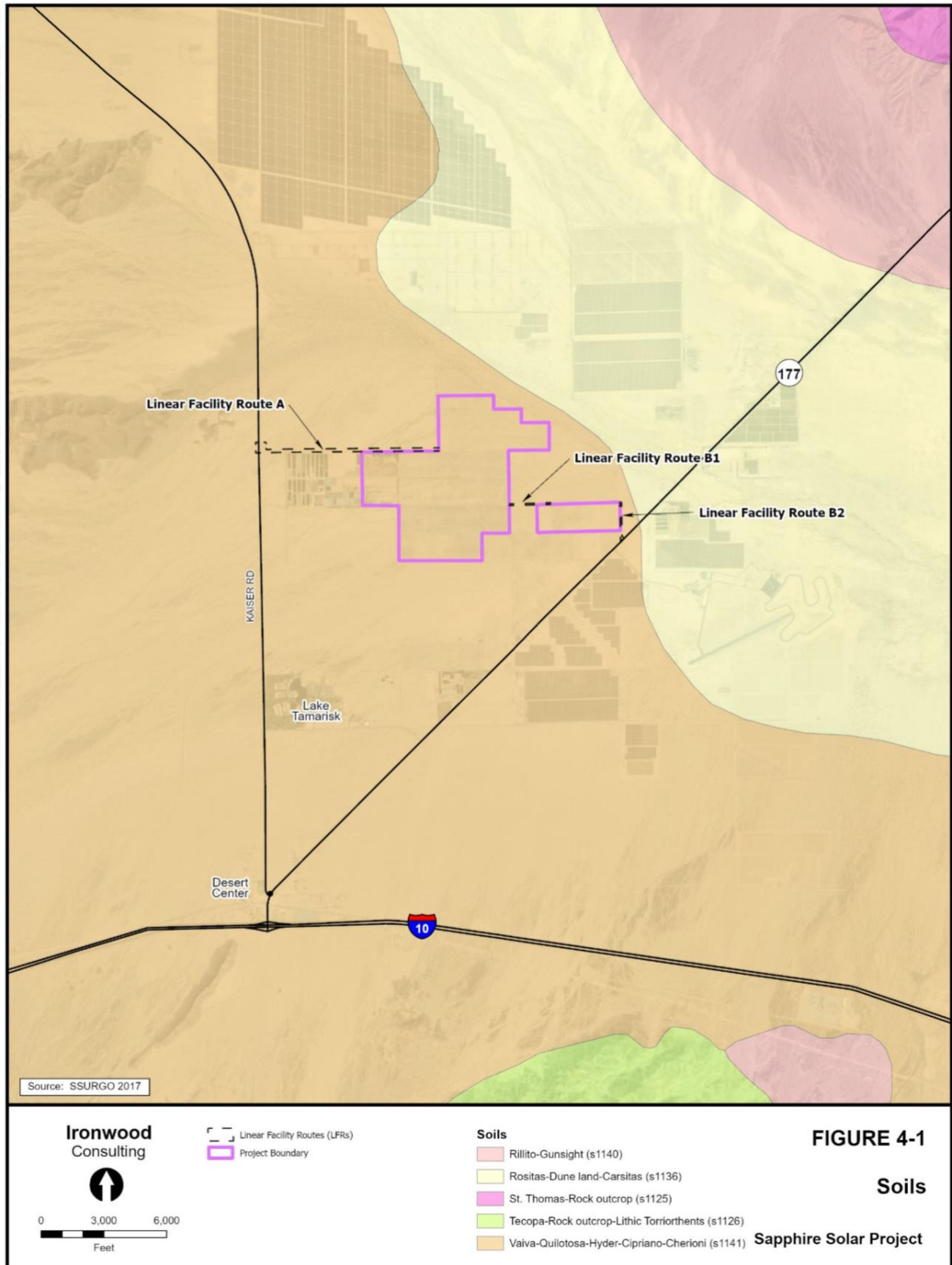


Figure 4-1. Soils

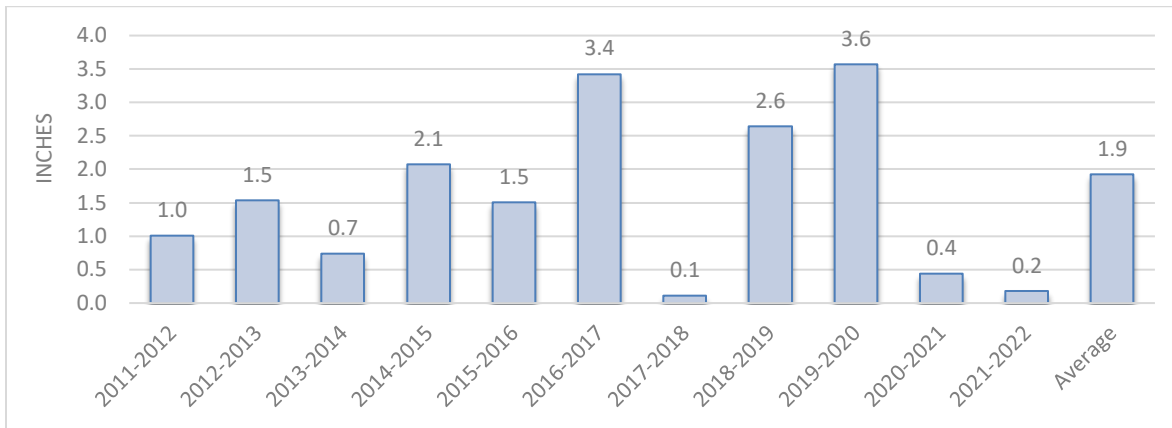


Figure 4-2. Annual Winter (October – March) Rainfall Summary (2011 to 2022).

