DOCKETED	
Docket Number:	24-OPT-01
Project Title:	Perkins Renewable Energy Project
TN #:	262219
Document Title:	Perkins Response to Data Request Batch 3 Part 1
Description:	Response to CEC Data Requests on the Perkins Renewable Energy Project.
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Organization:	Panorama Environmental, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	3/17/2025 3:41:18 PM
Docketed Date:	3/17/2025

California Energy Commission

Perkins Renewable Energy Project

CEC Data Request Response Set #3 for the Opt-in Application 24-OPT-01

March 2025

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California Energy Commission

Perkins Renewable Energy Project
CEC Data Request Response Set #3 for the Opt-in Application 24-OPT-01

March 2025

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1 Introduction

1.1 Introduction to CEC Data Request Response Set #3

On March 28, 2024, IP Perkins, LLC, IP Perkins BAAH, LLC, and affiliates (Applicant) received a Determination of Incomplete Application and Request for Information from the California Energy Commission (CEC) for the Perkins Renewable Energy Project (24-OPT-01) in response to the Applicant's application filed on February 14, 2024. This document provides the Applicant's third set of responses to the Data Requests received from the CEC. Response Set #1 was submitted to the CEC on July 23, 2024. Response Set #2 was submitted to the CEC on October 21, 2024. Table 1 lists all Data Requests for which a response was provided in Response Set #1, Response Set #2, or that are provided in this Response Set #3.

Table 1 Data Requests Included in Response Set #1, Response Set #2, and Response Set #3

Data Request Resources Area	Response Set #1	Response Set #2	Response Set #3
Mandatory Opt-in Requirements	--	DR MAND-1 through DR MAND-4	--
Air Quality	DR AQ-1 through DR AQ-11	--	--
Biological Resources	--	DR BIO-1 and DR BIO-2 DR BIO-3a, 3b, 3d, 3e, 3f, 3g, 3h, 3i, 3l DR BIO-5 through DR BIO-14 DR BIO-16 through DR BIO-19 DR BIO-20d, 20e, 20f DR BIO-21 and DR BIO-22 DR BIO-24 through DR BIO-26 DR BIO-30 through DR BIO-32	DR BIO-3c, 3j, 3k, BIO-4 BIO-15 BIO-20a through BIO-20c BIO 23 BIO-27 BIO-28 BIO-29
Cultural and Tribal Cultural Resources	--	--	DR CUL/TRI-1 through DR CUL/TRI-20
Greenhouse Gas Emissions	DR GHG-1 through DR GHG-7	--	--

Data Request Resources Area	Response Set #1	Response Set #2	Response Set #3
Hazardous Materials Handling	DR HAZ-1 through DR HAZ-5	--	--
Land Use	DR LAND-1 through DR LAND-7	Supplement to DR LAND-2 and DR LAND-3	--
Noise	DR NOISE-1 and DR NOISE-2	--	--
Paleontological Resources		No DR Number but new write up	
Project Description	DR PD-1 through DR PD-5	--	--
Public Health	DR PH-1 through DR PH-3	--	--
Socioeconomics	DR SOCIO-1 through DR SOCIO-7	--	--
Traffic and Transportation	DR TRANS-1 through DR TRANS-6	--	--
Transmission System Design	--	--	DR TSD-1 through DR TSD-5
Visual Resources	DR VIS-1 through DR VIS-7	Supplement to DR VIS-2	--
Water Resources	--	--	DR WATER-1 through DR WATER-5
Worker Safety	DR WS-1 through DR WS-5	--	--

The responses are grouped by individual discipline or topic area and are presented in the same order and with the same numbering provided by the CEC. New or revised graphics, tables, or sections are provided throughout as attachments to this document. The responses included in this document are considered complete responses to the corresponding individual Data Requests.

2 Biological Resources

2.1 Data Request DR BIO-3

DR BIO-3: Staff needs additional information regarding the Jurisdictional Waters Report, Appendix J.2 as follows:

> **c.** Please update LSAA in Appendix K with the results from the surveys scheduled in Spring 2024 (See **DR-BIO-1**).

Response: The LSAA has been updated with the results from surveys completed in the Spring of 2024 and with additional data collected in the Fall of 2024, see Attachment A.

> **j.** Please update the project description of the LSAA, included in Attachment A of Appendix K, to include a section that focuses on the project components and project activities that would be performed in the areas subject to Fish and Game Code, section 1602. Please refer to the Project Description instructions in Section 10 of the Form DFW 2023, Notification of Lake of Streambed Alteration. At this time the project description describes the overall project but does not address the specific activities in relation to waters of the state. Please include impact information in the narrative to support the permanent and temporary impacts data included in Table 2 and Table 3, under the Section 11A, Project Impacts, in Attachment A.

Response: As indicated in Response Set #2, the description of the Project activities included in the LSAA was limited to those activities that occur in areas containing 1600 jurisdictional resources, including riparian vegetation. The description has been updated to include work associated with the loop-in line poles and access road, which would occur within 1600 jurisdictional areas. A revised LSAA notification has been provided as part of this Response Set #3 in Attachment A. An updated Aquatics Delineation Report has also been included in Attachment A to support the updated LSAA notification.

> **k.** Under Item 12C of the LSAA form, "Attachment B" is referenced to contain project mitigation and/or compensation measures to protect fish, wildlife, and plant resources, however this attachment is missing from the LSAA. Please submit Attachment B.

Response: The Wildlands compensation plan was updated and included in Data Response Set #2 as Attachment C.9. A revised LSAA notification including required mitigation measures is provided as part of this Response Set #3 in Attachment A.

2.2 Data Request DR BIO-4

DR BIO-4: Please provide a figure and GIS shapefiles that show the proposed locations of the transmission line structures, including pull sites, within the transmission line corridor in relation to the All-American Canal and associated wetlands.

Response: Figure 1 shows the loop-in line transmission disturbance areas, including temporary disturbance, in association with jurisdictional vegetation. No wetlands would be impacted by the Project as clarified in the updated Aquatic Resource Delineation Report in Attachment A. In addition, no work would occur within the All American Canal. All work areas associated with the construction of the loop-in line poles and access roads are shown in the revised LSAA notification provided in this Response Set #3 as Attachment A. Figure 2 shows all vegetation within the loop-in corridor and the proposed permanent disturbance associated with the loop-in line. GIS Shapefiles have been provided.

Figure 1 Loop-in Line Transmission Disturbance and Jurisdictional Vegetation

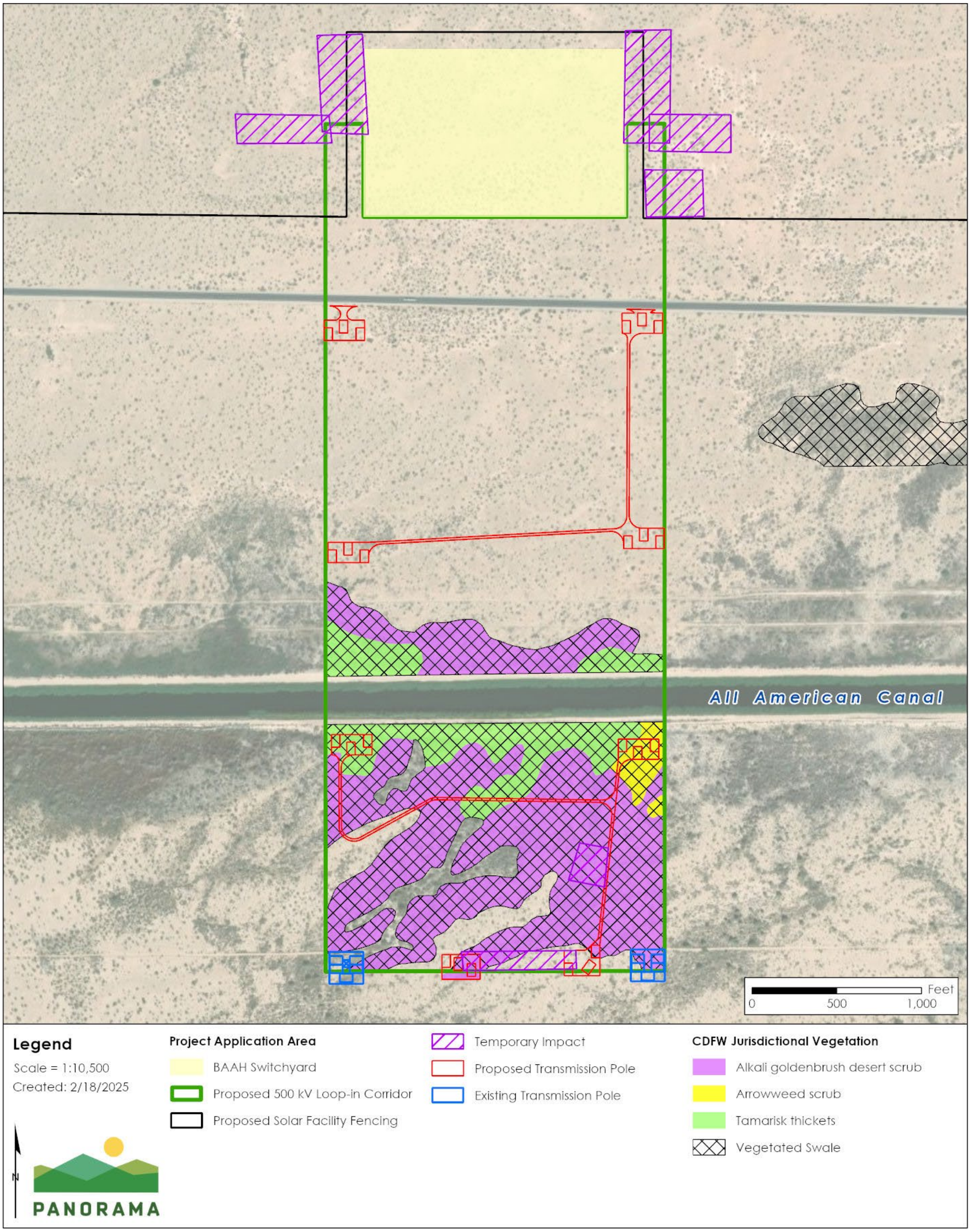
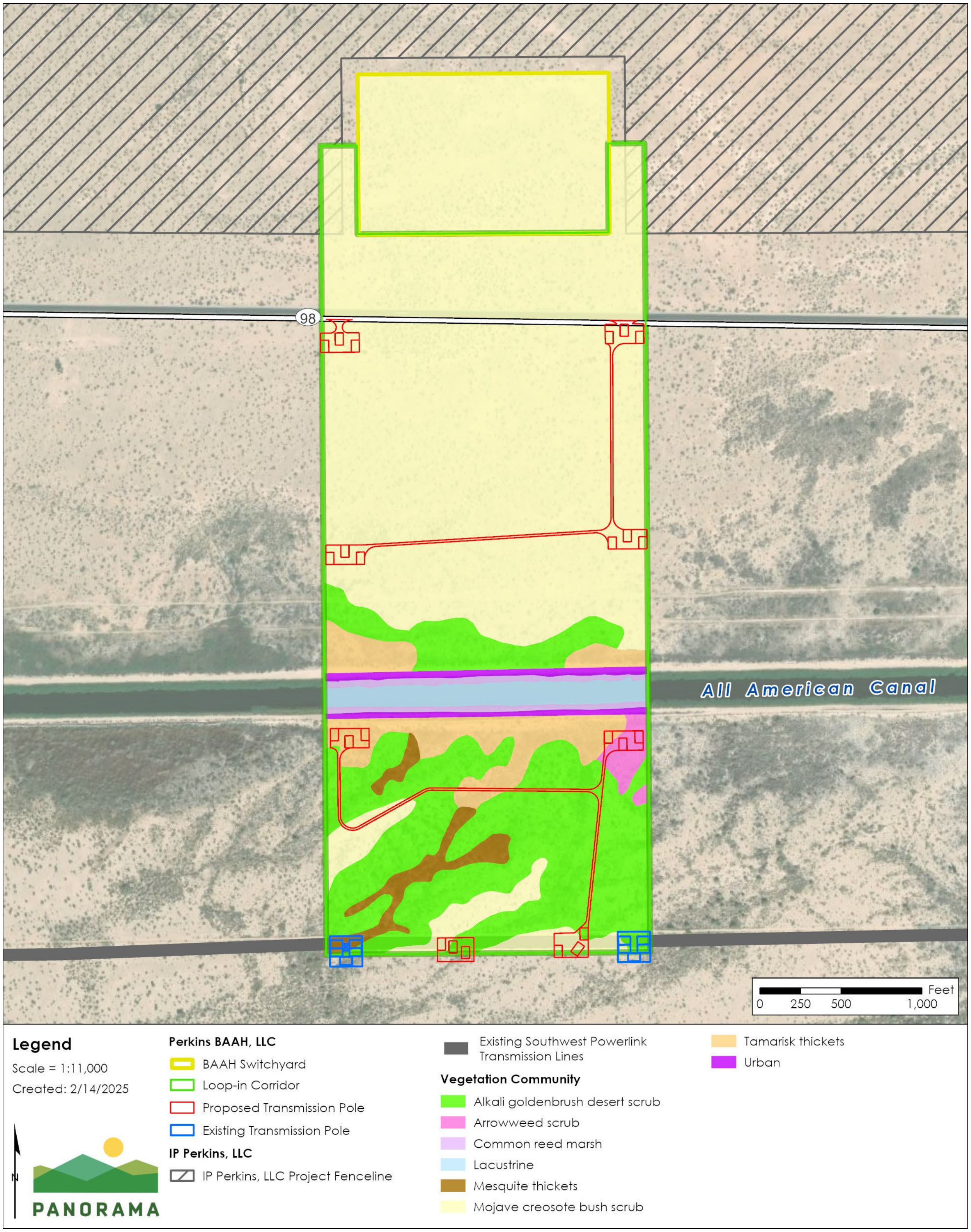


Figure 2 Loop-in Line Transmission Disturbance and Vegetation



2.3 Data Request DR BIO-15

DR BIO-15: Please provide the acreage amounts for permanent and temporary impacts for all habitat types.

Response: Acreages of permanent and temporary impacts for all habitat types are provided in Table 2 by Project component.

Table 2 Acres of Project Impacts to Vegetation

Vegetation Type	Solar Facility (Permanent)	BAAH Substation (Permanent)	Loop-in Line (Permanent)	Loop-in Line (Temporary)
Alkali goldenbrush desert scrub	81.3	0	1.5	1.4
Arrowweed scrub	0	0	0.6	0
Mojave creosote bush scrub	5,918.0[a]	35.2	4.9	14.7
Tamarisk thickets	0	0	0.9	0
Total	**5,999.3**	**35.2**	**7.8**	**16.2**

a. 253.7 acres of Mojave creosote bush scrub would be within the fenceline but would be avoided to avoid cultural resources; 5,664.3 acres of Mojave creosote bush scrub would be within the development area for the solar facility.

2.4 Data Request DR BIO-20

DR BIO-20:

> **a.** Due to presence of live burrowing owls on site, it is recommended to update the application to address the mitigation and management goals as identified in Appendix F of the Staff Report on Burrowing Owl Mitigation, and as required in California Code of Regulations, title 14, section 783.2(a)(1)-(a)(10) should the species become a candidate in the course of this process and take coverage would be requested.

Response: In response to discussions with the CDFW and the petition to list the burrowing owl as threatened or endangered species under CESA, non-breeding season surveys were completed for the Project and the Biological Resources Technical Report was updated to include the results, see Attachment B. Due to the petition to list the burrowing owl as a threatened or endangered species under CESA, the applicant is submitting Incidental Take Permit (ITP) Applications for the Project, see Attachment C. One ITP Application is for the solar site, Project substation, and ancillary facilities. One ITP Application is for the BAAH substation and Loop-in Transmission Line. The ITP applications reviewed the mitigation and management goals as noted in the Data Request and incorporated this information into the applications.

b. It is recommended that Subsection 4.2.2 Impact BIO-1 be revised to address that take must be fully minimized and mitigated. Include petition to list language and specific details on what needs to happen if the species becomes a candidate under CESA. Take is prohibited for candidate species unless authorized by state law through an Incidental Take Permit (ITP), and any impact would need to be fully minimized and mitigated. The CEC's certificate would be in lieu of an ITP; however, CEC must consult with CDFW to ensure necessary information is submitted during the CEC certification process to grant any authorizations under the Fish and Game Code (e.g., authorized take of a listed species) in lieu of CDFW.

Response: See Response to DR BIO 20-a.

c. In addition to the information needed for an ITP (if needed), update the impact analysis in the application to reflect the intent to obtain an ITP and include proposed minimization and mitigation measures that would bring the project's impact to burrowing owls to less than significant with mitigation.

Response: See Response to DR BIO 20-a. Both IP Perkins, LLC, IP Perkins BAAH, LLC, and any related affiliates have submitted ITP Applications with this Data Response to allow for the CEC and CDFW to process the Opt-in Application with all appropriate information required for the ITP applications. The ITP applications include proposed minimization and mitigation measures to bring the project's impact to burrowing owls to less than significant with mitigation.

2.5 Data Request DR BIO-23

DR BIO-23: Section 4.2.2 of the application lacks the description of the incremental change to baseline to biological resources.

a. Use the survey results to help inform the baseline conditions and any mitigation measures to offset significant impacts.

Response: The Project survey results have been used to inform the baseline conditions for the Opt-in Application as well as updated from the additional surveys in the Spring of 2024. All of the survey data has been provided to the CEC to support the Opt-in Application Biological Resources section and to support the mitigation measures as needed. Response to DR BIO-15 provides the acreages of permanent and temporary impacts for all habitat types by Project component which will be used as a basis for compensatory mitigation under the DRECP compensation requirements for all biological resources within the Project Application area. No additional mitigation measures are required.

b. Additionally, include the acreage of occupancy (supported visually with figures) and impact for each resource in the impact analysis narrative and include the acreage of habitat compensation being proposed.

c. The application proposes mitigation ratios but does not define the area of impact from which the mitigation acreage will be calculated. If already addressed in Appendix J.5, please include the information in the analysis.

Response to b and c: Response to DR BIO-15 provides the acreages of permanent and temporary impacts for all habitat types by Project component which will be used as a basis for compensatory mitigation under the DRECP compensation requirements for all biological resources within the Project Application area. Habitat compensation for all acres of impact is required at a 1:1 ratio by the DRECP. As noted in the Wildlands compensation plan included in Data Response Set #2 as Attachment C.9, the compensation for habitat will support the species impacted as well as the waters that are impacted. Habitat compensation for burrowing owl is described in the ITP Application for the Project and the ITP Application for the BAAH substation and Loop-in Line.

d. The Staff Report on Burrowing Owl Mitigation (CDFG, 2012) provides guidance on the evaluation process to determine a project's impact on burrowing owls. Please update the impact analysis in Section 4.2.2 to include the impact assessment evaluating the potential loss of nesting burrows, satellite burrows, foraging habitat, dispersal and migration habitat, wintering habitat, and habitat linkages, including habitat supporting prey and host burrowers and other essential habitat attributes. The impact assessment determines if impacts to the species will result in significant impacts locally, regionally and range-wide per CEQA Guidelines §15382 and Appendix G.

Response: The Opt-in Application has been updated to include an ITP Application for the solar project and an ITP Application for the BAAH Substation and Loop-in Line for burrowing owl (see Attachment C). The ITP Applications cover the information requested here.

2.6 Data Request DR BIO-28

DR BIO-28: Please provide the following information:

a. LSAA Supplemental Pages, Figure 7 does not show temporary impacts for numbers 16 and 17.

Response: A revised LSAA notification is provided as part of this Response Set #3 in Attachment A. Areas of temporary impact, which were outside of the Project fence have been removed from the application; impacts associated with the solar facility construction would not occur outside of the fence. Acres and linear feet of impacts to waters have been updated based on additional fieldwork and consultation with the agencies

b. LSAA Application #11B Vegetation Type has creosote bush scrub listed with the temporary and permanent waters of the state linear feet/total area amounts.

Response: A revised LSAA notification is provided as part of this Response Set #3 in Attachment A. The vegetation type impacted by the project has been updated.

c. WDR Supplemental Pages, Table 3 for permanent impacts to numbers 1 through 3 do not match Figure 7.

Response: A revised WDR application is provided as part of this Response Set #3 in Attachment A. The acreage estimates have been updated.

d. WDR Supplemental Pages, Figures 7 does not show temporary impacts for numbers 16 and 17.

Response: A revised WDR application is provided as part of this Response Set #3 in Attachment A. Areas of temporary impact, which were outside of the Project fence have been removed from the application; impacts associated with the solar facility construction would not occur outside of the fence.

e. WDR Supplemental Pages, Table 3 for permanent impacts to numbers 1 through 3 do not match Figure 7.

Response: A revised WDR application is provided as part of this Response Set #3 in Attachment A. The acreage estimates have been updated.

f. WDR Supplemental Pages, Figures 7 does not show temporary impacts for numbers 16 and 17. Please explain in text why these numbers are different or update, as needed. Please update and correct these figures, as needed. Please revise to clarify the areas of temporary impacts, as well as update the notification to include all vegetation types and impacts associated with the updated jurisdictional delineation per DR BIO-3. Please revise all tables and figures to include the correct information.

Response: A revised WDR application is provided as part of this Response Set #3 in Attachment A. Areas of temporary impact, which were outside of the Project fence have been removed from the application; impacts associated with the solar facility construction would not occur outside of the fence.

2.7 Data Request DR BIO-29

DR BIO-29: Please add the use of helicopters and drones to the list of equipment and machinery in the LSAA and WDR applications.

Response: A revised LSAA notification and a WDR application are provided as part of this Response Set #3 in Attachment A. Helicopters and drones were included in the list of equipment for the permit applications.

3 Cultural and Tribal Cultural Resources

3.1 Data Request DR CUL/TRI-1

DR CUL/TRI-1: The application does not discuss the potential impacts on cultural and tribal cultural resources and mitigation measures. Please provide this information.

Response: Section 4.3, Cultural Resources, of the Perkins Opt-in Application has been updated to incorporate the data from the cultural surveys as well as potential impacts on cultural and tribal cultural resources and project design features that would reduce the impacts. Section 4.3 is included as Attachment D.

3.2 Data Request DR BIO-27

DR BIO-27: Please provide the following:

b. There are inconsistencies in the data, tables and figures provided in the LSAA and the Appendix J.5. Temporary and Permanent impacts to Waters of the State are not consistent between Figures and Tables. Please correct the following inconsistencies:

i. LSAA Supplemental Pages, page 7, Table 2 numbers 1, 2, 3, 12 and 13 do not match Figure 7 acreage numbers.
ii. Appendix J.5, Tables 1 and 2 both show 1.7 acres of impact to waters of the state and are not broken down between temporary and permanent – the total acreage amount does not match the LSAA application. Please explain in text why these numbers are different or update, as needed. Please update and correct these tables and figures, as needed.
iii. There are inconsistencies in the data, tables and figures provided in the LSAA and the Waste Discharge Requirements (WDR) Supplemental Pages.

Response: A revised LSAA notification and a WDR application are provided as part of this Response Set #3 in Attachment A. The inconsistencies listed above have been corrected in the revised applications and acres and linear feet of impacts to waters have been updated based on additional fieldwork and consultation with the agencies. Temporary impacts have been removed from the application because no impacts are expected outside the fenceline.

3.3 Data RequestData Request DR CUL/TRI-2

DR CUL/TRI-2: Please update or provide the following bibliographic references and citations as indicated:

a. Two citations and references in Section 4.3 need correction or reconciliation. Page 4.3-13 of the application cites Cocopah Indian Tribe (2020), but page 4.3-49 only includes a bibliographic entry for Cocopah Indian Tribe (2021). Which is the correct year?
b. In addition, the bibliographic entry for Alvarez de Williams on page 4.3-45 is incorrect: it is given as 1978 but the year of publication should be 1983. In addition, the bibliographic entry refers to the California volume of the Handbook of North American Indians instead of the appropriate Southwest volume. Please correct this.
c. Provide a bibliographic entry in References for Vyhmeister et al. (2024), which the application cites on page 4.3-2.

Response: Section 4.3, Cultural Resources, of the Perkins Opt-in Application has been updated to incorporate the revised bibliographic citations listed in this data request. Section 4.3 is included as Attachment D. See page 4.3-14 for the updated reference to Cocopah Indian Tribe (2024); page 4.3-53 for the corrected bibliographic entry for Alvarez de Williams; page 4.3-70 for the bibliographic entry for Vhymeister et al. 2024.

3.4 Data Request DR CUL/TRI-3

DR CUL/TRI-3: Section 4.3, Cultural Resources, Table 4.3-1 provides shorthand references (authorship, year of publication, and study number) to previous cultural resource studies in the applicant's records search area. The reference list in Section 4.3 does not include bibliographic information for these studies. These information gaps hinder other parties' and the public's ability to understand what kinds of cultural resources assessments have been conducted in the records search area. Please provide bibliographic entries for the previous studies that Table 4.3-1 identifies.

Response: Section 4.3, Cultural Resources, of the Perkins Opt-in Application has been updated to incorporate the full title of the previous studies identified in Table 4.3-1 to allow the public to understand what kind of cultural resources assessments have been conducted in the records search area. Section 4.3 is included as Attachment D.

3.5 Data Request DR CUL/TRI-4

DR CUL/TRI-4: Provide one missing page in P-13-007130: Page 3 of Archeological Site Record YMP-66, PDF page 108, included in Appendix N.1, Cultural Record Search (confidential).

Response: Page 3 of Archeological Site Record YMP-66 has been uploaded to the CEC under request for confidentiality.

3.6 Data Request DR CUL/TRI-5

DR CUL/TRI-5: On page 39 of the PDF file the P-13-011261 site record form is in an editable format (see 20240220T152927_CONFIDENTIAL Cultural Resource DPR Forms Part 3), included in Appendix N.1. Please confirm that the information provided on this page is identical to the information contained on it at the time of receipt from the South Coastal Information Center and no changes were made to the form.

Response: Page 39 of the PDF file the P-13-011261 site record form has been revised and uploaded to the CEC under request for confidentiality.

3.7 Data Request DR CUL/TRI-6

DR CUL/TRI-6: Identify the individuals responsible for the records searches and whether they meet the Secretary of the Interior's standards for cultural resource professionals.

Response: The individual responsible for the records searches was added to Section 4.3.2 of the updated Section 4.3 of the Opt-in Application, included as Attachment D.

3.8 Data Request DR CUL/TRI-7

DR CUL/TRI-7: Provide a copy of the United States Geologic Survey (USGS) 7.5-minute quadrangle map(s) of the literature search area delineating the areas of all past surveys and noting the California Historical Resources Information System (CHRIS) identifying number.

Response: A copy of the United States Geologic Survey (USGS) 7.5-minute quadrangle map(s) of the literature search area delineating the areas of all past surveys and noting the California Historical Resources Information System (CHRIS) identifying number has been uploaded to the CEC under request for confidentiality.

3.9 Data Request DR CUL/TRI-8

DR CUL/TRI-8: Provide pages 2 and 3 for resource IMP-6064 in the report Gallegos, Dennis, and Andrew Pigniolo, 1989, IM-00419 (page 33 in 20240220T161713_Confidential Cultural RS Reports Part 34), included in Appendix N.1.

Response: This is a reference to a resource with the trinomial CA-IMP-6064. The list provided by the IC does not contain a resource listed with the trinomial CA-IMP-6064 or a primary number containing 6064, nor is there one listed in the report.

A copy of IM-00419 (page 33 in 20240220T161713_Confidential Cultural RS Reports Part 34) has been uploaded to the CEC under request for confidentiality.

3.10 Data Request DR CUL/TRI-9

DR CUL/TRI-9: Clarify in Section 4.3, Cultural Resources, Table 4.3-1, that the noted report author for IM-00538, included in Appendix N.1, is Wirth Associates, Inc., instead of County of Imperial, as Wirth claims authorship on the report's title page.

Response: Table 4.3-1 has been updated such that the author of IM-00538 is Wirth Associates, Inc., see Section 4.3 included as Attachment D.

3.11 Data Request DR CUL/TRI-10

DR CUL/TRI-10: Provide pages 3 to 5 for resource H0903D-1 at the end of report Schaefer, Jerry, 1998, IM-00628 (20240220T163105_Confidential Cultural RS Reports Part 44), included in Appendix N.1.

Response: A copy of pages 3 to 5 for resource H0903D-1 at the end of report Schaefer, Jerry, 1998, IM-00628 (20240220T163105_Confidential Cultural RS Reports Part 44) has been uploaded to the CEC under request for confidentiality.

3.12 Data Request DR CUL/TRI-11

DR CUL/TRI-11: Provide Chapter 6 and Appendices for Bureau of Land Management, 1994, IM-00674 (20240220T164653_Confidential Cultural RS Reports parts 47–48), included in Appendix N.1.

Response: IM-00674 was received from the IC in draft form and did not include Chapter 6 or the Appendices so they were not included in the submission.

3.13 Data Request DR CUL/TRI-12

DR CUL/TRI-12: Provide the full folded out Location maps in Appendix 1 of Caltrans, 2002, IM-00944 (20240220T164812_Confidential Cultural RS Reports Part 53, PDF pp. 144–150), included in Appendix N.1.

Response: IM-00944 report maps were not scanned in by the Info Center folded out so they cannot be unfolded without the physical report. Therefore, we cannot upload them to the CEC.

3.14 Data Request DR CUL/TRI-13

DR CUL/TRI-13: Provide Appendices A and B of Schaefer, Jerry, and Mark Giambastiani, 2004, IM-00974 (20240220T164812_Confidential Cultural RS Reports Part 53), included in Appendix N.1.

Response: IM-00974 was received from the IC as an electronic copy without Appendices A and B so they were not included in the submission.

3.15 Data Request DR CUL/TRI-14

DR CUL/TRI-14: The following previous cultural resource studies are cited in Section 4.3, Cultural Resources, Table 4.3-1, but copies of them are not included in the confidential cultural resources filings provided with the application. Please provide copies of these studies or explain why they do not need to be part of the application:

b. Walker, Carol, Charles Bull, and Jay Von Werlhof, 1981, IM-00233
c. Bureau of Land Management, 1981, IM-00235
d. Schaefer, Jerry, and Collin O'Neill, 1998, IM-00525
e. York, Andrew, Rebecca McCorkle Apple, Alex Kirkish, and Jackson Underwood, 2000, IM-00703
f. Schaefer, Jerry, and Sherri Andrews, 2005, IM-01377
g. Rayle, Christopher E., and Steve Swanson, 2017, IM-01678
h. Bandy, Matthew, and Jim Railey, 2013, n/a

Response: All the resources listed here have been uploaded to the CEC and provided under request for confidentiality except Resource IM-00525 which is not within the search area and was referenced in error. It has been removed from Table 4.3-1 of Section 4.3.

3.16 Data Request DR CUL/TRI-15

DR CUL/TRI-15: The applicant has not completed archaeological or historic architectural surveys of the project area. No cultural and tribal cultural resources technical report is contained in Appendix N.2 to the application. Please provide this report.

Response: The cultural resources consultant has completed cultural resource surveys for the entire Project. The cultural resources technical report is being reviewed by the BLM first and will be shared directly with the CEC as it is a confidential report.

3.17 Data Request DR CUL/TRI-16

DR CUL/TRI-16: Provide a copy of the applicant’s request to the Native American Heritage Commission (NAHC) and any copies of correspondence received from the NAHC, including the list of Native Americans contacts provided by the NAHC.

Response: A copy of the request to the NAHC and correspondence received from the NAHC has been included in Attachment C.

3.18 Data Request DR CUL/TRI-17

DR CUL/TRI-17: Include a copy of all correspondence the applicant sent to Native American individuals and groups listed by the NAHC and copies of all responses.

Response: A copy of all correspondence sent to Native American individuals and groups listed by the NAHC and copies of all responses have been submitted to the CEC under request for confidentiality.

3.19 Data Request DR CUL/TRI-18

DR CUL/TRI-18: Use the results of cultural resource surveys to describe mitigation measures for impacts on known cultural and tribal cultural resources.

Response: Section 4.3, Cultural Resources, of the Perkins Opt-in Application has been updated to incorporate the data from the cultural surveys as well as potential impacts on cultural and tribal cultural resources and project design features that would reduce the impacts. Section 4.3 is included as Attachment D.

3.20 Data Request DR CUL/TRI-19

DR CUL/TRI-19: Please provide phone numbers and titles for the agency contacts in Appendix E.1 of the application, per Appendix B (i) (2) of the CEC's Siting Regulations.

Response: The Native American Heritage Commission (NAHC) was contacted for the Perkins Solar Project in 2022. The NAHC provided a list of tribes which were contacted on behalf of the project. The NAHC list is provided in Attachment D. Letters sent to the tribes and any responses have been provided to the CEC under request for confidentiality.

3.21 Data Request DR CUL/TRI-20

DR CUL/TRI-20: Appendix F, Site Plan does not describe required permits outside the authority of the CEC, nor the schedule for obtaining the permits. Please provide the permit table, per Appendix B (i) (3) of the CEC's Siting Regulations.

Response: No specific permits are required for cultural resources under the CEC's Siting Regulations. Consideration of cultural resources is required under NEPA and Section 106. The BLM is the lead agency for NEPA and Section 106 consultation. The Archaeological Resources Protection Act requires that a permit be obtained before excavation of an archaeological resource on federal land can take place and that artifacts recovered during excavation are curated at an appropriate facility. If testing of archaeological resources is required for the Project to determine eligibility, an ARPA permit must be obtained in order to complete this work. The ARPA permit would be obtained from the BLM.

4 Transmission System Design

4.1 Data Request DR TSD-1

DR TSD-1: Please discuss GO 95, 128 131-D standards in reference to the project design and construction process, such as grounding details, capacity banks and lighting arrestor at the substations voltage stability, volt-ampere reactive (VAR) support etc. if there are any potential consequences then the applicant shall propose mitigation measures. Please provide the expected Electro Magnetic Field and Electric Field values, below the gen-tie and loop in line.

Response: Electric Magnetic Field and Electric Field values were provided in section 3.3 Transmission System Design, specifically under subheading 3.3.5 Transmission System Safety and Nuisance of the application. Compliance with magnetic field reduction steps as required under General Order 131-D is also discussed in Section 3.3.5. Table 3.6-1 under Section 3.6 Laws, Ordinances, Regulations, and Standards Compliance also outlines applicability and compliance with GO 95 and 131-D standards. The grounding details of the 500kV transmission loop-in and gen-tie lines are provided in Attachment E.

General Order 128 provides rules for underground electrical supply and communications systems. The rules apply to "(a) all underground electrical supply systems used in connection with public utility service; when located in buildings, the vaults, conduit, pull boxes or other enclosures for such systems shall also meet the requirements of any statutes, regulations or local ordinances applicable to such enclosures in buildings; (b) to all underground communication systems used in connection with public utility service located outside of buildings." At this time, no undergrounding of the Project BAAH Substation and Loop-in Line or other investor owned utility infrastructure is anticipated. However, if undergrounding is required for the BAAH and Loop-in Line, GO 128 will be reviewed prior to any undergrounding of the investor owned (SDG&E) electrical supply and communications systems and incorporated into the construction of the systems.

At the edge of the 175-foot-wide corridor for each of the 500 kV loop-in transmission lines at 1 meter above ground level, the electric field is estimated to be 5.83 kV/m. In the same location, the magnetic field is estimated to be 24.8 micro tesla (μT) [248.2 milliGuass (mG)] for one-phase and, for three-phase, 28.8 μT (288.0 mG).

4.2 Data Request DR TSD-2

TSD-2: Please provide one-line diagrams of the proposed project substation, and switchyard. Show all the equipment ratings, including the bay arrangement of the breakers, disconnect switches, buses, and other equipment that would be necessary for the interconnection of the project.

Indicate the number of poles necessary to construct the gen-tie in both options that have been proposed. Please provide gen-tie conductor type, size, and current carrying capacity.

Response: The one-line diagram of the proposed substation and switchyard are provided in Attachment E.

A maximum of 10 poles would be needed for the gen-tie option 1 and a maximum of 20 poles would be needed for gen-tie option 2. The gen-tie conductor type would be 2x1590kcmil "Lapwing" bundled conductor, with an approximately 2800A carrying capacity.

4.3 Data Request DR TSD-3

DR TSD-3: Please provide California ISO cluster study (QC14) phase I, and II study reports. Additionally, provide all the system impact reports (SIS) that have been prepared by the neighboring utilities due to the impacts caused by the QC14 phase I interconnection study, such as Salt River Project's (SRP) impact report, Arizona Public Service (APS), El Centro Nacional de Control de Energía (CENACE), and Imperial Irrigation District (IID) impact reports.

Response: The California ISO cluster study phase I and phase II are being provided to the CEC under confidential cover. Both Arizona Public Service (APS) and El Centro Nacional de Control de Energía (CENACE) determined they are not an affected system for this Project [Umbriel Project (Q2166)], see letters submitted by both entities under confidential cover. Downstream effects were identified in California ISO Phase 2 Interconnection Study (Attachment E). Subsequent to the Phase II interconnection, the 2024 Generator Interconnection Reassessment Report (Q2166) was issued and is included as needed (see Attachment E). Table 3 lists the network upgrades associated with the Project based on the reassessment.

Table 3 DR TSD-3 Downstream Network Upgrades

Upgrade	Description	Project Cost Allocation	CEQA Analysis
BAAH and line to Point of Interconnection	See Project Description	100%	Included as part of the CEC Opt-in Application
GRNU			
Cost of interconnection	Engineering, Design, Land Management, Administration, Project Management	100%	Any work will occur within the fence line of the Imperial Valley Substation. SDG&E standard Construction Measures will be implemented to ensure impacts are less than significant.

CA Network Upgrades – PNU			
Imperial Valley Substation	Upgrade circuit breakers 230 kV – 11S, IV BK81 15N, IV BK81 15S, IV BK81 15T, IV BK82 18N, IV BK82 18S, IV BK82 18T, IV23030 61, IV23043 14S, IV23043 17N, IV23043 17T, IV23045 12S, IV23045 12T, IV23046 13N, IV23046 13T, IV23047 13S, IV23066 11N, IV23066 11T, IV230BT 16N, IV230BT 16S, IV230S 14N, IV230S 14T, 10N, 10S	28.63%	Work will occur within the fence line of the Imperial Valley Substation. SDG&E standard Construction Measures will be implemented to ensure impacts are less than significant.

4.4 Data Request DR TSD-4

DR TSD-4: If the California ISO Phase I or (when available) Phase 2 Interconnection Study indicate that the Perkins Renewable Energy Project cannot be reliably connected to the San Diego Gas & Electric (SDG&E) grid without additional transmission facilities not analyzed in the Opt-in Application, please provide the necessary information to support a CEQA analysis for all downstream upgrades needed for the Perkins Renewable Energy Project.

Response: No additional transmission facilities not analyzed in the Opt-in Application are needed other than updates to circuit breakers within existing substations. The additions would be within substation footprint and would be subject to SDG&E standard Construction Measures. Impacts related to the additional circuit breakers would be less than significant.

4.5 Data Request DR TSD-5

DR TSD-5: Please provide an expected schedule for necessary approvals from the California Public Utilities Commission.

Response: SDG&E anticipates that the interconnection work will qualify for the Advice Letter (AL)/Notice of Construction (NOC) process under General Order (GO) 131-D, Section III.B.1.f, relying on the CEC's CEQA document for the larger Perkins project. The Advice Letter preparation and filing would not take place until after the Project receives the CEC Decision.

5 Water Resources

5.1 Data Request DR WATER-1

DR WATER-1: Please provide figures that display the drainage patterns of the project site before and after project construction, with emphasis on the major site features, such as the BESS, project substation, operations and maintenance (O&M) facility, breaker-and-a-half (BAAH) switchyard, and the loop-in transmission line.

Response: The Applicant has provided the CEC with a preliminary drainage plans for review (see Attachment F.1) and will provide revised plans for approval based on final project design prior to construction, during pre-construction compliance. Attachment F.1 includes preliminary drainage plans for the major site features as requested in the data request as well as drainage plans for the project components on private lands to meet the County-specific requirements for development on agriculture parcels. The existing and proposed conditions are modeled in HydroCAD software. HydroCAD is a widely accepted hydrologic and hydraulic modeling package based on TR-20 unit hydrograph equations. Curve Number Methodology, based on the NRCS-TR 55 method, was used in the modeling for predicting direct runoff. Curve numbers were assigned by reviewing the soil and landcover for each drainage area. Times of concentration were calculated for each drainage area in HydroCAD using the lag method. The lag method uses the hydraulic length (distance traveled by a drop of water from the most distant part of the subcatchment to the outlet point) and the average land slope (average slope of entire watershed). The overall curve number for the site along with the lag information is used to get the time of concentration for the site. Atlas 14 precipitation and distribution data was used for the analysis, see Attachment F.1. Based on the analysis, there are no temporary sediment basins proposed onsite due to flat terrain and lack of concentrated areas. Infiltration basins are proposed at the facility locations for rate control and storage during permanent conditions. Swales will be utilized to route water to these basins. Ponding is proposed under the arrays on private land only to provide required storage volumes to meet County-specific requirements.

The Applicant has also proposed to implement a Drainage, Erosion, and Sediment Control Plan (DESCP) to reduce the impact of run-off during construction, operation, and maintenance (see PDF HWQ-1 in Appendix D.1 Best Management Practices, Project Design Features). The DESCP would ensure proper protection of water quality and soil resources, address disturbed soil stabilization treatments in the Project area for both road and non-road surfaces, and identify all methods used for temporary and final stabilization of inactive areas. The Plan would cover all Project component areas subject to disturbance. The DESCP would cover site mobilization, excavation, construction, and post-construction (i.e., operation and maintenance) activities. Site monitoring would involve inspections to ensure that the BMPs required by the Project-specific SWPPP and DESCP are properly maintained and reducing the risk of run-off to an adequate level. Implementation of the Project-specific SWPPP and DESCP would ensure that downstream water bodies are not affected by sediment transport.

5.2 Data Request DR WATER-2

DR WATER-2: Please provide the calculations that support the 2-D hydraulic model.

Response: Please see Attachment F.2 for a revised hydrology report. Raster data and calculations supporting the 2D model will be provided to the CEC separately through a file sharing program.

At this time, the 2-D hydraulic model output computations are provided for the existing condition terrain within the Perkins IP project area of interest, in the format of ".tif" raster image files.

There is one raster image (.tif) for the computed existing condition 100-YR floodplain maximum flood depth, and one raster image (.tif) for the computed existing condition 100-YR maximum flood velocity for the project area of interest.

The 2-dimensional hydraulic output is generated in HEC-RAS 2D modeling software using the shallow water equations (SWE) and the depth and velocity are computed at each computational cell within the model. The HEC-RAS output of these computations are raster image files containing values for the maximum depth and velocity computed at each computational cell in the 2-D mesh grid. These raster image files have been provided in the submittal.

For information relating to the input parameters used in the development of the IP Perkins 2-D floodplain model, the hydrologic and hydraulic parameters are detailed in the 2-D Hydraulic Summary Analysis of Findings, dated 4/10/2024, Sections 1 and 2 which is included in the Attachment F.2.

As it relates to the raster image 2-D model output, a brief explanation of the computational method used for the hydraulic computations via the Shallow Water Equations (SWE) is provided here in the form of an excerpt taken from the HEC-RAS 2D user's manual.

For additional technical information on the 2-dimensional computational methods used by the HEC-RAS 2D model, please refer to the HEC-RAS 2D user's manual which can be viewed at the US Army Corps of Engineers website at:
https://www.hec.usace.army.mil/confluence/rasdocs/r2dum/latest

The depth-averaged SWE model solves volume and momentum conservation equations and includes temporal and spatial accelerations as well as horizontal mixing. The 2D volume conservation of the water-solid mixture is given by:

$$\partial\eta\partial t+\nabla\cdot(hV)=q$$

where η is the flow surface elevation, t is time, h is the water depth, V is the velocity vector, and q is a source or sink term, to account for external and internal fluxes. The depth-averaged momentum conservation equations may be written as (Hergarten and Robl, 2015):

$$\partial V\partial t+(V\cdot\nabla)V=-g\cos2\varphi\nabla\eta+1h\nabla\cdot(\nu th\nabla V)-\tau\varrho mR\cos\psi\cos\varphi V|V|$$

in which g is the gravitational acceleration, νtis a turbulent eddy viscosity, τ is the total basal stress, ϱmis the water-solid mixture density, R is the hydraulic radius, V is the magnitude of the velocity vector, φ is the water surface slope, and ψ is the inclination angle of the current velocity direction. In the above equations, the second term on the right-hand-side represents the horizontal mixing due to turbulence and also in the case of a debris flow, horizontal mixing due to particle collisions. Utilizing the conservative form of the mixing terms is essential for accurate momentum conservation. The bottom friction coefficient is computed utilizing the Manning's roughness coefficient as

$$\tau=\tau b+\tau MD$$

where τb is the bottom turbulent shear stress and τMD is the mud and debris stress which includes all non-Newtonian stresses. The turbulence bottom shear stress is computed as a function of the Manning's roughness coefficient

$$\tau b=\varrho mCd|V|2$$

$$Cd=gn2R1/3$$

where ϱm is the density water-particle mixture and n is the Manning's roughness coefficient. The mud and debris stress is described in detail in the section "Rheological Models".

When the non-Newtonian stress is equal to zero and the cosine functions (slope corrections) are removed, the above 2D SWE equations reduce to the clear-water equations utilized in HEC-RAS.

When simulating hyper-concentrated flows, the longitudinal and transverse components of the turbulent eddy viscosity are computed with the shear velocity from total shear stress (i.e. $u^*=\tau/\varrho m$).

5.3 Data Request DR WATER-3

DR WATER-3: Please provide the Groundwater Monitoring, Reporting, and Mitigation Plan as an appendix to the application.

Response: The Applicant is required to develop a Groundwater Monitoring Reporting and Management Plan (GMRMP) prior to construction, in accordance with PDF HWQ-2. The applicant will prepare and provide the GMRMP for review and approval to the applicable agencies during pre-construction compliance. This timing is appropriate because the GMRMP will be based on the final location of Project groundwater wells and the analysis presented in the CEQA and NEPA document and will be subject to approval by the CEC and BLM before the Project uses groundwater pumped from any Applicant owned and/or operated groundwater well (on site or off site) that extracts water from the Imperial Valley Groundwater Basin (IVGB). As provided in PDF HWQ-2, the Applicant will retain a qualified hydrogeologist to develop a GMRMP, in coordination with the CEC and BLM, to ensure that groundwater wells surrounding Project supply well(s) are not adversely affected by Project activities, if an onsite groundwater well is constructed and used for Project water supply. Specifically, the GMRMP will provide a detailed methodology for monitoring site groundwater levels and comparisons for levels within the IVGB including identification of the closest private wells to the Project's well(s). Monitoring also will be performed during preconstruction, construction, and operation of the Project, to establish pre-construction and Project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the Project's pumping well(s) and near potentially impacted existing wells. The GMRMP will include a requirement to prepare and submit quarterly data reports to designated agencies for the duration of the construction period. The Applicant shall implement the approved GMRMP throughout any Project phase that pumps groundwater for consumptive use. This timing is consistent with the DRECP CMA SW-24 which requires a Groundwater Monitoring and Reporting Plan required prior to the development, extraction, injection, or consumptive use of any water resource to track the water used.

5.4 Data Request DR WATER-4

DR WATER-4: Please provide Appendix V, Groundwater Resources Technical Report

Response: See Attachment F.3 for the Water Supply Assessment (WSA), February 2025.

Appendix B, Section (g)(14)(C)(i) requests *"Source(s) of the primary and back-up water supplies and the rationale for their selection"*. As noted in the WSA, water for the Project may be obtained from several potential sources, including an on-site groundwater well, off-site groundwater wells, trucked from an off-site water purveyor, and through a water wheeling agreement. The potential sources are:

- Surface Water
  - Golden State Water Company (GSWC) of Calipatria, California
  - City of Imperial, California
  - Desalinated seawater from San Diego County Water Authority (SDCWA)
- Groundwater
  - Project Well within the Imperial Valley Groundwater Basin (IVGB)
  - Allegretti Farms' wells within the Ocotillo-Clark Valley Groundwater Basin (OCVGB)

- Jacumba Community Services District (JCSD) wells within the Jacumba Valley Groundwater Basin (JVGB)

An analysis of each potential sources is provided in the WSA.

Appendix B, Section (g)(14)(C)(ii) requests "*the expected physical and chemical characteristics of the source and discharge water(s) including identification of both organic and inorganic constituents before and after any project-related treatment. For source waters with seasonal variation, provide seasonal ranges of the expected physical and chemical characteristics. Provide copies of background material used to create this description (e.g., laboratory analysis).*" The physical and chemical characteristics of the source water are provided in the WSA. Due to the nature of solar PV projects and the limited use of water post-construction, the Project would not discharge water. Any water used for solar PV washing would be minimal and would evaporate and would not create runoff. Any waters used for restrooms would be discharged to a septic system and potential leach field. As noted in the Opt-in Application, the Applicant would engage a California state-licensed engineering or geologic staff to prepare a septic design study evaluating site suitability and constraints and providing recommendations for septic design consistent with applicable codes and standards and suitable to site conditions.

Appendix B, Section (g)(14)(C)(iii) requests "*Average and maximum daily and annual water demand and waste water discharge for both the construction and operation phases of the project*". The WSA provides the estimated maximum daily and annual water demand. The Project is anticipated to have minimal waste water during construction and operations. During construction, water would be used primarily for the construction itself, for elements such as dust control, and would not result in waste water. During construction, restroom facilities would be provided by portable units to be serviced by licensed providers and would not result in waste water onsite. As noted above, during operations, any use of water would be minimal and would evaporate rather than becoming waste water/runoff. Waters used for restrooms would be discharged to a septic system and potential leach field.

Appendix B, Section (g)(14)(C)(iv) requests "*A detailed description of all facilities to be used in water conveyance (from primary source to the power plant site), water treatment, and wastewater discharge. Include a water mass balance diagram*;" The Project would purchase water from one or more sources detailed in the WSA and would use existing infrastructure to fill up water trucks that would truck the water to the site. No infrastructure would be installed to transport water to the site; no water treatment is required. Wastewater discharge is described above. Water mass balance calculations are included in the WSA (Appendix F.3)

Appendix B, Section (g)(14)(C)(v) requests "*For all water supplies intended for industrial uses to be provided from public or private water purveyors, a letter of intent or will-serve letter indicating that the purveyor is willing to serve the project, has adequate supplies available for the life of the project, and any conditions or restrictions under which water will be provided. In the event that a will-serve letter or letter of intent cannot be provided, identify the most likely water purveyor and discuss the necessary assurances from the water purveyor to serve the project.*" The WSA provides a list of all potential water suppliers and the discussions the Applicant has had with each, including the potential to serve the project. The Applicant has also included a Feasibility Study specific to evaluating whether an onsite project well could be located so that it would not capture potential canal seepage water. An onsite well remains a potential option for Project water supply.

Appendix B, Section (g)(14)(C)(vi) requests "*For all water supplied which necessitates transfers and/or exchanges at any point, identify all parties and contracts/agreements involved, the primary source for the transfer and/or exchange water (e.g., surface water, groundwater), and provide the status of all appropriate agencies' approvals for the proposed use, environmental impact analysis on the specific transfers and/or exchanges required to obtain the proposed supplies, a copy of any agency regulations that govern the use of the water, and an explanation of how the project complies with the agency regulation(s).*" The WSA provides a detailed discussion about the water supply options. While some of the potential water providers do have ongoing water transfers/exchanges, none of the existing water transfers/exchanges would be affected by the Project. A wheeling agreement would be necessary between SDCWA and IID for this water supply option; however, no new transfers/exchanges would be necessitated by the Project water supply. This request is not applicable for the Project.

Appendix B, Section (g)(14)(C)(vii) requests *"Provide water mass balance and heat balance diagrams for both average and maximum flows that include all process and/or ancillary water supplies and wastewater streams. Highlight any water conservation measures on the diagram and the amount that they reduce water demand."* This request is not applicable for solar PV because there are no elements of the project that result in heated water or wastewater streams as noted above so a water mass balance and heat balance diagrams for these elements is not needed. The Project may use dust palliatives as allowed by the BLM during construction to reduce construction water use for dust suppression.

Appendix B, Section (g)(14)(C)(viii) requests "*For all projects which have a discharge, provide a copy of the will-serve letter, permit or contract with the public or private entity that will be accepting the wastewater and contact storm water from the project. The letter, permit or contract, if possible, shall identify the discharge volumes and the chemical or physical characteristics under which the wastewater and contact storm water will be accepted.*" The Project will not have a wastewater discharge so this request is not applicable. The project will be on a septic system as discussed previously.

Appendix B, Section (g)(14)(E)(i) requests "*The effects of project demand on the water supply and other users of this source, including, but not limited to, water availability for other uses during construction or after the power plant begins operation, consistency of the water use with applicable RWQCB basin plans or other applicable resource management plans, and any changes in the physical or chemical conditions of existing water supplies as a result of water use by the power plant*." As noted in the WSA, the Project water use would not affect the water supply and other users of the sources selected, including any physical or chemical conditions of the existing water supply.

Appendix B, Section (g)(14)(E)(ii) requests "*If the project will pump groundwater, an estimation of aquifer drawdown based on a computer modeling study shall be conducted by a professional geologist and* *include the estimated drawdown on neighboring wells within 0.5 mile of the proposed well(s), any effects on the migration of groundwater contaminants, and the likelihood of any changes in existing physical or chemical conditions of groundwater resources shall be provided."* The WSA provides a cumulative impact and cone of depression analysis for all three basins that may provide water for the Project (Imperial Valley, Ocotillo-Clark, and Jacumba) in Section 8, including the respective modeled radius of influence. As noted in Section 9, no migration of contaminants or change in physical/chemical conditions is anticipated based on the water used for the Project.

5.5 Data Request DR WATER-5

DR WATER-5: Please provide a draft compensatory mitigation plan and Tier 3 alternatives analysis that complies with the SWRCB policy for State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

Response: The Wildlands compensation plan was updated and included in Data Response Set #2 as Attachment C.9 and includes a draft compensatory mitigation plan that meets the SWRCB policy for State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

Section IV.A.1.g of the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State includes the following exemption from preparation of a Tier 3 alternatives analysis;

> *i. The project includes discharges to waters of the state outside of federal jurisdiction, but the entire project would meet the terms and conditions of one or more Water Board-certified Corps' General Permits, including any Corps District's regional terms and conditions, if all discharges were to waters of the U.S. The permitting authority will verify that the entire project would meet the terms and conditions of the Corps' General Permit(s) if all discharges, including discharges to waters of the state outside of federal jurisdiction, were to waters of the U.S. based on information supplied by the applicant.*

The solar facility would meet the terms and conditions of Corps General Permit, specifically Nationwide Permit (NWP) 51- Land Based Renewable Energy Facilities. NWP 51 allows for discharges of dredged or fill materials for construction, expansion, or modification of land-based renewable energy production facilities including solar projects. NWP 51 allows for up to ½ acre of impact to waters and non-tidal wetlands. The solar project would impact 0.38 acre of waters of the state and would not exceed the acreage threshold. All impacts to waters within the solar facility would meet the conditions of NWP 51, including the regional conditions. Because the entire Project would meet the terms and conditions of one or more Corps General Permits, including the regional terms and conditions if all discharges were to waters of the U.S., the Project meets the exemption from preparation of an alternatives analysis under the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State.

5. WATER RESOURCES

Even though the Project is exempt from completing an alternatives analysis, Section IV.A.1.g of the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State states, "The exemption from the alternatives analysis requirement does not preclude a permitting authority from requiring the applicant to demonstrate in its application that the project complies with section IV.B.1.a." Section IV.B.1.a requires an applicant to demonstrate that actions have been taken to "first avoid, then to minimize, and lastly compensate for adverse impacts that cannot be practicably avoided or minimized to waters of the state". The following procedures were implemented in the Project siting and design process to first avoid, then minimize, and lastly compensate for impacts to water of the State:

1. The Project design and fence line was modified to avoid waters of the State. The Project design includes several fenced avoidance areas within the fenceline that were specifically excluded from solar development to avoid impacts on waters of the State. These fenced avoidance areas include microphyll woodland. The waters within the solar facility fence that would be impacted by the Project include small swales that due to their location and linear nature could not be fully avoided in the Project design.
2. The Loop-in transmission work areas and BAAH location were sited to avoid impacts on waters of the State/wetlands. Alternative loop-in transmission corridor locations were initially evaluated in the Project siting process. The proposed Loop-in Transmission Corridor and specific work areas were selected as to avoid areas of wetlands that occur to the west of the proposed Loop-in transmission corridor.
3. The Project will provide compensatory mitigation for all impacts on waters of the State at a 1:1 ratio.

Attachment A Updated Permit Applications

Attachment A.1 Updated Lake and Streambed Alteration Agreement

FOR DEPARTMENT USE ONLY				
Date Received	*Amount Received*	*Amount Due*	*Date Complete*	*Notification No.*
	$	*$*		
Assigned to:				

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the instructions and submit ALL required enclosures, attachments, and fee(s) to the CDFW regional office that serves the area where the project will occur.
Attach additional pages to notification, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Simon Ross
Business/Agency	IP Perkins, LLC
Mailing Address	9450 Southwest Gemini Drive, PMB #68743
City, State, Zip	Beaverton, Oregon 97008
Phone Number	513-885-0372
Email	simon@intersectpower.com

2. CONTACT PERSON (*Complete only if different from applicant.*)

Name	Camille Wasinger
Business/Agency	Intersect Power, LLC (IP Perkins, LLC)
Mailing Address	9450 Southwest Gemini Drive, PMB #68743
City, State, Zip	Beaverton, Oregon 97008
Phone Number	303-909-6396
Email	camille@intersectpower.com

While an applicant is legally responsible for complying with Fish and Game Code section 1602 et seq., an applicant may designate and authorize an agent (e.g., lawyer, consultant, or other individual) to act as a Designated Representative. The Designated Representative is authorized to sign the notification and any agreement on behalf of the Applicant.

Do you authorize the Contact Person above to represent you as your Authorized Designated Representative?

☐ Yes, I authorize.	☑ No, I do not authorize.

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name	USA (Bureau of Land Management, El Centro Field Office
Mailing Address	1661 S. 4th Street
City, State, Zip	El Centro, CA 92243
Phone Number	760-337-4400
Email	BLM_CA_Web_EC@blm.gov

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name	Perkins Renewable Energy Project			
B. Agreement Term Requested	☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years)*			
C. Project Term	Beginning (*year*)	2026	Ending (*year*)	2030
D. Seasonal Work Period				

Season(s)*	Start Date (*month/day*)	End Date (*month/day*)	E. Number of Work Days
1	01/01	12/31	800
2			
3			
4			
5			

** Continue on additional page(s) if necessary*

5. AGREEMENT TYPE

Check the applicable box. If boxes B – F are checked, complete the specified attachment.	
A.	☑ Standard *(Most construction projects, excluding the categories listed below)*
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:* ______
C.	☐ Timber Harvesting (*Attachment B*) *THP Number:* ______
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* ______
E.	☐ Routine Maintenance (*Attachment D*)
F.	☐ Cannabis Cultivation (*Attachment E*)
G.	☐ CDFW Grant Programs *Agreement Number:* ______
H.	☐ Master
I.	☐ Master Timber Operations

6. FEES

See the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: CDFW may not process this notification until the correct fee has been received.***

	A. Project Name	B. Project Cost	C. Project Fee
1	Perkins Renewable Energy Project	429025	6580.50
2			
3			
4			
5			
6			
7			
8			
9			
10			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE*	6580.50

** Check, money order, and Visa or MasterCard (select Environmental Fees from Menu) payments are accepted.*

7. PRIOR NOTIFICATION AND ORDERS

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, CDFW for the project described in this notification?

☐ Yes (*Provide the information below*) ☑ No

Applicant	Notification Number	Date

B. Is this notification being submitted in response to a court or administrative order or notice, or a notice of violation (NOV) issued by CDFW?

☐ Yes ☑ No (*Enclose a copy of the order, notice, or NOV. If the applicant was directed to notify CDFW verbally rather than in writing, identify the person who directed the applicant to submit this notification, the agency he or she represents, and describe the circumstances relating to the order.*)

Name of person who directed notification	Agency

Describe circumstances relating to order

☐ *Continued on additional page(s)*

8. PROJECT LOCATION

A. Address or description of project location.
(*Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway.*)

The Project Application Area is in Imperial County, approximately 37 miles southeast of the Salton Sea. Imperial County is located in southern California, in the southwestern portion of the Colorado Desert. The Project Application Area is located approximately 1.2 miles north of the U.S.–Mexico border, in a region characterized by undeveloped desert and agricultural uses. The Imperial Valley, which is dominated by agricultural land, is located an estimated 2.5 miles west of the Project Application Area. The Imperial Sand Dunes, the largest mass of sand dunes in California, is located approximately 9 miles east of the Project Application Area.

☑ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	Ephemeral drainages and vegetated swales. See attachment.
C. What water body is the river, stream, or lake tributary to?	Salton Sea
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☑ No ☐ Unknown
E. County	Imperial County

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Glamis SW, Midway Well NW, and Midway Well	See attached pages			

☐ *Continued on additional page(s)*

K. Meridian (check one) ☐ Humboldt ☐ Mt. Diablo ☑ San Bernardino

L. Assessor's Parcel Number(s)

056-170-022	056-170-015
056-170-025	

☐ *Continued on additional page(s)*

M. Geographic coordinates (*Provide the latitude and longitude coordinates for the property where the project(s) will take place. CDFW utilizes decimal degrees and WGS 84 datum. Access Google Maps Help if you need assistance in finding your coordinates.*)

Latitude/Longitude	*Latitude:* see attached pages	*Longitude:* -###.######
	Latitude: ##.######	*Longitude:* -###.######
	Latitude: ##.######	*Longitude:* -###.######
	Latitude: ##.######	*Longitude:* -###.######
	Latitude: ##.######	*Longitude:* -###.######

9. PROJECT CATEGORY

WORK TYPE	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR-MAINTAIN-OPERATE EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Filling of wetland, river, stream, or lake	☑	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☐	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☑	☐	☐
Sediment removal: pond, stream, or marina	☐	☐	☐
flood control	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing: horizontal directional drilling	☐	☐	☐
jack/bore	☐	☐	☐
open trench	☑	☐	☐
Water diversion without facility	☐	☐	☐
Water diversion with facility	☐	☐	☐
Other *(specify)*: solar facility	☑	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Include photographs of the project location and immediate surrounding area.

- Written description of all project activities with detailed step-by-step description of project implementation.
- Include any structures (e.g., rip-rap, culverts) that will be placed or modified in or near the stream, river, or lake, and any channel clearing.
- Specify volume, and dimensions of all materials and features (e.g., rip rap fields) that will be used or installed.
- If water will be diverted or drafted, specify the purpose or use and include Attachment C.
- Enclose diagrams, drawings, design plans, construction specifications, and maps that provide all of the following: site specific construction details; dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; overview of the entire project area (i.e., “bird’s-eye view”) showing the location of each structure and/or activity, significant area features, stockpile areas, areas of temporary disturbance, and where the equipment/machinery will access the project area.
  - A helpful resource to assist in the development of quality PDF maps in Google Earth. See Using Google Earth to Map your Property (PDF).

IP Perkins, LLC (Applicant) and IP Perkins BAAH, LLC, affiliates of Intersect Power, LLC, propose to construct, operate, maintain, and decommission a 1,150 megawatt (MW) solar photovoltaic (PV) facility and battery energy storage system (BESS) on public lands administered by the U.S. Bureau of Land Management (BLM) and Bureau of Reclamation (BOR), as well as private lands located southeast of El Centro in Imperial County, California.

Please see attached project description.

☑ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

See attachment for a list of construction equipment that would be used to complete the project.

☑ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☐ Yes ☑ No (*Skip to box 11*)
D. Will the project require work in the wetted portion of the channel?	☐ Yes (*Enclose a plan to divert water around work site*) ☑ No

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

See attached summary of impacts.

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation?

☑ Yes (*Complete the tables below*) ☐ No *(Include aerial photo with date supporting this determination)*

Vegetation Type	Temporary Impact	Permanent Impact
Alkali goldenbrush desert scrub	Linear feet: ____ Total area: 1.4	Linear feet: ____ Total area: 82.8
see additional pages	Linear feet: ____ Total area: ____	Linear feet: ____ Total area: ____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
Not applicable.		

☑ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

See Biological Resources Technical Report and AFC Biological Resources section for a list of special status species that have potential to occur.

☑ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

See attached Biological Resources Technical Report (Appendix J.1 of

☑ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has one or more technical studies (e.g., engineering, hydrologic, geological, or geomorphological) been completed for the project or project site?

☑ Yes *(Enclose the study(ies))* ☐ No

Note: One or more technical studies may be required to evaluate potential project impacts to a lake or streambed.

G. Have fish or wildlife resources or waters of the state been mapped or delineated on the project site?

☑ Yes (*Enclose the mapped results*) ☐ No

Note: Check "yes" if fish and wildlife resources or waters of the state on the project site have been mapped or delineated. "'Wildlife' means and includes all wild animals, birds, plants, fish, amphibians, reptiles and related ecological communities, including the habitat upon which the wildlife depends." (Fish & G. Code, § 89.5.) If "yes" is checked, submit the mapping or delineation. If the mapping or delineation is in digital format (e.g., GIS shape files or KMZ), you must submit the information in this format for CDFW to deem your notification complete. If "no" is checked, or the resolution of the mapping or delineation is insufficient, CDFW may request mapping or delineation (in digital or non-digital format), or higher resolution mapping or delineation for CDFW to deem the notification complete.

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment, hazardous, or other deleterious materials from entering watercourses during and after construction.

Refer to Attachment A.

☑ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Refer to Attachment A.

☑ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

The applicant proposed compensation and mitigation plan for impacts on waters and other biological resources is provided in Attachment B.

☑ *Continued on additional page(s)*

13. PERMITS

List any local, State, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. RWQCB Waste Discharge Requirements ☑ Applied ☐ Issued

B. ________________ ☐ Applied ☐ Issued

C. ________________ ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ State, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☑ *Continued on additional page(s)*

14. ENVIRONMENTAL REVIEW

A. Has a CEQA lead agency been determined? ☑ Yes (*Complete boxes B, C, D, E, and F*) ☐ No (*Skip to box 14.G*)

B. CEQA Lead Agency	California Energy Commission		
C. Contact Person	CEC to provide	D. Phone Number	CEC to provide

E. Has a draft or final document been prepared for the project pursuant to CEQA and/or NEPA?

☐ Yes (*Check the box below for each CEQA or NEPA document that has been prepared and enclose a copy of each.*)
☑ No (*Check the box below for each CEQA or NEPA document listed below that will be or is being prepared.*)

☐ Notice of Exemption	☐ Mitigated Negative Declaration	☑ NEPA document (*type*): Environmental Assessment
☐ Initial Study	☑ Environmental Impact Report	
☐ Negative Declaration	☐ Notice of Determination (*Enclose*)	
☐ THP/ NTMP	☑ Mitigation, Monitoring, & Reporting Plan	

F. State Clearinghouse Number (*if applicable*): CEC to provide once available

G. If the project described in this notification is not the "whole project" or action pursuant to CEQA, briefly describe the entire project (Cal. Code Regs., tit. 14 § 15378).

The whole project is described in the Project Description enclosed in the Opt-in Application.

☑ *Continued on additional page(s)*

H. Has a CEQA filing fee been paid pursuant to Fish and Game Code section 711.4?

☐ Yes (*Enclose proof of payment*) ☑ No (*Briefly explain below the reason a CEQA filing fee has not been paid*)

Note: The CEQA filing fee is in addition to the notification fee. If a CEQA filing fee is required, the Lake or Streambed Alteration Agreement may not be finalized until paid.

This application is provided with the Opt-in Application. The California Energy Commission will start the CEQA process upon deeming the application complete. No CEQA filing fee is due at this time as CEQA has not been completed.

15. SITE INSPECTION

Check one box only.

☐ In the event CDFW determines that a site inspection is necessary, I hereby authorize a CDFW representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant CDFW such entry.

☑ I request CDFW to first contact (*insert name*) to be provided at a later date at (*insert phone number or email address*) to be provided at a later date to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay CDFW's determination as to whether a Lake or Streambed Alteration Agreement is required and/or CDFW's issuance of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☑ Yes (Please enclose the information via digital media with the completed notification form.)

☐ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, CDFW may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless CDFW has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

[signature] March 14, 2025

Signature of Applicant or Applicant's Authorized Representative Date

Simon Ross, Chief Commercial Officer

Print Name

8. Project Location

8A. Project Location

The Project is located in Imperial County, approximately 37 miles southeast of the Salton Sea. Imperial County is in southern California, in the southwestern portion of the Colorado Desert. The Project Application Area is located approximately 1.2 miles north of the U.S.–Mexico border, in a region characterized by undeveloped desert and agricultural uses. The Imperial Valley, which is dominated by agricultural land, is located an estimated 2.5 miles west of the Project Application Area. The Imperial Sand Dunes, the largest mass of sand dunes in California, is located approximately 9 miles east of the Project Application Area. A regional location map is provided in Figure 1 and vicinity map is provided in Figure 2.

Figure 1 Regional Setting

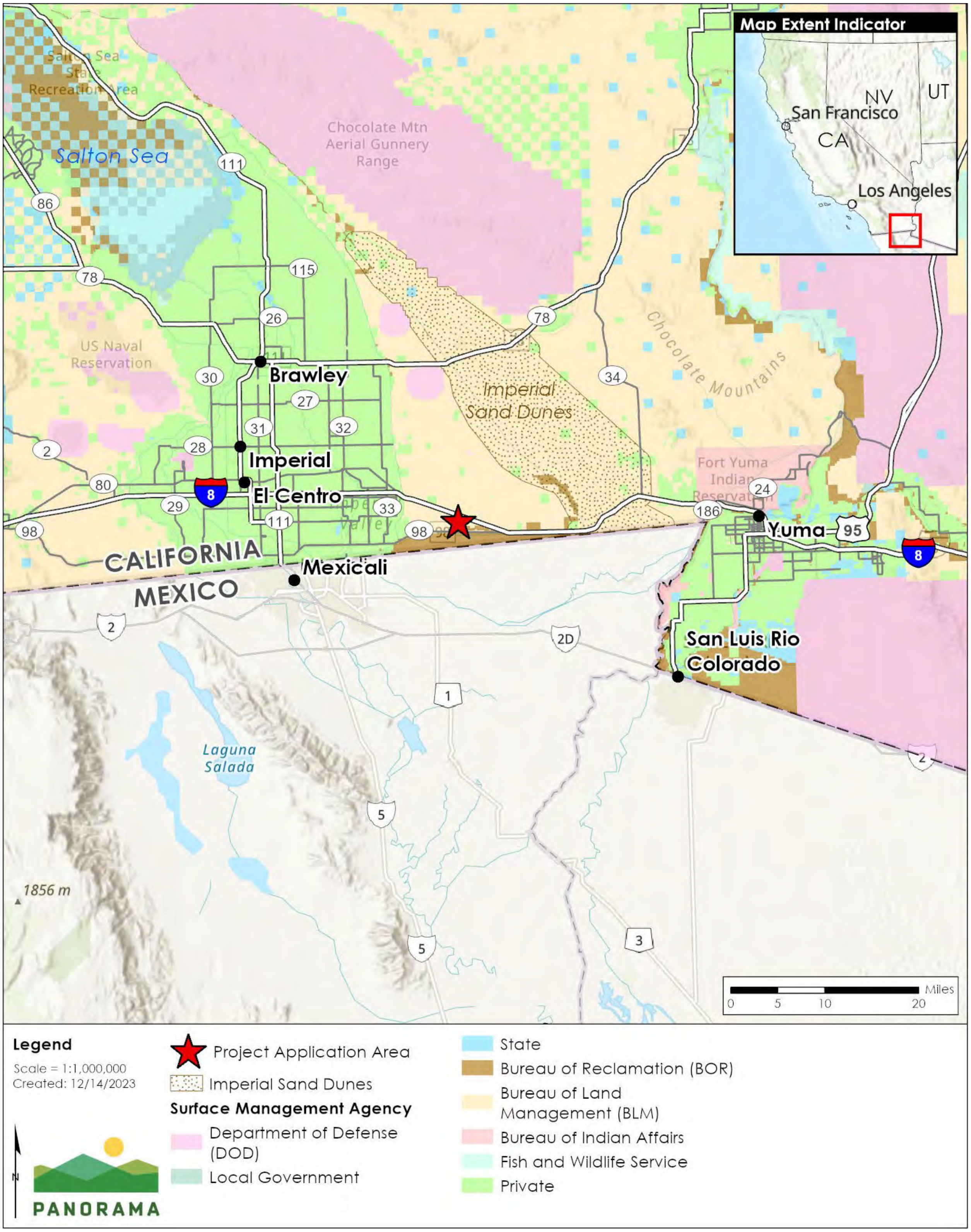
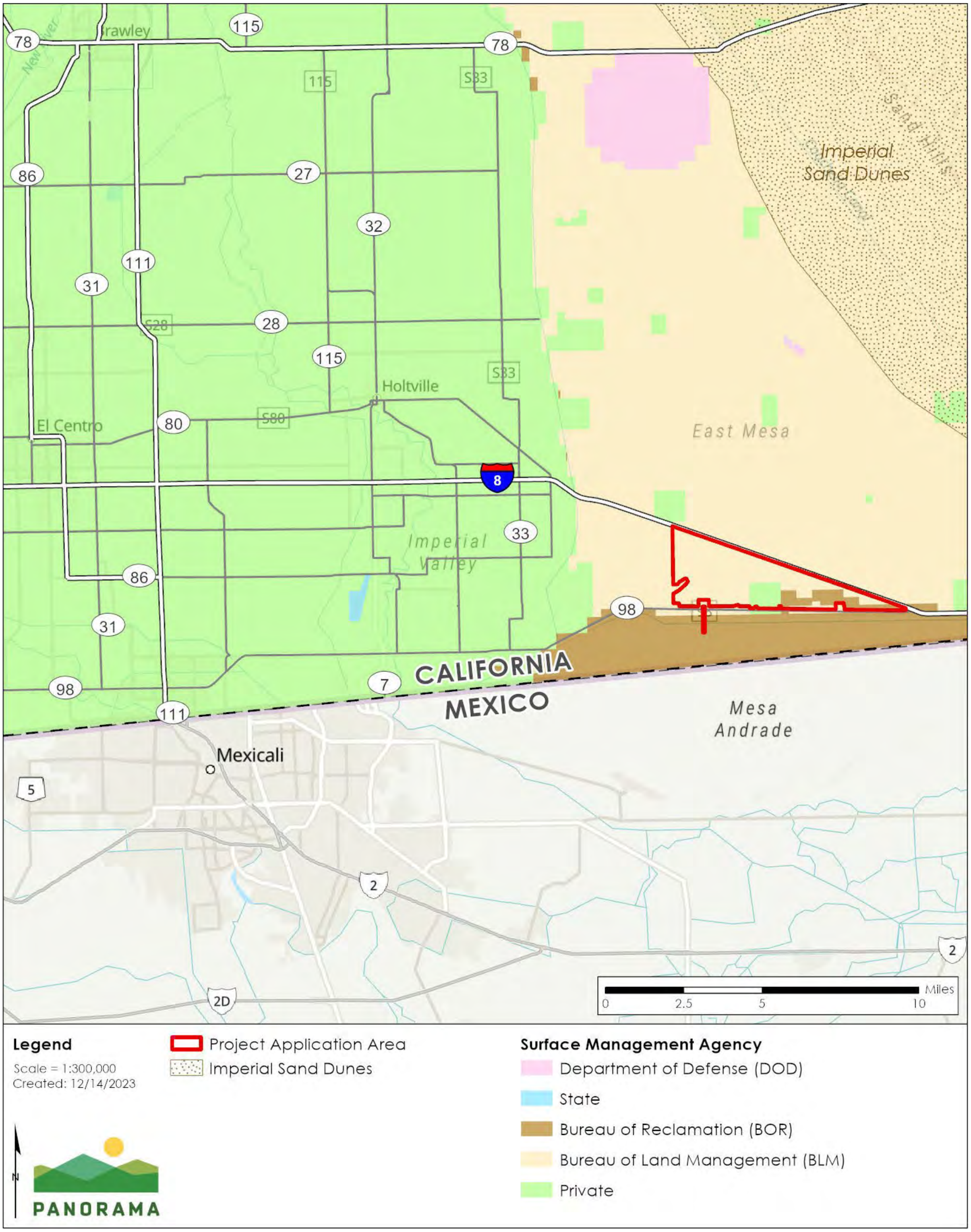


Figure 2 Project Vicinity



8M. Geographic Coordinates

The latitude and longitude for each water resource is provided below.

No.	Latitude	Longitude
1	32.723639°	-115.219161°
2	32.724273°	-115.219085°
3	32.723575°	-115.21858°
4	32.719173°	-115.213937°
5	32.718912°	-115.213913°
6	32.718589°	-115.213859°
7	32.719879°	-115.212891°
8	32.718522°	-115.212542°
9	32.719746°	-115.201149°
10	32.719949°	-115.200161°
11	32.720722°	-115.200478°
12	32.72111°	-115.199159°
Alkali goldenbrush desert scrub	32.70126975	-115.201226
Arrowweed scrub	32.70446745	-115.2002513
Tamarisk thickets	32.70461548	-115.2057905

10. Project Description

10A. Project Description

IP Perkins, LLC, IP Perkins BAAH, LLC, and any related affiliates (collectively, "Applicant"), subsidiaries of Intersect Power, LLC, propose to construct, operate, maintain, and decommission a 1,150 megawatt (MW) solar photovoltaic (PV) facility and battery energy storage system (BESS) on public lands administered by the U.S. Bureau of Land Management (BLM) and Bureau of Reclamation (BOR), as well as private lands located southeast of El Centro in Imperial County, California.

A fenced area referred to as the “Project site” would contain the solar plant, BESS, Project interconnection generation tie (gen-tie) line, Project substation, and operations and maintenance (O&M) yard and facility. The Project would also include a high-voltage breaker-and-a-half switchyard (BAAH switchyard) and two 500 kilovolt (kV) loop-in transmission lines, each within a 200-foot-wide loop-in transmission corridor, that would be required to interconnect to the existing San Diego Gas and Electric (SDG&E) Southwest Power Link (SWPL) 500 kV transmission line that traverses east–west to the south of the Project site. Together the Project site, the BAAH switchyard, and the 500 kV loop-in transmission corridors are referred to as the “Project Application Area” in the Opt-in Application (refer to Figure 3).

