Appendix G
(Available on City website)

State Aquatic Resources Delineation Report
Phase 1
August 2021

State Jurisdictional Waters Delineation Report
Phase 2
December 2020

DRAFT

State Aquatic Resources Delineation Report for the Desert Peak Energy Center – Phase 1

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AUGUST 2021

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
Delineation	State Aquatic Resources Delineation
Manual	.S. Army Corps of Engineers Wetlands Delineation Manual
MESA	Mapping Episodic Stream Assessment
OHWM	ordinary high water mark
OHWM Guide	A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States
Regional Supplement	Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region
RWQCB	Regional Water Quality Control Board
SCADA	supervisory control and data acquisition
SCE	Southern California Edison
SDAM	stream duration assessment method
USACE	United States Army Corps of Engineers
USGS	U.S. Geological Survey

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1 Executive Summary

This State Aquatic Resources Delineation ("Delineation") for the Desert Peak Energy Center – Phase 1 ("Project") was conducted in accordance with the U.S. Army Corps of Engineers ("USACE") *Wetlands Delineation Manual* ("Manual") (USACE 1987); the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region,* Version 2.0 ("Regional Supplement") (USACE 2008a); *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* ("OHWM Guide") (USACE 2008b); *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010); and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (CEC 2014). The *User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States* (Mazor et al. 2021) stream duration assessment method ("SDAM") was used to determine if the stream channels within the review area are ephemeral. Dudek conducted a Delineation on May 11, 2021, for the purpose of identifying aquatic resources within the review area potentially subject to the jurisdiction of the State of California under Section 401 of the Clean Water Act ("CWA"), California Fish and Game Code Section 1600 et. seq., and the Porter-Cologne Water Quality Control Act.

This Delineation yielded a total of 4.65 acres (14,302 linear feet) of ephemeral drainages. All of these features are likely subject to California Department of Fish and Wildlife ("CDFW") and/or Regional Water Quality Control Board ("RWQCB") jurisdiction based on evidence of bed and bank or ephemeral flow. Four erosional drainages were also investigated but determined to be non-jurisdictional. Table 1 summarizes the Delineation findings. OHWM forms are included in Appendix A, OHWM Datasheets; Mapping Episodic Stream Assessment ("MESA") forms are included in Appendix B, MESA Datasheets; and a field form for the Beta Arid West SDAM was completed within the review area to determine that features on site are ephemeral and are included as Appendix C, Beta Arid West SDAM Form.

Table 1. Potential State Jurisdictional Aquatic Resources

ID[1]	Name	Cowardin Classification[2]	Total Area (acres)	Total Length (linear feet)	State Jurisdictional Status
Potential Waters of the State					
NWW-1	Unnamed feature	R6	0.01	552	Jurisdictional
NWW-2	Unnamed feature	R6	3.14	3,681	Jurisdictional
NWW-2a	Unnamed feature	R6	0.02	287	Jurisdictional
NWW-2b	Unnamed feature	R6	0.08	1,865	Jurisdictional
NWW-3	Unnamed feature	R6	0.01	643	Jurisdictional
NWW-4	Unnamed feature	R6	0.03	1,047	Jurisdictional
NWW-5	Unnamed feature	R6	0.02	913	Jurisdictional
NWW-6	Unnamed feature	R6	0.66	1,501	Jurisdictional
NWW-7	Unnamed feature	R6	0.50	3,333	Jurisdictional
NWW-7a	Unnamed feature	R6	0.09	392	Jurisdictional
NWW-7b	Unnamed feature	R6	0.08	90	Jurisdictional
NWW-8	Unnamed feature	R6	0.01	552	Jurisdictional
E-1	Unnamed feature	R6	N/A	N/A	Non-jurisdictional
E-2	Unnamed feature	R6	N/A	N/A	Non-jurisdictional
E-3	Unnamed feature	R6	N/A	N/A	Non-jurisdictional
E-4	Unnamed feature	R6	N/A	N/A	Non-jurisdictional

Notes:

1 ID Type: NWW = non-wetland waters (ephemeral drainage); E = erosional feature.

2 Cowardin Classification Code (USFWS 1992): R6 = riverine, ephemeral.

Contact Information/Site Access

Desert Peak Energy Center, LLC, is the Project applicant and will, therefore, act as the primary point of contact for site access.

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2 Introduction

This report documents the methods and results of the Delineation of potential state jurisdictional wetlands and waters of the state within the 352-acre Desert Peak – Phase 1 Project Site (hereafter referred to as 'review area'), Riverside County, California (Figure 1, Project Location). The results of this Delineation are preliminary until verified by CDFW and RWQCB.

2.1 Project Description

1. The Project includes construction and operation of a battery energy storage system facility. The battery energy storage system facility would include a 400-megawatt by 4-hour facility on an approximately 35-acre footprint of the larger 188-acre Project site, along with associated on-site switchyard, inverters, fencing, roads, and supervisory control and data acquisition ("SCADA") system, and would store 1,600 megawatt-hours of energy. The Project also includes a 230-kilovolt overhead gen-tie line, which would extend approximately 0.3 miles north to the Southern California Edison ("SCE") Devers Substation.

2.2 Project Location

The review area is located in the City of Palm Springs at the northeastern intersection of Diablo Road and 16th Avenue (Figure 1). The Project Site is located approximately 1.1 miles north of Interstate 10, 1.1 miles east of State Route 62, and 1.5 miles west of North Indian Canyon Drive. The Project Site is located in the southwestern corner of Section 4 and northwestern corner of Section 9, Township 3 South, and Range 4 East of the San Bernardino Baseline and Meridian, U.S. Geological Survey ("USGS") Desert Hot Springs 7.5-minute quadrangle (Figure 2, USGS Topographic). The approximate center of the Project Site corresponds to 33°55′44.37″ north latitude (33.928992) and 116°34′30.49″ west longitude (-116.575136).

A summary of specific Project location attributes includes the following:

- **County:** Riverside
- **Section:** 4 and 9; **Township:** 3S; **Range:** 4E
- **USGS 7.5-Minute Quadrangle**: Desert Hot Springs
- **Latitude, Longitude:** 33.928992, -116.575136 (centroid)
- **Average Elevation:** 950 to 1,050 feet above mean sea level
- **Desert Peak – Phase 1 Project Site Total Acreage:** 352.6

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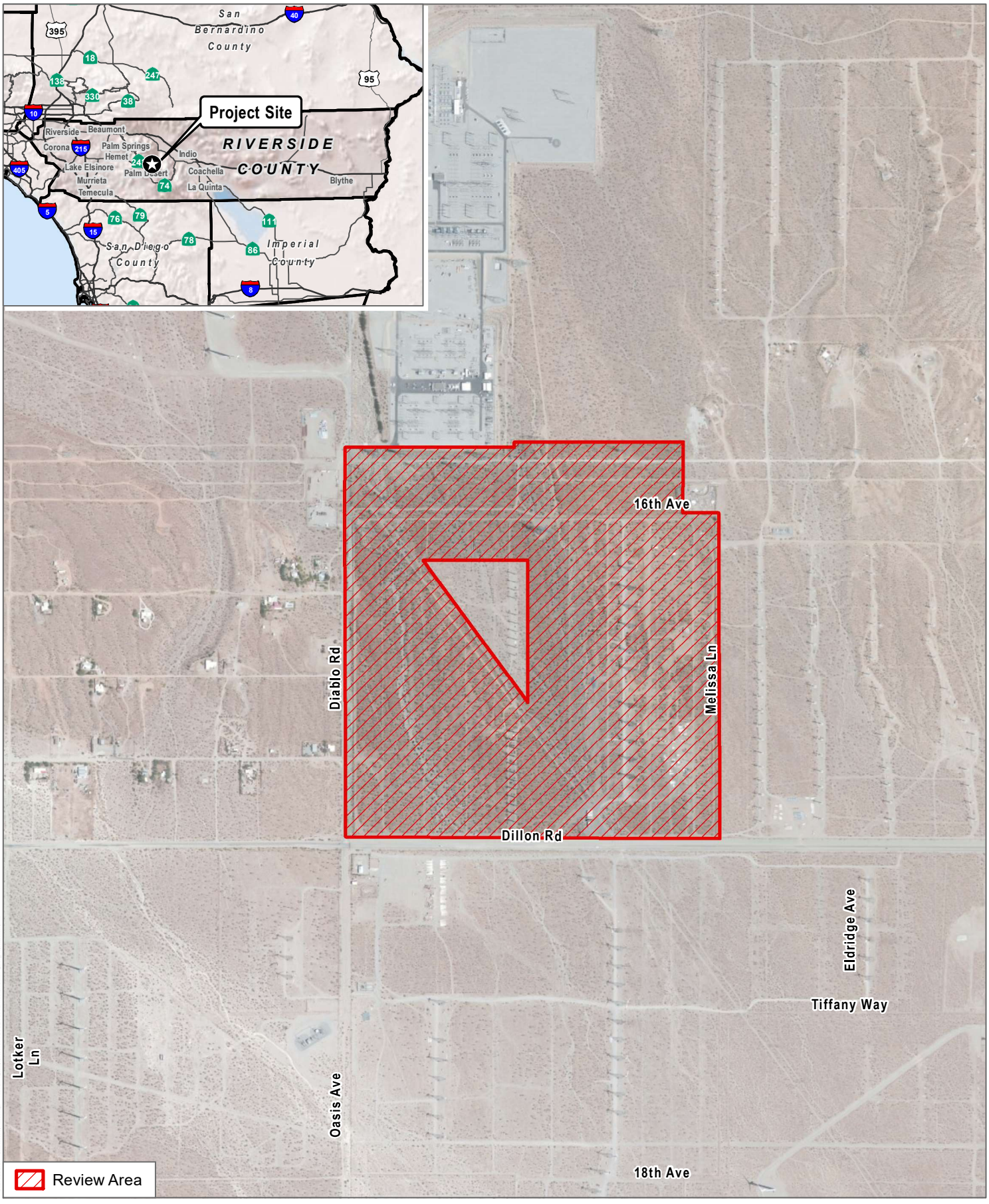

SOURCE: Esri 2021

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

State Aquatic Resources Delineation Report for Desert Peak - Phase 1

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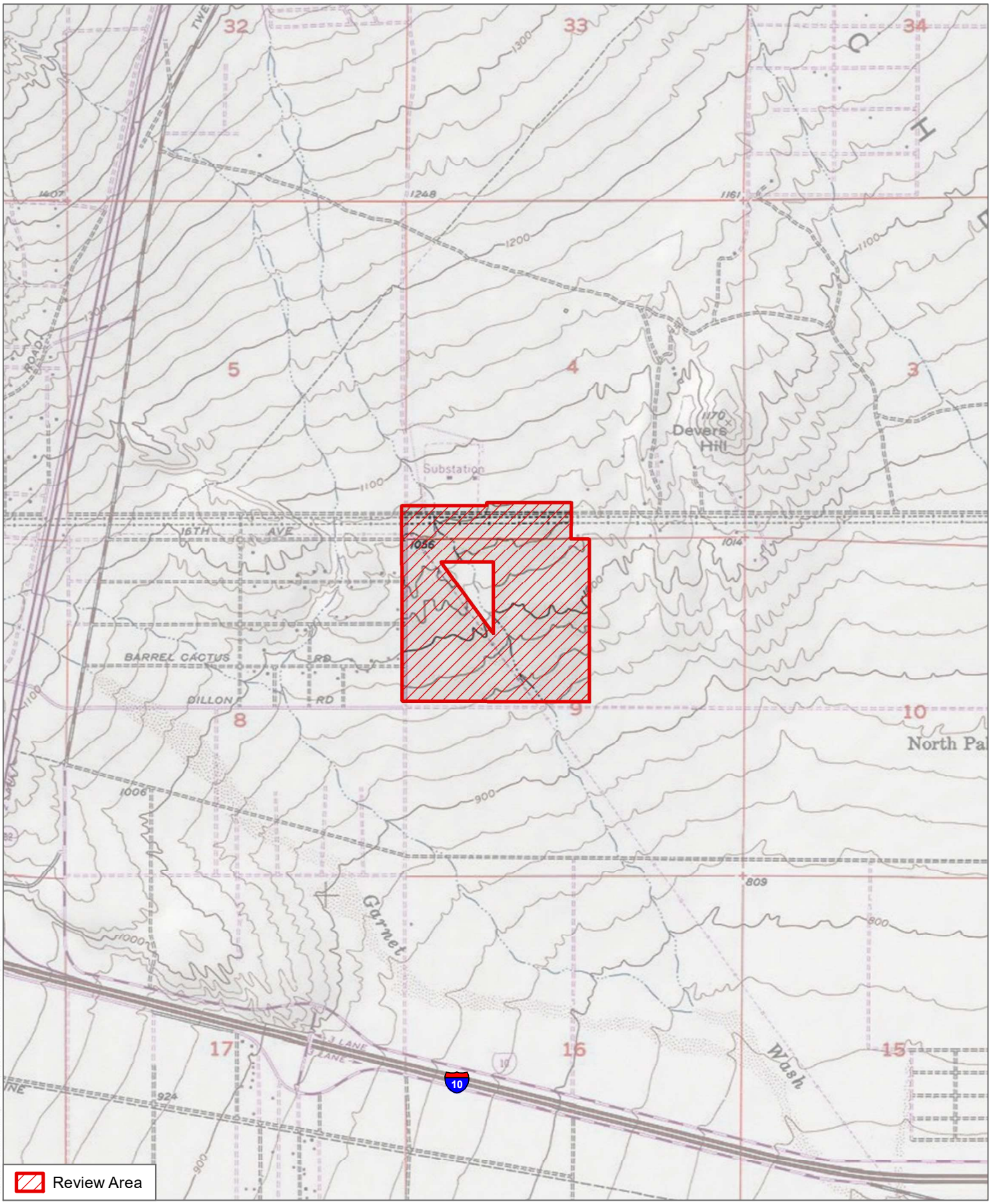