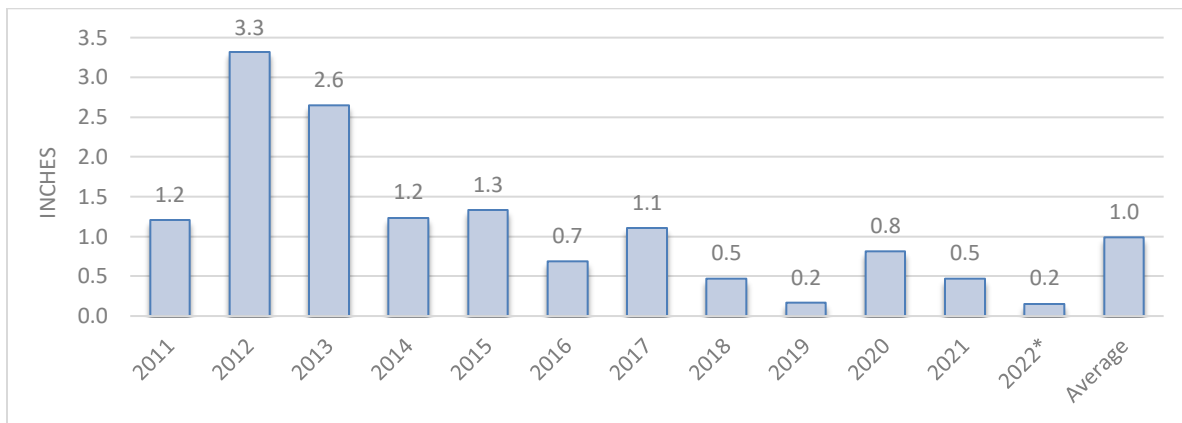


Figure 4-3. Annual Summer (April – September) Rainfall Summary (2011 to 2022).

4.4 Hydrology

The Project Area resides within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million ac (20,000 square miles) in southeastern California and is the most arid hydrologic region in California with annual precipitation averaging less than 4 inches (WRCC 2023). The Project Area is in the Hayfield Lake-Lake Tamarisk and Big Wash Hydrologic Unit Code (HUC) 10 Hydrologic Areas (HUC - 1810010048 and HUC - 1810010049) (Figure 4-4). These hydrological areas flow to closed basins that are not connected with the Colorado River or other TNW. Palen Dry Lake and Ford Dry Lake represent the lowest elevations within the basin.

Desert washes within this region are almost always dry but contract and expand dramatically in size due to extreme variations in flows, which can range from high-discharge floods to extended periods when surface flow is absent. The Project Area lies between the upper Chuckwalla Valley and Palen Dry Lake and is situated in the lower extent (i.e., distal end) of the alluvial fan, which is characterized by less stabilized soils consisting of finer sand and silt, compared to the upper alluvial fan that supports more stabilized, rocky soils with well-defined channels. Alluvial processes across the Project Area generally flow from southwest to northeast towards Pinto Wash, an ephemeral stream situated northeast of the Project Area. Former agricultural practices and relic berms/surface disturbances within the have greatly modified natural hydrology.