Solar Arrays

The solar facility would include several million PV panels; the precise panel count would depend on the technology ultimately selected at the time of procurement and efficiency of the technology at the time. The ultimate decision for the panel types and racking systems would depend on market conditions and environmental factors, including the recycling potential of the panels at the end of their useful lives.

Either mono-facial or bi-facial modules could be used, with a maximum height of approximately 10 feet at full tilt depending on topography and hydrology. Panel mounting systems that may be installed include either fixed-tilt or single-axis tracking technology, depending on the PV panels ultimately selected. Panels would either be mounted in a portrait orientation as single panels or mounted in a landscape orientation and stacked two high on a north-south oriented single-axis tracking system that would track the sun from east to west during the day. Panel faces would be minimally reflective, dark in color, and highly absorptive. Refer to Figure 4 for an elevation of an example solar PV technology that may be selected. Refer to Figure 5 for a visual representation of an example solar PV technology.

The PV panels would be manufactured at an off-site location and transported to the Project site. Panels would be arranged on the site in solar arrays. For single-axis tracking systems, the length of each row of panels would be approximately 350 feet along the north–south axis. For fixed-tilt systems, a row would consist of multiple tables four panels high by 10 panels wide (contingent on final design), each table being approximately 65 feet along the east–west axis, with 1-foot spacing between each table. Spacing between each row would be a minimum of 4 feet.

Figure 3 Project Layout Option 1

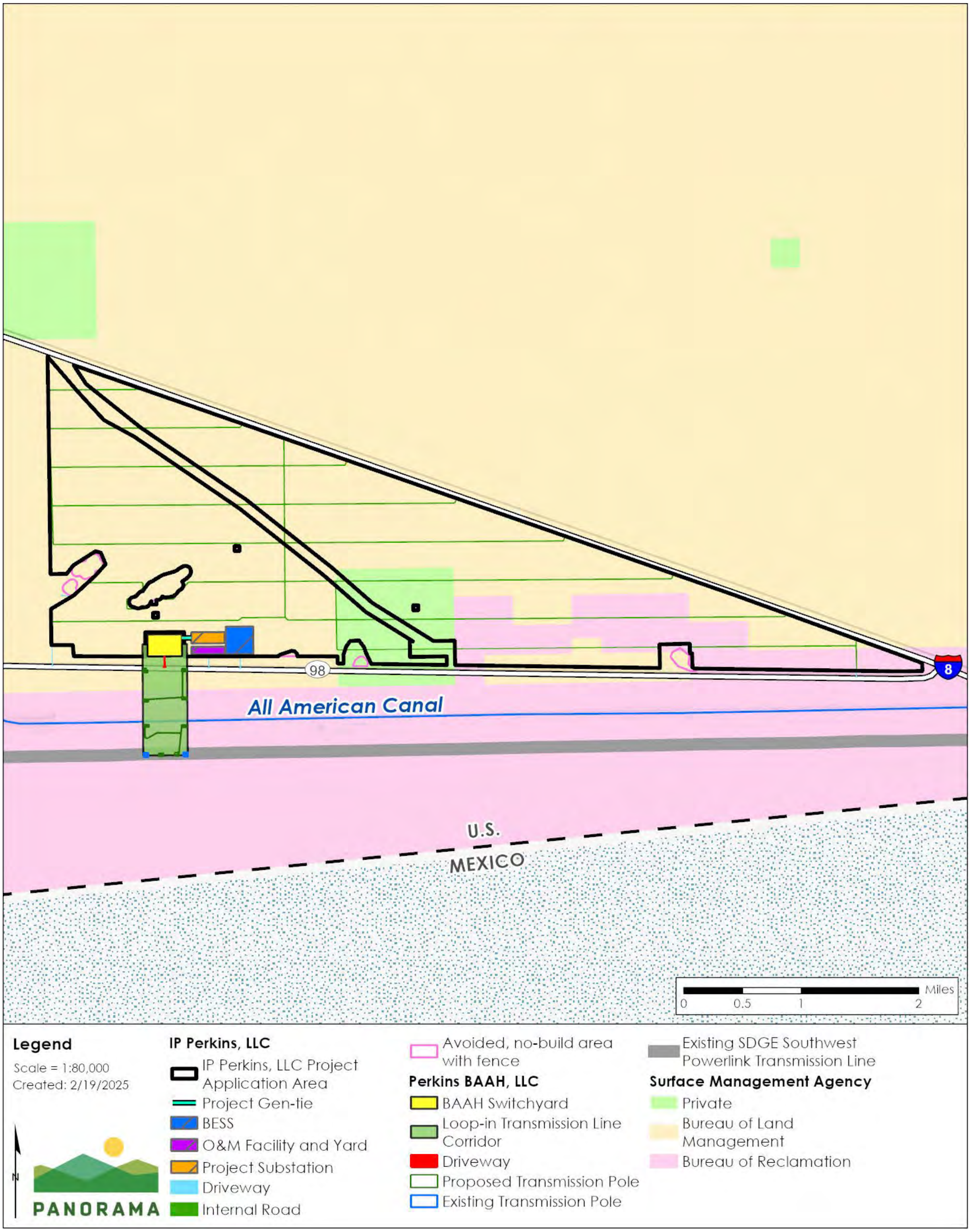


Figure 4 Solar PV Example Technology

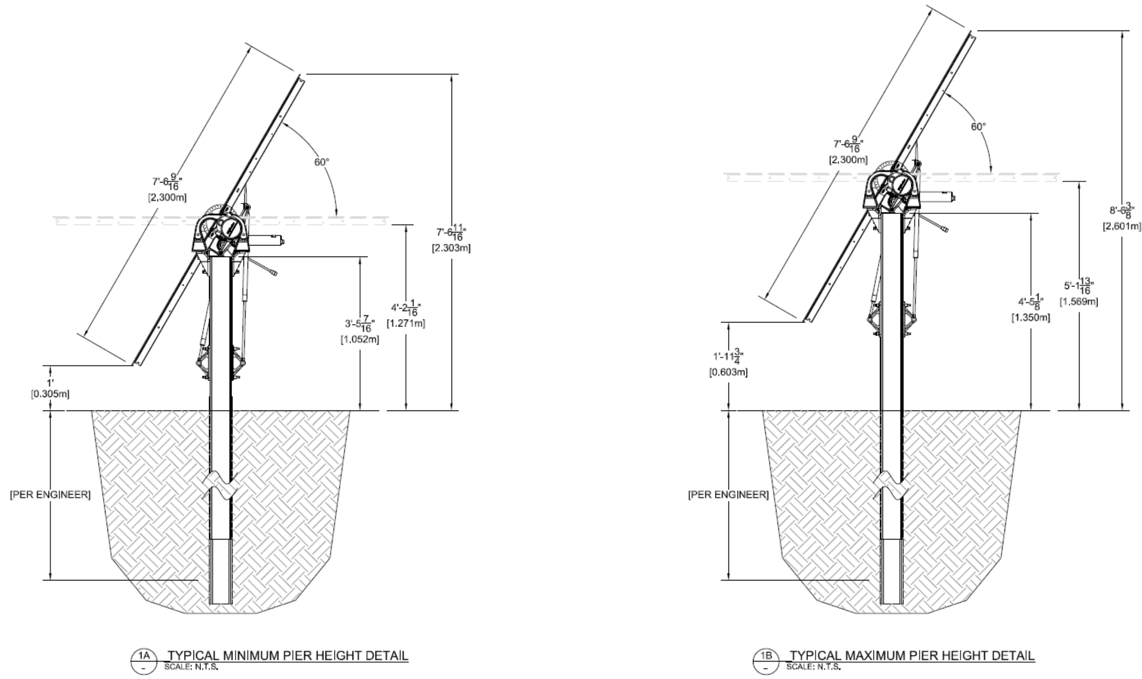


Figure 5 Visual Representation of Solar PV Example Technology

Electricity would be generated directly from sunlight by the solar arrays and collected to the Project substation.

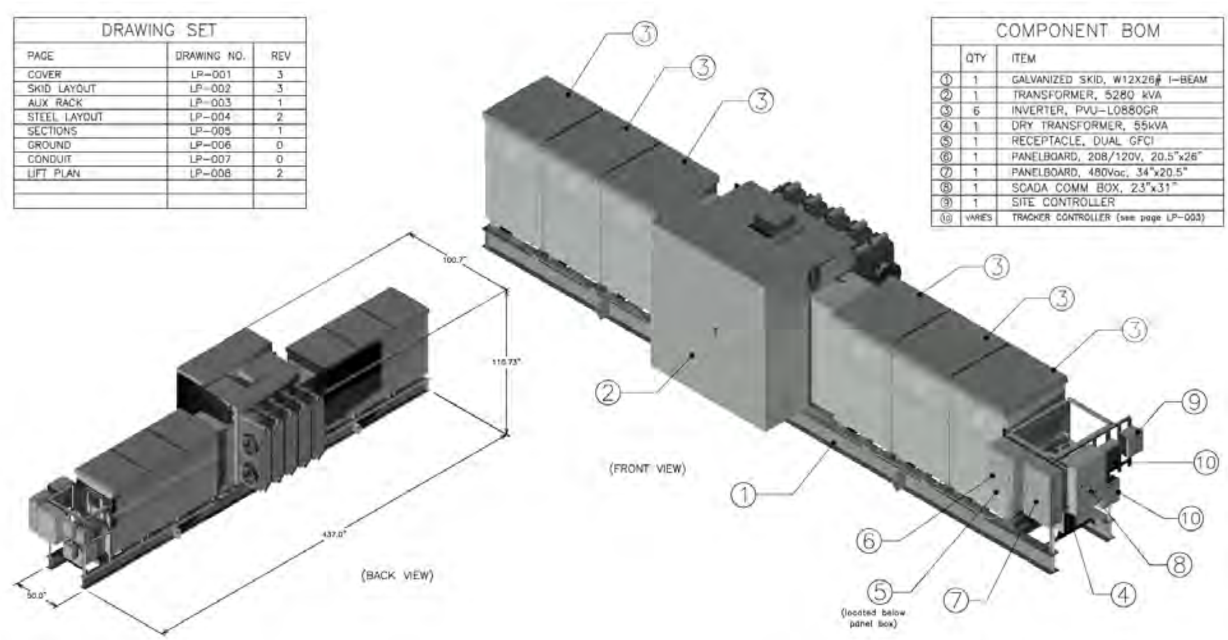
Structures supporting the PV panels would consist of steel piles (e.g., cylindrical pipes, H-beams, helical screws, or similar). The piles would typically be spaced 18 feet apart. The height of the piles above the ground would vary based on the racking configuration specified in the final design. For a single-axis tracking system, piles typically would be installed to a reveal height of approximately 4 to 6 feet above grade (minimum 1 foot clearance between bottom edge of panel and ground but could be higher to compensate for terrain variations and clearance for overland flow during stormwater events). For a fixed-tilt system, the reveal height would vary based on the racking configuration specified in the final design. Fixed-tilt arrays would be oriented along an east–west axis, with panels facing generally south. Tracking arrays would be oriented along a north–south axis, with panels tracking east to west to follow the movement of the sun. For fixed-tilt systems, the panels would be fixed at an approximate 20- to 60-degree angle or as otherwise determined necessary during final Project design.

Inverters, Transformers, and Electrical Collection System

The Project would be designed and laid out primarily in 4 to 7 MW solar arrays. Non-conforming module blocks would be designed and sized as appropriate to accommodate the irregular shape of the Project site where necessary to avoid identified sensitive environmental resources.

Each 4 to 7 MW solar array would include an inverter-transformer station measuring 40 feet by 25 feet and approximately 10 feet tall, constructed on a concrete pad or steel skid and centrally located within the PV arrays (refer to Figure 6).

Figure 6 Inverters, Transformers and Electrical Collection System



The color of the inverter equipment would be light colored or neutral, depending on thermal requirements and availability from the manufacturer. Each inverter-transformer station would contain up to six inverters, a transformer, a battery enclosure, and a switchboard 8 to 11 feet high. The battery would provide an uninterruptible power supply as emergency back-up power for the inverter-transformer station. Each pad would have a security camera at the top of an approximately 20-foot-tall wood or metal pole. If required based on site meteorological conditions, an inverter shade structure would be installed at each pad. The shade structures, if needed, would consist of wood or metal supports and a durable outdoor material shade structure (metal, vinyl, or similar). The shade structure would extend up to 10 feet above the ground surface.

PV panels would be electrically connected into panel strings using wiring secured to the panel racking system. Cables would be installed to convey the DC electricity from the panels via combiner boxes or combiner harnesses with a trunk bus system located throughout the solar arrays to inverters to convert the DC to AC electricity. The output voltage of the inverters would be stepped up to the collection system voltage via transformers located near the inverters. The 34.5 kV collection cables would be either buried underground or installed overhead on wood poles. An underground 34.5 kV line would likely be buried in a trench 4 feet below grade but could go as deep as 6 feet and include horizontal drilling to avoid environmental resources and constraints. Thermal specifications require 10 feet of spacing between the medium voltage lines. In some locations closer to the step-up substation, more than 20 medium voltage AC lines may run in parallel.

In locations where the collection system crosses a road or pipeline overhead, wood poles spaced at intervals between 150 to 250 feet would be installed across the Project site. The typical height of the poles would be approximately 60 to 100 feet, with an embedment depth of 10 to 15 feet depending on the type of crossing, and diameters varying from 12 to 20 inches. Due to potential for operations and maintenance challenges, as well as for security purposes, the intent is to install the 34.5 kV collection lines underground; however, overhead installation could be used in the event sensitive resources need to be avoided.

Solar Facility Access Driveways and Roads

The Project's roadway system would include a perimeter road, access roads and driveways from SR 98, and internal roads. Up to five access roads and driveways from SR 98 would be constructed for access to the Project site. The access roads and driveways would be 24 feet wide (20 feet wide with a 2-foot shoulder on either side) and constructed to achieve facility maintenance requirements and Imperial County standards. The access roads and driveways would be surfaced with gravel, compacted soil, or another commercially available surface, depending upon site conditions and constraints. Shoulders would be of the same material albeit less compacted and would allow vehicles to pass one another.

A 20-foot-wide perimeter road (16 feet wide with 2-foot-wide shoulder on either side) would be built on the inside of the fence. A network of regularly spaced 20-foot-wide internal roads would be installed connecting to the perimeter road. Roads would be surfaced with compacted soil or another commercially available surface acceptable to regulatory agencies and would provide a fire buffer, accommodate Project operation and maintenance activities such as cleaning of solar panels, and facilitate on-site circulation for emergency vehicles. The roadway system would be designed to allow small wildlife passage across the site. If aggregate or gravel is used for road surfaces, such as to reduce dust or for low water crossings, portions of road lengths may remain free of gravel in strategic locations in order to facilitate wildlife movement. In addition, wildlife passage culverts may be placed at key locations along Project roads to allow wildlife to avoid the road.

Site Security, Fencing, and Lighting

Controlled Access
Ingress/egress locations would be accessed via locked gates along the Project fenceline located at up to five points connecting to SR 98. The exact locations of the access points would be determined in coordination with CalTrans and based on resource survey results. The Project site would not be accessed from I-8.

Fencing
The Project site would be enclosed with fencing that meets National Electric and Safety Code (NESC) requirements for protective arrangements in electric supply stations. The boundary of the Project site would be secured by up to 6-foot-high chain-link perimeter fences topped with 1 foot of three-strand barbed wire or other fencing as dictated by BLM and/or North American Electric Reliability Corporation (NERC) specifications. The fence would typically be installed approximately 100 feet from the edge of the solar arrays.

Solar Facility Construction

Site Preparation and Grading
The majority of the Project site would be mowed rather than cleared of vegetation. Mass grading of the Project site would not be needed for site preparation due to the relatively flat terrain. Spot grading would be employed for select solar array and storage facility components. Best management practices (BMPs) identified in the Fugitive Dust Control Plan would be implemented during all grading, vegetation removal, and construction activities.

The roads would require vegetation clearing, grading, and compaction. Inverter-transformer station locations would require light grubbing. Due to undulations within the Project site, some areas of grading would be needed within the solar arrays. Where solar site grading is necessary for discrete facilities or within the solar arrays, cut and fill would be balanced to the extent feasible. Some import and export of material would be necessary (refer to Table 2-4). Where excavation is required, most construction activities would be limited to less than 6 feet in depth within the Project Site; however, some excavations, such as those undertaken for the installation of collector poles, may reach depths of 45 feet or more.

Within the solar arrays that do not require grading, mowing and grubbing would be conducted to allow for construction access and installation. Mowing and grubbing involves surface removal of vegetation, including mechanical mowing and removal of larger vegetation by hand cutting/trimming to the ground surface. The intent is to leave root balls and seeds in place to allow for regrowth of native vegetation after construction. During mowing, collection of mowed vegetation would be considered for future mulching to minimize dust and soil erosion on portions of the site and enhance restoration. A qualified restoration biologist would determine where the collected mulching material should be applied.

Non-native vegetation would be removed to the extent feasible during the construction phase via manual and mechanical methods and herbicide application. Any non-native species found in the Project Application Area that has not been evaluated for its potential to invade or alter surrounding natural lands would be considered a "weed" for purposes of the Restoration and Integrated Weed Management Plan implementation. Cutting, damaging, or uprooting microphyll woodland tree species would be avoided by Project design and BMPs, in accordance with the DRECP Conservation Management Actions (CMAs).

Table 1 Solar Facility Disturbance Details

Project component	Cut/fill quantity	Type of disturbance
Fenced solar facility with arrays and access roads	Balanced	Solar array areas to be mowed and grubbed to provide for construction access and installation
Inverter-transformer stations and electrical collection system	Balanced	Graded and backfilled to an elevation above surrounding grade to avoid flooding for inverter-transformer stations

Note:

[a] Estimated base for the areas requiring import of material is assumed to require a 12-inch depth.

Access Roads

The existing surface area of the access roads would be cleared and compacted using on-site, native materials and may be covered in aggregate for dust or erosion control. The design standard for the access roads within the solar arrays would be consistent with the amount and type of use they will receive.

Solar Array Installation

The steel piles (i.e., cylindrical pipes, H-beams, or similar) supporting the PV panels would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles typically are spaced 10 feet apart and would be driven into the ground to a depth of 9 to 15 feet.

For single-axis tracking systems, following pile installation, the associated motors, torque tubes, and drivelines (if applicable) would be placed and secured. Some designs allow for PV panels to be secured directly to the torque tubes using appropriate panel clamps. For some single-axis tracking systems and for all fixed-tilt systems, a galvanized metal racking system, which secures the PV panels to the installed foundations, would then be field-assembled and attached according to the manufacturer's guidelines. A portion of the PV panel racking and modules may be assembled at staging areas.

Inverters, and Electrical Collection System

The Project site electrical collection system would involve installation of inverter-transformer stations from which the medium voltage cabling collection system would lead to the Project substation(s). Electrical inverter-transformer stations would be delivered to locations around the Project site and placed on concrete pads or steel skids, which would be elevated as necessary with steel piles to allow for stormwater flow beneath the inverter structures. Concrete for foundations of the inverter-transformer stations and other electrical collection facilities would be brought on site from a regional batching plant or would be batched on site as necessary.

Medium-voltage cabling would be installed either underground or, for the low-impact design portion of the Project, overhead along panel strings in a cable management system to avoid the need for underground cabling and trenching. Cables, if underground, would be installed using direct bury equipment and/or typical trenching techniques, which involves use of a rubber-tired backhoe excavator or trencher. Shields or trench shoring would be temporarily installed for safety to brace the walls of the trench if required based on the trench depth. After the excavation, cable rated for direct burial would be installed in the trench, and the excavated soil would be used to fill the trench and compressed to 90- to 95-percent maximum dry density or in accordance with final engineering.

Loop-in Transmission Line

The Project would include two approximately 0.8-mile-long single-circuit 500 kV loop-in transmission lines located within two 200-foot-wide loop-in transmission corridors that connect the solar Project site to the SDG&E SWPL 500 kV transmission line. Each 500 kV loop-in transmission line would originate from the BAAH switchyard and continue south, with each phase of each transmission line terminating on a separate monopole (six total) to connect to the SDG&E SWPL 500 kV transmission line.

The 500 kV loop-in transmission line structures would be monopole, lattice, or H-frame with an average height of 150 feet and a maximum height of up to 199 feet. The 500 kV loop-in transmission line structures would have a weathered finish to minimize visual impacts. A total of approximately 16 support structures would be required for each 500 kV loop-in transmission line in addition to the dead-end structures, with the exact number of structures to be determined by the final alignment and design of the transmission lines. A three-phase, 500 kV bundled set of conductors would be strung along the structures, and the line would be equipped with a ground wire and a telecommunications fiber-optic cable. A new access road parallel to each 500 kV loop-in transmission line would be constructed. A spur road off the new access road would be constructed to access each of the 500 kV loop-in transmission line support structure sites.

Engineering constraints considered for the 500 kV loop-in transmission line placement include the crossing of the All-American Canal and existing transmission lines in the area. The loop-in transmission line construction will follow the BOR *Engineering and O&M Guidelines for Crossings* for the All-American Canal. Consideration was also given to the existing radio tower located southwest of the Project site near the All-American Canal. The loop-in transmission lines were sited to avoid this radio tower. The loop-in transmission corridors were also sited to avoid existing riparian vegetation located around the All-American Canal in order to reduce vegetation disturbance and impacts to biological resources. The loop-in transmission line corridors also avoid the BLM Area of Critical Environmental Concern located southwest of All-American Canal in this area.

Loop-in Transmission Line Construction

The overhead 500 kV loop-in transmission line structure foundations would be excavated to a depth of 35 feet or more and may include concrete supports, depending on final engineering design. Disturbance within the two 200-foot loop-in transmission corridors would be limited to tower pads, access roads, and temporary pull and tensioning sites, with an estimated 7.8 acres of permanent disturbance and 16.2 acres of temporary disturbance. The remainder of the corridors would not be disturbed. The 500 kV loop-in transmission lines would be constructed with monopoles, lattice towers, or H-frames and the dead-end structures using a three-pole design. Construction of the loop-in transmission line is anticipated to take up to 2 months. Helicopters may be used for the purpose of stringing and hanging bird diverters during the second half of construction for no more than a few days. A workforce of approximately 50 individuals would be involved in construction of the 500 kV loop-in transmission lines.

10B. Equipment and Machinery

The following equipment would be used to construct the Project:

- Aerial lift
- Crane
- Forklift
- Grader
- Pile drivers
- Roller
- Rubber tired loaders
- Rubber tired dozer
- Skid steer loaders
- Tractor/loader/backhoe
- Trencher
- Welders
- One-pass
- Helicopter
- Drone

11. Project Impacts

11A. Project Impacts

Impacts to waters of the State and CDFW jurisdictional vegetation are summarized in Table 2, Table 3, and Table 4 below and shown on Figure 7, Figure 8, and Figure 9.

Table 2 Permanent Impact to Waters of the State – Bank to Bank

No.	Length of Impact (Feet)	Area of Impact (Acres)	Type of Impact/Facility	Material	Volume of Material (cy)
1	185	0.0188	PV Array	Native Fill, Steel	182
2	421	0.0392	PV Array	Native Fill, Steel	379
3	13	0.004	Fence	Fence and Native Fill	13
4	253	0.023	PV Array	Native Fill, Steel	223
5	283	0.040	PV Array	Native Fill, Steel	387
6	198	0.037	PV Array	Native Fill, Steel	358
7	1,444	0.227	PV Array	Native Fill, Steel	2,197
8	124	0.012	PV Array	Native Fill, Steel	116
9	243	0.034	PV Array	Native Fill, Steel	329
10	3479	0.716	PV Array	Native Fill, Steel	6,931
11	150	0.021	PV Array	Native Fill, Steel	203
12	741	0.171	PV Array	Native Fill, Steel	1,655
Total	**7,534.8**	**1.343**	**N/A**	**N/A**	**12,974**

Table 3 Permanent Impact to CDFW Jurisdictional Vegetation

Vegetation Type	Area of Impact (Acres)	Type of Impact/Facility	Material	Volume of Material
Alkali goldenbrush desert scrub	82.8	PV Array, fence, road, transmission pole	Native Fill, Steel, Concrete	13,358
Arrowweed scrub	0.6	Transmission pole	Native Fill, Steel, Concrete	968
Tamarisk thickets	0.9	Transmission pole	Native Fill, Steel, Concrete	1,452
Total	**84.3**	**N/A**	**N/A**	**15,778**

Table 4 Temporary Impact to Waters of the State – CDFW Jurisdictional Vegetation

Vegetation Type	Area of Impact (Acres)	Type of Impact/Facility	Material	Volume of Material
Alkali goldenbrush desert scrub	1.4	Lay down yard	N/A	2,259
Total	**1.4**	**N/A**	**N/A**	**2,259**

Figure 7 Impacts to CDFW Jurisdictional Waters – Perkins Solar Facility

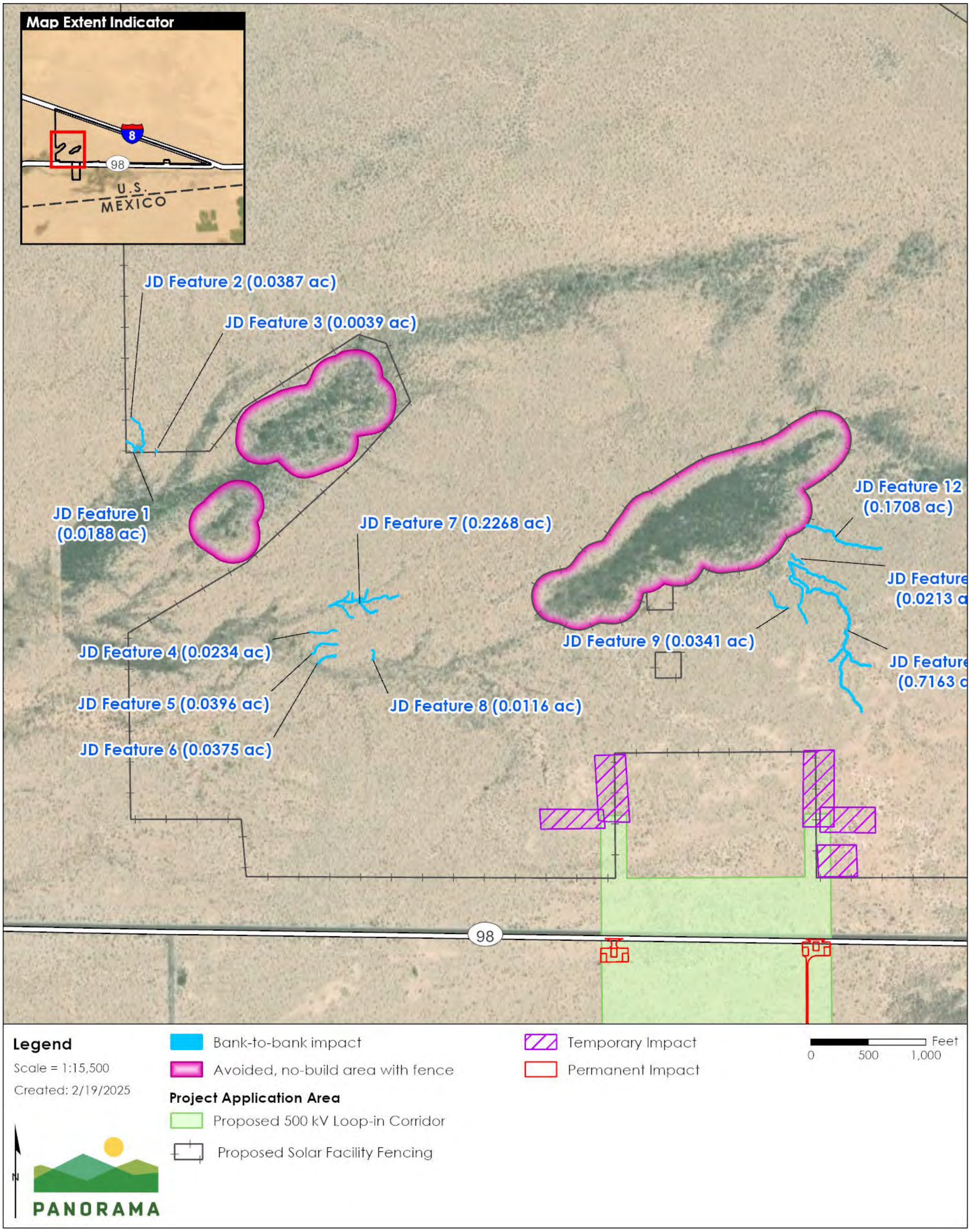


Figure 8 Impact to CDFW Jurisdictional Vegetation – Perkins Site

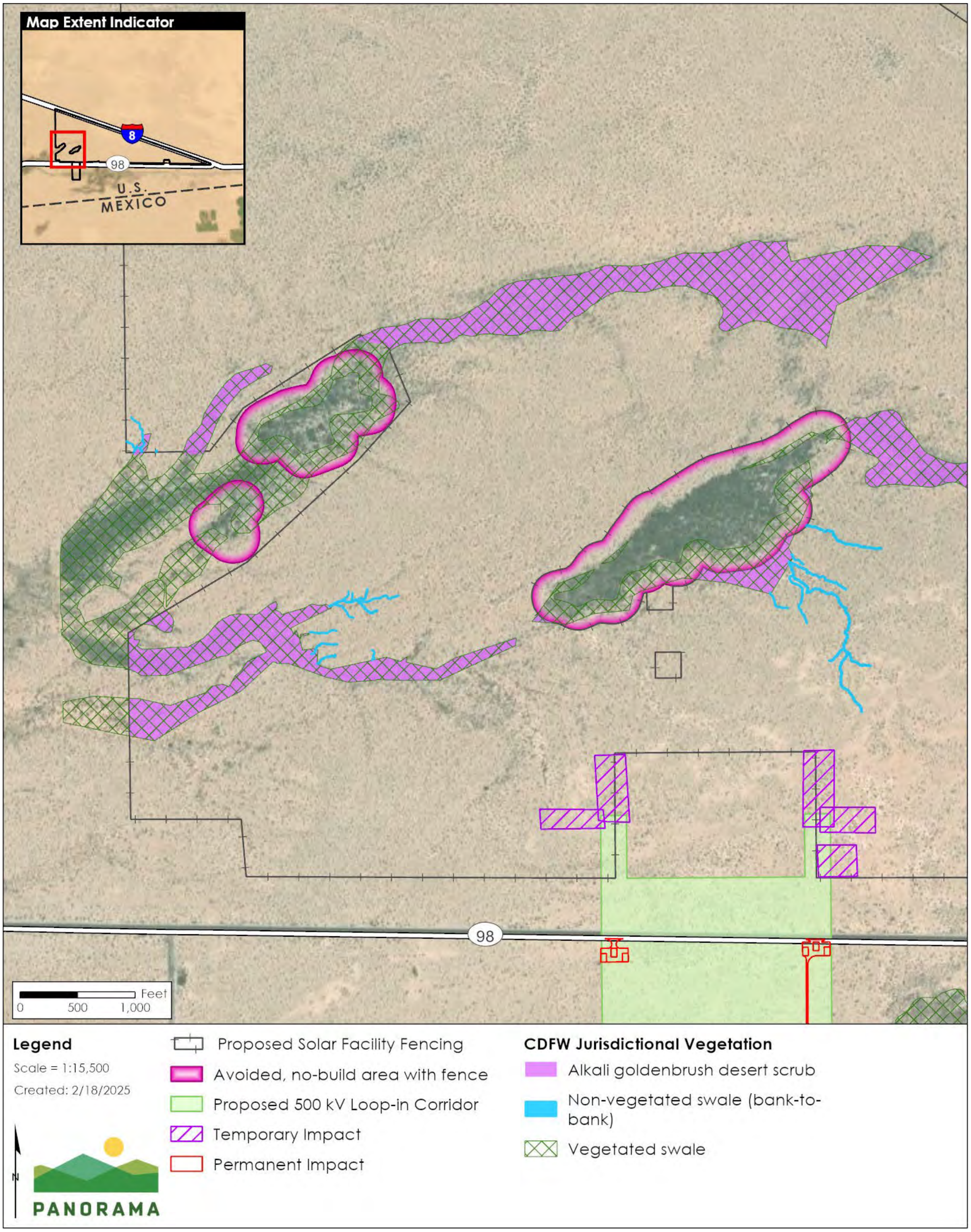
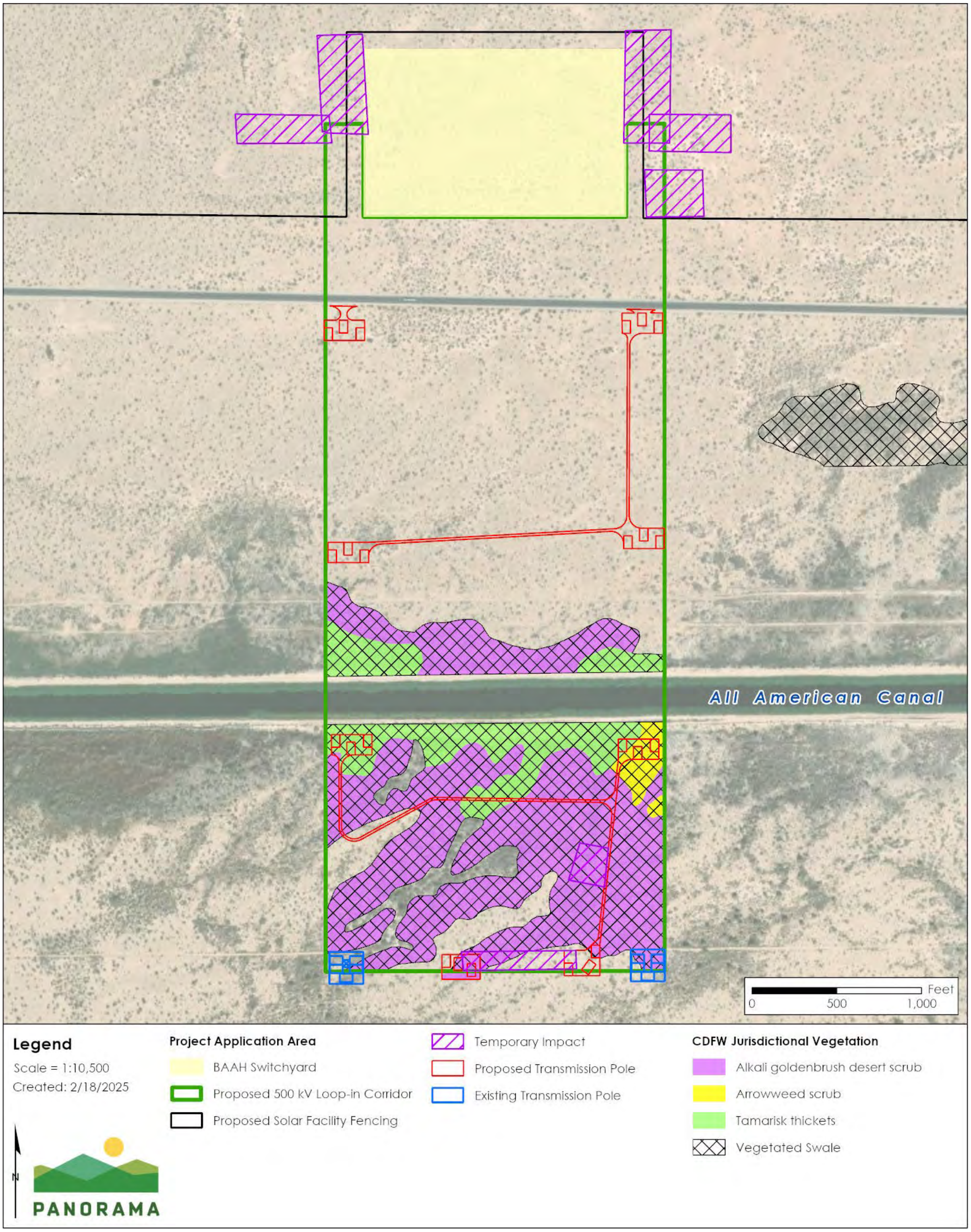


Figure 9 Impacts to CDFW Jurisdictional Vegetation – Loop-in Transmission Line



12. Measures to Protect Fish, Wildlife, and Plant Resources

12A. Pollution Prevention, Erosion and Sediment Control

A Stormwater Pollution Prevention Plan (SWPPP) would be prepared by a qualified engineer or erosion control specialist and would be implemented before and during construction. The SWPPP would reduce potential impacts related to erosion and surface water quality during construction activities and throughout the lifespan of the Project. The SWPPP would include Project information and erosion and sediment control BMPs. The BMPs would include stormwater runoff quality control measures, management for concrete waste, fugitive dust control, and construction of perimeter silt fences, as needed. The Erosion and Sediment Control Plan would include types and locations of erosion control BMPs to be implemented.

Construction Site Stabilization, Restoration, and Wildlife Monitoring

Following the completion of major construction, temporarily stockpiled topsoils would be spread within disturbed areas to be revegetated with native plant species for the operations phase pursuant to an approved Restoration and Integrated Weed Management Plan (refer to Appendix M.5). This plan would describe the Applicant's strategy to minimize adverse effects on native vegetation, soils, and habitat. Where necessary, native re-seeding or vertical mulching techniques would be used; however, it is anticipated that many species would regenerate post-construction due to preservation of desert vegetation during the construction phase. The Project Restoration and Integrated Weed Management Plan would be implemented during construction to ensure the control of non-native plant species under an approved Pesticide Use Proposal.

At the conclusion of restoration activities, and if determined beneficial by the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and the BLM biologists, previously relocated plants and wildlife would be reintroduced to the Project site and monitored for safety and health.

Applicable Best Management Practices, Project Design Features, and Conservation Management Actions

As part of the Project, the Applicant is committed to implementing BMPs, Project Design Features, and Conservation Management Actions (refer to Opt-in Application Appendix D). The Applicant has also prepared mitigation plans as required by the BLM.

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to soils:

- BMP 79, Construction: Construction shall be conducted in stages to limit the areas of exposed soil at any given time. The project will comply with LUPA-BIO-9.
- BMP 80, Construction: Ground-disturbing activities shall be minimized, especially during the rainy season. The project will comply with LUPA-BIO-9.

- BMP 81, Construction: Foundations and trenches shall be backfilled with originally excavated material as much as possible. Excess excavation materials shall be disposed of only in approved areas or, if suitable, stockpiled for use in reclamation activities. The project will comply with LUPA-BIO-7.
- BMP 82, Construction: Water or other stabilizing agents shall be used to wet roads in active construction areas and laydown areas to minimize the windblown erosion of soil. The project will comply with LUPA-BIO-9.
- BMP 83, Disturbance area: The footprint of disturbed areas, including the number and size/length of roads, fences, borrow areas, and laydown and staging areas, shall be minimized. The project will comply with LUPA-BIO-9.
- BMP 84, Disturbance area: Electrical lines from solar collectors shall be buried along existing features (e.g., roads or other paths of disturbance) to minimize the overall area of surface disturbance whenever possible. The project will comply with LUPA-BIO-16.
- BMP 85, Disturbance area: Temporary stabilization of disturbed areas that are not actively under construction shall occur. The project will comply with LUPA-BIO-9.
- BMP 86, Disturbance area: Permanent stabilization of disturbed areas shall occur during final grading and landscaping of the site. The project will comply with LUPA-BIO-9.
- BMP 87, Drainages: Drainage crossings shall be stabilized as quickly as possible, and channel erosion shall be prevented from runoff caused by the project. The project will comply with LUPA-BIO-9.
- BMP 88, Stockpiles: Originally excavated materials shall be stockpiled and used for backfill. The project will comply with LUPA-BIO-7.
- BMP 89, Fill: Borrow materials shall be obtained only from authorized and permitted sites; existing sites shall be used in preference to new sites. The project will comply with LUPA-BIO-7.
- BMP 90, Erosion control: Potential soil erosion shall be controlled at culvert outlets with appropriate structures. The project will comply with LUPA-BIO-9.
- BMP 91, Erosion control: Catch basins, roadway ditches, and culverts shall be cleaned and maintained regularly. The project will comply with LUPA-BIO-9.
- BMP 92, Erosion control: Sediment-laden waters from disturbed, active areas within the project site shall be retained through the use of barriers and sedimentation devices (e.g., berms, straw bales, sandbags, jute netting, or silt fences). The project will comply with LUPA-BIO-9.
- BMP 93, Erosion control: Routine site inspections shall be conducted to assess the effectiveness and maintenance requirements for erosion and sediment control systems. The project will comply with LUPA-BIO-9.
- BMP 94, Operation: All appropriate mitigation measures developed for the construction phase shall be applied to similar activities during the operations phase. The project will comply with LUPA-BIO-5.

- BMP 95, Revegetation: Project areas are to be replanted with vegetation at spaced intervals to the extent possible to break up areas of exposed soil and reduce soil loss by wind erosion. The project will comply with LUPA-BIO-9.
- BMP 96, Reclamation: All areas of disturbed soil shall be reclaimed using weed-free native grasses, forbs, and shrubs. Reclamation activities shall be undertaken as early as possible on disturbed areas. The project will comply with LUPA-BIO-9.
- BMP 97, Reclamation: All mitigation measures developed for the construction phase shall be applied to similar activities during the decommissioning/reclamation phase. The project will comply with LUPA-BIO-5.
- BMP 121, Revegetation: A combination of seeding, planting of nursery stock, and transplanting of local vegetation within the proposed disturbance areas. Where feasible, native vegetation shall be used for revegetating, establishing a composition consistent with the form, line, color, and texture of the surrounding undisturbed landscape. The project will comply with LUPA-BIO-7.
- BMP 122, Mitigation: The full range of visual best management practices shall be considered, and plans shall incorporate all pertinent BMPs. Visual resource monitoring and compliance strategies shall be included as a part of the project mitigation plans to cover the construction, operation and decommissioning phases. The project will comply with LUPA-VPL-VRM-3.
- BMP 123, Reclamation: All areas of disturbed soil shall be reclaimed by using weed-free native grasses, forbs, and shrubs representative of the surrounding and intact native vegetation composition and/or use non-native species, if necessary to ensure successful revegetation. The project will comply with LUPA-BIO-7.
- BMP 124 , Reclamation: Rock and brush debris shall be restored whenever possible to approximate pre-existing visual conditions. The project will comply with LUPA-BIO-7.
- PDF HWQ-1. Drainage Erosion and Sedimentation Control Plan (DESCP).

Conservation Management Actions

The Project would implement the following DRECP CMAs relevant to soils:

- LUPA BIO-7: Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground- disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below:
  - Implement site-specific habitat restoration actions for the areas affected including specifying and using:
    - The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed)

    - Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities)
    - Equipment
    - Timing (e.g., appropriate season, sufficient rainfall)
    - Location
    - Success criteria
    - Monitoring measures
    - Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands.
  - Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site.
  - Restore and reclaim short-term (i.e. 2 years or less, see Glossary of Terms) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.
- LUPA BIO-9: Implement the following general LUPA CMA for water and wetland dependent resources:
  - Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:
    - On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.
    - Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill.
    - Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.
  - Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions,

as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:

- Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.
- Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.
- Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.
- Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.
- Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.
- Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness.
- Project applicants for sites that may affect intermittent and perennial streams, springs, swales, ephemeral washes, wetland vegetation, other DRECP water land covers, or sites occupied by aquatic or riparian Focus and BLM Special Status Species due to groundwater or surface water extraction will conduct hydrologic studies during project planning to determine the potential effect of groundwater and surface water extraction on the hydrologic unit. These studies will include both watershed effects as well as effects on perched, alluvial, and regional aquifers. Projects that are likely to affect ground-water resources in a manner that would result in substantial loss of riparian or wetland communities or habitat for riparian or aquatic Focus and BLM Special Status Species are prohibited.
- The use of evaporation ponds for water management will be avoided when the water could harm birds or other terrestrial wildlife due to constituents of concern present in the wastewater (e.g., selenium, hypersalinity, etc.). Evaporation ponds will be configured to minimize attractiveness to shorebirds (e.g., maintain water depths over two feet; maintain steep slopes along edge; enclose evaporation ponds in long-term structures; or obscure evaporation ponds from view using materials that blend in with the natural surroundings).

– Ramps that allow the egress of wildlife from ponds or other water management infrastructure will be installed.

- LUPA BIO-16: For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity -specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities. Activity-specific measures to avoid and minimize impacts may include, but are not limited to:

- Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers.
- For activities that impact bird and bat Focus and BLM Special Status Species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time.
- Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks.
- Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes.
- When fencing is necessary, use bird and bat compatible design standards.
- Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe- like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen).
- Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses.
- Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring

Mitigation Plans

The Project would implement the following mitigation plans relevant to soils:

- Fugitive Dust Control Plan (Opt-in Application Appendix I.1)
- Restoration and Integrated Weed Management Plan (Opt-in Application Appendix M.5)

12B. Avoidance and Minimization Measures for Plants and Wildlife

As part of the Project, the Applicant is committed to implementing BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Best Management Practices and Project Design Features

The Project would implement the following BMPs and PDFs related to biological resources:

- **BMP-17**
  - **Staging Areas.** As practical, staging and parking areas shall be located within the Project site to minimize habitat disturbance in areas adjacent to the site.
- **BMP-18**
  - **Construction Activities.** Before beginning construction, delineate the boundaries of areas to be disturbed including roads, borings, soil testing sites, and pull and tensioning areas prior to any ground disturbance, and confine disturbances, project vehicles, and equipment to the delineated project areas.
- **BMP-19**
  - **Construction.** To the extent practicable, work personnel shall stay within the ROW and/or easements.
- **BMP-20**
  - **Fugitive Dust.** If the application of water is needed to abate dust in construction areas and on dirt roads, use the least amount needed to meet safety and air quality standards and prevent the formation of puddles, which could attract wildlife to construction sites.
- **BMP-21**
  - **Traffic.** Existing access roads, utility corridors, and other infrastructure shall be used to the maximum extent feasible.
- **BMP-22**
  - **Noise.** Noise reduction devices (e.g., mufflers) shall be employed to minimize the impacts on wildlife and special status species populations. Operators shall ensure that all equipment is adequately muffled and maintained in order to minimize disturbance to wildlife.
- **BMP-23**
  - **Power lines.** Place low and medium voltage connecting power lines underground whenever possible. In certain circumstances, burial of the lines may be prohibitively expensive (for example in shallow bedrock areas) or may cause unacceptable impacts to wetland habitats and dependent species. Overhead lines may be acceptable:
    - if sited away from high bird crossing locations, such as between roosting and feeding areas or between lakes, rivers, and nesting areas; and/or
    - when the structures parallel tree lines or are otherwise screened so that collision risk is reduced.
- **BMP-24**
  - **Habitat.** To reduce the extent of habitat disturbance during construction and operation, existing access roads, utility corridors, and other infrastructure shall

be used to the maximum extent feasible and foot and vehicle traffic through undisturbed areas shall be minimized.

- **BMP-26**
  - **Habitat.** Areas left in a natural condition during construction (e.g., wildlife crossings) shall be maintained in as natural a condition as possible within safety and operational constraints.
- **BMP-27**
  - **Habitat.** All pits and trenches shall contain wildlife escape ramps. All uncovered pipes shall be capped and/or covered at the end of each workday to prevent animals from entering the pipes. If a special status species is discovered inside a component, that component must not be moved or, if necessary, moved only to remove the animal from the path of activity, until the animal has escaped.
- **BMP-28**
  - **Birds.** The Project should establish buffer zones and protection, mitigation, and monitoring plans for active nests detected during surveys.
- **BMP-29**
  - **Special Status Species.** In consultation with permitting agencies, avoid special status species or unique plant assemblages when installing and maintaining transmission line towers/ poles, access roads, pulling sites, and storage and parking areas adjacent to linear facilities.
- **BMP-30**
  - **General Wildlife Protection.** Implement general standards practices to protect federal and state special-status species.
- **BMP-31**
  - **General Wildlife Protection.** Prior to any ground-disturbing activity, seasonally appropriate surveys shall be conducted by qualified biologists to ensure that impor¬tant or sensitive species or habitats are not present in or near project areas. Habitats or locations to be avoided (with appropriately sized buffers) shall be clearly marked.
- **BMP-32**
  - **Vegetation.** Project-specific vegetation management plans shall investigate possibilities of revegetating parts of the Project Area.
- **BMP-33**
  - **Noxious Weeds.** The establishment and spread of invasive species and noxious weeds within the Project Area and loop-in transmission line corridors shall be prevented. The areas shall be monitored regularly, and invasive species should be eradicated immediately.
- **BMP-34**

- **Herbicide Use.** Only herbicides with low toxicity to wildlife and nontarget native plant species shall be used, as determined in consultation with the BLM, BOR, CEC, and USFWS. The typical herbicide application rate shall be used rather than the maximum application rate, where effective. All herbicides shall be applied in a manner consistent with their label requirements and in accordance with guidance provided in the Final PEIS on vegetation treatments using herbicides (BLM 2007c).

- **BMP-35**
  - **Waste.** Construction debris, especially treated wood, shall not be stored or disposed of in areas where it could come in contact with aquatic habitats.
- **BMP-36**
  - **Reclamation.** Access roads shall be reclaimed when they are no longer needed.
- **BMP-37**
  - **Reclamation.** All holes and ruts created by removal of structures and access roads shall be filled or graded.
- **BMP-38**
  - **Reclamation.** While structures are being dismantled, care shall be taken to avoid leaving debris on the ground in areas in which wildlife regularly move.
- **BMP-39**
  - **Reclamation.** The facility fence shall remain in place for several years following decommissioning to help reclamation (e.g., would preclude large mammals and vehicles from disturbing revegetation efforts).
- **PDF BIO-1**
  - **Biological monitoring.** Monitoring to ensure conformance with conditions of approval, including effective protection and avoidance of biological resources, shall be implemented by the Applicant as follows:
  - **Biological Monitoring Team.** During construction and decommissioning, the Applicant shall employ a biological monitoring team to oversee Project activities. Any activity that may impact vegetation, wildlife, and sensitive resources shall be monitored to ensure compliance with all mitigation measures for biological resources. The biological monitoring team shall consist of:
    - Lead Biologist: The Applicant shall assign a Lead Biologist, approved by BLM, BOR, CEC, CDFW, and USFWS as the primary point of contact for the federal, state, and resource agencies regarding biological resources mitigation and compliance.
    - Biological monitors: Biological monitors shall be overseen by the Lead Biologist and shall perform any required surveys, ground disturbance and construction monitoring, wildlife monitoring, inspections, marking sensitive resource buffers, and revegetation monitoring during Project activities.

Biological monitors shall include trained flat-tailed horned lizard and nest monitors (PDF BIO-5).

– The Applicant shall provide the resumes of the proposed Biological Monitoring Team to the BLM, BOR, CEC, CDFW, and USFWS for approval prior to onset of ground-disturbing activities. The Biological Monitoring Team shall have demonstrated expertise with the biological resources within the Project region. The Biological Monitoring Team shall have authority to halt any activities in any area if it is determined that the activity, if continued, would cause an unauthorized adverse impact to biological resources. The duties of the Biological Monitoring Team shall vary during the construction, operation and maintenance, and decommissioning phases, based on the biological monitoring tasks needed for compliance during each phase. An Applicant staff member serving as a compliance manager may perform the duties of the Lead Biologist to ensure compliance with biological mitigation measures, such as performing inspections for entrapped wildlife and fence condition, reporting dead or injured wildlife, and avoiding nesting birds. In general, the duties of the Lead Biologist shall include, but shall not be limited to, the following:
  - Regular, direct communication with representatives of the federal, state, and resource agencies, as appropriate. The Lead Biologist or, during operation and maintenance, the Applicant's compliance manager shall immediately notify the federal, State, and applicable resource agencies in writing of dead or injured special status species or of any non-compliance with biological mitigation measures or permit conditions.
  - Train and supervise biological monitors, including flat-tailed horned lizard monitors, nest monitors, and construction monitors.
  - Conduct or oversee Worker Environmental Awareness Program (WEAP) training.
  - During construction and decommissioning, clearly mark and inspect sensitive biological resource areas in compliance with regulatory terms and conditions.
  - Oversee wildlife clearance surveys, ground disturbance and grading, and biological monitoring and ensure that all biological monitoring is completed properly and on schedule.
  - Conduct or oversee bi-weekly compliance inspections during ground-disturbing activities and communicate any remedial actions needed (e.g., trash, fence, weed maintenance; wildlife mortality) to maintain compliance with mitigation measures.

– **Reporting.** The Lead Biologist or, during operation and maintenance, the Applicant's compliance manager shall report regularly to the BLM, BOR, CEC, CDFW, and USFWS to document the status of compliance with biological mitigation measures.

– **During construction and decommissioning:**

    - Provide weekly verbal or written updates to the BLM, BOR, CEC, CDFW, and USFWS.
    - Prepare and submit monthly and annual compliance reports to include a summary of Project activities that occurred, biological resources surveys and monitoring that were performed, any sensitive or noteworthy species observed, weed infestations removed, and non-compliance issues and remedial actions that were implemented.
  - **During operation and maintenance:**
    - Conduct quarterly compliance inspections and reporting to be submitted to the BLM, BOR, CEC, CDFW, and USFWS to document the condition of fencing, wildlife mortality, and any biological resource issues of note.
- **PDF BIO-2**
  - **Worker Environmental Awareness Program.** The Lead Biologist shall prepare and implement a Worker Environmental Awareness Program (WEAP). The Applicant shall be responsible for ensuring that all workers at the site receive WEAP training prior to beginning work on the Project and throughout construction and operations. The WEAP shall be available in English and Spanish. The Applicant shall submit the WEAP to the lead agency and resource agencies for approval prior to implementation. The WEAP will:
    - Be developed by or in consultation with the Lead Biologist and consist of an on-site or training center presentation with supporting written material and electronic media, including photographs of protected species, available to all participants;
    - Provide an explanation of the function of flagging that designates authorized work areas; specify the prohibition of soil disturbance or vehicle travel outside designated areas;
    - Discuss general safety protocols such as vehicle speed limits, hazardous substance spill prevention and containment measures, and fire prevention and protection measures;
    - Review mitigation and biological permit requirements;
    - Explain the sensitivity of the vegetation and habitat within and adjacent work areas, and proper identification of these resources;
    - Discuss the federal and State Endangered Species Act, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act and the consequences of non-compliance with these acts;
    - Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas and explain the reasons for protecting these resources;
    - Inform participants that no snakes or other reptiles, birds, bats, or any other wildlife shall be harmed or harassed;
    - Place special emphasis on species that may occur on the Project site and/or loop-in transmission lines, including special status plants, flat-tailed horned

lizard, Colorado desert fringe-toed lizard, desert kit fox, and western burrowing owl;
  - Specify guidelines for avoiding rattlesnakes and reporting rattlesnake observations to ensure worker safety and avoid killing or injuring rattlesnakes. Rattlesnakes should be safely removed from the work area using appropriate snake handling equipment, including a secure storage container for transport, or by calling local animal control;
  - Describe workers' responsibilities for avoiding the introduction of invasive weeds onto the Project site and surrounding areas and describe the Integrated Weed Management Plan;
  - Provide contact information for the Lead Biologist and instructions for notification of any vehicle-wildlife collisions or dead or injured wildlife species encountered during Project-related activities;
  - Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

- **PDF BIO-3**
  - **Minimization of Vegetation and Habitat Impacts.** Prior to construction, operation and maintenance, or decommissioning activities, authorized work areas shall be clearly delineated by the contractor. These areas shall include, but not be limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils. Delineation may be implemented with "fencing" or staking to clearly identify the limits of work and will be verified by the Lead Biologist. No paint or permanent discoloring agents shall be applied to rocks or vegetation (to indicate surveyor construction activity limits or for any other purpose). Fencing/staking shall remain in place for the duration of work activities. Spoils shall be stockpiled in disturbed areas. All disturbances, vehicles, and equipment shall be confined to the fenced/flagged areas.

  Construction activities shall minimize soil and vegetation disturbance to minimize impacts to soil and root systems. Upon completion of construction activities in any given area, all unused materials, equipment, staking and flagging, and refuse shall be removed and properly disposed of, including wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, and metal or plastic containers. Any unused or leftover hazardous products shall be properly disposed of off site.

  Hazardous materials shall be handled and spills or leaks promptly corrected and cleaned up according to applicable requirements. Vehicles shall be properly maintained to prevent spills or leaks. Hazardous materials, including motor oil, fuel, antifreeze, hydraulic fluid, grease, shall not be allowed to enter drainage channels.
  - **Low-impact site preparation.** Native vegetation shall be allowed to recover from rootstocks and seed bank wherever facilities do not require permanent

vegetation removal (e.g., access roads, foundations, paved areas, fire clearance requirements) within the perimeter fenceline of the Project solar site and under solar arrays. Vegetation height and density shall be managed as needed for operation and maintenance and fire safety, but vegetation management shall otherwise focus on maintaining habitat and soil conditions.

- **PDF BIO-4**
  - **Integrated Weed Management Plan.** The Applicant shall prepare and implement an Integrated Weed Management Plan (IWMP) to minimize or prevent invasive weeds from infesting the site or spreading into surrounding habitat. The IWMP must comply with existing BLM plans and permits, including the Vegetation Treatments Using Herbicides and Vegetation Treatment Using Aminopyralid, Fluroxypyr, and Rimsulfuron PEISs (BLM 2007; 2016a), including requiring a Pesticide Use Permit approved by the BLM and BOR. The IWMP shall identify weed species occurring or potentially occurring in the Project area, means to prevent their introduction or spread (e.g., vehicle cleaning and inspections), monitoring methods to identify infestations, and timely implementation of manual or chemical (as appropriate) suppression and containment measures to control or eradicate invasive weeds. The IWMP shall identify herbicides that may be used for control or eradication, and avoid herbicide use in or around any environmentally sensitive areas. The IWMP shall also include a reporting schedule, to be implemented by the Lead Biologist.
- **PDF BIO-5**
  - **Wildlife protection.** The Applicant shall undertake the following measures during construction, operation and maintenance, and decommissioning to avoid or minimize impacts to wildlife. Implementation of all measures shall be subject to review and approval by BLM, BOR, CEC, CDFW, and USFWS.
    - Wildlife avoidance. Project activities shall minimize interference with wildlife (including ground-dwelling species, birds, bats) by allowing animals to escape from a work site prior to disturbance; conducting pre-construction surveys and exclusion measures for certain species as specified in other measures; checking existing structures (e.g., homes, trailers) for animals such as bats, barn owls, skunks, or snakes that may be present, and safely excluding them prior to removing the structures.
    - Minimize traffic impacts. The Applicant shall specify and enforce maximum vehicle speed limits as specified in the Traffic Control Plan to minimize risk of wildlife collisions and fugitive dust.
    - Minimize lighting impacts. Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light towards surrounding fish or wildlife habitat.

- Avoid use of toxic substances. Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be non-toxic to wildlife and plants.
- Minimize noise and vibration impacts. The Applicant shall conform to noise requirements specified in the noise analysis of the NEPA and CEQA reviews to minimize noise to off-site habitat.
- Water. Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering. Prevention methods may include storing water within closed tanks or covering open tanks with 2-centimeter netting. Dust abatement shall use the minimum amount of water on dirt roads and construction areas to meet safety and air quality standards. Water sources (e.g., hydrants, tanks) shall be checked periodically by biological monitors to ensure they do not create puddles.
- Trash. All trash and food-related waste shall be contained in vehicles or covered trash containers inaccessible to ravens, coyotes, or other wildlife and removed from the site regularly.
- Workers. Workers shall not feed wildlife or bring pets to the Project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
- Wildlife netting or exclusion fencing. The Applicant may install temporary or permanent netting or fencing around equipment, work areas, or Project facilities to prevent wildlife exposure to hazards such as toxic materials or vehicle strikes or prevent birds from nesting on equipment or facilities. Bird deterrent netting shall be maintained free of holes and shall be deployed and secured on the equipment in a manner that, insofar as possible, prevents wildlife from becoming trapped inside the netted area or within the excess netting. The biological monitor shall inspect netting (if installed) twice daily, at the beginning and close of each workday. The biological monitor will inspect exclusion fence (if installed) weekly.
- Wildlife entrapment. Project-related excavations and water tanks shall be secured or covered to prevent wildlife entry, entrapment, and drowning. Holes and trenches shall be backfilled, securely covered, or fenced. Open water tanks shall be covered or shall have other means of exit provided to prevent wildlife from drowning. Excavations that cannot be fully secured shall incorporate wildlife ramp or other means to allow trapped animals to escape. At the end of each workday, a biological monitor shall ensure that excavations and water tanks have been secured or provided with appropriate means for wildlife escape.
- All pipes or other construction materials or supplies shall be covered or capped in storage or laydown areas. Netting shall be installed over porta-potty vents. No pipes or tubing shall be left open either temporarily or permanently except during active use or installation. Any construction pipe,

culvert, or other hollow materials shall be inspected for wildlife before it is moved, buried, or capped.

- Dead or injured wildlife shall be reported to USFWS (for federally listed species and migratory birds) and CDFW (for all wildlife) and/or the local animal control agency, as appropriate, by the Lead Biologist (or the Applicant's compliance manager during operation and maintenance). A biological monitor shall safely move the carcass out of the road or work area if needed and dispose of the animal as directed by the agency. If an animal is entrapped, a biological monitor shall free the animal if feasible, work with construction crews to free it in compliance with safety requirements, or work with animal control or CDFW to resolve the situation.
- Pest control. No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the Project site, on off-site Project components, or in support of any other Project activities.

- **PDF BIO-6**
  - **Bird and Bat Conservation Strategy (BBCS).** The Applicant will implement the final BBCS, developed in accordance with guidelines recommended by the USFWS, to avoid or minimize take of migratory birds that may nest on the site or may be vulnerable to collision with Project components. The BCS describes the proposed Project components, summarizes baseline data regarding birds and bats in the Project vicinity, assesses potential risks to those species that could result from Project construction, operation and maintenance and decommissioning, and describes conservation measures to be implemented in order to minimize those risks.

  Over the course of construction and operation and maintenance, fatality thresholds and future conservation measures may be subject to revision in coordination with USFWS and CDFW as new information is obtained. The BBCS outlines an adaptive management process to address such revisions to monitoring.

  Construction. As an Appendix to the BBCS, the Applicant will prepare and implement a Nesting Bird Management Plan (NBMP), to include nest surveys, avoidance, and protection. The Project will either avoid vegetation clearing during the nesting season or conduct pre-construction nest surveys of potential habitat and implement no-disturbance buffer areas around active nests. Pre-construction surveys for active nests will be conducted by one or more biological monitors at the direction of the Lead Biologist. The biologists' qualifications will be subject to review and approval by USFWS, CDFW, BLM, BOR, and CEC. Nest surveys will be conducted for all Project activities throughout the nesting season, identified here as beginning January 1 for raptors and hummingbirds and February 1 for other species and continuing through August 15. Nest surveys will be completed at each work site no more than 7 days prior to initiation of site preparation or construction activities. Nest surveys will cover all work sites, including the Project solar site and loop-in transmission lines, and surrounding buffer areas of 1,200 feet for raptors and 250 feet for other species. If adjacent properties are not accessible to the biological monitors, the off-site nest surveys may be conducted with binoculars. At each active nest, the biological monitor will establish and mark a buffer area surrounding the nest where construction activities that could disrupt nesting behavior will be excluded. The BBCS may identify species-specific buffer distances or variable distances, depending on activity levels (e.g., driving past the nest to access work sites may be less disruptive than foundation construction). Alternately, buffer distances will be 1,200 feet for raptor nests and 250 feet for other species. The extent of nest protection will be based on proposed construction activities, species, human activities already underway when the nest is initiated (e.g., a house finch nest built in the eaves of an occupied structure would warrant less avoidance or protection than a loggerhead shrike nest build in native shrubland), topography, vegetation cover, and other factors. The avoidance and protection measures will remain in effect until the nest is no longer active.

If for any reason a bird nest must be removed during the nesting season, the Applicant or its agent will notify the CDFW and USFWS and retain written documentation of the correspondence. Nests will be removed only if they are inactive or if an active nest presents a hazard.

Operation and maintenance. The BBCS specifies monitoring and conservation measures to be implemented by the Applicant to document bird mortality or injury that may result from the operation of the Project, such as downed exhausted birds on the site that are unable to take flight or collision with Project components including loop-in transmission and gen-tie line collisions. The BBCS includes conservation measures and an adaptive management framework to be implemented through design and operations to minimize bird and bat fatalities at the Project solar site and loop-in transmission and gen-tie lines. Provisions for a potential O&M monitoring and reporting program for bird and bat fatalities are included based on monitoring at other active projects in the vicinity.

- **PDF BIO-7**
  - **Loop-in transmission and gen-tie lines.** Loop-in transmission and gen-tie line support structures and other associated structures shall be designed in compliance with current standards and practices to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices). Mechanisms to visually warn birds (permanent markers or bird flight diverters) shall be placed on loop-in transmission and gen-tie lines at regular intervals to prevent birds from colliding with the lines (APLIC 2006; 2012) (APLIC, 2006, 2012). To the extent practicable, the use of guy wires shall be

avoided because they pose a collision hazard for birds and bats. Necessary guy wires shall be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires shall be marked with devices that have been scientifically tested and found to significantly reduce the potential for bird collisions. Loop-in transmission and gen-tie lines shall maintain sufficient distance between all conductors and grounded components to prevent potential for electrocution of the largest birds that may occur in the area (e.g., golden eagle, turkey vulture). They shall utilize non-specular conductors and non-reflective coatings on insulators.

- **PDF BIO-8**
  - **Streambed and watershed protection.** Prior to construction activities in jurisdictional waters of the State, the Applicant will obtain a Lake and Streambed Alteration Agreement (LSAA) from the CDFW. A Stormwater Pollution Prevention Plan (SWPPP) or SWPPP-equivalent document may also be required and shall be prepared by a qualified engineer or qualified individual and shall be implemented before and during construction. The SWPPP shall include BMPs for stormwater runoff quality control measures, management for concrete waste, stormwater detention, watering for dust control, and construction of perimeter sediment controls, as needed.

  The Applicant will implement BMPs identified below to minimize adverse impacts to streambeds and watersheds.
    - Vehicles and equipment will not be operated in ponded or flowing water except as specified by resource agencies.
    - The Applicant will minimize road building, construction activities, and vegetation clearing within ephemeral drainages.
    - The Applicant will prevent water containing mud, silt, or other pollutants from grading or other activities from entering ephemeral drainages or being placed in locations that may be subjected to high storm flows.
    - Spoil sites will not be located within 30 feet from the boundaries of drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
    - Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, unapproved herbicides, or any other substances that could be hazardous to vegetation or wildlife resources resulting from Project-related activities will be prevented from contaminating the soil and/or entering ephemeral drainages. The Applicant shall ensure that safety precautions specified by this measure, as well as all other safety requirements of other measures and permit conditions, are followed during all phases of the Project.
    - When operations are completed, any excess materials or debris will be removed from the work area. No rubbish will be deposited within 150 feet of

the high-water mark of any drainage during construction, operation and maintenance, and decommissioning the Project.

- No equipment maintenance will occur within 150 feet of any qualifying jurisdictional waterway (waterway to be avoided during construction). No petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site state jurisdictional waters under any flow.
- With the exception of the drainage control system installed for the Project, the installation of bridges, culverts, or other structures will be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts will be placed at or below stream channel grade.
- No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or other organic or earthen material from any construction or associated activity of whatever nature will be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, off-site State jurisdictional waters.
- Stationary equipment such as motors, pumps, generators, and welders located within or adjacent to a drainage will be positioned over drip pans. Stationary heavy equipment will have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as brooms, absorbent pads, and skimmers will be on site prior to the start of construction.
- The cleanup of all spills will begin immediately. BLM, BOR, CEC, and CDFW will be notified immediately by the Applicant of any spills and will be consulted regarding clean-up procedures if these spills occurred in a qualifying jurisdictional waterway.

CMAs

The Desert Renewable Energy Conservation Plan (DRECP) requires Conservation Management Actions (CMAs) for renewable energy projects. The following CMAs apply to biological resources:

- LUPA-BIO-PLANT-1: Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species.
- LUPA-BIO-PLANT-2: Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species.
- LUPA-BIO-SVF-1: For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cactus, yuccas, and succulents shall be followed.

- LUPA-BIO-SVF-6: Microphyll woodland: impacts to microphyll woodland will be avoided, except for minor incursions.
- LUPA-BIO-VEG-1: Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.
- LUPA-BIO-VEG-2: Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.
- LUPA-BIO-IFS-10: Comply with the conservation goals and objectives, criteria, and management planning actions identified in the most recent revision of the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS). Activities will include appropriate design features using the most current information from the RMS and RMS Interagency Coordinating Committee to minimize adverse impacts during siting, design, pre-construction, construction, operation, and decommissioning; ensure that current or potential linkages and habitat quality are maintained; reduce mortality; minimize other adverse impacts during operation; and ensure that activities have a neutral or positive effect on the species.
- LUPA-BIO-IFS-12: If burrowing owls are present, a designated biologist will conduct appropriate activity-specific biological monitoring to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.
- LUPA-BIO-IFS-13: If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.
- LUPA-BIO-IFS-14: Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.
- LUPA-BIO-COMP-1: Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.
- LUPA-BIO-COMP-2: Birds and Bats – The compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed

every 5 years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same "bird years" metric as described in Appendix D) is used to estimate the necessary compensation fee.

- LUPA-BIO-1: Conduct a habitat assessment of Focus and BLM Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat for Focus and BLM Special Status Species. If required by the relevant species specific CMAs, conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.
- LUPA-BIO-2: Designated biologist(s), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.
- LUPA-BIO-3: Resource setbacks have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA.
- LUPA-BIO-4: For activities that may impact Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre- construction, construction, operations, and decommissioning activities.
- LUPA-BIO-5: All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site.

- LUPA-BIO-6: Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites.
- LUPA-BIO-14: Implement general standard practices outlined in the DRECP to protect Focus and BLM Special Status Species.
- LUPA-BIO-15: Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.
- LUPA-BIO-16: For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity -specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities.
- LUPA-BIO-17: For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy (BBCS) will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions.
- LUPA-BIO-RIPWET-1: The riparian and wetland DRECP vegetation types and other features listed in Table 17 will be avoided to the maximum extent practicable, except for allowable minor incursions with the specified setbacks.
- LUPA-BIO-RIPWET-3: For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland birds species, conduct a pre-construction/activity nesting bird survey for BLM Special Status riparian and wetland birds according to agency-approved protocols.
- LUPA-DFA-VPL-BIO-COMP-1: Impacts to biological resources from all activities in DFAs and VPLs will be compensated using the same ratios and strategies as LUPA-BIO-COMP-2 through 4, with the exception identified in DFA-BPL-BIO-COMP-2.

Mitigation Plans

The Project would implement the following mitigation plans relevant to biological resources:

- Bird and Bat Conservation Strategy (Appendix M.1)
- Nesting Bird Management Plan (Appendix M.2)
- Raven Management Plan (Appendix M.3)

ATTACHMENT A – SUPPLEMENTAL PAGES

- Wildlife Protection and Translocation Plan (Appendix M.4)
- Restoration and Integrated Weed Management Plan (Appendix M.5)
- Decommissioning and Revegetation Plan (Appendix M.6)

Attachment A.2 Updated WDR Application

Application: Discharges of Dredged or Fill Material to Waters of the State

The State Water Resource Control Board (State Board) or Regional Water Quality Control Boards (collectively, Water Boards) have the authority to regulate the discharge of dredged or fill material under section 401 of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act (Porter-Cologne). Dischargers that obtain a federal permit or license that authorizes impacts to waters of the U.S. (i.e., waters that are within federal jurisdiction), such as section 404 of the CWA and section 10 of the Safe Rivers and Harbors Act, must obtain certification from the Water Boards to ensure that the discharge does not violate state water quality standards or any other appropriate requirement of State law. When a discharge is proposed to waters outside of federal jurisdiction, the Water Boards regulate the discharge under Porter-Cologne through the issuance of Waste Discharge Requirements (WDRs). CWA section 401 Water Quality Certifications, WDRs, and waivers of WDRs are referred to as orders or permits.

The State Wetland Definition and Procedures for the Regulation of Discharges of Dredged or Fill Material to Waters of the State (Procedures) and the California Code of Regulations, title 23, section 3856 identify items that are required for a complete application in all cases. Additionally, the Procedures identify items that may be required for a complete application on a case-by-case or conditional basis. The State Water Board webpage links to the Procedures (https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/procedures_conformed.pdf).

Water Board staff will review an application within 30 days of receipt and provide a completeness determination to the applicant. A completeness determination may include a request for additional information for a complete application. Application fees must be paid before an application is determined complete. See Application Section Thirteen for options on how to make a payment.

For more information on how applications will be processed, refer to the Implementation Guidance for the Procedures (https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/dredge_fill/revised_guidance.pdf).

This application form outlines a broad range of items that may be required; however, as noted above, not all items are required in all cases. Use of this form is not required. Applicants may submit information that was submitted for a different federal or state permit to reduce duplicative submittals. In such cases, applicants should use the text boxes in this form to indicate the name, relevant section, and page number where relevant information is located. Finally, the level of detail submitted with this application should be commensurate with the size and the scope of the proposed discharge.

Applicants are encouraged to contact the appropriate Water Board to discuss the applicability of this application form, items required for a complete application, and/or the appropriate level of detail needed to obtain authorizations.

Applications for projects that cross regional board boundaries should be submitted to the State Board. All other applications should be submitted to the appropriate regional water quality control board.

A staff directory for the Water Board's Water Quality Certification Program is located on the program webpage (https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wqc_staffdir.pdf).

STOP: If you answer 'yes' to any of the following questions, do not complete this application. Instead, please contact the State Water Board's Division of Water Rights to obtain a copy of their water quality certification application:

- Does the project require a Federal Energy Regulatory Commission (FERC) license or amendment to a FERC license? **Yes** ☐ **No** ☒
- Does this project involve an appropriation of water? **Yes** ☐ **No** ☒
- Does this project involve a diversion of water for domestic, irrigation, power, municipal, industrial, or other beneficial use? **Yes** ☐ **No** ☒

Screening Criteria:

Check the box next to the category(ies) that applies to your project. Check all that apply.

Your project:

☐ Requires an individual permit (standard or letter of permission) from the U.S. Army Corps of Engineers.

☐ Requires preparation of an Environmental Impact Statement under NEPA.

☐ Requires preparation of an Initial Study and Negative Declaration or Mitigated Negative Declaration under CEQA and it is not yet complete, or the Water Board will be lead agency for the Initial Study.

☒ Requires preparation of an Environmental Impact Report (EIR) under CEQA and it is not yet complete.

☐ Permanently impacts 1.0 or more acres of waters of the U.S.

☐ Discharges into a water body of special designation, including designated critical resource waters and wetlands adjacent to such waters, Outstanding National Resource Waters (Lake Tahoe, Mono Lake), or State Water Board designated Areas of Special Biological Significance (ASBS).

☐ Discharges into a water body that provides habitat for state listed rare, threatened, or endangered species.

☐ Requires completion of a Tier 3 alternatives analysis per the Dredge or Fill Procedures (section IV.A.2.h).

☐ Involves new (not maintenance) dredging or deepening of a navigation channel or dredging and disposal of contaminated sediments.

Section One: Contact Information

Review **Section Twelve** Legally Responsible Person (LRP) eligibility and signature requirements before completing this application.

Applicant (Organization and Legally Responsible Person) Information:

Organization Name:	IP Perkins, LLC
LRP Name:	Simon Ross
Title:	Chief Commercial Officer
Street Address:	9450 Southwest Gemini Drive, PMB #68743
City:	Beaverton
State:	Oregon

County:	Washington
Zip Code:	97008
Telephone:	(415) 971-0130
Email:	simon@intersectpower.com

The LRP may assign a Duly Authorized Representative (DAR) to make decisions on their behalf and provide application information. If a DAR is assigned to this project, provide the assigned person's contact information below and assign the DAR in Section Twelve.

Duly Authorized Representative Information (Optional):

Organization Name:	IP Perkins, LLC
DAR Name:	Camille Wasinger
Title:	Sr Director
Street Address:	9450 Southwest Gemini Drive, PMB #68743
City:	Beaverton
State:	OR
County:	Washington
Zip Code:	97008
Telephone:	(303) 909-6396
Email:	camille@intersectpower.com

Section Two: Project Information

Project Name or Title: *Project Name should match all other agency permits and correspondence.*

Perkins Renewable Energy Project

Project Street Address: *Provide the project's physical location, not the mailing address.*
State Route 98, 3.32 miles east of Holdridge Road.

City:	
State:	California
County:	Imperial County
Zip Code:	
Latitude:	See Attachment A
Longitude:	See Attachment A
Assessor's Parcel Number(s):	056-170-022, 056-170-015, 056-170-025
Section, Township, Range:	S33 16S 17E, S28 16S 17E, S34 16S 17E

Directions to the Project Site:

From Colorado Regional Water Quality Control Board office, follow Fred Waring Drive East to Washington Street, turn left on Washington Street and take Washington Street north to the I-10 freeway E. Follow the I-10 East for approximately 7 miles to the 86 South. Continue on 86 South towards Brawley/El Centro for 66.6 miles to the I-8 East. Take I-8 East for 22 miles to Exit 143 for CA-98 West. Exit at CA-98W. The Project is located north of CA 98W approximately 3 miles from the exit.

Project Purpose and Overall Goal of Entire Activity:

- Deliver 1,150 MW of clean, renewable solar energy to California ratepayers.
- Install 1,150 MW of 2-hour and/or 4-hour energy storage capacity, which would generally be charged by the solar PV facility and dispatched in the late afternoon evening, once the sun goes down and solar production declines. This would help to alleviate the disparity in electricity demand and the amount of available solar energy throughout the day (known as the "duck curve" power production problem).
- Assist with achieving California's renewable energy generation goals under the Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350) and the 100 Percent Clean Energy Act of 2018 (Senate Bill 100), as well as greenhouse gas (GHG) emissions reduction goals of the California Global Warming Solutions Act of 2006 (AB 32), as amended by Senate Bill 32 in 2016;
- Minimize environmental impacts and land disturbance associated with solar energy development by siting the facility on relatively flat, contiguous lands with high solar insolation in close proximity to established utility corridors, existing transmission lines with available capacity to facilitate interconnection, and road access.
- Bring living wage jobs to Imperial County
- Bring sales tax revenues to Imperial County by establishing a point of sale in the County for the procurement of most major Project services and equipment.