FIGURE 2

USGS Topographic Map

State Aquatic Resources Delineation Report for Desert Peak - Phase 1

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3 Regulatory Setting

3.1 California Department of Fish and Wildlife

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or other aquatic wildlife.

In Title 14 of the California Code of Regulations, Section 1.72, CDFW 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. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In Title 14 of the California Code of Regulations, Section 1.56, CDFW defines "lake" to include "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

3.2 California Regional Water Quality Control Board

The State Water Resources Control Board has authority over wetlands through Section 401 of the CWA and the Porter–Cologne Water Quality Control Act, as well as California Code of Regulations Section 3831(k) and California Wetlands Conservation Policy. The CWA was established to create a regulatory permitting program designed to address the discharge of pollutants into "waters of the United States," which includes surface waters and water bodies as defined by U.S. Environmental Protection Agency regulations (e.g., 40 CFR Section 122.2). All "waters of the United States" in California are also "waters of the state" (defined by the Porter-Cologne Water Quality Control Act as "any surface water or ground water, including saline waters, within the boundaries of the state." [Water Code Section 13050(e)]). However, not all waters of the state (e.g., ground water) are waters of the United States.

Clean Water Act – Section 401

The CWA requires that an applicant for a Section 404 permit (to discharge dredge or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board to the nine regional boards. The Central Valley RWQCB (Region 5) has authority for Section 401 compliance in the project area. A request for certification is submitted to the regional board at the same time that an application is filed with the USACE. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter-Cologne Act (described below).

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act established the State Water Resources Control Board and each RWQCB as the principal state agencies responsible for the protection of water quality in California. The Porter–Cologne Water Quality Control Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the state are defined in Section 13050(e) of the Porter–Cologne Water Quality Control Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter–Cologne Water Quality Control Act, including both point and nonpoint source dischargers. The Central Valley RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction.

4 Methods

4.1 Desktop Analysis

Prior to conducting fieldwork, Dudek reviewed the following available resources to identify portions of the Desert Peak – Phase 1 Project Site with a probability for containing potential jurisdictional aquatic resources:

- Google Earth current and historical aerial imagery (Google 2021; Historic Aerials 2021)
- National Resources Conservation Service Web Soil Survey (USDA 2021a)
- U.S. Fish and Wildlife Service National Wetlands Inventory Mapper of historical wetland data (USFWS 2021)
- USGS Historical Topographical map data (USGS 2021a)
- USGS National Hydrography Dataset to assess potential surface water features occurring in the Desert Peak - Phase 1 Site Project vicinity (USGS 2021b)

4.2 Field Delineation

Following the initial data collection, Dudek conducted an on-site delineation of waters of the state within the review area on May 11, 2021. All areas that were identified as being potentially subject to the jurisdiction of the CDFW and RWQCB were field verified and mapped.

4.2.1 California Department of Fish and Wildlife Jurisdiction

For the purposes of identifying potentially jurisdictional wetlands and waters of the state for the CDFW in compliance with Section 1602 of the California Fish and Game Code, Dudek delineated the top of bank for stream and channels or the limit of the adjacent riparian vegetation, whichever was greater. Taxonomic nomenclature for plant species was in accordance with Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2021). The habitat types occurring in the review area were characterized according to pre-defined plant community and alliance classifications categorized by CDFW and the California Native Plant Society in *A Manual of California Vegetation* (Sawyer et al. 2009).

The guidance described in *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (CEC 2014) was also used to determine the extent of state waters. The MESA forms are included in Appendix B.

4.2.2 Regional Water Quality Control Board Jurisdiction

For the purposes of identifying potentially jurisdictional wetlands and waters of the state for the RWQCB in compliance with Section 401 of the CWA and the Porter-Cologne Water Quality Act, the field Delineation methods implemented were consistent with the approach outlined in the Manual (USACE 1987), Regional Supplement (USACE 2008a), and the OHWM Guide (USACE 2008b). The assessment relied on field observations and indicators of an OHWM, as well as positive indicators for wetland vegetation, hydrology, and soils. Areas regulated by the RWQCB are generally coincident with the USACE, but include features isolated from navigable waters of the United States that have evidence of surface water inundation.

- **OHWM Assessment.** Pursuant to the OHWM Guide, Dudek identified the established and maintained physical and biological signatures at the boundaries of each active channel. The OHWM forms are included in Appendix A. The OHWM Guide addresses the underlying hydrologic and geomorphic concepts pertaining to the OHWM and the field indicators, methods, and additional lines of evidence used to assess and delineate the OHWM. Delineation of the active channel signature (i.e., the OHWM) is based largely on identification of three primary physical or biological indicators (USACE 2008b):
  - Topographic break in slope
  - Change in sediment characteristics
  - Change in vegetation characteristics (species or cover)
- **Wetland Indicator Assessment.** Pursuant to the Manual and Regional Supplement, key explicit environmental criteria for determining if potential state jurisdictional wetlands are present within the review area include:
  - **Soil:** Soil characteristics that result from the influence of periodic or permanent inundation or soil saturation for extended periods that further affect anaerobic conditions (i.e., chemical reduction in the soils or hydric soils).
  - **Hydrology:** The presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by groundwater or surface water.
  - **Vegetation:** A prevalence of vegetation typically adapted for life in saturated soil conditions (i.e., hydrophytic vegetation).

Positive indicators of all three parameters are normally present in wetlands. No features within the review area were assessed as potential wetlands due to lack of hydrophytic vegetation.

- **Stream Duration Method Assessment.** The method described in the *User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States* (Mazor et al. 2021) is intended to classify stream reaches into one of three streamflow duration classes: ephemeral (channels that flow only in direct response to precipitation), intermittent (channels that contain sustained flowing water for part of the year; typically the wet season), or perennial (channels that contain flowing water continuously during a year of normal rainfall). The Beta Arid West Streamflow Duration Assessment Method Form is included in Appendix C. Five indicators are used in this method to predict streamflow duration class:
  - Presence of hydrophytic plant species
  - Presence of macroinvertebrate individuals
  - Evidence of aquatic stages of Ephemeroptera, Plecoptera, or Trichoptera taxa
  - Presence of algae
  - Presence of fish or ≥10% algal cover

4.2.3 Field Data Collection

Following the initial data collection, Dudek conducted an on-site delineation of waters of the United States within the review area on May 11, 2021. The Delineation was based on field observations and indicators of an OHWM, as well as positive indicators for wetland vegetation, hydrology, and soils, if present. As outlined in Section 1, Executive Summary, the field Delineation methods implemented are consistent with the approach outlined in the Manual (USACE 1987), Regional Supplement (USACE 2008a), and the OHWM Guide (USACE 2008b). The *User Manual for*

a Beta Streamflow Duration Assessment Method for the Arid West of the United States (Mazor et al. 2021) SDAM was used to determine if the stream channels within the review area are ephemeral.

Latin and common names for plant species with a California Rare Plant Rank follow the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2021). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2021), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service Plants Database (USDA 2021b). Natural vegetation communities were mapped in the field following the *Coachella Valley Multiple Species Habit Conservation Plan* (CVAG 2016) where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of *A Manual of California Vegetation*, second edition (Sawyer et al. 2009) or Oberbauer et al. (2008).

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5 Results

5.1 Environmental Setting

The review area is located within the Colorado Desert, in the northwestern end of the Coachella Valley, which is generally bound by the San Bernardino Mountains and Little San Bernardino Mountains to the north, the San Jacinto and Santa Rosa Mountains to the south, and the Salton Sea and Imperial Valley to the east. The review area is relatively flat; however, elevations gradually slope from northwest to southeast. Elevation within the review area ranges from approximately 1,050 feet above mean sea level in northern portion to approximately 950 feet above mean sea level in the southern portion of the review area.

The review area is characterized as an active wind turbine farm with associated development (i.e., concrete pads, wind turbines, storage yard, and associated dirt roads) in the eastern portion of the site, with the remaining portions containing a series of dirt roads and native desert vegetation. There are residential homes and part of the SCE Devers Substation, as well as native desert vegetation, immediately outside of the review area. This review area is bordered by Dillon Road to the south and Diablo Road to the west. Indian Canyon Drive is further east; Interstate 10 is to the south; and State Route 62 is to the west. Historic aerials depict vegetation clearing for development associated with the wind turbine farm sometime between 1972 and 1996 (Historic Aerials 2021). Existing adjacent land uses include a mix of associated wind turbine farms and vacant lands to the north, east, south, and west.

5.1.1 Climate and Rainfall

The Coachella Valley, within which the review area is located, has an arid climate characterized by hot, dry summers with mild winters (RWQCB 2019). Average temperatures near Palm Springs range from approximately 57°F to 89°F; precipitation occurs primarily in the winter, with additional thunderstorms in the summer, and typically averages less than 5 inches per year (WRCC 2021; RWQCB 2019). An Antecedent Precipitation Tool was used to document the climatological data around the delineation date and that report is included in Appendix E. The delineation was conducted during the dry season under normal conditions; however, based on the information provided in the APT, the review area is in an extreme drought.

5.1.2 Hydrology

The review area is located within the Whitewater Hydrologic Unit and Garnet Wash Subwatershed, in which the Whitewater River is the major surface water body (Figure 3, Hydrologic Setting). According to the Water Quality Control Plan for the Colorado River Basin (RWQCB 2019), the runoff resulting from rains and snowmelt within the higher elevations are the major sources of groundwater replenishment and result in several perennial streams in the Coachella Valley Planning Area, with the Whitewater River being the major drainage course. The Whitewater River contains perennial flows in the mountains; however, because of diversions and percolation into the basin this river becomes dry further downstream. Further downstream to the east, the Whitewater River flows through an engineered extension known as the Coachella Valley Storm Water Channel that ultimately flows east until it terminates into the Salton Sea.

The nearest major water bodies are Garnet Wash, approximately 4,500 feet south of the review area, and the Whitewater River, approximately 1.8 miles south of the review area. The USGS topographic quadrangle and National Hydrography Dataset (USGS 2021b) depict two streams within the review area, bisecting the northwestern and southern portions of the review area (Figure 3). The National Wetlands Inventory (USFWS 2021) generally depicts the same riverine features (Figure 3).

