

| <b>DOCKETED</b>         |                                                      |
|-------------------------|------------------------------------------------------|
| <b>Docket Number:</b>   | 21-AFC-02                                            |
| <b>Project Title:</b>   | Willow Rock Energy Storage Center                    |
| <b>TN #:</b>            | 258308                                               |
| <b>Document Title:</b>  | Willow Rock Jurisdictional Waters Delineation Report |
| <b>Description:</b>     | N/A                                                  |
| <b>Filer:</b>           | Kathryn Stevens                                      |
| <b>Organization:</b>    | WSP USA Inc.                                         |
| <b>Submitter Role:</b>  | Applicant Consultant                                 |
| <b>Submission Date:</b> | 8/5/2024 4:33:37 PM                                  |
| <b>Docketed Date:</b>   | 8/5/2024                                             |



## **WILLOW ROCK ENERGY STORAGE CENTER**

### **DELINEATION OF JURISDICTIONAL WATERS**



### **WILLOW SPRINGS, KERN COUNTY, CALIFORNIA**

**Prepared for:**

GEM A-CAES LLC  
1125 17th St #700  
Denver, CO 80202

**Prepared by:**

WSP USA Environment & Infrastructure Inc.  
11870 Pierce Street, Suite 160  
Riverside, CA 92505  
(951) 369-8060

**August 2024**

TABLE OF CONTENTS

1.0 INTRODUCTION ..... 1

1.1 Purpose..... 1

1.2 Project Description ..... 1

1.3 Project Location and Topography..... 1

2.0 METHODS ..... 2

2.1 Background Review ..... 2

2.2 Field Survey Background ..... 3

2.3 Field Survey Methods..... 4

3.0 ENVIRONMENTAL SETTING ..... 5

3.1 Existing Conditions..... 5

3.2 Topography ..... 6

3.3 Hydrology ..... 6

3.4 Precipitation ..... 6

3.5 Vegetation ..... 7

3.6 National Wetlands Inventory..... 7

3.7 National Hydrography Dataset..... 7

3.8 Soils ..... 8

4.0 RESULTS..... 9

5.0 DISCUSSION AND CONCLUSIONS.....15

6.0 IMPACTS TO JURISDICTIONAL WATERS.....15

6.1 Permitting Requirements .....16

7.0 REFERENCES .....17

8.0 LIMITATIONS.....19

9.0 REPORT CERTIFICATION STATEMENT.....20

LIST OF TABLES

Table 1. Potentially Jurisdictional Drainages (Study Area)..... 9

LIST OF APPENDICES

- Appendix A: Jurisdictional Maps
- Appendix B: Site Photographs
- Appendix C: Regulatory Framework

## **1.0 INTRODUCTION**

WSP USA Environment & Infrastructure Inc. (WSP) was contracted by GEM A-CAES LLC, a subsidiary of Hydrostor, Inc. to conduct a jurisdictional delineation and prepare a report for the Willow Rock Energy Storage Center located in Kern County, California. This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by the project. All figures referenced in this report are provided in Appendix A. Site photographs are in Appendix B and Regulatory Framework is in Appendix C.

### **1.1 Purpose**

The purpose of the delineation is to determine the extent of state and federal jurisdiction in the project subject to regulation by the following:

- U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act
- Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act and Porter-Cologne Water Quality Control Act
- California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code

### **1.2 Project Description**

GEM A-CAES LLC proposes to construct and operate a nominal 500-megawatt advanced compressed air energy storage facility deploying Hydrostor, Inc.'s proprietary advanced compressed air energy storage technology. The project will be designed to store 500 megawatts for up to 14 hours and deliver up to 4,000-megawatt hours over an 8-hour period when discharging. The proposed project includes the development of an energy storage facility site and approximately 19 miles of gen-tie electrical transmission lines (gen-tie lines) connecting to the existing Southern California Edison Whirlwind Substation. The total area, including the energy storage facility, gen-tie lines, and their corridor (125-foot buffer), is approximately 490 acres and will be herein collectively referred to as the "project" or "project site" unless otherwise specified.