Project Description: *Provide a full, technically accurate description of the entire project.*

Please see attached project description.

Project Size: Total size of the entire project area for all work/activities/construction that will be performed to meet the final goal: 6,064 **acres**

Is this a linear project (for example a powerline, pipeline, highway, etc.)? Yes ☐ No ☒

If yes, indicate length of project from end-to-end in feet:______ feet

Anticipated Project Start and End Dates: ______________________________

Construction Start Date: January 2026

Construction End Date: December 2027

Estimated Construction Duration: 24 **months**

Will any ground disturbance take place during the wet season months? **Yes** ☒ **No** ☐

Additional Information: *Additional information may include documentation relevant to pre-application consultations which may help inform application processing.*

Map Requirements:

In addition to responding to the questions above, provide a project map with a scale of at least 1:24000 (1" = 2000') and of sufficient detail to show:

- The boundaries of the lands owned or to be utilized by the applicant in carrying out the proposed activity, including grading limits, proposed land uses, and the location, dimensions and type of any structures erected (if known) or to be erected.
- All aquatic resources that may qualify as waters of the state, within the boundaries of a project, and all aquatic resources that may qualify as waters of the state outside of the boundary of the project that could be impacted by the project.

A map verified by the Corps may satisfy this requirement if it includes all potential waters of the state.

Note that a map in electronic format (e.g., GIS shapefiles) may be required.

Section Three: Agency Contact Information

Attach copies of any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents or submitted application, if not finalized) associated with construction, operation, maintenance, or other actions relevant to the project. If a draft or final document is not available, a list of all remaining agency regulatory approvals being sought should be included. (CCR § 3856 (e).)

Federal Permit(s) or Completed Federal Applications

U.S. Army Corps of Engineers:

☒ Not Applicable

District: ☐ Los Angeles ☐ Sacramento ☐ San Francisco

☐ Individual Permit

☐ Letter of Permission

☐ Which Nationwide Permit Number has been applied for, if any? _______

For Nationwide Permits, select one of the following: ☐ Non-Reporting, or ☐ Reporting

☐ Corps File No.: _____________

☐ Regional General Permit / Number: _____________

☐ Other Permit Name: ___________________________

Corps Contact Information:

Name: ___________________________

Telephone: ___________________________

Email: ____________________________

U.S. Fish and Wildlife Service:

☒ N/A ☐ Biological Opinion ☐ Biological Assessment ☐ Incidental Take Permit

Contact Information:

Name: ____________________________

Telephone: ____________________________

Email: ____________________________

National Marine Fisheries Service:

☒ N/A ☐ Biological Assessment ☐ Biological Opinion

Contact Information:

Name: ____________________________

Telephone: ____________________________

Email: ____________________________

State Permit(s) or Completed State Application(s)

List permits for activities related to waters whether applied for or approved, e.g., California Department of Fish and Wildlife (CDFW) Lake or Streambed Alteration Agreement (Fish and Game Code sections 1600-1608), CESA section 2081 Incidental Take Permit, Construction Stormwater Enrollment, Coastal Development Permit, etc.

State or Local Permit Number	File Date	Tracking Number
CDFW Lake and Streambed Alteration Agreement (Fish and Game Code section 1600)	February 9, 2024	
CDFW Incidental Take Permit (Fish and Game Code section 2081)	March 2025	
CDFW Consistency Determination (Fish and Game Code section 2080)		
State Water Board Construction Stormwater General Permit Enrollment	Expected Jan 2026	
California Coastal Commission (Development Permit)		
California Coastal Commission (Consistency Determination)		
Bay Conservation and Development Commission (Development Permit)		
Bay Conservation and Development Commission (Consistency Determination)		

Central Valley Flood Protection Board		
Other: California Energy Commission Application for Certification	February 9, 2024	

State or Local Agency Contact Information: *Provide additional contacts, as needed:*

Agency Name:	California Energy Commission
Contact Name:	Eric Knight
Telephone:	(916) 591-9931
Email:	Eric.Knight@energy.ca.gov

Agency Name:	
Contact Name:	
Telephone:	
Email:	

Section Four: Special Status Species

If known, provide information about the presence of species identified as rare, threatened, or endangered under state or federal law. Attach all biological assessments, surveys, formal consultation determination letters, and mitigation proposals, as applicable.

Are you aware of any rare, threatened, or endangered species at this site? Yes ☒ No ☐

Species Habitat and/or Name	Biological Assessment Prepared?	Survey Conducted? (Yes/No)	Dates Survey Conducted
Sonoran creosote bush scrub	**Yes** ☐ **No** ☒	**Yes** ☒ **No** ☐	Refer to Appendix A of Batch 3 Data Responses
Alkali goldenbush desert scrub	**Yes** ☐ **No** ☒	**Yes** ☒ **No** ☐	Refer to Appendix A of Batch 3 Data Responses
	Yes ☐ **No** ☐	**Yes** ☐ **No** ☐	

Was the project planned in accordance with an approved Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP)? Yes ☐ **No** ☒

If yes, list the HCP or NCCP name: ______________________________

Section Five: California Environmental Quality Act and/or National Environmental Policy Act Compliance

Unless an exemption applies, the Water Boards must comply with the California Environmental Quality Act (CEQA). Although not required for a complete application, final CEQA documentation must be provided to the Water Board with ample time to properly review before an Order may be issued. (CCR § 3856 (f).)

The Water Boards will determine whether a project qualifies for a CEQA exemption during review of the project information. Identify below if applicable the relevant categorical or statutory exemption number you believe applies.

If you do not know whether a CEQA exemption applies to the proposed project, submit the application with as much information as possible.

Document Type	Status (In Preparation, Complete, or Under Revision)	Date Completed or Expected Completion Date	Lead Agency
Scoping Document	To be prepared		California Energy Commission
Initial Study			
Negative Declaration			
Notice of Preparation			
Mitigated Negative Declaration			
Environmental Impact Report	To be prepared		California Energy Commission
Environmental Document			

Does the project meet a statutory or categorical CEQA exemption?

No ☒

Yes, proposed statutory exemption number: ______________________________

Yes, proposed categorical exemption number: ______________________________

Section Six: Aquatic Resource Information

Attach any aquatic resource delineation reports and maps for all aquatic resources that may qualify as waters of the state, including those outside of federal jurisdiction. Water Board staff will verify the presence or absence of waters of the state outside of federal jurisdiction during the application review process. (CCR § 3856 (h)(7).) The Water Boards may require supplemental field data from the wet season to substantiate dry season delineations (Procedures section IV.A.2.a).

Aquatic Resource Delineation Report Information:

Was an aquatic resource delineation report prepared?	**Yes** ☒ **No** ☐
Report Title:	Aquatics Resources Report and Aquatics Resources Report Addendum
Delineation Date(s):	January 2024, updated July 2024 and November 2024
Name of Person who Prepared the Report:	
Title of Person who Prepared the Report:	
Organization/Company who Prepared the Report:	Ironwood Consulting
Was the report verified by the U.S. Army Corps of Engineers? If yes, enter verification date and submit a copy of the verification with this application:	**Yes** ☒ **No** ☐ Date: 10/28/24 site visit
Are there waters outside of federal jurisdiction?	**Yes** ☒ **No** ☐

Receiving waters and groundwater potentially impacted by any project are protected in accordance with the applicable water quality control plans (https://www.waterboards.ca.gov/plans_policies/#plans) (Basin Plans) for the regions and other plans and policies (http://www.waterboards.ca.gov/plans_policies). If known, list impacted hydrologic unit(s) in the impacted Regional Water Quality Control Board's Basin Plan. The Basin Plans include water quality standards, which consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal antidegradation policies.

The Lahontan Regional Water Quality Control Board prohibits discharge to lands within the Walker, Carson, Lake Tahoe, Little Truckee, and Truckee River Hydrologic Basins unless specific prohibition exemption criteria are met. For projects in this region, in addition to this application, complete the applicable prohibition criteria form for projects discharging to the Lake Tahoe Hydrologic Basin (https://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/docs/att3.doc) or the Little Truckee or Truckee River (https://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/docs/att4.doc) Hydrologic Basins.

Hydrologic Information:

Was the project developed in accordance with a watershed plan? Yes ☐ **No** ☒
If yes, what is the name of the watershed plan name? Attach the plan, or a link to the plan, if feasible:

How many waterbodies would be impacted by the project activity? 12

If the project impacts more than one waterbody, attach the information below for each impacted waterbody; an excel spreadsheet or table may be used for projects with multiple impact sites.

(see Attachment A)

Does the impacted waterbody have a name? Yes ☐ **No** ☒

Name of the impacted waterbody; if unnamed, name of the nearest downstream named waterbody:

Alamo River, which drains to Salton Sea

Basin plan hydrologic unit(s), and if included in a basin plan, the hydrologic area and hydrologic subarea, if known:

Salton Sea Transboundary Watershed (USGS Hydrologic Unit 18100200)

Does the project discharge to a waterbody listed as impaired on the Clean Water Act 303(d) list? Yes ☐ **No** ☒

Does the project discharge to a waterbody with a total maximum daily load (TMDL)? Yes ☐ **No** ☒

Section Seven: Impact Quantities and Classification

List temporary and permanent **fill/excavation** impacts to waters of the state according to the aquatic resource type in the tables below. Round acres to at least the hundredth place (0.01); round cubic yards and linear feet to the nearest whole number.

Fill/Excavation Temporary Impacts

Lake/Reservoir

Acres	0
Cubic Yards	0
Linear Feet	0

Stream Channel

Acres	0
Cubic Yards	0
Linear Feet	0

Ocean/Bay/Estuary

Acres	0
Cubic Yards	0
Linear Feet	0

Vernal Pool

Acres	0
Cubic Yards	0
Linear Feet	0

Riparian Zone

Acres	0
Cubic Yards	0
Linear Feet	0

Wetland

Acres	0
Cubic Yards	0
Linear Feet	0

Classification System Name (if known):	N/A
Classification(s):	N/A

Fill/Excavation Permanent Impacts

Lake/Reservoir

Acres	0
Cubic Yards	0
Linear Feet	0

Stream Channel

Acres	0.38
Cubic Yards	3,758
Linear Feet	7,535

Ocean/Bay/Estuary

Acres	0
Cubic Yards	0
Linear Feet	0

Vernal Pool

Acres	0
Cubic Yards	0
Linear Feet	0

Riparian Zone

Acres	0
Cubic Yards	0
Linear Feet	0

Wetland

Acres	0
Cubic Yards	0
Linear Feet	0

Classification System Name (if known):	Cowardin
Classification(s):	Riverine ephemeral (R6)

List temporary and permanent **dredge/extraction** impacts to waters of the state according to the aquatic resource type in the tables below. Round acres to at least the hundredth place (0.01); round cubic yards and linear feet to the nearest whole number**.**

Dredge/Extraction Temporary Impacts

Lake/Reservoir

Acres	0
Cubic Yards	0
Linear Feet	0

Stream Channel

Acres	0
Cubic Yards	0
Linear Feet	0

Ocean/Bay/Estuary

Acres	0
Cubic Yards	0
Linear Feet	0

Vernal Pool

Acres	0
Cubic Yards	0
Linear Feet	0

Riparian Zone

Acres	0
Cubic Yards	0
Linear Feet	0

Wetland

Acres	0
Cubic Yards	0
Linear Feet	0

Classification System Name (if known):	
Classification(s):	

Dredge/Extraction Permanent Impacts

Lake/Reservoir

Acres	0
Cubic Yards	0
Linear Feet	0

Stream Channel

Acres	0
Cubic Yards	0
Linear Feet	0

Ocean/Bay/Estuary

Acres	0
Cubic Yards	0
Linear Feet	0

Vernal Pool

Acres	0
Cubic Yards	0
Linear Feet	0

Riparian Zone

Acres	0
Cubic Yards	0
Linear Feet	0

Wetland

Acres	0
Cubic Yards	0
Linear Feet	0

Classification System Name (if known):	
Classification(s):	

Additional Direct and Indirect Impact Information

Direct Impact Description: *Describe the nature and extent of temporary and permanent impacts to waters of the state. Attach map(s) that clearly depict the anticipated area of direct impact.*

See Attachment A.

Indirect Impact Description: *Indirect impacts could be those that are reasonably foreseeable outside of the direct impact area, or that occur later in time, that may have an adverse effect on water quality. Examples of indirect impacts could include fluctuating or disturbed water levels, climate change adaptation, and disturbed habitat connectivity corridors.*

Describe potential impacts to water quality from the project discharge. For example, describe increased turbidity, settleable matter, or other pollutants that may affect beneficial uses associated with the proposed project area. Attach map(s) that clearly depict the anticipated area of indirect impact, as feasible.

See Attachment A.

Cumulative Impacts: *Provide a brief list/description, including estimated adverse impacts, of any projects implemented by the applicant within the last five years or planned for implementation by the applicant within the next five years that are in any way related to the proposed activity or that may impact the same receiving water body(ies) as the proposed activity. For purposes of this item, the water body extends to a named source or stream segment identified in the relevant Basin Plan. (CCR § 3856(h)(8).)*

See attachment A.

Depending on the quantity of new or replaced impervious surface area resulting from the project, a post-construction stormwater control plan and/or an operations and maintenance plan may be required to mitigate potential post-construction stormwater impacts. The plan may include drainage maps, detailed designs for Low Impact Development or other post-construction stormwater treatment and control measures, and design calculations. Contact Water Board staff for specific criteria.

Does the proposed project create or replace impervious surface? Yes ☒ No ☐

If yes, provide the total impervious surface area created or replaced in square feet:4,792,000

Section Eight: Avoidance and Minimization Measures

Applicants must describe actions that have been taken (or will be taken) to avoid and minimize impacts to waters of the state (Procedures section IV.B.a.). Unless an exemption applies, an applicant must submit an alternatives analysis to demonstrate that the proposed project is the least environmentally damaging practicable alternative (LEDPA; Procedures section IV.A.1.h. and IV.B.). In cases where the Corps requires an alternatives analysis, the Water Boards will defer to the Corps' determination except in certain circumstances. For guidance on how to prepare an alternatives analysis or to determine if an exemption may apply, reference the Procedures Implementation Guidance (https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/dredge_fill/revised_guidance.pdf).

Alternatives Analysis:

Has an alternatives analysis been prepared? Yes ☐ **No** ☒
Does the U.S. Army Corps of Engineers require an alternatives analysis for this project? Yes ☐ **No** ☒ If yes, submit alternatives analysis documentation consistent with that provided to the Corps.
If an alternatives analysis is not provided, indicate which Procedures section IV.A.1.g exemption applies and include any relevant supporting information, if needed (e.g., watershed plan, relevant permit number, etc.**):** The solar facility would meet the terms and conditions of Corps General Permit, specifically Nationwide Permit (NWP) 51- Land Based Renewable Energy Facilities. NWP 51 allows for discharges of dredged or fill materials for construction, expansion, or modification of land-based renewable energy production facilities including solar projects. NWP 51 allows for up to ½ acre of impact to waters and non-tidal wetlands. Because the entire Project would meet the terms and conditions of one or more Corps General Permits, including the regional terms and conditions if all discharges were to waters of the U.S., the Project meets the exemption from preparation of an alternatives analysis under the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State. See also Attachment A for more details.
Check which Procedures section IV.A.1.h alternatives analysis tier applies to the project: Water Board staff will evaluate the project information to verify the appropriate alternatives analysis tier: **Tier 1:** ☐ **Tier 2:** ☐ **Tier 3:** ☒

Avoidance and Minimization Measures
Describe the efforts to avoid and minimize direct impacts to waters of the state including actions/BMPs to be implemented during construction to avoid and minimize impacts including, but not limited to, preservation of habitats, erosion control measures, project scheduling, flow diversions, etc.

A description may include actions or methods proposed for erosion control, including winterization strategies to stabilize bare soils and revegetation proposals. A map may be included to indicate the approximate location and area of soil, land, and vegetation disturbance, and proposed erosion and sediment control best management practices.

Reference the Procedures' state supplemental Dredge or Fill Guidelines, subpart H for potential actions to minimize adverse impacts to waters of the state.

Direct Impact Avoidance and Minimization:

Refer to Attachment A.

Indirect Impact Avoidance and Minimization:

Refer to Attachment A.

Water Quality Monitoring, Diversions and Dewatering

Does the proposed project include any dewatering, work in standing or flowing water, and/or constructing diversions of water?
Yes ☐ **No** ☒

If yes, a water quality monitoring plan to monitor compliance with water quality objectives of the applicable water quality control plan may be required.

Describe the water diversion and dewatering plan, or indicate where information is located within an attachment (Procedures section IV.A.2.c):
If there are proposed discharges of water to surface waters, include receiving water body name, estimated volume, flow rates and proposed management measures; if there are discharges to detention ponds or upland treatment facilities (such as temporary settling basins, filters bags, storage and/or treatment containers, etc.) then include their location and indicate if detention pond or treatment facility is on-site or off-site; if there are stream-channel diversions, include estimated flow rates, diversion system capacity, location, including upstream diversion points and downstream discharge point, and a diversion plan that provides measures to prevent erosion and turbidity, maintain fish passage, etc.

Section Nine: Ecological Restoration and Enhancement Projects (EREPs)

Is this application for a project that meets the definition of an Ecological Restoration and Enhancement Project (Procedures section V)?
Yes ☐ **No** ☒

If the project qualifies as an EREP, list the type and quantity of aquatic resources being restored:

Type:

☐ Lake/Reservoir
☐ Stream Channel
☐ Ocean/Bay/Estuary
☐ Riparian Zone
☐ Vernal Pool
☐ Wetlands

Quantity in **acres:**_________ and **linear feet:**_________

If more than one type of resource is being restored, include that information in the space below:

Applications for Ecological Restoration and Enhancement Projects require an assessment plan with the following information (Procedures section IV.A.2.e):

☐ Project objectives
☐ Description of performance standards used to evaluate attainment of objectives
☐ Protocols for condition assessment
☐ The timeframe and responsible party for performing condition assessment
☐ Assessment schedule
☐ A draft restoration plan for restoring temporarily impacted areas to pre-project conditions, if a draft restoration plan is not provided as part of a binding stream or wetland enhancement or restoration agreement

Section Ten: Restoration of Temporary Impacts

If temporary impacts are proposed, applicants are required to submit a draft restoration plan for a complete application. Temporary impact restoration includes activities that are undertaken to restore the temporarily impacted area to pre-project conditions. A draft restoration plan should outline design, implementation, assessment, and maintenance activities. When active restoration is proposed, components of a draft restoration plan should include project objectives, plans for grading impacted areas to pre-project contours, a planting palette with plant species native to the area, seed collection locations, an invasive species management plan. Maintenance and assessment components of a draft restoration plan often includes performance measures, performance standard descriptions, attainment objectives, and timing proposed to reach attainment objectives. When passive restoration is proposed, a draft restoration plan should include an explanation of how passive restoration will restore the area to pre-project conditions, assessment components, and an estimated date for expected restoration.

If the draft restoration plan is part of a larger document, identify the specific section and page number where the requested information may be found in the attached document in the text box provided. If restoration of temporary impacts will occur through natural ecological processes, provide that information in the text box below.

Restoration Plan:

Is a restoration plan attached? **Yes** ☐ **No** ☒
Describe the restoration plan and/or indicate where information is located within an attachment: No temporary impacts are anticipated. However, refer to Restoration and Integrated Weed Management Plan (Appendix M.5 of Opt-in Application) for general restoration for the Project.

Section Eleven: Compensatory Mitigation

Compensatory mitigation means the restoration, establishment, enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved (Procedures Appendix A, Subpart J § 230.92). **When compensatory mitigation is required, a draft compensatory mitigation plan is required for a complete application.**

Proposed Compensatory Mitigation. *Complete the table below for each aquatic resource type proposed as compensatory mitigation; if more than two aquatic resource types will be provided, attach additional tables to your application.*

Proposed Compensatory Mitigation Type:	☐ Mitigation Bank ☐ In-Lieu Fee Program ☒ Permittee Responsible	
Aquatic Resource Type:	☐ Lake/Reservoir ☒ Stream Channel ☐ Ocean/Bay/Estuary	☐ Riparian Zone ☐ Vernal Pool ☐ Wetlands
Mitigation Method:	☐ Establishment ☐ Re-establishment ☐ Rehabilitation	☐ Enhancement ☒ Preservation ☐ Unknown
Quantity for the Selected Mitigation and Resource Type:	Acres: **0.38 acres** Linear Feet: 7,535	

[Extra table below.]

Proposed Compensatory Mitigation Type:	☐ Mitigation Bank ☐ In-Lieu Fee Program ☐ Permittee Responsible	
Aquatic Resource Type:	☐ Lake/Reservoir ☐ Stream Channel ☐ Ocean/Bay/Estuary	☐ Riparian Zone ☐ Vernal Pool ☐ Wetlands

Mitigation Method:	☐ Establishment ☐ Re-establishment ☐ Rehabilitation	☐ Enhancement ☐ Preservation ☐ Unknown
Quantity for the Selected Mitigation and Resource Type:	Acres: ____________________ Linear Feet: ____________________	

Draft Compensatory Mitigation Plan
Using a watershed approach, a draft compensatory mitigation plan should be provided and be consistent with the requirements listed in Procedures Appendix A, Subpart J, and contain the items listed in section IV.A.2.b of the Procedures. For mitigation bank or in-lieu fee program proposals, only the first three items below are required (i, ii, and iii). For permittee responsible mitigation, items one through seven are required. Item eight (climate change assessment) is required on a case-by-case basis; you may contact Water Board staff to determine if a climate change assessment will be required for your proposed mitigation project. **Indicate the attached document name and page number where each draft compensatory mitigation plan item may be found:** The draft compensatory mitigation proposal is provided in Attachment B.
i. A watershed profile for the project evaluation area for both the project activity and the proposed compensatory mitigation location (section IV.A.2.b.i). ***Include document name and page number.*** To be provided at a later date.
ii. An assessment of the overall condition of aquatic resources proposed to be impacted by the project and their likely stressors, using an assessment method approved by the Water Boards (section IV.A.2.b.ii). ***Include document name and page number.*** To be provided at a later date.
iii. A description of how the project impacts and compensatory mitigation would not cause a net loss of the overall abundance, diversity, and condition of aquatic resources, based on the watershed profile. If the compensatory mitigation is located in the same watershed as the project, no net loss will be determined on a watershed basis. If the compensatory mitigation and project impacts are located in multiple watersheds, no net loss will be determined considering all affected watershed collectively. The level of detail in the plan shall be sufficient to accurately evaluate whether compensatory mitigation offsets the adverse impacts attributed to the project (section IV.A.2.b.iii). ***Include document name and page number.*** To be provided at a later date.
iv. Preliminary information about ecological performance standards, monitoring, and long-term protection and management, as described in the state supplemental dredge or fill guidelines (section IV.A.2.b.iv). ***Include document name and page number.***

To be provided at a later date.
v. A timetable for implementing the compensatory mitigation plan (section IV.A.2.b.v.). ***Include document name and page number.*** To be provided at a later date.
vi. If the compensatory mitigation plan includes buffers, design criteria and monitoring requirements for those buffers (section IV.A.2.b.vi). ***Include document name and page number.*** To be provided at a later date.
vii. If compensatory mitigation involves restoration or establishment as the form of mitigation, applicants shall notify, as applicable, state and federal land management agencies, airport land use commission, fore control districts, flood control districts, local mosquito-vector control district(s), and any other interested local entities prior to initial site selection. These entities should be notified as early as possible during the initial compensatory mitigation project design stage (section IV.A.2.b.vii). (Applicants are not required to submit documentation for this requirement.)
viii. If applicable, an assessment of reasonably foreseeable impacts to the compensatory mitigation associated with climate change, and any measures to avoid or minimize those potential impacts (section IV.A.2.b.viii). ***Include document name and page number.*** To be provided at a later date.

Compensatory Mitigation Contact Information:

Name of Mitigation Bank or In-Lieu Fee Program:	Wildlands (Wildheron Holdings, LLC)
Service Area:	Various
Contact Name:	Jacob Robinson
Contact Phone:	(530) 370-5888
Contact Email:	jrobinson@heronpacific.com
Mitigation Location County:	To be provided at a later date
Mitigation Site Latitude:	Various - to be provided at a later date
Mitigation Site Longitude:	Various - to be provided at a later date

Section Twelve: Legally Responsible Person Attestation and Optional Duly Authorized Representative Assignment

The attestation below must be signed by the Legally Responsible Person (LRP).

1) **LRP eligibility is as follows:**

   a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
      i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or
      ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

   c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of the U.S. EPA).

Legally Responsible Person Attestation
I certify under penalty of law that this application and all attachments were prepared under my direction or supervision in accordance with a process designed to assure that qualified personnel properly gather and evaluate the information submitted. 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. Print Legally Responsible Person Name (Not the DAR) X Legally Responsible Person's Signature

2) **DAR assignment is as follows (optional):**

   a. The authorization shall specify that a person designated as a DAR has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company.

Optional Duly Authorized Representative (DAR) Assignment
I hereby authorize **Camille Wasinger** to act on my behalf as the DAR in the processing of this application, and to furnish upon request, supplemental information in support of this permit application. Print Legally Responsible Person Name (not the DAR)
X Legally Responsible Person's Signature

Section Thirteen: Fee Information

Fee amounts are determined according to the Cal. Code Regs., tit. 23, § 2200(a)(2) fee schedule (https://govt.westlaw.com/calregs/Document/IEEE14760D45A11DEA95CA4428EC25FA0?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.DefaDef) and are subject to change.

Submit the Application Fee based on the activity type and according to the appropriate fee category. Application fees are required to determine an application complete. Additional Project and/or Annual Fees may be imposed upon application review.

An excel fee calculator (https://www.waterboards.ca.gov/resources/fees/water_quality/docs/dredgefillcalculator.xlsm) may be used to estimate fees for budgeting purposes only.

Fees may be paid online or by check. Information on how to make an online payment is available at the State Water Board's webpage (https://www.waterboards.ca.gov/make_a_payment/). If fees are paid online prior to application submission, attach payment receipt to this application. Make checks, money orders, and cashier checks payable to the State Water Resources Control Board. Mailed payments should be attached to the application and remitted to the appropriate Water Board. See the Staff Directory (https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wqc_staffdir.pdf) for a list of State and Regional Water Board addresses.

Table for Internal Use Only	
Date Received	**Reg Measure ID**
WDID No.	**ECM Handle**
Check No.	**Check Amount**
Place ID	

Section 2: Project Information

Project Location

The Project is located in Imperial County, approximately 37 miles southeast of the Salton Sea. Imperial County is in southern California, in the southwestern portion of the Colorado Desert. The Project Application Area is located approximately 1.2 miles north of the U.S.–Mexico border, in a region characterized by undeveloped desert and agricultural uses. The Imperial Valley, which is dominated by agricultural land, is located an estimated 2.5 miles west of the Project Application Area. The Imperial Sand Dunes, the largest mass of sand dunes in California, is located approximately 9 miles east of the Project Application Area. A regional location map is provided in Figure 1 and vicinity map is provided in Figure 2.

Figure 1 Regional Setting

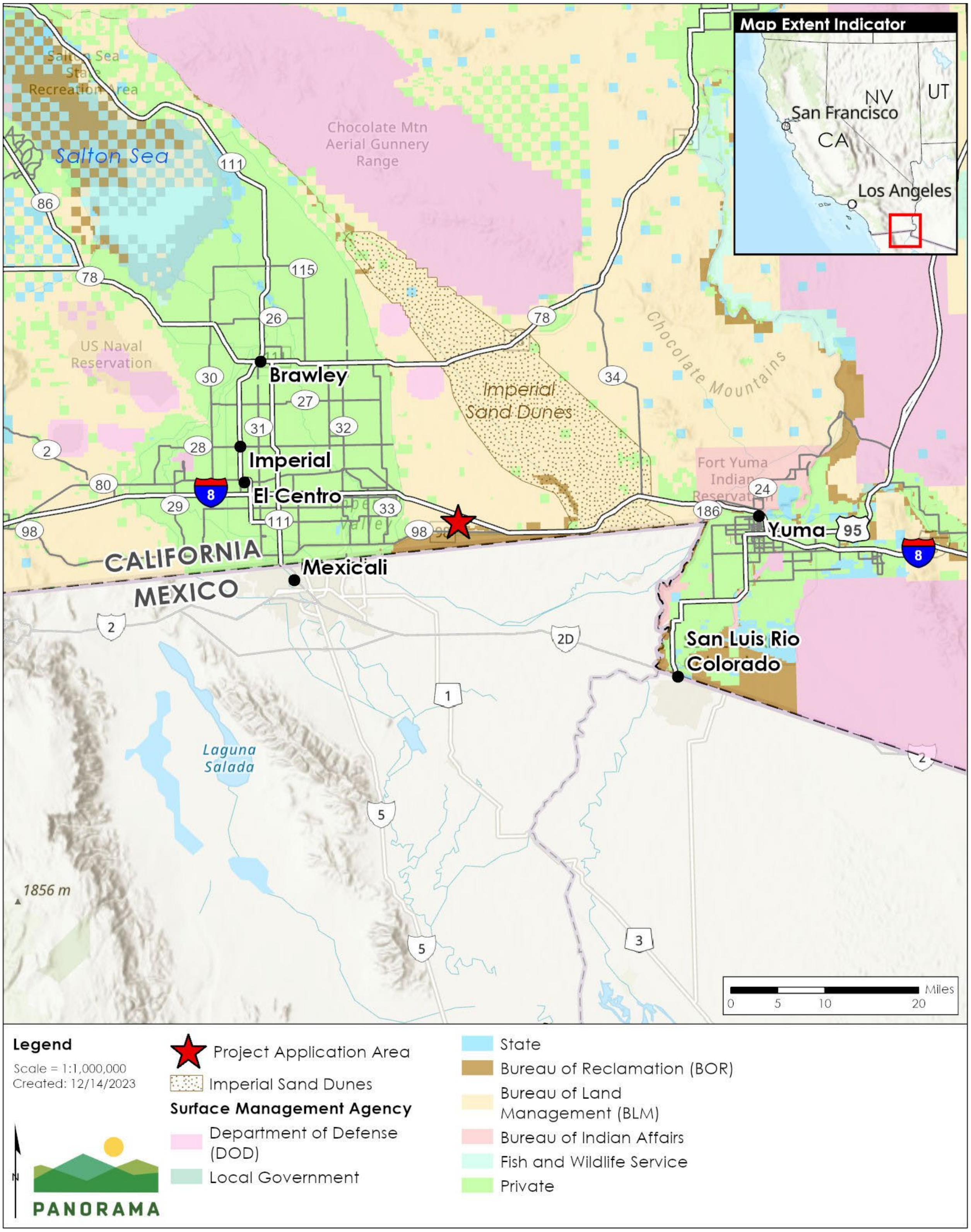
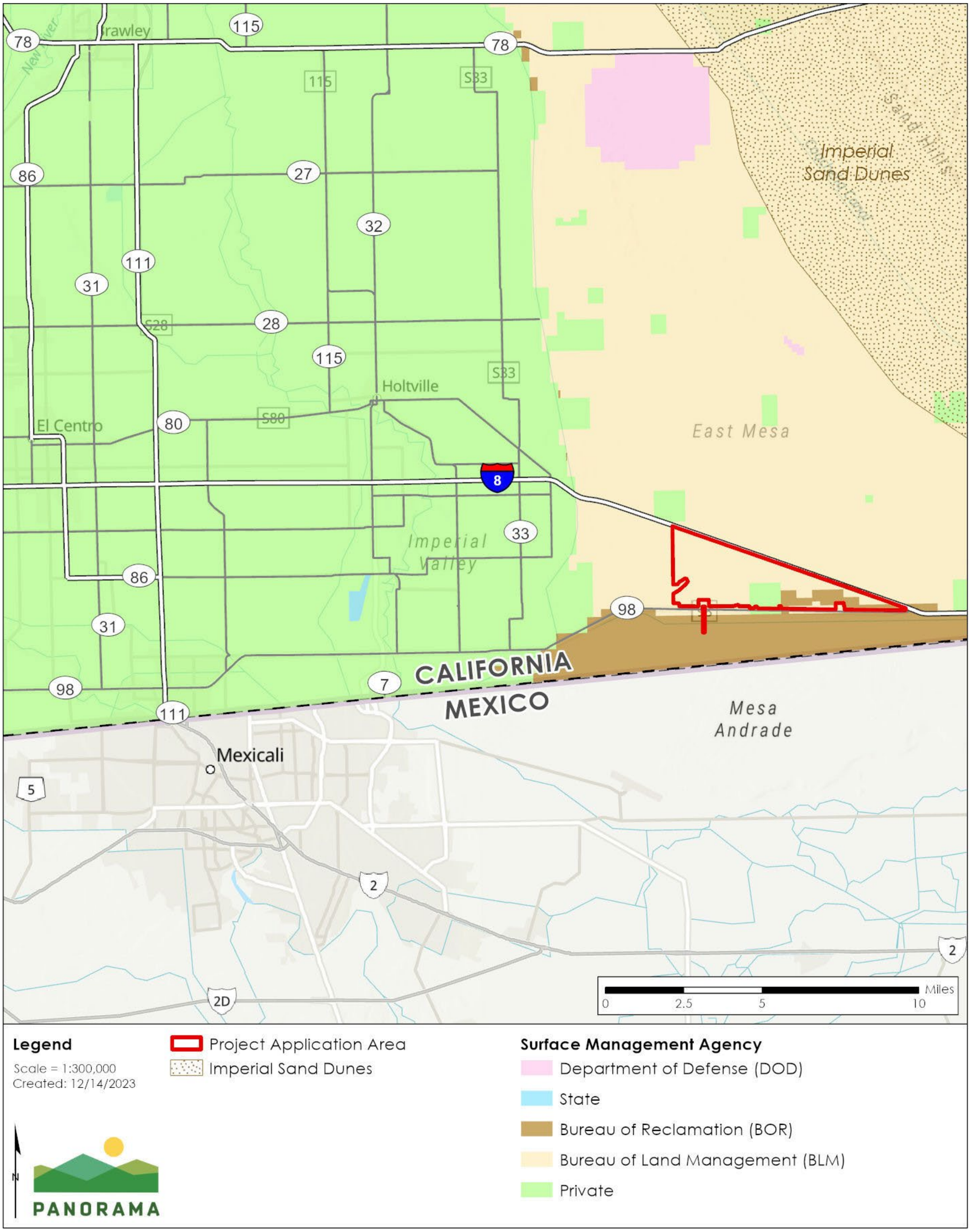


Figure 2 Project Vicinity



Geographic Coordinates

The latitude and longitude for each water resource is provided below.

No.	Latitude	Longitude
1	32.723639°	-115.219161°
2	32.724273°	-115.219085°
3	32.723575°	-115.21858°
4	32.719173°	-115.213937°
5	32.718912°	-115.213913°
6	32.718589°	-115.213859°
7	32.719879°	-115.212891°
8	32.718522°	-115.212542°
9	32.719746°	-115.201149°
10	32.719949°	-115.200161°
11	32.720722°	-115.200478°
12	32.72111°	-115.199159°

Project Description

IP Perkins, LLC, IP Perkins BAAH, LLC, and any related affiliates (collectively, "Applicant"), of Intersect Power, LLC, propose to construct, operate, maintain, and decommission a 1,150 megawatt (MW) solar photovoltaic (PV) facility and battery energy storage system (BESS) on public lands administered by the U.S. Bureau of Land Management (BLM) and Bureau of Reclamation (BOR), as well as private lands located southeast of El Centro in Imperial County, California.

A fenced area referred to as the "Project site" would contain the solar plant, BESS, Project interconnection generation tie (gen-tie) line, Project substation, and operations and maintenance (O&M) yard and facility. The Project would also include a high-voltage breaker-and-a-half switchyard (BAAH switchyard) and two 500 kilovolt (kV) loop-in transmission lines, each within a 200-foot-wide loop-in transmission corridor, that would be required to interconnect to the existing San Diego Gas and Electric (SDG&E) Southwest Power Link (SWPL) 500 kV transmission line that traverses east–west to the south of the Project site. Together the Project site, the BAAH switchyard, and the 500 kV loop-in transmission corridors are referred to as the "Project Application Area" in the Opt-in Application (refer to Figure 3).

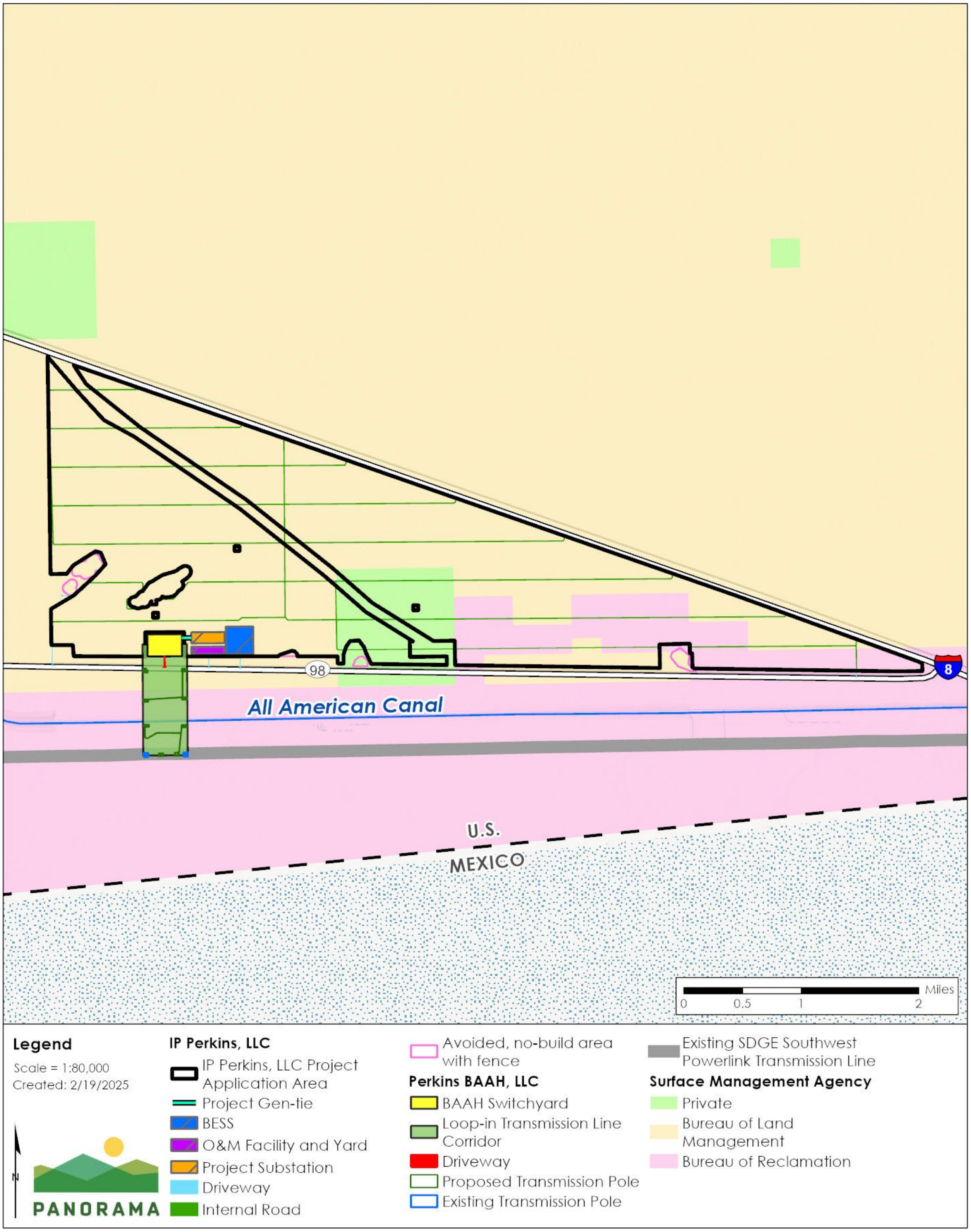
Solar Arrays

The solar facility would include several million PV panels; the precise panel count would depend on the technology ultimately selected at the time of procurement and efficiency of the technology at the time. The ultimate decision for the panel types and racking systems would depend on market conditions and environmental factors, including the recycling potential of the panels at the end of their useful lives.

Either mono-facial or bi-facial modules could be used, with a maximum height of approximately 10 feet at full tilt depending on topography and hydrology. Panel mounting systems that may be installed include either fixed-tilt or single-axis tracking technology, depending on the PV panels ultimately selected. Panels would either be mounted in a portrait orientation as single panels or mounted in a landscape orientation and stacked two high on a north-south oriented single-axis tracking system that would track the sun from east to west during the day. Panel faces would be minimally reflective, dark in color, and highly absorptive. Refer to Figure 4 for an elevation of an example solar PV technology that may be selected. Refer to Figure 5 for a visual representation of an example solar PV technology.

The PV panels would be manufactured at an off-site location and transported to the Project site. Panels would be arranged on the site in solar arrays. For single-axis tracking systems, the length of each row of panels would be approximately 350 feet along the north–south axis. For fixed-tilt systems, a row would consist of multiple tables four panels high by 10 panels wide (contingent on final design), each table being approximately 65 feet along the east–west axis, with 1-foot spacing between each table. Spacing between each row would be a minimum of 4 feet. Electricity would be generated directly from sunlight by the solar arrays and collected to the Project substation.

Figure 3 Project Layout Option 1



ATTACHMENT A – SUPPLEMENTAL PAGES

Figure 4 Solar PV Example Technology

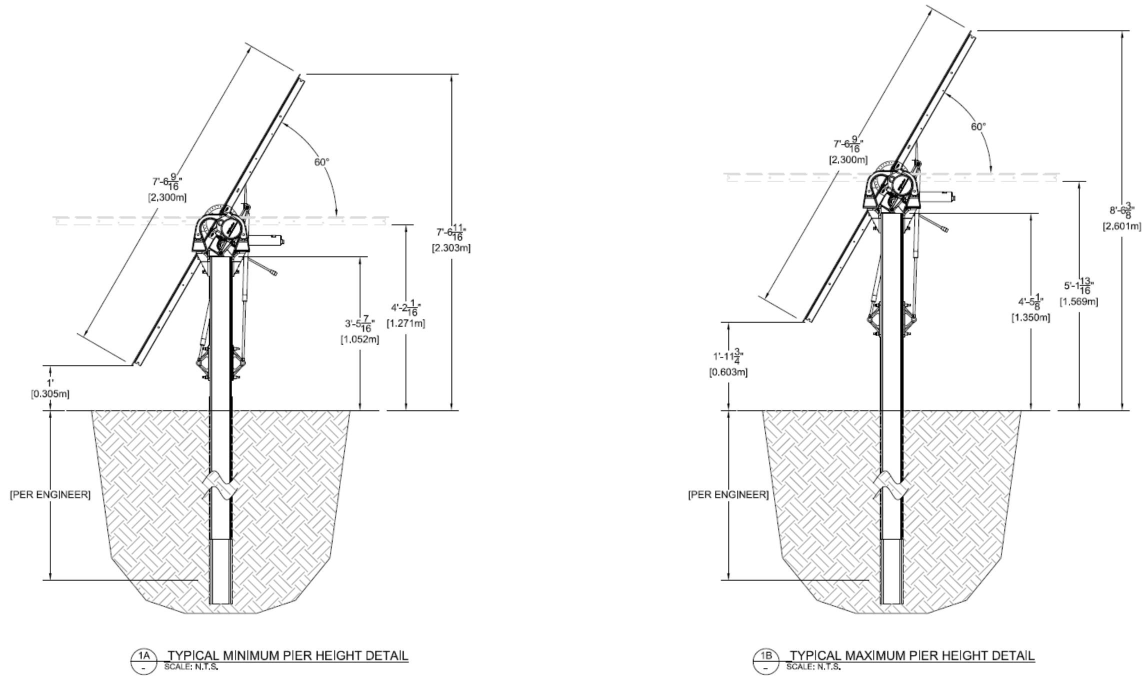


Figure 5 Visual Representation of Solar PV Example Technology

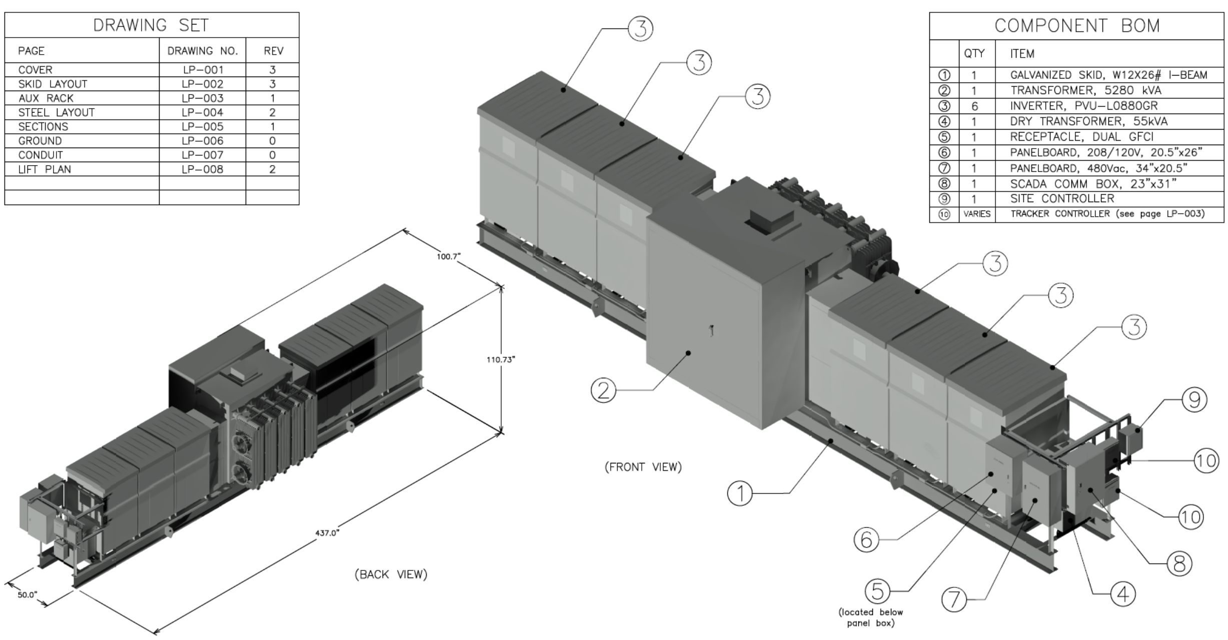
Structures supporting the PV panels would consist of steel piles (e.g., cylindrical pipes, H-beams, helical screws, or similar). The piles would typically be spaced 18 feet apart. The height of the piles above the ground would vary based on the racking configuration specified in the final design. For a single-axis tracking system, piles typically would be installed to a reveal height of approximately 4 to 6 feet above grade (minimum 1 foot clearance between bottom edge of panel and ground but could be higher to compensate for terrain variations and clearance for overland flow during stormwater events). For a fixed-tilt system, the reveal height would vary based on the racking configuration specified in the final design. Fixed-tilt arrays would be oriented along an east–west axis, with panels facing generally south. Tracking arrays would be oriented along a north–south axis, with panels tracking east to west to follow the movement of the sun. For fixed-tilt systems, the panels would be fixed at an approximate 20- to 60-degree angle or as otherwise determined necessary during final Project design.

Inverters, Transformers, and Electrical Collection System

The Project would be designed and laid out primarily in 4 to 7 MW solar arrays. Non-conforming module blocks would be designed and sized as appropriate to accommodate the irregular shape of the Project site where necessary to avoid identified sensitive environmental resources.

Each 4 to 7 MW solar array would include an inverter-transformer station measuring 40 feet by 25 feet and approximately 10 feet tall, constructed on a concrete pad or steel skid and centrally located within the PV arrays (refer to Figure 6).

Figure 6 Inverters, Transformers and Electrical Collection System



The color of the inverter equipment would be light colored or neutral, depending on thermal requirements and availability from the manufacturer. Each inverter-transformer station would contain up to six inverters, a transformer, a battery enclosure, and a switchboard 8 to 11 feet high. The battery would provide an uninterruptible power supply as emergency back-up power for the inverter-transformer station. Each pad would have a security camera at the top of an approximately 20-foot-tall wood or metal pole. If required based on site meteorological conditions, an inverter shade structure would be installed at each pad. The shade structures, if needed, would consist of wood or metal supports and a durable outdoor material shade structure (metal, vinyl, or similar). The shade structure would extend up to 10 feet above the ground surface.

PV panels would be electrically connected into panel strings using wiring secured to the panel racking system. Cables would be installed to convey the DC electricity from the panels via combiner boxes or combiner harnesses with a trunk bus system located throughout the solar arrays to inverters to convert the DC to AC electricity. The output voltage of the inverters would be stepped up to the collection system voltage via transformers located near the inverters. The 34.5 kV collection cables would be either buried underground or installed overhead on wood poles. An underground 34.5 kV line would likely be buried in a trench 4 feet below grade but could go as deep as 6 feet and include horizontal drilling to avoid environmental resources and constraints. Thermal specifications require 10 feet of spacing between the medium voltage lines. In some locations closer to the step-up substation, more than 20 medium voltage AC lines may run in parallel.

In locations where the collection system crosses a road or pipeline overhead, wood poles spaced at intervals between 150 to 250 feet would be installed across the Project site. The typical height of the poles would be approximately 60 to 100 feet, with an embedment depth of 10 to 15 feet depending on the type of crossing, and diameters varying from 12 to 20 inches. Due to potential for operations and maintenance challenges, as well as for security purposes, the intent is to install the 34.5 kV collection lines underground; however, overhead installation could be used in the event sensitive resources need to be avoided.

Solar Facility Access Driveways and Roads

The Project's roadway system would include a perimeter road, access roads and driveways from SR 98, and internal roads. Up to five access roads and driveways from SR 98 would be constructed for access to the Project site. The access roads and driveways would be 24 feet wide (20 feet wide with a 2-foot shoulder on either side) and constructed to achieve facility maintenance requirements and Imperial County standards. The access roads and driveways would be surfaced with gravel, compacted soil, or another commercially available surface, depending upon site conditions and constraints. Shoulders would be of the same material albeit less compacted and would allow vehicles to pass one another.

A 20-foot-wide perimeter road (16 feet wide with 2-foot-wide shoulder on either side) would be built on the inside of the fence. A network of regularly spaced 20-foot-wide internal roads would be installed connecting to the perimeter road. Roads would be surfaced with compacted soil or another commercially available surface acceptable to regulatory agencies and would provide a fire buffer, accommodate Project operation and maintenance activities such as cleaning of solar panels, and facilitate on-site circulation for emergency vehicles. The roadway system would be designed to allow small wildlife passage across the site. If aggregate or gravel is used for road surfaces, such as to reduce dust or for low water crossings, portions of road lengths may remain free of gravel in strategic locations in order to facilitate wildlife movement. In addition, wildlife passage culverts may be placed at key locations along Project roads to allow wildlife to avoid the road.

Site Security, Fencing, and Lighting

Controlled Access
Ingress/egress locations would be accessed via locked gates along the Project fenceline located at up to five points connecting to SR 98. The exact locations of the access points would be determined in coordination with CalTrans and based on resource survey results. The Project site would not be accessed from I-8.

Fencing
The Project site would be enclosed with fencing that meets National Electric and Safety Code (NESC) requirements for protective arrangements in electric supply stations. The boundary of the Project site would be secured by up to 6-foot-high chain-link perimeter fences topped with 1 foot of three-strand barbed wire or other fencing as dictated by BLM and/or North American Electric Reliability Corporation (NERC) specifications. The fence would typically be installed approximately 100 feet from the edge of the solar arrays.

Solar Facility Construction

Site Preparation and Grading

The majority of the Project site would be mowed rather than cleared of vegetation. Mass grading of the Project site would not be needed for site preparation due to the relatively flat terrain. Spot grading would be employed for select solar array and storage facility components. Best management practices (BMPs) identified in the Fugitive Dust Control Plan would be implemented during all grading, vegetation removal, and construction activities.

The roads would require vegetation clearing, grading, and compaction. Inverter-transformer station locations would require light grubbing. Due to undulations within the Project site, some areas of grading would be needed within the solar arrays. Where solar site grading is necessary for discrete facilities or within the solar arrays, cut and fill would be balanced to the extent feasible. Some import and export of material would be necessary (refer to Table 1). Where excavation is required, most construction activities would be limited to less than 6 feet in depth within the Project Site; however, some excavations, such as those undertaken for the installation of collector poles, may reach depths of 45 feet or more.

Within the solar arrays that do not require grading, mowing and grubbing would be conducted to allow for construction access and installation. Mowing and grubbing involves surface removal of vegetation, including mechanical mowing and removal of larger vegetation by hand cutting/trimming to the ground surface. The intent is to leave root balls and seeds in place to allow for regrowth of native vegetation after construction. During mowing, collection of mowed vegetation would be considered for future mulching to minimize dust and soil erosion on portions of the site and enhance restoration. A qualified restoration biologist would determine where the collected mulching material should be applied.

Non-native vegetation would be removed to the extent feasible during the construction phase via manual and mechanical methods and herbicide application. Any non-native species found in the Project Application Area that has not been evaluated for its potential to invade or alter surrounding natural lands would be considered a "weed" for purposes of the Restoration and Integrated Weed Management Plan implementation. Cutting, damaging, or uprooting microphyll woodland tree species would be avoided by Project design and BMPs, in accordance with the DRECP Conservation Management Actions (CMAs).

Table 1 Solar Facility Disturbance Details

Project component	Cut/fill quantity	Type of disturbance
Fenced solar facility with arrays and access roads	Balanced	Solar array areas to be mowed and grubbed to provide for construction access and installation
Inverter-transformer stations and electrical collection system	Balanced	Graded and backfilled to an elevation above surrounding grade to avoid flooding for inverter-transformer stations

Note:

[a] Estimated base for the areas requiring import of material is assumed to require a 12-inch depth.

Access Roads

The existing surface area of the access roads would be cleared and compacted using on-site, native materials and may be covered in aggregate for dust or erosion control. The design standard for the access roads within the solar arrays would be consistent with the amount and type of use they will receive.

Solar Array Installation

The steel piles (i.e., cylindrical pipes, H-beams, or similar) supporting the PV panels would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles typically are spaced 10 feet apart and would be driven into the ground to a depth of 9 to 15 feet.

For single-axis tracking systems, following pile installation, the associated motors, torque tubes, and drivelines (if applicable) would be placed and secured. Some designs allow for PV panels to be secured directly to the torque tubes using appropriate panel clamps. For some single-axis tracking systems and for all fixed-tilt systems, a galvanized metal racking system, which secures the PV panels to the installed foundations, would then be field-assembled and attached according to the manufacturer's guidelines. A portion of the PV panel racking and modules may be assembled at staging areas.

Inverters, and Electrical Collection System

The Project site electrical collection system would involve installation of inverter-transformer stations from which the medium voltage cabling collection system would lead to the Project substation. Electrical inverter-transformer stations would be delivered to locations around the Project site and placed on concrete pads or steel skids, which would be elevated as necessary with steel piles to allow for stormwater flow beneath the inverter structures. Concrete for foundations of the inverter-transformer stations and other electrical collection facilities would be brought on site from a regional batching plant.

Medium-voltage cabling would be installed either underground or, for the low-impact design portion of the Project, overhead along panel strings in a cable management system to avoid the need for underground cabling and trenching. Cables, if underground, would be installed using direct bury equipment and/or typical trenching techniques, which involves use of a rubber-tired backhoe excavator, trencher, or a "one-pass" machine that digs the trench and lays the cable in a single action to minimize construction activity. Shields or trench shoring would be temporarily installed for safety to brace the walls of the trench if required based on the trench depth. After the excavation, cable rated for direct burial would be installed in the trench, and the excavated soil would be used to fill the trench and compressed to 90- to 95-percent maximum dry density or in accordance with final engineering.

Equipment and Machinery

The following equipment would be used to construct the Project:

- Aerial lift
- Crane
- Forklift
- Grader
- Pile drivers
- Roller
- Rubber tired loaders
- Rubber tired dozer
- Skid steer loaders
- Tractor/loader/backhoe
- Trencher
- Welders
- One-pass
- Helicopter
- Drone

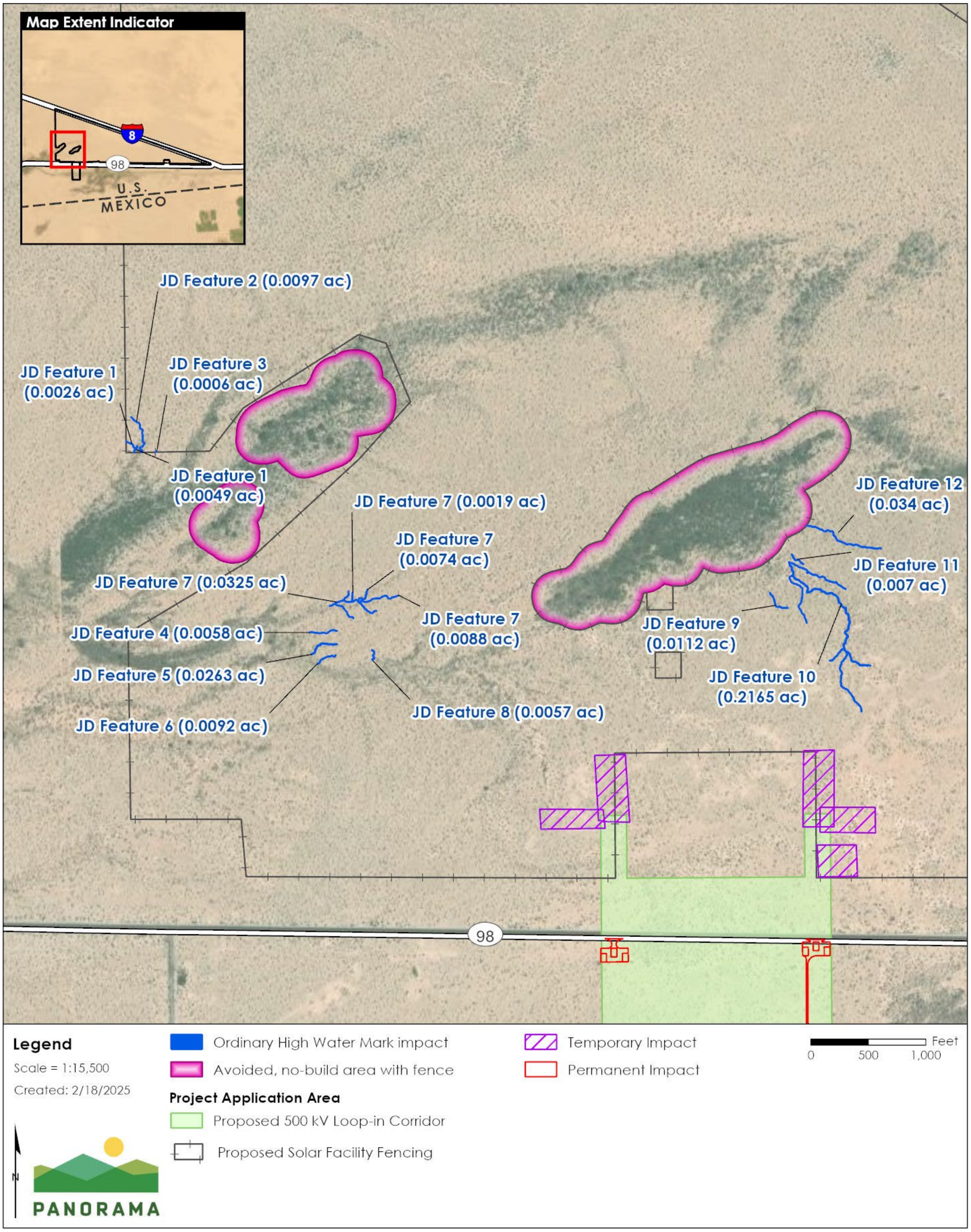
Section 7: Impact Quantities

No temporary impacts to waters of the State would occur. Permanent impacts to waters of the State are summarized in Table 2. All waters that would be impacted by the Project are classified as riverine or ephemeral (streams that only persist for a short period of time). The locations of permanent impacts to waters are shown on Figure 7.

Table 2 Permanent Impact to Waters of the State

No.	Length of Impact (Feet)	Area of Impact (Acres)	Type of Impact/Facility	Material	Volume of Material (cy)
1	185	0.008	Fence	Fence and Native Fill	77
2	421	0.01	PV Array	Native Fill, Steel	97
3	13	0.0006	PV Array	Native Fill, Steel	2
4	253	0.006	PV Array	Native Fill, Steel	58
5	283	0.026	PV Array	Native Fill, Steel	252
6	198	0.009	PV Array	Native Fill, Steel	87
7	1,444	0.051	PV Array	Native Fill, Steel	494
8	124	0.006	PV Array	Native Fill, Steel	58
9	243	0.011	PV Array	Native Fill, Steel	106
10	3479	0.22	PV Array	Native Fill, Steel	2,130
11	150	0.007	PV Array	Native Fill, Steel	68
12	741	0.034	PV Array	Native Fill, Steel	329
Total	**7,535**	**0.384**	**N/A**	**N/A**	**3,758**

Figure 7 Impacts to Waters of the State



Additional Direct and Indirect Impact Information

Direct Impact Description

The roads would require vegetation clearing, grading, and compaction. Inverter-transformer station locations would require light grubbing. Solar PV panels would potentially also require light grubbing. Where excavation is required, most construction activities would be limited to less than 6 feet in depth within the Project site; however, some excavations, such as those undertaken for the installation of gen-tie poles and dead-end structures, may reach depths of 45 feet or more. Temporary areas of disturbance would be restored in accordance with the Restoration and Integrated Weed Management Plan (Appendix M.5).

Construction activities would also involve the handling, use, and storage of limited quantities of hazardous materials, which would be limited to waste oil, oil filters, oil rags, solvents, fuels, welding materials, empty hazardous materials containers, spent batteries, and controlled substances. As regulated hazardous materials would be present on site, storage procedures would be dictated by the Hazardous Materials Business Plan (HMBP) and Spill Prevention Control and Countermeasures (SPCC) Plan that would be developed prior to construction in compliance with State and federal regulations for management of hazardous materials (California Health and Safety Code, Division 20, Chapter 6.95, Article 1, Sections 2550 to 25519; California Code of Regulations, Title 19, Division 2, Chapter 4, Article 4, Sections 2620 to 2671; Clean Water Act §311). The HMBP and SPCC Plan would specify safe handling and emergency response procedures should an unintended lead or release of hazardous materials occur. Implementation of safety and response measures during Project construction would minimize the potential for hazardous materials to be released into the environment such that water resources would not be substantially degraded.

Indirect Impact Description

The Project Application Area drains into the Alamo River, which is on the 303(d) list with 20 TMDLs, as defined in the Basin Plan (SWRCB 2022). The Alamo River is on the 303(d) list and has a TMDL for sediment in addition to multiple pesticides and chemicals in agricultural runoff. The TMDL for sediment focuses on controlling sediment in agricultural runoff. The Project would not release any pesticides or pollutants that are listed on the 303(d) list but has the potential to result in increased erosion and sedimentation as a result of ground disturbance.

The Applicant would be required to apply for coverage under a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order numbers WQ 2022-0057-DWQ and CAS000002 (Construction General Permit), and any following versions applicable at the time of construction. The Construction General Permit was developed to ensure that stormwater is managed and erosion is controlled on construction sites. The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which requires implementation of best management practices (BMPs) to control stormwater run-on and runoff from construction work sites. BMPs may include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures to be identified by a qualified SWPPP developer that would substantially reduce or prevent erosion during construction.

The Applicant has also proposed to implement a Drainage, Erosion, and Sediment Control Plan (DESCP) to reduce the impact of run-off during construction, operation, and maintenance (see PDF HWQ-1). The DESCP would ensure proper protection of water quality and soil resources, address disturbed soil stabilization treatments in the Project area for both road and non-road surfaces, and identify all methods used for temporary and final stabilization of inactive areas. The Plan would cover all Project component areas subject to disturbance. The DESCP would cover site mobilization, excavation, construction, and post-construction (i.e., operation and maintenance) activities. Site monitoring would involve inspections to ensure that the BMPs required by the Project-specific SWPPP and DESCP are properly maintained and reducing the risk of run-off to an adequate level. Implementation of the Project-specific SWPPP and DESCP would ensure that downstream water bodies are not affected by sediment transport.

Cumulative Impacts

A list of closely related past, present, and reasonably foreseeable future projects is provided in Table 4-1 and shown in Figure 4-1 in Chapter 4: Environmental Analysis of the Opt-in Application.

Degrade Surface or Groundwater Quality

The cumulative projects in the Alamo River watershed have created a significant impact on water quality, as evidenced by the 303(d) listing and established TMDLs on the Alamo River and All-American Canal. The cumulative impact on water quality is generally due to the historic and existing agricultural operations, which have resulted in pesticides, sediment, and other chemicals present in agricultural runoff. The proposed projects within the Alamo River watershed would involve ground disturbance and, in combination with the Project, could contribute additional sediment load to the Alamo River. Increased sediment loading to the Alamo River would be a significant cumulative impact as the Alamo River is already impaired for sediment.

The Project would comply with the requirements of the Construction General Permit and would implement BMPs, PDFs, and CMAs to protect water quality and control sediment in runoff. Because the Project would implement BMPs to control sediment during construction and operation and maintenance, the Project’s contribution to a cumulatively considerable impact on water quality would be less than significant.

Erosion, Flooding, or Risk Release of Pollutants

The cumulative projects within 6 miles of the Project include a number of operational geothermal projects, several operational transmission lines, an IID reservoir, two proposed solar facilities, and a proposed transmission line. The existing operational projects are part of the baseline hydrologic and drainage conditions in the area that were analyzed as part of the Project baseline analysis. The proposed solar projects would be located northwest of the Project and within the same watershed as the Project. The solar projects have a potential to result in cumulative impacts on erosion and flooding and risk release of pollutants in combination with the Project because the cumulative projects would require ground disturbance, including some degree of grading, and would install additional impervious surfaces similar to those of the Project. The proposed solar projects and the Project are all required to comply with the State of California Construction General Permit and to implement stormwater management BMPs and pollution prevention BMPs. The proposed solar projects would also be required to comply with State and federal laws for management of hazardous materials, including preparing any applicable HMBP and SPCC. Because the Project and the cumulative projects would need to comply with State and federal laws, which define specific requirements for reduction of erosion and procedures to offset post-project changes in runoff to avoid flooding or release of pollutants, the cumulative impact would be less than significant.

Section 8: Alternatives Analysis

Section IV.A.1.g of the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State includes the following exemption from preparation of a Tier 3 alternatives analysis;

> *i. The project includes discharges to waters of the state outside of federal jurisdiction, but the entire project would meet the terms and conditions of one or more Water Board-certified Corps' General Permits, including any Corps District's regional terms and conditions, if all discharges were to waters of the U.S. The permitting authority will verify that the entire project would meet the terms and conditions of the Corps' General Permit(s) if all discharges, including discharges to waters of the state outside of federal jurisdiction, were to waters of the U.S. based on information supplied by the applicant.*

The solar facility would meet the terms and conditions of Corps General Permit, specifically Nationwide Permit (NWP) 51- Land Based Renewable Energy Facilities. NWP 51 allows for discharges of dredged or fill materials for construction, expansion, or modification of land-based renewable energy production facilities including solar projects. NWP 51 allows for up to ½ acre of impact to waters and non-tidal wetlands. The solar project would impact 0.38 acre of waters of the state and would not exceed the acreage threshold. All impacts to waters within the solar facility would meet the conditions of NWP 51, including the regional conditions. Because the entire Project would meet the terms and conditions of one or more Corps General Permits, including the regional terms and conditions if all discharges were to waters of the U.S., the Project meets the exemption from preparation of an alternatives analysis under the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State.

Even though the Project is exempt from completing an alternatives analysis, Section IV.A.1.g of the State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State states, "The exemption from the alternatives analysis requirement does not preclude a permitting authority from requiring the applicant to demonstrate in its application that the project complies with section IV.B.1.a." Section IV.B.1.a requires an applicant to demonstrate that actions have been taken to "first avoid, then to minimize, and lastly compensate for adverse impacts that cannot be practicably avoided or minimized to waters of the state". The following procedures were implemented in the Project siting and design process to first avoid, then minimize, and lastly compensate for impacts to water of the State:

1. The Project design and fence line was modified to avoid waters of the State. The Project design includes several fenced avoidance areas within the fenceline that were specifically excluded from solar development to avoid impacts on waters of the State. These fenced avoidance areas include microphyll woodland. The waters within the solar facility fence that would be impacted by the Project include small

swales that due to their location and linear nature could not be fully avoided in the Project design.

2. The Loop-in transmission work areas and BAAH location were sited to avoid impacts on waters of the State/wetlands. Alternative loop-in transmission corridor locations were initially evaluated in the Project siting process. The proposed Loop-in Transmission Corridor and specific work areas were selected as to avoid areas of wetlands that occur to the west of the proposed Loop-in transmission corridor.
3. The Project will provide compensatory mitigation for all impacts on waters of the State at a 1:1 ratio.

Section 9: Avoidance and Minimization Measures

As part of the Project, the Applicant is committed to implementing BMPs, PDFs, and CMAs. The Applicant has also prepared mitigation plans as required by the BLM.

Best Management Practices and Project Design Features
The Project would implement the following BMPs and PDFs related to biological resources:

Direct Impact Avoidance and Minimization

- **BMP-17**
  - **Staging Areas.** As practical, staging and parking areas shall be located within the Project site to minimize habitat disturbance in areas adjacent to the site.
- **BMP-18**
  - **Construction Activities.** Before beginning construction, delineate the boundaries of areas to be disturbed including roads, borings, soil testing sites, and pull and tensioning areas prior to any ground disturbance, and confine disturbances, project vehicles, and equipment to the delineated project areas.
- **BMP-19**
  - **Construction.** To the extent practicable, work personnel shall stay within the ROW and/or easements.
- **BMP-21**
  - **Traffic.** Existing access roads, utility corridors, and other infrastructure shall be used to the maximum extent feasible.
- **BMP-24**
  - **Habitat.** To reduce the extent of habitat disturbance during construction and operation, existing access roads, utility corridors, and other infrastructure shall be used to the maximum extent feasible and foot and vehicle traffic through undisturbed areas shall be minimized.
- **BMP-26**
  - **Habitat.** Areas left in a natural condition during construction (e.g., wildlife crossings) shall be maintained in as natural a condition as possible within safety and operational constraints.
- **BMP-32**
  - **Vegetation.** Project-specific vegetation management plans shall investigate possibilities of revegetating parts of the Project Area.
- **BMP-33**
  - **Noxious Weeds.** The establishment and spread of invasive species and noxious weeds within the Project Area and loop-in transmission line corridors shall be

prevented. The areas shall be monitored regularly, and invasive species should be eradicated immediately.

- **BMP-34**
  - **Herbicide Use.** Only herbicides with low toxicity to wildlife and nontarget native plant species shall be used, as determined in consultation with the BLM, BOR, CEC, and USFWS. The typical herbicide application rate shall be used rather than the maximum application rate, where effective. All herbicides shall be applied in a manner consistent with their label requirements and in accordance with guidance provided in the Final PEIS on vegetation treatments using herbicides (BLM 2007c).
- **BMP-35**
  - **Waste.** Construction debris, especially treated wood, shall not be stored or disposed of in areas where it could come in contact with aquatic habitats.
- **BMP-36**
  - **Reclamation.** Access roads shall be reclaimed when they are no longer needed.
- **BMP-37**
  - **Reclamation.** All holes and ruts created by removal of structures and access roads shall be filled or graded.
- **BMP-38**
  - **Reclamation.** While structures are being dismantled, care shall be taken to avoid leaving debris on the ground in areas in which wildlife regularly move.
- **BMP-39**

  Reclamation. The facility fence shall remain in place for several years following decommissioning to help reclamation (e.g., would preclude large mammals and vehicles from disturbing revegetation efforts)
- **PDF BIO-3**
  - **Minimization of Vegetation and Habitat Impacts.** Prior to construction, operation and maintenance, or decommissioning activities, authorized work areas shall be clearly delineated by the contractor. These areas shall include, but not be limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils. Delineation may be implemented with "fencing" or staking to clearly identify the limits of work and will be verified by the Lead Biologist. No paint or permanent discoloring agents shall be applied to rocks or vegetation (to indicate surveyor construction activity limits or for any other purpose). Fencing/staking shall remain in place for the duration of work activities. Spoils shall be stockpiled in disturbed areas. All disturbances, vehicles, and equipment shall be confined to the fenced/flagged areas.

  Construction activities shall minimize soil and vegetation disturbance to minimize impacts to soil and root systems. Upon completion of construction activities in any given area, all unused materials, equipment, staking and flagging, and refuse shall be removed and properly disposed of, including wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, and metal or plastic containers. Any unused or leftover hazardous products shall be properly disposed of off site. Hazardous materials shall be handled and spills or leaks promptly corrected and cleaned up according to applicable requirements. Vehicles shall be properly maintained to prevent spills or leaks. Hazardous materials, including motor oil, fuel, antifreeze, hydraulic fluid, grease, shall not be allowed to enter drainage channels.

– **Low-impact site preparation.** Native vegetation shall be allowed to recover from rootstocks and seed bank wherever facilities do not require permanent vegetation removal (e.g., access roads, foundations, paved areas, fire clearance requirements) within the perimeter fenceline of the Project solar site and under solar arrays. Vegetation height and density shall be managed as needed for operation and maintenance and fire safety, but vegetation management shall otherwise focus on maintaining habitat and soil conditions.

- **PDF BIO-4**

  Integrated Weed Management Plan. The Applicant shall prepare and implement an Integrated Weed Management Plan (IWMP) to minimize or prevent invasive weeds from infesting the site or spreading into surrounding habitat. The IWMP must comply with existing BLM plans and permits, including the Vegetation Treatments Using Herbicides and Vegetation Treatment Using Aminopyralid, Fluroxypyr, and Rimsulfuron PEISs (BLM 2007; 2016a), including requiring a Pesticide Use Permit approved by the BLM and BOR. The IWMP shall identify weed species occurring or potentially occurring in the Project area, means to prevent their introduction or spread (e.g., vehicle cleaning and inspections), monitoring methods to identify infestations, and timely implementation of manual or chemical (as appropriate) suppression and containment measures to control or eradicate invasive weeds. The IWMP shall identify herbicides that may be used for control or eradication, and avoid herbicide use in or around any environmentally sensitive areas. The IWMP shall also include a reporting schedule, to be implemented by the Lead Biologist.

Indirect Impact Avoidance and Minimization

- **PDF BIO-8**

  – **Streambed and watershed protection.** Prior to construction activities in jurisdictional waters of the State, the Applicant will obtain a Lake and Streambed Alteration Agreement (LSAA) from the CDFW. A Stormwater Pollution Prevention Plan (SWPPP) or SWPPP-equivalent document may also be required and shall be prepared by a qualified engineer or qualified individual and shall be implemented before and during construction. The SWPPP shall include BMPs for stormwater runoff quality control measures, management for concrete waste, stormwater detention, watering for dust control, and construction of perimeter sediment controls, as needed.

The Applicant will implement BMPs identified below to minimize adverse impacts to streambeds and watersheds.

- Vehicles and equipment will not be operated in ponded or flowing water except as specified by resource agencies.
- The Applicant will minimize road building, construction activities, and vegetation clearing within ephemeral drainages.
- The Applicant will prevent water containing mud, silt, or other pollutants from grading or other activities from entering ephemeral drainages or being placed in locations that may be subjected to high storm flows.
- Spoil sites will not be located within 30 feet from the boundaries of drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
- Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, unapproved herbicides, or any other substances that could be hazardous to vegetation or wildlife resources resulting from Project-related activities will be prevented from contaminating the soil and/or entering ephemeral drainages. The Applicant shall ensure that safety precautions specified by this measure, as well as all other safety requirements of other measures and permit conditions, are followed during all phases of the Project.
- When operations are completed, any excess materials or debris will be removed from the work area. No rubbish will be deposited within 150 feet of the high-water mark of any drainage during construction, operation and maintenance, and decommissioning the Project.
- No equipment maintenance will occur within 150 feet of any qualifying jurisdictional waterway (waterway to be avoided during construction). No petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site state jurisdictional waters under any flow.
- With the exception of the drainage control system installed for the Project, the installation of bridges, culverts, or other structures will be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts will be placed at or below stream channel grade.
- No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or other organic or earthen material from any construction or associated activity of whatever nature will be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, off-site State jurisdictional waters.

- Stationary equipment such as motors, pumps, generators, and welders located within or adjacent to a drainage will be positioned over drip pans. Stationary heavy equipment will have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as brooms, absorbent pads, and skimmers will be on site prior to the start of construction.
- The cleanup of all spills will begin immediately. BLM, BOR, CEC, and CDFW will be notified immediately by the Applicant of any spills and will be consulted regarding clean-up procedures if these spills occurred in a qualifying jurisdictional waterway.

Attachment A.3 Updated Aquatics Reports

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AQUATIC RESOURCES REPORT

February 2025

Perkins Renewable Energy Project

Prepared for:

IP Perkins, LLC and IP Perkins BAAH, LLC

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Acronyms

amsl	above mean sea level
ACEC	Area of Critical Environmental Concern
BAAH	Breaker and a half
BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNPS	California Native Plant Society
CWA	Clean Water Act
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
GIS	Geographic Information Systems
GPS	Global Positioning System
HR	Hydrologic Region
I-10	Interstate 10
LSAA	Lake and Streambed Alteration Agreement
MW	Megawatt
NEPA	National Environmental Policy Act
NECO Plan	Northern and Eastern Colorado Desert Coordinated Management Plan
NRCS	Natural Resource Conservation Service
NVCS	National Vegetation Classification System
PV	Photovoltaic
RWQCB	Regional Water Quality Control Board
ROW	Right of Way
SDG&E	San Diego Gas and Electric
SWRCB	State Water Resources Control Board
TNW	Traditionally Navigable Water
USACE	U.S. Army Corps of Engineers
USFWS	US Fish and Wildlife Service
WDR	Waste Discharge Requirements
WOTUS	Waters of the U.S.