The western and eastern channels within the review area are unnamed, braided, ephemeral features that flow northwest to southeast and originate outside of the review area to the northwest from Painted Hills. Flows continue southeast, flowing under State Route 62, and then continuing southeast approximately 1.73 miles, where flows enter the northern portion of the review area, and then are directed south due to development of the SCE Devers Substation. Flows continue south through the review area before crossing Dillon Road, continuing approximately 0.5 miles southeast outside of the review area before dissipating as sheetflow. Flows have been altered due to the development of Dillon Road, roads associated with the utility line easement that bisect the northeastern portion of the review area, and associated development with the active wind turbine farm. Historically, these flows continued 0.7 miles southeast until their confluence with Garnet Wash.

Several isolated channels are mapped throughout the site. These channels only displayed hydrology indicators for a short distance and were wholly contained within the site.

5.1.3 Soils

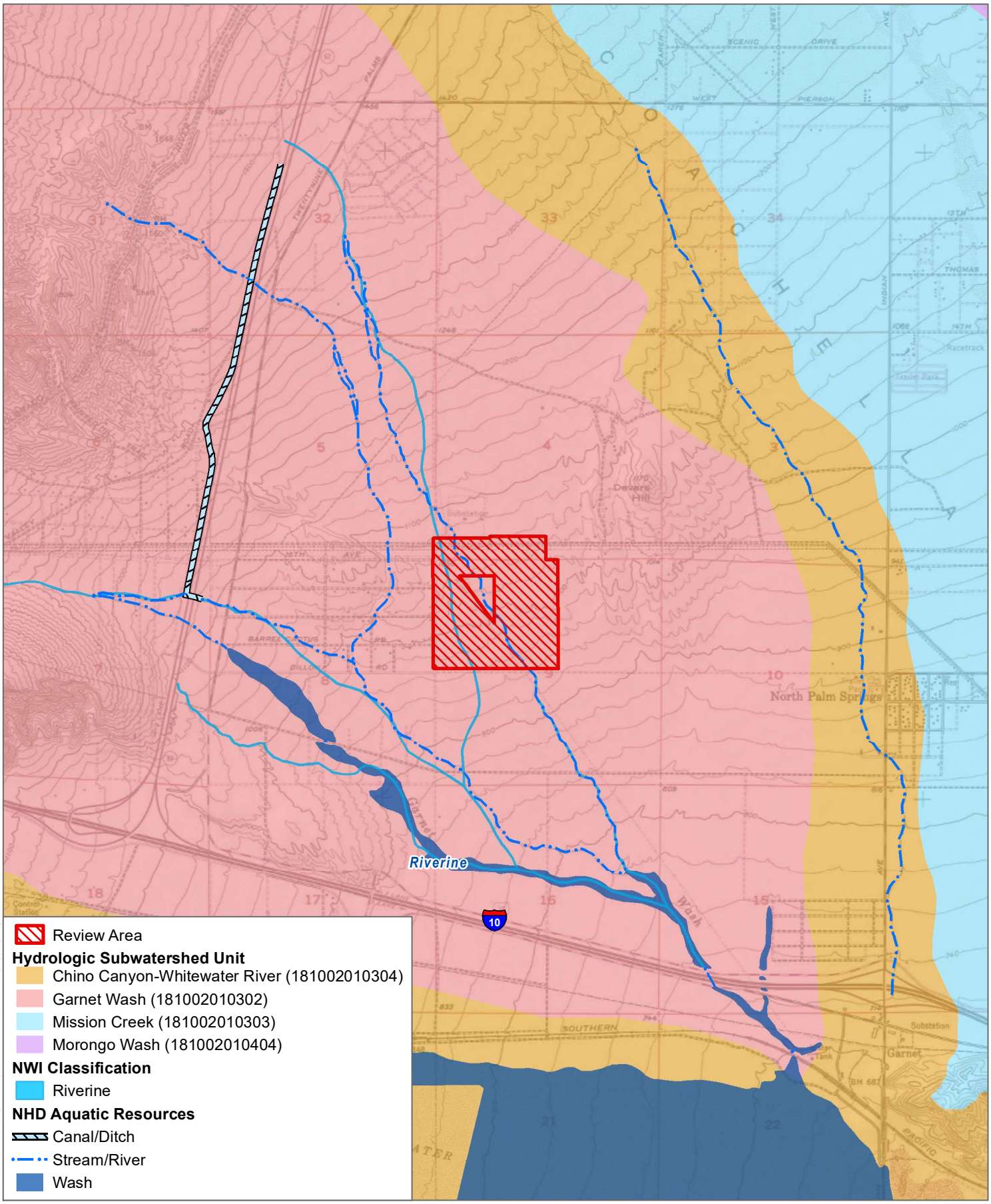
During the literature and database review, two soil units were mapped within the review area. Each soil unit, its proportion of hydric soils, drainage class (i.e., frequency and duration of wet periods under conditions similar to those in which it was developed), and typical landform or geomorphic position within the landscape is detailed in Table 2, Summary of Soil Units in the Review Area below. Figure 4, USDA Soils, provides the geographic extent of each soil unit in the Project area (USDA 2021a).

Table 2. Summary of Soil Units in the Review Area

Soil Code	Soil Map Unit Name	Landform	Drainage Class	Hydric
CdC	Carsitas gravelly sand, 0% to 9% slopes	alluvial fans, fan aprons, valley fills, and remnants of alluvial fans and in drainage ways	Well-drained	No
CkB	Carsitas fine sand, 0% to 5% slopes	alluvial fans, fan aprons, valley fills, and remnants of alluvial fans and in drainage ways	Well-drained	No

Source: USDA 2021a.

None of the soil units identified in the review area are listed as hydric soils. Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Soils encountered during the field visits were generally sandy soils.



SOURCE: Esri 2021, USDA 2018, NHD 2020, NWI 2020

DUDEK

0 1,500 3,000 Feet

FIGURE 3

Hydrologic Setting

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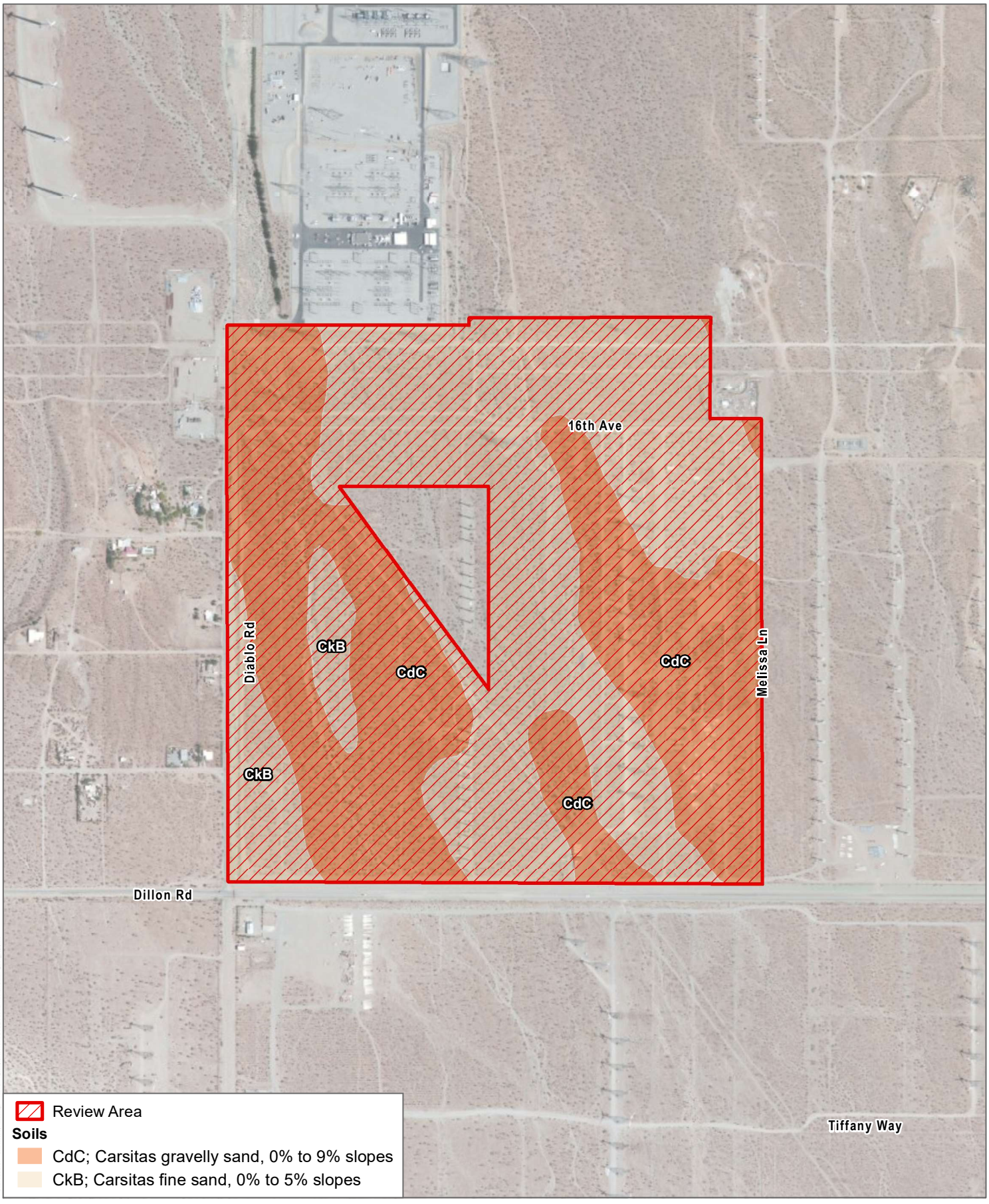

SOURCE: USDA 2008/2018

DUDEK

0 350 700 Feet

FIGURE 4

USDA Soils

State Aquatic Resources Delineation Report for Desert Peak - Phase 1

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5.1.4 Vegetation Communities and Land Covers

The review area consists of a combination of natural vegetation communities and non-natural land cover types. The natural vegetation communities identified within the review were Sonoran creosote bush scrub and unvegetated channel. The non-natural land cover types identified within the review area were disturbed habitat and urban/developed lands. A total of 34 vascular plant species were observed within these vegetation communities and land covers during the Delineation and subsequent focused rare plant surveys, which were conducted in May 2021. Descriptions of the vegetation communities and land cover types within the review area are provided below.

5.1.4.1 Natural Vegetation Communities

Sonoran Creosote Bush Scrub

The Sonoran creosote bush scrub community includes creosote bush as the dominant shrub, forming an open community approximately 0.5 to 3 meters (2 to 10 feet) in height and occurring on well-drained soils (CVAG 2016). Burrobush is a common co-dominant shrub in the canopy, with various ephemeral herbs flowering in late winter/early spring within the herbaceous layer (CVAG 2016).

Within the study area, Sonoran creosote bush scrub is dominated by an open cover of creosote bush. Associated species present within this community include burrobush, cheesebush (*Ambrosia salsola*), sweetbush (*Bebbia juncea*), brittlebush (*Encelia farinosa*), and jojoba (*Simmondsia chinensis*). The herbaceous layer is composed of common Mediterranean grass (*Schismus barbatus*) and redstem stork's bill (*Erodium cicutarium*). Disturbed Sonoran creosote bush scrub is dominated by a lower cover of creosote bush and associated species as a result of past disking and disturbance. Sonoran creosote bush scrub was mapped within much of the study area, with disturbed Sonoran creosote bush mapped within portions of the site south of Dillon Road. These areas included evidence of past disturbance/grading with a lower cover of shrubs present.

Unvegetated Channel

Several ephemeral drainages area mapped as unvegetated channels. These do not conform to classifications in Oberbauer et al. 2008.

5.1.4.2 Non-Natural Land Covers

Disturbed Habitat

The *Coachella Valley Multiple Species Habit Conservation Plan* does not describe disturbed habitat; however, this land cover type refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging.

Disturbed land on site consists of dirt roads within the Project Site and vacant areas (i.e., storage yards southeast of Dillon Road and Diablo Road intersection and north of Dillon Road) that have been previously graded and are primarily devoid of vegetation.

Urban/Developed

Urban/developed areas include areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation (Oberbauer et al. 2008).

Within the Project Site, developed areas include paved roads (e.g., Dillon Road and Melissa Lane) and the SCE Devers Substation within the northern portion of the site.