### **1.3 Project Location and Topography**

The project site is located on private property in and around the rural community of Ansel, just north of State Route 138, south of State Route 58, east of Interstate 5, and west of Edwards Air Force Base (Figure 1, Regional Location). Accessible portions were identified are areas within public road rights-of-way, parcels owned by the applicant, or parcels with right-of-entry agreements.

The energy storage facility is located on the 7.5-minute Soledad Mountain, California, U.S. Geological Survey (USGS) topographic quadrangle (topo quad). The gen-tie lines and variances are on the Soledad Mountain, Rosamond, Fairmont Butte, and Little Buttes topo quads. The project



site is located within portions of Sections 31, 32, and 33 of Township 10 North and Range 12 West; portions of Sections 36 of Township 10 North and Range 13 West; portions of Sections 1, 2, 11, 14, 15, 16, 17, and 18 of Township 9 North and Range 13 West; portions of Sections 13, 14, 15, 16, 17, and 18 of Township 9 North and Range 14 West; and portions of Sections 13, 14, and 23 of Township 9 North and Range 15 West (Figure 2, Historic USGS Topographic Map).

Topography in the project site slopes from northwest to southeast, with flat areas in the southern portions and gently rolling hills in the central portion of the project site. Elevations range from approximately 2,400 feet (732 meters) in the southeast corner of the transmission line at the corner of Rosamond Boulevard and 65th Street West to 2,720 feet (830 meters) along Dawn Road, just south of an existing water tank facility (Figure 3, Local Vicinity).

## **2.0 METHODS**

### **2.1 Background Review**

Information on waters and wetlands on the project site was obtained from a review of background information supplemented and verified by field delineation. The energy storage facility, gen-tie alignment, additional workspace, and additional areas beyond the limits of the project site, both upstream and downstream, are herein referred to as the jurisdictional delineation “study area.” Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Current and historical aerial photographs (Google Earth 2024) of the study area at a scale of 1:1800 to determine the potential locations of jurisdictional waters or wetlands
- USGS topographic maps to determine the presence of “blue line” drainages or other mapped water features (USGS 2024a)
- U.S. Department of Agriculture (USDA) soil mapping data (USDA 2024)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map to identify areas mapped as wetland features (USFWS 2024)
- National Hydrography Dataset (USGS 2024b)
- Federal Emergency Management Agency (FEMA) National Flood Hazard Map (2024)
- Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-scale Solar Power Plants (Brady and Vyverberg 2014)
- Preliminary Hydrology & Hydraulic Analysis for the Willow Rock Energy Storage Center (Kiewit 2024)

Information from the literature review was used to develop the field program. High-resolution aerial imagery was used to identify areas with evidence of flows, such as meandering paths with no vegetation, linear changes in vegetation type and vegetation color, and clearly defined channels or braided channel systems. In the arid southwest, this evidence is typically described as

meandering unvegetated areas along topographic low spots. Individual layers, including shapefiles for soils, topography, National Wetland Inventory, National Hydrology Dataset, and FEMA's National Flood Hazard were overlaid on the aerial photo imagery using a geographic information system (GIS) to better refine the hydrologic characteristics of the project site and surrounding watershed. The Preliminary Hydrology & Hydraulic Analysis for the Willow Rock Energy Storage Center (Kiewit 2024) identified the topographic low-flow areas within the energy storage facility. All areas identified as potential drainage features during the literature review were included in the GIS application Field Maps for field verification.

## **2.2 Field Survey Background**

Field surveys were based on standard jurisdictional delineation practices for the arid southwest consisting of episodic flow patterns and were used to document the presence and limits of jurisdictional Waters of the United States (WOTUS) and Waters of the State of California (WSC) as regulated by the USACE, RWQCB, and CDFW. If present, USACE-regulated WOTUS and RWQCB-regulated WSC were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a). The extent of WOTUS was determined based on indicators of an Ordinary High-Water Mark (OHWM). The OHWM width was measured at points wherever clear changes in width occurred, if present.