1 Introduction

1.1 Background

IP Perkins, LLC and IP Perkins BAAH, LLC (Proponents), subsidiaries of Intersect Power, LLC are proposing to develop the Perkins Renewable Energy Project (Project) southeast of El Centro, near Holtville in Imperial County, California (Figure 1). The proposed Project site is located on a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands (Figure 2). The Project's two 500 kV loop-in transmission lines will be located within a transmission corridor that will traverse BOR lands. The BLM-managed portion of the Project site is comprised of two land parcels totaling approximately 6,255 acres. The BOR-managed portion of the site is approximately 962.8 acres, and the private land is approximately 515.1 acres. Existing access roads from Highway 98 to the proposed transmission line corridor and along the Great American Canal roads may be used for the Project. Some portions of the roads may be widened to accommodate construction. These areas, along with a 1.7-kilometer (1.06-mile) transmission line corridor and driveways, are collectively referred to as the Project site, unless otherwise described in their specific components. Ironwood Consulting, Inc. (Ironwood) was contracted to delineate jurisdictional waters and other aquatic resources on the Project site.

The following report describes delineation methods and the results of investigations to determine the presence of aquatic resources that may be subject to federal jurisdiction under the Clean Water Act, Regional Water Quality Control Board (RWQCB) jurisdiction as waters of the state (WOTS), and/or California Department of Fish and Wildlife (CDFW) jurisdiction under § 1602 of the California Fish and Game Code (CFGC). The primary purpose of this report is to provide the location, extent, and estimated impacts to potentially jurisdictional waters in support of Project compliance requirements under the RWQCB Water Quality Certification and Wetlands Program and Lake and Streambed Alteration (LSA) Program implemented by CDFW. This report updates the previous Jurisdictional Waters Delineation report to include the private and BOR-managed lands and to address comments from BLM and CDFW. Surveys were conducted within the Project site in Spring 2023 and 2024 (Figure 3).

1.2 Site Location

The Project site is in Imperial County within the Sonoran Desert of Southern California. It is located east of an irrigated agricultural region, with the nearest towns of Date City and Holtville located just west of the Project site. The Project site is approximately 36 miles southeast of the Salton Sea, 8 miles west of the Algodones Dunes, and its southernmost boundary is approximately 1.3 miles north of the United States-Mexico border (Figure 2). The Project site is located directly south of Interstate 8 and directly north of Highway 98. The Project occurs on two 7.5-minute USGS topographic quadrangles – Midway Well NW and Midway Well. Two 500 kV loop-in transmission lines would exit the western BLM site prior to crossing BOR lands where they would interconnect with the existing San Diego Gas and Electric (SDG&E) Southwest Powerlink 500 kV Transmission Line, after crossing the All-American Canal.

The entire Project site occurs on a combination of BLM-managed lands, BOR-managed lands, and private lands. Public lands managed by the BLM are within the Desert Renewable Energy Conservation Plan (DRECP)

Development Focus Area (DFA). Areas of Critical Environmental Concern (ACEC) are outside of but adjacent to the Project site (Figure 1); East Mesa ACEC is to the north and Lake Cahuilla ACEC is to the west. There is a small area of the larger western BLM parcel that overlaps with an Important Bird Area (Audubon, California, 2011) on its westernmost border.

1.3 Project Summary

IP Perkins, LLC and IP Perkins BAAH, LLC propose to construct, operate, maintain, and decommission an up to 1,150 megawatt (MW) solar PV and battery energy storage facility on a combination of BLM-administered public lands, BOR-administered lands, and private lands collectively referred to as the Project site. The Project would deliver clean power to ratepayers in California, minimize environmental impacts and land disturbance associated with solar development, and bring living-wage jobs to Imperial County.

The Project would generate and store up to 1,150 MW of renewable electricity via arrays of solar PV panels, a battery energy storage system (BESS), and appurtenant facilities. The final Project capacity will be based on optimization of buildable acreage and solar PV technology at the time of procurement. The Project would construct a new gen-tie line that would connect the Project substation(s) to a new high voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to interconnect the Project to the existing SDG&E Southwest Powerlink 500 kV Transmission Line (SWPL) that travels east-west just south of the Project site. The SWPL line crosses BOR lands and terminates at the Imperial Valley Substation (Substation) southwest of El Centro, California.

Depending upon the timeline of the interconnection agreement, the Project could be operational by as early as late 2027 and operate for up to 50 or more years. At the end of its useful life, the Project would be decommissioned. Revegetation would be conducted in accordance with a Decommissioning and Revegetation Plan.

2 Regulatory Setting

2.1 Clean Water Act (§ 401 and § 404)

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the U.S. (WOTUS) to protect the physical, biological, and chemical integrity of WOTUS. Under provisions of the CWA, U.S. Army Corps of Engineers (USACE) administers the day-to-day Section 404 program, which includes general and individual permit decisions, jurisdictional determinations, developing policy and guidance, and enforcing the provisions of Section 404. WOTUS are defined in 33 CFR 328.3, which has been clarified following multiple Supreme Court decisions and supplemental guidance documents issued by USACE and the Environmental Protection Agency (EPA), the agency that is responsible for developing and interpreting policy, guidance, and environmental criteria for the Section 404 program.

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 jurisdictional scope of WOTUS, 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, which had previously been included to determine jurisdiction of waters, 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 (88 FR 61968 61969, September 8, 2023). The amended rule conforms with the definition of WOTUS by the Supreme Court and states that parts of the January 2023 Rule were invalidated under the Supreme Court's interpretation of the CWA. Therefore, 40 CFR 120.2 and 33 CFR 328.3 now define WOTUS (88 FR 61968 61969, September 8, 2023) accordingly:

a. Waters of the United States means:
    i. Waters which are:
        1. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
        2. The territorial seas; or
        3. Interstate waters
        4. Impoundments of waters otherwise defined as waters of the United States under this definition
        5. Tributaries of waters identified that are relatively permanent, standing, or continuous flowing bodies of water,
        6. Wetlands adjacent to the following waters:
    ii. Waters identified in paragraph (a)(1); or
    iii. 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;
    iv. 5.Intrastate lakes and ponds not identified in paragraphs (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).

Also relevant to the regulatory setting for this analysis, the following definitions are included in 33 CFR 328.3 (c):

- "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

- “Adjacent” (also revised in the recent rulings) means having a continuous surface connection.

Navigable Waters of the United States are regulated by USACE and 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).

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

2.2 California Porter-Cologne Water Quality Act

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 ground water, 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. Both of 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 waters of the State. 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) a wetland definition;

2) a framework for determining if a feature that meets the wetland definition is a water of the State;
3) wetland delineation procedures; and
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 ground water, 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 verified by USACE following the methods described in the 1987 Corps of Engineers Wetlands 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, and
3. Artificial wetlands that meet 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; or
    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 waters of the U.S. 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 waters of the State are determined to potentially be temporarily or permanently affected by a proposed action, an application for dredge or fill is necessary. When considering project impacts and alternatives, it is recommended to avoid waters of the State 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.

2.3 California Fish and Game Code §§ 1600 to 1616

Pursuant to § 1602 of the California Fish and Game Code (CFGC), notification to the California Department of Fish and Wildlife (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 (Lake and Streambed Alteration Agreement) Program. 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 and typically refers to vegetation associated with a stream channel. The limits of jurisdiction include ephemeral, intermittent, and perennial watercourses and include the outermost edge of riparian vegetation or the top of bank of streams or lakes, whichever is wider. Generally, CDFW jurisdiction is often extended to include areas that exhibit any one of the three wetland indicators – vegetation, soils, or hydrology.

CDFW may require an LSAA prior to any activity that would substantially divert or obstruct the natural flow, or substantially change the bed, channel, or bank of a river, stream, or lake, or use material from a streambed. CDFW's issuance of an LSAA is subject to California Environmental Quality Act certification.

3 Site Characteristics

3.1 Regional Setting

The Project site is located in Imperial Valley within the Sonoran Desert of Southern California, just north of the US-Mexico border. The topography of the Project site is fairly flat to undulating but generally slopes upward at a gradient of less than 1 percent toward the southeast. Ground elevations of the Project site range from approximately 65 feet (20 meters) at its lowest elevation in its southwest corner to 125 feet (38 meters) at its highest elevation in its southeast corner. Sand dunes occur on the northern part of the Project site. Anthropogenic features and land use in and near the Project site include interstate travel, agriculture, trash dumping, and recreational activities.

3.2 Hydrology

The Project site is within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million acres (20,000 square miles) in southeastern California and is the most arid HR in California with annual precipitation averaging less than 4 inches (WRCC 2024). The Project site is in the Southern Mojave-Salton Sea subregion of Hydrologic Unit Code (HUC) 18 Hydrologic region, which is a closed desert basin. The Project site is located within the Deer Peak Watershed with East Highline Canal to the west, Coachella Canal to the east, and the All-American Canal bisecting the transmission line area on the southern end of the Project site (Figure 4). According to data from the National Hydrography Dataset (NHD), two small, discontinuous, intermittent streams occur on the western side of the Project site. These intermittent streams correspond to vegetated swales, likely with moderately deep ground water but appeared to lack surface flow.

3.3 Soils and Sand Transport

The Project site is sandy overall. The Project site is dominated specifically by Rositas loamy fine sand with 0 to 2 percent slopes. A small percentage of the Project site also contains Rositas fine sand, Holtville loam, Holtville-Imperial silty clay loams and Superstition loamy fine sand. Small areas that contain mesic/riparian vegetation are mapped as Rositas fine sand, wet, 0 to 2 percent slopes, which is typically found in basins and floodplains Figure 5.

The Algodones Dunes are approximately 8 miles east of the Project site and have active aeolian sand migration and deposition (Muhs et. al. 2003) and the lesser-known East Mesa north of the Project site is mostly stabilized by vegetation (Muhs 2017). The provenance of these dunes has been much debated, but the most recent study for their origin indicates that these dunes have a lot of overlap with the late Holocene lacustrine shorelines of the paleolake know as Lake Cahuilla, which is an expanded area of the current Salton Sea and Colorado River, with only a small amount of overlap with the Chocolate Mountains (Muhs 2017, Muhs et al 1995). The northern and eastern portions of the Project site are mapped as having sand dunes (Figure 6). Annual resultant drift direction for sand-moving winds begins far southwest of the Project site form the Pacific Ocean and heads northeast towards the Algodones Dunes (Muhs 2017). Due to the composition and prevailing winds, active sand transport is likely northwest of the Project site opposite of the slope and hydrological flow on the Project site. I-8 creates a further barrier for transport, and sands that occurs on the Project site are potentially deposits that formed prior to construction of I-8 since active aeolian sand changes over time. The Project site has sand sheets stabilized by vegetation that may also contribute to a lack of defined channels.

3.4 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Precipitation data were obtained from spatial climate datasets within grids located on the Project site prepared by the Parameter-elevation Regressions on Independent Slopes Model Climate Group (PRISM 2024) since the most proximate weather stations to the Project site, Calexico and Imperial sand dunes weather stations (approximately 15 miles and 40 miles from the Project site, respectively), did not have recent datasets (WRCC 2024).

The subtropical climate of the Colorado Desert is characterized by dry, mild winters averaging 57 degrees Fahrenheit (°F) and dry, hot summers that average 93°F. Summer highs are known to reach 122°F. Recent annual rainfall data from 2012 to 2024 were averaged, as outlined in Table 3-1 (PRISM 2024, WRCC 2024). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and the highest summer rainfall occurred between April and September 2013 and 2023. Tropical and post-tropical storm conditions impacted southern California on August 20-21, 2023, as remnants of Hurricane Hilary, which peaked as a Category 4 storm, moved onshore.

Review of aquatic resources were conducted mostly in March and April of 2023 and 2024. March and April 2023 had below average rainfall and March and April 2024 had above average rainfall.

Table 3-1. Seasonal Rainfall Summary

Year	Winter – October to March (inches)	Summer – April to September (inches)
2012	0.11	0.23
2013	0.21	0.33
2014	0.20	0.13
2015	0.22	0.19
2016	0.12	0.11
2017	0.47	0.10
2018	0.02	0
2019	0.51	0.09
2020	0.83	0.11

Year	Winter – October to March (inches)	Summer – April to September (inches)
2021	0.19	0.10
2022	0.08	0.16
2023	0.17	0.33
2024	0.38	-
Seasonal Average	**0.30**	**0.15**

3.5 Vegetation Communities

Vegetation communities in the Project site were field verified and classified by botanists, using (Holland 1986) and cross-referencing with *A Manual of California Vegetation, 2nd edition* (Sawyer, Keeler-Wolf, and Evens 2009) and the National Vegetation Classification System (NVCS) referenced in the DRECP (CDFW and AIS 2022).

Using the NVCS vegetation layers as reference, botanists verified that these vegetation communities were correct and made adjustments by creating vegetation polygons within ArcGIS Field Maps where needed. Most mapped vegetation boundaries are accurate to within approximately 10 feet (3 meters) and were refined to submeter data collection where it may be a jurisdictional wetland or water.

Field adjusted polygons were intergraded with confirmed NVCS vegetation communities and created new shapefiles that were used to calculate areas of each vegetation type. Any vegetation map is subject to imprecision for several reasons:

- Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
- Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.
- Vegetation types tend to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these patches varies, depending on the minimum mapping units and scale of available aerial imagery.

Six vegetation communities were identified during field surveys (Figure 7), which are further described below.

3.5.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub has a state rarity rank of S5 (CDFW 2023), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It is synonymous with *Larrea tridentata-Ambrosia dumosa* alliance (Sawyer, Keeler-Wolf, and Evens 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). On the Project site, creosote is dominant in the shrub canopy, or creosote bush scrub and white bursage are co-dominants in the shrub canopy with only a few shrubs sparsely distributed. Emory's indigo (*Psorothmanus emoryi*), white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and ephedra (*Ephedra* spp) occur in some areas with primarily an understory of annual plants. This vegetation community is the dominant vegetation community throughout most of the Project site and the transmission line corridor north of the All-American Canal.

3.5.2 Microphyll Woodland/Desert Dry Wash Woodland

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S3 (CDFW 2023). Desert dry wash woodland is characteristic of desert washes and is likely to be regulated by CDFW as jurisdictional State waters. This vegetation community on the Project site is characterized by mesquite thickets that is synonymous to mesquite (*Prosopis glandulosa*) woodland alliance (Sawyer, Keeler-Wolf, and Evens 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. This vegetation community has mesquite trees that cover at least 2-3 percent of the absolute cover for trees and shrubs and was mapped as patches within the transmission line corridor and on the private parcel in the south central portion of the Project site. Other plants observed in this plant community included arrowweed (*Pluchea sericea*) and tamarisk (*Tamarix ramosissima*).

3.5.3 Alkali Goldenbush Desert Scrub

Alkali goldenbush desert scrub is a sensitive vegetation community with a state rarity rank of S3 (CDFW 2023). It is synonymous to alkali goldenbush (*Isocoma acradenia*) shrubland alliance. Within the Project site, alkali goldenbush forms an open shrub layer (up to 35% cover). The tree layer, consisting of mesquite, is mostly sparse if present. Stands generally have low cover of vegetation and may be sparse (<10% total vegetation). Sites are moist or seasonally dry flats, and margins of intermittently saturated vegetated swales. It is found primarily on low and mid-slopes at elevations ranging from approximately 25 to 300 m with northeast and southwest aspects. Soils are variable and derived from alluvium and dune sand; textures include sand and loamy sand but include sites with finer-textured soil.

3.5.4 Arrowweed Thickets

Arrowweed thickets are a sensitive vegetation community with a state rarity rank of S3 (CDFW 2023). It is synonymous to *Pluchea sericea* shrubland alliance. This vegetation community is characterized by arrowweed that is more than or equal to 2% of absolute cover with a sparse herbaceous layer of seasonal annuals. This vegetation is usually found near seasonally flooded washes and stream borders. Within the Project site, this vegetation community occurs only within a small portion of the transmission line corridor bordering the southern edge of the road berm of the All-American Canal. No standing water was observed in the area during surveys.

3.5.5 Common Reed Marsh

Common reed marsh is synonymous with *Phragmites australis* herbaceous semi-natural alliance. This vegetation community is characterized by more than 2% absolute cover and more than 50% relative cover in the herbaceous layer. This vegetation community is sometimes considered invasive along waterways and wetlands (CDFW 2023) and is only located along the All-American Canal within the transmission line corridor.

3.5.6 Tamarisk Thickets

Tamarisk thickets are a non-native community that consists of *Tamarix ramomissima* trees (or other *Tamarix* species) that form dense thickets along rivers and streams, around the banks of lakes and ponds or in areas that have shallow ground water. Soils become alkaline, which can often exclude other species becoming established. Because it is an aggressive competitor, tamarisk has spread throughout the West causing major changes to riparian and other natural environments. The large number of seeds disperse via wind, flowing water, and animals. With such high reproductive potential, tamarisk can develop into monoculture stands, block out sunlight, reduce space for natives, deplete soil nutrients, lower water tables, and increase a fuel source for fire spread. Within the Project site, this vegetation community occurs within the transmission line corridor north and south of the All-American Canal.

4 Methods

4.1 Preliminary Data Review

Prior to conducting field surveys, analysis was performed with Geographic Information Systems (GIS) using the following digital datasets, which include the most current information, data sources, and tools:

- 7.5' US Geological Survey (USGS) topographic quadrangles
- National Agriculture Imagery Program (NAIP) aerial imagery
- National Wetlands Inventory Wetlands Mapper (USFWS 2024)
- USGS Watershed Boundary Dataset Hydrologic Unit Code (HUC) 18 mapping (USGS 2023)
- USGS NHD high-resolution mapping with flowlines (USGS 2023)
- The Consortium of California Herbaria Jepson Interchange (Consortium of California Herbaria (CCH) 2023)
- Calflora (2023)
- Manual of California Vegetation and DRECP mapping (Sawyer, Keeler-Wolf, and Evens 2009)
- Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA and NRCS 2024)
- Western Regional Climate Center (WRCC 2024)
- PRISM Gridded Climate Data (PRISM 2024)

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

4.2 Field Investigations

An initial field investigation (survey) for aquatic resources, including wetlands and other waters, was conducted from July 23 to July 25, 2022 (2022 site visit). During the 2022 site visit, surveys were conducted by Leigh Rouse and Michele Cloud-Hughes, both of whom are qualified with 40-hour jurisdictional water training or other appropriate wetland delineation training and have previous experience with aquatic resources associated with arid lands of the California deserts. During the 2022 site visit, wetlands were delineated in areas that are now avoided by the Project.

Between March 20 to April 4, 2023 (2023 site visit), Ironwood biologists conducted surveys for wildlife, rare plants, and aquatic resources by walking 20 meter transects in a north/south direction throughout the Project site. Leigh Rouse and Hattie Oswald conducted delineations between April 1 and April 4, 2023, where aquatic resources were noted during the initial surveys. On April 25 and 26, 2024, Leigh Rouse and Nathan Gross conducted surveys for aquatic features by traversing the new project areas on private land and BOR-managed lands. On April 30, 2024, Leigh Rouse and Marcy Bueno surveyed the areas potentially impacted by widening access roads for aquatic features.

During surveys for aquatic features, point, line, or polygon data were collected at individual features that displayed characteristic signs of episodic flow or retention of water. In some cases, data were collected in upland areas to provide a record of areas that lacked watercourse features. Aquatic Resources figures (Figure 8 through Figure 18) are provided in Appendix A. Representative photos were taken at aquatic resources and upland areas. Photo points are shown on Figure 8 through Figure 18, and photos are provided in Appendix B. Data, including the width of the ordinary high water mark (OHWM) and bank to bank, were taken for each aquatic feature that occurred within the Project site, typically at the center of each feature.

4.2.1 Wetland Determination

Wetlands potentially subject to USACE jurisdiction were delineated based on the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2010). 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 2020) and using the nomenclature offered in the US Department of Agriculture (USDA) NRCS PLANTS Database (NRCS 2023). 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).

The boundaries of wetlands were delineated with ESRI ArcGIS Collector©. A sub-meter geographic positioning system (GPS) was used in the field to map boundaries of aquatic resource features potentially subject to USACE jurisdiction. Data forms for each data point were completed in the field (Appendix C).

4.2.2 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 (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 Plan*ts (Brady and Vyverberg 2014), and CDFW's traditional 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, 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 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 site.

Field investigations conducted in spring 2023 and 2024 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 lineation
- Cut banks
- Sediment sorting
- Vegetation channel alignment
- Sand/gravel bars
- Mud cracks/curls
- Wrinkle marks
- Drift/wrack lines
- Exposed roots
- Scour
- Sand filled channels

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 desert 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/manmade 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.

4.3 Post-field analysis

Post-field analysis was conducted by Ironwood ecologists and GIS specialists, in tandem, to code, define, designate, and edit all acquired field data representing jurisdictional waters. 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 mapped with a GPS unit 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.

5 Aquatic Features

5.1 Overview

Irrigation from the surrounding agricultural areas of the Imperial Valley and seepage from the All-American Canal infiltrate into the groundwater. This supplemental groundwater can be close to the surface in lower elevation areas. The Project site topography generally slopes from the central portion to the southwest where mesic swales vegetated with alkali goldenbush, honey mesquite, and tamarisk occur. These mesic vegetated swales continue to the southwest beyond the Project site becoming a mosaic of vegetation communities dominated by tamarisk, arrowweed, honey mesquite, or alkali golden bush. Typically, there is no defined channel associated with vegetated swales. To the west, the vegetated swales continue to occur adjacent and down slope of the All-American Canal, which provides supplemental groundwater support from canal seepage.

These mesic vegetated swales have increased structural and biological diversity and provide important wildlife habitat, especially for migratory birds, but lack surface water that supports aquatic organisms. These swales may have areas where water temporarily pools after precipitation events but quickly infiltrates into the ground.

On the southern portion of the Project site, additional mesic vegetated swales occur near the All-American Canal. North of the canal, water appears to be provided from the canal to a mitigation wetland, which occurs outside of the Project site. The water for this mitigation wetland also supports additional mesic and riparian communities of honey mesquite, tamarisk, and arrowweed. South of the canal, seepage supports more mesic and riparian vegetated swales that generally continue to the south. Seepage from the All-American Canal is known to support thousands of acres of wetlands in Mexico.

Throughout the Project site, areas of sand dunes and sand sheets stabilized by vegetation lacked defined channels and other aquatic features. Where there are distinct slope breaks, short, isolated erosional features occur. Water likely erodes these slope breaks and quickly infiltrates into the ground. The dunes change over time, which also changes the drainage patterns making aquatic features indiscernible throughout much of the Project site.

5.2 Results

The Project site has two NHD-mapped intermittent drainages on the western end (Figure 4). Based on the field investigations, Ironwood designated these intermittent drainages as vegetated swales. These vegetated swales are characterized by mesic/riparian woodlands or shrublands. Non-vegetated washes (described in Section 5.1) occur upslope of and flow into the vegetated swales. Aquatic resources identified by Ironwood ecologists, including the All-American Canal and associated wetlands, are shown on Figure 8 through Figure 18 and are described below. A total of 172.67 acres of aquatic resources occurs within the Project site Table 5-1.

Table 5-1. Aquatic resources within the Project site.

Aquatic Resource	Project Development Area (acres)	Transmission Line Corridor (acres)	Total (acres)
Non-vegetated wash (OHWM)	0.41	--	0.41
Non-vegetated wash (bank to bank)	1.42	--	1.42
Alkali goldenbush-dominated vegetated wash	84.06	50.61	134.67
Microphyll Woodland/Desert Dry Wash Woodland	5.31	4.87	10.18
Tamarisk-dominated vegetated wash	--	14.18	14.18
Arrowweed-dominated vegetated wash	--	2.21	2.21
Wetland	--	3.44	3.44
Other waters (Canal)	--	6.16	6.16
Total	**91.20**	**81.47**	**172.67**

5.2.1 Non-vegetated Washes

Several non-vegetated washes on the western portion of the Project site occur on the slope above and drain into alkali goldenbush desert scrub vegetated swales (Figure 11 through Figure 16). To the east and in the central portion of the Project site, a non-vegetated wash flows into alkali goldenbush desert scrub and microphyll woodland dominated by honey mesquite. Characteristics of flow were present and small channels were formed where the gradient was steep enough to allow for surface runoff to become channelized. These non-vegetated washes (channels) supported evidence of scour, cut banks, headcuts, vegetation channel alignment, and sand filled channels and were typically 1 ft to 2 feet wide. Photo 2 is representative of a non-vegetated wash that has episodic flow characteristics. About 1.42 acres of non-vegetated wash from bank to bank occur within the Project Development Area. The OHWM is a subset within the non-vegetated wash from bank to bank. About 0.41 acre of non-vegetated wash OHWM occurs within the Project Development Area (Table 5-1).

5.2.2 Vegetated Swales

Several areas designated as vegetated swales likely have shallower ground water than the surrounding uplands, which allows dense mesic and riparian species to occur. None of these areas designated as vegetated swales met the necessary criteria to be a wetland. A portion of these vegetated swales, dominated by woodlands, were previously identified as a desert dry wash woodland or sensitive aquatic resource and would be avoided by the Project. Three types of vegetation communities comprise the vegetated swales: alkali goldenbush desert scrub, arrowweed thickets, and tamarisk thickets. These are described below. A total of 151.06 acres of vegetated swale (alkali goldenbush, tamarisk, and arrowweed) occurs within the Project site (Table 5-1).

5.2.2.1 Alkali Goldenbush-dominated Vegetated Swale

Alkali goldenbush desert scrub occurs on the upper slopes and often within and around the boundaries of woodlands dominated by honey mesquite or tamarisk (Photos 1, 3, and 5). The alkali goldenbush-dominated vegetated swales are shown on Figure 9through Figure 18. Based on site conditions during the April 2024 site visit, surface cracks occurred intermittently within the alkali goldenbush desert scrub vegetated swales, which indicate water may temporarily pool before becoming subsurface flow or continuing down gradient. Soil cracks and vegetation channel alignments are indicators of episodic flow ((Brady and Vyverberg 2013)). North of Highway 98, alkali goldenbush desert scrub swales transition into microphyll woodlands, which were eliminated from the Project site in the current design. South of Highway 98, alkali goldenbush desert scrub vegetated swales occur adjacent to the road berms of the All-American Canal and likely receive supplemental groundwater from canal seepage. A total of 134.67 acres of alkali goldenbush-dominated vegetated wash occur in the Project site (Table 5-1).

5.2.2.2 Tamarisk-dominated Vegetated Swales

Some areas north and south of road berms of the All-American Canal are mapped as non-native tamarisk community (Figure 17 and Figure 18) (Photos 9 and 10). This community likely receives supplemental supportive soil moisture from the All-American Canal. Approximately 14.18 acres of tamarisk-dominated vegetated swale occur within the Project site (Table 5-1).

5.2.2.3 Arrowweed-dominated Vegetated Swales

The arrowweed community occurs in a small portion of the Transmission Corridor (Figure 18). Arrowweed is typically found near seasonally flooded washes and stream borders and is considered a mesic species. About 2.21 acres of arrowweed-dominated vegetated swale occur within the Project site (Table 5-1).

5.2.3 Microphyll Woodland/Desert Dry Wash Woodland

Desert dry wash woodland, dominated by honey mesquite, occurs in the southern portion of the Project site (Figure 16) and south of the All-American Canal (Figure 18). Desert Dry Wash Woodland is a xeric riparian vegetation community (Holland 1986). Areas mapped as Desert Dry Wash Woodland were flat or a low gradient slope. Holland (1986) describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland. Within the Project site, this vegetation community is dominated by an open tree layer of honey mesquite with alkali goldenbush or creosote bush in the understory. Approximately 10.18 acres of Desert Dry Wash Woodland dominated by honey mesquite occurs within the Project site, including the transmission line corridor (Table 51). In compliance with DRECP CMA requirements, Project infrastructure would avoid this Desert Dry Wash Woodland with a 200-ft buffer, except for minor incursions.

5.2.4 Open Water - The All-American Canal

The All-American Canal is part of the Yuma Project that conveys water from the Colorado River to the Imperial Valley for year-round irrigation. The All-American Canal flows through the transmission line corridor of the Project site and has perennial flow. Approximately 6.16 acres and 1,969 linear feet of the All-American Canal bisect the transmission line corridor (Figure 17). Project infrastructure would avoid the All-American canal.

5.2.5 Wetlands

Wetlands within the Project site occur along both banks of the All-American Canal (Figure 17). Data were collected at two paired wetland and upland points (Table 5-2) The two wetlands (EM Wetland 2 and EM Wetland 3) are dominated by common reed (*Phragmites australis*), a facultative wetland species. Arrowweed, also a facultative wetland species, was present with low cover. Hydric soil indicators were assumed because of the dominance of a facultative wetland species and an abrupt transition to uplands and the presence of saturated soils. The All-American Canal is a perennial water source that provides year-round supportive hydrology for the wetlands along its banks. The transition to upland is abrupt with the presence of a bermed road on each side of the canal. Photos 7 and 8 show the wetland and upland data points respectively for EM Wetland 2.

Wetlands within the Project site were classified according to the Cowardin classification (Cowardin et al. 1979) The Cowardin classification system is used in the USFWS' National Wetland Inventory (NWI) for describing and categorizing wetlands and deepwater habitats based on a variety of characteristics. Wetlands within the Project site have a Cowardin classification of palustrine emergent (PEM) and total 3.44 acres (Table 2).

Table 5-2. Summary of wetland resources.

Wetland ID	Size (acres)	Associated Data Point	Latitude/Longitude	Cowardin Type
EM Wetland 2	1.62	EMDP12W, EMDP13U	32.705023/-115.202362	PEM
EM Wetland 3	1.81	EMDP15W, EMDP16U	32.705624/-115.202198	PEM
Total	**3.44**	**NA**	**NA**	**NA**

Total may differ from rounding.

5.2.6 Non-wetland Data Points

Some areas within the Project site had wetland indicator species present including arrowweed (FACW) and tamarisk (FAC) where data were collected to determine if the area met wetland criteria. Data for a wetland determination form was collected for Data Point EMDP 14U (Figure 18, Photo 9). While this area had hydrophytic vegetation as a dominance of arrowweed, this area was determined to be a non-wetland area because it lacked hydric soil and wetland hydrology indicators. Alkali powder was present on the soil surface, which can be an indicator of evaporation of saline ground water that may be derived from a deep-water table.

6 Jurisdictional Findings and Recommendations

The following discussion represents the best effort at determining the jurisdictional boundaries of aquatic resources using the most current regulations and guidance from the USACE and CDFW. Table 6-1 summarizes the acreage of aquatic resources with potential jurisdictional status for the USACE, RWQCB, and CDFW. It is recommended that agencies provide the final jurisdictional determination.

Table 6-1. Summary of potential jurisdictional status of aquatic resources.

Aquatic Resource	Development Area (acres)	Transmission Line Corridor (acres)[1]	U.S. Army Corps of Engineers	RWQCB Waters of the State	CDFW 1602 Resources
Wetlands	--	3.44	Possibly subject to USACE jurisdiction; recommend requesting an approved Jurisdictional Determination if these wetlands would be impacted.	Likely subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Open Water – All-American Canal	--	6.16	Possibly subject to USACE jurisdiction; recommend requesting an approved Jurisdictional Determination if the canal would be impacted.	Likely subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Non-vegetated Wash (Bank to Bank)	1.42	--	Not subject to USACE jurisdiction	Not subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Non-vegetated Wash (OHWM)	0.41	--	Not subject to USACE jurisdiction	Subject to RWQCB jurisdiction	CDFW 1602 jurisdiction included in 1.42 acres for non-vegetated wash bank to bank
Vegetated Swale (alkali goldenbush, tamarisk, and arrowweed)	84.06	50.61	Not subject to USACE jurisdiction	Not subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Microphyll Woodland/ Desert Dry Wash Woodland (Mesquite thickets)	5.31	4.87	Not subject to USACE jurisdiction	Subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction

[1]Impacts on aquatic resources within the Transmission Line Corridor would be smaller than what is shown in final design.

6.1 Clean Water Act (§ 401 and § 404)

The All-American Canal and its adjacent wetlands may be subject to USACE jurisdiction. Although the final design is not yet complete, the Project will likely avoid any impact to the All-American Canal and its associated wetlands, with transmission line impacts occurring outside of these areas. If the Project would result in the discharge of fill material into the All-American Canal or its wetlands, Ironwood recommends requesting an Approved Jurisdictional Determination issued by the USACE to confirm status of federal jurisdiction. If the All-American Canal is determined to be non-jurisdictional or no impacts are planned, a Section 404 permit would not be required for the discharge of fill into these aquatic resources.

6.2 California Porter-Cologne Water Quality Act

The RWQCB regulates discharges to jurisdictional waters 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.

The California WQCB regulations adopted in 2020 require project proponents to apply to the appropriate RWQCB to obtain authorization for dredge or fill in jurisdictional waters of the State. Based on the findings above, it is likely that some or all the aquatic features within the Project site would fall under the jurisdiction of RWQCB. An application should be submitted to the Colorado River Basin RWQCB, along with the required supplemental material (including precise impact calculations) and fee. CEQA review will be required to describe the effects on jurisdictional waters of the State.

6.3 California Fish and Game Code §§ 1600–1616

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 Lake or Streambed Alteration application should be submitted to CDFW, along with the required supplemental material (including precise impact calculations) and fee. CEQA review will be required to describe the effects to CDFW-jurisdictional streambeds and associated riparian habitat. The area estimated to meet the definition of CDFW-jurisdictional waters within the Project site are shown in Table 6-1.

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Appendix A — Figures

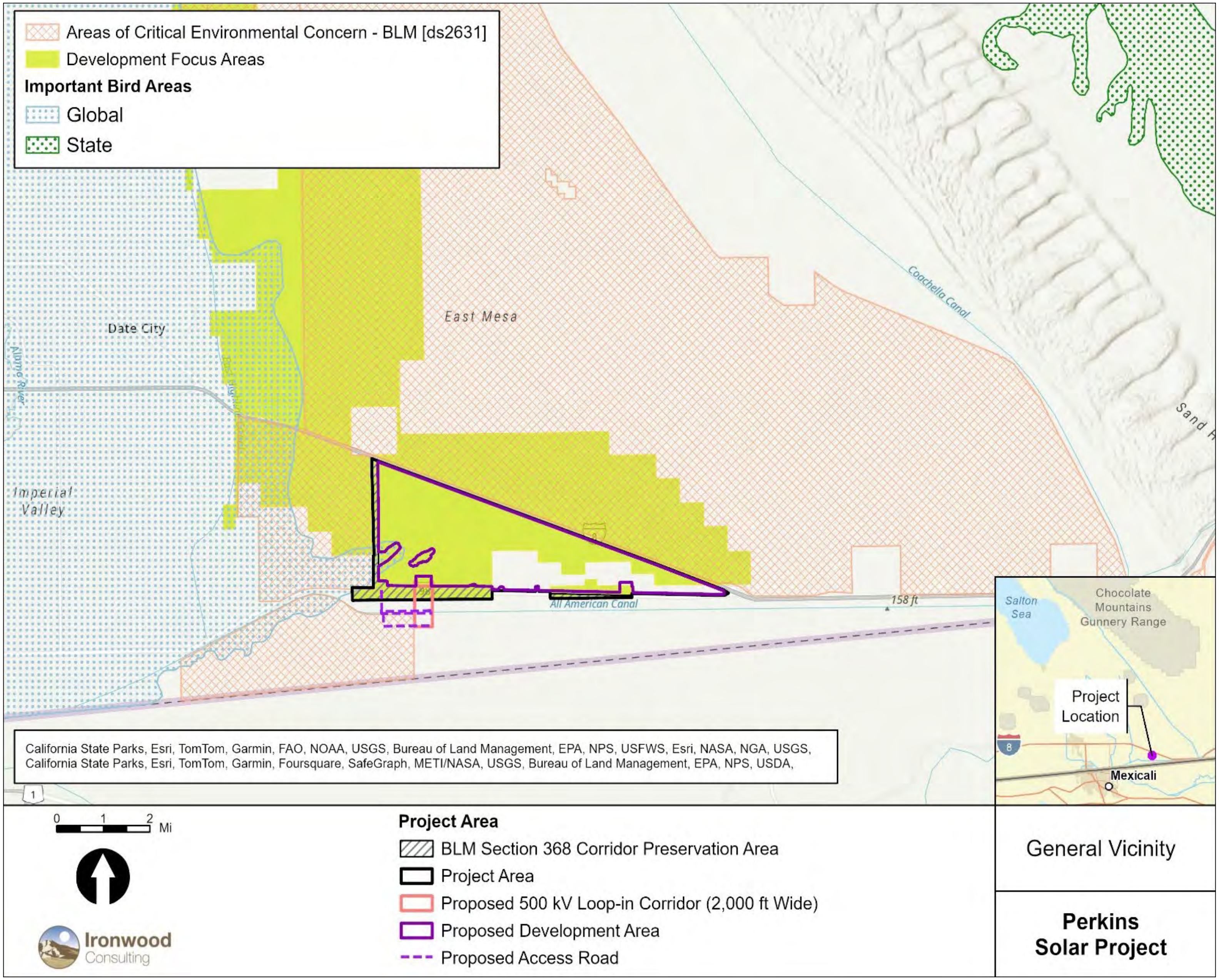


Figure 1. General Vicinity

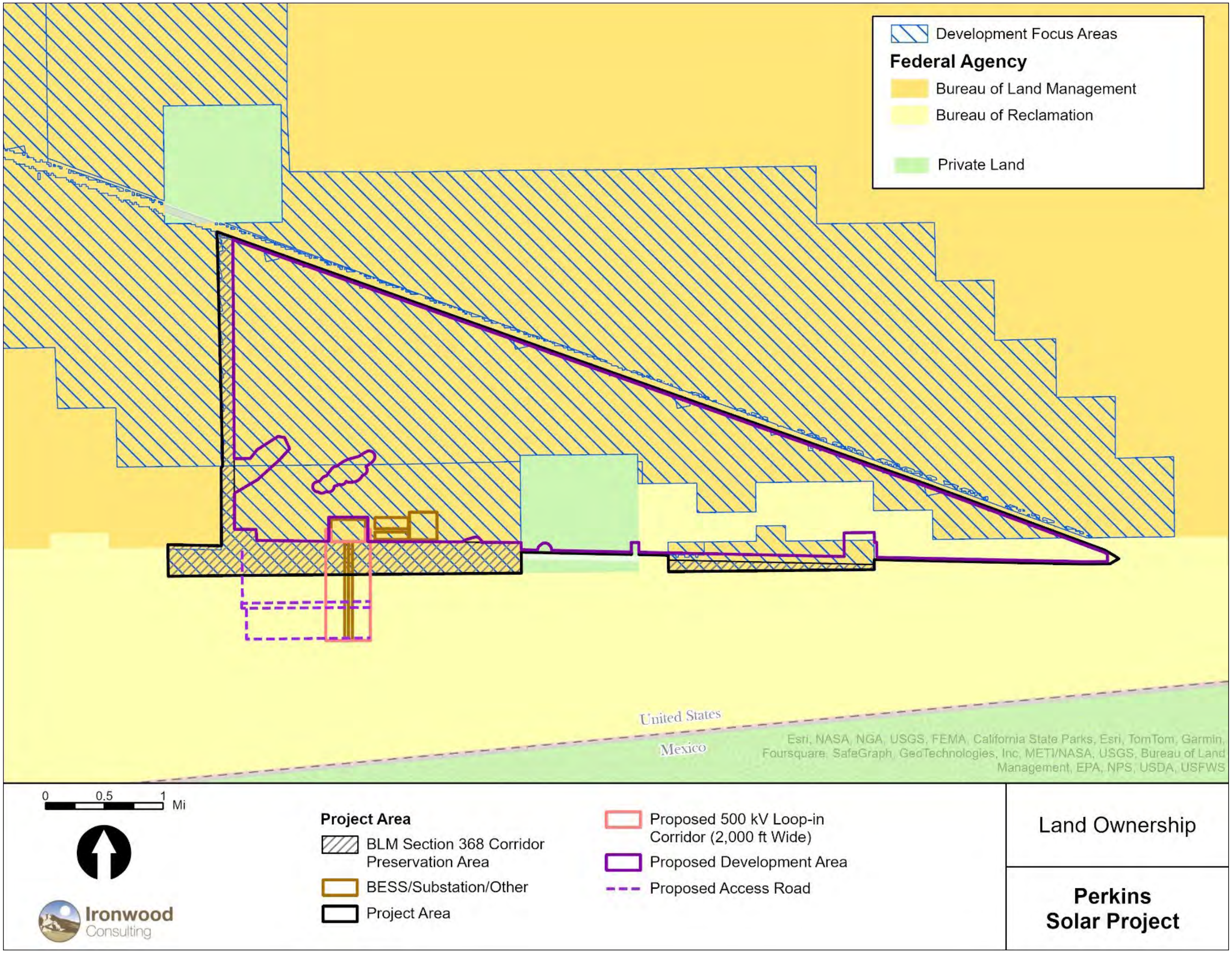


Figure 2. Land Ownership

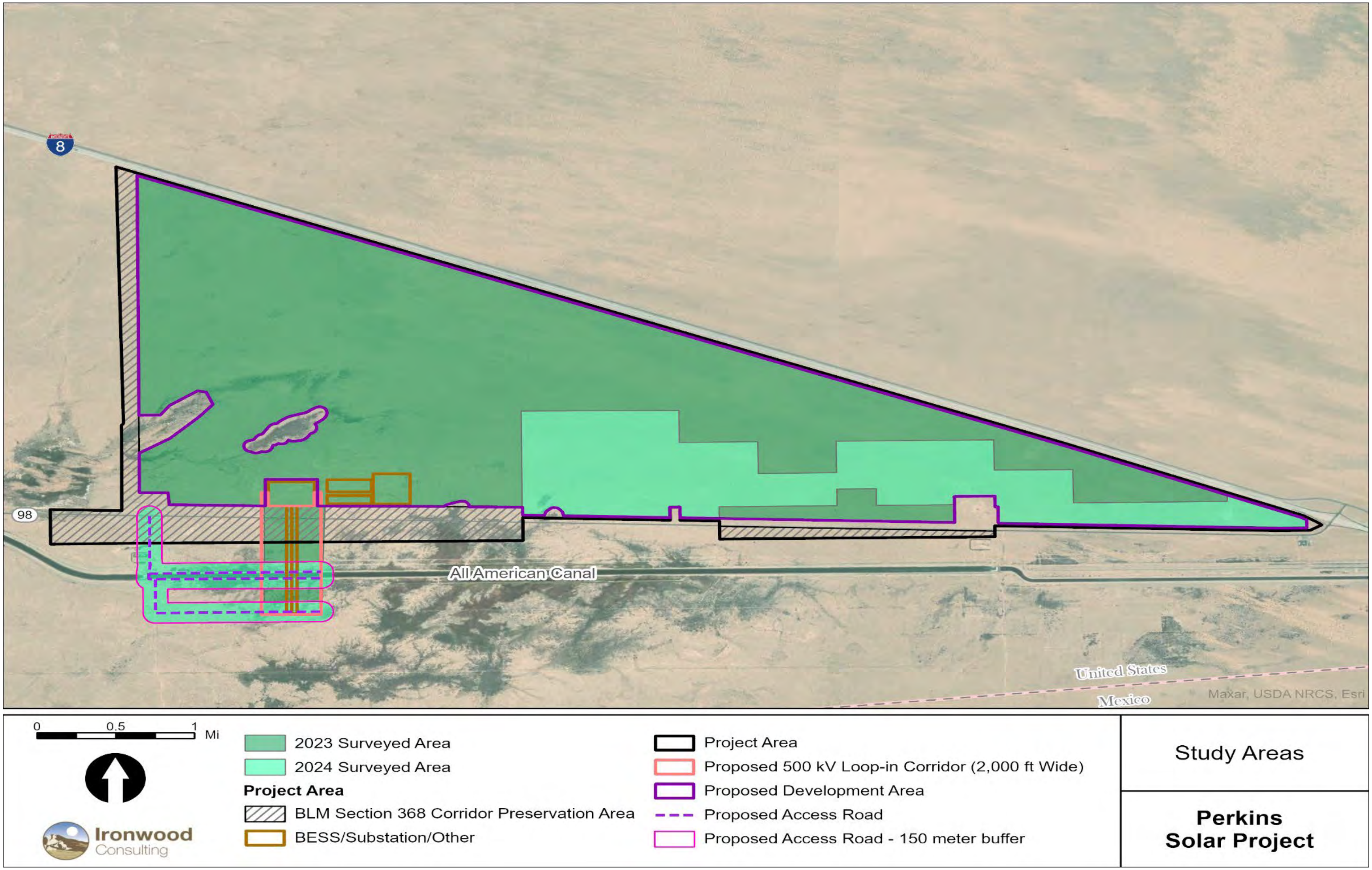


Figure 3. Study Areas

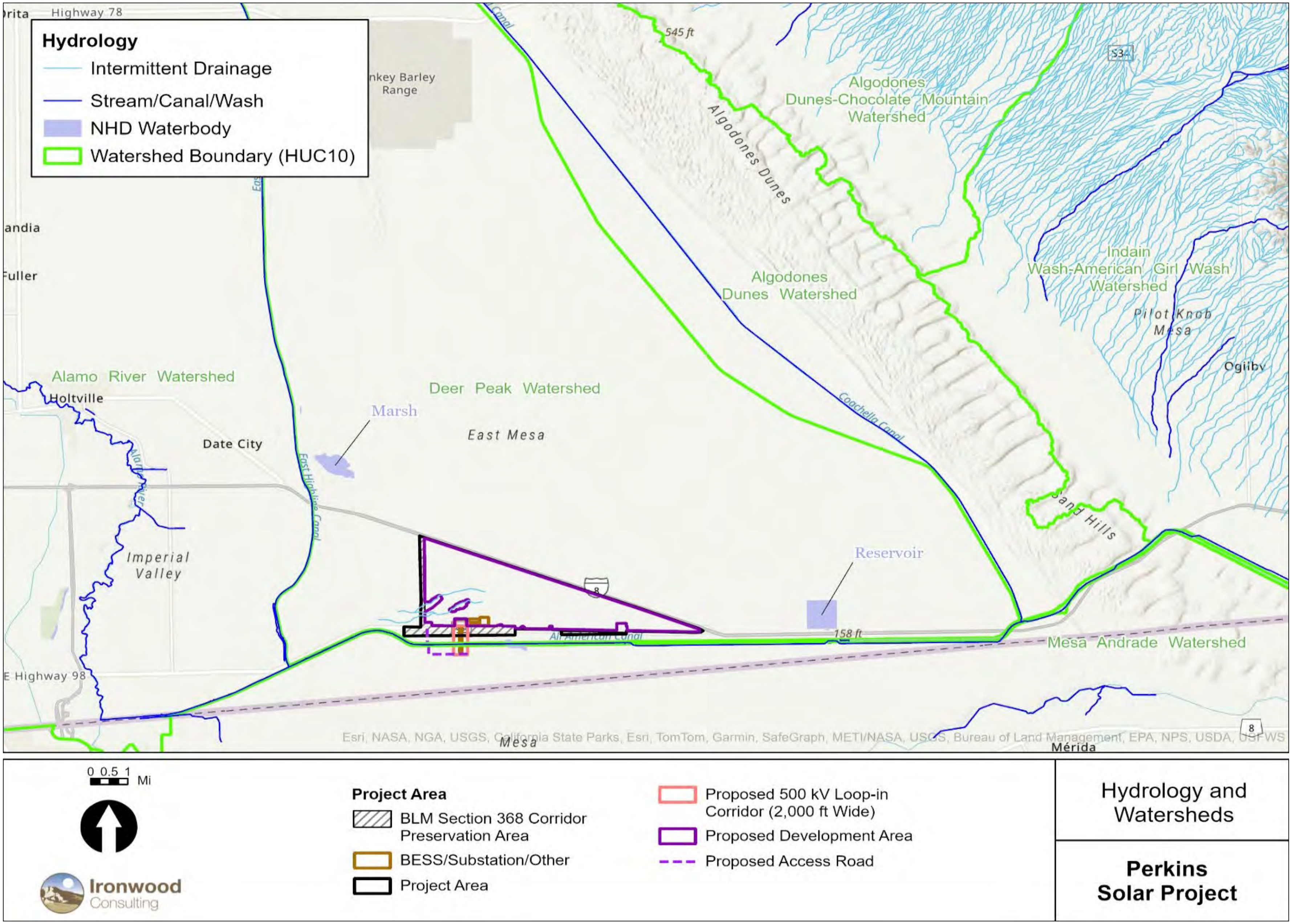


Figure 4. Hydrology and Watersheds

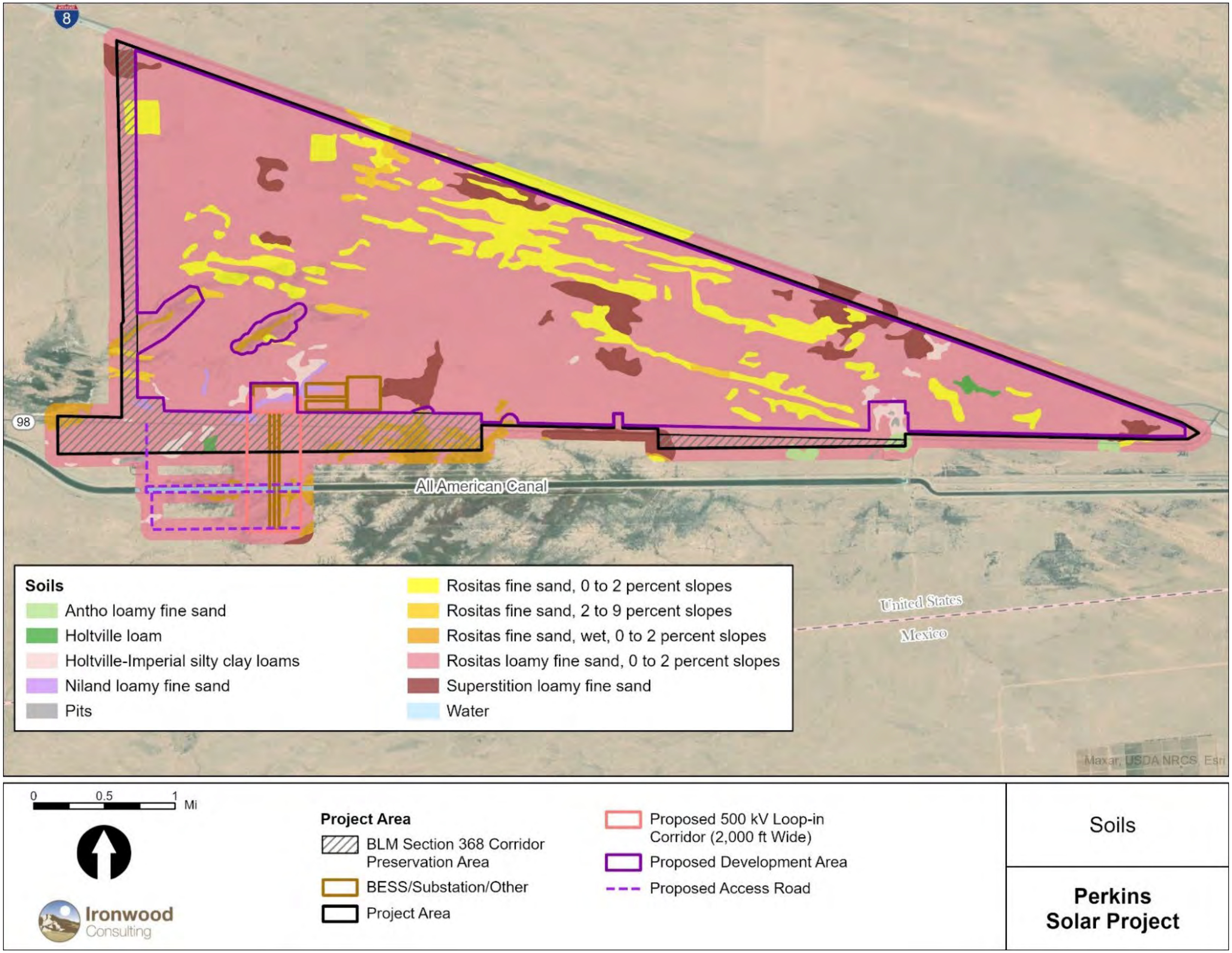


Figure 5. Soils.

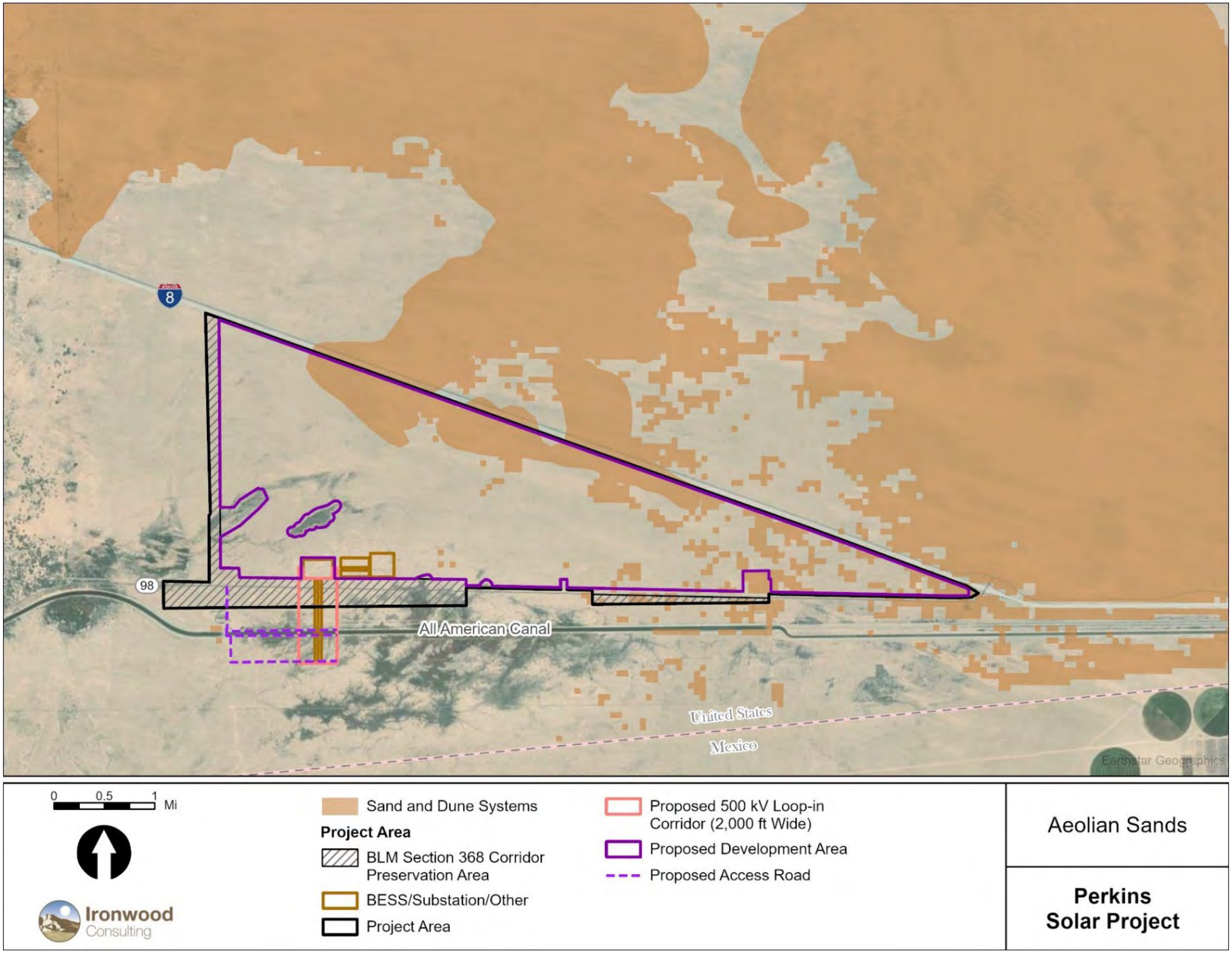
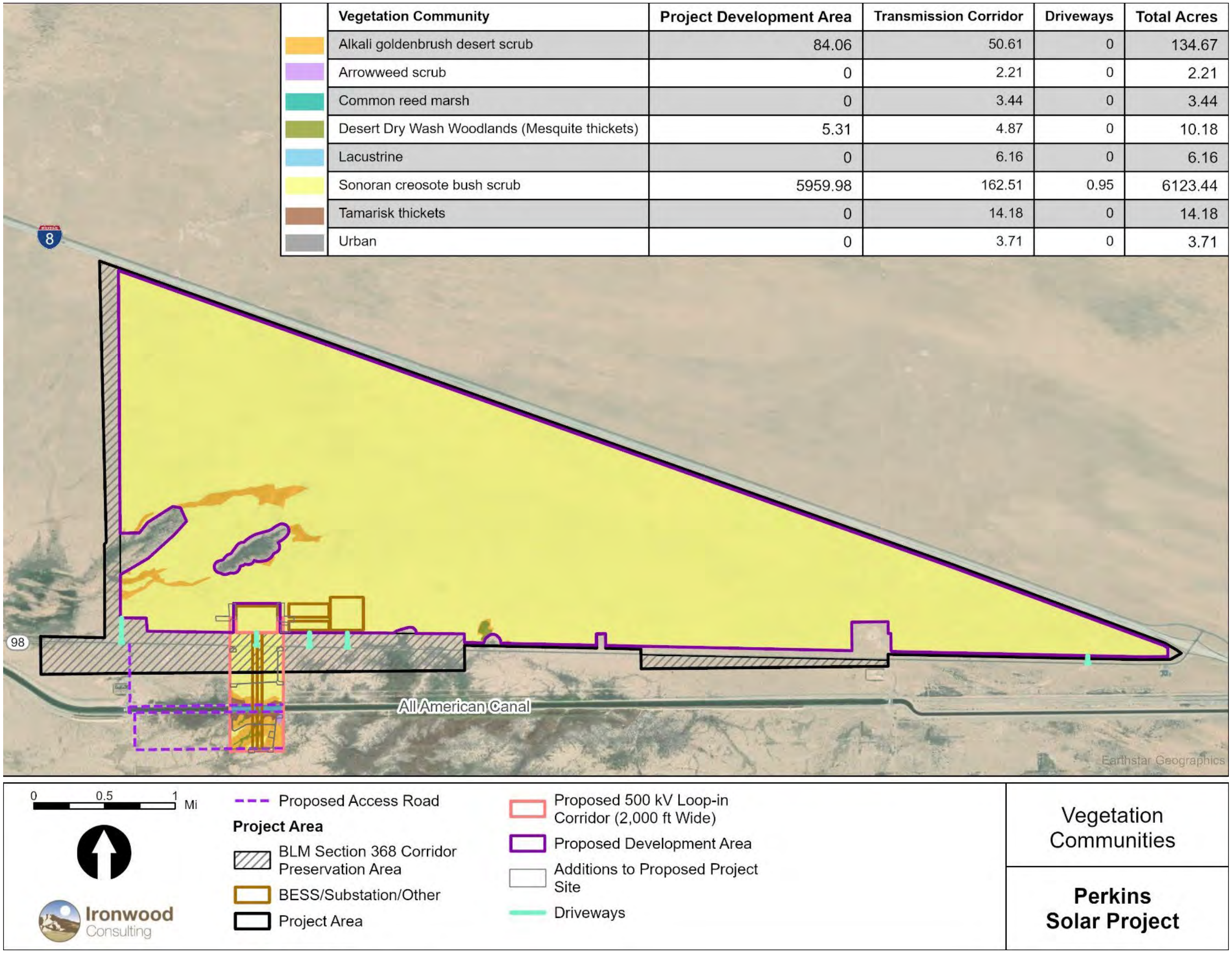
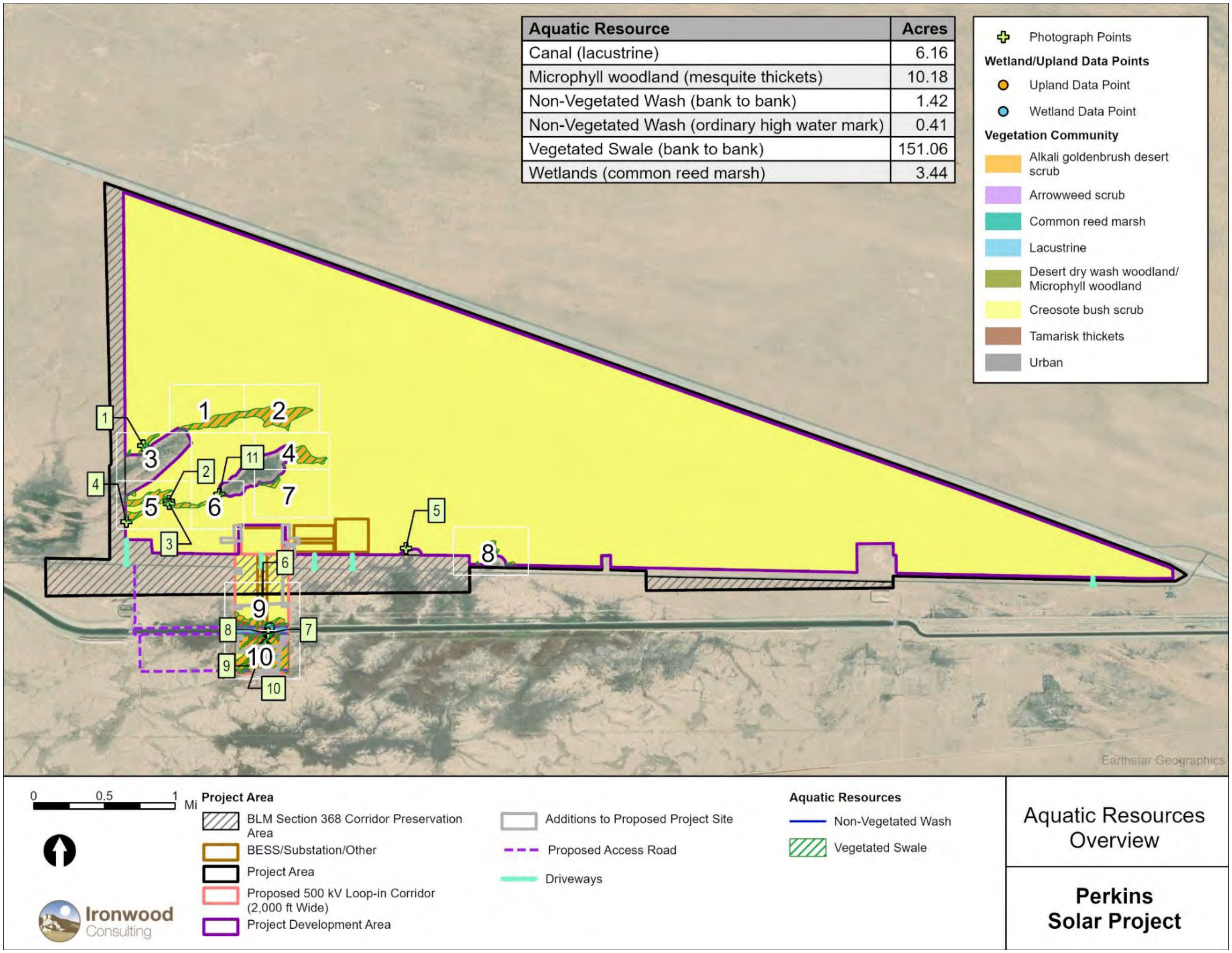


Figure 6. Aeolian Sands



Vegetation Community	Project Development Area	Transmission Corridor	Driveways	Total Acres
Alkali goldenbrush desert scrub	84.06	50.61	0	134.67
Arrowweed scrub	0	2.21	0	2.21
Common reed marsh	0	3.44	0	3.44
Desert Dry Wash Woodlands (Mesquite thickets)	5.31	4.87	0	10.18
Lacustrine	0	6.16	0	6.16
Sonoran creosote bush scrub	5959.98	162.51	0.95	6123.44
Tamarisk thickets	0	14.18	0	14.18
Urban	0	3.71	0	3.71

Figure 7. Vegetation Communities.



Aquatic Resource	Acres
Canal (lacustrine)	6.16
Microphyll woodland (mesquite thickets)	10.18
Non-Vegetated Wash (bank to bank)	1.42
Non-Vegetated Wash (ordinary high water mark)	0.41
Vegetated Swale (bank to bank)	151.06
Wetlands (common reed marsh)	3.44

Figure 8. Aquatic Resources Overview.

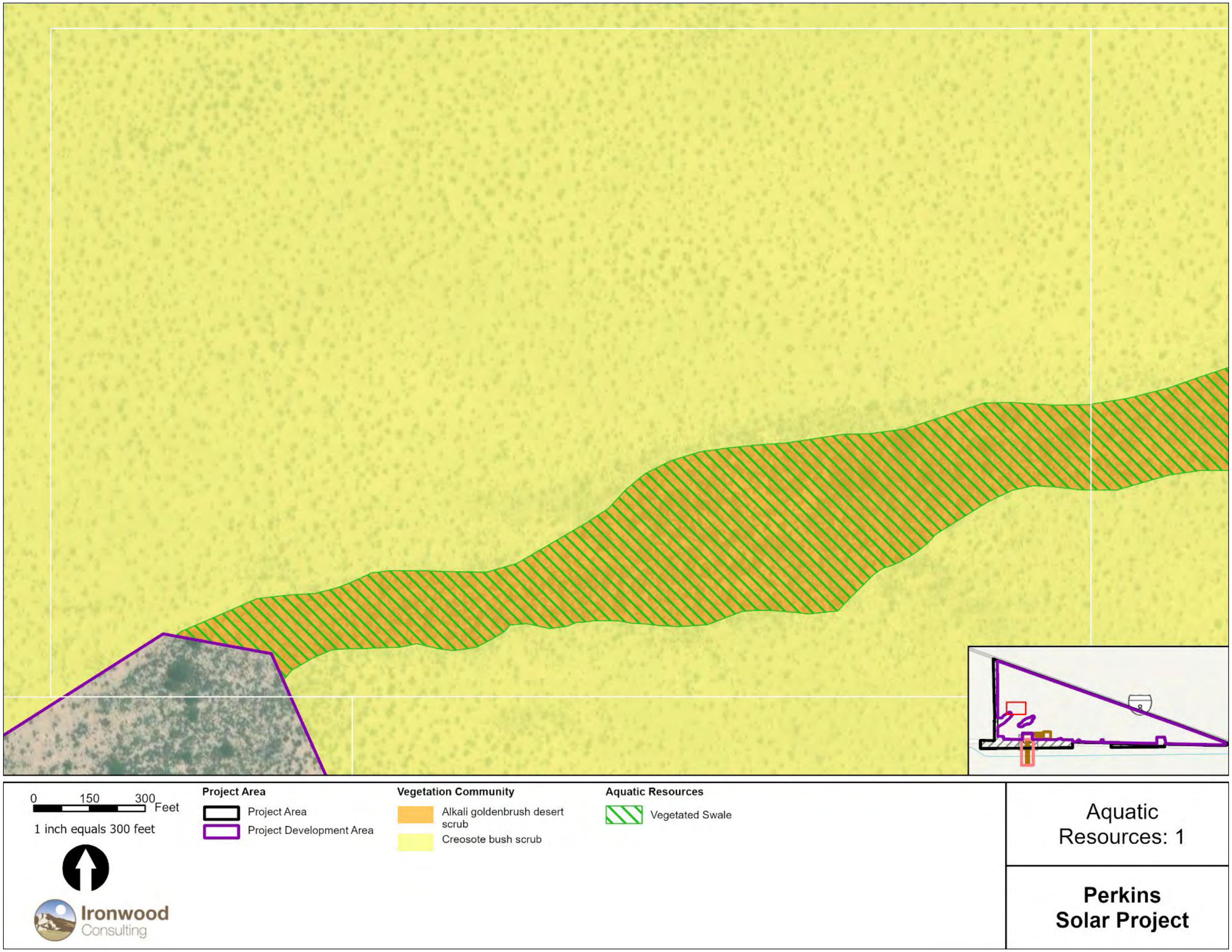


Figure 9. Aquatic Resources Map 1

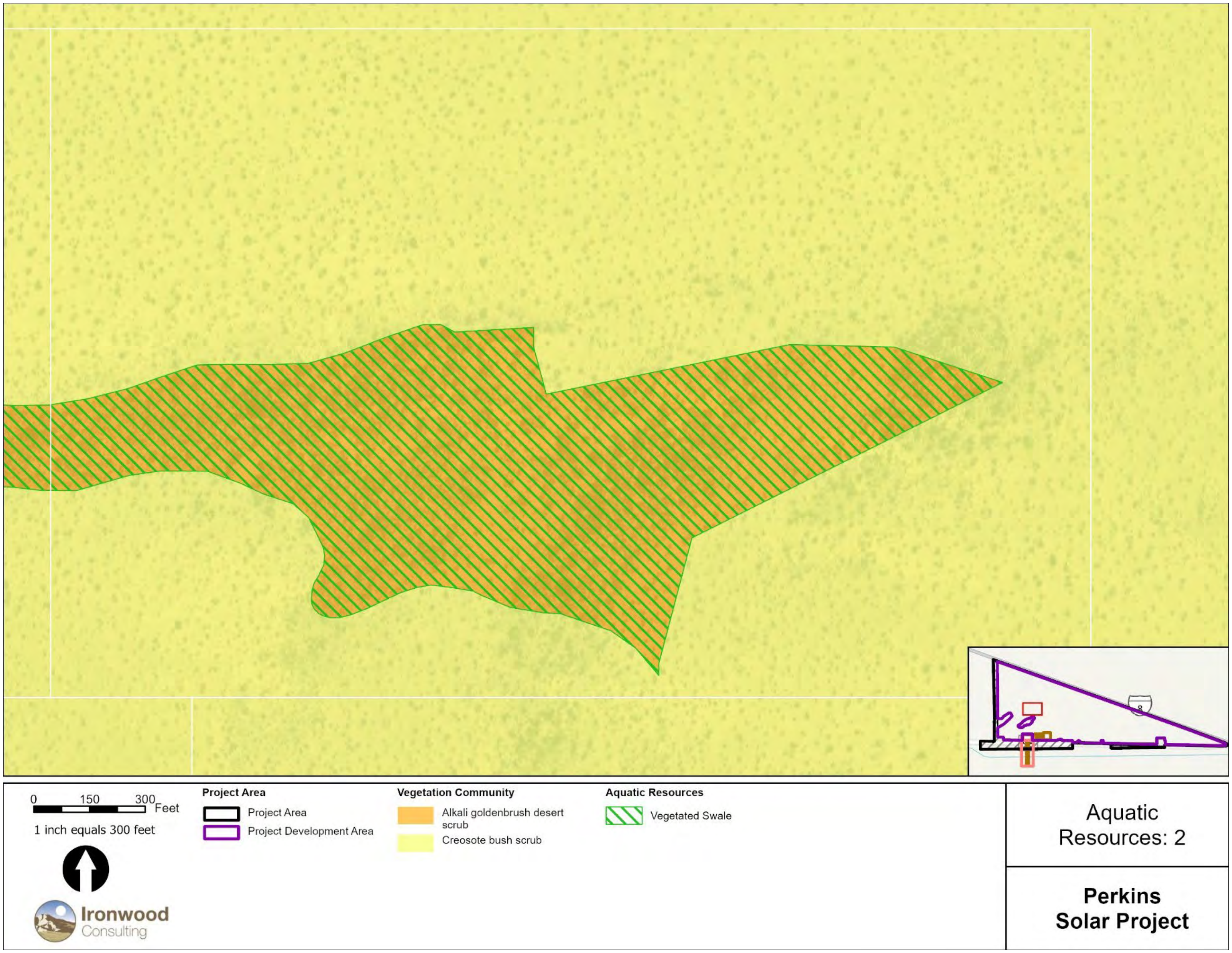


Figure 10. Aquatic Resources Map 2

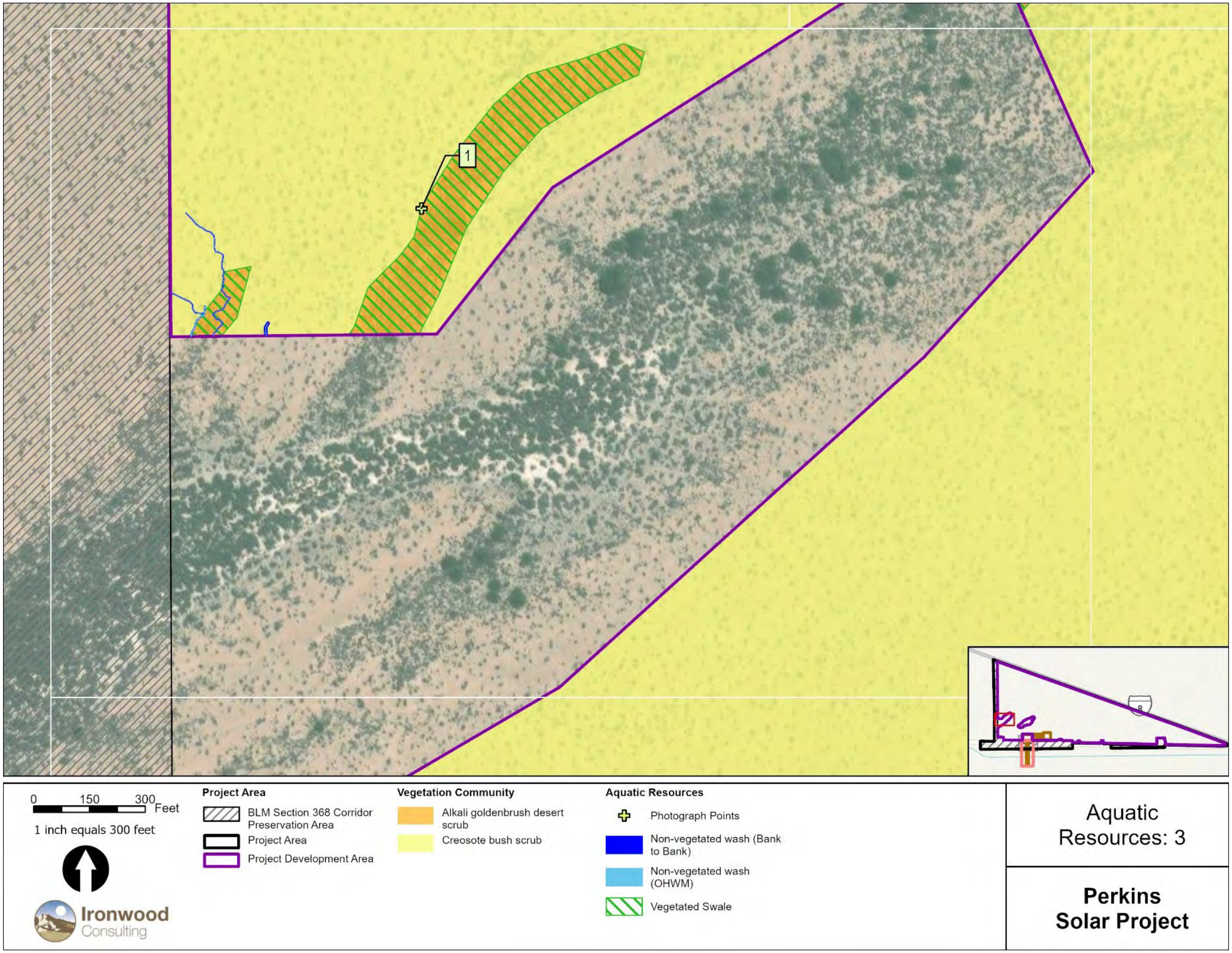


Figure 11. Aquatic Resources Map 3

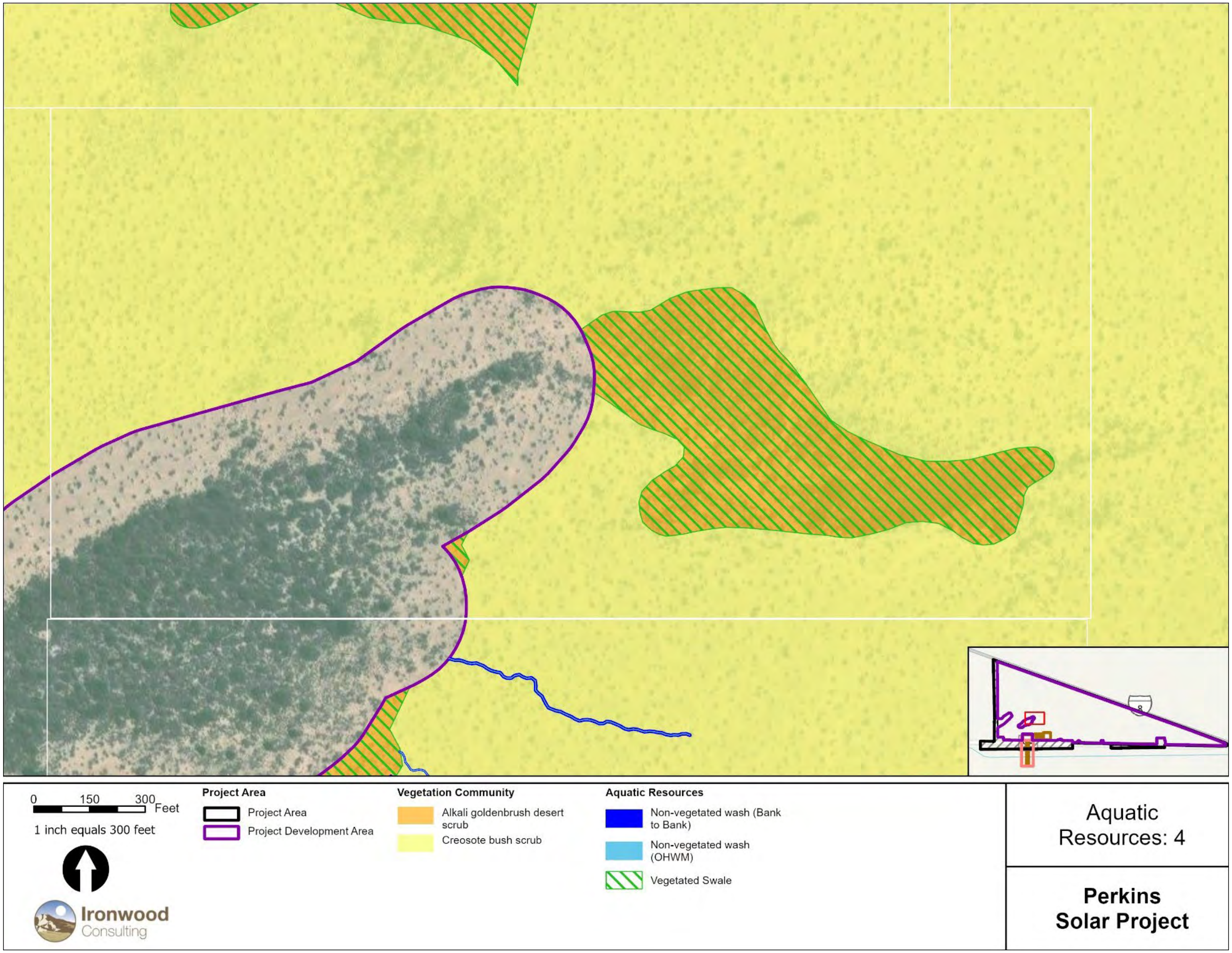


Figure 12. Aquatic Resources Map 4

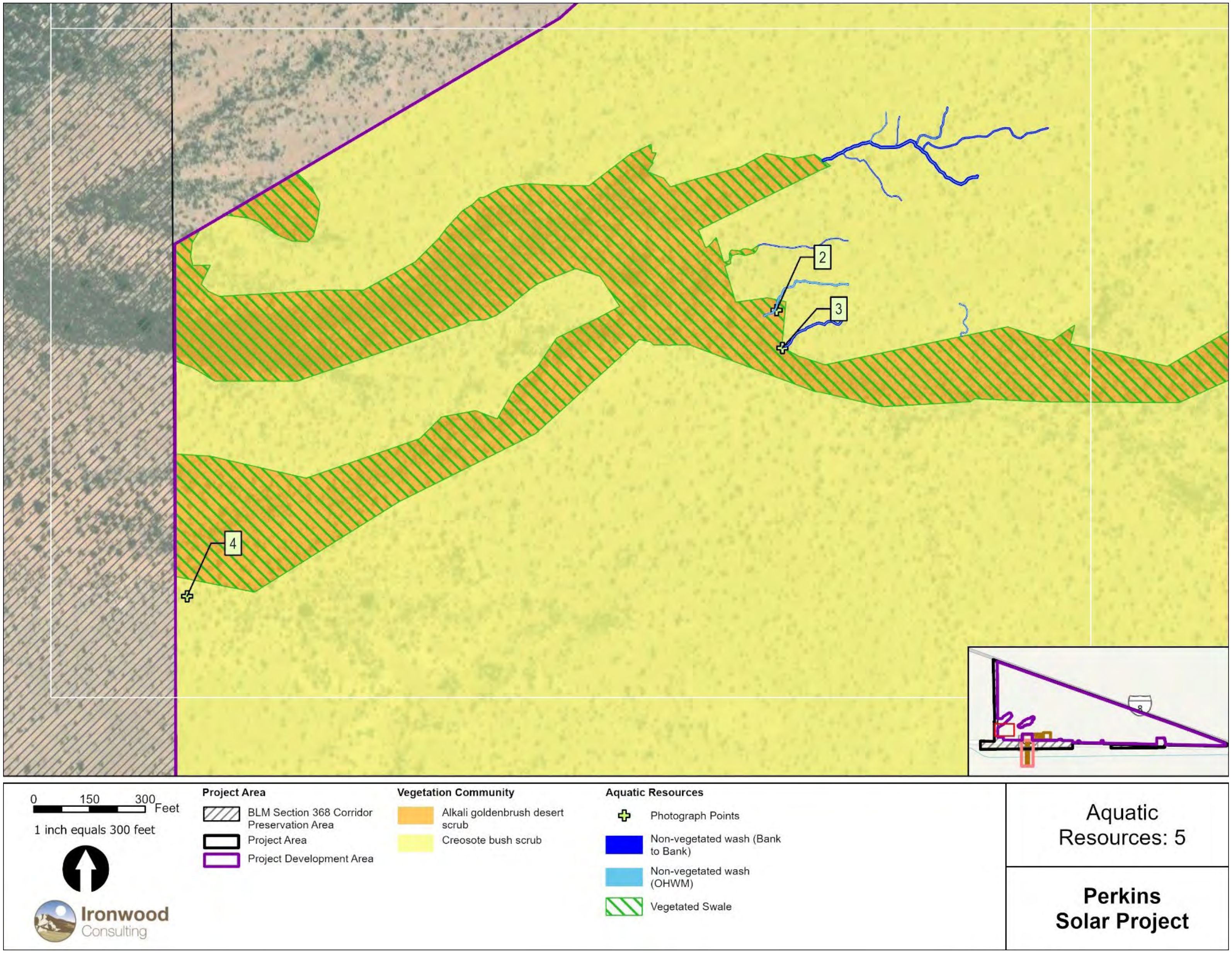


Figure 13. Aquatic Resources Map 5.