5.2 Aquatic Resources

The following summarizes the aquatic resources observed during the field assessment conducted on May 11, 2021. Details regarding each resource identified and evaluated during the Delineation are provided below. In addition, each resource's preliminary regulatory status is provided. Each resource's preliminary regulatory status is also provided. All data collected in the field is provided in Appendices A through C. Figure 5, Aquatic Resources Delineation, provides a complete geographic overview of the features discussed. Representative photos of the resources and data points are provided in Appendix D, Representative Site Photographs.

5.2.1 Potential Waters of the State

5.2.1.1 Ephemeral Drainages

Eight ephemeral drainage features were investigated within the review area. These drainages collect local runoff from the surrounding hills that eventually dissipate as sheetflow. Although these features are ephemeral in nature and do not contain any downstream connectivity to other waters of the state, they may be subject to the jurisdiction of CDFW and/or RWQCB based on the presence of bed and bank.

5.2.1.2 Erosional Features

Four features were investigated that comprised discontinuous, erosional features (E-1 through E-4). E-1 and E-2 are located in the southeastern portion of the review area, and E-3 and E-4 are located within the northern portion of the review area. These erosional features clearly were formed from runoff from the adjacent road and were not formed from natural water flows. These erosional features would not constitute jurisdictional resources regulated by the CDFW and/or RWQCB.

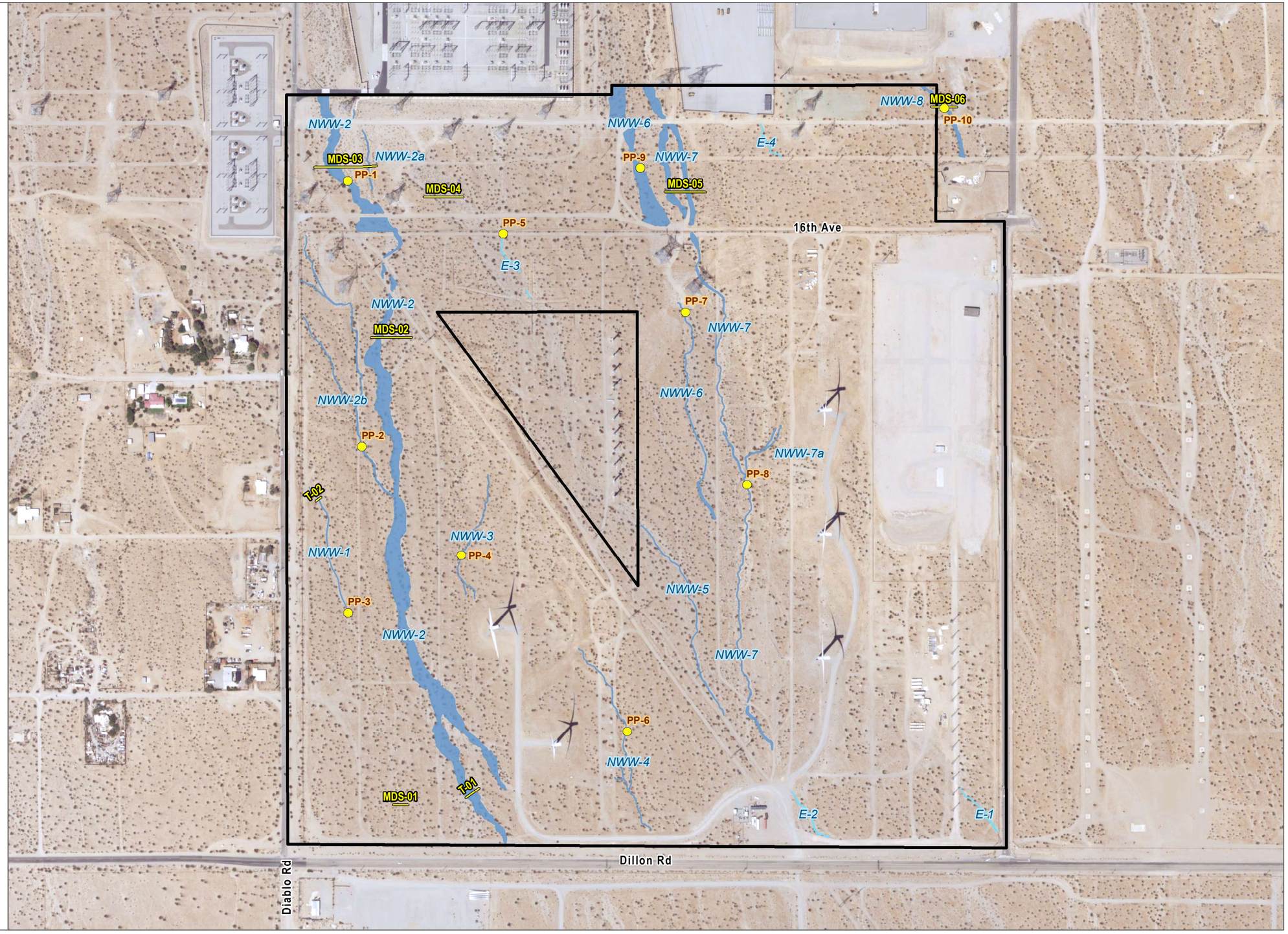
Review Area

Photo Point

Jurisdictional Delineation

CDFW / RWQCB Jurisdictional Resources - Non-Riparian Streambed

Erosional Feature



0 200 400 Feet

Coordinate System: California State Plane (Zone VI)
Projection: Lambert Conformal Conic
Datum: North American 1983
1 inch = 400 feet

Created on June 28th, 2021

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
U.S. Army Corps of Engineers
South Pacific Division
Los Angeles District, Regulatory Division
915 Wilshire Boulevard
Los Angeles, California 90017

SOURCE: USDA 2018, Esri 2021

DUDEK

FIGURE 5

Aquatic Resources Delineation

State Aquatic Resources Delineation Report for Desert Peak - Phase 1

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5.2.2 Summary of State Aquatic Resources

Table 3 provides a summary of the aquatic resources within the review area, including their classification, locations, areas, and lengths.

Table 3. Summary of State Aquatic Resources in the Review Area

Aquatic Resources			Location		Total Area (acres)	Total Length (linear feet)
ID[1]	*Name*	*Cowardin Classification*[2]	*Latitude*	*Longitude*		
Potential Waters of the State						
NWW-1	Unnamed	R6	33.92828923	-116.57968	0.01	552
NWW-2	Unnamed	R6	33.92949064	-116.5787817	3.14	3,681
NWW-2a	Unnamed	R6	33.93259576	-116.5791809	0.02	287
NWW-2b	Unnamed	R6	33.92989039	-116.5793335	0.08	1,865
NWW-3	Unnamed	R6	33.92836597	-116.5777609	0.01	643
NWW-4	Unnamed	R6	33.92607615	-116.5757373	0.03	1,047
NWW-5	Unnamed	R6	33.92739142	-116.5747444	0.02	913
NWW-6	Unnamed	R6	33.92950824	-116.5747429	0.66	1,501
NWW-7	Unnamed	R6	33.92936492	-116.5742776	0.50	3,333
NWW-7a	Unnamed	R6	33.92940933	-116.5738653	0.09	392
NWW-8	Unnamed	R6	33.9334219	-116.5716511	0.08	90
E-1	Unnamed	R6	33.92532654	-116.5708734	N/A	N/A
E-2	Unnamed	R6	33.925284	-116.5732105	N/A	N/A
E-3	Unnamed	R6	33.93158488	-116.5773105	N/A	N/A
E-4	Unnamed	R6	33.93285592	-116.5738113	N/A	N/A
				Total	4.65	14,302

Notes:
1 ID Type: NWW = non-wetland waters (ephemeral drainage); E = erosional feature.
2 Cowardin Classification Code (USFWS 1992): R6 = riverine, ephemeral.

Results of eight representative stream transects are summarized in Table 4 below.

Table 4. Channel Transect Data Summary

Transect	OHWM Field Indicators	Location (Latitude, Longitude)	Feature
T-01	Natural line impressed on bank; shelving; changes in soil texture; wracking; break in slope; sediment sorting; bed and bank	33.92555113, -116.5777794	NWW-2
T-02	Natural line impressed on bank; break in slope; bed and bank	33.9288447, -116.5798426	NWW-1
MDS-01	None	33.92542813, -116.57873	N/A (no feature)
MDS-02	Flow lineation; sediment ramps; sediment sorting; wracking	33.9306594, -116.5788681	NWW-2
MDS-03	Bar forms; sediment sheets; sediment sorting	33.93256334, -116.5794897	NWW-2 and NWW-2a

Table 4. Channel Transect Data Summary

Transect	OHWM Field Indicators	Location (Latitude, Longitude)	Feature
MDS-04	None	33.93223656, -116.578175	N/A (no feature)
MDS-05	Flow lineation; sediment ramps; sediment sorting; wracking	33.93230141, -116.574938	NWW-7
MDS-06	Flow lineation; sediment sorting; shelving	33.93325953, -116.5714506	NWW-8

6 Conclusions

On May 11, 2021, Dudek conducted a Delineation within the 352.6 acres of review area to field verify site conditions and resources present. This Delineation was completed in accordance with the Manual, Regional Supplement, the OHWM Guide, the MESA guidelines, and other accepted practices for determining waters of the state. This Delineation yielded a total of 4.65 acres (14,302 linear feet) of ephemeral drainages. All of these features are likely subject to CDFW and/or RWQCB jurisdiction based on evidence of bed and bank or ephemeral flow. No additional functional assessment or other evaluations were completed in conjunction with this Delineation. The results of this Delineation are preliminary until verified by the CDFW and RWQCB.

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Appendix A

OHWM Datasheets

OHWM DATA SHEET

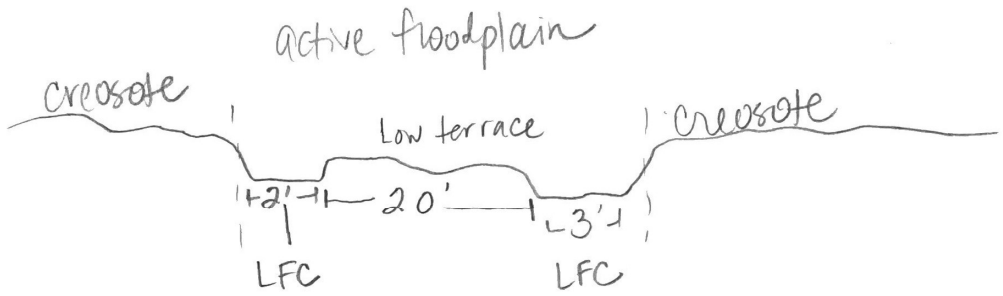
Project: Desert Peak Date: 5/11/21 Feature ID: ED-01

Investigator(s): Callie Amoaku, B. Strittmater Transect ID: T-01

Site Location:
Western drainage

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s): View Facing: NW



☑ Transect length 30'
☑ OHWM width
☑ Channel depth 0.5'
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☑ Natural line impressed on the bank
- ☑ Shelving
- ☑ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☑ Wracking
- ☐ Vegetation matted down, bent, or absent
- ☑ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☑ Bed and banks
- ☐ Water staining
- ☐ Change in plant community and/or cover*
- ☑ Break in Slope at OHWM*: ☐ Sharp (>60°) ☐ Moderate (30-60°) ☑ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM					
Below OHWM					

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	Ø	15-25	15-25	50
Below OHWM	Ø	5-15	1-5	50-75

Veg Stage: ☑ Early (herbs & seedlings) ☑ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	~~*Bank*~~ *Species:*	~~*Emergent*~~ *Species:*
Sch bar Lar tri Enc far	Low terrace: Sch bar Lar tri	Below OHWM: Sch bar

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

Upstream the SDG+E site alters downstream flow into site b/c disconnected from upstream. NO culvert or crossing for water to exit site across Dillon Rd.