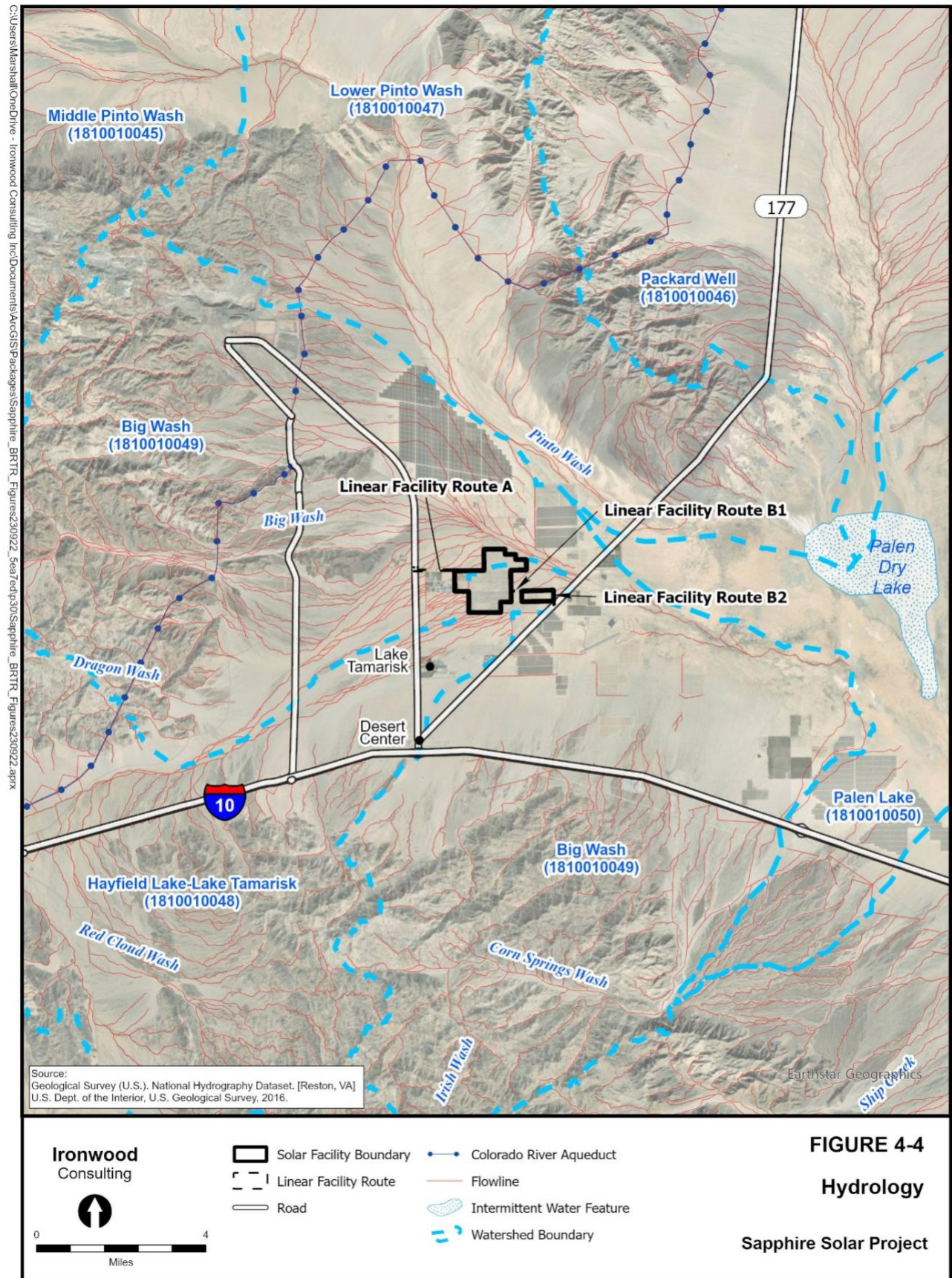


Figure 4-4. Hydrology

4.5 Vegetation Alliances

Vegetation alliances in the Project Area were mapped by Ironwood botanists consistent with the Terrestrial Natural Communities of California (Holland 1986) and cross-referencing with the National Vegetation Classification System (NVCS), and *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009). Two native vegetation alliances and three other cover types were mapped within the Project Area (Table 4-1; Figure 4-5):

Sonoran Creosote Bush Scrub – this vegetation alliance is synonymous with *Larrea tridentata* - *Ambrosia dumosa* alliance (Sawyer et al. 2009) and Lower Bajada and Fan Mojavean – Sonoran Desert Scrub (NVCS). Sonoran creosote bush scrub occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic creosote bush scrub habitat of the Colorado Desert (Holland 1986). Dominant plants within this community are creosote bush and white bursage. Other occasional components include indigo bush (*Psoralea argemone*), sweetbush (*Bebbia juncea*), and button brittlebush (*Encelia frutescens*). Sonoran creosote bush scrub was found exclusively within the LFRs.

Desert Dry Wash Woodland – this vegetation alliance is synonymous with blue palo verde (*Parkinsonia florida*) - ironwood (*Olneya tesota*) (microphyll) woodland alliance (Sawyer et al. 2009) and Sonoran - Coloradan Semi Desert Wash Woodland / Scrub (NVCS). Holland (1986) describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland, often supported by braided wash channels that change following every surface flow event. Within the Project Area, this vegetation community is dominated by an open tree layer of ironwood, blue palo verde, and smoke tree (*Psoralea argemone*) of at least 2-3% cover. This community was restricted to narrow wash channels along the LFRs).

Nonnative Riparian – this cover type describes nonnative riparian areas associated with manufactured, artificial basins located within the Solar Project, which are dominated by salt cedar (*Tamarix chensis*/*T. ramosissima* hybrid). This cover type is synonymous with *Tamarix* spp. Semi-natural temporarily flooded shrubland alliance (Sawyer et al. 2009).

Fallow Agriculture/Aquaculture – these landcover types describe agricultural lands previously used for jojoba (*Simmondsia chinensis*) farming (fallow agriculture) and areas currently associated with an aquaculture farm. Fallow agriculture/aquaculture occupies the majority of the Solar Project.

Artificial Open Water/Artificial Wetland – these landcover types were created due to agricultural practices associated with an aquaculture farm and are primarily located within a relatively small area of the Solar Project. The artificial wetlands are dominated by herbaceous wetland graminoid species.