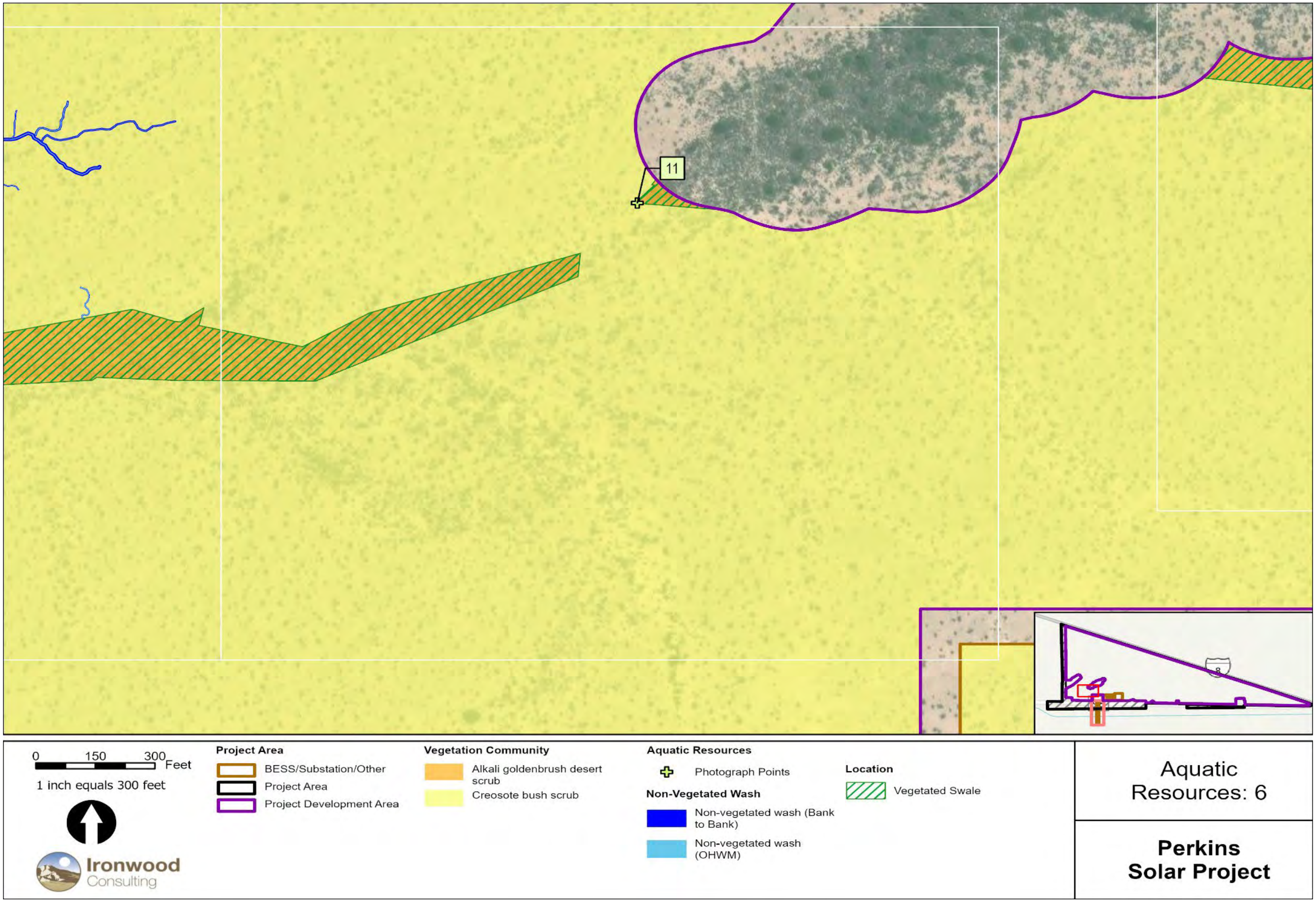


Figure 14. Aquatic Resources Map 6

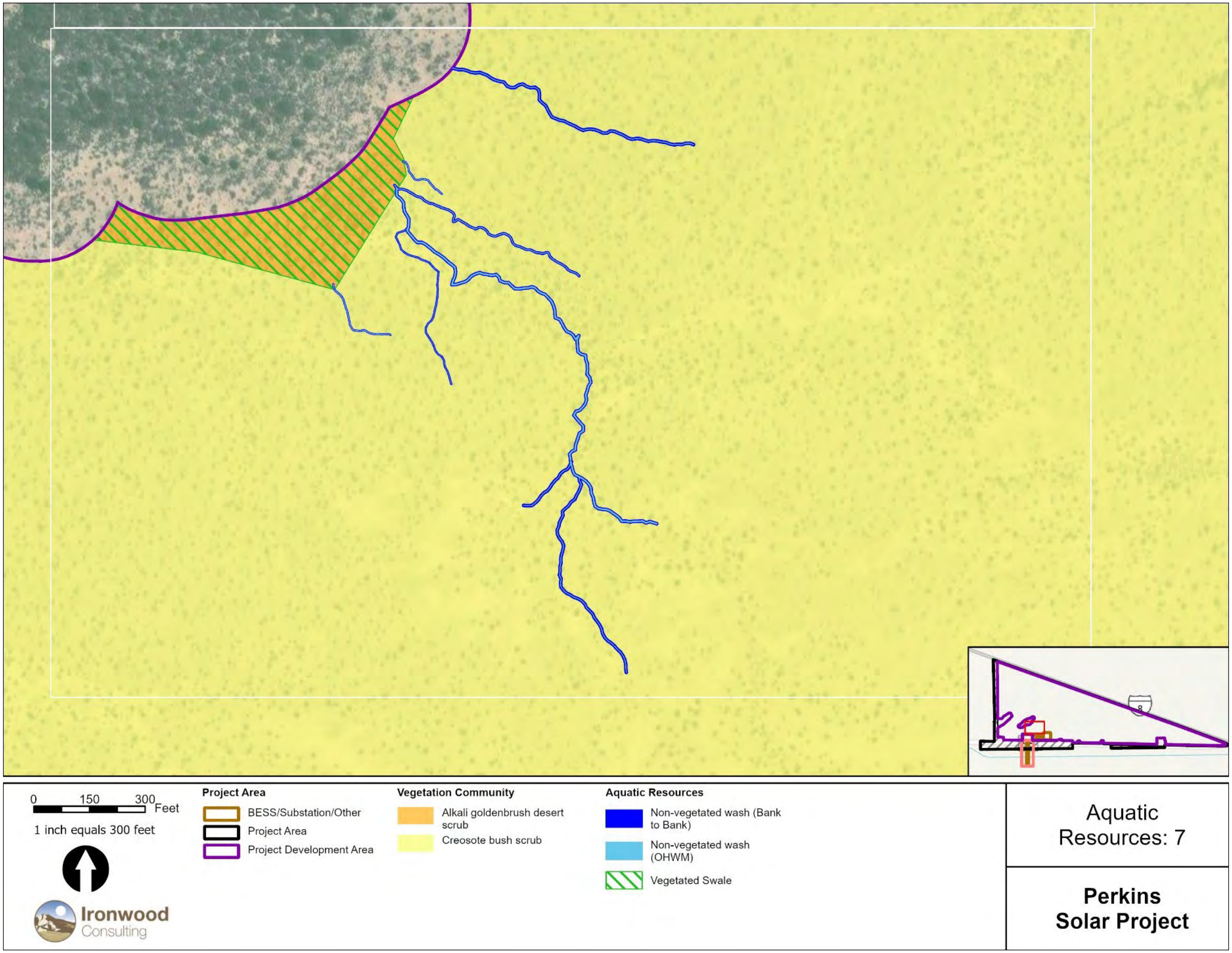


Figure 15. Aquatic Resources Map 7

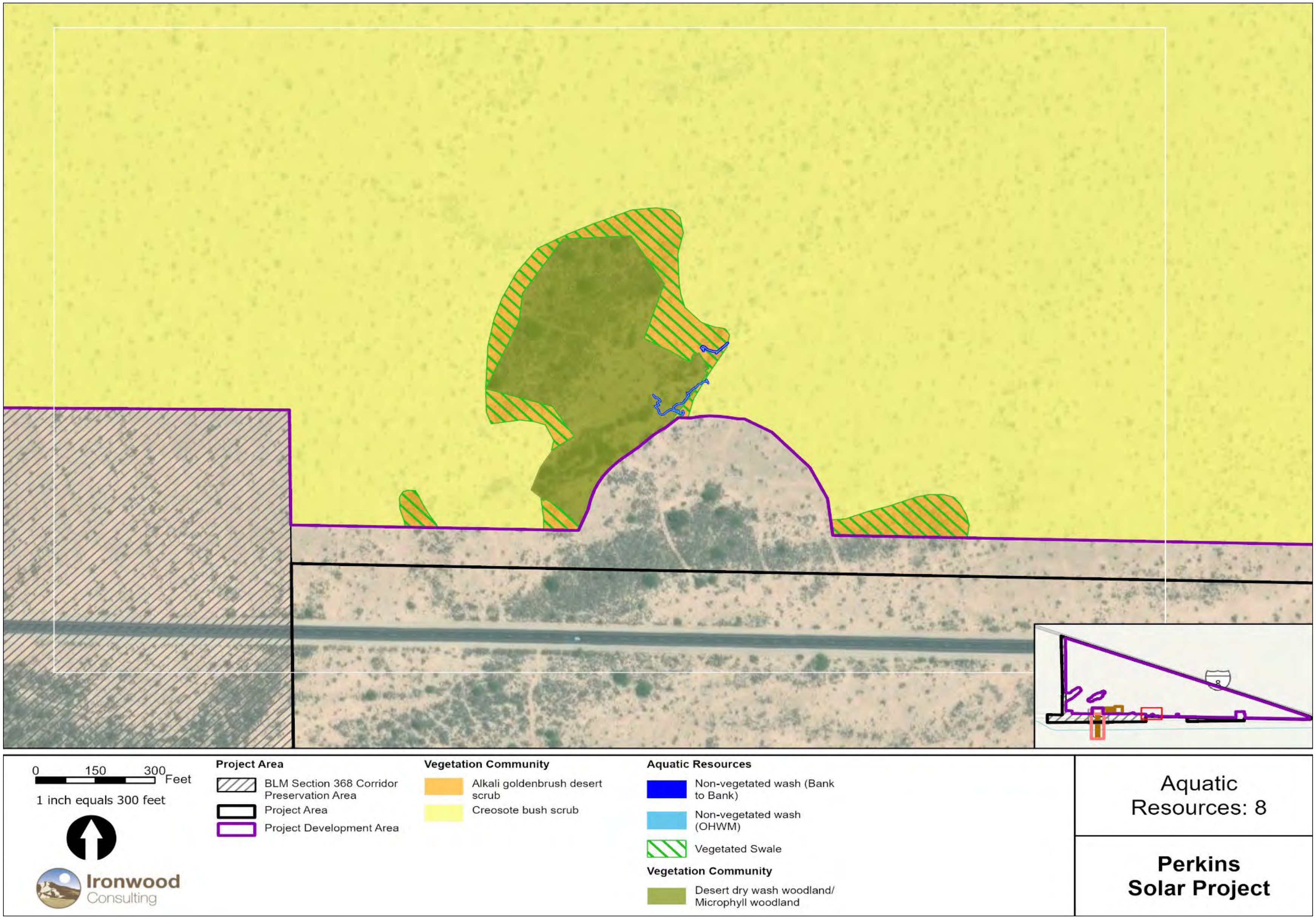


Figure 16. Aquatic Resources Map 8

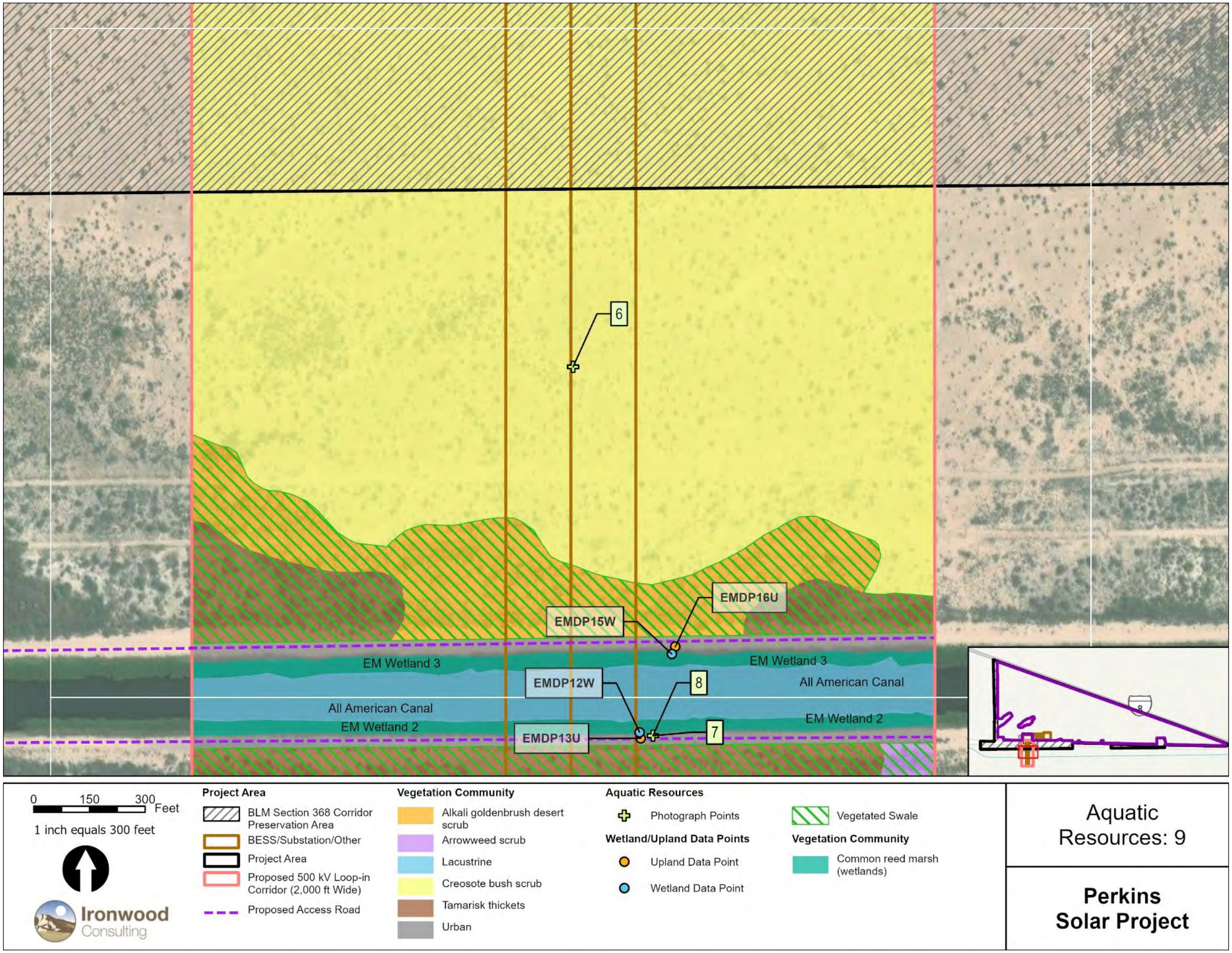


Figure 17. Aquatic Resources Map 9

1.

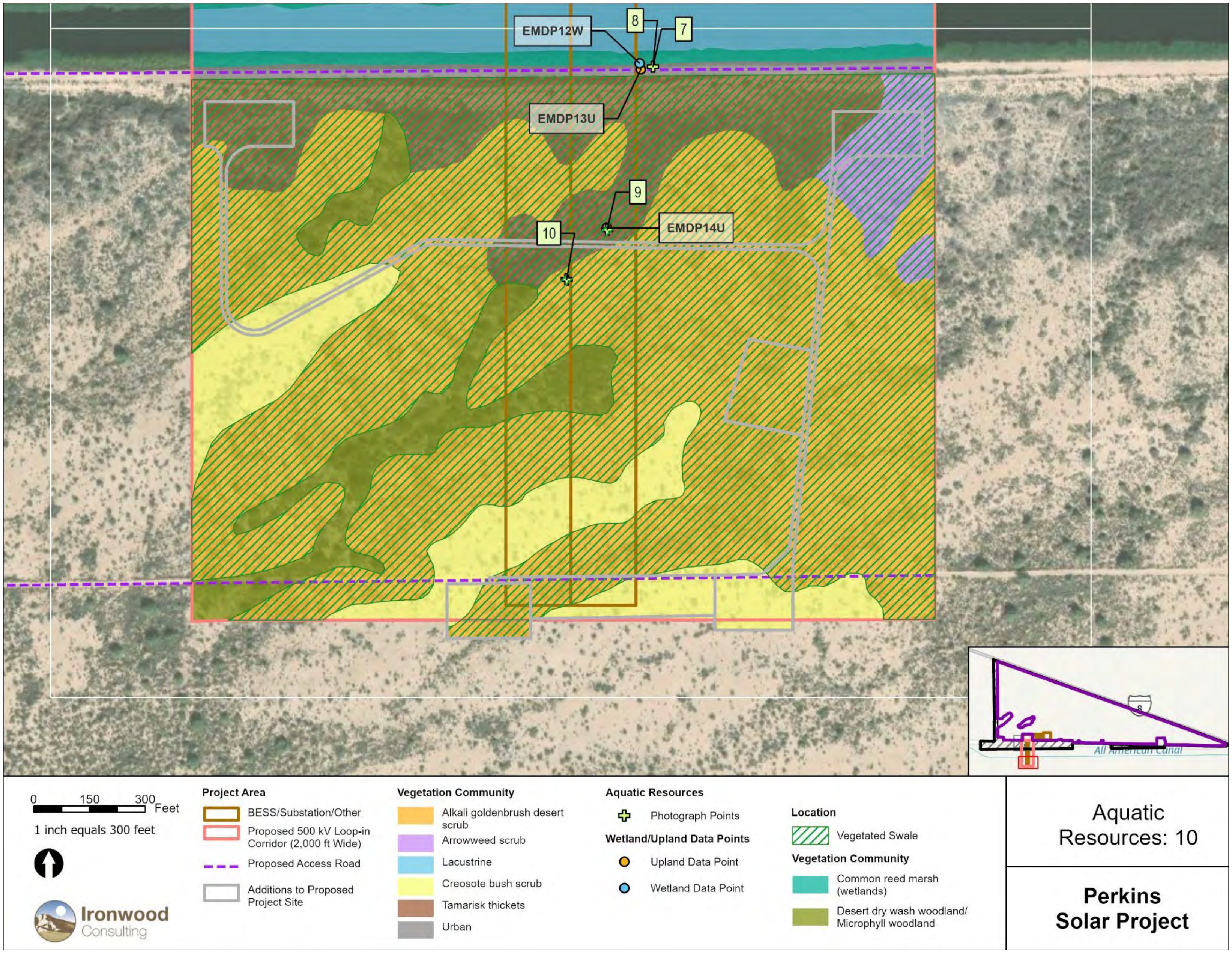


Figure 18. Aquatic Resources Map 10

Appendix B — Photo Log

Photo point 1. Alkali goldenbush-dominated vegetated swale with honey mesquite on left side of photo.

Photo Point 2. Non-vegetated Wash (channel).

Photo Point 3. Alkali goldenbush-dominated vegetated swale downslope of non-vegetated wash.

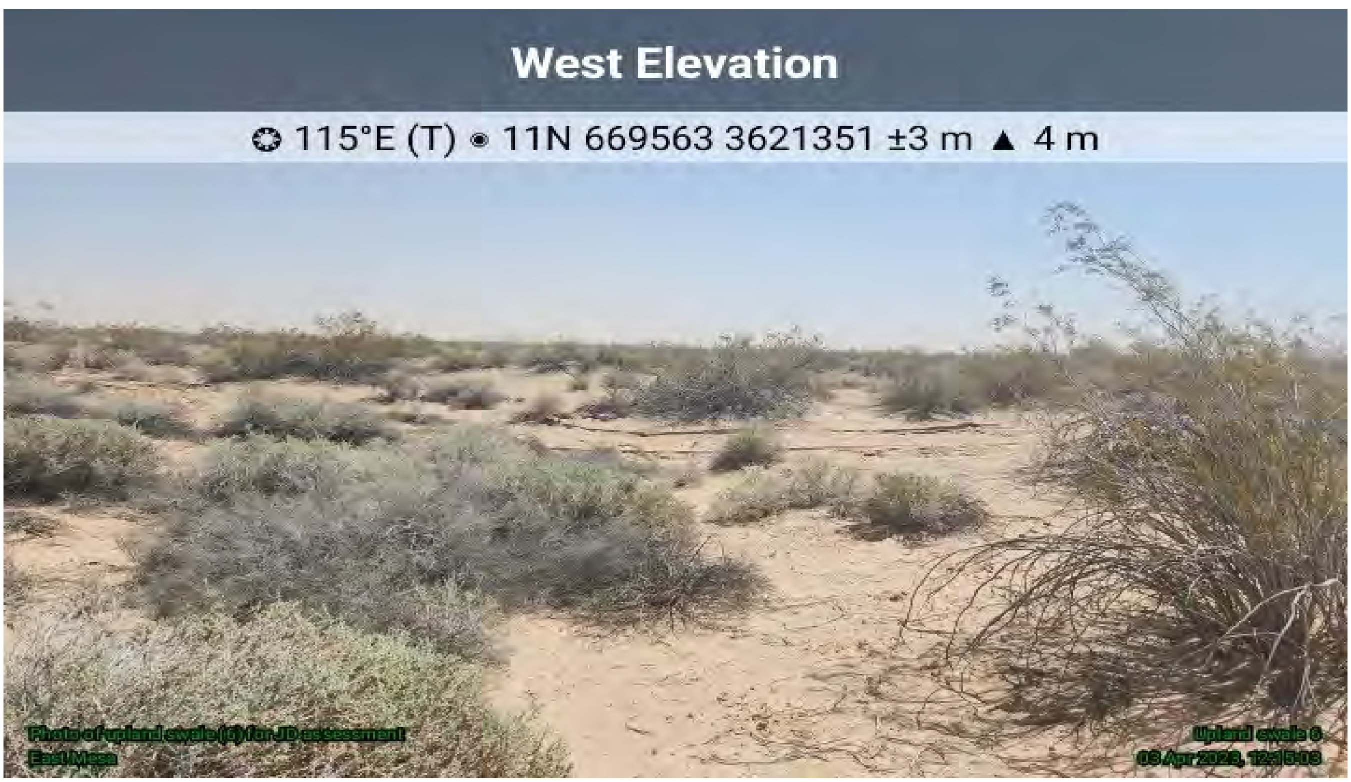


Photo Point 4. ***Larrea tridentata-Ambrosia dumosa*** **upland area that lacks episodic flow indicators.**

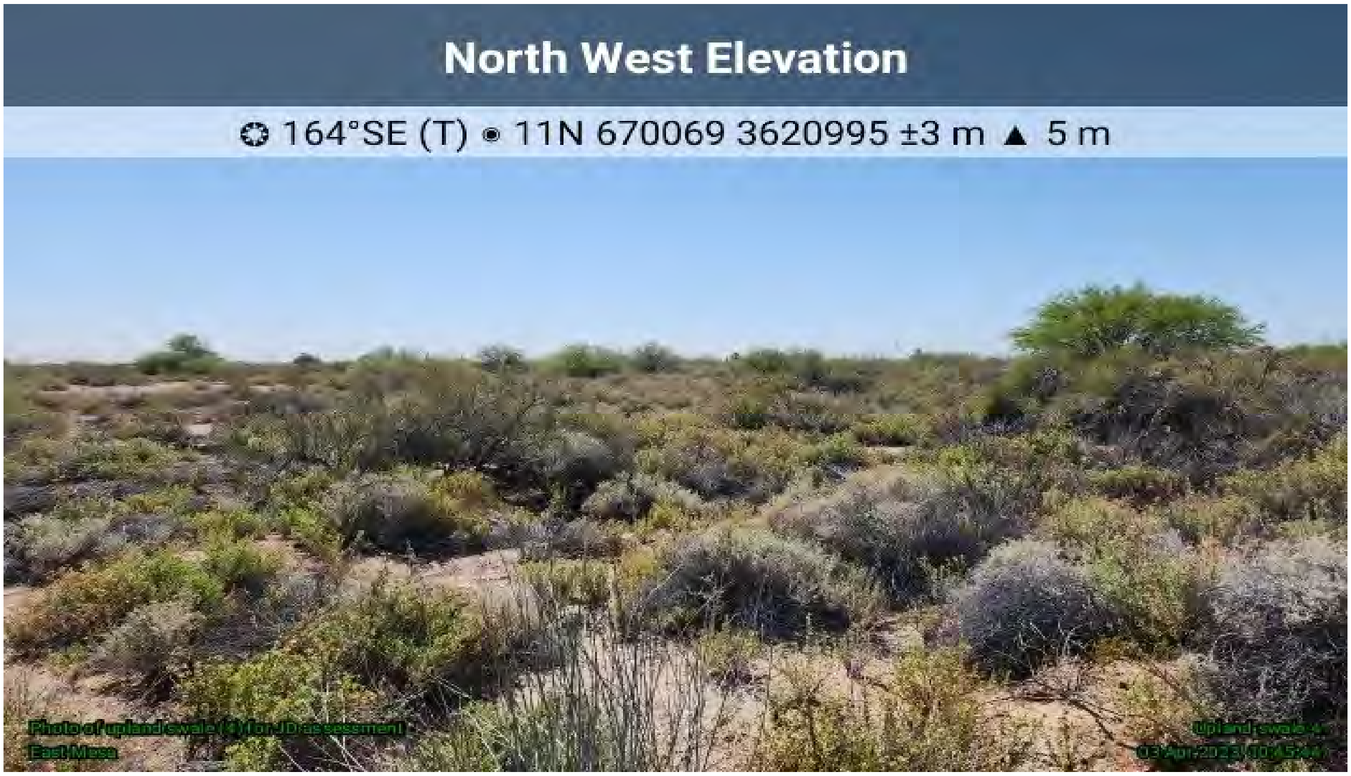


Photo Point 5. Alkali goldenbush-dominated vegetated swale.

Photo 6. Upland vegetated area that lacked indicators of episodic flow.

Photo Point 7. Data point EMDP14W at EM Wetland 2, along the All-American Canal.

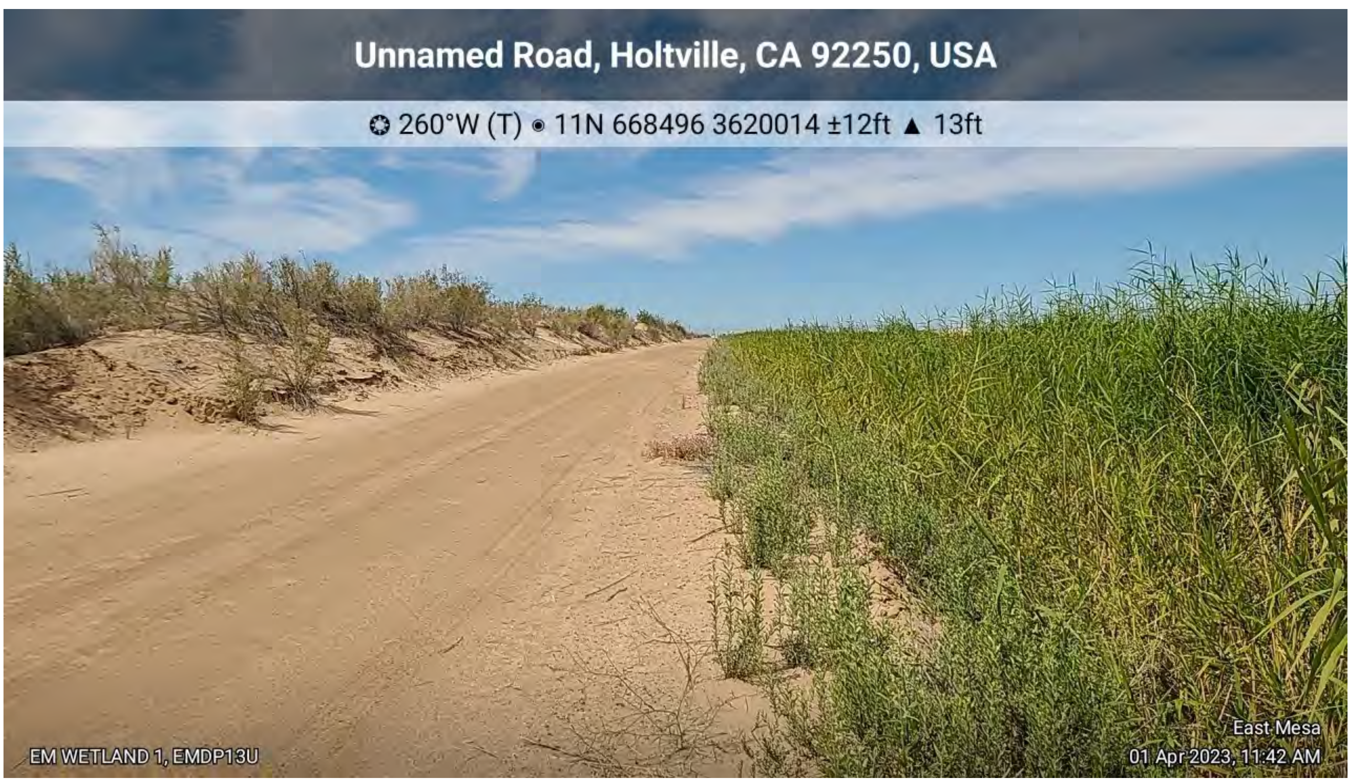


Photo Point 8. Upland Data point (EMDP15U) associated with EM Wetland 2, along the All-American Canal.

Photo Point 9. Tamarisk-dominated vegetated swale with arrowweed as a co-dominant species. Location of Upland data point EMDP14U. Hydrophytic vegetation is present, but the area lacked hydric soil and wetland hydrology indicators.

Photo Point 10.Tamarisk-dominated vegetated swale.

Photo Point 11. Upland area that is not continuous with vegetated swale.

Appendix C — Wetland Determination Forms

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023

Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP12W

Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S35, T16S, R17E

Landform (hillside, terrace, etc.): canal fringe Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): LRR D Lat: 32.705048 Long: -115.202366 Datum: WSG84

Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 X	No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes x	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:
Wetland data point for EM Wetland 2, a wetland along the southern bank of the Great American Canal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	2	No	FACW
2.			
3.			
4.			
5.			
	2	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	75	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75	=Total Cover	
Woody Vine Stratum (Plot size:)			
1. None			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 25 % 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: 100.0% (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:

X 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 X No ___

Remarks:
Monoculture of Phragmites along the banks of the Great American Canal

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SOIL

Sampling Point: EMDP12W

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

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
_x_ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes _x_ No ___

Remarks:
Because the vegetation was dominated by FACW species and there was an abrupt transistion to uplands, no soil data required to determine hydric soil is present.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
_x_ 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 on 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 (minimum of two 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)
_X_ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _x_ Depth (inches): ___
Water Table Present? Yes ___ No _x_ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes _x_ No ___ Depth (inches): _12_

Wetland Hydrology Present? Yes _X_ No ___

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

Remarks:
Adjacent to the All American Canal that provides constant supportive hydrology.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP13U
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): disturbed road Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705003 Long: -115.202355 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks:
Paired upland data point for EM Wetland 2, adjacent to the Great American Canal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Palafoxia arida*	3	No	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3	=Total Cover	
Woody Vine Stratum (Plot size: ___)			
1. None			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 92 % Cover of Biotic Crust 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: 100.0% (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:

X 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** X **No** ___

Remarks:
Unvegetated canal road

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SOIL

Sampling Point: EMDP13U

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	5YR 5/6	100					Sandy	

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes ___ No x

Remarks:
Disturbed road fill, no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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)
x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___
Water Table Present? Yes ___ No x Depth (inches): ___
Saturation Present? Yes ___ No x Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
On the road adjacent to the All American Canal, at least 10 feet above OHWM.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP14U
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): alkali flat Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.703833 Long: -115.202667 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x	No ___
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes ___	No x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Upland data point in mesic area with some wetland indicator species

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. none			
2.			
3.			
4.			
=Total Cover			
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	30	Yes	FACW
2. *Isocoma acradenia*	25	Yes	FACU
3. *Tamarix ramomissima*	10	No	FAC
4.			
5.			
=Total Cover	65		
Herb Stratum (Plot size: 5)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
=Total Cover			
Woody Vine Stratum (Plot size: ___)			
1. None			
2.			
=Total Cover			

% Bare Ground in Herb Stratum 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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	65 (A)		190 (B)

Prevalence Index = B/A = 2.92

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** x **No** ___

Remarks:
Woody species not great hydrophytic vegetation indicator when herbeous species are lacking.

SOIL

Sampling Point: EMDP14U

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	5YR 5/6	100					Sandy	

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes ___ No _x_

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 _x_ Depth (inches): ___
Water Table Present? Yes ___ No _x_ Depth (inches): ___
Saturation Present? Yes ___ No _x_ Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No _x_

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

Remarks:
Unlikely that soil is saturated to the surface for substantial periods. Alkali powder present indicating deep groundwater.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Arid West Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023

Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP15W

Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E

Landform (hillside, terrace, etc.): canal fringe Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): LRR D Lat: 32.705624 Long: -115.202077 Datum: WSG84

Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 X	No ___
Hydric Soil Present?	Yes x	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes** X **No** ___

Remarks:
Wetland data point for EM Wetland 3, a wetland along the northern bank of the Great American Canal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	2	No	FACW
2.			
3.			
4.			
5.			
	2	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	75	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75	=Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 25 % 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:	100.0%	(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:

X 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** X **No** ___

Remarks:
Monoculture of Phragmites along the banks of the Great American Canal

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SOIL

Sampling Point: EMDP15W

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

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
_x_ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes _x_ No ___

Remarks:
Because the vegetation was dominated by FACW species and there was an abrupt transistion to uplands, no soil data required to determine hydric soil is present.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
_x_ 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 on 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 (minimum of two 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)
_X_ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		x	
Water Table Present?		x	
Saturation Present? (includes capillary fringe)	x		12

Wetland Hydrology Present? Yes _X_ No ___

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

Remarks:
Adjacent to the All American Canal that provides constant supportive hydrology.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP16U
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): disturbed road Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705678 Long: -115.202045 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes ___	No x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Paired upland data point for EM Wetland 3, adjacent to the Great American Canal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Palafoxia arida*	5	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 =Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 92 % 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:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A = 3.50

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** X

Remarks:
Unvegetated canal road on north side of Great American Canal.

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SOIL

Sampling Point: EMDP16U

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	5YR 5/6	100					Sandy	

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes ___ No x

Remarks:
Disturbed road fill, no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
On the road adjacent to the All American Canal, at least 10 feet above OHWM.

Ironwood Consulting

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AQUATIC RESOURCES REPORT ADDENDUM

February 2025

Perkins Renewable Energy Project

Prepared for:

IP Perkins, LLC and IP Perkins BAAH, LLC

Table of Contents

List of Tables

Acronyms

BAAH	Breaker and a half
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
GIS	Geographic Information Systems
GPS	Global Positioning System
NRCS	Natural Resources Conservation Service
USACE	U.S. Army Corps of Engineers

1 Introduction

IP Perkins, LLC and IP Perkins BAAH, LLC (Proponents), subsidiaries of Intersect Power, LLC are proposing to develop the Perkins Renewable Energy Project (Project) southeast of El Centro, near Holtville in Imperial County, California (Figure 1). Ironwood Consulting, Inc. (Ironwood) prepared an Aquatic Resources Report for the Perkins Renewable Energy Project in October 2024 and revised this report in February 2025 based on changes to the project boundary. Based on the results of the delineation of aquatic resources, the U.S. Army Corps of Engineers (USACE) and Bureau of Land Management (BLM) requested additional data from upland and mesic areas that were determined to be subject to California Department of Fish and Wildlife jurisdiction under § 1602 of the California Fish and Game Code but not subject to USACE jurisdiction. This report is an addendum to the Perkins Solar Project Aquatic Resources Report. Wetland scientists with Ironwood collected data at thirteen representative data points in various vegetation communities and within two aquatic features (ephemeral washes). The number of data points in each vegetation community or aquatic feature is described below:

- Alkali goldenbush desert scrub – four data points
- Microphyll woodland/Desert dry wash woodland – two data points
- Arrowweed thickets – one data point
- Tamarisk thickets – two data points
- Sonoran creosote bush scrub – two data points
- Ephemeral drainage – two data points

2 Methods

On October 21 and 22, 2004, Ironwood wetland scientists Leigh Rouse and John Chikezie collected vegetation, soil, and hydrology data in accordance with the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (USDA and NRCS 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2010). The U.S. Army Corps of Engineers (USACE) defines wetlands 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. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 Code of Federal Regulations (CFR) 328.2(c)). The determination of a wetland depends on three basic parameters: (1) presence of hydrophytic vegetation, (2) presence of hydric soils, and (3) presence of wetland hydrology. The indicator status for vegetation was determined by the most current National Wetland Plant List (USACE 2020) and using the nomenclature offered in the US Department of Agriculture NRCS PLANTS Database (USDA and NRCS 2024). Hydric soil determinations followed the guidance provided by the *Regional Supplement* and indicators described in *Field Indicators of Hydric Soils in the United States* (USDA and NRCS 2018). A Munsell soil color chart was used to determine soil color. The boundaries of wetlands were delineated with ESRI ArcGIS Collector©. A sub-meter geographic positioning system (GPS) was used in the field to map the location of data points or boundaries of aquatic resource features potentially subject to USACE jurisdiction. Vegetation communities and other aquatic features and the location of data points are shown on Figure 2 through Figure 12 (Appendix A). Photos taken at each data point are provided in Appendix B. Wetland determination data forms for each data point were completed in the field (Appendix C).

Prior to the site visit, Ironwood submitted thirteen proposed data points to the USACE. The data points were in areas that were previously not mapped as wetlands subject to USACE jurisdiction during the previous 2023 and 2024 site visits. The objective of the data points was to document the lack or presence of wetland indicators. If a data point was found to have all three indicators, the area would be delineated as a wetland and the boundary would be determined by establishing a paired upland point, by a visible change in vegetation community, topographic changes, and other visible distinctions between wetlands and uplands.

3 Results

3.1 Alkali goldenbush desert scrub

Within the Project site, alkali goldenbush (*Isocoma acradenia*) forms an open shrub layer (up to 35% cover). The tree layer, consisting of mesquite (*Prosopis* sp.), is mostly sparse if present. Sites are moist or seasonally dry flats and margins of intermittently saturated vegetated swales. Data were collected at four representative data points (DP1, DP2, DP3, and DP4) within the alkali goldenbush desert scrub community.

3.1.1 Vegetation

The alkali goldenbush desert scrub community was dominated by alkali goldenbush, a facultative upland species. While at DP2, DP3, and DP4, alkali goldenbush was the sole dominant species, creosote (*Larrea tridentata*), an upland species, was a co-dominant species at DP4. No hydrophytic vegetation was present at the four data points within the alkali goldenbush desert scrub vegetation community.

3.1.2 Soil

The soil matrix color varied among the four data points as noted below:

- DP1: 7.5YR 4/6 from 0 to 16 inches
- DP2: 10YR ¾ from 0 to 16 inches
- DP3: 7.5YR 4/4 from 0 to 16 inches
- DP4: 7.5YR 5/6 from 0 to 5 inches and 7.5 YR 5/3 from 5 to 16 inches

Redox features or other hydric soil indicators were not observed at any of the data points, and Ironwood determined that hydric soils were not present at the four data points within the alkali goldenbush desert scrub community.

3.1.3 Hydrology

Wetland hydrology indicators were not present at DP1. At three of the four data points (DP2, DP3, and DP4), shallow surface soil cracks provided the indicator for wetland hydrology. The shallow surface soil cracks indicated areas where water pools temporarily but only occurred intermittently throughout the community. It is not likely that the soil within this community is saturated to the surface with enough frequency or duration to provide supportive wetland hydrology.

3.2 Microphyll Woodland/Desert Dry Wash Woodland

The microphyll woodland/desert dry wash woodland community is characteristic of desert washes. This vegetation community has mesquite trees that cover at least 2-3 percent of the absolute cover for trees and shrubs and was mapped as patches within the transmission line corridor and in the south central portion of the Project site. Other plants observed in this plant community included arrowweed (*Pluchea sericea*) and tamarisk (*Tamarix ramosissima*). Data were collected at two representative data points (DP8 and DP12) within the microphyll woodland/desert dry wash woodland community.

3.2.1 Vegetation

The microphyll woodland/desert dry wash woodland community was dominated by honey mesquite (*Prosopis glandulosa*), a facultative upland species. At DP8, other dominant species included alkali goldenbush (facultative upland) and creosote, an upland species. At DP12, other dominant species included arrowed (*Pluchea sericea*), a facultative wetland species and alkali goldenbush. At DP8, no hydrophytic vegetation was present, and at DP12, only 33 percent of the dominant species were wetland indicator species, which does not meet the dominance test criterion.

3.2.2 Soil

The soil matix color at the two data points in the microphyll woodland/desert dry wash woodland community was 10YR 3/6 from 0 to 16 inches below the soil surface with no redox features or other hydric soil indicators. Hydric soils were not present at the two data points within the microphyll woodland/desert dry wash woodland community.

3.2.3 Hydrology

No wetland hydrology indicators were present at DP8. At DP12, surface soil cracks provided the indicator for wetland hydrology. The shallow surface soil cracks indicated areas where water pools temporarily but only occurred intermittently throughout the community. It is not likely that the soil within this community is saturated to the surface with enough frequency or duration to provide supportive wetland hydrology.

3.3 Arrowweed thickets

The arrowed thicket vegetation community is characterized by arrowweed (*Pluchea sericea*) that is more than or equal to 2% of absolute cover with a sparse herbaceous layer of seasonal annuals. This vegetation is usually found near seasonally flooded washes and stream borders. Within the Project site, this vegetation community occurs only within a small portion of the transmission line corridor bordering the southern edge of the road berm of the All American Canal. Data were collected at one representative data point (DP11) in the arrowweed thicket community.

3.3.1 Vegetation

The arrowweed thicket community was dominated by arrowweed, a facultative wetland species, and alkali goldenbush, a facultative upland species. The vegetation did not pass the dominance test, but it did have a prevalence index of 2.8 (less than 3.0), therefore, DP11 met the hydrophytic vegetation criterion.

3.3.2 Soil

The soil matix color at the data point in the arrowweed thicket community was 7.5YR 5/6 from 0 to 16 inches below the soil surface with no redox features or other hydric soil indicators. Hydric soils were not present at the data point within the arrowweed thicket community.

3.3.3 Hydrology

No wetland hydrology indicators were present at DP11.

3.4 Tamarisk thickets

Tamarisk thickets are a non-native community that consists of tamarisk (*Tamarix ramomissima)* trees or other *Tamarix* species that form dense thickets along rivers and streams, around the banks of lakes and ponds or in areas that have shallow ground water. Mature tamarisk trees are deeply rooted with roots greater than 20 feet. Soils become alkaline, which can often exclude other species from becoming established. Within the Project site, this vegetation community occurs within the transmission line corridor north and south of the All American Canal. Data were collected at two representative data points (DP9 and DP10) in the tamarisk thicket community.

3.4.1 Vegetation

At DP9, the tamarisk thicket community was dominated by tamarisk, a facultative species in both the tree and sapling/shrub stratum and arrowweed, a facultative wetland species. At DP11, the tamarisk thicket community was dominated by tamarisk and arrowweed. The vegetation passed the dominance test at both data points.

3.4.2 Soil

At DP9, the soil matrix color was 7.5YR 4/3 from 0 to 16 inches below the ground surface. At DP 11, the soil matrix color was 2.5YR 3/3 from 0 to 3 inches and 7.5YR 4/4 from 3 to 16 inches below the ground surface. Redox features or other hydric soil indicators were not observed at the two data points, and hydric soils were not present within the tamarisk thicket community.

3.4.3 Hydrology

No wetland hydrology indicators were present at DP9 or DP10. Alkali crust was often present in the tamarisk thicket, which is an indicator of deep groundwater.

3.5 Sonoran Creosote bush scrub

Sonoran creosote bush scrub occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic Sonoran creosote bush scrub habitat of the Colorado Desert (Holland 1986). On the Project site, creosote is dominant in the shrub canopy, or Sonoran creosote bush scrub and white bursage are co-dominants in the shrub canopy with only a few shrubs sparsely distributed. Data were collected at two data points (DP5 and DP13) within Sonoran creosote bush scrub.

3.5.1 Vegetation

Vegetation at both data points were dominated by creosote. At DP5, dominant species also included alkali goldenbush, a facultative upland species and longleaf jointfir (*Ephedra trifurca*), an upland species. At DP13, rush milkweed (*Asclepias subulata*), an upland species, was co-dominant. No hydrophytic vegetation was present within the Sonoran creosote bush scrub community.

3.5.2 Soil

At DP5, the soil matrix color was 7.5YR 5/6 from 0 to 5 inches and 7.5YR 5/3 from 5 to 16 inches below the ground surface. At DP13, the soil matrix color was 7.5YR 5/4 from 0 to 3 inches and 7.5YR 4/4 from 3 to 16 inches below the ground surface. No redox features or other hydric soil indicators were present, and hydric soils were not present at the data points within the Sonoran creosote bush scrub community.

3.5.3 Hydrology

No wetland hydrology indicators were present within the Sonoran creosote bush scrub community.

3.6 Ephemeral Wash

Several non-vegetated washes on the western portion of the Project site occur on the slope above and drain into alkali goldenbush desert scrub vegetated swales. To the east and in the central portion of the Project site, a non-vegetated wash flows into alkali goldenbush desert scrub and microphyll woodland dominated by honey mesquite. Characteristics of flow were present and small channels were formed where the gradient was steep enough to allow for surface runoff to become channelized. These non-vegetated washes (channels) supported evidence of scour, cut banks, headcuts, vegetation channel alignment, and sand filled channels and were typically 1 ft to 2 feet wide. Data were collected at two data points (DP6 and DP7) along two separate ephemeral washes.

3.6.1 Vegetation

At DP6, two species, creosote and longleaf jointfir, both upland species, were dominant. At DP7, creosote and burrobush (*Ambrosia dumosa*), both upland species, were dominant. No hydrophytic vegetation was present at the two ephemeral wash data points.

3.6.2 Soil

At DP6 and DP7, the soil color matrix was 7.5YR 4/6 from 0 to 16 inches below the ground surface. Redox features or other hydric soil indicators were not observed at the data points, and hydric soils were not present within vegetation communities associated with ephemeral washes.

3.6.3 Hydrology

Data were collected within two small ephemeral washes. Wetland hydrology was determined to be present based on secondary indicators, including sediment deposits, drift deposits, and drainage patterns.

4 Conclusion

Based on information from the thirteen data points, none of the vegetation communities or other aquatic features met the criteria of a wetland subject to USACE jurisdiction (Table 1). Ironwood concluded that alkali goldenbush desert scrub, microphyll woodland/desert dry wash woodland, arrowweed thickets, tamarisk thickets, and Sonoran creosote bush scrub are upland communities. The ephemeral drainages/washes did not have hydrophytic vegetation or hydric soils and do not meet the criteria to be a wetland subject to USACE jurisdiction.

Table 1. Wetland determination for data points within vegetation communities and aquatic features.

Data Point	Vegetation Community/ aquatic feature	Hydrophytic Vegetation	Hydric Soils	Wetland hydrology	Wetland Determination
DP1	Alkali goldenbush desert scrub	No	No	No	Upland
DP2	Alkali goldenbush desert scrub	No	No	No	Upland
DP3	Alkali goldenbush desert scrub	No	No	Yes	Upland
DP4	Alkali goldenbush desert scrub	No	No	Yes	Upland
DP5	Sonoran creosote bush scrub	No	No	No	Upland
DP6	Ephemeral wash	No	No	Yes	Upland
DP7	Ephemeral wash	No	No	Yes	Upland
DP8	Desert dry wash woodland	No	No	Yes	Upland
DP9	Tamarisk thicket	Yes	No	No	Upland
DP10	Arrowweed thicket	Yes	No	No	Upland
DP11	Tamarisk thicket	Yes	No	No	Upland
DP12	Desert dry wash woodland	No	No	Yes	Upland
DP13	Sonoran creosote bush scrub	No	No	No	Upland

5 References

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U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Wetlands Regulatory Assistance Program, Environmental Laboratory (Vicksburg, MS). https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7627.

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U.S. Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS). 2018. *Field Indicators of Hydric Soils in the United States.*

United States Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS). 2024. "PLANTS Database: Plant List of Attributes, Taxonomy, and Symbols." https://plants.sc.egov.usda.gov/home.

Appendix A— Figures

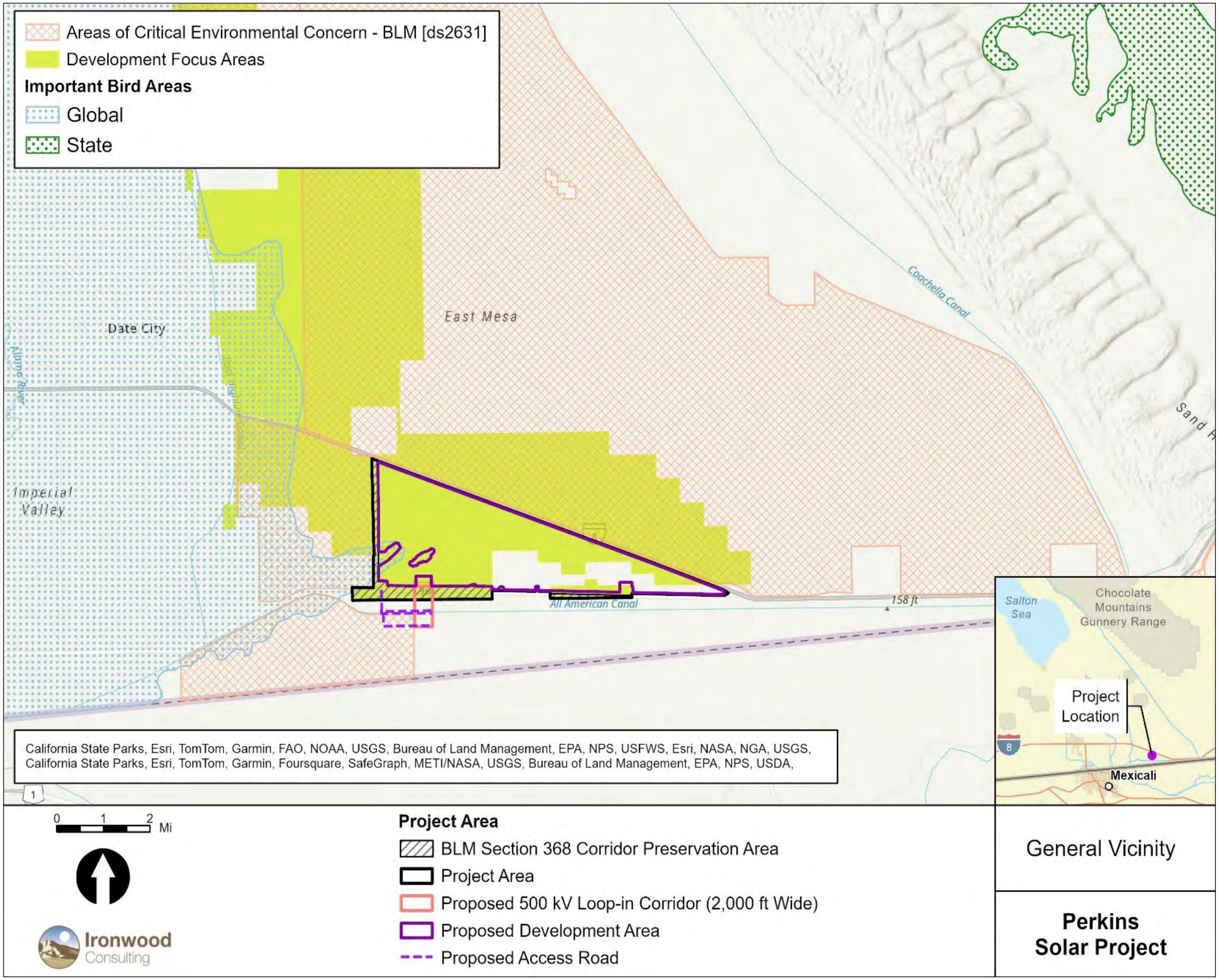

Figure 1. General Vicinity

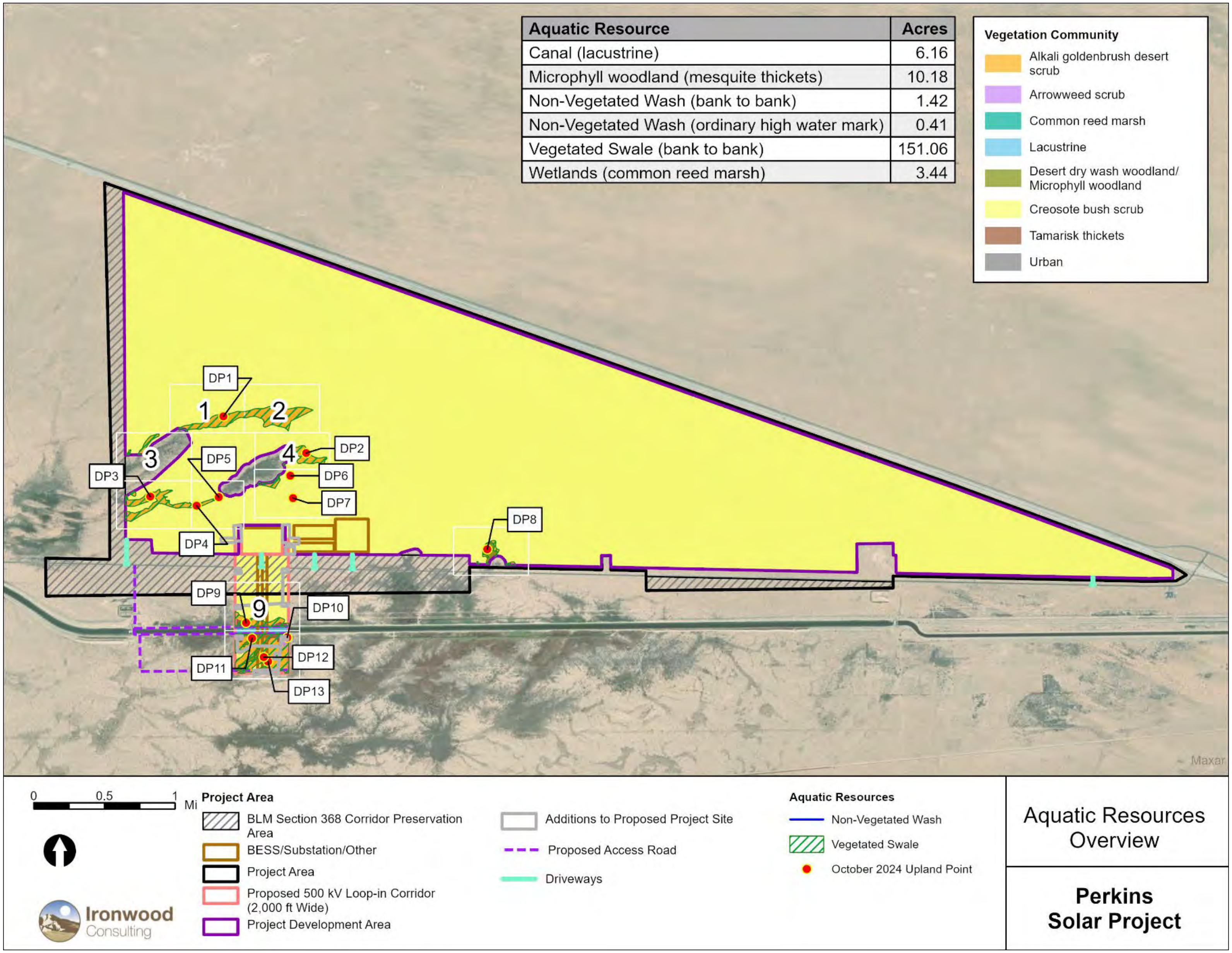

Figure 2. Aquatic Resources Overview.

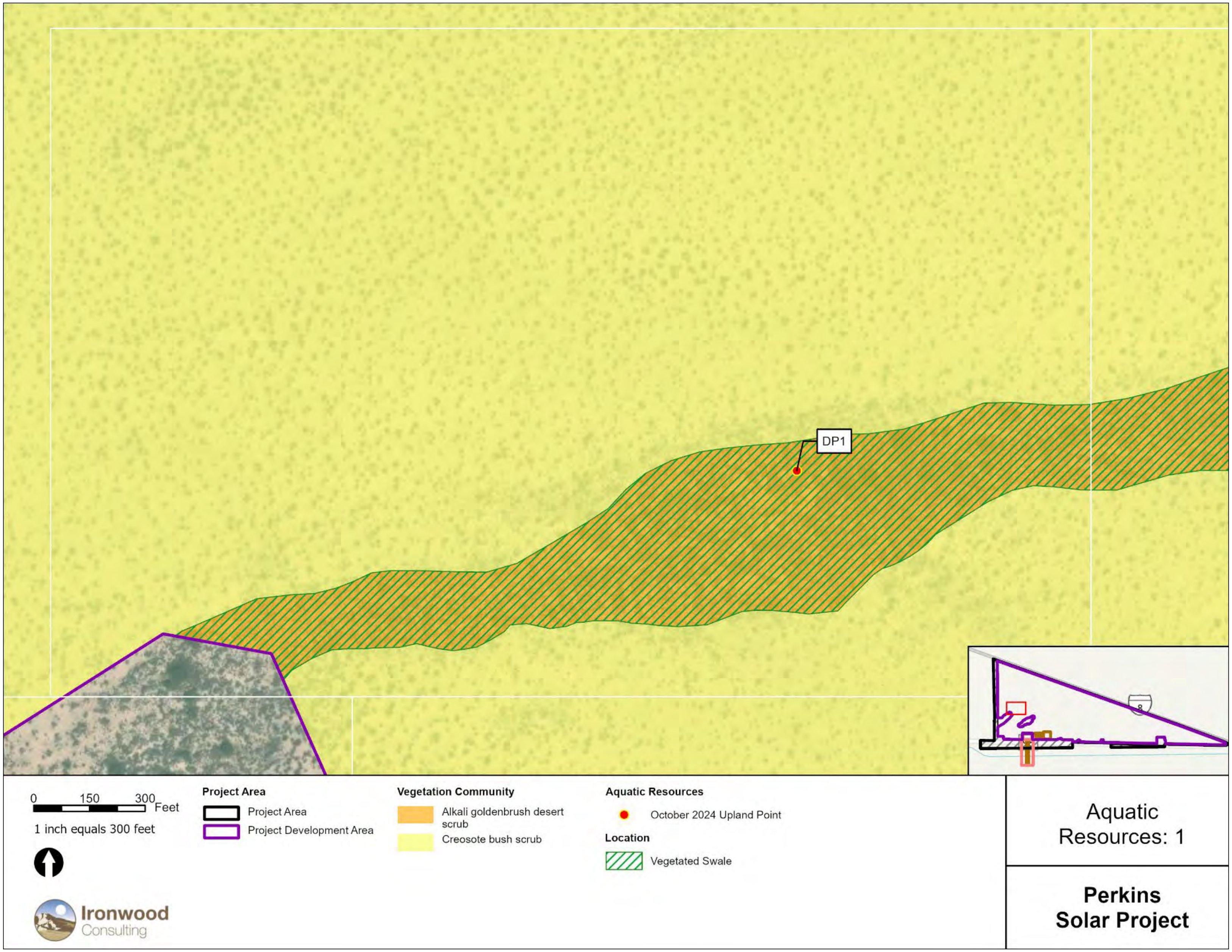

Figure 3. Aquatic Resources Map 1

Figure 4. Aquatic Resources Map 2

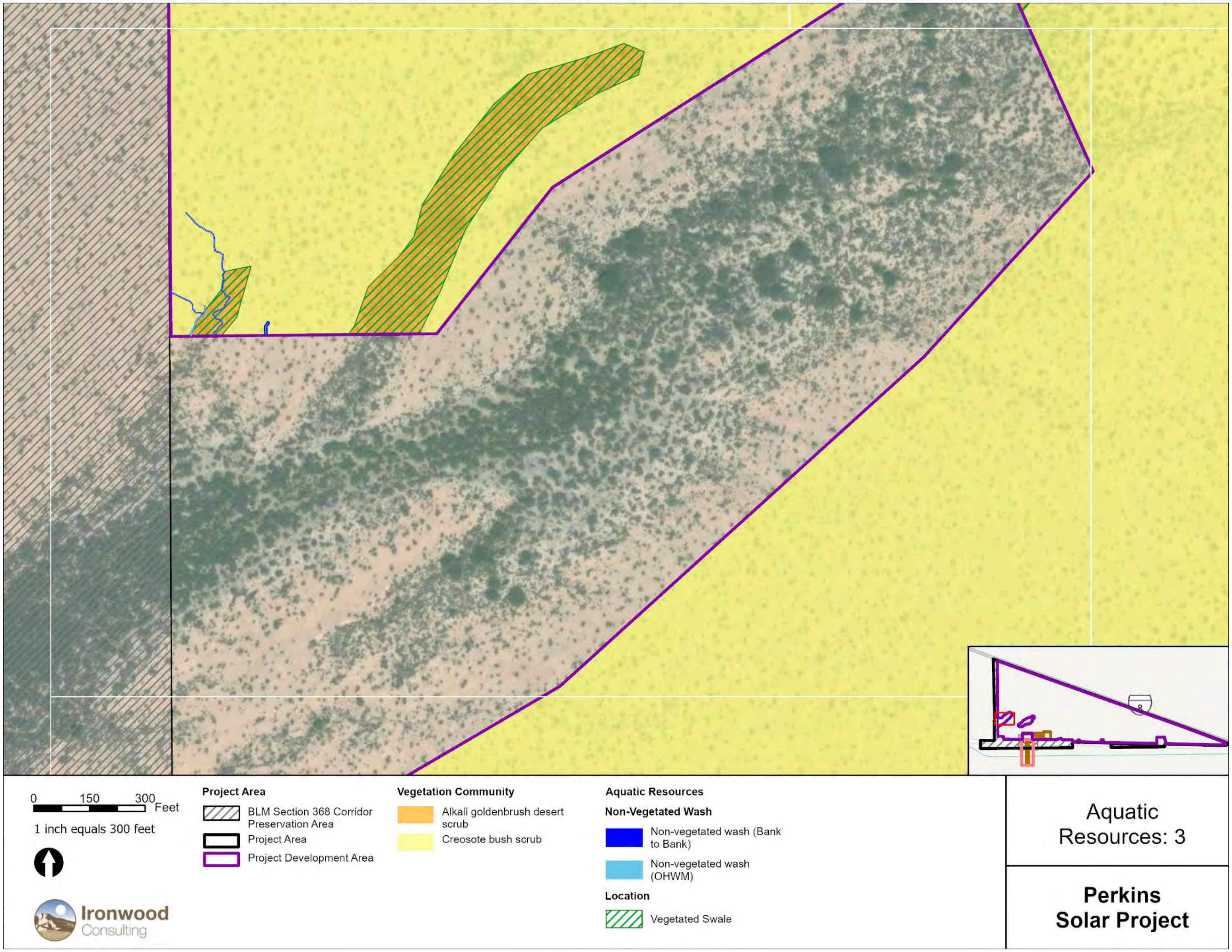

Figure 5. Aquatic Resources Map 3

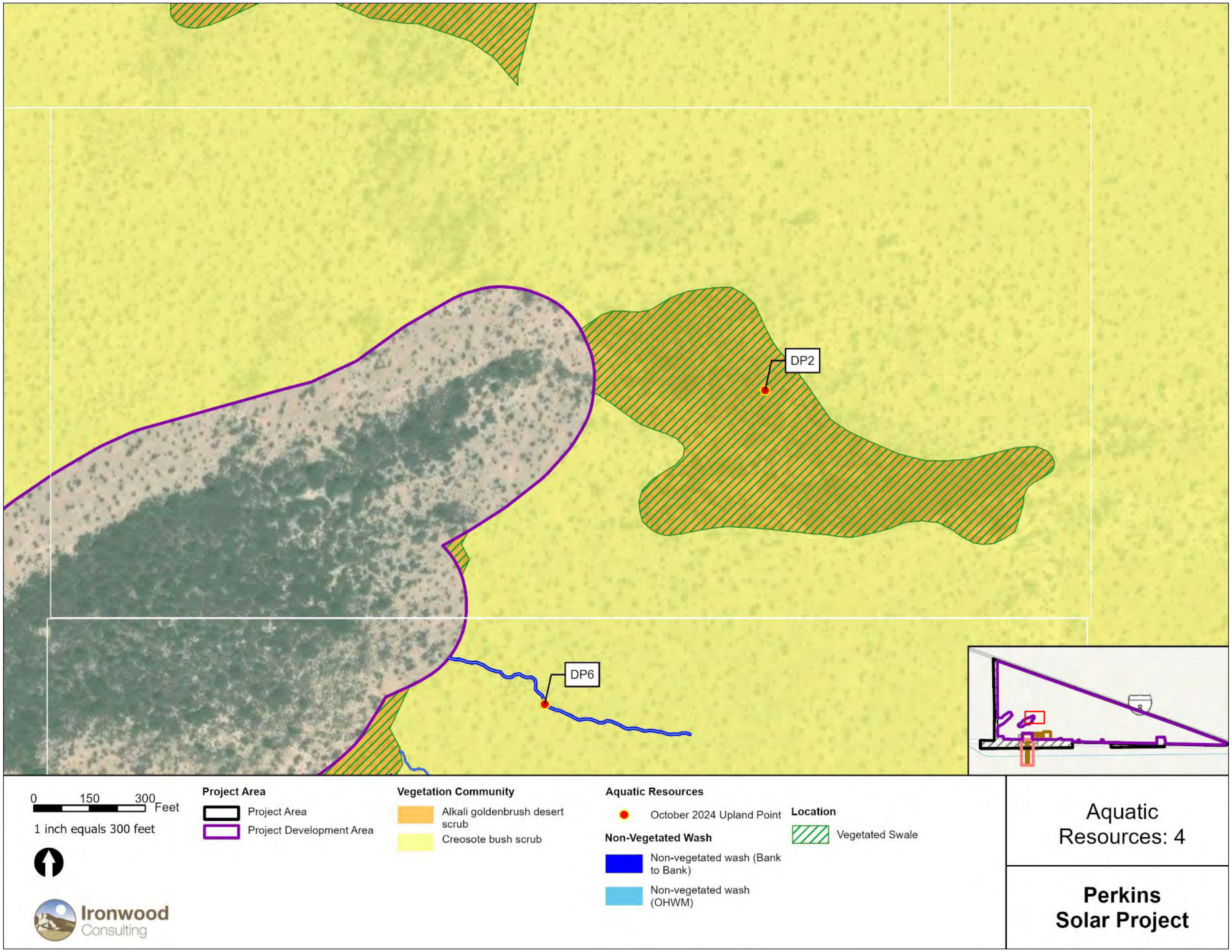

Figure 6. Aquatic Resources Map 4

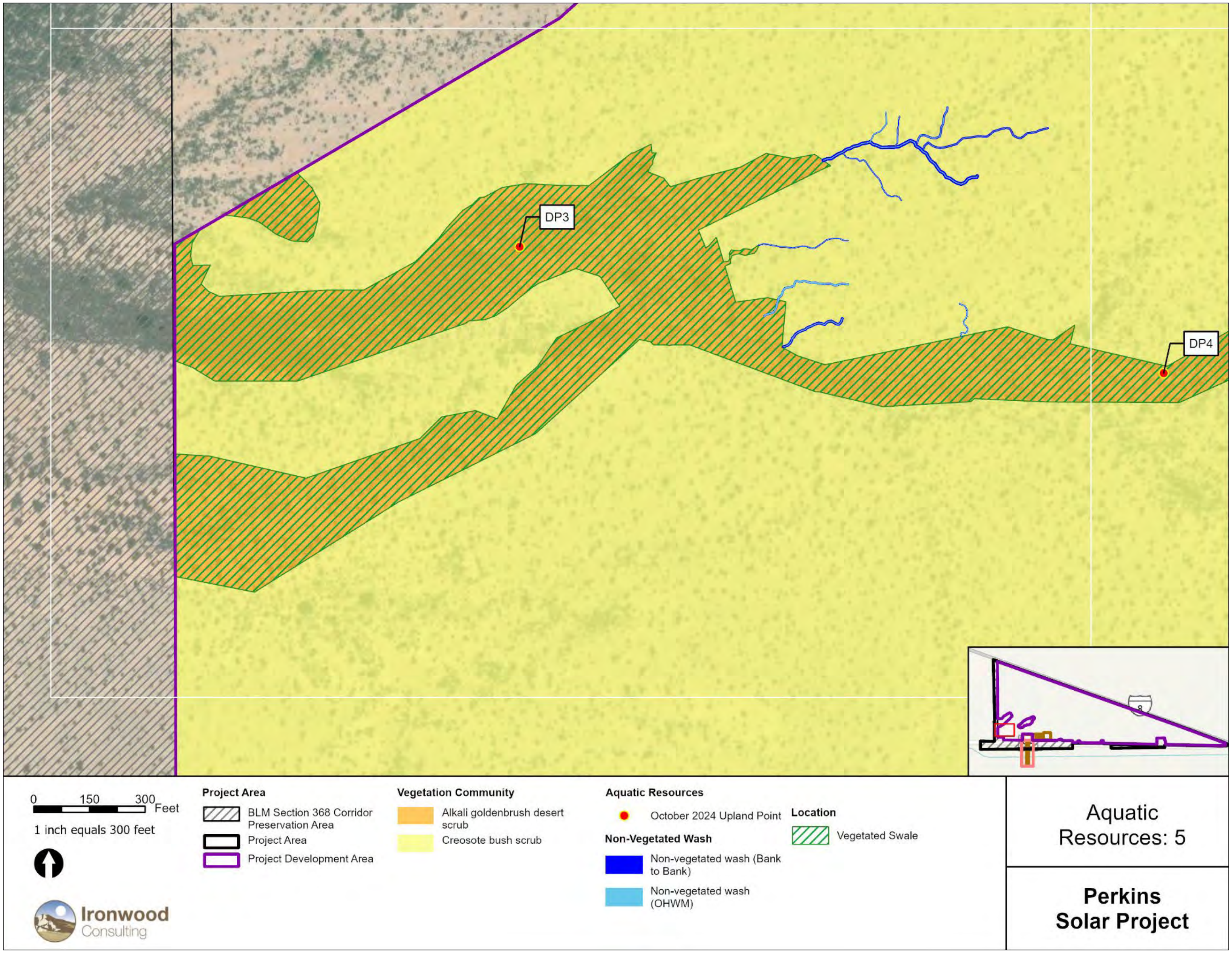

Figure 7. Aquatic Resources Map 5.