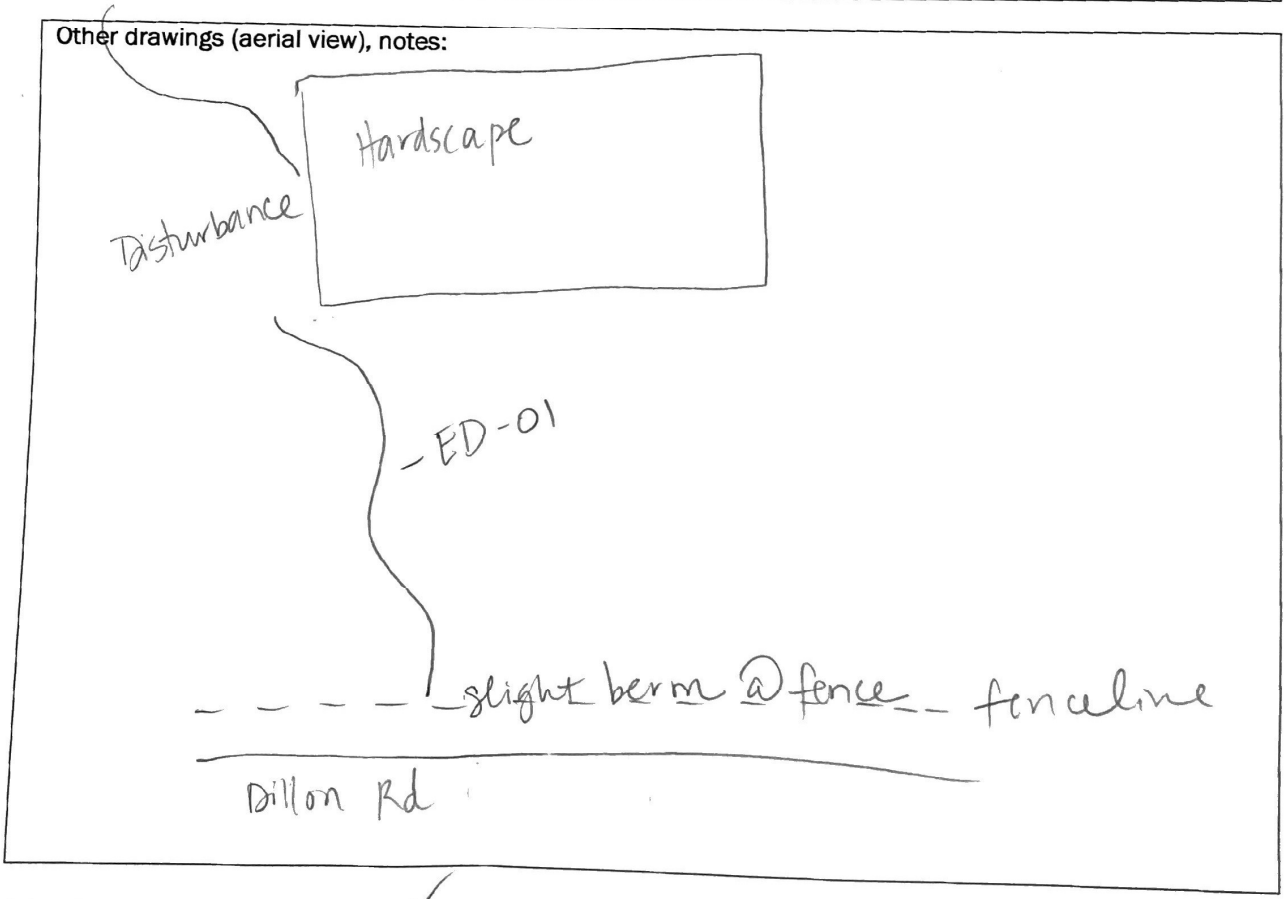
Hydrology

☐ Flowing water	Avg. depth:	Min. depth:
☐ Standing water	Temp:	Max. depth:
☐ Saturated		
☑ Dry		

Checklist of resources (if available):

☑ Aerial photography	☑ Vegetation maps	☐ GPS unit
☐ Remotely-sensed images	☐ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:



Other forms related to this feature: ☑ Yes ☐ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

☑ SDAM

OHWM DATA SHEET

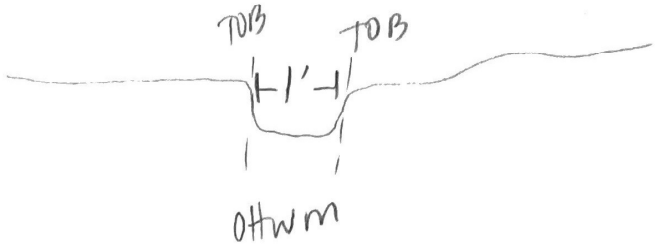
Project: Desert Peak Date: 5/11/21 Feature ID: ED-02

Investigator(s): C. Amoaku, B. Strittmater Transect ID: T-02

Site Location:
Noble Peak

Feature Type: ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Other

Transect (cross-section) drawing(s): View Facing: SE



☐ Transect length
☑ OHWM width
☑ Channel depth 0.5'
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☑ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☐ Wracking
- ☐ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☑ Bed and banks
- ☐ Water staining
- ☐ Change in plant community and/or cover*

☑ Break in Slope at OHWM*: ☐ Sharp (>60°) ☑ Moderate (30-60°) ☐ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM					
Below OHWM					

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	0	15	5-15	75
Below OHWM	0	0	5	95

Veg Stage: ☐ Early (herbs & seedlings) ☐ Mid (herbs, shrubs, saplings) ☐ Late (herbs, shrubs, mature trees)

Upland Species:	*Bank Species:*	*Emergent Species:*
Sch bar Lar tri Beb jun Enc far		Sch bar

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

Hydrology

☐ Flowing water	Avg. depth:	Min. depth:
☐ Standing water	Temp:	Max. depth:
☐ Saturated		
☑ Dry		

Checklist of resources (if available):

☑ Aerial photography	☑ Vegetation maps	☑ GPS unit
☐ Remotely-sensed images	☐ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:

Isolated feature that starts near Diablo Rd, likely from general runoff and sheet flow. Narrow throughout. Dissipates before dirt road. In general, this site contains some larger washes, smaller isolated features, and evidence of relic swales.

Other forms related to this feature: ☐ Yes ☑ No

☐ Terrace, fringe, or floodplain wetland (wetland datasheet)

☐ Low flow channel or other representative section (OHWM datasheet)

Appendix B

MESA Datasheets

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak | Stream ID: MDS-01 | Date: 5/11/21

Nearest Town: Palm Springs | County: Riverside

Investigators: B. Stinttmater, C. Amoaku

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m

GPS co-ords start of transect:

GPS co-ords end of transect:

Geomorphic Province (✓one)

	Mojave		Sonoran/Colorado		Great Basin	Other:
		✓				

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
✓	Other: Document Fluvial Inactivity		

Date of most recent runoff event (if known):

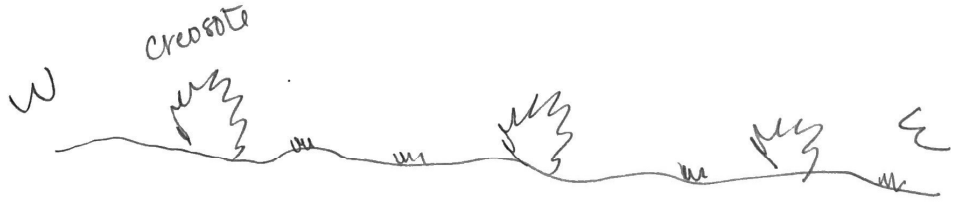
Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Abandoned/Relic - no longer fluvial active.

* discountinuous - feature upstream dissipates as sheetflow and lacks bed/bank downstream

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left ——— Right



Site ID: Desert Peak Node | Stream ID: MDS-01 | page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon	✓	Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface	✓	Surface rounding of landform
	Pavement	✓	Woody debris in place
	Other:		

Substrate Particle Size

Estimated percentages

	% Bedrock / Cemented substrate	
	% Boulder	≥ 256 mm
	% Cobble	≥ 64 – 256mm
	% Pebble	≥ 4 – 64 mm
	% Granule	≥ 2 – 4 mm
	% Sand	≤ 2 mm
	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
8%	LARREA TRIDENTATA 7%	H = 3-5'
	SCHISMUS BARBATUS 1%	W = 3-5'

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

N/A

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

N/A

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

N/A

Site ID: Desert Peak Middle	Stream ID: MDS-01	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

Bar forms: sand / gravel		Secondary channels	
Bifurcated flow		Sediment plastering	
Drainage swales		Sediment ramps: sand / gravel	
Flow lineations		Sediment sheets: sand / gravel	
Imbricated gravel		Sediment sorting	
Levee ridges: sand / gravel		Sediment tails: sand / gravel	
Mud: cracks / curls / drapes		Vegetation-channel alignments	
Organic drift		Wrack	
Overturned rocks		Wrinkle marks	
Out-of-channel flow: Lateral floodplain / Terminal floodplain			
Ripples			
Other:			

Substrate Particle Size

Estimated percentages

% Bedrock / Cemented substrate	
% Boulder	≥ 256 mm
% Cobble	≥ 64 – 256 mm
% Pebble	≥ 4 – 64 mm
% Granule	≥ 2 – 4 mm
% Sand	≤ 2 mm
% Silt/Clay	Fines

N/A

Erosion Indicators

Cut banks	Rills	Water-cut benches
Exposed roots	Scour	Water level mark
Headcuts	Secondary channels	
Other:		

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
—	—	—

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

—

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

—

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

—

Site ID Desert Peak	Stream ID MDS-01	

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

relic | abandoned

* no fluvial indicators

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
	In Collector		

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak - Noble | Stream ID: MDS-02 | Date: 5/11/21

Nearest Town: DHS | County: Riverside

Investigators: B. Strittmater, C. Amoazu

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)

	Mojave	✓	Sonoran/Colorado		Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan	✓	Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

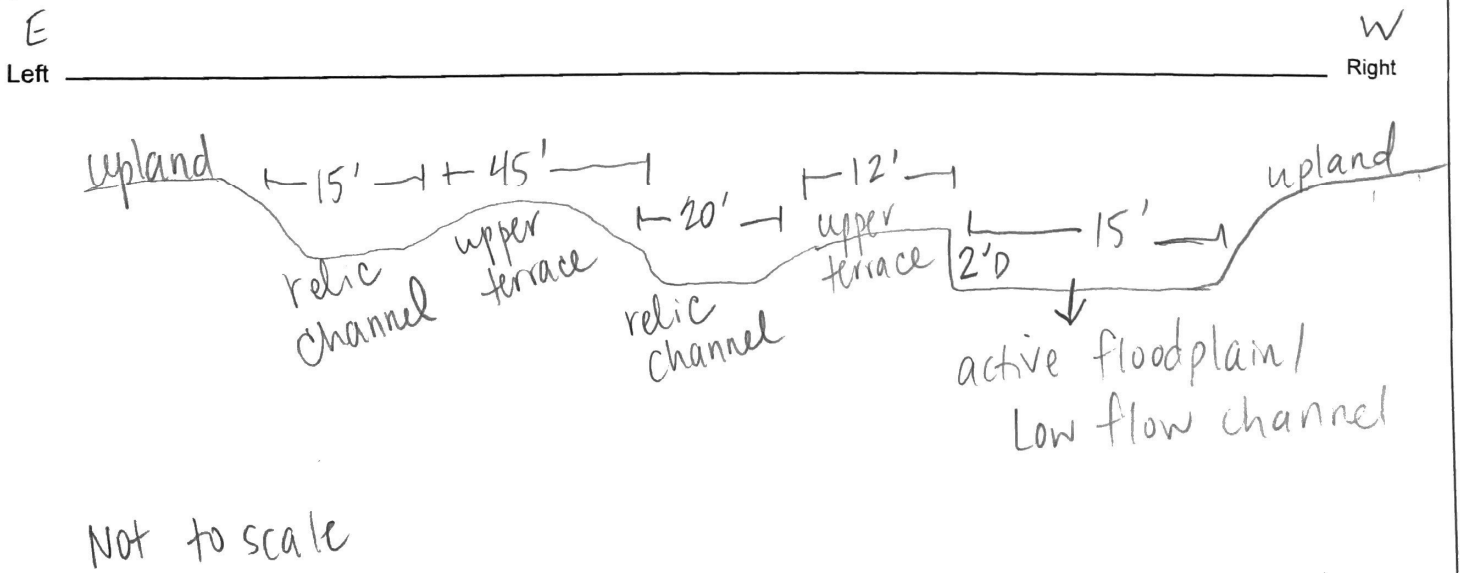
✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations	✓	Document a change in watercourse morphology
	Other:		

Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

The Devers substation footprint cut off upper flows in adjacent areas. The main channel still demonstrates signs of active flow based on hydrology indicators (bed/bank, sediment sorting, etc.) however, the two side channels are no longer active. There is a 2' deep bank separating the active channel from them. there are no signs of active flow in the relic channels. At the downstream confluence, there

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.