CDFW jurisdictional "streams" are defined under Section 1600 of the California Fish and Game Code as a body of water that flows perennially or episodically and that are defined by the area in which water currently flows, or has flowed in the past, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators. These indicators, as discussed above, include noticeable changes in vegetation types, vegetation coverage, hydrology, and soil texture as they are attributed to natural flows. Areas associated with human disturbance require additional consideration, as natural elements of any potential drainage feature may have been altered. CDFW jurisdiction also extends to the outer edge of the dripline of any associated riparian vegetation if present.

Potential federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008b). Additional data were recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled to classify an area as a wetland under the jurisdiction of the USACE: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. State wetlands, if present, were delineated using the methodology per USACE (1987) and USACE (2008b) and modified to allow for areas devoid of hydrophytic vegetation to be considered a wetland per the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*.

Typically, RWQCB jurisdiction mirrors that of USACE. However, under the Porter-Cologne Act, the RWQCB Lahontan Region's jurisdictional areas more closely mirror the CDFW jurisdictional limits, as described below.

As a standard mapping practice, CDFW jurisdictional limits include all drainage features within well-defined bed and bank features, regardless of whether the drainage is considered isolated or connected to a downstream active channel. The jurisdictional limits also include landforms containing multi-thread braided channel systems, where the jurisdictional limits are extended to the furthest extent of the active channel, in areas with episodic stream processes.

The California Energy Commission provides additional guidance based on *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-scale Solar Power Plants* (Brady and Vyverberg 2014). The purpose of the Brady and Vyverberg method is to identify episodic drainage features that are not clearly defined and may or may not receive flows annually, which are typically excluded from standard jurisdictional delineations. Field checks generally followed the Brady and Vyverberg method. Soil pits were excavated at each drainage to identify the soil profile. The Brady and Vyverberg method includes soil pits that are 1 meter long by 0.5-meter wide by 1 meter deep; however, Brady and Vyverberg (2014) do not recommend using such large soil pits as part of the methods. As such, soil pits excavated during the delineation effort for the Project were approximately 0.3 meters wide by 0.3 meters long by 0.5 meters deep.

The classic drainage feature characteristics of CDFW jurisdiction typically end when drainage features transition to upland swales supporting low volume flows that no longer contain direct evidence of flows. These features are typically low-lying, undefined, relatively flat portions of the local landscape that have no change in vegetation types, vegetation coverage, changes in hydrology, and soil texture. Isolated CDFW jurisdictional areas occur in areas that have noticeably eroded, relict washes that received only "periodic flows" during extremely large precipitation events that affect local watersheds.

### **2.3 Field Survey Methods**

Field surveys were completed by walking or driving the entire study area (with some exceptions due to private property access) stopping at locations identified in Field Maps through the background review, which are areas containing evidence of potential drainage features. At locations with evidence that flow occurred, the drainage features were walked upstream and downstream to include the 61-meter (200-foot) study area recommended by Brady and Vyverberg (2014). However, drainage features were walked more than the 61-meter (200-foot) study area beyond that, where accessible, to account for and identify tributaries that may be hard to detect to better understand the local flow regime. The survey crew conducted additional site evaluations when changes in any of the following features were observed during the field surveys: vegetation types, vegetation coverage, hydrology, and soil as well as the location of any underground culverts. If a drainage continued to flow within a parcel where the project has not been able to

obtain site access, it was avoided during field surveys. A dashed line was utilized to map the potential drainage location based on aerial photograph interpretation and evidence of flows upstream and downstream of those restricted areas. If possible, flow patterns and size were estimated with the use of binoculars.

To determine jurisdictional boundaries of identifiable drainage features, the surveyor walked the length of all potential drainage features in the defined study area and recorded the centerline with the Field Maps application. The width of the drainage was determined by the field indicators at locations where transitions in vegetation types, vegetation coverage, changes in hydrology, and soil texture were apparent. Other data recorded included bank height and morphology, substrate type, and vegetation type within the streambed, including adjacent riparian vegetation, if present. Also included was a determination if the drainage was active, dormant, abandoned, or a relict as described in Brady and Vyverberg (2014). Soil testing was not conducted in areas that lacked evidence of hydrophytic vegetation and wetland hydrology because indicative wetland parameters were absent. Upon completion of fieldwork, data collected in the field were incorporated into GIS, which was used to quantify the extent of jurisdictional waters and prepare graphical representations.