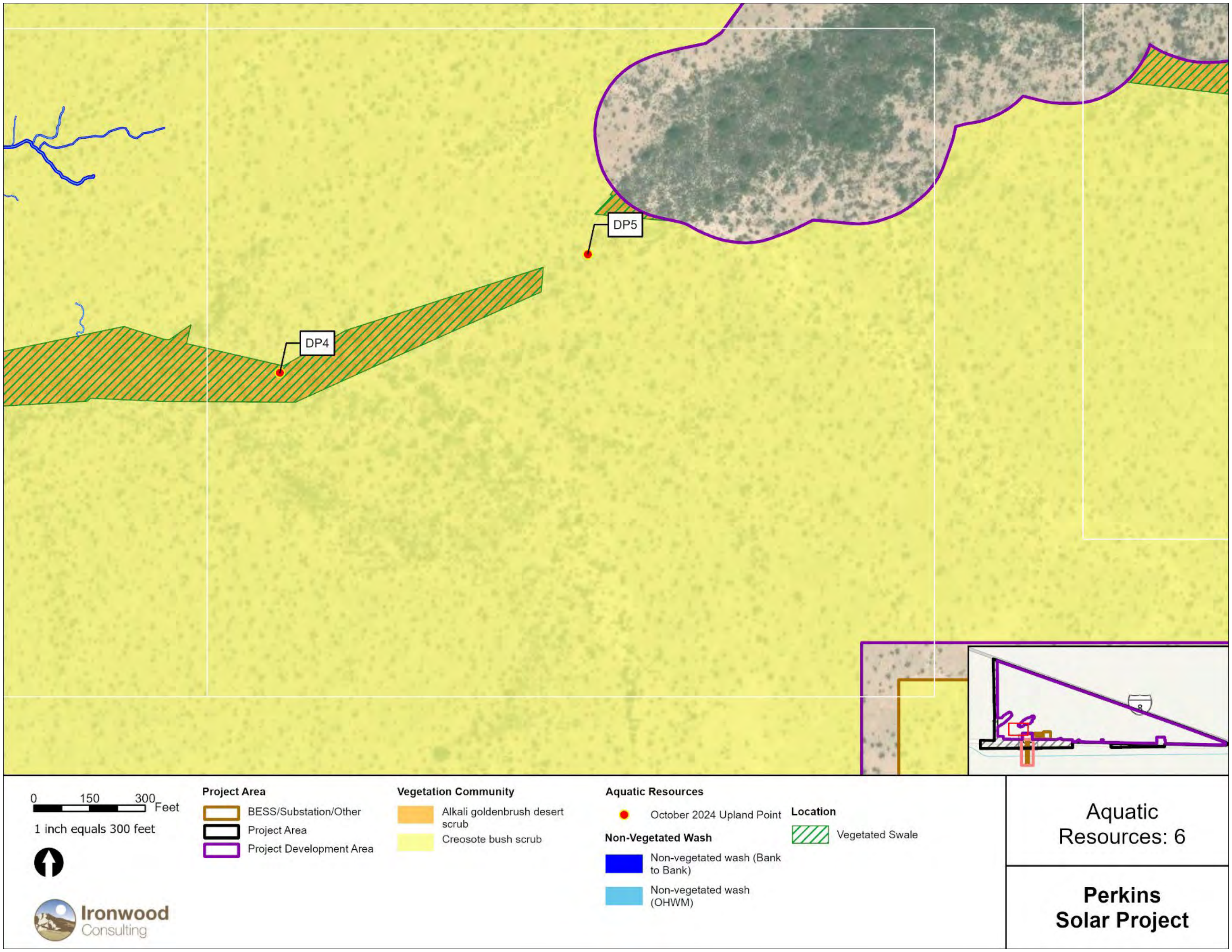

Figure 8. Aquatic Resources Map 6

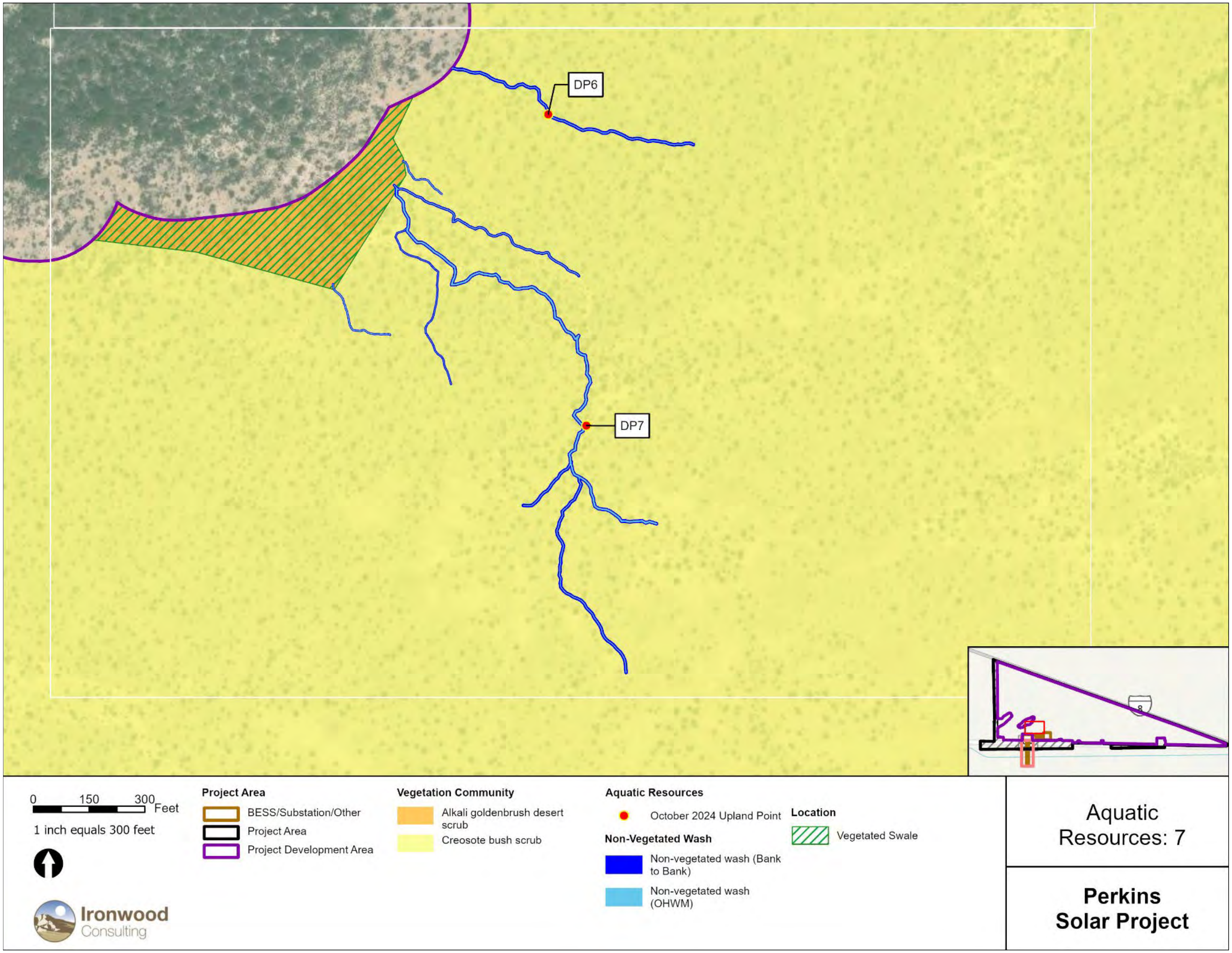

Figure 9. Aquatic Resources Map 7

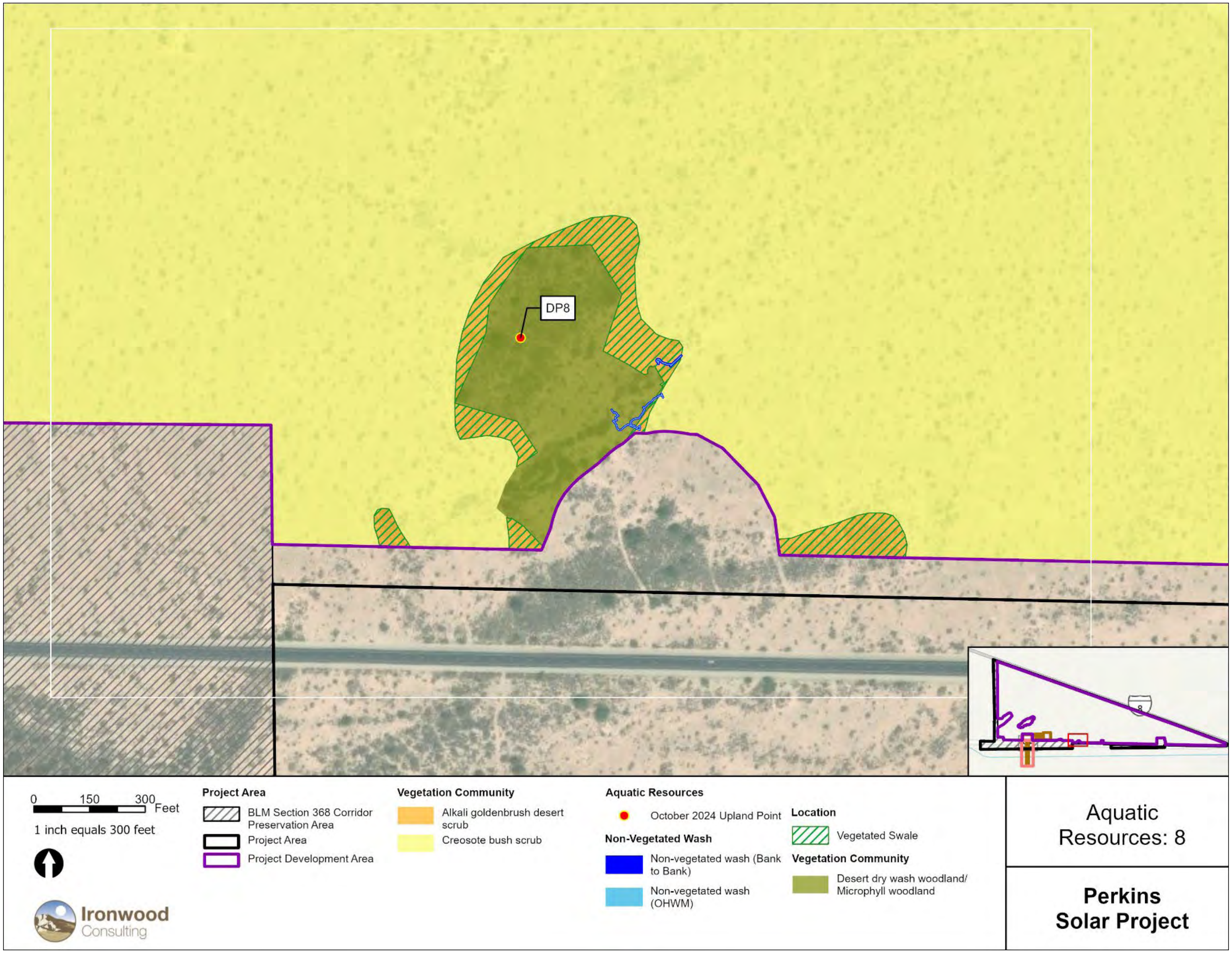

Figure 10. Aquatic Resources Map 8

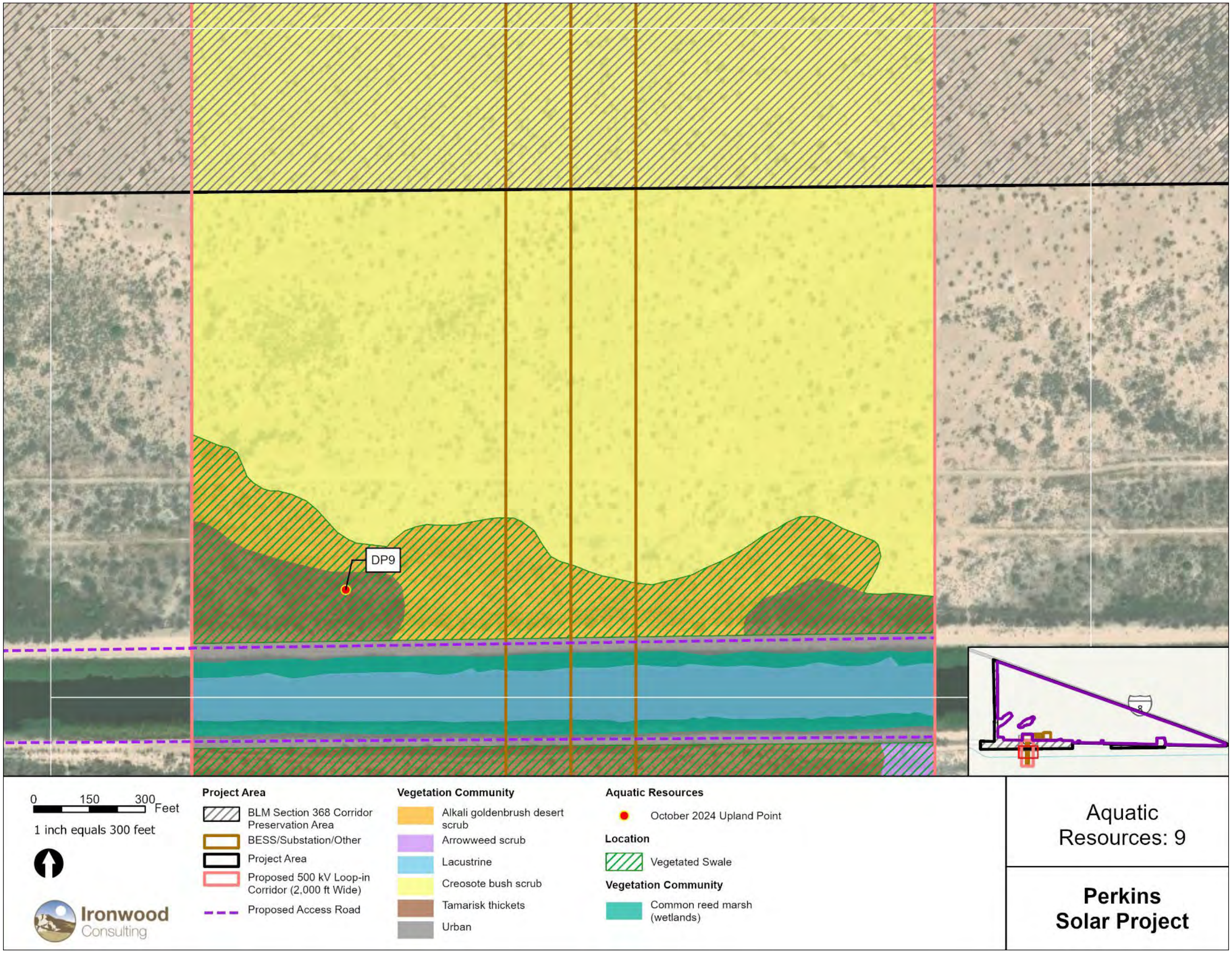

Figure 11. Aquatic Resources Map 9

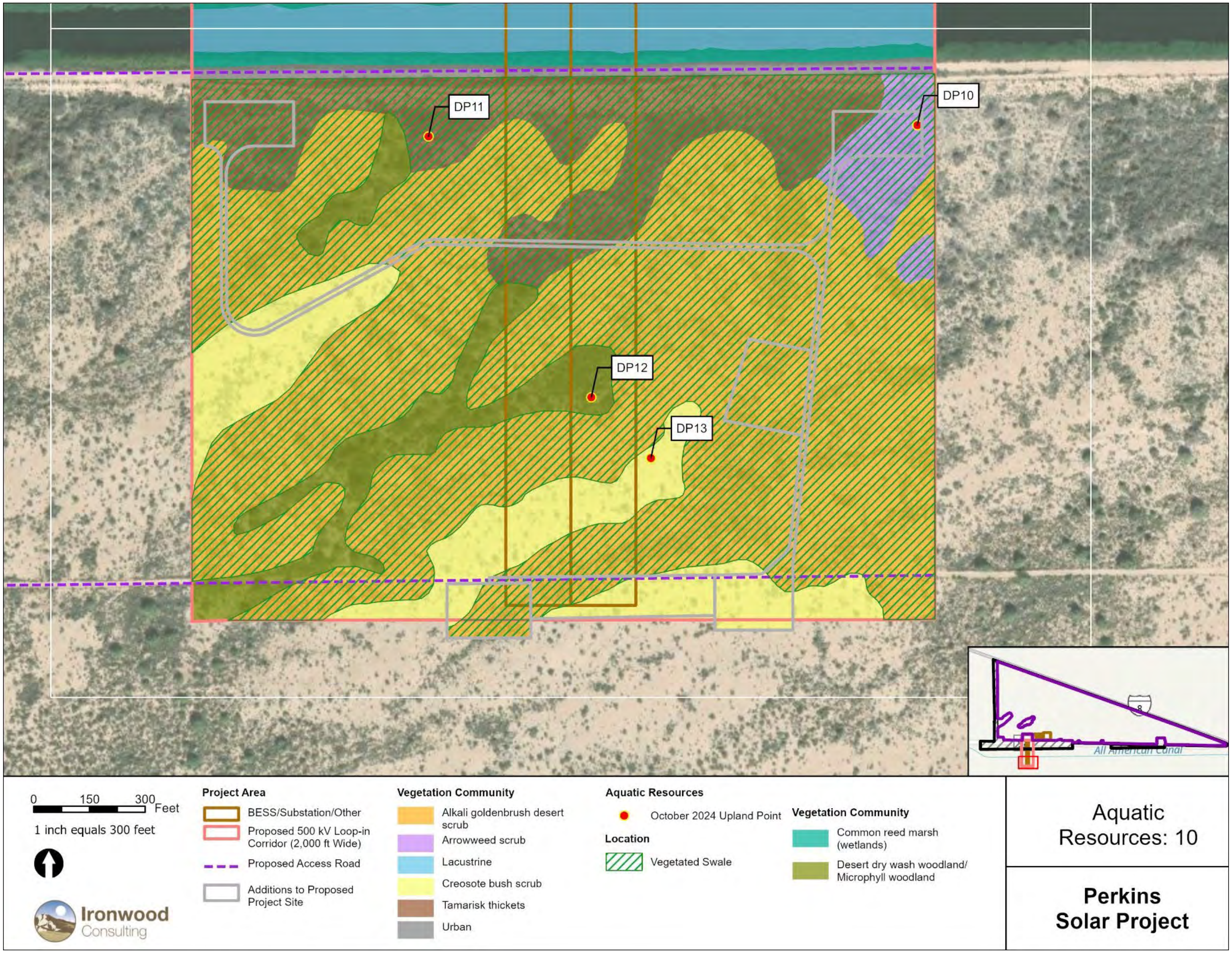

Figure 12. Aquatic Resources Map 10

Appendix B — Photo Log

Photo 1. DP1 within alkali goldenbush desert scrub.

Photo 2. DP1 soil point within alkali goldenbush desert scrub.

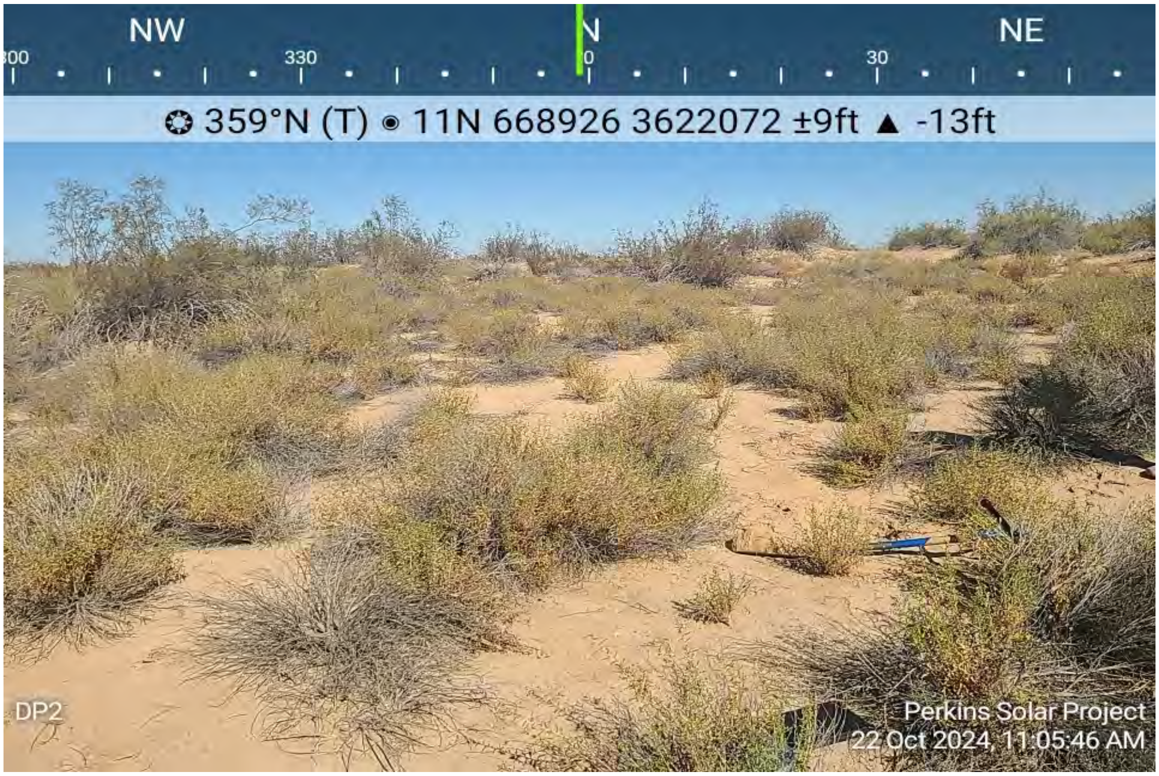

Photo 3. DP2 within alkali goldenbush desert scrub.

Photo 4. DP2 soil point within alkali goldenbush desert scrub.

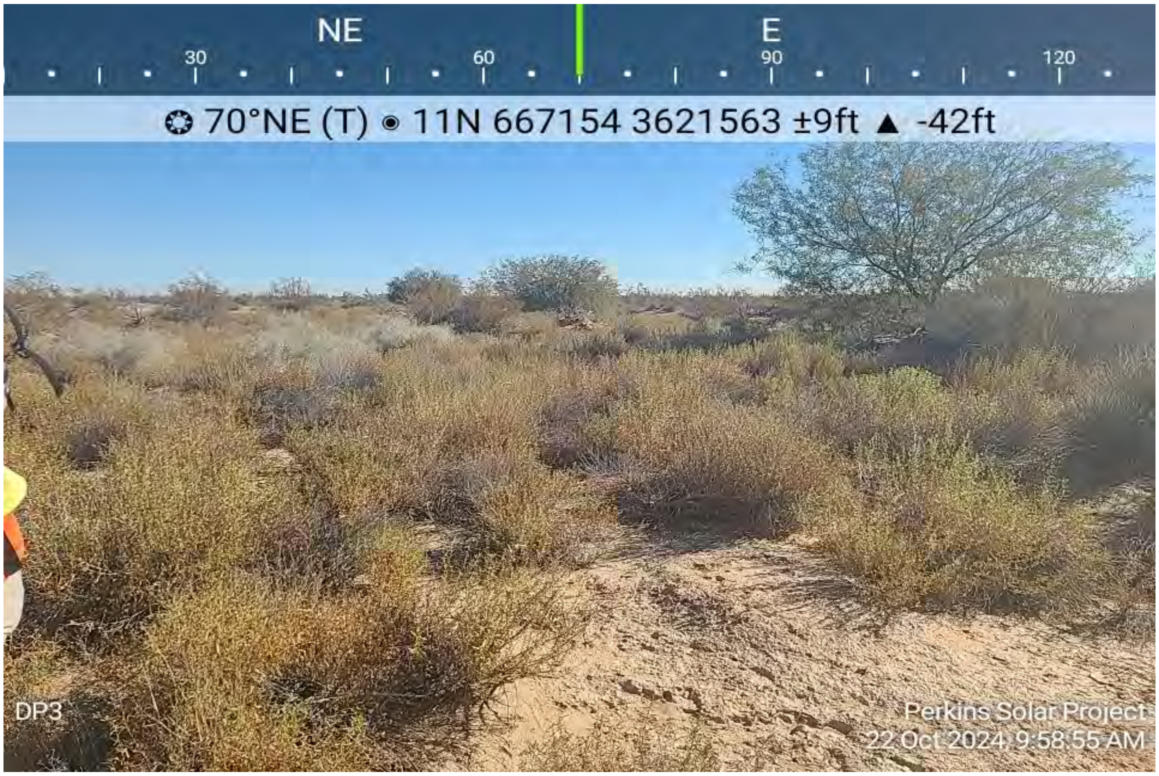

Photo 5. DP3 within alkali goldenbush desert scrub.

Photo 6. DP3 soil point within alkali goldenbush desert scrub.

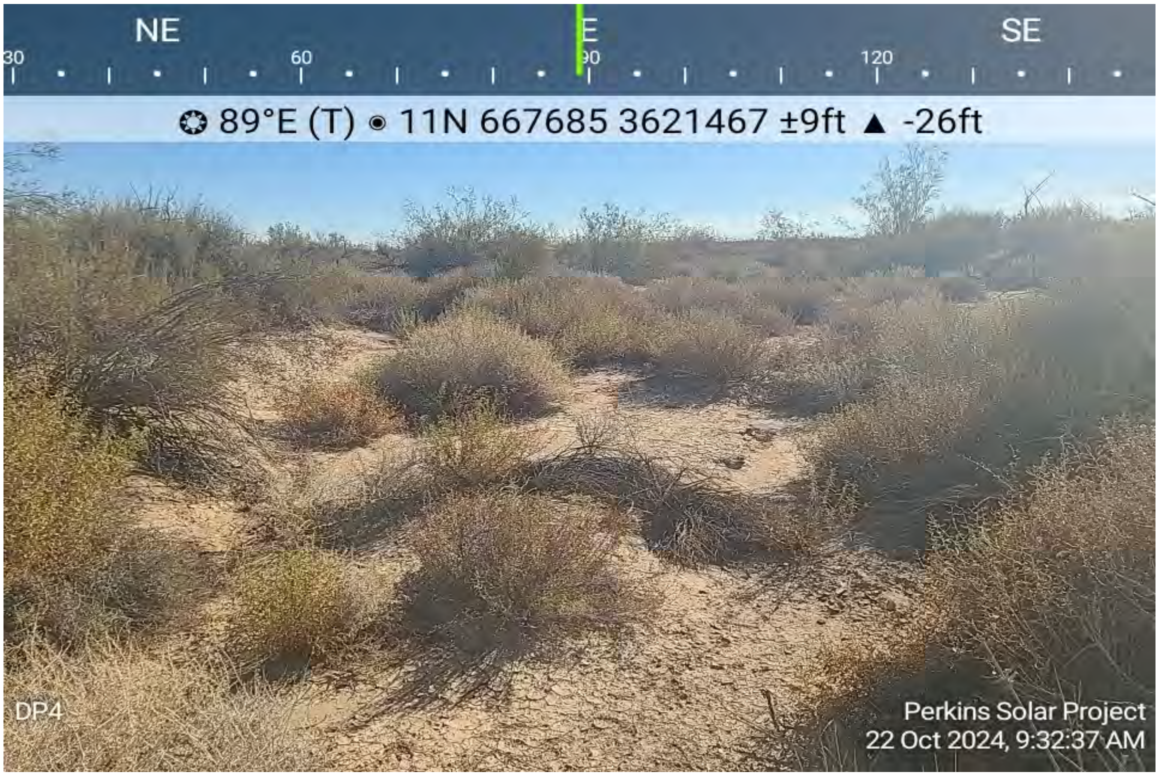

Photo 7. DP4 within alkali goldenbush desert scrub.

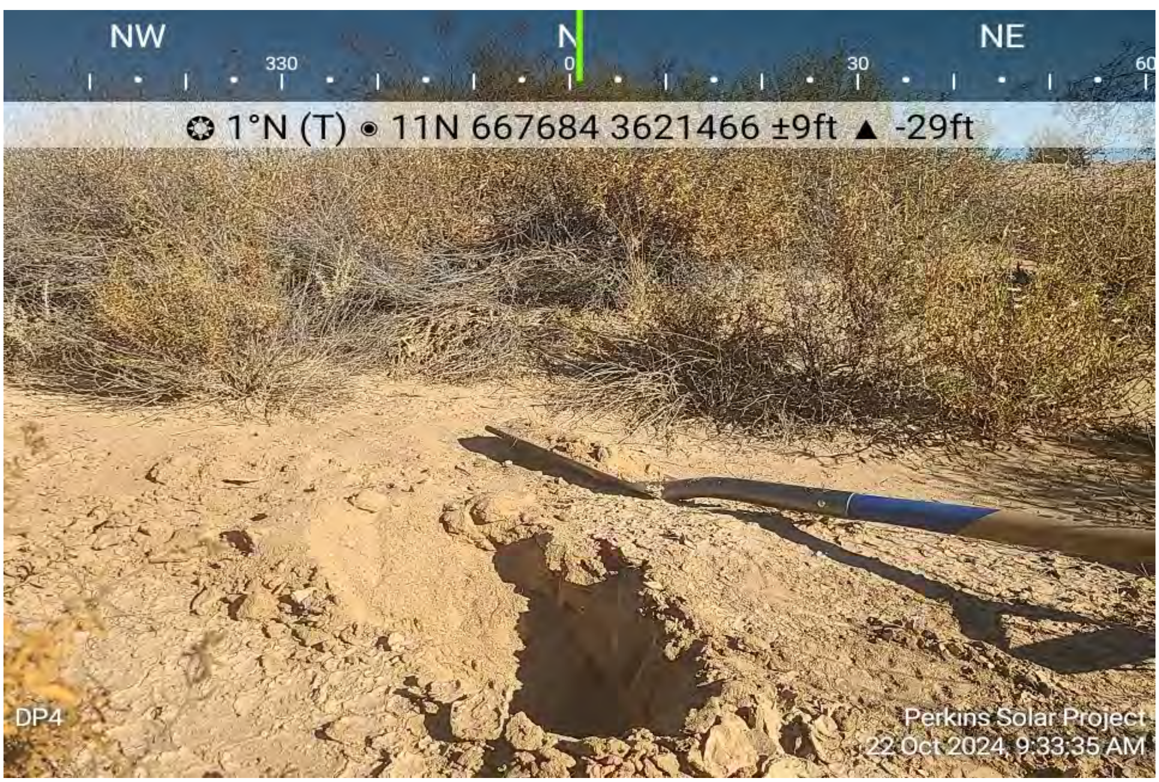

Photo 8. DP4 soil point within alkali goldenbush desert scrub.

Photo 9. DP5 within Sonoran creosote bush scrub.

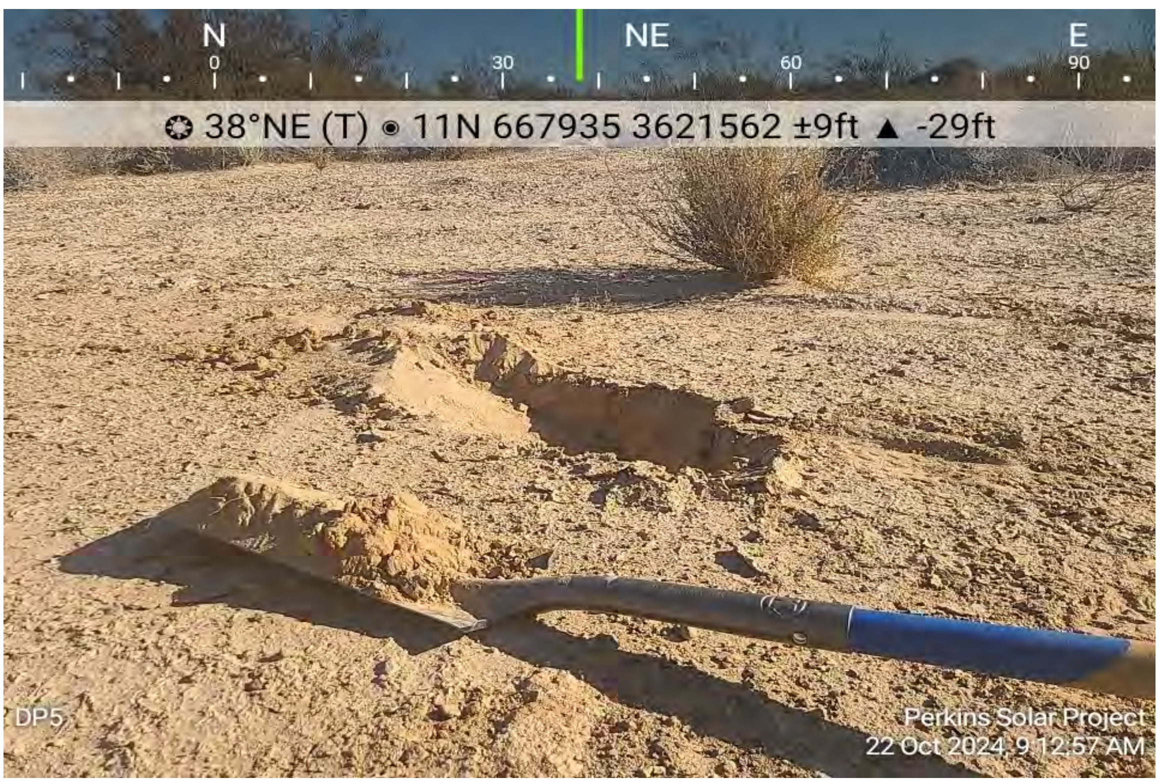

Photo 10. DP5 soil pit within Sonoran creosote bush scrub

Photo 11. DP6 within an ephemeral wash

Photo 12. DP6 soil pit within an ephemeral wash

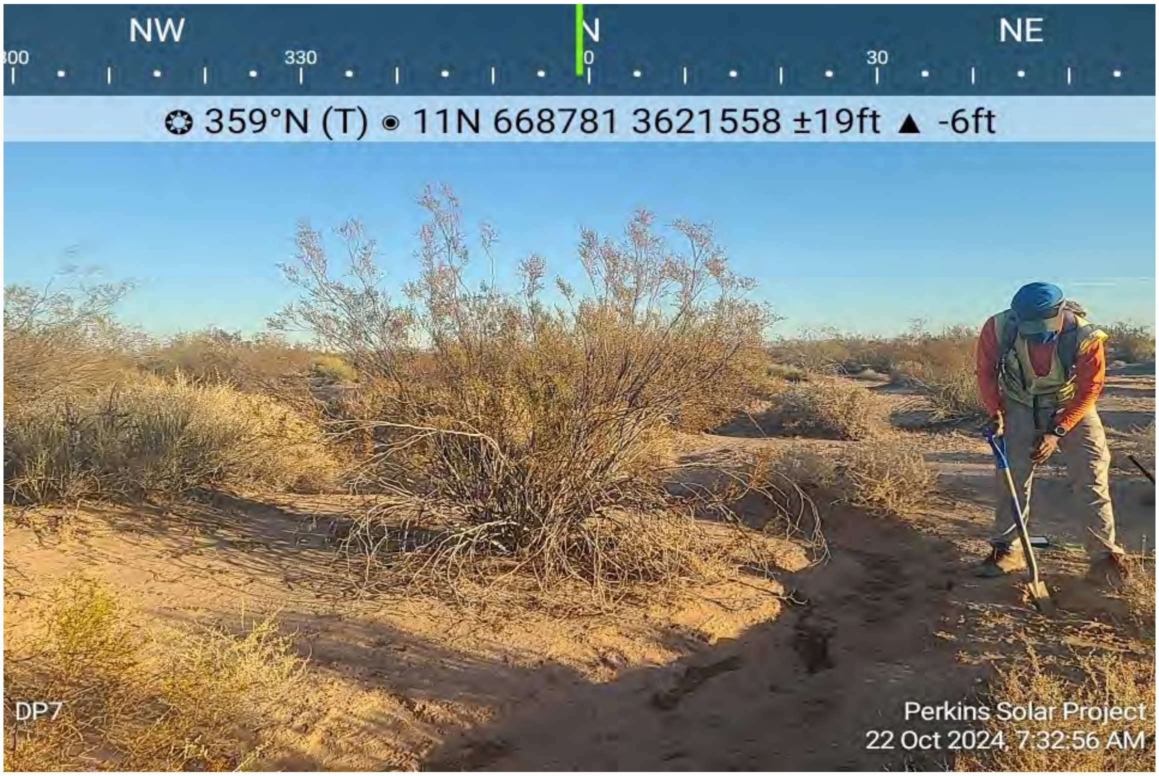

Photo 13. DP7 within an ephemeral wash.

Photo 14. DP7 soil pit within an ephemeral wash

Photo 15. DP8 within honey mesquite-dominated microphyll woodland/desert dry wash woodland.

Photo16. DP8 soil pit within honey mesquite-dominated microphyll woodland/desert dry wash woodland.

Photo 17. DP9 within tamarisk thicket.

Photo 18. DP9 soil point within tamarisk thicket.

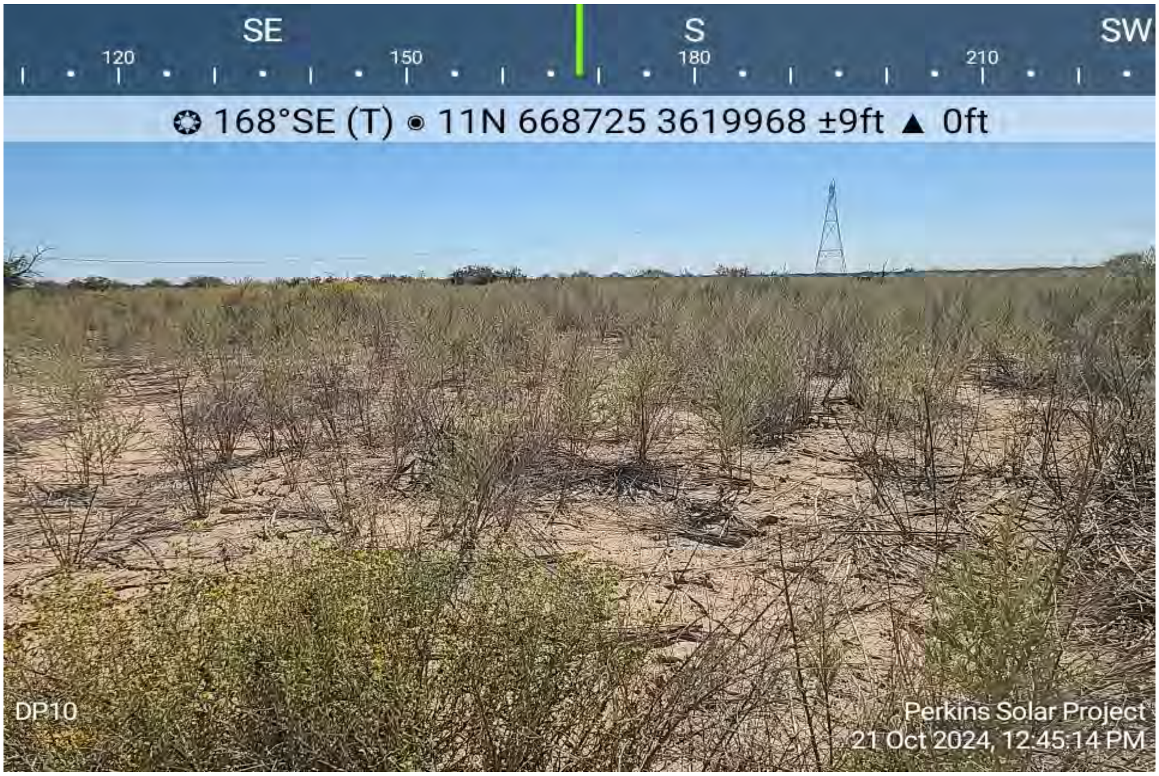

Photo 19. DP10 within arrowweed thicket.

Photo 20. DP10 soil pit within arrowweed thicket

Photo 21. DP11 within tarmarisk thicket.

Photo 22. DP11 soil pit within tamarisk thicket.

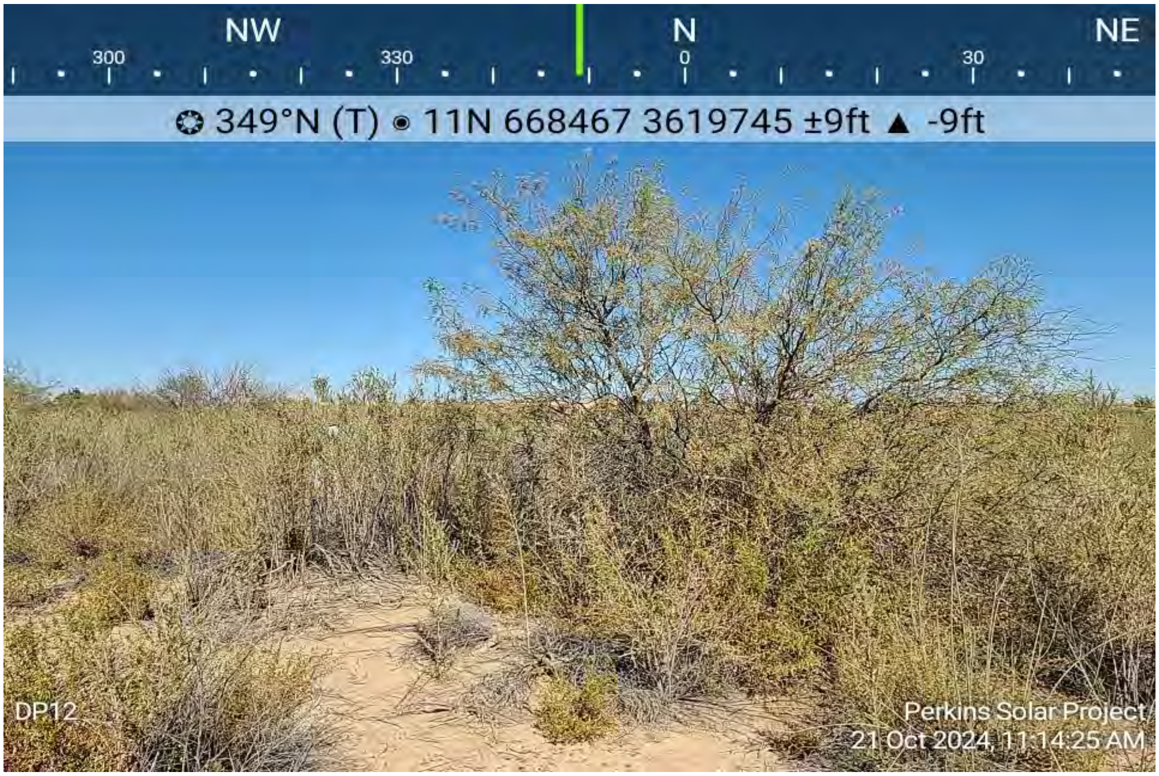

Photo 23. DP12 within honey mesquite-dominated microphyll woodland/desert dry wash woodland.

Photo 24. DP12 soil pit within honey mesquite-dominated microphyll woodland/desert dry wash woodland.

Photo 25. DP13 within Sonoran creosote bush scrub.

Photo 26. DP13 soil pit within Sonoran creosote bush scrub

Appendix C — Wetland Determination Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP1
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S27, T16S, R17E
Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.727367 Long: -115.207379 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

	Yes	No
Hydrophytic Vegetation Present?		x
Hydric Soil Present?		x
Wetland Hydrology Present?		x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Vegetated swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Isocoma acradenia*	15	Yes	FACU
2. *Larrea tridentata*	8	Yes	UPL
3. *Ephedra trifurca*	2	No	UPL
4. *Ambrosia dumosa*	3	No	UPL
5.			
	28	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP1

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	7.5YR 4/6	100					Sandy	sandy clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x Depth (inches): ___
Water Table Present? Yes ___ No x Depth (inches): ___
Saturation Present? Yes ___ No x Depth (inches): ___
(includes capillary fringe)

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

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

Remarks:
No hydrology indicators present. Within a vegetated swale that provides deep ground water for deeply rooted shrubs.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP2
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S27, T16S, R17E
Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.723523 Long: -115.197399 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

	Yes	No
Hydrophytic Vegetation Present?		x
Hydric Soil Present?		x
Wetland Hydrology Present?		x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Vegetated swale - Isocoma acradenia scrub community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Isocoma acradenia*	20	Yes	FACU
2. *Larrea tridentata*	5	No	UPL
3. *Ephedra trifurca*	2	No	UPL
4. *Ambrosia dumosa*	3	No	UPL
5.			
	30	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP2

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	10YR 3/4	100					Sandy	sandy clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Shallow surface cracks nearby but not within the vegetation plot, indicating water pools temporarily. Not a strong indicator of saturated soil for two weeks or more during the growing season.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24

Applicant/Owner: Introspect Power State: CA Sampling Point: DP3

Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S33, T16S, R17E

Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): LRR D Lat: 32.719180 Long: -115.216411 Datum: WSG84

Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 x	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes x	No ___	

Remarks:
Vegetated swale - Isocoma acradenia scrub community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Isocoma acradenia*	30	Yes	FACU
2. *Larrea tridentata*	3	No	UPL
3.			
4.			
5.			
	33	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR 4/4	100					Sandy	sandy clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Shallow surface cracks indicating water pools temporarily. Not a strong indicator of saturated soil for two weeks or more during the growing season.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP4
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S34, T16S, R17E
Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.719180 Long: -115.216411 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___ No x	
Wetland Hydrology Present?	Yes x No ___	

Remarks:
Vegetated swale - Isocoma acradenia scrub community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Isocoma acradenia*	15	Yes	FACU
2. *Larrea tridentata*	5	No	UPL
3. *Ephedra trifurca*	3	No	UPL
4. *Ambrosia dumosa*	3	No	UPL
5.			
	26	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP4

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-5	7.5YR 5/6	100					Sandy	sandy clay loam
5-16	7.5YR 5/3	100					Sandy	sandy loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Shallow surface cracks indicating water pools temporarily. Not a strong indicator of saturated soil for two weeks or more during the growing season.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24

Applicant/Owner: Introspect Power State: CA Sampling Point: DP5

Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S34, T16S, R17E

Landform (hillside, terrace, etc.): desert scrub Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): LRR D Lat: 32.719044 Long: -115.208063 Datum: WSG84

Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 x	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks:
Larrea tridentata scrub community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Larrea tridentata*	8	Yes	UPL
2. *Isocoma acradenia*	5	Yes	FACU
3. *Ephedra trifurca*	5	Yes	UPL
4.			
5.			
	18	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 5/6	100					Sandy	sandy clay loam
5-16	7.5YR 5/3	100					Sandy	sandy loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators present

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP6
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S34, T16S, R17E
Landform (hillside, terrace, etc.): ephemeral wash Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.721120 Long: -115.199313 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes x	No ___

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Ephemeral wash (narrow braided channels)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Larrea tridentata*	8	Yes	UPL
2. *Ambrosia dumosa*	5	No	UPL
3. *Ephedra trifurca*	15	Yes	UPL
4.			
5.			
	28	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP6

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	7.5YR 4/6	100					Sandy	sandy clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

___ Water Marks (B1) **(Riverine)**
x Sediment Deposits (B2) **(Riverine)**
x Drift Deposits (B3) **(Riverine)**
x 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Ephemeral drainage with no wetland species

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/22/24

Applicant/Owner: Introspect Power State: CA Sampling Point: DP7

Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S34, T16S, R17E

Landform (hillside, terrace, etc.): ephemeral drainage Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): LRR D Lat: 32.718847 Long: -115.199042 Datum: WSG84

Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 x	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes x	No ___	

Remarks:
Ephemeral wash with narrow braided channels

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Larrea tridentata*	7	Yes	UPL
2. *Ambrosia dumosa*	15	Yes	UPL
3. *Ephedra trifurca*	2	No	UPL
4.			
5.			
	24	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP7

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-16	7.5YR 4/6	100					Sandy	sandy clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

___ Water Marks (B1) **(Riverine)**
x Sediment Deposits (B2) **(Riverine)**
x Drift Deposits (B3) **(Riverine)**
x 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Ephemeral drainage with no wetland species

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP8
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S36, T16S, R17E
Landform (hillside, terrace, etc.): Desert dry wash Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.713456 Long: -115.175615 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes x	No ___

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Desert dry wash woodland mesquite community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prosopis glandulosa*	25	Yes	FACU
2.			
3.			
4.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Isocoma acradenia*	15	Yes	FACU
2. *Larrea tridentata*	5	Yes	UPL
3.			
4.			
5.			
	20	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** X

Remarks:
No hydrophytic species present

SOIL

Sampling Point: DP8

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	10YR 3/6	100					Sandy	sandy loam

[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)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP9
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): Desert flats Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.706083 Long: -115.205008 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x	No ___
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes ___	No x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Tamarix thicket community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarix ramomissima*	11	Yes	FAC
2.			
3.			
4.			
	11	=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Tamraix ramomissima*	15	Yes	FAC
2. *Pluchea sericea*	45	Yes	FACW
3.			
4.			
5.			
	60	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (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:

X 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** X **No** ___

Remarks:
Deeply rooted hydrophytic species present

SOIL

Sampling Point: DP9

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	7.5YR 4/3	100					Loamy/Clayey	Loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ________
Depth (inches): ________

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators. Area is at toe of the slope of the All American Canal, which may provide mesic conditions but not wetland conditions.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP10
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): Desert flats Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.704576 Long: -115.199938 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

	Yes	No
Hydrophytic Vegetation Present?	X	
Hydric Soil Present?		x
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Pluchea serricea scrub community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Pluchea sericea*	15	Yes	FACW
2. *Isocoma acradenia*	10	Yes	FACU
3.			
4.			
5.			
	25	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	25 (A)		70 (B)

Prevalence Index = B/A = 2.80

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** x **No** ___

Remarks:
met the prevalence index criterion

SOIL

Sampling Point: DP10

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR 5/6	100					Loamy/Clayey	clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24

Applicant/Owner: Introspect Power State: CA Sampling Point: DP11

Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S2, T17S, R17E

Landform (hillside, terrace, etc.): Desert scrub Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): LRR D Lat: 32.704550 Long: -115.204221 Datum: WSG84

Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 X	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:
Tamarix thicket community

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarix ramomissaima*	15	Yes	FAC
2.			
3.			
4.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Pluchea sericea*	35	Yes	FACW
2. *Tamarix ramomissima*	5	No	FAC
3.			
4.			
5.			
	40	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 100.0% (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:

X 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** x **No** ___

Remarks:
Hydrophytic vegetation present

SOIL

Sampling Point: DP11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5YR 3/3	100					Loamy/Clayey	silty clay
3-16	7.5YR 4/4	100					Loamy/Clayey	silty clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators; alkali crust indicates deep groundwater

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	*OMB Control #: 0710-xxxx, Exp: Pending* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24

Applicant/Owner: Introspect Power State: CA Sampling Point: DP12

Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S2, T17S, R17E

Landform (hillside, terrace, etc.): Desert dry wash Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): LRR D Lat: 32.702654 Long: -115.202767 Datum: WSG84

Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA

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

Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___

Are Vegetation n , Soil n , or Hydrology No 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 x	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No x		
Wetland Hydrology Present?	Yes x	No ___		

Remarks:
Desert dry wash woodland community - Prosopis glandulosa. Mesic vegetation but not wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. *Prosopis glandulosa*	8	Yes	FACU
2.			
3.			
4.			
	8	=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Pluchea sericea*	20	Yes	FACW
2. *Isocoma acradenia*	25	Yes	FACU
3.			
4.			
5.			
	45	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (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** x

Remarks:
Hydrophytic vegetation not present

SOIL

Sampling Point: DP12

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/6	100					Loamy/Clayey	silty clay loam

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ________
Depth (inches): ________

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Shallow soil cracks indicate some water pools, unlikely for extensive periods. Soil unlikely to be saturated for two weeks or more of the growing season.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Solar Project City/County: Imperial Sampling Date: 10/21/24
Applicant/Owner: Introspect Power State: CA Sampling Point: DP13
Investigator(s): L, Rouse ; J. Chikezie Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): Desert scrub Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.702103 Long: -115.202305 Datum: WSG84
Soil Map Unit Name: Rositas, fine loamy sand 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ___
Are Vegetation n , Soil n , or Hydrology No 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 x
Hydric Soil Present?	Yes ___	No x
Wetland Hydrology Present?	Yes ___	No x

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Larrea tridentata scrub community

VEGETATION – Use scientific names of plants.

Stratum / Species	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 20)			
1. *Larrea tridentata*	5	Yes	UPL
2. *Asclepias subulata*	2	Yes	UPL
3.			
4.			
5.			
	7	=Total Cover	
Herb Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
Woody Vine Stratum (Plot size: NA)			
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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (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** x

Remarks:
Hydrophytic vegetation not present

SOIL

Sampling Point: DP13

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-3	7.5YR 5/4	100					Loamy/Clayey	sandy clay loam
3-16	7.5YR 4/4	100					Sandy	Loamy sand

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two 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 x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No wetland hydrology indicators

Attachment B Updated Biological Resources Technical Report

Ironwood Consulting

370 Alabama Street, Suite A
Redlands, CA 92373
(909) 798-0330
www.ironwoodbio.com

BIOLOGICAL RESOURCES TECHNICAL REPORT

February 2025

Perkins Renewable Energy Project

Prepared for:
IP Perkins, LLC and IP Perkins BAAH, LLC

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Acronyms

amsl	above mean sea level
ACEC	Area of Critical Environmental Concern
BRTR	Biological Resources Technical Report
BBCS	Bird and Bat Conservation Strategy
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CA-177	California Highway 177
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CDFA	California Department of Food and Agriculture
CESA	California Endangered Species Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
FEIS	Final Environmental Impact Statement
FESA	Federal Endangered Species Act
GIS	Geographic Information Systems
GPS	Global Positioning System
I-10	Interstate 10
LUPA	Land Use Plan Amendment
NEPA	National Environmental Protection Act
NPS	National Park Service
NECO Plan	Northern and Eastern Colorado Desert Coordinated Management Plan

O&M	Operations and Maintenance
PV	Photovoltaic
ROW	Right of Way
SEZ	Solar Energy Zone
TCAs	Tortoise Conservation Areas
USFWS	US Fish and Wildlife Service

1 Introduction

1.1 Background

IP Perkins, LLC and IP Perkins BAAH, LLC(Proponents), subsidiaries of Intersect Power, LLC (Intersect) are proposing to develop the Perkins Renewable Energy Project (Project) east of El Centro, near Holtville, in Imperial County, California (Figure 1). The proposed Project site is located on a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands. The Project 500kV loop-in transmission lines will traverse Bureau of Reclamation (BOR) lands. The BLM-managed portion of the Project site is comprised of approximately 6,255 acres. The BOR-managed portion of the site is approximately 962.8 acres and the private land is approximately 515.04 acres. These areas, along with a 1.7-kilometer (1.06-mile) transmission line corridor, and use of existing access roads will collectively be referred to as the Project site, unless otherwise described in their specific components. Ironwood Consulting Inc. (Ironwood) has been contracted to assess potential habitat for sensitive and special-status species within the Project site and conduct biological surveys on behalf of the Proponents.

1.2 Purpose

This Biological Resources Technical Report (BRTR) provides a description of methods and results of biological resource surveys and investigations conducted in 2023 through 2024 for the entirety of the Project site. The primary purpose of the BRTR is to provide biological information that will be used as the foundation for impact assessments pursuant to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The discussion included herein may also be used to support consultation between Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA) and for any necessary incidental take authorization from the California Department of Fish and Wildlife (CDFW) with respect to the California Endangered Species Act (CESA).

1.3 Site Location

The Project site is located in Imperial County within the Sonoran Desert of Southern California. It is located east of an irrigated agricultural region, with the nearest towns of Date City and Holtville located west of the Project site. The Project site is approximately 36 miles southeast of the Salton Sea, 8 miles west of the Algodones sand dunes, and its southernmost boundary is just 1.3 miles north of the United States-Mexico border (Figure 1). The Project site is directly south of Interstate 8 and directly north of Highway 98. The transmission corridor is located south of the Project site and crosses the All-American Canal on its southern end. The Project occurs on two 7.5-minute USGS topographic quadrangles – Midway Well NW and Midway Well. Two 500 kV loop-in transmission lines would exit the BAAH switchyard and traverse the preserved utility corridor on BLM lands prior to crossing BOR lands where they would interconnect with the existing SDG&E Southwest Power Line, 500 kV Transmission Line

The Project site occurs on a combination of BLM-managed lands, BOR-managed lands, and private lands. Public lands managed by the BLM are within the DRECP Development Focus Area (DFA). Areas of Critical Environmental Concern (ACEC) are outside of but adjacent to the Project site (Figures 1, 2) – East Mesa ACEC is to the north and

Lake Cahuilla ACEC is to the west. There is a small area of the Project site that overlaps with an Important Bird Area (Audubon, California, 2011) on its westernmost border.

1.4 Project Summary

IP Perkins, LLC, proposes to construct, operate, maintain, and decommission an up to 1,150 megawatt (MW) solar PV and battery energy storage facility on a combination of BLM-administered public lands, BOR-administered public lands, and private lands in Imperial County east of El Centro, California. The Project would deliver clean power to ratepayers in California, minimize environmental impacts and land disturbance associated with solar development, and bring living-wage jobs to Imperial County.

The Project would generate and store up to 1,150 MW of renewable electricity via arrays of solar PV panels, a battery energy storage system (BESS), and appurtenant facilities. The final Project capacity will be based on optimization of buildable acreage and solar PV technology at the time of procurement. The Project would construct a new gen-tie line that would connect the project substation(s) to a new high-voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to interconnect to the existing SDG&E 500 kV transmission line that travels east-west just south of the Project site, crossing BOR lands and terminating in the Imperial Valley Substation (Substation), southwest of El Centro.

Depending upon the timeline of the interconnection agreement, the Project could be operational by as early as late 2027 and operate for up to 50 or more years. At the end of its useful life, the Project would be decommissioned. Revegetation would be conducted in accordance with a Decommissioning and Revegetation Plan.

2 Site Characteristics

2.1 Regional Setting

The Project site is located in Imperial County within the Sonoran Desert of Southern California. The topography of the Project site is fairly flat and generally slopes upward at a gradient of less than 1 percent toward the southeast. Ground elevations of the Project site ranges from approximately 85 feet (26 meters) in its northwest corner to 125 feet (38 meters) in its southeast corner.

Anthropogenic features and land uses near the Project site include agriculture, transmission lines, highways, and water distribution from the All-American Canal, summarized in Table 1 below.

Table 1. Adjacent and Nearby Land Uses.

Direction	Land Uses
North	Interstate 8 Freeway, Area of Critical Environmental Concern, transmission lines
South	Highway 98, All-American Canal, transmission lines, Tamarisk Long Term Visitor Area, US-Mexico border

Direction	Land Uses
East	Interstate 8 Freeway, transmission lines
West	Area of Critical Environmental Concern, active agriculture, transmission lines, Audubon Important Bird Area

2.2 Hydrology

The Project site is located within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million acres (20,000 square miles) in southeastern California and is the most arid HR in California, with annual precipitation averaging less than 4 inches (WRCC 2024).

The Project site is in the Southern Mojave-Salton Sea subregion of Hydrologic Unit Code (HUC) 18 Hydrologic region, which is a closed desert basin. The Project site is located within the Deer Peak Watershed with East Highline Canal to the west, Coachella Canal to the east, and the All-American Canal bisecting the transmission corridor on the southern end of the Project site (Figure 3). According to data from the National Hydrography Dataset (NHD), two small, discontinuous, intermittent streams (one of which forks) occur on the western side of the Project site. These intermittent streams correspond to vegetated drainage swales, likely with moderately deep ground water but appeared to lack surface flow.

2.3 Soils and Sand Transport

The Project site is sandy overall. Both parcels are dominated specifically by Rositas loamy fine sand with 0 to 2 percent slopes. A small percentage of both parcels contain Rositas fine sand, Holtville loam, Rositas silt loam, Holtville-Imperial silty clay loams, and Superstition loamy find sand. A small section of the Project site contains mesic/riparian vegetation that is mapped as wet Rositas fine sand, wet, 0-2 percent slopes, which is typically found in basins and floodplains (Figure 4).

The Algodones Dunes are approximately 15 miles east of the Project site and have active aeolian sand migration and deposition (Muhs et.al. 2003). The lesser-known East Mesa is north of the Project site but is mostly stabilized by vegetation. The provenance of these dunes has been much debated, but the most recent study for their origin indicates that these dunes have a lot of overlap with the late Holocene lacustrine shorelines of the paleolake known as Lake Cahuilla, which is an expanded area of the current Salton Sea and Colorado River, with only a small amount of overlap with the Chocolate Mountains (Muhs 2017, Muhs et al 1995). Annual resultant drift direction for sand-moving winds begins far southwest of the Project site from the Pacific Ocean and heads northeast towards the Algdones Dunes (Muhs 2017). Due to the composition and the prevailing winds, sand transport is northwest of the Project site. Interstate 8 creates a further barrier for transport of sand from that direction and the active corridor for sand transport would be north of I-8. Sand that occurs on the Project site are likely deposits that occurred prior to construction of I-8 since aeolian sand changes over time and the Project site has sand sheets stabilized by vegetation. The Project site is unlikely to be a part of an active aeolian sand system due to Interstate 8 bisecting the southern portion of the dune system. Activities on the Project site will have very little impact to sand transport and design of the Project site will consider flow of the sand throughout the Project site.

2.4 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Precipitation data were obtained from spatial climate datasets within grids located on the Project site, prepared by the Parameter-elevation Regressions on Independent Slopes Model Climate Group (PRISM 2024), since the most proximate stations to the Project site (Calexico and Imperial sand dunes weather stations (approximately 15 miles and 40 miles from the Project site, respectively)) did not have recent weather data (WRCC 2024).

The subtropical climate of the Colorado Desert is characterized by dry, mild winters averaging 57 degrees Fahrenheit (°F) and dry, hot summers that average 93°F. Summer highs are known to reach 122°F. Recent annual rainfall data from 2012 to 2023 were averaged (Table 1). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and the highest summer rainfall occurred between April and September 2013 and 2023.

Table 2. Seasonal Rainfall Summary.

Year	Winter – October to March (inches)*	Summer – April to September (inches)*
2013	0.21	0.33
2014	0.2	0.13
2015	0.22	0.19
2016	0.12	0.11
2017	0.47	0.1
2018	0.02	0
2019	0.51	0.09
2020	0.83	0.11
2021	0.19	0.1
2022	0.08	0.16
2023	0.17	0.33
2024	0.38	0.09
Seasonal Average	**0.29**	**0.15**

2.5 Vegetation Communities

Vegetation communities in the Project site were field verified and classified by botanists, using Holland 1986 and cross-referencing with *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009) and the National Vegetation Classification System (NVCS) referenced in the DRECP (CDFW and AIS 2022).

Using the NVCS vegetation layers as reference, botanists verified that these vegetation communities were correct and made adjustments by creating vegetation polygons within ArcGIS Field Maps where needed. Most mapped vegetation boundaries are accurate to within approximately 10 feet (3 meters) and were refined to submeter data collection where it may be a jurisdictional wetland or water.

Field adjusted polygons were intergraded with confirmed NVCS vegetation communities and created new shapefiles that were used to calculate areas of each vegetation type. Any vegetation map is subject to imprecision for several reasons:

- Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
- Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.
- Vegetation types tend to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these patches varies, depending on the minimum mapping units and scale of available aerial imagery.

Six vegetation communities were identified during field surveys which are further described below.

2.5.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub has a state rarity rank of S5 (CDFW 2023), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It 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). On the Project site, creosote is dominant in the shrub canopy, or creosote bush scrub and white bursage are co-dominants in the shrub canopy with only a few shrubs sparsely distributed. Emory's indigo (*Psorothmanus emoryi*), white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and ephedra (*Ephedra spp*) occur in some areas with primarily an understory of annual plants. This vegetation community is the dominant vegetation community throughout most of the Project site and the transmission line.

2.5.2 Microphyll Woodland/Desert Dry Wash Woodland

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S3 (CDFW 2023). Desert dry wash woodland is characteristic of desert washes and is likely to be regulated by CDFW as jurisdictional state waters. This vegetation community on the Project site is characterized by mesquite thickets that is synonymous to mesquite (*Prosopis glandulosa*) 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. This vegetation community has mesquite trees that cover at least 2-3 percent of the absolute cover for trees and shrubs and was mapped as a patch within the western portion of the Project site and a small section on the southern border, but have been mostly avoided in the current Project site design. Other plants observed in this plant community included arrow weed (*Pluchea sericea)* and tamarisk (*Tamarix ramosisima).*

2.5.3 Alkali Goldenbush Desert Scrub

Alkali goldenbush desert scrub is a sensitive vegetation community recognized as a state rarity rank of S3 (CDFW 2023). It is synonymous with alkali goldenbush (*Isocoma acradenia*) shrubland alliance. Within the Project site, alkali goldenbush forms an open shrub layer (up to 35% cover). The tree layer, consisting of mesquite, is mostly sparse if present. Stands generally have low cover of vegetation and may be sparse (<10% total vegetation). Sites are moist or seasonally dry flats, and margins of intermittently saturated vegetated swales. It is found primarily on low and mid-slopes at elevations ranging from approximately 25 to 300 m with northeast and southwest aspects. Soils are variable and derived from alluvium and dune sand; textures include sand and loamy sand but include sites with finer-textured soil.

2.5.4 Arrow Weed Thickets

Arrrow weed thickets are a sensitive vegetation community recognized with a state rarity rank of S3 (CDFW 2023). It is synonymous with *Pluchea sericea* shrubland alliance. This vegetation community is characterized by arrow weed that is more than or equal to 2% of absolute cover with a sparse herbaceous layer of seasonal annuals. This vegetation is usually found near seasonally flooded washes and stream borders. Within the Project site, this vegetation community occurs only within a small portion of the transmission corridor bordering the southern edge of the All-American Canal. No standing water was observed in the area during surveys.

2.5.5 Common Reed Marsh

Common reed marsh is synonymous to *Phragmites australis* herbaceous semi-natural alliance. This vegetation community is characterized by more than 2% absolute cover and more than 50% relative cover in the herbaceous layer. This vegetation community is sometimes considered invasive along waterways and wetlands (USDA 2023) and is only located within the edges of the All-American Canal of the transmission corridor.

2.5.6 Tamarisk Thickets

Tamarisk thickets are a non-native community that consists of *Tamarix ramomissima* trees (or other *Tamarix* species) that form dense thickets along rivers and streams, around the banks of lakes and ponds or in areas that have shallow ground water. Soils become alkaline, which can often exclude other species becoming established. Because it is an aggressive competitor, tamarisk has spread throughout the West causing major changes to riparian and other natural environments. The large number of seeds disperse via wind, flowing water, and animals. With such high reproductive potential, tamarisk can develop into monoculture stands, block out sunlight, reduce space for natives, deplete soil nutrients, lower water tables, and increase a fuel source for fire spread. Within the Project site, this vegetation community occurs within the transmission line corridor north and south of the All-American Canal.

3 Data Collection Methods

3.1 Literature Review

Prior to conducting field surveys, analysis was performed with Geographic Information Systems (GIS) using the following digital datasets, which include the most current information, data sources, and tools:

- 7.5' USGS topographic quadrangles
- National Agriculture Imagery Program (NAIP) aerial imagery
- National Wetlands Inventory Wetlands Mapper USFWS 2023)
- CNPS Online Inventory of Rare and Endangered Plants (CNPS 2023)
- The Consortium of California Herbaria Jepson Interchange (CCH 2023)
- California Natural Diversity Database (CDFW 2023b)
- Calflora (Calflora 2023)
- Manual of California Vegetation and DRECP mapping (Sawyer et al. 2009)
- Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA and NRCS 2023b)
- BLM sensitive species lists (BLM 2023)

3.2 Special Status Species Definition

Special status species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations, are often of relatively limited distribution, and typically have unique habitat conditions, which also may be in decline. Special status criteria include:

- Officially listed or candidates for listing by California or the federal government as endangered, threatened, of special concern, or rare under CESA or FESA
- Plants or animals which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA
- BLM Sensitive Species designated by the BLM California State Director
- Plants listed in the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2023)
- Wildlife species identified by CDFW as Species of Special Concern (CDFW 2023, Figure 6)
- Plants or animals included in the CDFW lists of Special Plants or Special Animals (CDFW 2023, Figure 6)
- Considered special-status species in local or regional plans, polices, or regulations such as the Northern and Eastern Colorado Desert Coordinated Management Plan/EIS
- Protected under other statutes or regulations (e.g., Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, etc.)

All surveys were conducted per DRECP DFA Biological Conservation Management Action (CMA) requirements for each species within the recommended timing, including full-coverage burrowing owl and flat-tailed horned lizard surveys. Any modifications are further explained within each individual sensitive species section below.

3.3 Wildlife Surveys

Based upon review of the literature, a list of special-status wildlife species with potential to occur in or near the Project site was compiled (Appendix A). Full coverage wildlife surveys were conducted during the following periods (Figure 8)

- Spring surveys, full-coverage 20-meter transect surveys, wildlife surveys: March 20 – April 3, 2023
- Breeding season burrowing owl surveys (#2), Flat-tailed horned lizard: May 15 - May 18, 2023
- Breeding season burrowing owl surveys (#3), Flat-tailed horned lizard: June 12 -June 15, 2023
- Breeding season burrowing owl surveys (#4), Flat-tailed horned lizard: June 29 - July 4, 2023
- Spring surveys, full-coverage 20-meter transect surveys, wildlife surveys: April 8– April 16, 2024
- Breeding season burrowing owl surveys (#2): May 22, 2024
- Breeding season burrowing owl surveys (#3): June 14-15, 2024
- Breeding season burrowing owl surveys (#4): July 11, 2024
- Non-breeding season burrowing owl surveys (#1 thru #4): September-December 2024

Wildlife surveys were conducted at 20-meter belt transects, consistent with 2012 CDFW burrowing owl protocol surveys (CDFW 2012) and in conjunction with plant surveys with a 150-meter buffer. Survey crews in the spring seasons consisted of experienced desert wildlife biologists with at least one botanist and one avian biologist per crew. Surveys were conducted by walking linear transects and visually searching for live individuals and sign of any sensitive species. All holes observed that may be inhabited by sensitive species such as burrows or burrow complexes were carefully inspected for potential occupancy or sign of recent use. Special emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. Burrows were carefully examined and assigned to the wildlife species that may have inhabited them based on indicator signs within the burrow or near the mouth of the burrow.

During wildlife surveys, biologists recorded all wildlife species observed, regardless of conservation status. Common species were tallied at the end of each transect and recorded throughout each day by each crew. During the spring surveys, additional avian counts were completed in the mornings during surveys until 10 a.m. All locational information for special status species observations and sign detected were recorded on digital Zerion iForms for any new data collected. During each survey period, data collected from previous survey periods was uploaded to ArcGIS FieldMaps as field reference to ensure that duplicate data was not taken.

3.3.1 Flat-tailed Horned Lizard

Survey recommendations for the flat-tailed horned lizard include surveys through the active season (April through September) covering a minimum of 10 hours of surveys per 260 hectares (Flat-tailed Horned Lizard

Interagency Coordinating Committee 2003). Flat-tailed horned lizard surveys on the Project site were conducted between May through July. Surveys were modified with 30-meter belt transects throughout the entirety of the Project site during 2023 and in 2024, were conducted in conjunction with 20-meter surveys, conforming to and exceeding requirements with a total of 404 hours of surveys and a larger area of coverage. All flat-tailed horned lizard sign [e.g., live individuals, carcasses, scat, tracks, and ant hills the species depend on for forage] were recorded.

3.3.2 Avian Species

3.3.2.1 Western Burrowing Owl

Survey recommendations in both the 1993 California Burrowing Owl Consortium (CBOC 1993) Guidelines and 2012 CDFW Staff Report (CDFW 2012) include baseline data collection and an assessment of site use by burrowing owl. One full-coverage survey was conducted during spring surveys, during the breeding season, which were consistent with Phase II of the CBOC 1993 Guidelines and consistent with the 2012 CDFW Staff Report, with three additional modified surveys that have been previously approved on other projects. The modifications are further explained below. Occupancy of burrowing owl habitat is confirmed at a site when at least one burrowing owl, or its sign at or near a burrow entrance, is observed within the last three years (CDFW 2012; CBOC 1993).

The first burrowing owl survey during the active season was conducted at 20-meter spacing, which provided a greater level of coverage than the 30-meter spacing recommended in the 1993 CBOC Guidelines and was consistent with the 20-meter spacing recommended in the 2012 CDFW Staff Report. All burrows detected during wildlife surveys were assessed for wildlife occupancy, to ensure detection of any special status species, including burrowing owl that may have occupied a burrow. The 20-meter transect spacing also increases the likelihood of flushing live burrowing owls during the survey. All sign of burrowing owl, including individuals, feathers, tracks, whitewash, pellets, and suitable burrows were recorded if present. An additional 150-meters of buffer around the Project site was also surveyed in accordance with the 2012 protocol survey.

A modification of the protocol 2012 survey recommendations was completed for the subsequent three surveys during the active burrowing owl season. The subsequent three surveys were modified as burrow inspections for all previously detected burrows, including mammal, potential tortoise, or burrowing owl burrows. All burrows were re-visited to check for any change in burrowing owl sign and were included as new burrowing owl sign if detected. Any new burrows observed during these burrow checks were added to the next check. These burrow checks were spaced at the same time intervals as the 2012 recommendations, with at least 3 weeks of time passing between each session of burrow surveys. A similar modified approach focused on burrow inspections and area searches was conducted for non-breeding surveys with four site visits in the fall-winter of 2024.

3.3.2.2 Avian Counts

Avian counts were conducted during spring 2023 and 2024 surveys. Each survey team consisted of at least one avian biologist who was exclusively tasked with tallying all avian observations. The avian biologist walked with each survey team in the morning, from the start of the survey until about 10:00 am, or earlier if weather conditions were unfavorable for avian detection (i.e., high wind). After these avian counts, the avian biologist would continue to note any incidental wildlife species observed, while also continuing to help with any survey that was being performed.

3.3.3 Special Status Bat Species

A habitat assessment for bats was conducted in the spring of 2024 by a bat specialist and an assistant with a combination of meandering pedestrian transects in best habitats within the Project site and driving within and around the Project site perimeter inspecting nearby structures within 5-miles identified in aerial imagery. Project site features such as trees and man-made structures were visually inspected with binoculars for live bats and evidence of bats such as guano and oil stains, which indicate long-term use for roost sites.

Acoustic bat surveys were conducted in the late spring (June 10-14, 2024) and early summer (July 25-29, 2024) that would best capture the highest diversity of bat activity in the area (Vizcarra 2011, Williams et al 2006) and recommended by renowned desert bat expert Pat Brown (personal communication by B. Vizcarra April 13, 2024). For each session of acoustic surveys, survey periods consisted of five consecutive evenings to capture the maximum number of species that occur on or near the Project site based on a standard that has been developed for the region (Moreno et al. 2000). Three survey sites were established in habitat that had the highest likelihood for detection of bats– one within creosote bush scrub on the Project site (Site 1, Figure 14) and two within desert dry wash woodland adjacent to the development area of the Project site (Sites 2 and 3, Figure 14).

A bat specialist and an assistant setup an acoustic station at each site consisting of Anabat II detectors equipped with zero-crossing analysis interface modules (ZCAIM) to record echolocation calls of bats, consistent with other surveys conducted along the lower Colorado River (Brown 2013). These devices were mounted on 6-foot poles and deployed at the three sites. Anabat detectors were inspected daily for functionality with daily downloads and were retrieved at the end of the five-day survey session.

Call analysis was conducted using Analook software and by manual inspection of individual calls by bat specialist Bea Vizcarra. Static files (noise not attributed to bats) were discarded, and acoustic files attributed to bats were visually analyzed and matched to the call characteristic classifiers. Call identification used the main parameters of characteristic frequency and slope - slope variation dictates the shape of the call, and characteristic frequency limits the range of probabilities to species bandwidths (Corben 2006). To aid identification, voucher call collections from libraries of reference calls and multiple manuals were used for comparison (Corben 2006, Blair and Haskew 2005, Szewczak 2024).

3.3.4 Other Special Status Wildlife Species

All sign of desert kit fox and American badger was recorded, including live or dead individuals, scat, tracks, burrows, and burrow complexes. Activity and likely species usage for each burrow or complex was determined by the burrow size (larger burrows are more likely coyote or badger) and types of sign found at the burrow site. If fresh tracks, scratches, or scat were found at a burrow or complex, it was categorized as active. The presence of old scat without tracks, and no presence of freshly dug dirt, or scratches would indicate that a burrow or complex was inactive. All burrows and burrow complexes were mapped and attributed, if possible, to species. If a burrow could not be attributed to a species, it was recorded as a “canid” burrow, which may include desert kit fox, coyote, or domestic dog.

3.4 Special Status Plants

Based upon review of the literature, a list of special-status plant species with potential to occur in or near the Project site was compiled (Appendix B). Focused special status plant surveys were conducted during the spring of 2023 and 2024 with 20-meter transect surveys. Fall surveys were not conducted due to lack of suitable habitat for species that may occur in the area. Survey dates are summarized in Table 2. Survey methodology was consistent with the following guiding documents:

- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000)
- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000)
- CNPS Botanical Survey Guidelines (CNPS 2001)
- Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et al. 1998)
- Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species (BLM 2009)

Plant surveys performed in spring of 2023 included visual coverage across the entire Project site. Surveyors employed belt transects spaced approximately 20 meters apart. All surveyors were trained on diagnostic features and habitat notes of special status species that may occur, and each crew of surveyors included at least one highly experienced botanist. Plant surveys were not performed in the fall season due to lack of suitable habitat for sensitive species within the Project area.

Prior to beginning plant surveys in the spring, reference populations of special status plants were visited to ensure that timing for surveys was sufficient and that most special status plant species that have the potential to occur would be identifiable. On March 20, 2023, populations were observed for sand food (*Pholisma sonorae*) and giant spanish needle (*Palafoxia arida* var. *gigantea*) near Midway Campground in the Algodones Dunes. On March 26-27, 2023, populations were observed for ribbed cryptantha (*Johnstonella costata [=Cryptantha costata]*) east of the Algodones Dunes. These same populations were observed again on April 7-8, 2024, with Pierson's milkvetch (*Astraglus maggadalenae var perisonii)* also observed.

During plant surveys, botanists recorded all plant species, regardless of conservation status. All locational information for special status species observations was recorded on digital Zerion iForms for any new data collected. Data collected during previous site visits was uploaded to ArcGIS Fieldmaps as field reference to ensure that duplicate data was not collected.

Table 3. Special-status Wildlife and Plant Survey Personnel and Dates.

Date	Survey Type	Surveyors
2023-03-20–2023-04-03	Botany,wildlife species, avian Counts, BUOW breeding season survey #1	K. Gietzen, C. Primuth, J. White, L. Neff, M. Bueno, M. Lavender, M. Hughes, W. McBride, A. Walters, G. Chio, H. Oswald, L. Rouse, T. Ridlinghafer, M. Adams. A. Chasar, K. Bender, M. Pasanen, S. DeCurtis, M. Wegmann

Date	Survey Type	Surveyors
2023-05-15-2023-05-18	FTHL, BUOW breeding season survey #2	J. Goodyear, S. DeCurtis
2023-05-22-2023-05-25	FTHL	J. Goodyear, S. DeCurtis
2023-06-12-2023-06-15	FTHL, BUOW breeding season survey #3	J. Goodyear, M. Lavender; N. Labieniec
2023-06-16 – 2023-06-28	FTHL	J. Goodyear, M. Lavender, C. Primuth, R. Badia, M. Pasanen, J. Chikezie, N. Labieniec
2023-06-29 – 2023-07-04	FTHL, BUOW breeding season survey #4	J. Goodyear, J. Chikezie, M. Pasanen, N. Labieniec, E. Siffrin, K. Bender, R. Badia
2024-04-08-2024-04-12	Botany, wildlife species, avian counts, BUOW breeding season survey #1	C. Primuth, A. Chasar, E Tucker, M. Lavender, S. Decurtis
2024-04-15-2024-04-16	Botany, Wildlife species, Avian Counts, BUOW breeding season survey #1	C. Primuth, A. Chasar, J. Stavish, S. Decurtis, T. Ridlinghafer
2024-05-22	BUOW breeding season survey #2	T. Cole, T. Silvia
2024 -05-30-2024-05-31	Bat habitat assessment	B. Vizcarra, K. Brennan
2024-06-14-2024-06-15	BUOW breeding season survey #3	K. Brennan
2024-06-10-2024-6-15	Bat acoustic surveys #1	B. Vizcarra, K. Brennan
2024-07-11	BUOW breeding season survey #4	K. Brennan, E. Tucker
2024-07-25-2024-07-30	Bat acoustic surveys #2	B, Vizcarra, E. Tucker
2024-09-09 – 2024-09-13	BUOW non-breeding season survey #1	H. Oswald, J. Goodyear
2024-10-21-2024-10-24	BUOW non-breeding season survey #2	E. Tucker, T. Cole
2024-11-18-2024-11-20	BUOW non-breeding season survey #3	T. Cole, J. Goodyear
2024-12-09-2024-12-11	BUOW non-breeding season survey #4	T. Cole, E. Tucker

4 Results

4.1 Special Status Wildlife

Special status wildlife species were reviewed for their potential to occur within the Project site and its vicinity using information gathered from regional plans and database records. Probability of occurrence for all wildlife species, along with a description of range, habitat, and conservation status, are identified in Appendix B.