Not to scale

Site ID: Desert Peak	Stream ID: MDS-02	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators				Substrate Particle Size	
	Av soil horizon	✓	Relict bars & swales	Estimated percentages	
✓	Biotic soil crusts		Rock fractured in place	% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble	✓	Rock weathering	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	% Granule	≥ 2 – 4 mm
	Deflated surface	✓	Surface rounding of landform	% Sand	≤ 2 mm
	Pavement	✓	Woody debris in place	% Silt/Clay	Fines
	Other:				

These are representative of the upland terraces, relic features, and upland areas.

Fluvial Indicators					
	Bars: sand / gravel		Mud: cracks / curls / drapes	✓	Sediment tails: sand / gravel
✓	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots	✓	Scour	✓	Wrack
	First-order streams	✓	Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations	✓	Sediment sorting		
	Other:				

(This represents the active floodplain only.)
(cont.) bars developed between the relic features and active channel, further demonstrating these are no longer active.

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
∅	∅	N/A

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):
Shrubs + herbs (15%) in relic channels + upland terraces and 0% (10%) in active channel.

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):
yes, see above.

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)
yes, see above

Site ID: Desert Peak	Stream ID: MDS-02	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators				Substrate Particle Size	
	Bar forms: sand / gravel		Secondary channels	Estimated percentages	
	Bifurcated flow		Sediment plastering		% Bedrock / Cemented substrate
	Drainage swales	✓	Sediment ramps: sand / gravel		% Boulder ≥ 256 mm
✓	Flow lineations		Sediment sheets: sand / gravel		% Cobble ≥ 64 – 256 mm
	Imbricated gravel	✓	Sediment sorting		% Pebble ≥ 4 – 64 mm
	Levee ridges: sand / gravel		Sediment tails: sand / gravel		% Granule ≥ 2 – 4 mm
	Mud: cracks / curls / drapes		Vegetation-channel alignments		% Sand ≤ 2 mm
	Organic drift	✓	Wrack		% Silt/Clay Fines
	Overturned rocks		Wrinkle marks		
	Out-of-channel flow: Lateral floodplain / Terminal floodplain				
	Ripples				
	Other:				

active floodplain only.

Erosion Indicators					
✓	Cut banks		Rills		Water-cut benches
	Exposed roots	✓	Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

N/A - described on pg. 2

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

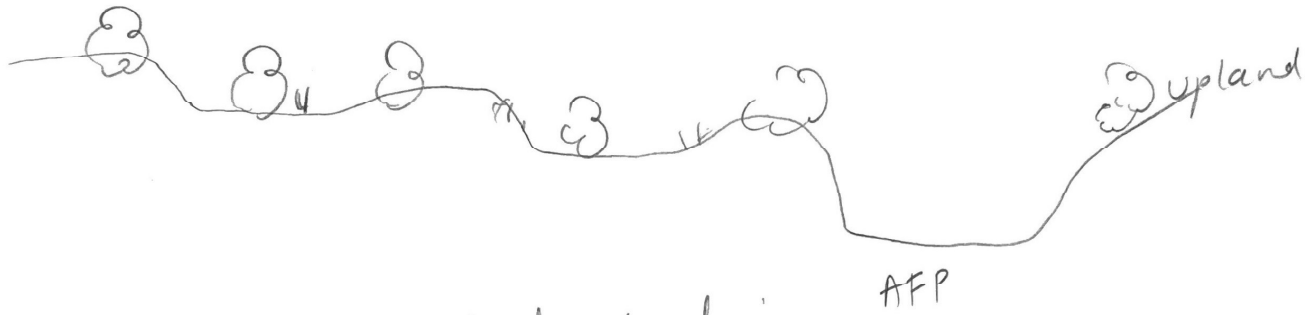
Site ID	Stream ID	page 4 of 4

INDICATORS of PONDING & EVAPORATION | **TRANSPORT & DEPOSITION**

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



vegetation present in upland, upland terrace and relic channels.

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak	Stream ID: MSD-8	Date: 11/6/20
Nearest Town: Palm Springs		County: Riverside
Investigators: B. Stritmatter; A. Cassady		

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m
GPS co-ords start of transect:		GPS co-ords end of transect:		

Geomorphic Province (✓one)		Mojave	✓	Sonoran/Colorado		Great Basin		Other:	

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided	✓	Compound		Distributary		Discontinuous		Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
	Other:		

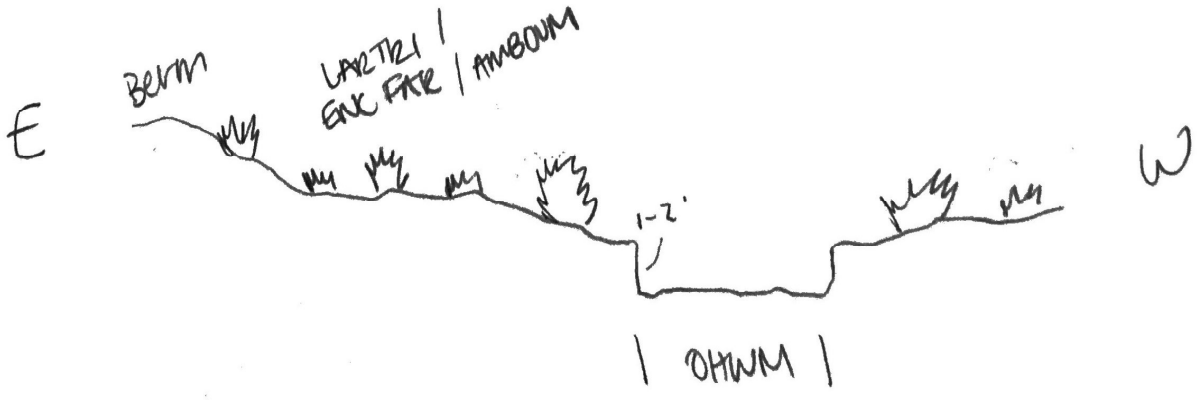
Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Ephemeral channel (areas of single thread and portions where flows disperse across active floodplain)

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Desert Peak	Stream ID: MSD - 8	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales		**Substrate Particle Size**		
	Biotic soil crusts		Rock fractured in place		Estimated percentages		
✓	Bioturbation		Rock varnish	–	% Bedrock / Cemented substrate		
	Caliche: coatings / layers / rubble		Rock weathering	–	% Boulder	≥ 256 mm	
	Carbonate etching		Rubified rock undersides	<1	% Cobble	≥ 64 – 256mm	
	Coppice dunes: active / relict	✓	Soil development	50	% Pebble	≥ 4 – 64 mm	
	Deflated surface		Surface rounding of landform	50	% Granule	≥ 2 – 4 mm	
	Pavement	✓	Woody debris in place	<1	% Sand	≤ 2 mm	
	Other:			–	% Silt/Clay	Fines	

middens w/in shrubs, numerous rodent burrows

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
15 %	LAR TRI 10% AMB DUM 3% ENC FAR 2%	5 - 6' height 2-4' width

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Higher cover of shrubs in uplands

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Creosote present in uplands - absent in fluvially active

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

total veg cover higher in uplands

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

✓	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations	✓	Sediment sheets: sand / gravel
	Imbricated gravel	✓	Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages

—	% Bedrock / Cemented substrate	
—	% Boulder	≥ 256 mm
40	% Cobble	≥ 64 – 256 mm
20	% Pebble	≥ 4 – 64 mm
28	% Granule	≥ 2 – 4 mm
10	% Sand	≤ 2 mm
2	% Silt/Clay	Fines

Historically AFP may have extended further east however due to disturbances

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
<1	AMB SAL	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Absence of veg in LFC w/ 1-5% cover in ~~AFP~~ downstream

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

—

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

—

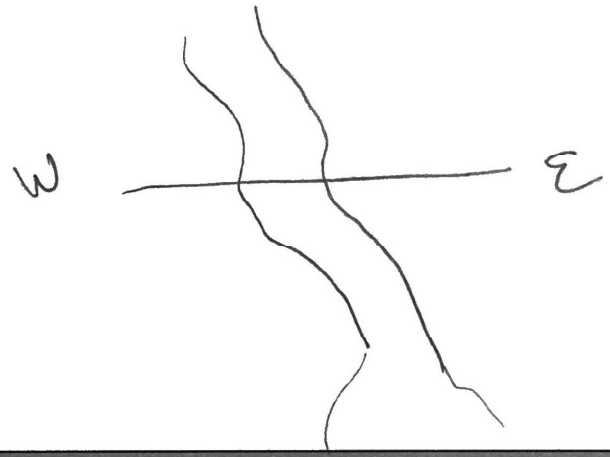
Site ID Desert Peak	Stream ID MSD-B	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

–	Algal crusts	~	Sand-filled channels		
~	Beach ridges	~	Springs		
–	Coppice dunes: active / relict	~	Substrate staining		
–	Crusts: carbonate / salt / soda	~	Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
PP-97	upstream - facing northwest		

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak | Stream ID: MSD-9 | Date: 11/16/20

Nearest Town: Palm Springs | County: Riverside

Investigators: B. Smithmatier, A. Cassady

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m

GPS co-ords start of transect:

GPS co-ords end of transect:

Geomorphic Province (✓one)

	Mojave		Sonoran/Colorado		Great Basin	Other:
		✓				

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
✓	Other: Document Fluvial in-activity		

Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Abandoned floodplain - Devers Substation / concrete wall and roads has cut off flows and area no longer part of active flood plain

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left ——— Right

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales
	Biotic soil crusts		Rock fractured in place
✓	Bioturbation		Rock varnish
	Caliche: coatings / layers / rubble		Rock weathering
	Carbonate etching		Rubified rock undersides
	Coppice dunes: active / relict		Soil development
	Deflated surface		Surface rounding of landform
	Pavement	✓	Woody debris in place
	Other:		

Substrate Particle Size

Estimated percentages

—	% Bedrock / Cemented substrate	
—	% Boulder	≥ 256 mm
30	% Cobble	≥ 64 – 256mm
30	% Pebble	≥ 4 – 64 mm
30	% Granule	≥ 2 – 4 mm
10	% Sand	≤ 2 mm
—	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
15-20	LAR TRI AMB DU	

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

NO change

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel		Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages

% Bedrock / Cemented substrate	
% Boulder	≥ 256 mm
% Cobble	≥ 64 – 256 mm
% Pebble	≥ 4 – 64 mm
% Granule	≥ 2 – 4 mm
% Sand	≤ 2 mm
% Silt/Clay	Fines

N/A

Erosion Indicators

	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
—	—	—

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

N/A

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

N/A

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

N/A

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION				
Algal crusts		Sand-filled channels		
Beach ridges		Springs		
Coppice dunes: active / relict		Substrate staining		
Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
Mud: cracks / curls / polygons				
Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

N/A

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak | Stream ID: MSD-40 | Date: 11/6/20

Nearest Town: Palm Springs | County: Riverside

Investigators: B. Stottmaster, A. Cassady

Base Map

Aerial Photo #:	Date:	Topographic Map Name:	Date:

GPS Data

GPS Name:	Datum:	Transect Elevation:	Zone 10 / 11	GPS Error: ± ft / m

GPS co-ords start of transect:

GPS co-ords end of transect:

Geomorphic Province (✓one)		Mojave	✓	Sonoran/Colorado		Great Basin	Other:

Landform (✓ all that apply)

	Headwater		Upper fan		Middle fan		Lower fan		Alluvial plain		Axial valley		Playa

Channel Form (✓ one)

✓	Single thread		Braided		Compound		Distributary		Discontinuous	Other:

Transect was selected to:

✓	Document fluvial activity & boundaries		Document channel elevations & boundaries
	Document habitat associations		Document a change in watercourse morphology
✓	Other:		

Date of most recent runoff event (if known):

Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

* Ephemeral channel

* Anthropogenic infl: Devers substation to NW / NE and numerous roads / towers

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left ——— Right

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales	Substrate Particle Size Estimated percentages		
	Biotic soil crusts		Rock fractured in place		% Bedrock / Cemented substrate	
✓	Bioturbation		Rock varnish	5	% Boulder	≥ 256 mm
	Caliche: coatings / layers / rubble		Rock weathering	10	% Cobble	≥ 64 – 256mm
	Carbonate etching		Rubified rock undersides	20	% Pebble	≥ 4 – 64 mm
	Coppice dunes: active / relict		Soil development	30	% Granule	≥ 2 – 4 mm
	Deflated surface		Surface rounding of landform	10	% Sand	≤ 2 mm
	Pavement	✓	Woody debris in place	—	% Silt/Clay	Fines
	Other:					

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
10-15 %	LARTRI AMB DUM	3-4' H 2-3' W

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Absence of veg in watercourse

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

LAR TRI / AMB DUM / SCH BAR2

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

same as above

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
✓	Flow lineations	✓	Sediment sheets: sand / gravel
	Imbricated gravel	✓	Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift	✓	Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages

–	% Bedrock / Cemented substrate	
–	% Boulder	≥ 256 mm
–	% Cobble	≥ 64 – 256 mm
–	% Pebble	≥ 4 – 64 mm
10	% Granule	≥ 2 – 4 mm
90	% Sand	≤ 2 mm
–	% Silt/Clay	Fines

unvegetated channel - sandy bottom

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
∅	—	—

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

N/A

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

N/A

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

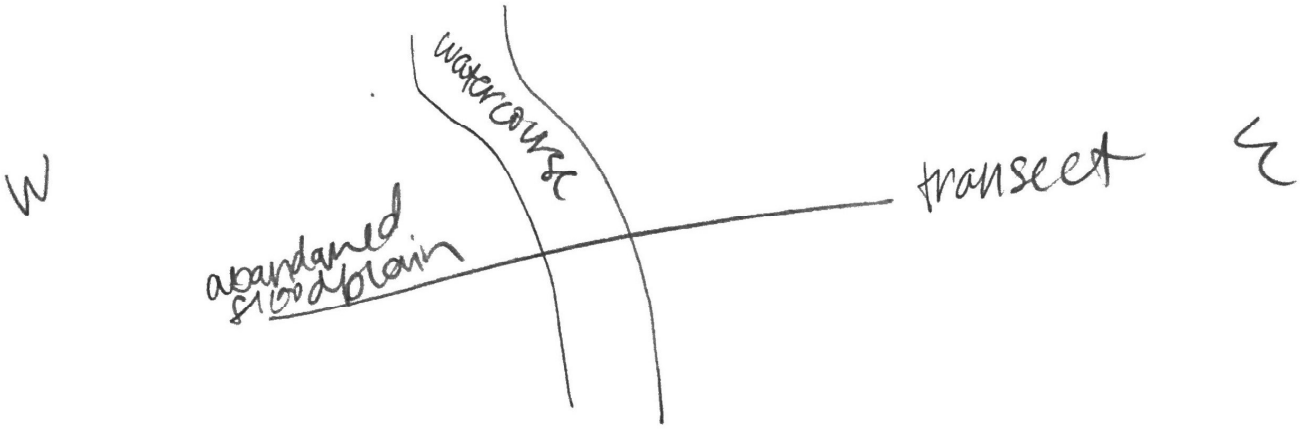
N/A

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION

	Algal crusts		Sand-filled channels		
	Beach ridges		Springs		
	Coppice dunes: active / relict		Substrate staining		
	Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
	Mud: cracks / curls / polygons				
	Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".



Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
PP-98	Upstream - north		

Episodic Stream Indicator Data Sheet

Site ID: Desert Peak | Stream ID: MSD-11 | Date: 11/6/20

Nearest Town: Palm Springs | County: Riverside

Investigators: B Smithmaier, Anna Cassady

Base Map

Aerial Photo #: | Date: | Topographic Map Name: | Date:

GPS Data

GPS Name: | Datum: | Transect Elevation: | Zone 10 / 11 | GPS Error: ± ft / m

GPS co-ords start of transect: | GPS co-ords end of transect:

Geomorphic Province (✓one) ☐ Mojave ☐ Sonoran/Colorado ☐ Great Basin Other:

Landform (✓ all that apply)

☐ Headwater ☐ Upper fan ☐ Middle fan ☐ Lower fan ☐ Alluvial plain ☐ Axial valley ☐ Playa

Channel Form (✓ one)

✓ Single thread ☐ Braided ☐ Compound ☐ Distributary ☐ Discontinuous Other:

Transect was selected to:

✓ Document fluvial activity & boundaries ☐ Document channel elevations & boundaries

☐ Document habitat associations ☐ Document a change in watercourse morphology

☐ Other:

Date of most recent runoff event (if known):

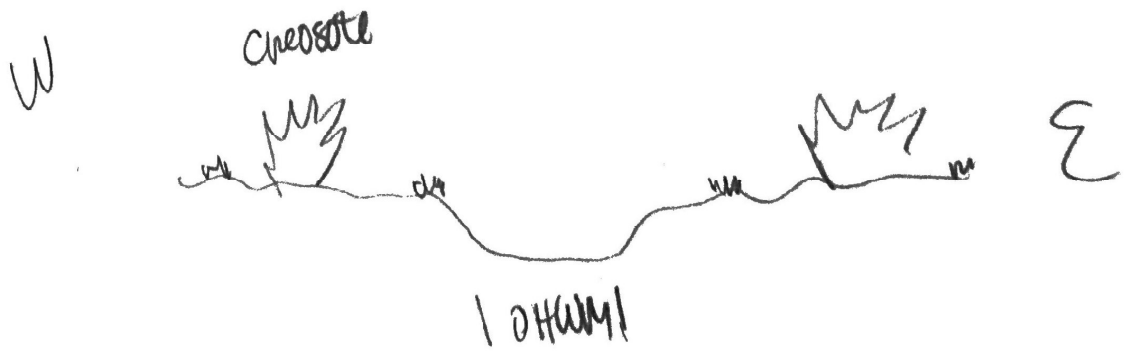
Physical Setting: Briefly describe geomorphic processes and surficial materials and conditions, including the degree of disturbance relative to an intact dryland stream ecosystem, and any anthropogenic influences on the channel form and function:

Ephemeral single thread unvegetated channel

Anthro influ: energy development to north has cut off flows, dirt roads

Summary Site Description and Cross-section Sketch: View across the channel from watercourse-edge to watercourse-edge. Identify channel(s), banks, islands, interfluves, floodplains, terraces, and uplands where present. Note approximate width and elevation differences between features indicated.

Left _____ Right



Site ID: Desert Peak	Stream ID: MSD - 11	page 2 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of the representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for indicators not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

UPLAND

Terrestrial Indicators

	Av soil horizon		Relict bars & swales	Substrate Particle Size		
	Biotic soil crusts		Rock fractured in place	Estimated percentages		
✓	Bioturbation		Rock varnish	/	% Bedrock / Cemented substrate	
	Caliche: coatings / layers / rubble		Rock weathering	/	% Boulder	≥ 256 mm
	Carbonate etching		Rubified rock undersides	10	% Cobble	≥ 64 – 256mm
	Coppice dunes: active / relict		Soil development	30	% Pebble	≥ 4 – 64 mm
	Deflated surface	✓	Surface rounding of landform	40	% Granule	≥ 2 – 4 mm
	Pavement	✓	Woody debris in place	20	% Sand	≤ 2 mm
	Other:			—	% Silt/Clay	Fines

Fluvial Indicators

	Bars: sand / gravel		Mud: cracks / curls / drapes		Sediment tails: sand / gravel
	Cut banks		Organic drift		Vegetation-channel alignment
	Drainage swales		Overturned rocks		Water-cut benches
	Exposed roots		Scour		Wrack
	First-order streams		Sediment ramps: sand / gravel		Wrinkle marks
	Flow lineations		Sediment sorting		
	Other:				

N/A

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
8%	Larrea tridentata 5% Artemisia dumosa 3%	4-5' H 3-4' W

Differences in total shrub/perennial density (total #shrubs/perennial plants) between upland & fluvially active units or watercourse complex? (describe and qualify the differences):

Higher cover of LAR TRI in upland

Are there plant species that are present in (or absent from) the uplands when compared to fluvially active units or the watercourse complex? (describe differences):

LAR TRI absent in watercomplex

Are there plant species that are more abundant (or less abundant) in the uplands when compared to the fluvially active units or the watercourse complex? (describe and qualify differences)

LAR TRI higher and SCH BAR grass higher

Site ID: Desert Peak	Stream ID: MSD-11	page 3 of 4

Note presence or absence of each indicator within a minimum distance of 50 feet upstream and 50 feet downstream of a representative channel cross section. Mark each box with a plus (+) for those indicators observed, and a minus (–) for those not observed. For examples see the Photo Atlas in MESA ~ Mapping Episodic Stream Indicators.

WATERCOURSE or WATERCOURSE COMPLEX

Transportation, Deposition & Flow Transition Indicators

	Bar forms: sand / gravel		Secondary channels
	Bifurcated flow		Sediment plastering
	Drainage swales		Sediment ramps: sand / gravel
✓	Flow lineations		Sediment sheets: sand / gravel
	Imbricated gravel	✓	Sediment sorting
	Levee ridges: sand / gravel		Sediment tails: sand / gravel
	Mud: cracks / curls / drapes		Vegetation-channel alignments
	Organic drift		Wrack
	Overturned rocks		Wrinkle marks
	Out-of-channel flow: Lateral floodplain / Terminal floodplain		
	Ripples		
	Other:		

Substrate Particle Size

Estimated percentages

✓	% Bedrock / Cemented substrate	
✓	% Boulder	≥ 256 mm
5	% Cobble	≥ 64 – 256 mm
10	% Pebble	≥ 4 – 64 mm
50	% Granule	≥ 2 – 4 mm
35	% Sand	≤ 2 mm
✓	% Silt/Clay	Fines

shelving

Erosion Indicators

✓	Cut banks		Rills		Water-cut benches
	Exposed roots		Scour		Water level mark
	Headcuts		Secondary channels		
	Other:				

Vegetation

Estimated % total vegetative cover (perennial & shrub species combined):	Dominant and co-dominant species (if known) and % of total vegetative cover of each:	Representative height and width of dominant and co-dominant species:
41%	SCH BAR 41%	<5"

Differences in total shrub/perennial density (total #shrubs/perennial plants) between the low-flow channel(s) and the adjacent floodplain? (describe and qualify the differences):

Absence of veg in LFC

Are there plant species that are present in (or absent from) the low-flow channel(s) when compared to the adjacent floodplain? (describe differences):

—

Are there plant species that are more abundant (or less abundant) on the low-flow channel(s) and the adjacent floodplain? (describe and qualify differences)

—

Site ID Desert Peak	Stream ID MSD-11	page 4 of 4

INDICATORS of PONDING & EVAPORATION and EOLIAN TRANSPORT & DEPOSITION				
Algal crusts		Sand-filled channels		
Beach ridges		Springs		
Coppice dunes: active / relict		Substrate staining		
Crusts: carbonate / salt / soda		Vegetation-landscape alignments		
Mud: cracks / curls / polygons				
Other:				

Additional Diagrams and Notes

Vegetation cross-section diagram: Draw a cross-section that identifies the approximate locations along the transect or diagram of geomorphic units (see page 1 of data sheet) where there are changes in vegetation characteristics, as summarized in the vegetation subsections under "Upland" and "Watercourse Complex".

Photographs

Photographs should document the representative landscape units, vegetation, and the presence or absence of representative stream indicators.