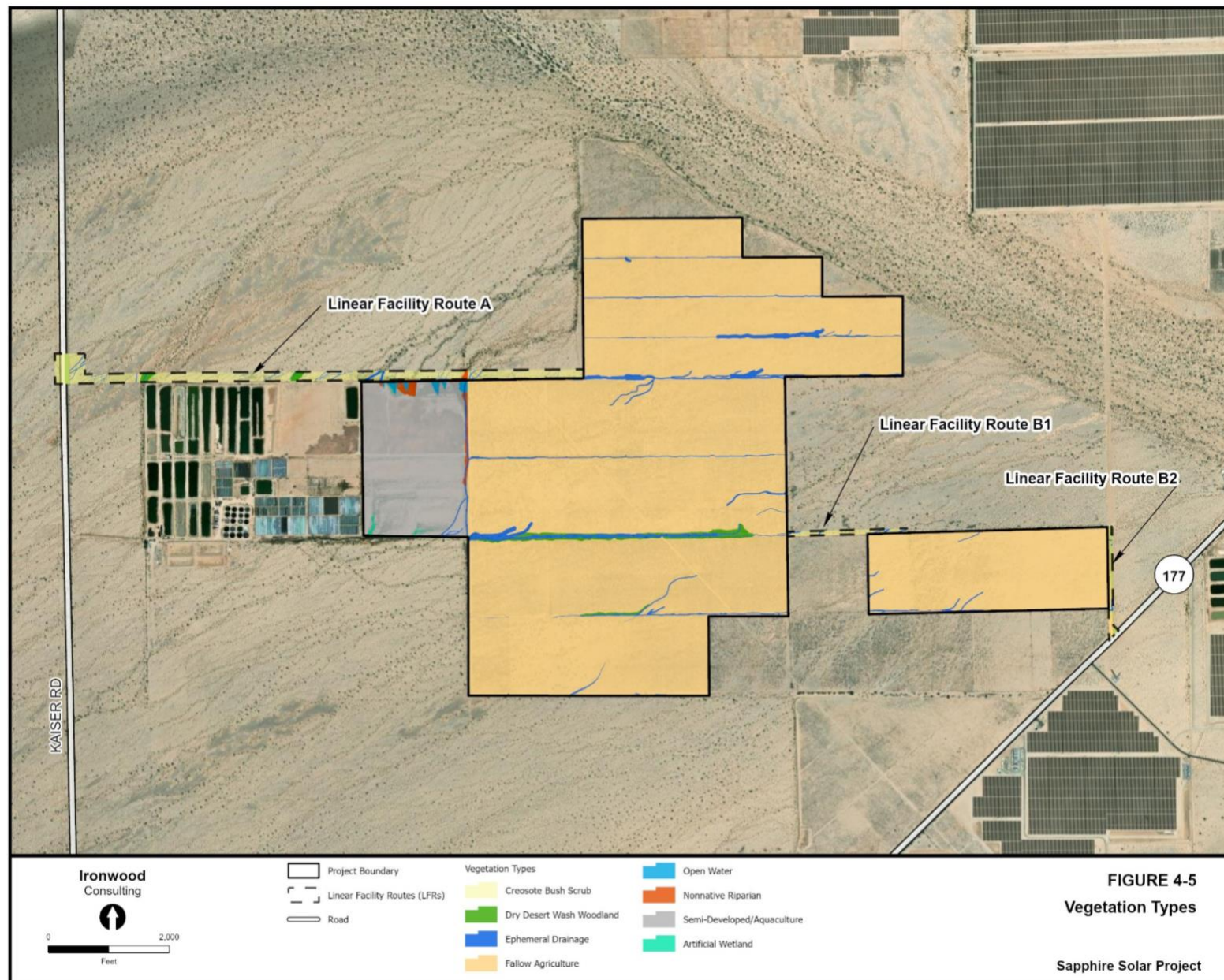


Figure 4-5. Vegetation Communities

Table 4-1. Vegetation Alliances and Other Cover Types

Type	Solar Project (ac)	LFR A (ac)	LFR B1 (ac)	LFR B2 (ac)	Total (ac)
Sonoran Desert Scrub	0.3	29.8	2.7	-	32.7
Desert Dry Wash Woodland	6.7	1.1	-	-	7.8
Ephemeral Dry Wash	29.7	2.1	0.4	0.2	32.3
Semi-Developed/Aquaculture	95.7	-	-	-	95.7
Non-Native Riparian	2.7	0.3	-	-	3.0
Open Water (Artificial)	1.9	-	-	-	1.9
Wetland (Artificial)	0.7	0.0	-	-	0.7
Fallow Agriculture	943.8	0.0	0.4	1.9	946.0
Develop/Disturbed	-	0.8	-	1.3	2.1
Total	1,081.4	34.1	3.4	3.3	1,122.2

5. Methods

5.1 Desktop Investigations

Prior to conducting delineation fieldwork, preliminary investigations consisted of identifying land surface features within the Project Area. The following literature and materials were reviewed:

- USGS East of Victory Pass 7.5 minute 1:24,000 scale quadrangle series topographic map
- USGS Watershed Boundary Dataset HUC 10 mapping (USGS 2022)
- USGS National Hydrography Dataset high-resolution mapping with flowlines (USGS 2022)
- National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2023)
- Riverside County NAIP 2019 high resolution orthorectified digital aerial imagery (Riverside County Mapping Portal 2019)
- NVCS and MCV layers (California State Geoportal 2022)
- NRCS Custom Soil Resources Reports (NRCS 2023)
- WRCC precipitation data (2023)
- MCV reference data and vegetation community key (Sawyer et al. 2009)
- Land Cover/Natural Vegetation Communities (DRECP 2022)

Landscape features were evaluated using Geographic Information Systems through review of high resolution orthorectified aerial imagery, and relevant digital layers listed above, to determine the potential presence aquatic resources such as a wetland, stream, other type of watercourse, lake, or manufactured reservoir. Areas found with potential aquatic resource landform features were identified for further follow-up detailed field investigations as described below.

5.2 Field Investigations

Field investigations were conducted between March 22 and May 25, 2022, by Ironwood Consulting field ecologists Dave Kesonie, Wendy McBride, Leigh Rouse, and Matt Adams. Prior to the field investigations, relevant digital data from the desktop investigations were incorporated into ESRI ArcGIS Online and made available during field delineations and assessments via the ESRI ArcGIS Field Maps application.

The entire Project Area was surveyed by walking linear transects located in a north-south direction across the Project Area. Transects were spaced approximately 492.1 ft (150 m) apart and were walked perpendicular to flow and/or along linear or other types of features identified in the field or during the preliminary investigations, consistent with the protocol for delineation of areas greater than 5 ac in size (Environmental Laboratory 1987). Transects were typically performed perpendicular to flow patterns to obtain enough data points to facilitate Geographic Information Systems (GIS) digitization of jurisdictional features. Data points were recorded at individual features that displayed characteristic signs of episodic flow and, in some cases, upland areas that lacked watercourse features. Surveyors collected data points for each water feature crossed during surveys, typically at the center of each feature, and the width of the feature was recorded. Parameters including vegetation, soils, and hydrology were characterized and recorded onto data forms and the location was captured within the ESRI ArcGIS Field Maps application. Additional wetland data points were collected for aquatic features in the Project Area to demonstrate presence/absence of wetland indicators and to assist with determination of wetland classification.

5.2.1 Wetland Determination

Ironwood delineated wetland waters potentially subject to state or federal jurisdiction following the guidance provided in the *1987 U.S Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the U.S. Army Corps of Engineers: Arid West Region* (Version 2.0; USACE 2008). Potential wetlands as defined by the USACE 1987 manual were evaluated using a three-parameter approach: dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. The indicator status for vegetation was determined by the most current National Wetland Plant List (USACE 2018b) and using the nomenclature offered in the US Department of Agriculture NRCS PLANTS Database (NRCS 2020b). Vegetation communities were determined following the classifications under the NVCS and Sawyer et al. (2009). Hydric soil determinations followed the guidance provided by the *Regional Supplement* and indicators described in *Field Indicators of Hydric Soils in the United States* (NRCS 2018).