The probability of occurrence is defined as follows:

- Present: Species was observed at the time of the survey
- High: Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 5 miles) and the habitat requirements associated with the species occur within the Project site.
- Moderate: Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 5 miles) or the habitat requirements associated with the species occur within the Project site.
- Low: No records exist of the species occurring within the Project site or its immediate vicinity and/or habitats needed to support the species are of poor quality.
- Minimal: Species was not observed during focused surveys conducted at an appropriate time for identification of the species, or species is restricted to habitats that do not occur within the Project site.

Several species were determined to have a low probability of occurrence due to the absence of suitable habitat and are not discussed further. Special status wildlife species observed within the Project site or with moderate to high potential to occur based on the presence of suitable habitat are discussed in detail in this section. The results of wildlife surveys are summarized in Appendix D. A comprehensive list of all wildlife species observed during surveys is included in Appendix E.

Conservation status for wildlife species is defined below:

Federal

FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
FCT = Proposed for federal listing as a threatened species
BCC = Fish and Wildlife Service: Birds of Conservation Concern
FSS = United States Forest Service Sensitive

State

SSC = State Species of Special Concern
CFP = California Fully Protected
SE = State listed as endangered

ST = State listed as threatened
WL = State watch list
CPF = California Protected Furbearing Mammal
CPGS = California Protected Game Species
CDF-S = California Department of Forestry & Fire Protection Sensitive

Bureau of Land Management

BLM-S = BLM Sensitive
FOC = DRECP Focus and Planning Species

Western Bat Working Group (WBWG)

H = imperiled or at high risk of imperilment
M = warrant closer evaluation, more research, and conservation actions
L = most of the existing data support stable populations

4.1.1 Flat tailed horned lizard: BLM-S, SSC

Suitable flat tailed horned lizard *(Phrynosoma mcallii)* habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. It is most common in areas with a high density of harvester ants and fine windblown sand, but rarely occurs on dunes. The historic range is located throughout most of the Colorado desert, from the Coachella Valley south through the Imperial Valley, west into the Anza-Borrego desert, and south to extreme NE Baja California, extreme SW Arizona, and NW Sonora, Mexico.

Both CDFW and the USFWS have at one time supported the listing of this species as threatened at state and federal levels; however, listing was not supported by the California Department of Fish and Game Commission and the Secretary of Interior. USFWS withdrew the proposed rule to list the species in 2003 after threats were reevaluated and determined to be less significant than previously believed (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003).

Fine sand for cover is a critical habitat element. Lizards burrow into the sand to avoid temperature extremes and remain for hours buried just below the surface (Stebbins 1985). Shrubs and clumps of grass often serve as sources of shade during the hottest parts of the day, and lizards have been observed climbing into bushes and clumps of dried grass presumably to avoid contact with the hot substrate. Little is known about habitat requirements for reproduction, but other lizards generally require well-drained, sandy or friable soil for nest construction. The flat-tailed horned lizard feeds primarily on ants but will occasionally eat beetles and other insects.

One hundred and three live individuals were observed during surveys confirming occupancy on the Project site. Six carcasses, two hundred and seventy-seven tracks, and two hundred and one scat were observed.

4.1.2 Colorado desert fringe toed lizard: BLM-S, SSC

The Colorado desert fringe toed lizard (*Uma notata*) inhabits sparsely vegetated arid areas with fine, loose wind-blown sand for burrowing. Suitable habitats include dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. It is found in extreme southeast California in the Colorado Desert, from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta, and into extreme northeastern Baja California. It ranges west as far as the east base of Borrego Mountain. Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand within 5-6 cm (2-2.4 in) of the surface. Rodent burrows and the bases of shrubs are also used for cover and thermoregulation (Stebbins 1944).

Only one live individual was observed during all surveys.

4.1.3 **Western Burrowing Owl:** SSC (petitioned for ST), BCC, BLM-S, FOC

The Western burrowing owl *(Athene cunicularia hypugaea)* inhabits arid lands throughout much of the western United States and southern interior of western Canada (Haug et al. 1993). Suitable habitat for western burrowing owl includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), creosote scrub, desert saltbush, ephemeral washes, and ruderal areas.

Burrowing owls are unique among the North American owls in that they nest and roost in abandoned burrows, especially those created by ground squirrels, kit fox, desert tortoise, and other wildlife. Burrowing owls have a strong affinity for previously occupied nesting and wintering sites and will often return to previously used burrows, particularly if they had successful reproduction in previous years (Gervais et al. 2008). They generally depend on other species to dig suitable burrows for use but may also use anthropogenic surrogate burrows such as rubble piles or drainage pipes. If formerly occupied burrows are badly damaged or collapsed, burrowing owls cannot repair them and must seek alternate sites. The southern California breeding season (defined as the time from pair bonding of adults to fledging of the offspring) generally occurs from February to August, with peak breeding activity from April through July (Haug et al. 1993).

In the Colorado Desert, burrowing owls generally occur at low densities in scattered locations, but they can be found in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant (Gervais et al. 2008). Burrowing owls tend to be opportunistic feeders, and a large portion of their diet consists of beetles, grasshoppers, and other large arthropods. The consumption of insects increases during the breeding season (Haug et al. 1993). Small mammals, especially mice and voles (*Microtus* and *Peromyscus* spp.) are important food items. Other prey animals include herpetofauna, young cottontail rabbits, bats, and birds such as sparrows and horned larks.

During breeding season surveys, seven live individuals, thirteen active burrows and and two carcasses were observed (Figure 10). During non-breeding season, two live individuals, forty-seven burrows with sign, and two areas of burrowing owl sign were observed (Figure 11).

4.1.4 **Prairie Falcon:** WL (nesting)

The prairie falcon (*Falco mexicanus*) is on the CDFW watch list and is a USFWS Bird of Conservation Concern. It inhabits dry environments in the North American west from southern Canada to central Mexico. It is found in open habitat at all elevations up to 3,350 m, but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons require cliffs or bluffs for nesting though will sometimes nest in trees, on power line structures, on buildings, or inside caves or stone quarries. Ground squirrels and horned larks are the primary food source, but prairie falcons will also prey on lizards, other small birds, and small rodents (CDFW 2022a).

Prairie falcon was not observed during surveys. The entire Project site contains suitable foraging habitat for this species but does not have suitable nesting habitat.

4.1.5 Loggerhead Shrike: SSC (nesting)

Loggerhead shrikes (*Lanius ludovicianus*) are small predatory birds that are common year-round residents throughout most of the southern portion of their range, including southern California. In southern California, they are generally much more common in interior desert regions than along the coast (Humple 2008). They can be found within lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Loss of habitat to agriculture, development, and invasive species is a major threat; this species has shown a significant decline in the Sonoran Desert (Humple 2008). Loggerhead shrikes initiate their breeding season in February and may raise a second brood as late as July; they often re-nest if their first nest fails or to raise a second brood (Yosef 1996). In general, loggerhead shrikes prey upon large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding (Yosef 1996).

Suitable foraging and nesting habitat for loggerhead shrike is found throughout the Project site. Thirteen observations of live individuals were documented during all surveys and avian counts.

4.1.6 Black-tailed Gnatcatcher: WL

Black-tailed gnatcatchers (*Polioptila melanura)* are permanent residents from southeastern California and Arizona to southern Texas and northern Mexico. They are found in arid scrublands, desert brush, and dry washes amongst creosote bush, ocotillo, mesquite, paloverdes, and cactus. They live in pairs all year-round, defend their territory, and forage for small insects amongst low shrubs and trees. Their nests are cup shaped and typically placed in shrubs 2-3ft above ground.

Nine live individuals were observed during surveys and avian counts. The Project site contains suitable foraging and potential nesting habitat for this species throughout the Project site.

4.1.7 Swainson's Hawk: BLM-S (nesting), FOC

Swainson's hawk (*Buteo swainsoni*) breeds in open habitats throughout much of the western United States and Canada, and in northern Mexico. In California, breeding populations of Swainson's hawks occur in desert, shrub and grassland, and agricultural habitats with tree rows; however, most of the state's breeding sites are in the Great Basin and Central Valley (Woodbridge 1998). The only desert breeding occurrences are in the Antelope Valley, over 200 miles northwest of the Project site. These birds favor open habitats for foraging, and are near-exclusive insectivores as adults, but may also forage on small mammals and reptiles.

Two live individuals were observed during surveys and avian counts. The Project site provides potential migratory foraging habitat but is outside the nesting range.

4.1.8 American Peregrine Falcon: CDF-S (nesting)

The American peregrine falcon (*Falco peregrinus anatum*) was formerly listed under CESA and ESA but has been delisted under both Acts. In California, its range is primarily central to northern California, with wintering habitat and (more recently) nesting occurrences located in southern California. Migrants occur along the coast and in the western Sierra Nevada in spring and fall. It breeds mostly in woodland, forest, and coastal habitats, and favors open landscapes with cliffs as nest sites. They are found irregularly in the southern desert region, generally during migratory and winter seasons, but also during breeding season in recent years. They nested historically in desert mountain ranges near the Colorado River (Rosenberg et al. 1991; Patten et al. 2003) and may be re-occupying this historical part of their nesting range as their populations recover. Their diet consists primarily of birds and bats (CDFW 2022a). Waterfowl and shorebirds make up a large proportion of their prey, and nest sites are often within foraging range of large water bodies.

No American peregrine falcons were observed on the Project site during surveys or avian counts. Suitable migratory or foraging habitat is present throughout the Project site, but no suitable nesting habitat is present.

4.1.9 Northern Harrier: SSC, BCC (nesting)

Northern harrier (*Circus cyaneus)* inhabits most of California at various times of the year and is found at up to 3,000 meters elevation. Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. Nesting occurs on the ground at the edge of marshes, in wetlands or along lakes and rivers, or less commonly in grasslands and sagebrush flats. It is a widespread winter resident and migrant in suitable habitat. They primarily feed on small mammals, birds, frogs, small reptiles, crustaceans, and insects (CDFW 2022a).

No northern harriers were observed during surveys or avian counts on the Project site. There is suitable foraging throughout the Project site, but no suitable nesting habitat.

4.1.10 California black rail: BLM-S, CFP, ST

California black rail (*Laterallus jamaicensis coturniculus*) inhabits the freshwater marshes of the Colorado River. This species occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed (Manolis 1977). It typically occurs in the high wetland zones near the upper limit of tidal flooding, and not in low wetland areas with considerable annual and/or daily fluctuations in water levels. During extreme high tides, it may depend on the upper wetland zone and adjoining upland or freshwater wetland vegetation for cover (Repking and Ohmart 1977). Along the Colorado River, it occupies dense bulrush stands, shallow water, gently sloping shorelines, and wetlands without significant water level fluctuations.

No California black rails were observed during surveys or avian counts on the Project site. There is occupied and potential habitat starting approximately 2,000 ft east of the proposed transmission corridor, in more densely vegetated seepage areas along the south side of the All-American Canal (Blackhawk Environmental 2020). On the Project site, wetlands only occur on the banks of the All-American Canal within the 500kV loop-in transmission line corridor. These wetland areas are not considered suitable habitat since they are lined with a mature stand of common reed (*Phragmites australis*), steeply sloped, and adjacent to water of depths too deep for use by California black rails. These areas were likely excluded from prior survey efforts due to this lack of suitable habitat (Blackhawk Environmental 2020). There is no suitable foraging or nesting habitat for California black rails on the Project site, but individuals may be observed incidentally as flyovers.

4.1.11 Bank Swallow: BLM-S (nesting)

Bank swallow (*Riparia riparia*) is a neotropical migrant found primarily in riparian and other lowland habitats in California, occurring west of the deserts during the spring-fall period. In summer, it is restricted to riparian, lacustrine, and coastal areas. Bank swallows use vertical banks, bluffs, cliffs, and riverbanks with fine-textured or sandy soils to dig holes for cover and nesting. It will also roost on logs, shoreline vegetation, and telephone wires. In migration, it flocks with other swallows over many open habitats.

No bank swallows were observed during surveys or avian counts on the Project site. There is suitable foraging habitat throughout the Project site, but no suitable nesting habitat.

4.1.12 Yuma Ridgway's Rail: CFP, FE

Yuma Ridgway's rail *(Rallus obsoletus yumanensis),* formerly known as Yuma clapper rail *(Rallus longirostris yumanensis),* nests in freshwater marshes with less than one foot of water depth, low stem density, and lack of residual vegetation (Conway et al. 1993, Gould 1975). Its preferred habitat is emergent marsh dominated by southern cattail (*Typha domingensis*) or California bulrush (*Schoenoplectus acutus*). Other important habitat requirements include strips of high ground or islands that allow for movement through the marsh (Gould 1975) and younger marshes with lower stem density and low thatching, allowing for more movement through a marsh and greater foraging potential (Conway et al 1993, Hinojosa-Huerta et al 2008). Yuma Ridgway's rails are found along the lower Colorado River, southward to its terminus at the Sea of Cortez, along the Gila River drainage in Arizona, at Lake Mead (and the Overton Arm) and its local tributaries, along the Virgin River in Nevada and Utah, and at the Salton Sea/Imperial Valley areas of California (BLM and USFWS 2014). The diet of Yuma Ridgway's rail is predominantly crayfish; other food items include clams, isopods, fish, and water beetles (Ohmart 1977).

No Yuma Ridgway's rails were observed during surveys or avian counts on the Project site in 2023. In 2020, Yuma Ridgway's rails were detected twice in a wetland area south of the All-American Canal, starting approximately 2,000 ft east of the Project's 500kV loop-in transmission line corridor (Blackhawk Environmental 2020). The Project site is also more than ¼ mile away from areas deemed as potentially suitable and occupied habitat from the same study (Figure 12). Surveys north of the Canal were not warranted because of a lack of suitable habitat. On the Project site, wetlands occur only along the banks of the All-American Canal within the 500kV loop-in transmission line corridor. These areas are not considered suitable habitat since they are lined with mature stands of common reed (*Phragmites australis*), steeply sloped, and adjacent to water depths too deep for use by Yuma's Ridgway's rails (Blackhawk Environmental 2020). Conway et al. 1993 determined that Yuma Ridgway's rail prefers shallow water for nesting and water of a moderate depth for foraging. The steep banks of the All-American Canal are neither shallow nor provide moderate depths for foraging. There is no suitable nesting or foraging habitat for Yuma Ridgway's rail on or within close proximity of the Project site, but individuals may be observed incidentally as flyovers.

4.1.13 Southwestern Willow Flycatcher: SE, FE

Southwestern willow flycatcher (*Empidonax traillii extimus)* is found primarily in dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions that are dictated by the local surroundings. Recurrent flooding and a natural hydrograph are important to withstand invading non-native species like tamarisk. Saturated soils, standing water or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. Habitat not suitable for nesting may be used for migration and foraging.

No southwestern willow flycatchers were observed during surveys or avian counts on the Project site. There is no suitable nesting habitat, but the Project site may be used for foraging during migration.

4.1.14 Gila Woodpecker: SE, BLM-S

Gila woodpeckers (*Melanerpes uropygialis*) live in strictly arid environments, especially deserts and dry forests of the southwestern U.S. and adjacent Mexico, usually below elevations of 3,300 feet. The species is often most common in low swales and arroyos, including riparian corridors with cottonwood, willow, and mesquite. It is fairly tolerant of human development, so long as sufficient habitat for foraging and nesting remains. For nesting, many Gila woodpecker pairs in Arizona use giant saguaro cactus, but in Mexico and southeastern California, they nest in many tree species as well.

No Gila woodpeckers were observed during surveys or avian counts on the Project site. There is suitable foraging habitat throughout the Project site, but minimal suitable nesting habitat in the small areas of microphyll woodland that are still currently part of the Project footprint.

4.1.15 Avian Counts

A total of thirty-seven avian species were observed when avian counts were conducted during spring surveys in the mornings. Appendix D summarizes all species observed during avian counts.

4.1.16 American Badger: SSC

The American badger is associated with dry open forest, shrub, and grassland communities with an adequate burrowing rodent population and friable soils. Badgers generally are associated with treeless regions, prairies, parklands, and cold desert areas (CDFW 2022a). Badgers inhabit burrows and often prey on small mammals that inhabit burrows, as evidenced by claw marks along the edges of burrows. Suitable habitat exists for American badgers throughout the Project site.

No American badgers or active badger burrows were observed during surveys on the Project site.

4.1.17 Desert Kit Fox: FOC

Desert kit fox (*Vulpes macrotis arsipus*) is protected by the California Code of Regulations (Title 14, CCR: §460) and Fish and Game Commission Section 4000 as a fur-bearing mammal. Title 14 of the California Code of Regulations, Section 460, stipulates that desert kit fox may not be taken at any time. Desert kit fox is a fossorial mammal that occurs in arid open areas, shrub grassland, and desert ecosystems within the Mojave and Sonoran

Deserts. Desert kit fox typically occurs in association with its prey base, which includes small rodents, primarily kangaroo rats, rabbits, lizards, insects, and in some cases, immature desert tortoises (CDFW 2022a). Burrow complexes that have multiple entrances provide shelter, escape, cover, and reproduction, but desert kit fox may utilize single burrows for temporary shelter. Litters of one to seven young are typically born in February through April (McGrew 1979). Many of desert kit fox burrows observed within the Project site are part of a complex with multiple entrances.

There is suitable habitat for desert kit fox on the Project site, but no desert kit foxes were observed during surveys on the Project site. Two active desert kit fox burrows/complexes and thirty-nine inactive burrows were observed within the Project site (Figure 13). The number of burrows will likely change over time since kit fox distribution is dynamic and changes under natural conditions due to prey availability and other environmental factors such as the presence of coyotes that prey on kit fox pups.

4.1.18 Burro Deer: CPGS, FOC

Burro deer (*Odocoileus hemionus eremicus*) is a subspecies of mule deer (*Odocoileus hemionus*) that inhabits desert dry wash woodland communities in the Colorado region of the Sonoran Desert, near the Colorado River. Some burro deer are year-round residents along the Colorado River, while others are transient and move between mesic and arid desert areas in response to seasonal water and forage availability. During hot summers burro deer concentrate along the Colorado River or the Coachella Canal where water developments have been installed and where microphyll woodland is dense and provides good forage and cover. With late summer thundershowers and cooler temperatures, burro deer move away from the Colorado River and Coachella Canal into larger washes or wash complexes in the foothills and nearby mountains (BLM and CDFG 2002).

The Project site is within range of burro deer, but no burro deer individuals were observed during surveys on the Project site. Scat and tracks were observed throughout the Project site and one very old piece of carcass was observed (Figure 13). This species likely moves through the Project site to access the All-American Canal.

4.1.19 Yuma hispid cotton rat: SSC

Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) occurs along the Colorado River and in the Imperial Valley. Establishment of cotton rats in the Imperial Valley was in response to agricultural irrigation practices (Dixon 1922). It is most common in grassland and cropland habitats near water (Fleharty and Mares 1973, Kaufman and Fleharty 1974), including grass-forb understories in early successional stages of other habitats (McClenaghan and Gaines 1978). It also occurs in overgrown clearings, and herbaceous borders of fields and brushy areas (Hall and Dalquest 1963).

It feeds mainly on grasses, eating insects seasonally, and sometimes feeds on sugar beets, citrus, and other crops. This species uses tall, dense grass as cover, making runways through dense herbaceous growth, similar in appearance to vole runways but much larger. Their nests of woven grass are constructed either in burrows or on the surface (Baar et al. 1974).

No Yuma hispid cotton rats were observed during surveys on the Project site.

4.1.20 Bat Surveys

During the initial habitat assessment, there were no incidental observations of bat roosts within the Project site (no structures or abandoned buildings occur on the Project site) or within 5-miles of the Project site at structures that have potential for roosting sites. No structures, abandoned buildings, or large trees suitable for bat roosts occur on the Project site. Areas of microphyll woodland just outside Project site boundaries that had some potential for suitable habitat were searched, but no roosts were observed. The most likely roost area was around an Imperial Irrigation District facility along the All-American Canal approximately 500 m south of the Project site that consisted of canal structures, bridges, housing, and large non-native trees. These areas were carefully inspected, but no roosts or live individuals were detected during visual search efforts. Telemetry for bats has determined that bats can travel 15 miles one way from a roost while foraging (Brown et al 1993). Within the Project site area, bats can roost in Mexico and forage in the United States.

Acoustic bat surveys recorded 118 bat calls in June and 226 in July (Table 4). Site 2, which is just outside the Project site in desert dry wash woodland, had the highest number of recorded bat calls with 164 detections. Common species such as canyon bat (*Parastrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and California myotis (*Myotis californicus*) were the most frequently detected species. There was a single detection of California leaf-nosed bat (*Macrotis californicus*) which is discussed below.

Acoustic call files are often very difficult to narrow down to species, and in many cases, impossible. Calls not identifiable to specific species were categorized based on call frequency (Denzinger and Shcnitzler 2013). Based on the frequencies detected, none of the call files can be attributed to the following special status species: Western yellow bat (*Lasiurus xanthinus*, SSC), Western red bat (*Lasiurus blossevillii,* SSC), pocketed free-tailed bat (*Nyctinomops femorosaccus*, SSC), Townsend's big-eared bat (BLM-S, SSC, USFSS) or Western mastiff bat (*Eumops perotis*, BLM-S, SSC). Table 5 summarizes bat call detections by species and call frequency categories. Note that there may be multiple species of acoustic calls (Table 5) within one bat call file (Table 4).

Table 4. Summary of Acoustic Bat Call Detections by Site.

Site #	# of Bat Call Files		Bat Call Files Per Site
	Session 1 (July 10-14)	Session 2 (July 25-29)	
1	21	55	76
2	79	85	164
3	18	86	104
Total	**118**	**226**	**344**

Table 5. Summary of Acoustic Calls by Species and Species Group

Species	# of Acoustic Calls Attributed to Specific Species or Species Group			
	Site 1	Site 2	Site 3	Subtotal
Common Species				
Mexican free-tailed bat (*Tadarida brasiliensis)*	3	1	7	11
Canyon bat (*Parastrellus Hesperus)*	31	6	21	58
California myotis (*Myotis californicus)*	4	2	7	13
Special Status Species				
California leaf-nosed bat (*Macrotus californicus*)	0	1	0	1
Species Groups				
30-40 kHz[1]	4	9	5	18
40-60 kHz[2]	8	6	16	30
50-80 kHz[3]	22	58	22	102
60-90 kHz[4]	13	76	27	116
90-120 kHz[5]	27	7	8	42
			Total	**391**

Potential species groups within kHz range:

[1]Pallid bat (*Antrozous pallidus*), cave myotis (*Myotis velifer*, unlikely)

[2]Yuma myotis (*Myotis yumanensis*), California myotis, cave myotis (unlikely), pallid bat, Arizona myotis (*Myotis occultus*, unlikely)

[3]California myotis, Yuma myotis, California leaf-nosed bat

[4]California myotis, Yuma myotis, California leaf-nosed bat

[5] California myotis, California leaf-nosed bat

4.1.20.1 California Leaf-nosed Bat: BLMS, SSC, H

The California leaf-nosed bat (*Macrotus californicus*) is a BLM sensitive species and a California species of special concern. They occur in the Sonoran and Mojave desert scrub in southeastern California, southern and western Arizona, southern Nevada, and northwestern Mexico. This species of bat neither hibernate nor migrate and have a narrow thermal neutral zone – they are incapable of lowering their body temperature to become torpid

(Vaughan 1959). These bats can use buildings and bridges as night roosts but depend on mines or caves for roosting and overwintering (Hoffmeister 1986, Brown and Berry 1998), with all known winter and most maternity diurnal roost sites in abandoned mines (Brown and Berry 1998). They forage in vegetation along dry washes (Brown and Berry 2004) and in marsh, mesquite shrublands, cottonwoods, willows and fan palm vegetation equally (Williams 2001). They feed on moths, diurnal insects, grasshoppers (Orthoptera) and katydids (Orthoptera: Tettigoniidae) and may also feed on cactus (Cactaceae) fruit (Vaughan 1959, Anderson 1969, Hoffmeister 1986). The nearest record of the species to the Project site is approximately 17 miles (CNDDB 2024).

California leaf-nosed bat is a quiet species that is difficult to detect acoustically and cannot be recorded at distances of more than 1 or 2 meters (O'Farrel 2006). One call file at Site 2, within desert dry wash woodland, was diagnostic of California leaf-nose for one harmonic – the presence of at least two harmonics is often necessary to successfully identify this species acoustically. Their second and third harmonic can look like the search phase calls for Yuma myotis and California myotis (Corbin 2006). Bat acoustic calls attributed to the species group (60-90kHz and 90-120kHz in Table 5) were detected confirming presence of California leaf-nosed bat at the Project site.

There is no suitable habitat within the Project for roosting, but there is suitable habitat for foraging in desert dry wash woodland areas just outside the Project site for the species. Although desert dry wash woodland provides foraging habitat for this species, their foraging behavior lacks a significant relationship between any specific vegetation type and may indicate that it may not be strictly linked.

4.1.20.2 Pallid Bat: BLMS, SSC, H

The pallid bat (*Antrozous pallidus*) is a BLM sensitive species and California species of special concern. They occur from southern British Columbia through Montana through the Pacific Northwest to California and central Mexico. They are also found as far east as western Texas, southern Kansas, Wyoming and Idaho. In the Southwest, the pallid bat is amongst the most common species found at lower elevations. Some noterhn populations are known to hibernate but populations along the lower Colorado River remain active year-round and utilize mines as night roosts rather than hibernation (Brown 2013) They forage for large prey along the ground but will also glean from vegetation. Pallid bats are a colonial species, roosting in small groups of 20 or more individuals in rock crevices and in caves, mines, rock piles and tree cavities (Adams 2003). Nearest record for the species is approximately 20 miles from the Project site (CNDDB 2024).

Acoustic survey species groups results indicated that there is some potential for them to have occurred on the Project site. There is suitable habitat for pallid bats to forage on the Project site. Roosting habitat is likely suitable for a night roost within tree cavities in the adjacent desert dry wash woodland habitat excluded from the Project site.

4.1.20.3 Yuma Myotis: BLM-S, M

The Yuma myotis (*Myotis yumanensis*) is a BLM sensitive species. This species rarely roosts in caves or mine shafts, preferring to inhabit cliffs and rocky walls, buildings, and abandoned cliff swallow mud nests (Vaughan 1980). Colonies can number as high as 10,000 individuals (Cockrum et al 1996). This species is active in proximity to standing water where it forages for flies, moths, and termites (Adams 2003). It is a common bat species and year-round resident along many stretches along the lower Colorado River, especially in the vicinity of water impoundments (Brown 2013). Nearest record of Yuma myotis is approximately 35 miles from the Project site (CNDDB 2024).

Acoustic survey results indicated that there is some potential for Yuma myotis to have occurred in the species groups results. There is no suitable habitat for roosting on or near the Project site for the species, but there is suitable habitat for foraging in the adjacent desert dry wash woodland areas excluded from the Project site.

4.1.20.4 Cave Myotis: BLM-S, H

The cave myotis (*Myotis velifer*) is a BLM sensitive species. They are found from Honduras up to Kansas, and west to southeastern California. In California, their range is limited to the lowlands of the Colorado River and nearby mountain ranges in San Bernardino, Riverside, and Imperial counties. Their habitats in California include desert scrub, desert succulent shrub, desert wash, and desert riparian areas and is a year-round resident along the lower Colorado River (Brown 2013). They tend to forage near riparian vegetation and have an opportunistic nature and tendency to hunt a variety of flying insects (Vaughan 1980). Roosts are in caves and mines, usually near the entrance. In the summers they roost occasionally in buildings, while they are hibernating in the winter in humid/wet caves or tunnels (Tinkle and Patterson 1965, Jagnow 1998).

There have been dramatic declines in the populations along the Colorado River in California and loss of foraging habitat due to agriculture and the use of aerial pesticides that reduce their prey base and directly poison bats (Pierson and Rainey in Brylski et al 1998). Nearest record for this species is approximately 20 miles from the Project site (CNDDB 2024).

Although this species had some overlap in the acoustic survey species group results, it is unlikely for the species to occur in this area since there have not been any recent capture records near the Project site (Brown 2013). There is no suitable roosting habitat on the Project site and only moderately suitable foraging habitat in the adjacent desert dry wash woodland areas excluded from the Project site.

4.1.20.5 Arizona Myotis: SSC

The Arizona myotis (*Myotis occultus*) is a California species of special concern. This species is seasonally migratory over short distances and predominately found in Sonoran desert scrub with creosote bush, brittlebush (*Encelia farinosa*), palo verde, and cacti (Hoffmeister 1986). Cave myotis roost in caves, tunnels, mine shafts, under bridges, and sometimes in buildings within a few miles of water (Fitch et al 1981).

The nearest record to the Project site is from 1910 within Imperial County (CNDDB 2024). The last known colony along the lower Colorado River was in Blythe Bridge in Riverside County, California and La Paz County, Arizona (Stager 1943) which was replaced in the 1950s. It is only most recently that species has seen a small resurgence at the Ahakhav Tribal Preserve riparian habitat restoration area in La Paz County, Arizona where 15 individuals were captured between 2007-2010 (Calvert and Neiswenter 2012).

Although this species had some overlap in the acoustic survey species group results, it is unlikely for the species to occur in this area since there have been no recent capture records nearby and is suspected to be extirpated. There is no suitable habitat for roosting on the Project site and only moderately suitable habitat for foraging in the adjacent desert dry wash woodland areas excluded by the Project site.

4.1.20.6 Western Yellow Bat: SSC, H

The western yellow bat (*Lasiurus xanthinus*) is a CDFW Species of Special Concern. It is found in Arizona, New Mexico, Mexico, and year-round in California. It is found in arid regions, in riparian, desert riparian, desert wash and palm oasis habitat. The western yellow bat is insectivorous, and roosts and feeds in palm oases and riparian habitats (CDFW 2022a). This species feeds on flying insects and forages over water and among trees. Roost sites are primarily trees in riparian habitats.

The nearest record is approximately ten miles west of the Project site, from the town of Holtville in 1993 (CNDBB, 2023). No western yellow bats or roosts were observed during surveys and no acoustic calls were attributed to the species in acoustic surveys. Suitable foraging habitat and roosting habitat is found on the Project site within the adjacent desert dry wash woodland excluded from the Project site.

4.1.21 Western Bumble Bee: SE (candidate)

The Western bumble bee (*Bombus occidentalis*) is a CDFW species of special concern and a candidate endangered species under CESA. They are generalist foragers and have been associated with plants in the Fabaceae, Asteraceae, Rhamnaceae, and Rosaceae families. They are found in grasslands, shrublands, and urban grassy areas. They are distributed throughout the Western United States and Canada but have undergone dramatic declines in recent decades (Hatfield et al. 2015). One observation of this species was recorded in 1993 approximately 22 miles from the Project boundary in the Algodones Dunes (CNDDB, 2023), but the Project site is well outside the current and historic range for the species (CDFW 2023).

The western bumble bee was not observed during surveys. Suitable habitat on the Project site does occur, but the active agriculture and developments adjacent to the Project site could lower habitat suitability with the potential use of pesticides.

4.1.22 Crotch's Bumble Bee: SE (candidate)

Crotch's bumble bee (*Bombus crotchii*) is a CDFW species of special concern and a candidate endangered species under CESA. They inhabit grasslands and shrublands throughout southwestern California. They are generalist foragers and have been associated with plants in the Fabaceae, Apocynaceae, Lamiaceae, Hydophyllaceae, Asclepiadoideae, and Asteraceae families (Thorp et al 1983). They have also been observed using plants Asclepias, Chaenactis, Lupinus, Meicago, Phacelia, and Salvia, as food (Williams et al 2014). There is one record of the bee, approximately 29 miles from the Project site near the town of Brawley from 1948 (CNDDB 2023).

Suitable habitat occurs on the Project site since some of the plant families associated with the species also occur. However, the active agriculture and developments adjacent to the Project site could lower the habitat suitability with the potential use of pesticides. The Project site is outside of the current and historic range of the species (Figure 15, CDFW 2023). Crotch's bumble bee was not observed during surveys.

4.1.23 Monarch Butterfly: FT (candidate)

Monarch butterfly (*Danaus Plexippus*) is a federal candidate to be classified as an endangered species. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Overwintering sites have specific microhabitat requirements such as protection from wind, exposure to dappled sunlight, and presence of high humidity (Chaplin and Wells 1982, Masters et al 1988, Leong 1999). Overwintering roosts are typically located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Monarch butterfly larvae forage on milkweed (*Asclepias* sp.) and use them as larval hosts (Front, 2019), but adults have shown preference to oviposit/reproduce at sites with milkweed and increased plant species diversity that provide more sources of nectar for energy (Kral-O'Brien et al 2020).The suitable habitat model for monarch butterflies that considers all associated milkweed species except tropical milkweeds, indicate that the Project site is located within low suitable habitat (Dilts et al 2019, Figure 16). Nearest record of observations of an individual monarch is approximately 15 miles east of the Project site and nearest breeding records are over 60 miles from the Project site in the Cleveland National Forest and near Palm Springs (Western Monarch and Milkweed Occurrence Database 2018) – these records are consistent with the model for higher suitable habitat than the Project site, and likely have higher plant diversity for nectar (Figure 16).

There are no large trees that can protect the species from wind or provide dappled sunlight so overwintering roosting habitat is not present on the Project site. There is one common species of milkweed – skeleton milkweed (*Asclepias subulata*) - that occurs on the Project site in low numbers, and there is also a low diversity of nectar plants, so foraging and breeding habitat is marginal on the Project site, consistent with the habitat suitability model. In addition, nearby agricultural activities also lower plant diversity in the area and may be less desirable for the species. Monarch butterfly was not observed during surveys.

4.2 Special Status Plant Species

Ten special status plant species were reviewed for their potential to occur within the Project site and its vicinity based on regional plans and database records (Appendix C). Probability of occurrence for all plant species, along with a description of range, habitat, and conservation status, are identified in Appendix C, and use the same categories of potential for occurrence as wildlife (see section 4.1).

Special status plant species detected within the Project site or having moderate to high potential to occur based on the presence of suitable habitat are discussed in detail in this section. Noteworthy plant observations are summarized in Appendix D in Figure 17. A comprehensive list of all plant species observed during surveys is included in Appendix E.

Conservation status for plant species is defined below:

Federal

FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range

FT = Federally listed, threatened: species likely to become endangered within the foreseeable future

State

SE = State listed as endangered

ST = State listed as threatened

SR = State listed as rare

California rare plant ranks (CRPR) are defined below:

CRPR 1A = Presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B = Rare, threatened, or endangered in California and elsewhere
CRPR 2A = Presumed extirpated in California but more common elsewhere
CRPR 2B = Rare, threatened, or endangered in California but more common elsewhere
CRPR 3 = Plants which need more information
CRPR 4 = Limited distribution – a watch list
CBR = Considered, But Rejected
.1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened)
.2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened)
.3 = Not very endangered in California (low degree/immediacy of threats or no current threats known; <20% of occurrences threatened or no current threats known)

4.2.1 **Peirson's milk vetch:** FT, SE, CRPR 1B.2

Peirson's milk vetch (*Astragalus magdalenae* var*. Peirsonii*) is a perennial herb in the Fabaceae (Legume) family that is listed as threatened under the FESA and endangered under the CESA. It occurs in sand dunes in creosote bush scrub communities in California, Arizona and Baja California, Mexico (Calflora 2023). It has silvery-canescent leaves and stems from 20-90 cm, with 5-20 pink-purple, often white tipped flowers and papery single chambered fruit (Jepson 2023). The nearest record is approximately 1.5 miles east of the Project site. There is suitable habitat on the Project site for Peirson's milkvetch, but it was not observed during surveys.

4.2.2 **Wiggin's croton:** SR, CRPR 2B.2

Wiggin's croton (*Croton wigginsii*) is a state listed rare species that is fairly threatened in California but more common elsewhere throughout its range in Baja California, Sonora, Mexico and Arizona. It is a subshrub to shrub in the Euphorbiaceae (Spurge) family that can be found in sand dunes within creosote bush scrub communities (Calflora 2023). The nearest database record is approximately six miles to the east of the Project site. There is suitable habitat on the Project site for Wiggin's croton, but it was not observed during surveys.

4.2.3 **Abram's spurge:** CRPR 2B.2

Abram's spurge (*Euphorbia abramsiana*) is an annual herb in the Euphorbiaceae (Spurge) family that is fairly threatened in California but more common elsewhere within its range in the western US and northwestern Mexico. It occurs in silty and gravelly soils, and sandy flats in creosote bush scrub communities and typically tolerates salty soils. Contact with the sap of this plant can cause skin irritation (Calflora 2023). It has prostrate, repeatedly forked stems and opposite 2-12 mm ovate to elliptic-oblong leaves (Jepson Flora Project 2023). The nearest database record of this species is approximately ten miles to the west of the Project site in what is now an agricultural area. There is marginal habitat on the Project site due to the fine sand on a majority of the Project site. Abram's spurge is expected to have a low potential for occurrence due to the type of soils on the Project site and the nearest record being more than 10 miles away on agricultural land. Due to its low potential for occurrence, fall plant surveys were not conducted on the Project site.

4.2.4 **Algodones sunflower:** SE, CRPR 1B.2

Algodones sunflower (*Helianthus niveus ssp. tephrodes*) is a perennial herb in the Asteraceae (Sunflower) family. It is fairly threatened throughout its range in California, Arizona and Sonora, Mexico. The stem and leaves are covered in soft white appressed hairs, and the leaves are oval or lanced shaped. The flower heads are fringed with 13-21 bright yellow ray florets up to 2.5 cm long surrounding a center of yellow to purple-red disc florets. Suitable habitat occurs in sand dunes in creosote bush scrub communities (Jepson Flora Project 2023). The nearest database record of this species is approximately seven miles to the east of the Project site. There is suitable habitat for Algodones sunflower on the Project site, but it was not observed during surveys.

4.2.5 Ribbed cryptantha: CRPR 4.3

Ribbed cryptantha (*Johnstonella costata [=Cryptantha costata]*) is an annual herb in the Boraginacae (Borage) family. It has limited distribution but is not very threatened in California. It occurs in creosote bush scrub communities in California, Arizona, and Baja Mexico. It is found in fine sand deposits in coarser soils in the Sonoran and Mojave deserts. It is 10-20 cm tall with bristly stems and narrow leaves folded along the midvein (Jepson 2023). The nearest records are near the Interstate 8 Freeway. There is suitable habitat on the Project site for ribbed cryptantha, but it was not observed during surveys.

4.2.6 Slender cottonheads: CRPR 2B.2

Slender cottonheads (*Nemacaulis denudata* var. *gracilis*) is an annual herb in the Polygonaceae (Buckwheat) family that is fairly threatened in California but more common elsewhere in its range. It is found outside of California in Baja California, Sonora Mexico, and Arizona. It occurs in sand dunes in creosote bush scrub and coastal strand communities. It has a small basal rosette of linear to spatulate leaves; erect stems and flowers obscured by hairs (Jepson 2023). This species has a moderate chance of occurrence on the project site but was not observed during 2023 surveys. The nearest record of this species is within 15 miles from the Project site. There is suitable habitat for slender cottonheads on site, but it was not observed during surveys.

4.2.7 Giant Spanish needle: CRPR 1B.2

Giant Spanish needle (*Palafoxia arida* var. *gigantea*) is an annual or perennial herb in the Asteraceae (Sunflower) family. It is fairly threatened throughout its range in California and Sonora, Mexico. This species is found in sand dune habitat in creosote bush scrub and alkali sink communities (Calflora 2023). The nearest record of this species is near Highway 8. There is suitable habitat for giant Spanish needle on site, but it was not observed during surveys.

4.2.8 Sand food: CRPR 1B.2

Sand food (*Pholisma sonorae*) is a parasitic perennial herb in the Lennoaceae (Lennoa) family. It is fairly threatened in California and is native to western Arizona and northwestern Mexico. It is found in sand dunes habitat in creosote bush scrub communities. It has a mushroom-like inflorescence with small pink to purple flowers, and is a parasite of *Eriogonum, Tiquilla, Ambrosia* and *Pluchea* (Jepson 2023). The nearest database record of this species is approximately five miles northwest of the Project site. There is suitable habitat within the Project site for sand food but it was not observed during surveys.

4.2.9 Cacti, Yucca, and Native Trees

Native cacti, succulents, and trees are generally not ranked as special status plant species, but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Code §§ 1900-1913) and the California Desert Native Plant Act of 1981 (Food and Agricultural Code § 80001 et. seq.; Fish &

Game Code §§ 1925-1926). Any vegetation to be salvaged and removed from the site (such as cactus or yucca) would be subject to sale at appraised value, according to CFR 43:5420.0-6. If the cacti or yucca is salvaged and/or transplanted offsite, as approved by BLM, then this resource is not subject to sale but remains in BLM ownership. No cactus or yucca were observed within the Project site.

The following native tree species were observed on the Project site:

- Honey mesquite *Neltuma odorata*)
- Screw bean mesquite (*Strombocarpa pubescens*)

4.3 Invasive Weeds

Invasive weeds are non-native (exotic) plants included on the weed lists of the California Invasive Plant Council (Cal-IPC), or those weeds of special concern identified by the BLM. There are also some weeds designated as "noxious" by California Department of Food and Agriculture (CDFA) or the U.S. Department of Agriculture. Invasive weeds are of concern in wildlands because of their potential to degrade habitat and disrupt the ecological functions (Cal-IPC 2023). The following invasive weeds were identified on the Project site during 2023 field surveys and are summarized in Figure 17.

4.3.1 Sahara Mustard *(Brassica tournefortii)*

Sahara mustard has a highly invasive rating on Cal-IPC (Cal-IPC 2022). It has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, as well as having reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment (Cal IPC 2023). Sahara mustard is native to the deserts of North Africa, the Middle East, and the Mediterranean regions of southern Europe (Bossard et al. 2000). Initial establishment of this species in California occurred through the importation of date palms from the Middle East to the Coachella Valley during the early 1900s (Bossard et al. 2000). Sahara mustard currently occurs across Imperial County, as well as all neighboring counties (Cal-IPC 2023). During the field surveys, Sahara mustard was found in multiple areas throughout the Project site.

4.3.2 Russian Thistle *(Salsola tragus)*

Russian thistle has a Limited-to-Moderate rating by the Cal-IPC, indicating a species that is invasive but has an ecological impact that is minor on a statewide level, or there was not enough information to justify a higher score. Its reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but it may be locally persistent and problematic. Russian thistle is listed on the CDFA Noxious Weed List, making it subject to state laws and regulations regarding its spread and pollution of an area (CDFA 2021). Russian thistle is an annual herb that is found in open and disturbed areas in the Mojave Desert and throughout western North America (MacKay 2003). Otherwise known as tumbleweed, it becomes large and round with age, the dried plant breaking off and rolling with the wind to aid in seed dispersal. Native to Eurasia, this plant was likely introduced around the turn of the century. It typically occurs on sandy soils on disturbed sites, cultivated and abandoned fields, and disturbed natural and semi-natural plant communities (CDFA 2021). During surveys, Russian thistle was found on the Project site.

4.3.3 Saltcedar *(Tamarix sp.)*

Saltcedar, also known as tamarisk, is a BLM weed species of concern. *Tamarix chinensis*, *T. ramosissima, T. gallica*, and *T. parviflora* are all rated as highly invasive by Cal-IPC, and *T. aphylla* is rated B by CDFA, meaning it is a pest of known economic or environmental detriment of limited distribution. Saltcedar can be found throughout California along lake shores streams and is detrimental to native plant and wildlife communities. These species can cause dramatic changes in soil chemistry, groundwater availability, geomorphology, and fire frequency (Cal-IPC 2023). Saltcedar was observed within the western edge of the Project site and in the transmission corridor.

4.3.4 Mediterranean grass *(Schismus barbatus)*

Mediterranean grass has a limited invasive potential (Cal-IPC 2023) and is not listed by CDFA. It is an annual grass found in both central and southern California, particularly in disturbed areas and deserts, probably introduced at the turn of the century (CDFA 2020). It contributes to increased fire ignition and spread due to accumulation of dry thatch during dry seasons. Wildfire, in turn, contributes to the type-conversion of desert shrubland into annual grassland. These species' reproductive biology and other attributes result in low to moderate rates of invasiveness. Spread may occur from seed dispersal associated with soil disturbance, vegetation cutting, and from vehicle tires and footwear. Increase of these species is most likely to occur in areas where it already exists. BLM and other agencies recognize that because of its widespread distribution, Mediterranean grass is not feasible to eradicate. During surveys, Mediterranean grass was found on the Project site.

4.3.5 Bermuda grass *(Cynodon dactylon)*

Bermuda grass has a moderate invasive potential (Cal-IPC 2023) and is not listed by CDFA. Ecological amplitude and distribution may range from limited to widespread. These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. It is a warm season perennial grass that has become a cosmopolitan weed in warm regions worldwide, due in part to cultivation for turf. Plants reproduce via rhizomes and seeds and can out-compete native species in riparian areas (Cal-IPC 2023). During surveys, Bermuda grass was found on the Project site.

4.3.6 Common Reed *(Phragmites australis)*

Common reed is a perennial grasslike herb that is native to California and is found worldwide. It typically occurs in wetlands but can also be found in creosote bush scrub and many other plant communities. It is widely distributed across California but can be considered invasive outside of its natural range. It is difficult to distinguish between native and non-native populations (Cal-IPC 2023). CDFA lists the non-native common reed, subspecies *Phragmites australis ssp. altissimus* as a Class C noxious weed of known economic and environmental detriment. During surveys, common reed was found on the Project site along the All-American Canal.

4.3.7 Red brome *(Bromus rubens)*

Red brome has an invasive rating of high according to Cal-IPC and is not listed on the CDFA noxious weed list. It has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. It is widely distributed ecologically. Red brome is a cool-season annual grass (family Poaceae) found throughout California, especially in the southern part of the state. Red brome invades disturbed areas, roadsides, agricultural fields, rangelands, and forestry sites, in addition to native communities. Red brome is spreading rapidly in desert shrublands, pinyon pine – juniper communities, three-needle pine woodlands, and coastal scrub, where it outcompetes native annuals, increases fire frequency and converts habitat to annual grassland. During surveys, red brome was observed on the Project site.

4.3.8 Redstem filaree *(Erodium cicutarium)*

Redstem filaree is an aggressive annual/biannual (family Geraniaceae) that is very widespread throughout California and is commonly found along roadsides, grasslands, fields, and semi-desert areas. It often carpets large areas, out-competing native grasses and forbs but is listed as having limited impact since their ecological impacts are minor on a statewide level and currently have a low to moderate rate of invasiveness (Cal-IPC 2023). This species is not listed by the CDFA. During field surveys, redstem filaree was found on the Project site.

4.3.9 Stinknet *(Oncosiphon pilulifer)*

Stinknet is a strongly-scented annual herb (family Asteraceae) with round yellow flowers and finely dissected leaves found in the south coast and desert ranges of Southern California. It is native to South Africa. It favors dunes, scrub, and chaparral habitat. It spreads via seeds which travel through human activities and machinery (Cal-IPC 2023). CDFA lists this species as Q. During field surveys, stinknet was found on the Project site.

4.3.10 Other Non-natives

Other non-native plant species observed on the Project that are not considered invasive but have become naturalized include:

- Date palm (*Phoenix dactylifera*)
- Mexican fan palm (*Washingtonia robusta*)
- Prickly lettuce (*Lactuca serriola*)
- Spiny sowthistle (*Sonchus asper*)
- Sowthistle (*Sonchus oleraceus*)

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Appendix A: Figures

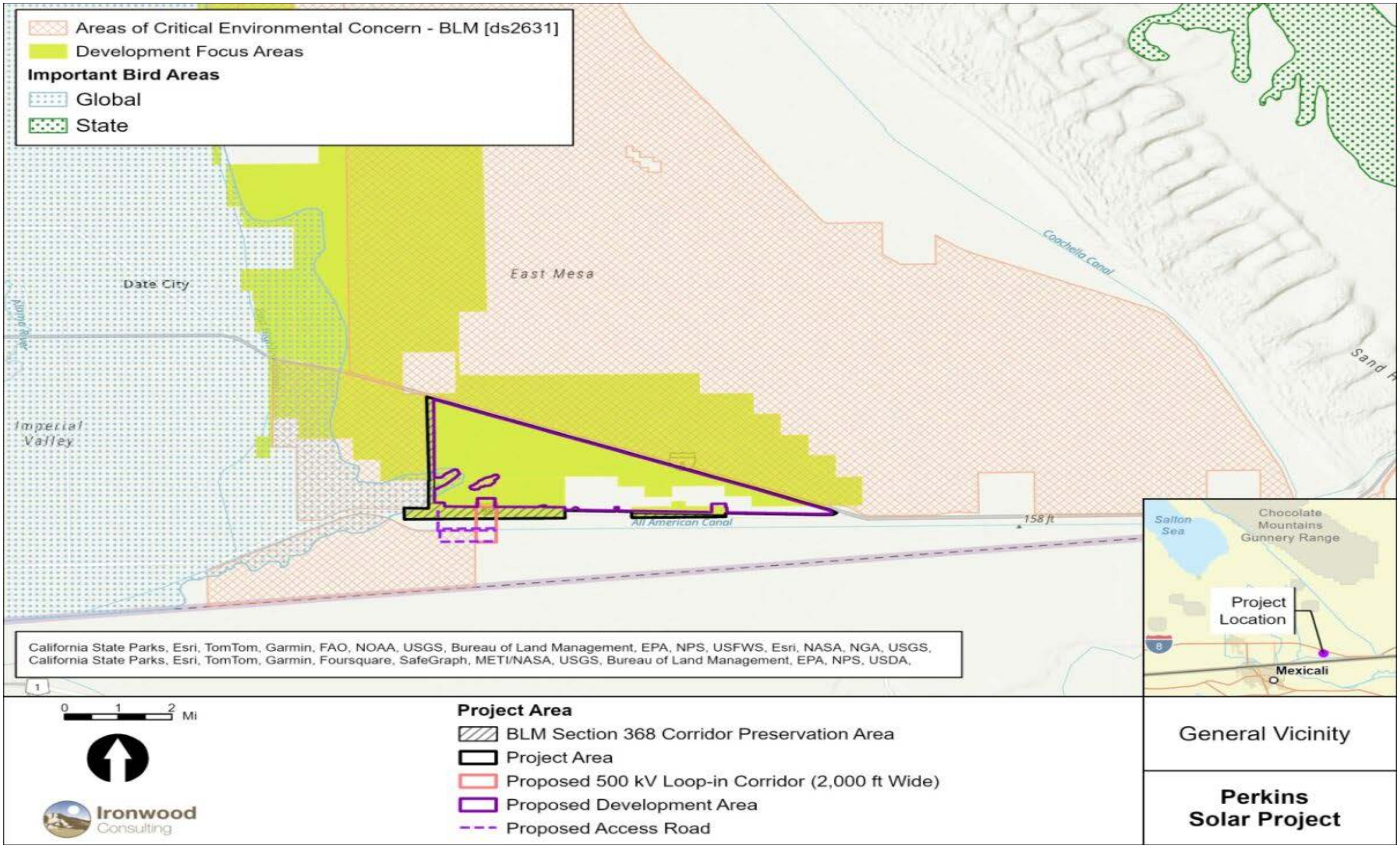


Figure 1. General Vicinity.

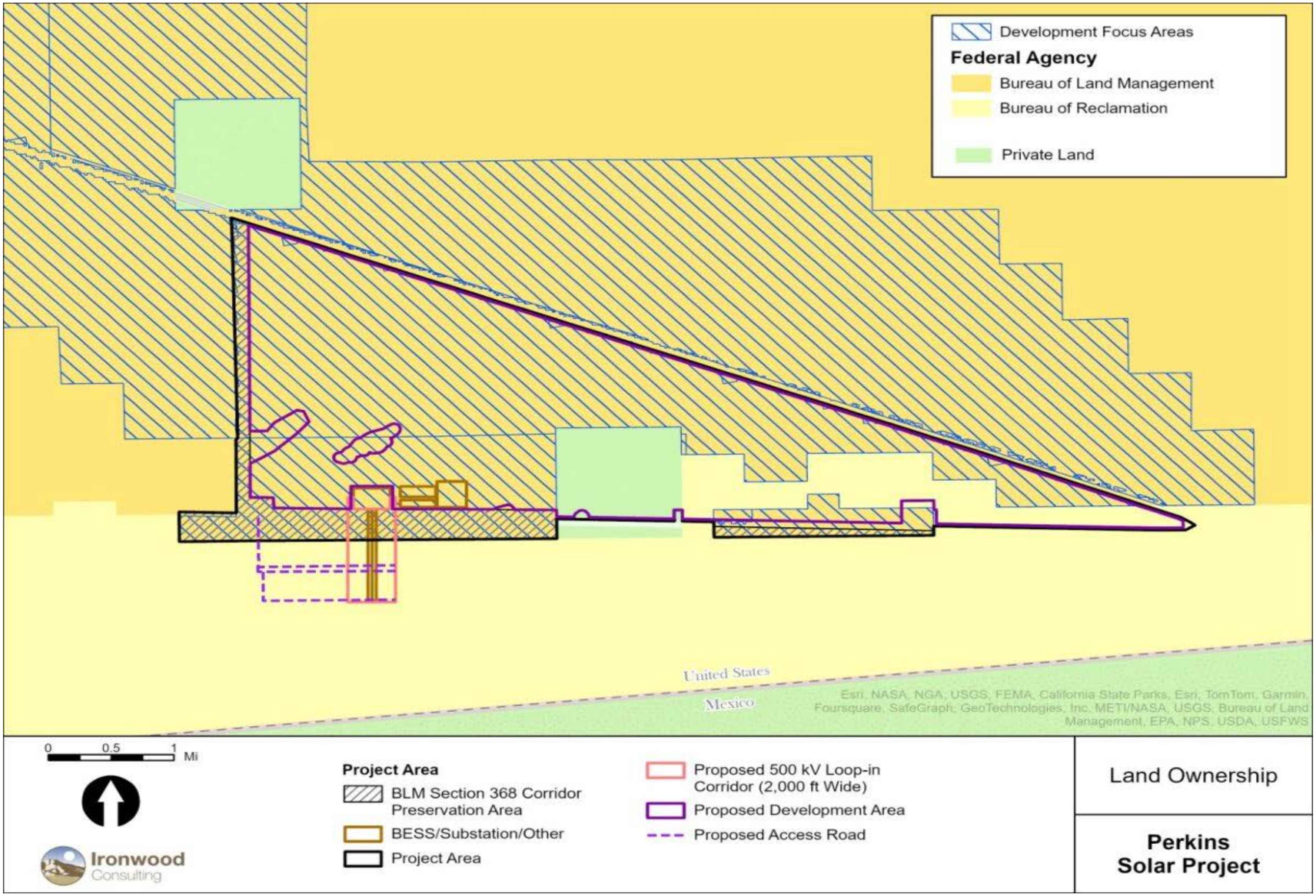


Figure 2. Land Ownership.

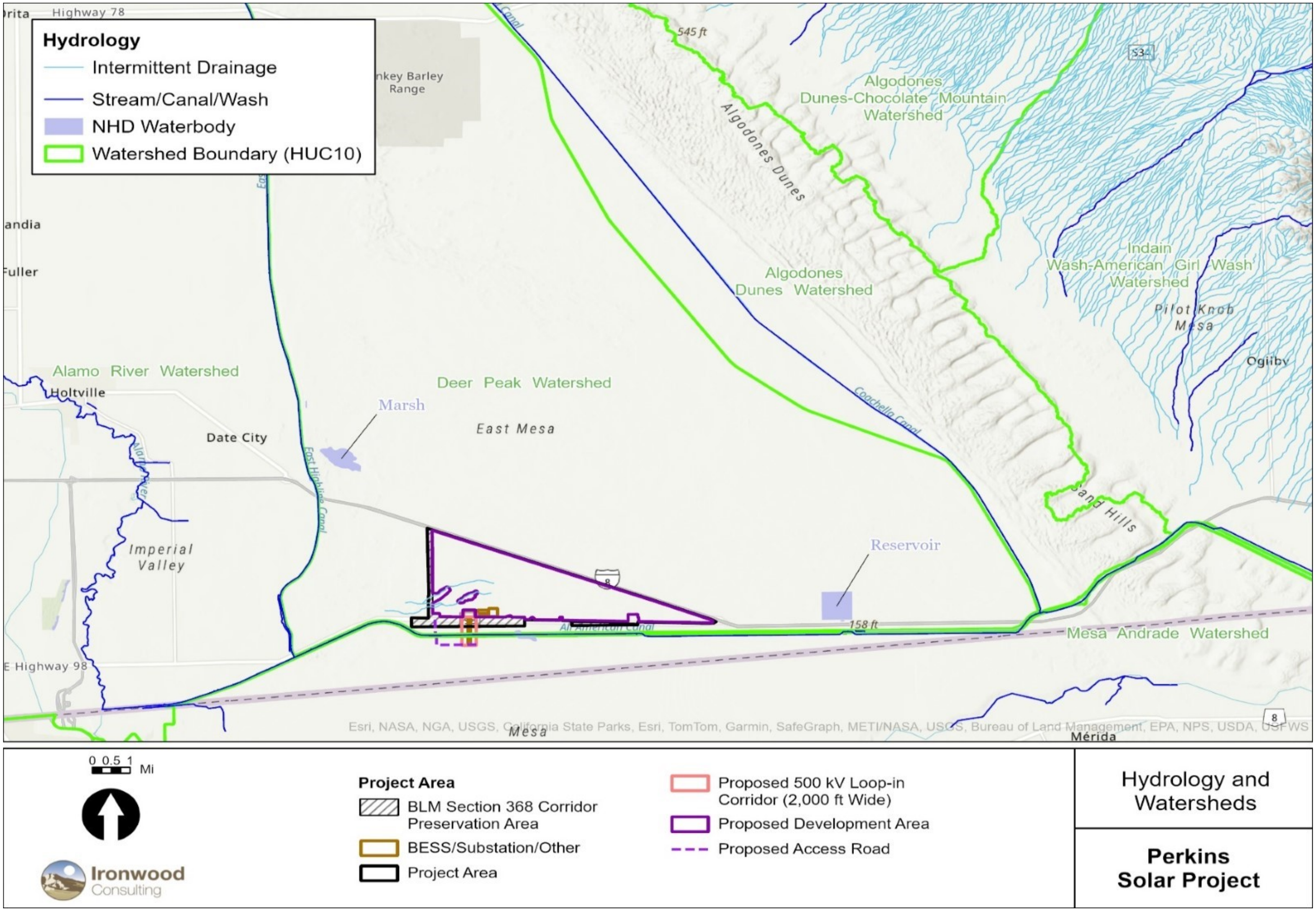


Figure 3. Hydrology and Watersheds.

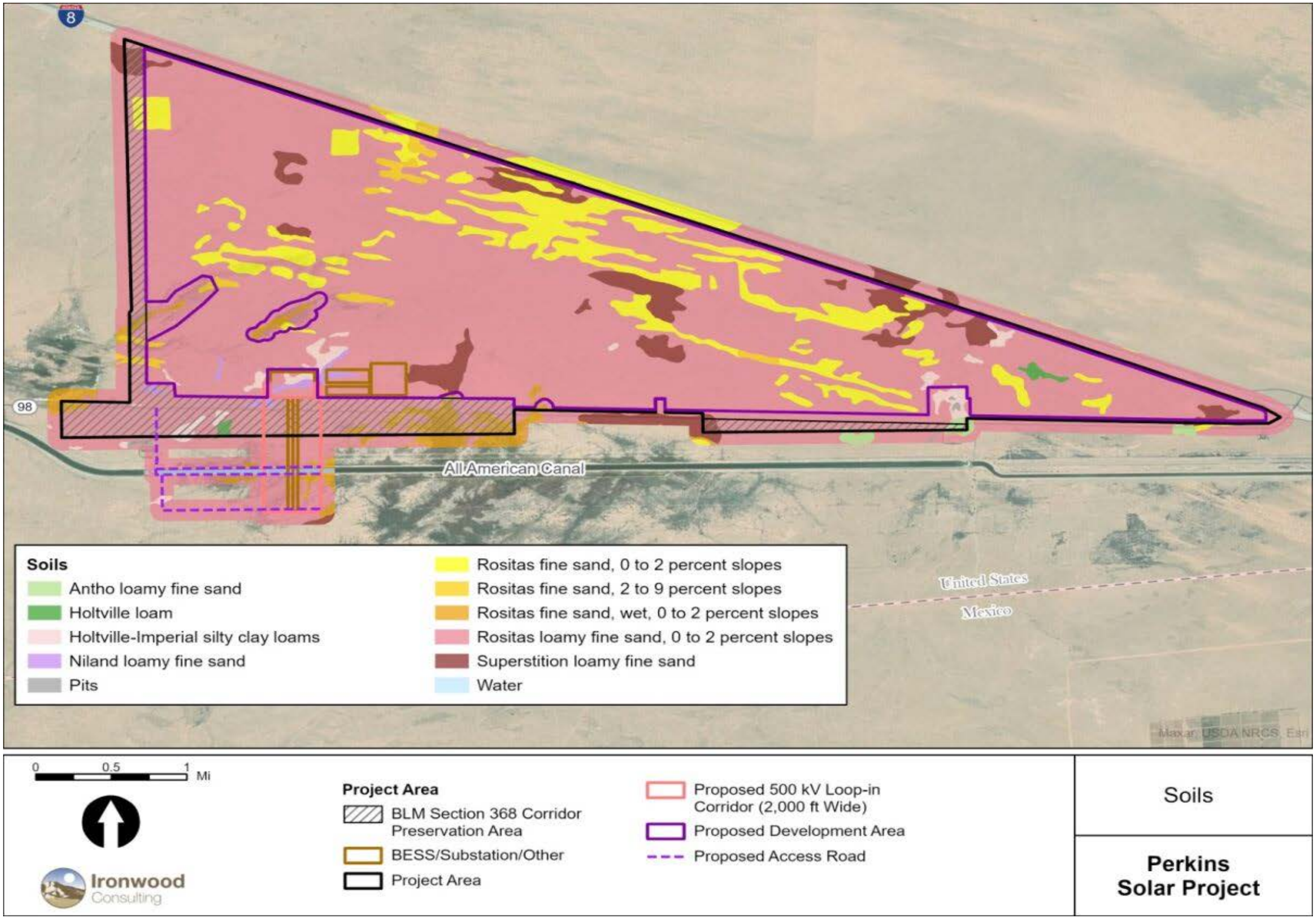


Figure 4. Soils.

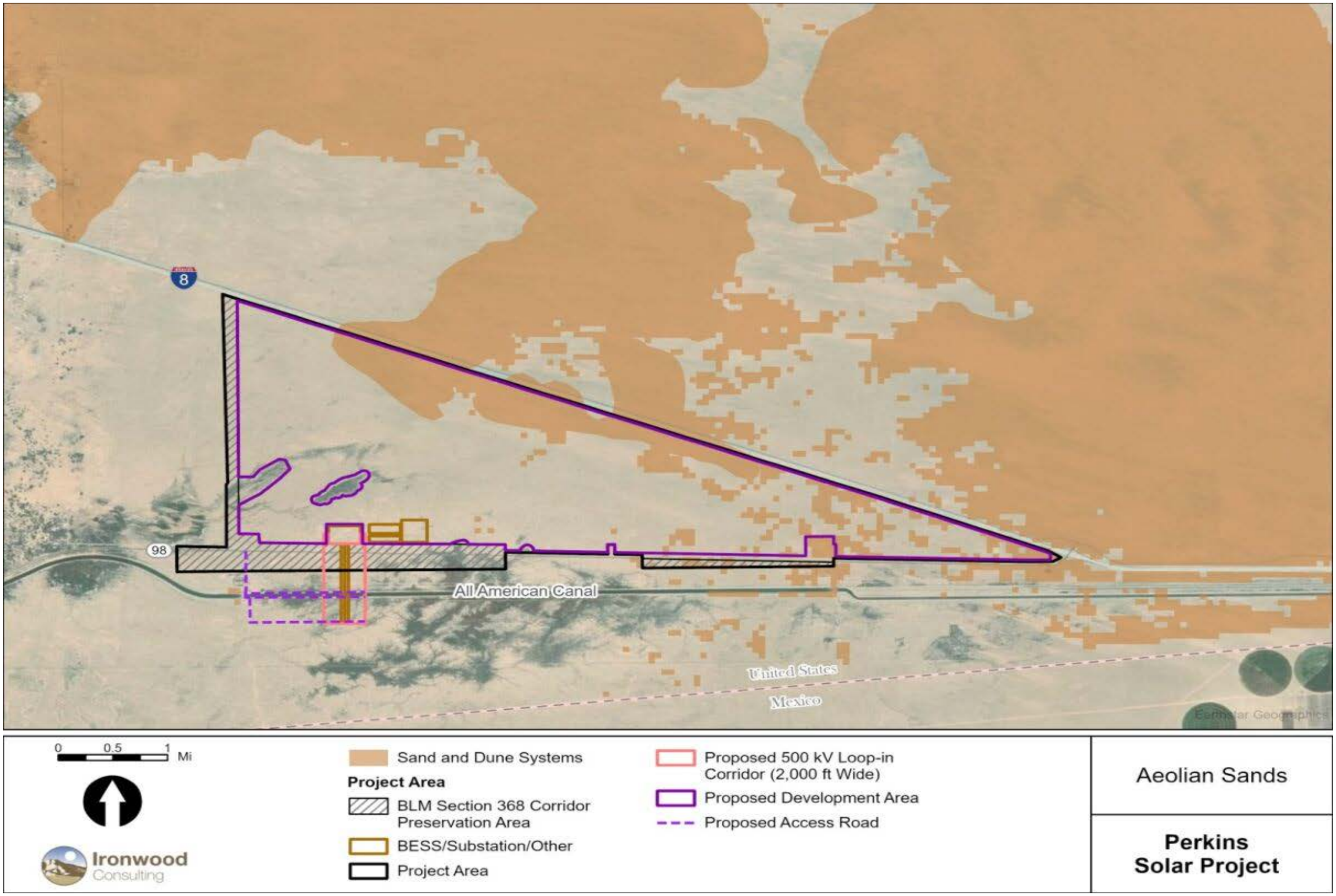
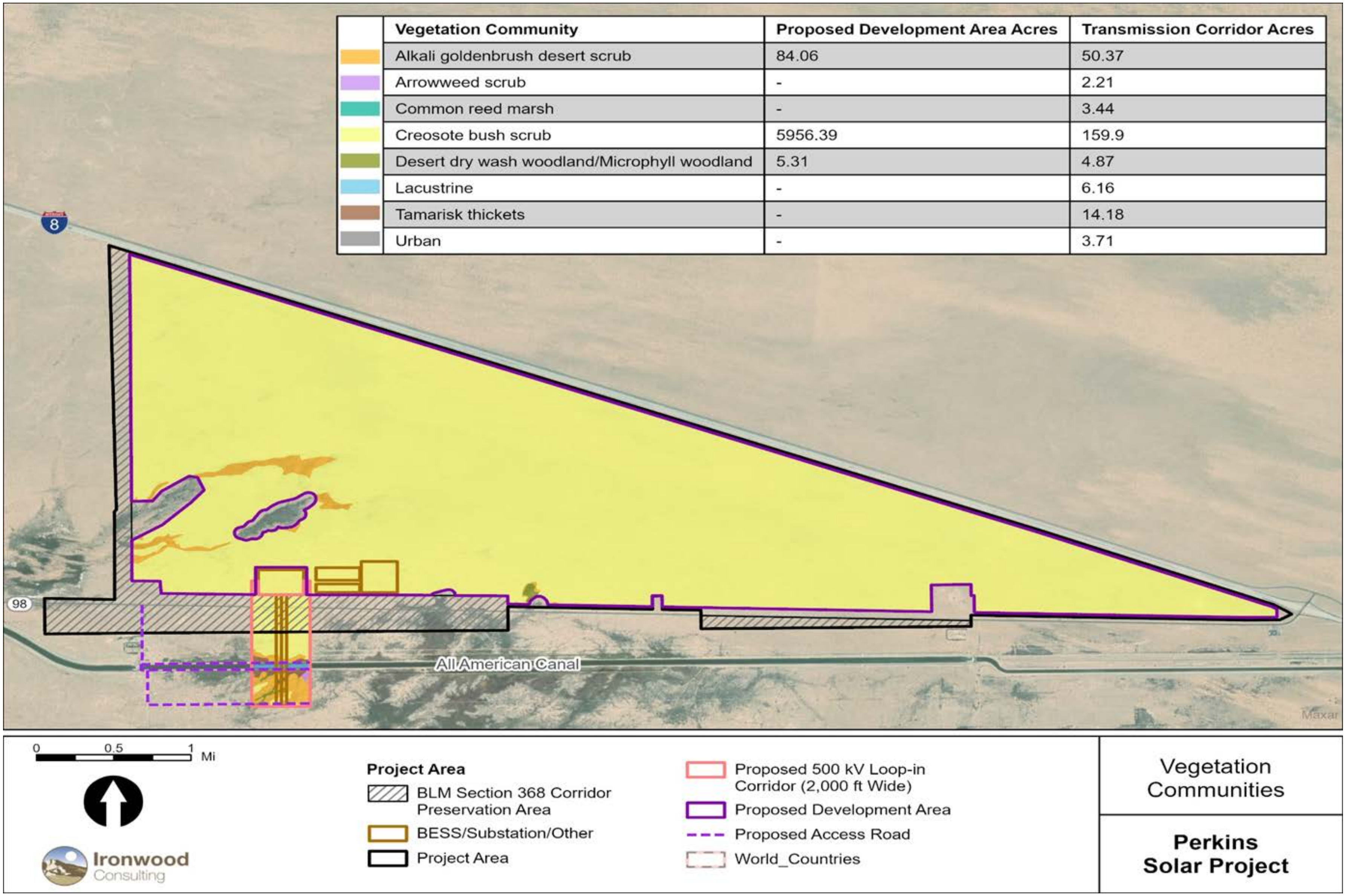


Figure 5. Sand Transport.



	Vegetation Community	Proposed Development Area Acres	Transmission Corridor Acres
	Alkali goldenbrush desert scrub	84.06	50.37
	Arrowweed scrub	-	2.21
	Common reed marsh	-	3.44
	Creosote bush scrub	5956.39	159.9
	Desert dry wash woodland/Microphyll woodland	5.31	4.87
	Lacustrine	-	6.16
	Tamarisk thickets	-	14.18
	Urban	-	3.71

Figure 6. Vegetation Communities.

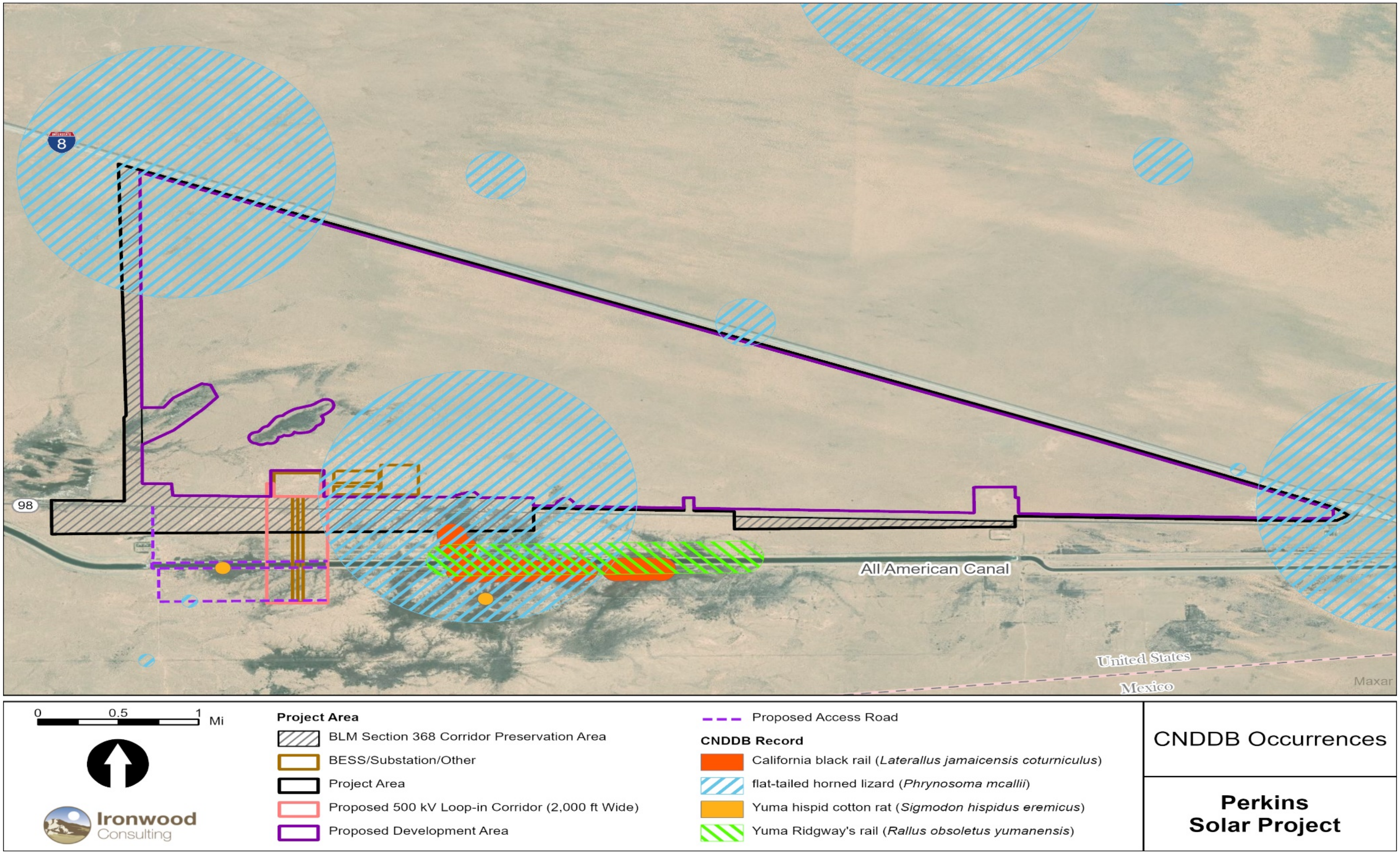


Figure 7. CNDDB Occurrences.

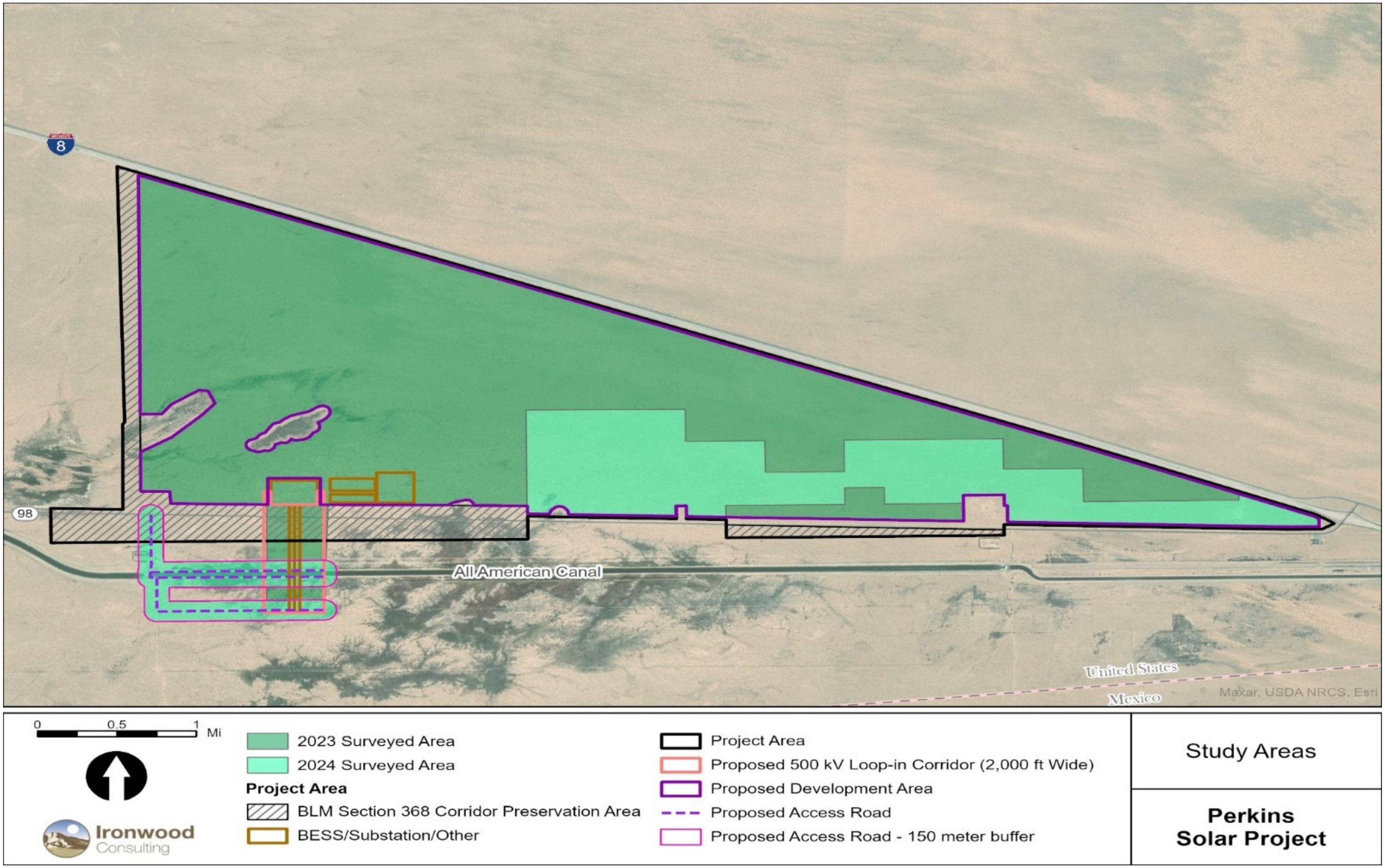


Figure 8. Study Areas.