Photo ID #	Description	GPS location	
PP-100	Downstream - South		

Appendix C

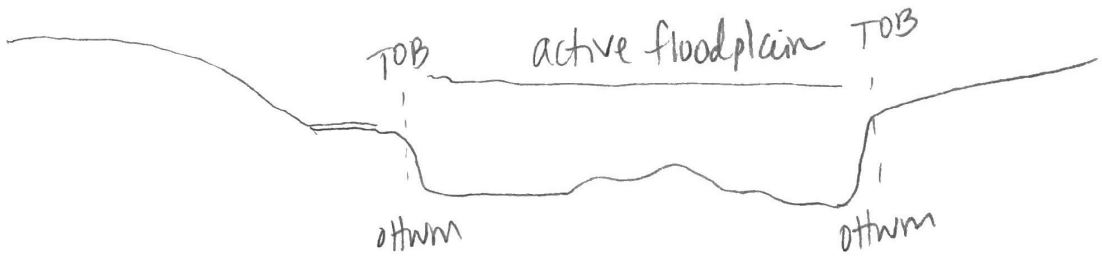
Beta Arid West SDAM Form

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Desert Peak - 10589		
Site code or identifier: Noble Site	Assessor(s): Callie Amoaku, Britney Strittmater	
Waterway name: ED-01		Visit date: 5/11/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week):	Coordinates at downstream end (decimal degrees): Lat (N): 33°55'30"N Long (W): 116°34'38"W Datum:
Surrounding land-use within 100 m (check one or two): ☑ Urban/industrial/residential ☐ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☐ Other: _____	Describe reach boundaries: generally the central portion of channel	
Mean channel width (m): 7 meters	Reach length (m): 40x width; min 40 m; max 200 m. 200 meters	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: _____
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☑ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☑ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: some upstream influence modified by development.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: hydrology indicators - see OHWM form	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

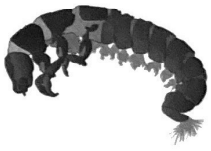
Photo ID:_____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

none

Photo log

Indicate if any other photos taken during the assessment

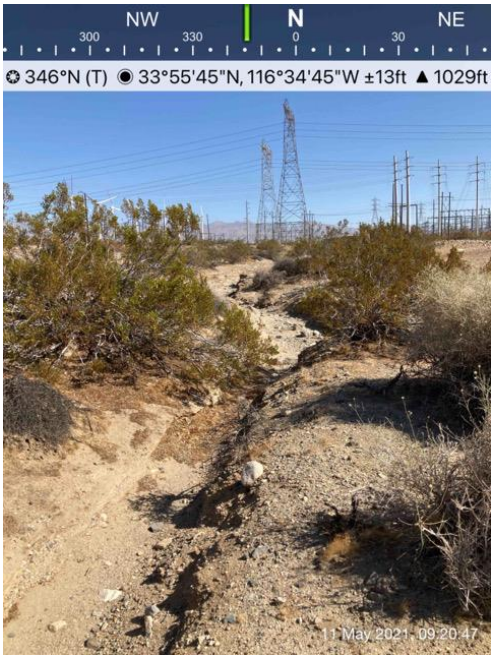
Photo ID	Description
all photos in Collector	

Additional notes about the assessment:

Appendix D

Representative Site Photographs

PP-1: NNW-2, facing southeast

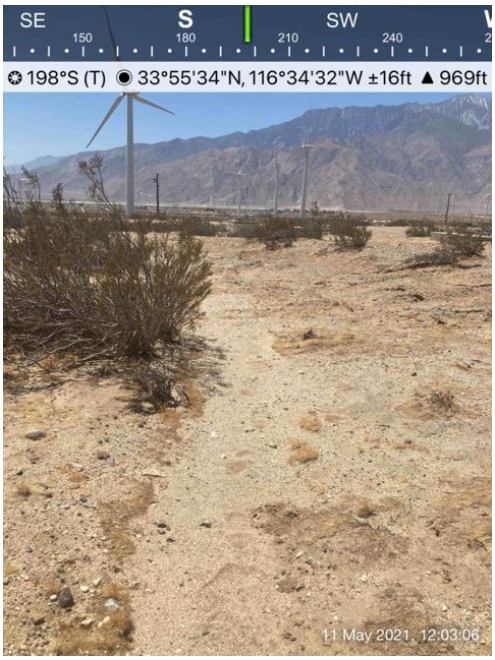


PP-2: NWW-2b

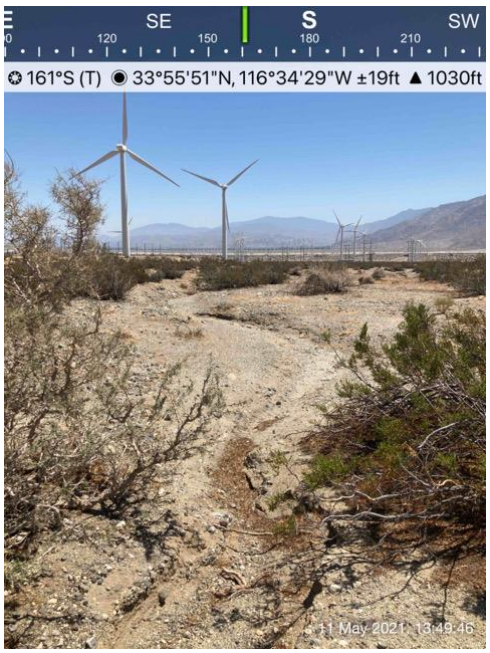
PP-3: NWW-1

PP-4: NWW-3

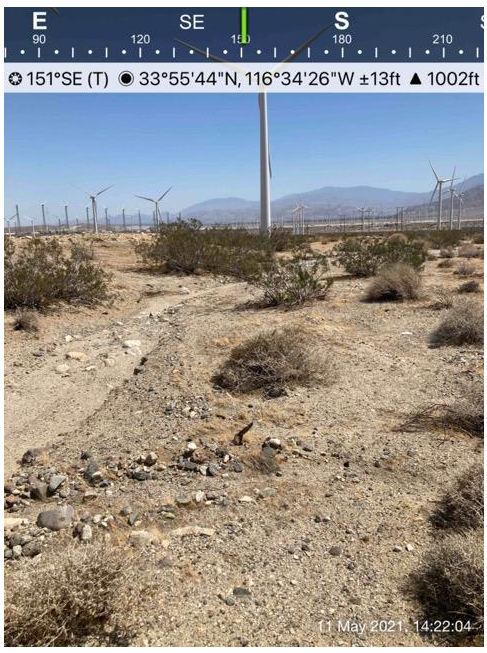
PP-5: Erosional feature E-3



PP-6: NWW-4



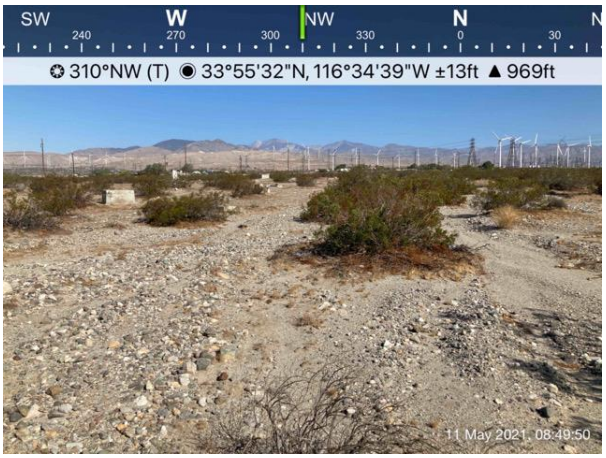
PP-7: NWW-6



PP-8: NWW-7

PP-9: Northern section of NWW-6, facing south

PP-10: NWW-8, facing southeast



Transect T-01 at Ephemeral Drainage NWW-1

Transect T-02 at Ephemeral Drainage NWW-2

	
Transect MDS-01 to document no feature present in this location	Transect MDS-02 at NWW-2
	
Transect MDS-03 at NWW-3, facing north	Transect MDS-04 to document abandoned feature, facing north

	
Transect MDS-05 to document NWW-7, facing north	Transect MDS-06 at NWW-8, facing northeast

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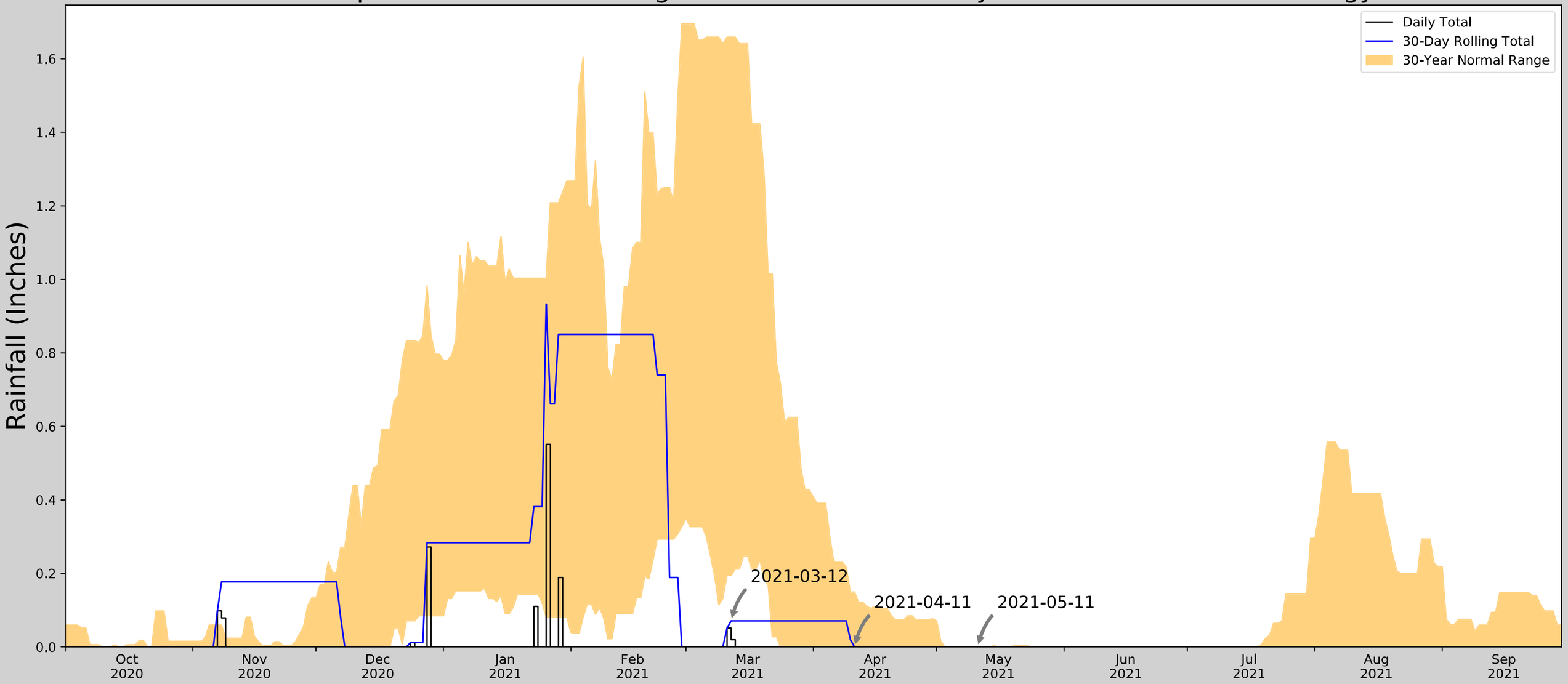
Appendix E

APT Table

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.928992, -116.575136
Observation Date	2021-05-11
Elevation (ft)	1004.67
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-05-11	0.0	0.0	0.0	Normal	2	3	6
2021-04-11	0.0	0.149606	0.0	Normal	2	2	4
2021-03-12	0.194094	1.659055	0.070866	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
PALM SPRINGS	33.8275, -116.5097	424.869	7.954	579.801	8.191	10839	79
DESERT HOT SPRINGS 3.0 NW	33.9855, -116.5415	1338.911	4.354	334.241	3.415	229	0
PALM SPRINGS RGNL AP	33.8281, -116.5053	420.932	8.04	583.738	8.311	246	11
SNOW CREEK UPPER	33.8725, -116.6797	1939.961	7.155	935.291	9.912	36	0
DEEP CANYON LAB	33.6514, -116.3764	1200.131	22.318	195.461	14.405	3	0