5.2.2 Waters Determination

The limits of non-wetland waters potentially subject to state or federal jurisdiction were determined following the methods outlined in *U.S. Army Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* ("OHWM Field Guide," Lichvar and McColley 2008), *Mapping Episodic Stream Activity (MESA)* (Brady and Vyverberg 2013), *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2014), and CDFW's regulatory definition of bed, channel, or bank as referenced in § 1602(a) of the California Fish and Game Code. The MESA protocol was developed to assist with delineation of streams in dryland environments, specifically within the arid and semi-arid Mojave, Sonoran, Great Basin, and eastern Sierra regions of California, to facilitate project permitting in compliance with California Fish and Game Code.

The OHWM is defined by USACE as the “line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.” Ironwood evaluated all linear water features for OHWM indicators to assist with delineation of the lateral extents of waters. Ironwood staff walked apparent stream features and recorded OHWM indicators associated with the primary low flow channel and floodplain onto OHWM datasheets at representative cross-sections. Where indicators were apparent, Ironwood recorded GPS points at the transition line between the low flow channel, active floodplain, and low terrace for all linear aquatic features in the Project Area.

Field investigations were conducted in spring and did not necessarily coincide with antecedent precipitation events; therefore, Ironwood ecologists relied on fluvial transport and deposition indicators from recent or historic episodic flow, as described in the MESA Guide (Brady and Vyverberg 2013), to identify and delineate channel and watercourse (“waters”) features.

Such indicators included:

- Flow lineations
- Sediment sorting
- Sand/gravel bars
- Wrinkle marks
- Cut banks
- Vegetation channel alignment
- Mud cracks/curls
- Sand filled channels
- Drift/wrack lines
- Scour
- Exposed roots

Water features and riparian communities were mapped at a minimum scale of 1:6000, often down to 1:3000, as suggested in the MESA guidance for utility solar projects (Brady and Vyverberg 2013). Where vegetation contained a mixture of upland and wash-dependent indicator species from two or more vegetation communities, the indicator species that appeared with the greatest vegetation coverage (absolute dominance based on percent cover) was used to identify or verify the vegetation community.

Geomorphic indicator data were recorded at each data point location using a field data form specifically developed for this methodology based on the MESA Guide indicators (Brady and Vyverberg 2014).

Documentation of physical indicators providing evidence of aquatic resource areas as opposed to upland areas provided a technical basis for: (1) determining the presence or absence of a stream, other types of watercourse, and lake/ manufactured reservoir and (2) if present, determining if the landform is active, dormant, abandoned, or relict as defined by the following criteria developed by Brady and Vyverberg (2013):

- **Active** – Hydrologically active watercourse. Active channels are subject to CDFW jurisdiction.
- **Dormant** – A watercourse isolated from its principal water source by natural causes or human-constructed features such as roads, but that retains its potential for hydrologic reactivation and stream / watercourse function.
- **Abandoned** – A watercourse in which water flow no longer occurs, such as a channel isolated from its water source by faulting or stream capture, or human-constructed features like levees, incised roadways, and surface flow diversions. The presence of physical indicators of fluvial inactivity is necessary to demonstrate abandonment, and the cause of the abandonment (such as a levee or road berm) should be identified. With time and the absence of flow, an abandoned channel will become a relict landform.

- **Relict** – Surface water flow no longer occurs, as demonstrated by the presence of physical indicators of antiquity, which demonstrate that the channel is a relict landform.

5.3 Post-field Analysis and Mapping

Post-field analysis was conducted by Ironwood ecologists and GIS specialists, in tandem, to code, define, designate, and edit all acquired field data representing potential aquatic resources. Acreages were calculated in ESRI ArcGIS. The linear path and extents of water features were digitized using polylines with an accompanying width measurement, which were used to convert polylines to polygons, or by walking flow path boundaries in the field. Wetland boundaries were digitized in the field by walking the lateral extents and recording location data with a GPS, which were converted to polygon data in ArcGIS. The resulting features were reviewed and further refined based on the interpretation of high-resolution aerial imagery.

6. Results

The Project Area is situated on a low gradient alluvial plain and is intersected by numerous unnamed NHD-mapped ephemeral drainages that flow northeast toward Big Wash, near the confluence with Pinto Wash (Figure 4-4). Big Wash is shown as an intermittent blue-line stream on USGS topographic maps (2022) and is identified as an intermittently flooded riverine system by USFWS NWI (2022). Delineated aquatic resources are shown in Figure 6-1 and summarized by area in Table 6-1.

Table 6-1. Aquatic Resources.

Type	Solar Project (ac)	LFR A (ac)	LFR B (ac)	Total (ac)
Ephemeral Dry Wash	29.7 / 52,407 lf ¹	2.1 / 15,005 lf	0.6 / 1,279 lf	32.3 / 68,691 lf
Desert Dry Wash Woodland	6.7	1.1	-	7.8
Nonnative Riparian	2.7 ²	0.3 ²	-	3.0
Artificial Basins	1.9	-	-	1.9
Artificial Wetlands	0.7	<0.1	-	0.7
Total	41.6	3.5	0.6	45.7

¹ Ephemeral washes within Solar Project have been disturbed by prior agricultural practices. lf = linear feet

² Acreage includes nonnative riparian vegetation associated with artificial basins.

During field investigations, Ironwood ecologists delineated 42.0 ac (68,691 linear feet [lf]) of natural and disturbed ephemeral wash features (i.e., active channels), 0.7 ac of artificially created wetlands, and 1.9 ac of other manufactured waters (i.e., artificial basins; Table 6-1). Another 10.8 ac of riparian vegetation, which includes both native (7.8 ac) and nonnative (3.0 ac) woodlands were mapped within the Project Area (Table 6-1; Figure 6-1). No dormant, relict, or abandoned channels were mapped during the field investigations. Detailed descriptions of aquatic resources mapped in the Project Area are provided below. Potential state and/or federal jurisdiction of aquatic resources is discussed in Section 7.