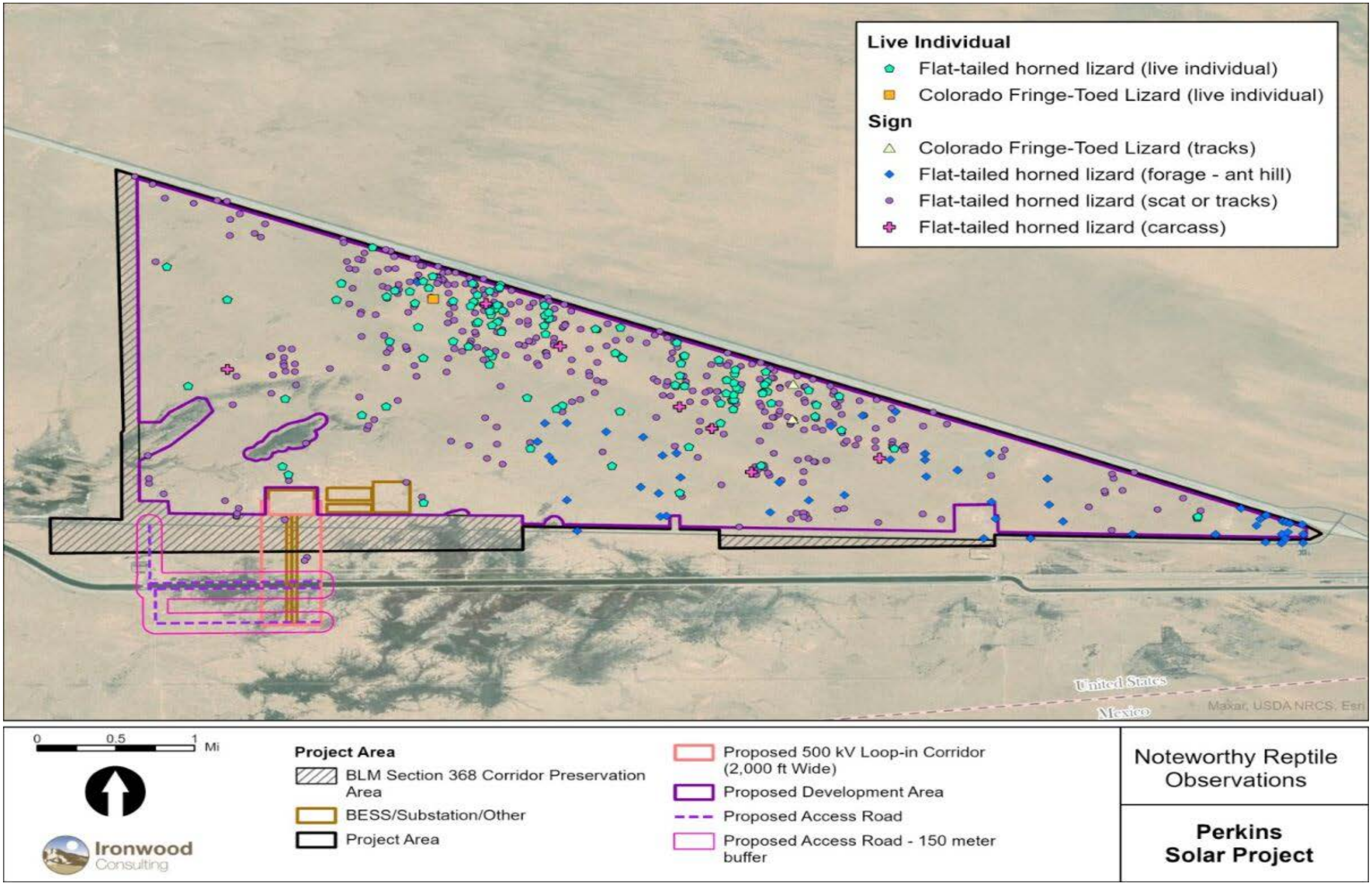


Figure 9. Noteworthy Reptile and Amphibian Observations

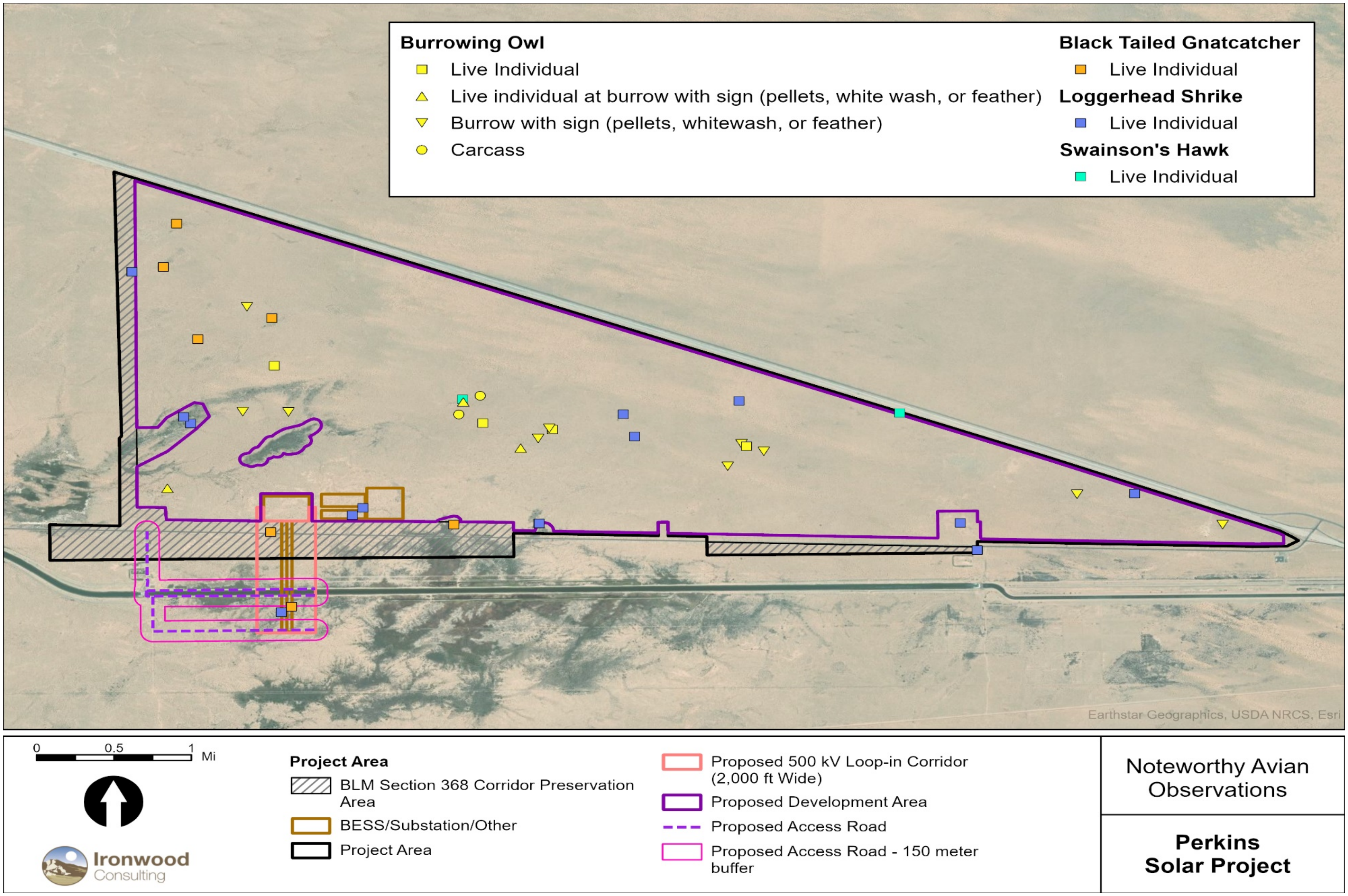


Figure 10. Noteworthy Avian Observations (Spring and Breeding Season).

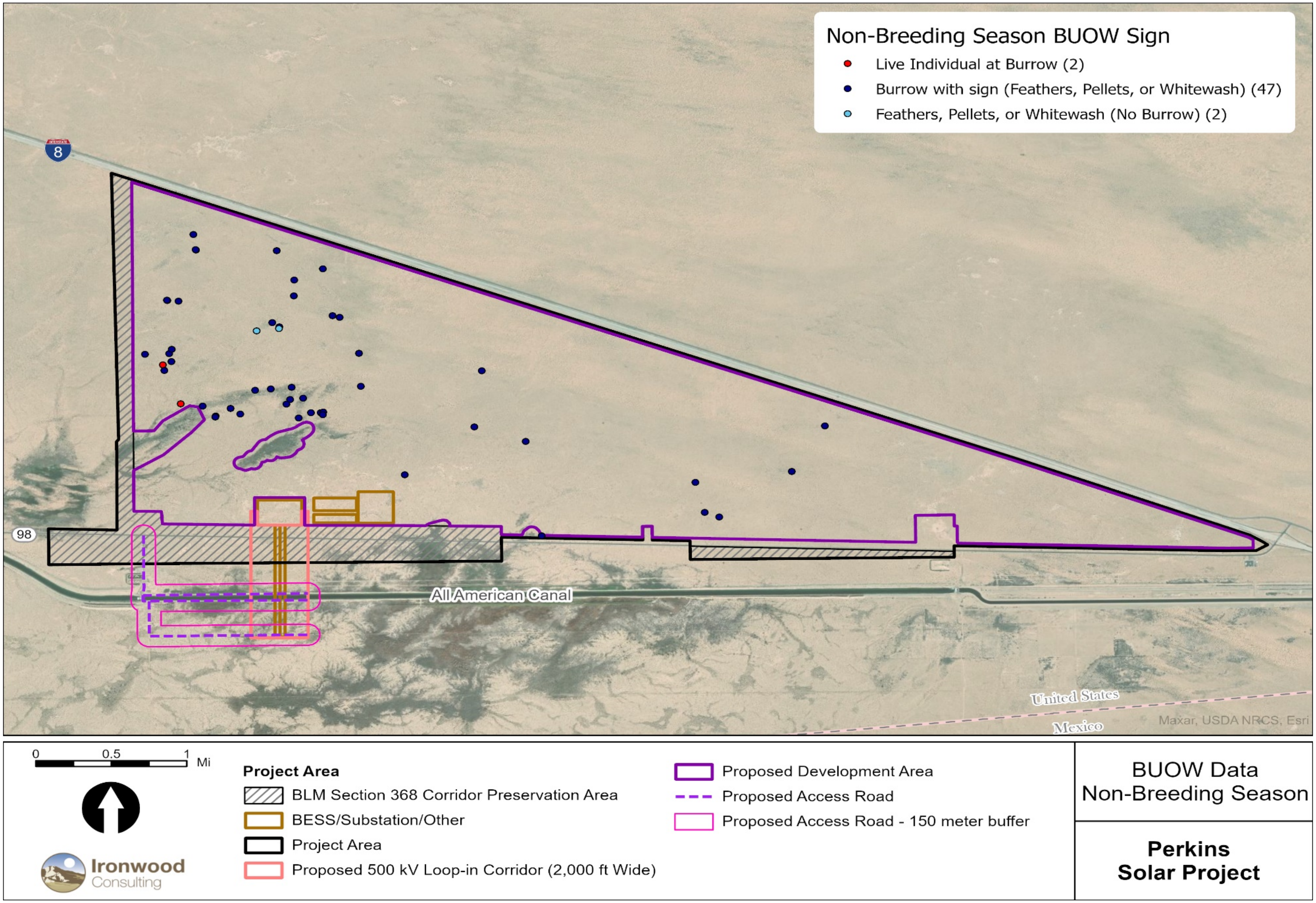


Figure 11. Burrowing Owl Observations (Non-Breeding Season).

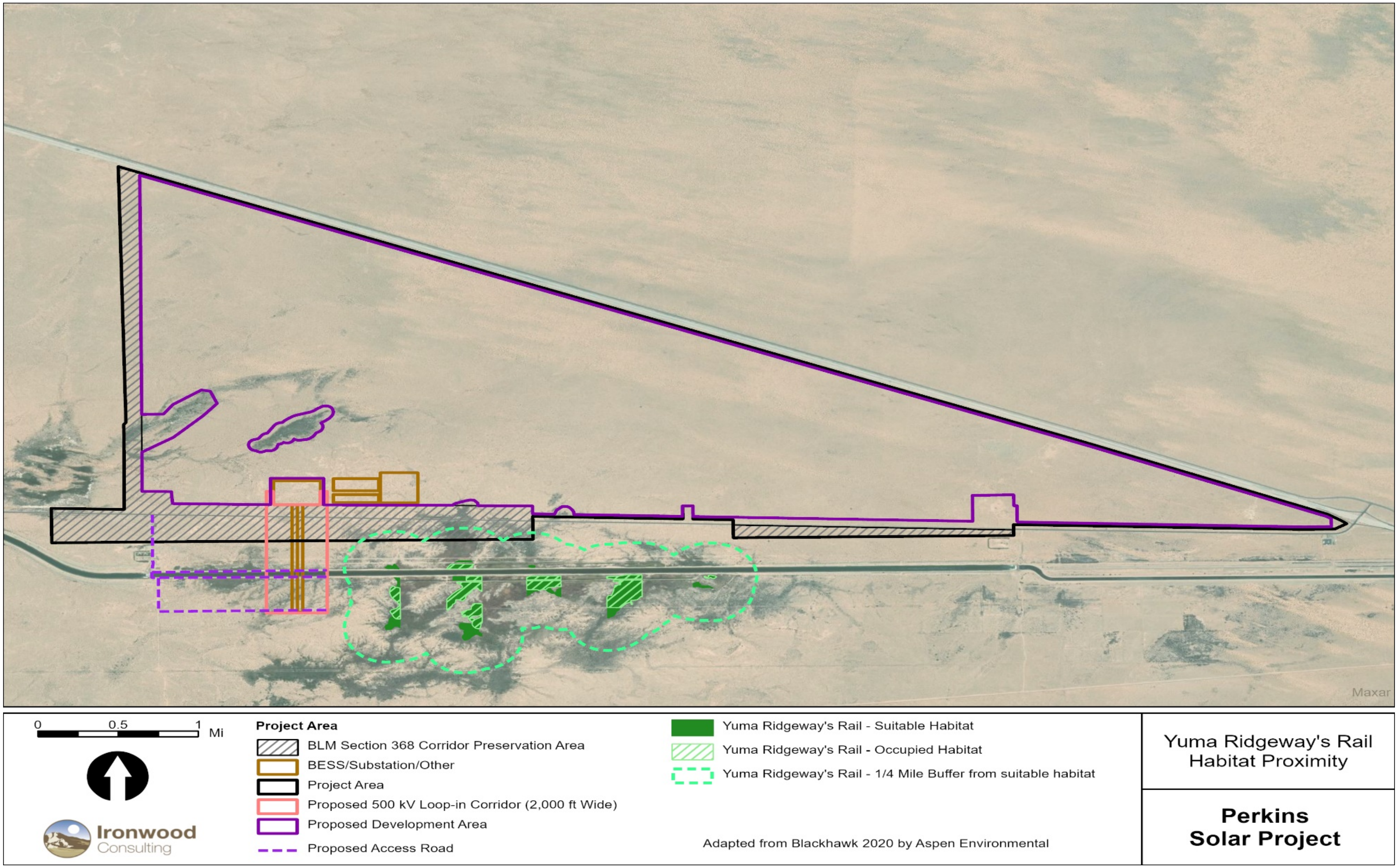


Figure 12. Yuma Ridgway's Rail Habitat Proximity.

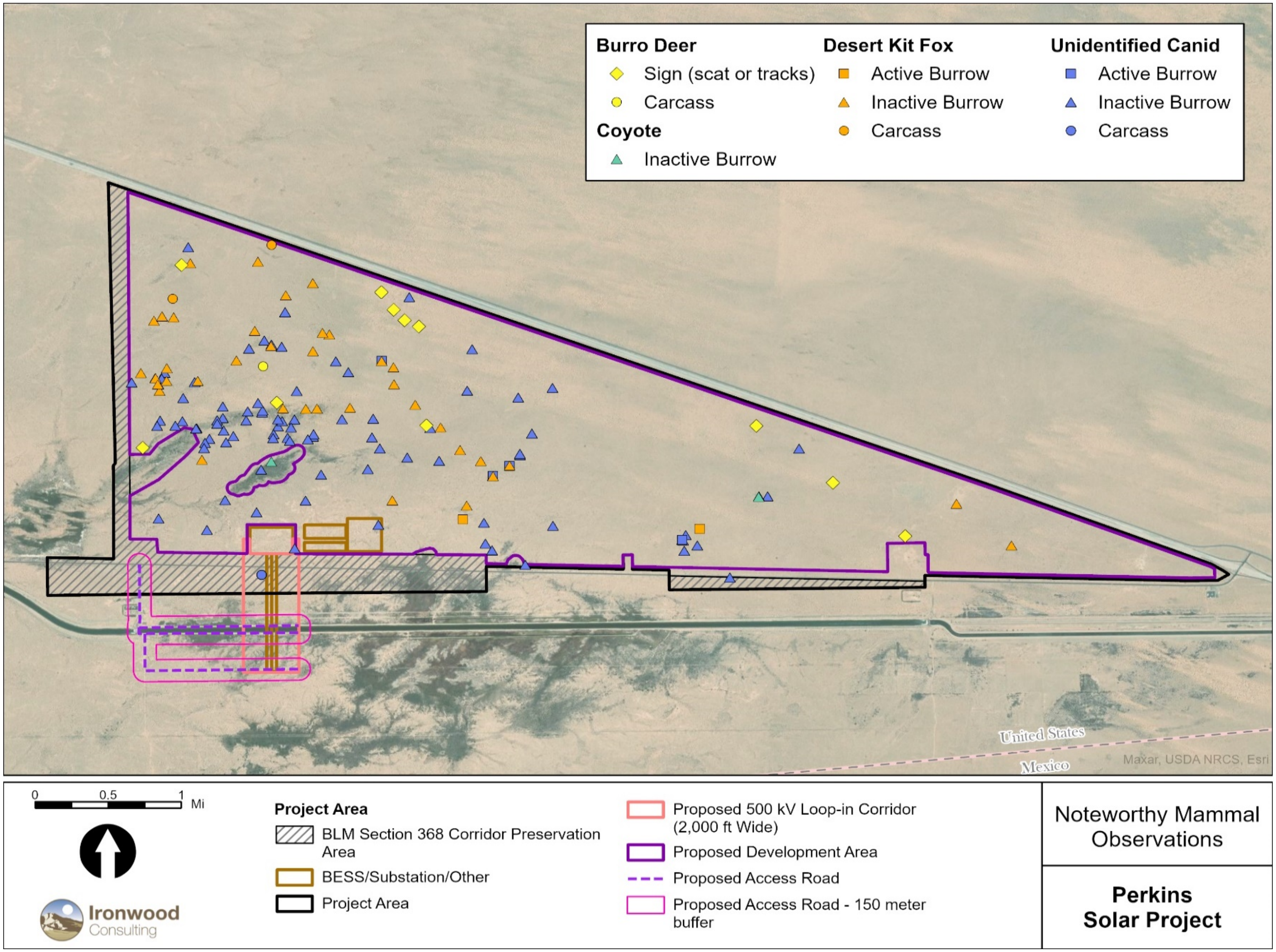


Figure 13. Noteworthy Mammal Observations.

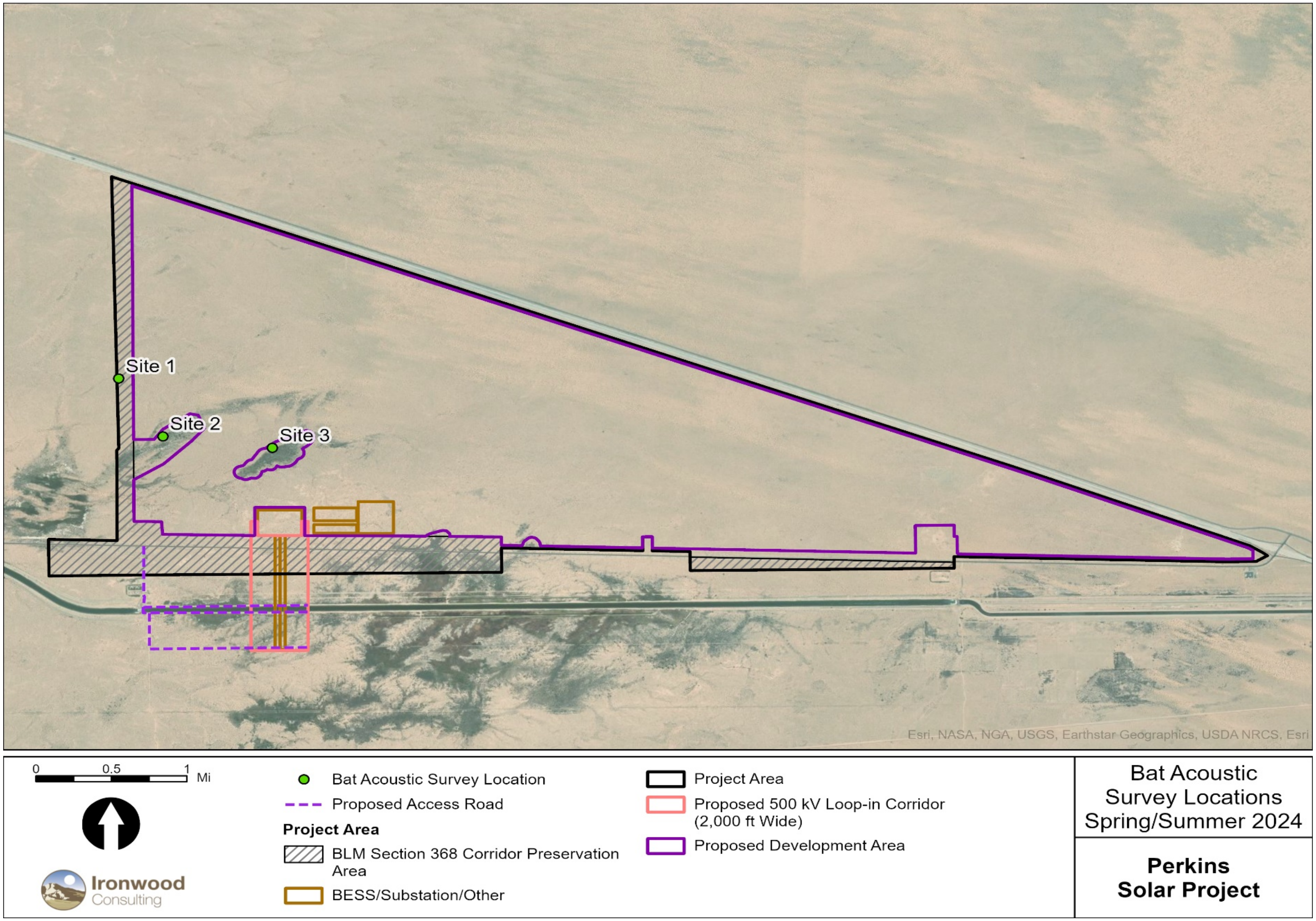


Figure 14. Bat Acoustic Stations

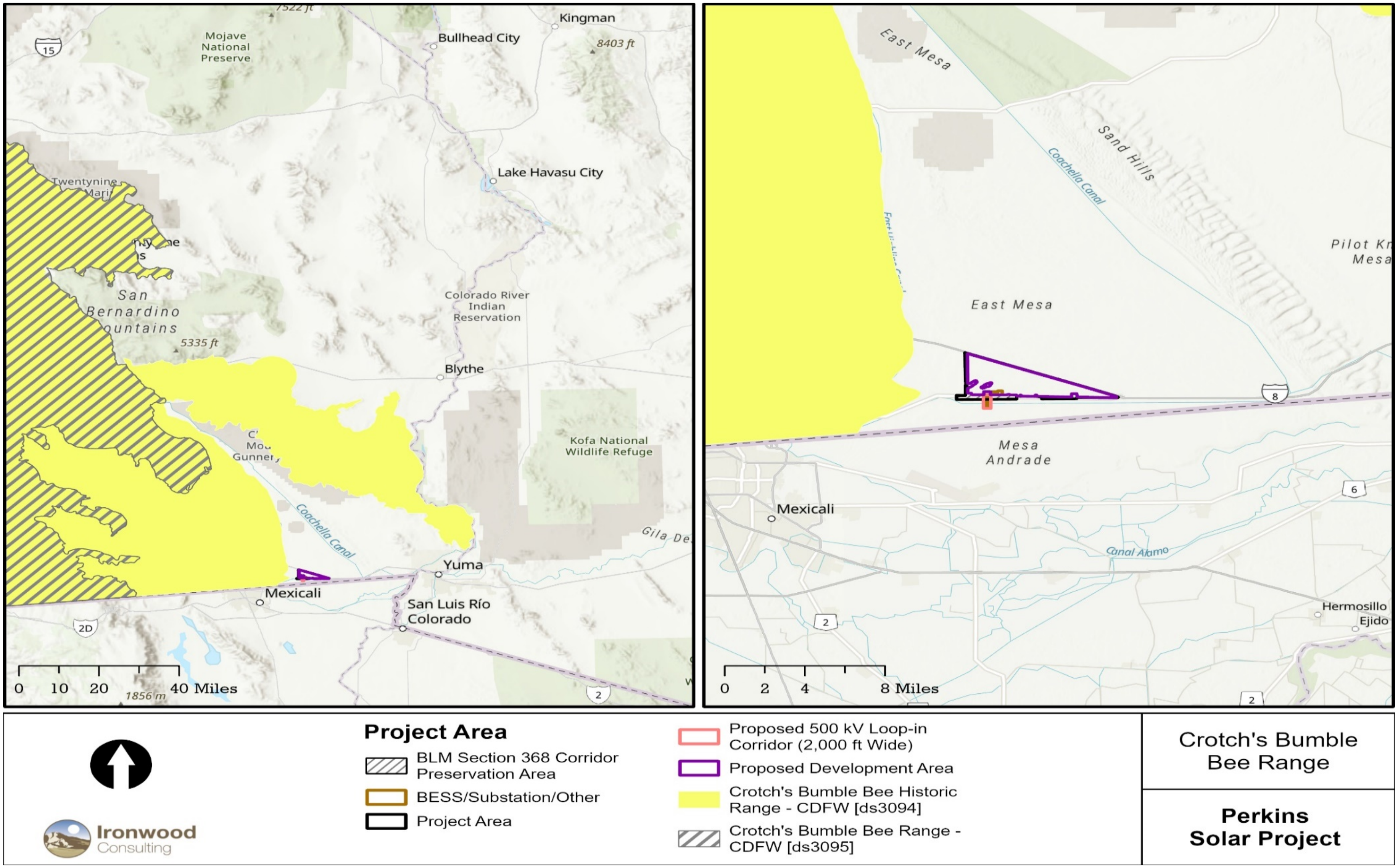


Figure 15. Crotch's Bumblebee Range

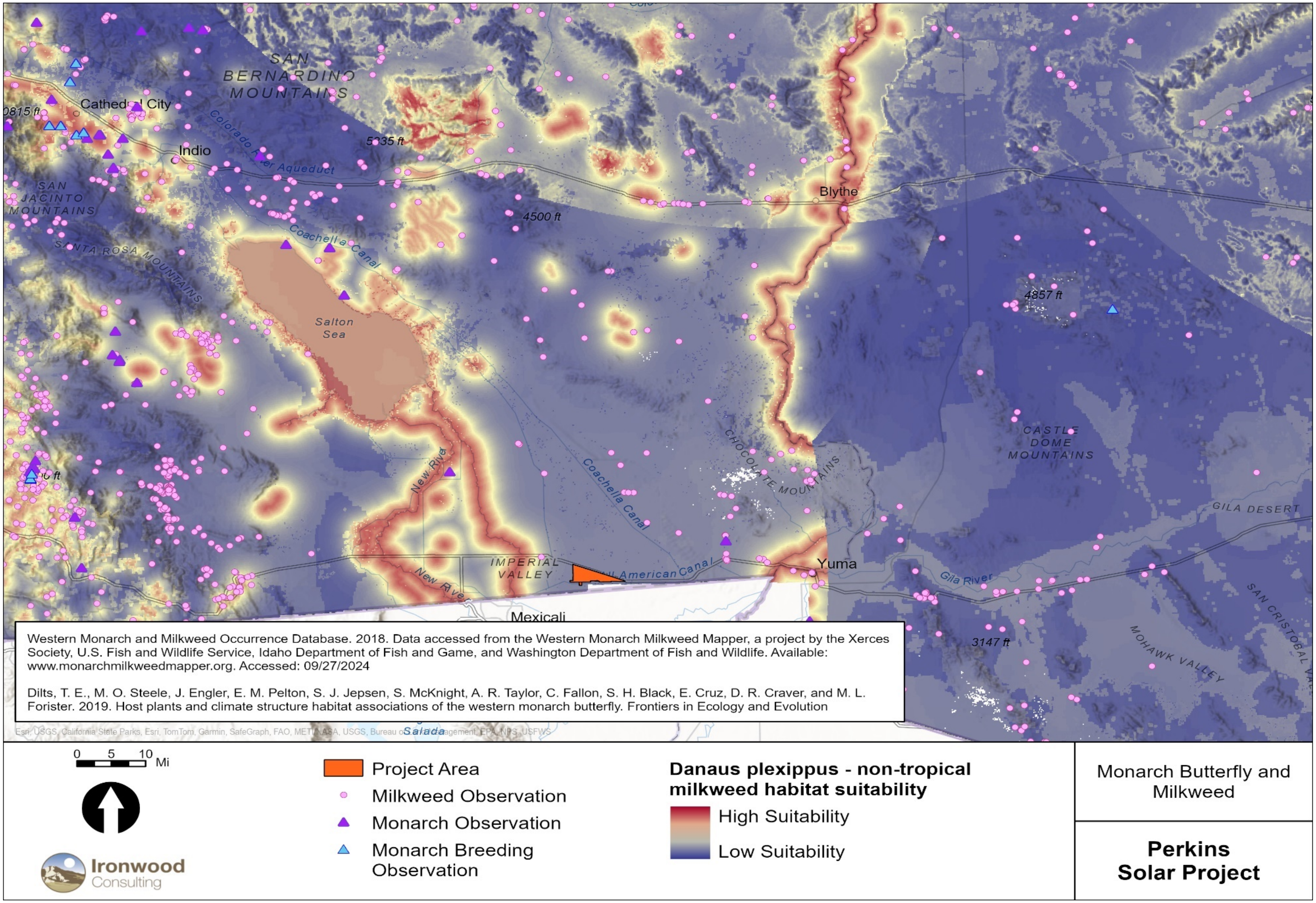


Figure 16. Monarch butterfly and Milkweed Habitat Suitability

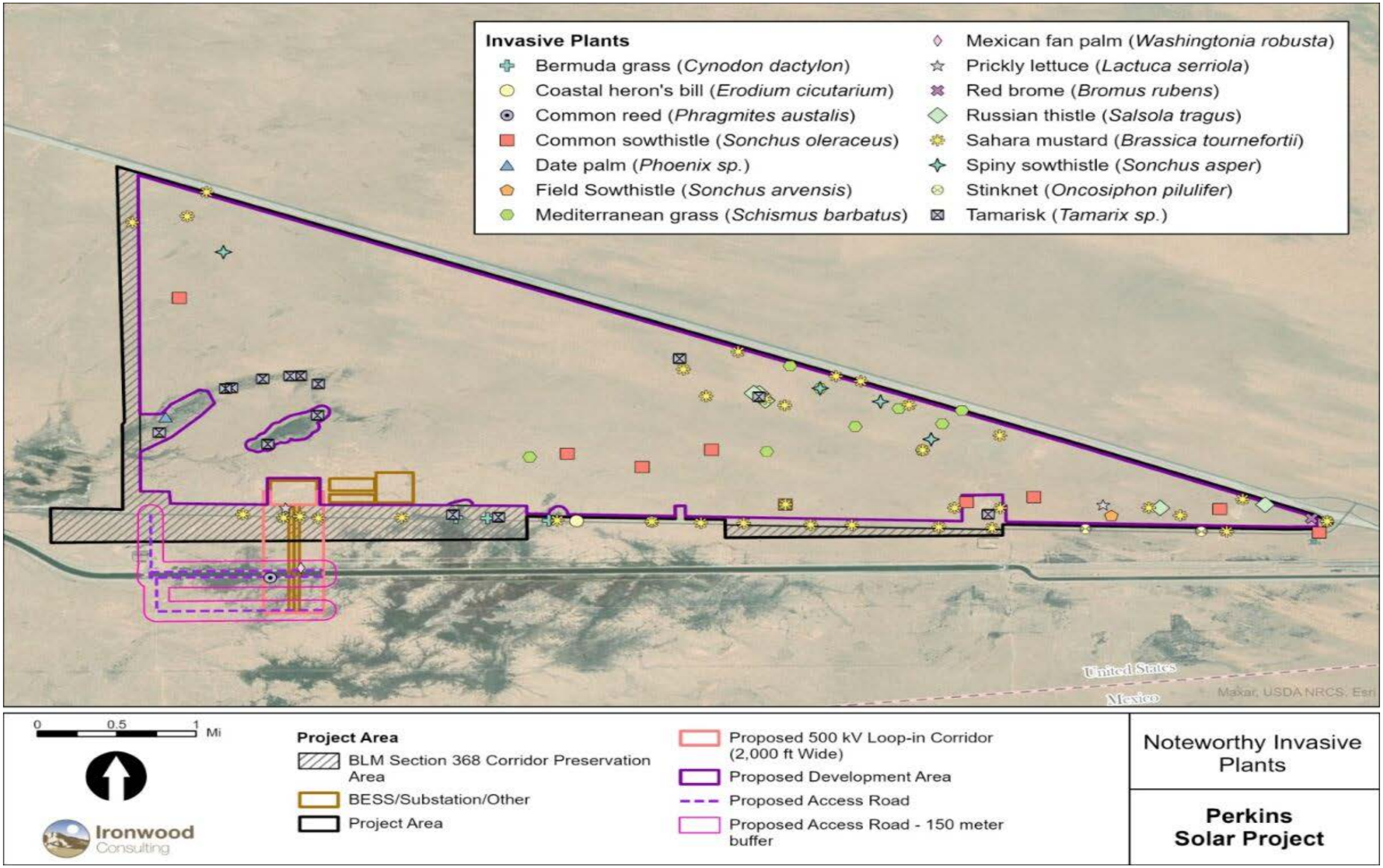


Figure 17. Noteworthy Invasive Plant Observations.

Appendix B: Potential for Special Wildlife Species to Occur

Species		Status		Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other		
Reptiles					
Flat-tailed horned lizard *Phrynosoma mcalli*	SSC	BLM-S	-	**Present**	One hundred and three live individuals observed on the Project site during surveys.
Colorado desert fringe-toed lizard *Uma notata*	SSC	BLM-S	-	**Present**	One individual was observed on project. Habitat on site is suitable for Colorado Desert fringe-toed lizards.
Mammals					
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	SSC	-	-	Moderate	Occurrences are located near the freshwater marshes associated with the All-American Canal within the transmission corridor of the Project site.
Burro deer *Odocoileus hemionus eremicus*	CPGS	-	FOC	High	No live individuals detected. Scat, tracks, and a carcass were observed during surveys. Burro deer may use site to access All-American Canal.
American badger *Taxidea taxus*	SSC	-	-	Moderate	No individuals or sign observed on site, suitable habitat is present.
Desert kit fox *Vulpes macrotis*	-	-	FOC	High	No live individuals detected. Two active burrows and multiple inactive burrows were observed during surveys.
Bats					
Pallid bat *Antrozous pallidus*	-	BLM-S	H	Roosting – low Foraging – moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.
Western yellow bat *Lasiurus xanthinus*	SSC	-	H	Roosting – low Foraging - moderate	Not observed or detected in acoustic surveys. Nearest record of western yellow bat 10 miles from the Project site.
California leaf-nosed bat *Macrotis californicus*	SSC	BLM-S	H	**Present** - foraging Roosting – low	Not observed but detected in acoustic surveys. Nearest record is approximately 17 miles from the Project site.

Species		Status		Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other		
Arizona myotis *Myotis occultus*	SSC	-	-	Roosting - No Foraging - low	Not observed. There is one record in Imperial County from 1910 and is typically only confirmed if observed or with genetic sampling. Likelihood of occurrence is low.
Yuma myotis *Myotis yumanensis*	-	BLM-S	M	Roosting - No Foraging - moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 35 miles from Project site.
Cave myotis *Myotis velifer*	-	BLM-S	H	Roosting – No Foraging - moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.
Birds					
Western burrowing owl *Athene cunicularia hypugaea*	SSC	BLM-S BCC	FOC	Present	Six live individuals were observed during surveys. Thirteen active burrows were observed. Two carcasses were observed.
Swainson's hawk *Buteo swainsoni*	ST	BLM-S (nesting)	FOC	Present Nesting - Low	Two observations of flyovers were documented during surveys. There are no CNDDB records in Imperial County, but historical observation from 1978 in area (Ebird 2023).
Northern harrier *Circus hudsonius*	SSC	BCC (nesting)	-	Nesting - Low Wintering or Migration - Moderate	Not observed. No CNDDB observations in Imperial County, but observations recorded recently in area (Ebird 2023).
Prairie falcon *Falco mexicanus*	WL (nesting)	-	-	Nesting - Low Foraging - Moderate	Not observed. Nearest record approximately 30 miles east of Project site (CNDDB 2023) and observed in area 2021 (Ebird 2023).
American peregrine falcon *Falco peregrinus anatum*	CDF-S (nesting)	-	-	Nesting - Low Foraging - Moderate	Not observed. No CNDDB records in Imperial County but observed recently in 2011 within area (Ebird 2023).
Loggerhead shrike (Nesting) *Lanius ludovicianus*	SSC (nesting)	-	-	**Present**	Thirteen observations on Project site during surveys.

Species		Status		Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other		
Black-tailed gnatcatcher *Polioptila melanura*	WL	-	-	**Present** Nesting - Moderate	Nine observations were recorded during surveys.
California black rail *Laterallus jamaicensis coturniculus*	CFP, ST	BLM-S	-	Moderate Nesting- low	Not observed. Occupied habitat in freshwater marsh 2,000 east of transmission corridor. (CNDDB 2023). They may fly over the Project site; however suitable nesting habitat within transmission corridor where is crosses the All-American Canal, and foraging habitat is marginal.
Ridgway's [Yuma Ridgway's] rail *Rallus obsoletus yumanensis*	ST, CFP	FE	-	Moderate Nesting - low	Not observed. Occupied habitat in freshwater marsh 2,100 ft southeast of southern transmission corridor (CNDDB 2023). They may fly over the Project site; however, no suitable nesting habitat occurs within transmission corridor where it crosses the All-American Canal, and foraging habitat is marginal.
Bank swallow *Riparia riparia*	ST	BLM-S (nesting)	-	Nesting- Low Migration - Moderate	Not observed. No CNDDB records in Imperial County but observed in the area in 2014 (Ebird 2023). No suitable nesting habitat.
Southwestern Willow Flycatcher *Empidonax traillii extimus*	SE	FE	-	Nesting – low Migration - moderate	Not observed. Nearest record 34 miles from the Project site in 2004 (CNDDB).

Species		Status		Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other		
Gila Woodpecker *Melanerpes uropygialis*	SE	BLM-S	-	Nesting – low Migration - moderate	Not observed. Nearest record 16 miles from the Project site in 2003 (CNDDB).
Invertebrates					
Western bumble bee *Bombus occidentalis*	SE candidate	-	-	Low	Not observed. Nearest record 22 miles from Project site (CNDDB 1993).
Crotch's bumble bee *Bombus crotchii*	SE candidate	-	-	Low	Not observed. Nearest record of observation 29 miles from Project site near the town of Brawley from 1948 (CNDDB 2023).
Monarch butterfly *Danaus plexippus*	-	FCT, FSS	-	Low for overwintering and reproduction, moderate for foraging	Not observed. Nearest record of observation approximately 15 miles from Project site.

Species		Status		Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other		
Monarch butterfly *Danaus plexippus (overwintering populations)*	-	FCT	-	Low for overwintering, moderate for foraging	Not observed. Nearest record of observation 108 miles from the Project site in 2014 (CNDDB). May forage on milkweed that occur on the Project site.

Conservation Status

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
FCT = Proposed for federal listing as a threatened species
BCC = Fish and Wildlife Service: Birds of Conservation Concern
FSS = United States Forest Service Sensitive

State SSC = State Species of Special Concern
CFP = California Fully Protected
SE = State listed as endangered
ST = State listed as threatened
WL = State watch list
CPF = California Protected Furbearing Mammal
CPGS = California Protected Game Species
CDF-S = California Department of Forestry & Fire Protection Sensitive

Bureau of Land Management
BLM-S = BLM Sensitive
FOC = DRECP Focus and Planning Species

Western Bat Working Group (WBWG)
H = imperiled or at high risk of imperilment
M = warrant closer evaluation, more research, and conservation actions
L = most of the existing data support stable populations

**Species not detected during surveys may have the potential to occur on the Project site in the future

Appendix C: Potential for Special Status Plant Species to Occur

Plant Species	Form; Habitat; Distribution (Counties)	Conservation Status	Elevation (Meters)	Blooming Period	Potential To Occur on the Project Site
Harwood's milkvetch *Astragalus insularis* var. *harwoodii*	Annual herb; sandy or gravelly, desert dunes, Mojavean Desert scrub; Riverside, San Bernardino, San Diego, Inyo.	Federal: none CRPR: 2B.2	0-710	Jan-May	Minimal No suitable habitat, outside range. Not observed. Nearest record 17 miles from Project site.
Pierson's milkvetch *Astragalus magdalenae* var. *Peirsonii*	Perennial herb; sandy, desert dunes, Sonoran Desert scrub; San Diego, Riverside, Imperial, Los Angeles.	Federal: FT CESA: SE CRPR: 1B.2	50-250	Dec-Apr	Moderate Not observed. Nearest record1.5 miles from Project site.
Wiggin's croton Croton wigginsii	Perennial shrub; sandy, desert dunes, Sonoran Desert scrub; Imperial.	Federal: none CESA: SR CRPR: 2B.2	<100	Mar-May	Moderate Not observed. Nearest record 6 miles from Project site.
Abram's spurge *Euphorbia abramsiana*	Annual herb; silty and gravelly soils, sandy flats, Mojavean desert scrub, Sonoran Desert scrub; Imperial, San Bernardino, San Diego, Riverside.	Federal: none CRPR 2B.2	<200	Sept-Nov	Low Not observed. Nearest record 10 miles from Project site.
Utah vine milkweed *Funastrum utahense*	Perennial herb; sandy or gravelly, Mojavean desert scrub, Sonoran Desert scrub; Imperial, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 4.2	<1000	Apr-Jun	Minimal No suitable habitat, outside range. Not observed. Nearest record 51 miles from Project site.

Plant Species	Form; Habitat; Distribution (Counties)	Conservation Status	Elevation (Meters)	Blooming Period	Potential To Occur on the Project Site
Ribbed cryptantha *Johnstonella costata*	Annual herb; sandy, desert dunes, Mojavean desert scrub, Sonoran Desert scrub; Imperial, Inyo, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 4.3	<600	Feb-May	Moderate Not observed. Nearest record near Interstate-8 Freeway close Project site.
Algodones sunflower *Helianthus niveus subsp. tephrodes*	Perennial herb; sandy-Desert dunes-Sonoran Desert scrub Imperial, Riverside, San Diego.	Federal: none CESA: SE CRPR: 1B.2	<100	Sept-May	Moderate Not observed. Nearest record 7 miles from Project site.
Slender cottonheads *Nemacaulis denudata var. gracilis*	Annual herb; coastal dunes, desert dunes, Sonoran Desert scrub; Imperial, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 2B.2	10-500	Jan-May	Moderate Not observed. Nearest record 15 miles from Project site.
Giant Spanish needle *Palfixia arida var. gigantea*	Annual or perennial herb; sandy, desert dunes and alkali sink, Sonoran Desert scrub; Imperial, Riverside.	Federal: none CRPR: 1B.3	<610	Feb-May	Moderate Not observed. Nearest record near Interstate 8 Freeway close to Project site.
Sand food *Pholisma sonorae*	Perennial shrub; Saline habitats, playa margins of Palen Dry Lake; Riverside	Federal: none CRPR: 1B.2	<200	Apr-May	Moderate Not observed. Nearest record 5 miles from Project site.

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future

California Rare Plant Rank (CRPR)
CRPR 1A = Presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B = Rare, threatened, or endangered in California and elsewhere
CRPR 2A = Presumed extirpated in California but more common elsewhere
CRPR 2B = Rare, threatened, or endangered in California but more common elsewhere
CRPR 3 = Plants which need more information
CRPR 4 = Limited distribution – a watch list
CBR = Considered, But Rejected
1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened)

2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened)

3 = Not very endangered in California (low degree/immediacy of threats or no current threats known; <20% of occurrences threatened, or no current threats known)

California Endangered Species Act (CESA)

SR = State listed-Rare

ST = State listed-Threatened

SE = State listed-Endangered

Appendix D: Survey Results Summary

Table C - 1. Noteworthy Reptile Observations.

Species	Sign Types	Notes	Date
Colorado Desert fringe-toed lizard	Live Individual	-	2023-07-03
Flat-tailed horned lizard	Live Individual	-	2023-03-21
Flat-tailed horned lizard	Live Individual	-	2023-03-24
Flat-tailed horned lizard	Live Individual	With scat and tracks. Found buried in sand after following tracks.	2023-03-24
Flat-tailed horned lizard	Live Individual	-	2023-03-25
Flat-tailed horned lizard	Live Individual	-	2023-03-25
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	Gravelly substrate.	2023-03-31
Flat-tailed horned lizard	Live Individual	-	2023-04-26
Flat-tailed horned lizard	Live Individual	FTHL was found sleeping in a small burrow near the base of a creosote.	2023-05-17
Flat-tailed horned lizard	Live Individual	Followed tracks to a creosote mound to a live individual resting near the base of creosote.	2023-05-18
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	FTHL found basking outside of small burrow.	2023-05-24
Flat-tailed horned lizard	Live Individual	-	2023-06-12
Flat-tailed horned lizard	Live Individual	Resting in the shade of a creosote.	2023-06-12
Flat-tailed horned lizard	Live Individual	An adult and juvenile found resting in the shade together.	2023-06-12
Flat-tailed horned lizard	Live Individual	An adult and juvenile found resting in the shade together.	2023-06-12
Flat-tailed horned lizard	Live Individual	-	2023-06-14
Flat-tailed horned lizard	Live Individual	-	2023-06-14
Flat-tailed horned lizard	Live Individual	-	2023-06-26
Flat-tailed horned lizard	Live Individual	-	2023-06-27
Flat-tailed horned lizard	Live Individual	-	2023-06-28
Flat-tailed horned lizard	Live Individual	-	2023-06-29

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Scat; Tracks	Tracks found near any pile tracks lead away towards creosote mound; scar found and then lizard.	2023-05-18
Flat-tailed horned lizard	Live Individual; Scat; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Scat; Tracks	Tracks scat and live individual found.	2023-06-12
Flat-tailed horned lizard	Live Individual; Scat; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-03-25
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL buried in the sand with only head exposed.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to horned lizard completely buried in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	FTHL tracks lead to creosote mound and lizard found sleeping in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead to lizard sleeping in the shade.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead up a creosote mound to a FTHL resting exposed on sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks found near any pile followed to juvenile FTHL buried in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping partially buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL on creosote.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL buried in sand less than 5m from previous individual.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Adult lizard found resting in sand on creosote mound.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to juvenile FTHL.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to juvenile FTHL sleeping in the sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping on top of sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to sleeping FTHL; buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to sleeping FTHL.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead to FTHL fully submerged in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	FTHL found buried in the sand.	2023-05-24

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-13
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-13
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-19
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-28
Flat-tailed horned lizard	Scat	-	2024-04-08
Flat-tailed horned lizard	Live Individual	-	2024-04-09
Flat-tailed horned lizard	Live Individual	-	2024-04-10
Flat-tailed horned lizard	Scat	-	2024-04-10
Flat-tailed horned lizard	Carcass	-	2024-04-12
Flat-tailed horned lizard	Live Individual	-	2024-04-15
Flat-tailed horned lizard	Scat	-	2024-04-15
Flat-tailed horned lizard	Scat	-	2024-04-15
Flat-tailed horned lizard	Scat	-	2024-04-15

Table C - 2. Noteworthy Avian Observations.

Species	Sign Types	Notes	Date
Black Tailed Gnatcatcher	Live Individual	-	2023-03-24
Black Tailed Gnatcatcher	Live Individual	-	2023-03-25
Black Tailed Gnatcatcher	Live Individual	-	2023-03-29
Black Tailed Gnatcatcher	Live Individual	-	2023-03-30
Black Tailed Gnatcatcher	Live Individual	-	2023-03-30
Black Tailed Gnatcatcher	Live Individual	-	2023-03-31
Black Tailed Gnatcatcher	Live Individual	2 Black tailed gnatcatchers	2023-04-01
Black Tailed Gnatcatcher	Live Individual	-	2024-04-09
Burrowing Owl	Burrow; Pellets; Whitewash; Feather(s)	-	2023-03-21
Burrowing Owl	Burrow; Pellets; Whitewash	-	2023-03-21
Burrowing Owl	Burrow; Pellets; Whitewash	5 openings.	2023-03-22
Burrowing Owl	Burrow; Pellets; Whitewash	-	2023-03-23
Burrowing Owl	Live Individual	Owl flew out while conducting survey.	2023-03-23
Burrowing Owl	Live Individual	-	2023-03-23
Burrowing Owl	Burrow; Pellets	Pellet seen near DKF complex.	2023-03-24
Burrowing Owl	Carcass	-	2023-03-25
Burrowing Owl	Live Individual	Uncertain of adult status.	2023-03-25
Burrowing Owl	Live Individual; Burrow; Pellets; Whitewash	Flushed owl.	2023-03-25

Species	Sign Types	Notes	Date
Burrowing Owl	Carcass	Wing is possibly from the same bird as carcass.	2023-03-25
Burrowing Owl	Burrow; Pellets	-	2023-03-29
Burrowing Owl	Live Individual	-	2023-03-29
Burrowing Owl	Burrow; Pellets	DKF scat near burrow.	2023-03-29
Burrowing Owl	Burrow; Whitewash	-	2023-03-29
Burrowing Owl	Live Individual, Burrow, Pellets, Whitewash	Flushed owl	2024-04-03
Burrowing Owl	Burrow; Whitewash	-	2024-04-15
Burrowing Owl	Burrow; Feathers; Whitewash; Pellets	-	2024-07-11
Burrowing Owl	Burrow; Feathers; Whitewash; Pellets	-	2024-07-11
Burrowing Owl	Burrow; Live individual; Pellets; Feathers; Whitewash	-	2024-07-11
Loggerhead Shrike	Live Individual	-	2023-03-20
Loggerhead Shrike	Live Individual	-	2023-03-21
Loggerhead Shrike	Live Individual	-	2023-03-22
Loggerhead Shrike	Live Individual	-	2023-03-23
Loggerhead Shrike	Live Individual	-	2023-03-23
Loggerhead Shrike	Live Individual	-	2023-03-24
Loggerhead Shrike	Live Individual	-	2023-03-27
Loggerhead Shrike	Live Individual	-	2023-03-27
Loggerhead Shrike	Live Individual	Perched in Prosopis.	2023-03-30
Loggerhead Shrike	Live Individual	-	2023-03-31
Loggerhead Shrike	Live Individual	-	2023-04-01
Loggerhead Shrike	Live Individual	Two adults seen feeding chicks in nearby tree.	2024-04-09
Loggerhead Shrike	Live Individual	-	2024-04-15
Swainson's Hawk	Live Individual	Migrating.	2023-03-21
Swainson's Hawk	Live Individual	-	2023-03-25

Table C - 3. Burrowing Owl Non-Breeding Season Observations.

Date	Live Individual	Burrow Sign			
		White Wash	Feathers	Pellets	Eggshells
9/11/2024	x	x	x	x	
9/11/2024	x	x	x		
9/9/2024		x	x	x	
9/9/2024		x		x	
9/9/2024		x	x	x	
9/9/2024		x	x	x	

Date	Live Individual	Burrow Sign			
		White Wash	Feathers	Pellets	Eggshells
9/10/2024		x		x	
9/10/2024		x		x	
9/10/2024		x			
9/10/2024		x			
9/11/2024		x	x	x	
9/11/2024		x			
9/11/2024		x			
9/11/2024		x			
9/12/2024		x			
9/13/2024		x	x		
9/13/2024		x	x		
9/13/2024		x			
9/18/2024		x			
10/21/2024		x			
10/22/2024		x			
10/22/2024		x	x	x	x
10/22/2024		x			
10/22/2024		x			
10/22/2024		x			
10/23/2024		x			
10/23/2024		x			
10/23/2024		x			
10/23/2024		x			
10/23/2024		x			
10/24/2024		x			
10/24/2024		x			
10/24/2024		x			
10/24/2024		x		x	
10/24/2024		x			
10/24/2024		x		x	
10/24/2024		x			
10/24/2024		x			
10/24/2024		x			
11/18/2024		x			
11/18/2024		x	x	x	
11/18/2024		x			
11/18/2024		x			
11/19/2024		x			
11/19/2024		x			
11/19/2024		x			
11/19/2024		x			

Date	Live Individual	Burrow Sign			
		White Wash	Feathers	Pellets	Eggshells
11/20/2024		x		x	
12/9/2024		x		x	
12/10/2024		x			
12/11/2024		x			

Table C - 4. Noteworthy Mammal Observations.

Mammal Species	Sign Types	Notes	Date
Burro Deer	Scat	-	2023-03-20
Burro Deer	Scat	-	2023-03-21
Burro Deer	Scat	A few clusters of scat.	2023-03-22
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-28
Burro Deer	Scat	-	2023-03-29
Burro Deer	Carcass	Very old bone.	2023-03-29
Burro Deer	Scat	-	2023-03-30
Burro Deer	Tracks	300 m radius thru dry wash.	2023-03-31
Burro Deer	Scat	-	2023-03-31
Canid	Burrow	DKF scat at entrance.	2023-03-22
Canid	Burrow; Scat	Old scat.	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow; Scat	Inactive, most entrances collapsed.	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow; Scat	Collapsed burrow; old scat.	2023-03-23
Canid	Burrow; Scat	Old and recent scat.	2023-03-23
Canid	Burrow; Scat	-	2023-03-23
Canid	Burrow; Scat	3 entrances partially buried and 2 entrances obvious.	2023-03-23
Canid	Burrow	-	2023-03-24
Canid	Burrow	Burrow narrows 1m inward. Possibly utilized by rabbit.	2023-03-24
Canid	Burrow	-	2023-03-24

Mammal Species	Sign Types	Notes	Date
Canid	Burrow	Rabbit scat seen around burrow.	2023-03-24
Canid	Burrow	Burrow curves to left. No canid signs.	2023-03-24
Canid	Burrow; Scat	-	2023-03-25
Canid	Burrow	-	2023-03-25
Canid	Burrow	Potential for burrowing owl.	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow; Dig Marks; Scat	Large; obscured by ephedra.	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	Possible owl pellet.	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow; Scat	Collapsed; under *Ambrosia Dumosa*.	2023-03-28
Canid	Burrow	-	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Large opening; under *Isocoma acradenia*.	2023-03-29
Canid	Burrow; Scat	-	2023-03-29
Canid	Burrow	Complex, snake skin in one burrow.	2023-03-29
Canid	Burrow	Potential canid burrow. Could be collapsed soil, opening large.	2023-03-29
Canid	Burrow; Scat	DFK scat; BUOW pellets seen at mouth of burrow.	2023-03-29
Canid	Burrow	Potentially a burrowing owl site.	2023-03-29
Canid	Burrow	North end of mound with dead vegetation.	2023-03-29
Canid	Burrow	Large collapsed burrow. *Isocoma* by entrance on north.	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Old burrow. No scat sign.	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Old burrow; partially eroded. No scat sign.	2023-03-29
Canid	Burrow	South end of mound. *Isocoma*.	2023-03-29
Canid	Burrow	Whitewash within 2 m	2023-03-29
Canid	Burrow	Turning tunnel, end not visible. SE end of ephedra mound.	2023-03-29

Mammal Species	Sign Types	Notes	Date
Canid	Burrow; Scat	-	2023-03-29
Canid	Burrow	Very shallow.	2023-03-29
Canid	Burrow	Small but possible for owl.	2023-03-29
Canid	Burrow; Scat	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow; Scat	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	Some old white wash.	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-31
Canid	Burrow	No scat; possibly rabbit.	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	Inactive. maybe rabbit.	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	Probably rabbit.	2023-03-31
Canid	Carcass	Old skull of coyote or fox.	2023-04-01
Canid	Burrow	2 burrow entrances; likely being used by rabbits.	2023-04-03
Canid	Burrow	-	2023-04-03
Canid	Burrow	-	2023-04-03
Canid	Burrow	-	2024-04-08
Canid	Burrow; Scat	-	2024-04-08

Mammal Species	Sign Types	Notes	Date
Canid	Burrow; Dig Marks; Tracks; Scat	-	2024-04-09
Canid	Burrow; Scat	Old burrowing owl sign (whitewash; pellets) on one entrance to complex.	2024-04-09
Canid	Burrow	-	2024-04-09
Canid	Burrow	-	2024-04-09
Canid	Burrow	2 collapsed entrances and 1 open entrance.	2024-04-15
Canid	Burrow	-	2024-04-15
Desert Kit Fox	Burrow; Scat	Very old.	2023-03-20
Desert Kit Fox	Scat	Very old scat. Multiple scat seen within a 10 m radius.	2023-03-20
Desert Kit Fox	Burrow	-	2023-03-20
Desert Kit Fox	Dig Marks; Scat	-	2023-03-22
Desert Kit Fox	Tracks	-	2023-03-22
Desert Kit Fox	Burrow	DKF burrow complex.	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow	Burrow narrows at ~1m in.	2023-03-24
Desert Kit Fox	Burrow; Scat	2 entrances have collapsed, old complex.	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow; Tracks; Scat	Tracks slightly visible seen in burrow - south entrance.	2023-03-24
Desert Kit Fox	Burrow; Scat	Large complex. Fresh scat seen outside of 1 burrow entrance.	2023-03-24
Desert Kit Fox	Burrow	-	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow	-	2023-03-25
Desert Kit Fox	Burrow; Scat	Inactive.	2023-03-25
Desert Kit Fox	Burrow	-	2023-03-27
Desert Kit Fox	Burrow; Scat	-	2023-03-27
Desert Kit Fox	Burrow; Scat	Some scat seems relatively recent so potentially active; another burrow to the west.	2023-03-27
Desert Kit Fox	Burrow; Scat	Single large burrow. Old DKF scat.	2023-03-28
Desert Kit Fox	Burrow; Scat	Mostly filled in.	2023-03-28
Desert Kit Fox	Burrow; Scat	Burrow curves left.	2023-03-28
Desert Kit Fox	Burrow; Scat	-	2023-03-28
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Fresh and old scat all throughout complex. One Burrow ~10m east of complex.	2023-03-28
Desert Kit Fox	Burrow; Scat	Burrow opening partially closed. Very old DKF scat.	2023-03-28
Desert Kit Fox	Burrow	-	2023-03-28
Desert Kit Fox	Burrow	-	2023-03-28
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Abundant of old scat.	2023-03-29

Mammal Species	Sign Types	Notes	Date
Desert Kit Fox	Burrow; Scat	Scat is old.	2023-03-29
Desert Kit Fox	Burrow	North end of mound; both entrances.	2023-03-29
Desert Kit Fox	Carcass	Scattered bones including part of skull.	2023-03-29
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Old scat seen around burrows.	2023-03-29
Desert Kit Fox	Burrow; Scat	DKF complex. Scat old.	2023-03-29
Desert Kit Fox	Burrow	Coyote tracks and scat nearby.	2023-03-29
Desert Kit Fox	Burrow; Scat	-	2023-03-30
Desert Kit Fox	Carcass	Upper jaw bone found.	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Old scat around burrows.	2023-03-30
Desert Kit Fox	Burrow	-	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Abundance of old scat.	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF complex. Old scat.	2023-03-30
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-04-03

Table C - 5. Noteworthy Invasive Plant Species Observations.

Plant Species	Phenology	Date
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-20
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-21
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-21
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit; Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-23

Plant Species	Phenology	Date
Brassica tournefortii (Sahara mustard)	Flower / Fruit; Plant dried up / Not chlorophytic; Vegetative	2023-03-23
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-23
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-24
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-27
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-30
Brassica tournefortii (Sahara mustard)	Flower Only	2023-03-30
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-31
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-04-01
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-04-03
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-04-03
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2024-04-09
Brassica tournefortii (Sahara mustard)	Flower Only	2024-04-10
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2024-04-10
Brassica tournefortii (Sahara mustard)	Fruit Only	2024-04-15
Brassica tournefortii (Sahara mustard)	Fruit Only	2024-04-15
Brassica tournefortii (Sahara mustard)	Fruit Only	2024-04-16
Bromus rubens (red brome)	Fruit Only	2024-04-10
Cynadon dactylon (Bermuda grass)	Flower / Fruit	2023-03-24
Cynadon dactylon (Bermuda grass)	Fruit Only	2023-03-25
Cynadon dactylon (Bermuda grass)	Flower Only	2024-04-09
Erodium cicutarium (Common stork's-bill)	Flower / Fruit	2024-04-09
Lactuca serriola (prickly lettuce)	Vegetative	2023-03-31
Lactuca serriola (prickly lettuce)	Vegetative	2024-04-10
Oncosiphon pilulifer (stinknet)	Flower Only	2024-04-10
Oncosiphon pilulifer (stinknet)	Flower Only	2024-04-10
Pheonix sp. (date palm)	Vegetative	2023-04-03
Phragmites australis (Common reed)	Vegetative	2023-04-01
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-22
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-22
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-23
*Salsola tragus (*Russian thistle)	Vegetative	2024-04-10
Salsola tragus (Russian thistle)	Vegetative	2024-04-10
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-22
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-22

Plant Species	Phenology	Date
Schismus barbatus (Mediterranean grass)	Vegetative	2023-03-23
Schismus barbatus (Mediterranean grass)	Vegetative	2023-03-23
Schismus barbatus (Mediterranean grass)	Vegetative	2024-04-08
Schismus barbatus (Mediterranean grass)	Flower Only	2024-04-10
Schismus barbatus (Mediterranean grass)	Fruit Only	2024-04-15
Schismus barbatus (Mediterranean grass)	Fruit Only	2024-04-16
Schismus barbatus (Mediterranean grass)	Vegetative	2024-04-10
Sonchus asper (Spiny sowthistle)	Flower / Fruit	2023-03-21
Sonchus asper (Spiny sowthistle)	Vegetative	2023-03-21
Sonchus asper (Spiny sowthistle)	Vegetative	2023-03-22
Sonchus asper (Spiny sowthistle)	Flower / Fruit	2023-03-30
Sonchus oleraceus (Sowthistle)	Vegetative	2023-03-30
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-09
Sonchus oleraceus (Sowthistle)	Flower Only	2024-04-10
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-10
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-11
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-11
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-15
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-15
Sonchus oleraceus (Sowthistle)	Flower / Fruit	2024-04-16
Tamarix sp. (Tamarisk)	Vegetative	2023-03-20
Tamarix sp. (Tamarisk)	Flower / Fruit; Vegetative	2023-03-22
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-03-24
Tamarix sp. (Tamarisk)	Flower Only; Vegetative	2023-03-25
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Vegetative	2023-03-29
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Vegetative	2023-03-30
Tamarix sp. (Tamarisk)	Flower Only	2023-03-30
Tamarix sp. (Tamarisk)	-	2023-03-31
Tamarix sp. (Tamarisk)	Flower / Fruit; Vegetative	2023-04-01
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-04-01
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-04-03
Washingtonia robusta (Mexican fan palm)	Vegetative	2023-04-03

Table C - 6a. 2023 Avian Count Summary.

Avian Species	Spring 2023 Avian Count Dates											
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
American coot (*Fulica americana*)											1		1
Ash-throated flycatcher (*Myiarchus cinerascens*)										1			1
Barn swallow (*Hirundo rustica*)		1		17	1				2	2	2		25
Black-tailed gnatcatcher (*Polioptila melanura*)					2						2		4
Black-throated sparrow (*Amphispiza bilineata*)										3			3
Brewer's blackbird (*Euphagus cyanocephalus*)				3									3
Brewer's sparrow (*Spizella breweri*)										2			2
Cactus wren (*Campylorhynchus brunneicapillus*)								1			1		2
Canada goose (*Branta canadensis*)											3		3
Cliff swallow (*Petrochelidon pyrrhonota*)		25	59	20						3	16		123
Common raven (*Corvus corax*)	1				1				6	2			10
Common yellowthroat (*Geothlypis trichas*)										2	6		8
Costa's hummingbird (*Calypte costae*)					1								1
Double-crested cormorant (*Phalacrocorax auritus*)		36											36

Avian Species	Spring 2023 Avian Count Dates											
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
European starling *(Sturnus vulgaris)*											5		5
Great blue heron (Ardea herodias)		1									1		2
House finch (*Haemorhous mexicanus)*	4	1	3								2		10
Lesser nighthawk (*Chordeiles acutipennis)*	1	2					3	2	2	5		3	18
Loggerhead shrike (*Lanius ludovicianus)*	2	1	1	1						1	1		7
Mallard (*Anas platyrhynchos)*											3		3
Mourning dove (*Zenaida macroura)*	1		3	7	2	1	1	4	3	7	10	8	47
Northern flicker (*Colaptes auratus*)											1		1
Northern rough-winged swallow *(Stelgidopteryx serripennis)*		6	20	11					1	3		13	54
Osprey (*Pandion haliaetus)*											1		1
Red-tailed hawk *(Buteo jamaicensis)*				2								2	4
Red-winged blackbird (*Agelaius phoeniceus)*											3	7	10
Ruby crowned kinglet *(Corthylio calendula)*			1							1	1		3
Sagebrush sparrow (*Artemisiospiza nevadensis*)											1		1
Sage Thrasher (*Oreoscoptes montanus*)	1												1

Avian Species	Spring 2023 Avian Count Dates												
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
Savannah sparrow *(Passerculus sandwichensis)*	1												1
Song sparrow (*Melospiza melodia*)											1		1
Swainson's hawk (*Buteo swainsoni*)	5												5
Turkey vulture (*Cathartes aura)*	1	2	4	1									8
Verdin (*Auriparus flaviceps)*			1	1	1		1	2		6	3	1	16
Violet green swallow *(Tachycineta thalassina)*	10	10	10										30
Western kingbird (*Tyrannus verticalis)*			1					1			2		4
Whimbrel (*Numenius phaeopus*)			7	5					4				16
White-crowned sparrow (*Zonotrichia leucophrys)*			3		5	1		2					11
White-throated swift *(Aeronautes saxatalis)*	5										1		6
Wilson's warbler *(Cardellina pusilla)*										2			2
Yellow-rumped warbler (*Setophaga coronata)*		3		4	2							1	10
Yellow-rumped (Audubon's) warbler *(Setophaga auduboni)*			3										3
Total Observed	**32**	**88**	**116**	**72**	**15**	**2**	**5**	**12**	**18**	**40**	**67**	**35**	**502**

Table C 6b. 2024 Avian Count Summary.

Avian Species	Spring 2024 Avian Count Dates						
	4/9	4/10	4/11	4/12	4/15	4/16	Species Totals
Barn swallow (*Hirundo rustica*)						1	1
Black Tailed Gnatcatcher (*Polioptila melanura*)	1						1
Bonaparte's gull (*Chroicocephalus philadelphia*)		6					6
Brewer's blackbird (*Euphagus cyanocephalus*)		3				18	21
Brewer's sparrow (*Spizella breweri*)			6	1		5	12
Brown-headed cowbird (*Molothrus ater*)		9					9
Cliff swallow (*Petrochelidon pyrrhonota*)		8			3	5	13
Common raven (*Corvus corax*)		1	1	3	1	1	7
European starling (*Sturnus vulgaris*)		6					6
Killdeer (*Charadrius vociferus*)		1					1
Lesser nighthawk (*Chordeiles acutipennis*)		2	1	1	2	1	7
Loggerhead shrike (*Lanius ludovicianus*)	1				2		3

Avian Species	Spring 2024 Avian Count Dates						
	4/9	4/10	4/11	4/12	4/15	4/16	Species Totals
Mourning dove (*Zenaida macroura*)		3		2	1	2	8
Northern rough-winged swallow (*Stelgidopteryx serripennis*)		4	3		5		12
Osprey (*Pandion haliaetus*)					1		1
Red-winged blackbird (*Agelaius phoeniceus*)		6	27			24	57
Violet green swallow (*Tachycineta thalassina*)			5			3	8
White-winged dove (*Zenaida asiatica*)					1		1
Wilson's warbler (*Cardellina pusilla*)						2	2
Yellow-rumped (Audubon's) warbler (*Setophaga auduboni*)			3				3
Total Observed	**2**	**49**	**46**	**7**	**16**	**62**	**179**

Appendix E: Wildlife and Plant Compendiums

Table D - 1. Wildlife Incidental Species Observed.

Common Name	Scientific Name
Reptiles	
Desert iguana	*Dipsosaurus dorsalis*
Flat tailed horned lizard	***Phrynosoma mccallii***
Ornate tree lizard	*Urosaurus ornatus*
Side blotched lizard	*Uta stansburyana*
Sidewinder	*Crotalus cerastes*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western whiptail lizard	*Aspidoscelis tigris*
Zebra-tailed lizard	*Callisaurus draconoides*
Birds	
Ash-throated flycatcher	*Myiarchus cinerascens*
Barn swallow	*Hirundo rustica*
Black-tailed gnatcatcher	***Polioptila melanura***
Black-throated sparrow	*Amphispiza bilineata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Bonaparte’s gull	*Chroicocephalus philadelphia*
Brewer's sparrow	*Spizella breweri*
Brewer’s blackbird	*Euphagus cyanochephalus*
Brown-headed cowbird	*Molothrus ater*
Burrowing owl	***Athene cunicularia***
Cliff swallow	*Petrochelidon pyrrhonota*
Common poorwill	*Phalaenoptilus nuttallii*
Common raven	*Corvus corax*
Common yellowthroat	*Geothlypis trichas*
Double crested cormorant	*Phalacrocorax auritus*
Horned lark	*Eremophila alpestris*
House finch	*Carpodacus menicanus*
House wren	*Troglodytes aedon*
Killdeer	*Charadrius vociferus*
Lesser nighthawk	*Chordeiles acutipennis*
Loggerhead shrike	***Lanius ludovicianus***
Mourning dove	*Zenaida macroura*
Northern harrier	***Circus cyaneus***
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ruby crowned kinglet	*Regulus calendula*

Common Name	Scientific Name
Sage thrasher	*Oreoscoptes montanus*
Sagebrush sparrow	*Artemisiospiza nevadensis*
Savannah sparrow	*Passerculus sandwichensis*
Swainson's hawk	***Buteo swainsoni***
Turkey vulture	*Cathartes aura*
Verdin	*Auriparus flaviceps*
Violet green swallow	*Tacycineta thalassina*
Western kingbird	*Tyrannus verticalis*
Whimbrel	*Numenius phaeopus*
White-crowned sparrow	*Zonotrichia leucophrys*
White-winged dove	*Zenaida asiatica*
Wilson's warbler	*Wilsonia pusilla*
Yellow rumped warbler	*Setophaga coronata*
Mammals	
Black-tailed jackrabbit	*Lepus califonica*
Merriam's kangaroo rat	*Dipodomys merriami*
Round tailed ground squirrel	*Xerospermophilus tereticaudus*
Invertebrates	
Honey bee	*Apis mellifera*
Inflated beetle	*Cysteodemus armatus*
Wind scorpion	*Solifugae sp.*
Master blister beetle	*Lytta magister*
White-lined sphinx moth	*Hyles lineata*

BOLD = special status

Table D - 2. Incidental Plant Species Observed.

Family	Scientific Name	Common Name
Amaranthaceae	*Atriplex canescens*	four-winged saltbush
Amaranthaceae	*Atriplex lentiformis*	big saltbush-
Amaranthaceae	*Tidestromia suffruticosa var. oblongifolia*	honeysweet
Apocynaceae	*Asclepias subulata*	skeleton milkweed
Areaceae	**Phoenix dactylifera*	date palm
Areaceae	**Washingtonia robusta*	Mexican fan palm
Asteraceae	**Lactuca serriola*	prickly lettuce
Asteraceae	**Sonchus asper*	spiny sowthistle
Asteraceae	*Ambrosia dumosa*	burbush
Asteraceae	*Ambrosia dumosa*	white bursage
Asteraceae	*Baileya pauciradiata*	lax flower
Asteraceae	*Baileya pleniradiata*	wooly marigold

Family	Scientific Name	Common Name
Asteraceae	*Bebbia juncea var. aspera*	rush sweetbush
Asteraceae	*Dicoria canescens*	desert twinbugs
Asteraceae	*Encelia farinosa*	brittlebush
Asteraceae	*Geraea canescens*	hairy desert sunflower
Asteraceae	*Geraea canescens*	desert sunflower
Asteraceae	*Isocoma acradenia*	alkali goldenbush
Asteraceae	*Palafoxia arida var. arida*	Desert needle
Asteraceae	*Pectis papposa*	manybristle chinchweed
Asteraceae	*Pectis papposa var. papposa*	chinch weed
Asteraceae	*Pluchea sericea*	arrow weed
Asteraceae	*Stephanomeria pauciflora*	brown-plume wire-lettuce
Asteraceae	*Stephanomeria pauciflora*	wire lettuce
Boraginaceae	*Johnstonella angustifolia*	marrow-leaved johnstonella
Boraginaceae	*Pectocarya heterocarpa*	hairy leaved comb bur
Boraginaceae	*Cryptantha angustifolia*	narrow leaved cryptantha
Boraginaceae	*Pectocarya heterocarpa*	chuckwalla pectocarya
Boraginaceae	*Tiquilia plicata*	fanleaf crinklemat
Brassicaceae	**Brassica tournefortii*	Saharan mustard
Brassicaceae	*Dithyrea californica*	spectacle pod
Brassicaceae	*Lepidium lasiocarpum*	Shaggyfruit pepperweed
Caryophyllaceae	*Achyronychia cooperi*	frost mat
Chenopodiaceae	*Suaeda nigra*	bush seepweed
Ehretiaceae (Boraginaceae)	*Tiquilia plicata*	fanleaf crinklemat
Ephedraceae	*Ephedra trifurca*	long leafed ephedra
Euphorbiaceae	*Euphorbia polycarpa*	smallseed sandmat
Fabaceae	*Dalea mollissima*	silky dalea
Fabaceae	*Prosopis glandulosa*	honey mesquite
Fabaceae	*Psorothamnus emoryi*	dye bush
Fabaceae	*Astragalus aridus*	annual desert milk vetch
Fabaceae	*Dalea mollissima*	silky dalea
Fabaceae	*Neltuma oderata*	honey mesquite
Fabaceae	*Strombocarpa pubescens*	screwbean mesquite
Fabaceae	*Psorothamnus emoryi*	indigo bush
Liliaceae	*Hesperocallis undulata*	desert lily
Loasaceae	*Mentzelia longiloba*	many flowered mentzelia
Nyctaginaceae	*Abronia villosa*	sand verbena
Nyctaginaceae	*Abronia villosa var. villosa*	hairy sand verbena
Nyctaginaceae	*Allionia incarnata*	windmills
Onagraceae	*Chylismia claviformis subsp. yumae*	Yuma clavate fruited primrose

Family	Scientific Name	Common Name
Onagraceae	*Oenothera deltoides*	birdcage primrose
Onagraceae	*Chylismia brevipes subsp. brevipes*	Golden suncup
Orobanchaceae	*Aphyllon cooperi (= Orobanche cooperi)*	desert broomrape
Plantaginaceae	*Plantago spp.*	-
Plantaginaceae	*Plantago ovata*	wooly plantain
Phlox	*Loeseliastrum schottii*	Schott’s calico
Poaceae	*Aristida adscensionis*	annual three-awn grass
Poaceae	*Aristida purpurea*	purple three-awn
Poaceae	*Bouteloua barbata*	sixweeks grama
Poaceae	*Bouteloua aristidoides*	needle gramma
Poaceae	*Bouteloua barbata var. barbata*	six-weeks gramma
Poaceae	*Cynodon dactylon*	bermuda grass
Poaceae	*Schismus arabicus*	Mediterranean grass
Poaceae	*Schismus barbatus*	Mediterranean grass
Poaceae	*Phragmites australis*	-
Polygonaceae	*Chorizanthe rigida*	devil's spineflower
Polygonaceae	*Eriogonum deserticola*	Colorado desert buckwheat
Polygonaceae	*Eriogonum thomasii*	Thomas’ buckwheat
Polygonaceae	*Eriogonum trichopes*	little desert buckwheat
Polygonaceae	*Chorizanthe rigida*	devil's spineflower
Resedaceae	*Oligomeris linifolia*	Leaved cambess
Solanaceae	*Lycium andersonii*	Anderson's desert thorn
Tamaricaceae	**Tamarix ramossisima*	tamarisk
Tamaricaceae	**Tamarix chinensis*	tamarisk
Zygophyllaceae	*Fagonia laevis*	California fagonbush
Zygophyllaceae	*Larrea tridentata*	creosote bush

* = invasive species