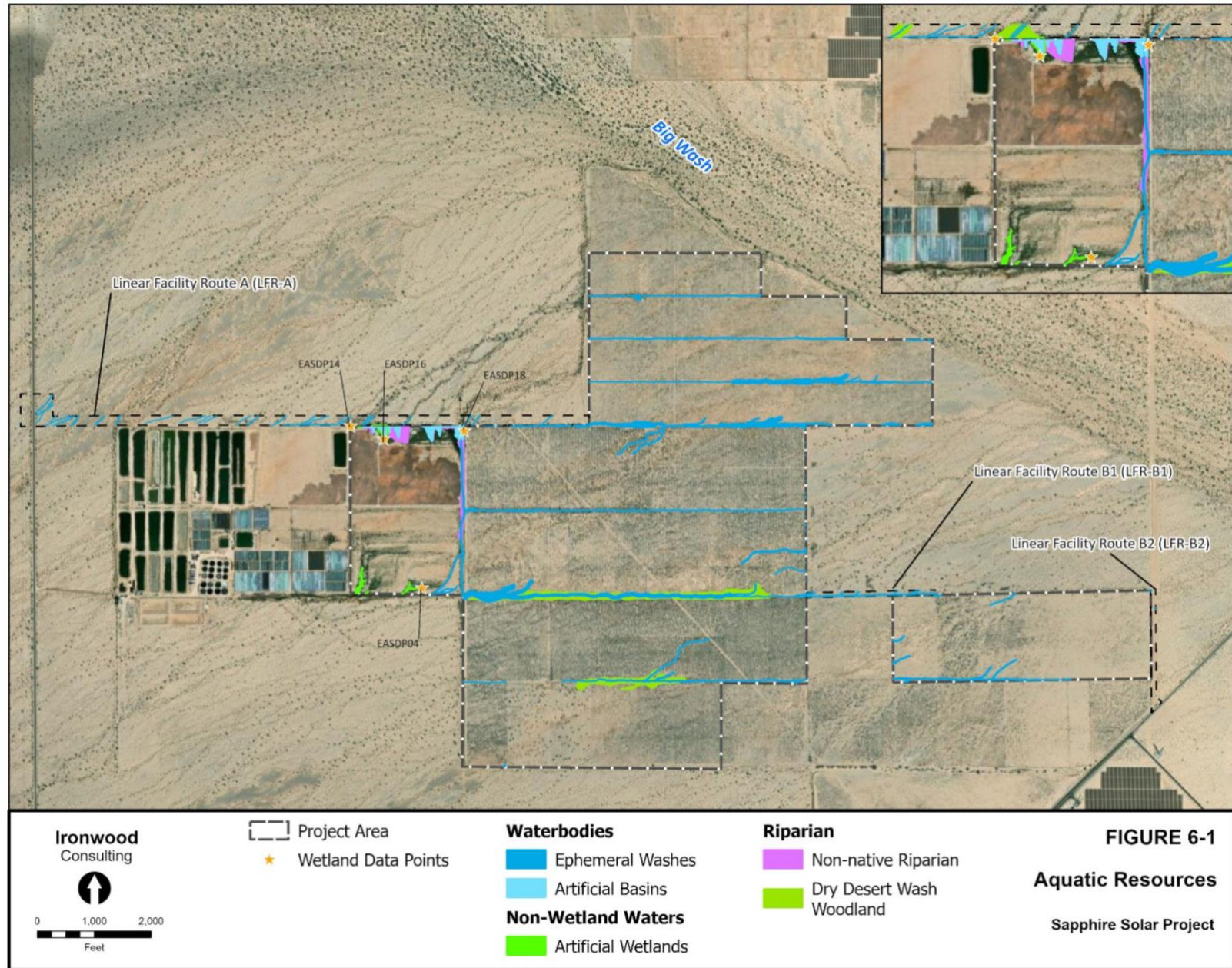


Figure 6-1. Aquatic Resources

6.1 Ephemeral Dry Wash

Ephemeral dry wash features were delineated throughout the Project Area and are associated with anthropogenic disturbances (disturbed washes) and lower alluvial fans (natural washes). Disturbed ephemeral dry wash features were mapped within the Solar Project where jojoba farming previously occurred, which are primarily associated with land alterations including existing two-track roads and existing irrigation features.

Land features associated with prior agricultural practices, including impoundments (earthen berms/levees), relic two-track roads, and fallow agricultural fields, disrupt historic flow patterns and pathways throughout the Solar Project. Earthen berms/levees along the west and south margin of the jojoba farm were historically maintained to divert surface flows around the agricultural fields and they continue to persist as hydrologic barriers that influence surface flows in the Project Area. As a result, normal year precipitation flows are primarily conveyed through disturbance features, including two-track roadbeds and relic irrigation and drainage channels; these flows are diverted east and off the Project Area into natural erosional features/channels that intercept Big Wash. Short distributary drainage features extending from roadbed flow paths were also delineated at various locations; these features generally dissipate within fallow agricultural fields, while some convey flow flows east and off the Project Area.

Natural ephemeral dry wash features traverse southwest to northeast through the LRFs toward Big Wash and are formed by precipitation driven overland runoff. These features were mapped consistent with the presence of single, braided, or compound channels and were characterized as active distributary channels. These smaller channels are subject to frequent channel avulsion and highly variable flow pathways contained within broad active alluvial fans, which results in a network of active and inactive channels. Active channels support various physical and geomorphic indicators including scour, cut banks, headcuts, wrack lines, and flow lineations. Vegetative cover typically occurs adjacent to the channels and consists largely of mixed upland and wash-dependent perennial herbs in a community of creosote bush and big galleta grass, occurring along the banks and within the desert dry wash woodland interfluvies.

6.2 Desert Dry Wash Woodland

Desert dry wash woodland, a desert riparian vegetation type, was mapped within the braided wash channels within the Project Area. Approximately 6.7 ac of dry wash woodland was mapped within the Solar Project where the braided wash channels converged along the disturbed access road and over time native vegetation has regrown. Approximately 1.1 ac of dry wash woodland was mapped within LFR A.

6.3 Artificial Basins

Field staff investigated all areas supporting aquatic resource indicators, including those that were created directly or as an artifact of agricultural practices. Other man-made waters (i.e., artificial basins) features were mapped near the northwest margin of the Solar Project. The artificial basins within the Project Area were constructed within fallow/upland agricultural fields by the former landowner for agricultural use purposes and supported by irrigation water. This area, owned by Lakeview Ranch at time of survey, historically supported multi-use agricultural practices, including jojoba cultivation and more recently aquaculture farming.

According to a review of historical aerial imagery, artificial basins were constructed within the northern portion of a fallow agricultural field in 2017. Prior to the basins being constructed, the area had been in continuous agricultural use for several decades and the basins appear to have been constructed in uplands/fallow agricultural lands. During active agricultural use since 2017, intentional and/or unintentional water inputs were fed to the basins via underground irrigation pipes connected to private groundwater wells on Lakeview Ranch. The standing water and associated artificial wetland and nonnative riparian vegetation would likely convert back to uplands following removal of the artificial water source. Ironwood determined the extents of the basins based on presence of hydrologic indicators including ponding or surface cracks and discernible concavity; the basins lacked an observable OHWM or bed and bank and were less than 5 percent vegetated.

The basins were not created through modifications of surface waters and appear to have been created as isolated features, separated from other surface waters by the presence of manufactured earthen impoundments along the northern boundary of the basins and between the basins. Overland runoff and direct precipitation may contribute to seasonal ponding facilitated by manufactured impoundments (earthen berms), soil compaction, and modified topography (concavity). The earthen impoundments appear to be occasionally breached during periods of flooding.

There was no indication that surface waters in the artificial basins have a direct connection to groundwater and it is presumed that persistent water is perched above a compacted surface. Depth to groundwater within the Project Area vicinity are reported to be substantial; geotechnical borings conducted for the Desert Sunlight Solar Farm, north of the Project Area, did not encounter groundwater within 10 feet of the ground surface and nearby wells have recorded groundwater more than 50 feet below the ground surface (Earth Systems Southwest 2010).

The artificial basins provide low value habitat for plants and wildlife as they primarily detain agricultural runoff.

6.4 Artificial Wetlands

Wetland features were mapped within and adjacent to artificial basins near the west margin of the Solar Project. As with the artificial basins, the wetland features are believed to have been created as the result of surface disturbances and an artificial water source (irrigation water and/or runoff) and therefore were characterized as artificial wetlands. The removal of the artificial water source may result in conversion of these artificial wetlands back to upland habitat. These features are dominated by wetland herbs including bearded sprangletop (*Diplanthe fusca*, facultative wetland [FACW]), broadleaf cattail (*Typha latifolia*, obligate [OBL]), and rabbitsfoot grass (*Polypogon monspeliensis*, FACW) and supported active indicators of wetland soils and hydrology.

6.5 Nonnative Riparian

Nonnative riparian woodland features are associated with artificial basins and consist primarily of nonnative salt cedar (*Tamarix chenensis* /*T. ramosissima* hybrid), which is categorized by the California Invasive Plant Council (Cal-IPC) as a “high” rated invasive. These species of tamarisk, including hybrids, have been found to cause severe impacts on native plant communities, ecosystem processes, and higher trophic levels and can form dense stands in riparian areas (Cal-IPC 2003). Tamarisk, which is a facultative phreatophyte, is known to invade and persist within desert dry washes and has the potential to invade adjacent native habitats. The removal of the artificial water source would likely result in a direct reduction of nonnative riparian vegetation.

7. Jurisdictional Findings and Recommendations

A summary of aquatic resources in the Project Area by potential agency jurisdiction is provided in Table 7-1. The limits of potential jurisdiction were evaluated using the most current regulations and guidance from USACE, RWQCB, and CDFW and are representative of resource conditions at the time of Ironwood's 2022 field investigations.

Table 7-1. Summary of Aquatic Resources by Agency Jurisdiction.

Agency Jurisdiction	Solar Project (ac)	LFR A (ac)	LFR B (ac)	Total (ac)
USACE CWA Section 404	-	-	-	0.0
RWQCB Waters of the State				
Ephemeral Wash	29.7 / 52,407 lf ¹	2.1 / 15,005 lf	0.6 / 1,279 lf	32.3 / 68,691 lf
Artificial Basin	1.9	-	-	1.9
Artificial Wetland	0.7	<0.1	-	0.7
Total Waters of the State	32.3	2.1	0.6	34.9
CDFW 1602 Resources				
Ephemeral Wash ¹	29.7 / 52,407 lf ¹	2.1 / 15,005 lf	0.6 / 1,279 lf	32.3 / 68,691 lf
Artificial Basin	1.9	-	-	1.9
Artificial Wetland	0.7	<0.1	-	0.7
Native Riparian ¹	6.7	1.1	-	7.8
Nonnative Riparian	2.7	0.3	-	3.0
Total CDFW 1602 Resources	41.6	3.5	0.6	45.7

¹ Ephemeral wash coinciding with native riparian habitat was discretely mapped.

7.1 Waters of the U.S.

Aquatic resources delineated within the Project Area are not relatively permanent, standing, or continuously flowing bodies of water. In addition, they are not connected to traditional navigable waters; although they exhibit indicators of surface connections to Big Wash, an ephemeral riverine feature situated northeast of the Project Area, Big Wash conveys flows to Palen Lake, an intrastate isolated ephemeral lake that lacks a direct or subsurface connection to a known TNW or tributary to a TNW and has not been previously defined as a relatively permanent water. Consequently, these resources would not be considered jurisdictional waters of the U.S. under the test articulated in *Sackett v. EPA*. In addition, due to their lack of connection to jurisdictional waters of the U.S., the aquatic resources in the Project Area would not be subject to federal jurisdiction pursuant to CWA Section 404 even under the broader "significant nexus" test articulated in the pre-*Sackett* WOTUS guidance (Pre-2015/Rapanos or 2023 Revised Definition of WOTUS). Receipt of an Approved Jurisdictional Determination (AJD) from the USACE would formally confirm absence of federal jurisdiction; however, based on precedent-setting AJDs issued in the vicinity of the Project and the scope of federal regulations, both historically and currently, the Project is not expected to affect WOTUS.

7.2 Waters of the State

The RWQCB may exert jurisdiction on any surface water or groundwater within the boundaries of the state, including waters that extend beyond an OHWM and artificially created aquatic resources. Accordingly, natural and disturbed ephemeral drainages and artificially created basins and wetlands within the Project Area may be subject to RWQCB jurisdiction as waters of the state. Review of historic aerial imagery suggests that the locations and extents of artificial basins and associated wetlands have varied due to agricultural practices and fluctuating irrigation water inputs. Under current conditions, these features, which were artificially created, would meet the definition of a wetland by the RWQCB. However, removal of the artificial water source may result in the conversion of these artificial resources back to upland habitat.

The lateral limits of RWQCB jurisdiction of ephemeral drainages were determined by presence of an OHWM, bed and bank, or by other obvious indicators of water/upland boundaries. As of the 2022 field investigations, a total of 32.3 ac of waters (ephemeral wash, artificial ponds, and artificial wetlands) potentially subject to RWQCB jurisdiction occur within the Solar Project and 2.7 ac of potential RWQCB jurisdictional waters (ephemeral wash, artificial ponds, and artificial wetlands) occur within LFRs (Table 7-1). Acreages of drainages were calculated using the total linear distance of the channel multiplied by the average width of the OHWM. The extents of artificial basins were determined based on hydrologic indicators (ponded water, surface cracks, absence of vegetation) and/or presence of earthen berms. Wetland features were delineated following the method described in the USACE 1987 manual and Arid West Regional Supplement.

The RWQCB regulates discharges to WOTS under the California Porter-Cologne Water Quality Control Act, which is implemented through issuance of National Pollutant Discharge Elimination System permits for point source discharges and WDRs for non-point source discharges, and the Clean Water Act through issuance of Section 401 water quality certifications for discharges in WOTUS. Based in the findings above, resources potentially subject to RWQCB jurisdiction are present in the Project Area; therefore, a WDR application should be submitted to the Colorado River Basin RWQCB, including precise impacts calculations and an application fee.

7.3 CDFW Resources

Ephemeral washes, including natural and disturbed washes, delineated within the Project Area appear to meet the Title 14 CCR § 1.72 definition of a stream and are potentially subject to jurisdiction under CDFW Section 1600 *et seq.* (CFGF §§ 1600-1616). Section 1602 FGC also includes natural lakes or man-made reservoirs and may include man-made ponds and basins. As described in Section 5.2, stream channel width was measured based on indicators of a fluvial process within the watercourse, either within the channel or to the extent surface water flow indicators (i.e., fine sediment deposition). Channel width and length measurements were used to calculate acreages of ephemeral washes and areal extent of artificial basins were determined in the field based on hydrologic indicators. Native riparian woodland associated with ephemeral washes and nonnative riparian associated with artificial basins were included in CDFW jurisdictional calculations (Figure 6-1, Table 7-1). As of the 2022 field investigations, a total of 32.3 acres of waters (ephemeral wash, artificial basins, and artificial wetlands) and 9.4 acres of riparian habitat (native and nonnative) potentially subject to CDFW jurisdiction occur within the Solar Project. Approximately 2.1 acres of potential CDFW jurisdictional waters (ephemeral wash, artificial basin, and artificial wetland) and 1.4 acres of native and nonnative riparian woodland occur within LFRs.

The artificial basins were created solely for aquacultural purposes from intentional and unintentional irrigation water inputs during active aquacultural use and not a result of modification or impounding naturally occurring ephemeral wash channels. The artificial wetland and nonnative riparian vegetation associated with the artificial basins would likely cease to exist once they were no longer fed by an intentional water source. The functions and values of the artificial basins and wetlands for native wildlife species are relatively low compared to naturally occurring ephemeral washes and desert dry wash woodlands. The artificial basins may provide a perennial water source, but they are not suitable habitat for aquatic species and are not a habitat type that is common to this region. The nonnative riparian habitat is dominated by invasive salt cedar, which is rated as “high” by Cal-IPC and has the potential to impact native riparian communities associated with adjacent waterbodies. The stands of salt cedar primarily provide habitat for nuisance bird species such as common raven (*Corvus corax*), Eurasian collared dove (*Streptopelia decaocto*), and great-tailed grackle (*Quiscalus mexicanus*), and may be used by a diversity of migratory bird species but is not anticipated to be preferentially used by native resident species such as verdin (*Auriparus flaviceps*), loggerhead shrike (*Lanius ludovicianus*), and LeConte’s thrasher (*Toxostoma lecontei*).

California Fish and Game Code § 1602 requires project proponents to notify CDFW prior to any activity that may substantially modify CDFW-jurisdictional streambeds. Based on the findings above, a Notification of LSAA application should be submitted to CDFW, along with the required supplemental material (including precise impact calculations) and fee.

8. Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: November 6, 2023

Signature: _____

Name/Title: Chris Blandford, Principal Biologist

9. References

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