Incidental information on drainage features was collected during the sensitive plants protocol surveys conducted in spring 2023 and 2024. The project site was initially walked by WSP biologists and wetland scientists during focused surveys for sensitive plants in early spring and summer of 2023. During these surveys, the entire energy storage facility, gen-tie alignment, and additional workspace was walked along transects spaced 10 meters apart, and evidence of flows was noted in Field Maps, if present. In September of 2023, additional gen-tie alternatives and additional workspace areas were added to the project and incidental information on drainage features was collected during the sensitive plants protocol surveys conducted in spring and summer of 2024.

The field checks for jurisdictional drainage features were conducted by WSP Senior Biologists Scott Crawford and Marshall Paymard on October 3 and 4, 2023, and repeated by WSP Senior Biologists Scott Crawford and Dale Hameister on June 21, 2024.

### **3.0 ENVIRONMENTAL SETTING**

#### **3.1 Existing Conditions**

The study area is located in the central portion of the Antelope Valley and is predominately covered by Mojave creosote bush scrub. The location of the energy storage facility is relatively undisturbed, with several pre-existing unpaved access routes. Evidence of unauthorized off-road vehicle use, recreational shooting, and illegal dumping has also been recorded in the energy storage facility location. The eastern portion of the gen-tie follows an existing unpaved portion of Dawn Road until it reaches Mojave Tropico Road, which is a paved major arterial roadway that connects to the Silver Queen Road north of the project site. The gen-tie line continues south along

Mojave Tropico Road until it turns west onto Rosamond Boulevard, which is also paved until 170th Street, where it transitions to a dirt access road until it terminates at the SCE Whirlwind Substation. There are a few gen-tie alternatives that also follow dirt access roads along portions of Felsite Avenue, Werner Avenue, 30th Street, and 25th Street. There are two alternative gen-tie routes that are proposed in undisturbed Mojave creosote bush scrub habitat along portions of McConnell Avenue and an east-west segment that connects 30th Street and 25th Street just south of Champagne Avenue.

### **3.2 Topography**

The study area features mostly flat terrain, with a few elevated areas in the north. Elevations in the study area range from 2,450 feet (746 meters) above mean sea level in the southern sector to 2,770 feet (844 meters) above mean sea level in the northernmost part. Generally, elevations in the study area decrease in a southerly direction.

### **3.3 Hydrology**

Regional precipitation is typically intense, brief storms, leading to flash floods in washes and canyons, although the area generally receives low rainfall averages. The study area is situated in an endorheic basin, which is an area devoid of an outlet to the ocean. Water in these basins follows processes of evaporation, infiltration, or accumulation in salt flats. Ephemeral streams and washes are notably present in the study area, remaining dry for extended periods but swiftly filling during and after rain events. These ephemeral streambeds and washes primarily drain towards the southeast direction and terminate into the Rosamond Dry Lake approximately 3.5 miles southeast of the project site. In relatively flat areas drainage features will often sheet flow in a topographic low spot, referred to as a swale. Sheet flow is defined as overland flow of water that happens in a continuous sheet, characterized by relatively low volume and low velocity that does not result in a change in environmental conditions, such as erosion or sediment deposition, and does not convey sufficient hydrology to change the surrounding vegetation communities or relative cover.

The study area is in the Northern Mojave basin (HUC 180902) and falls within the Antelope-Fremont Valleys subbasin (HUC 18090206). It encompasses four distinct watersheds: Sacatara Creek-Kings Canyon (HUC 1809020613), Cottonwood Creek-Tylerhorse Canyon (HUC 1809020618), Tropico Hill-Oak Creek (HUC 1809020617), and Rosamond Lake (Figure 4, Hydrology Map).

### **3.4 Precipitation**

The annual average total precipitation at the nearby Lancaster, CA WETS Station is 6.00 inches (15 centimeters), per data from the past 20 years (NRCS 2023). Over the last 5 years, the yearly average total precipitation has been recorded at 6.60 inches (16.8 centimeters). According to climatological data referenced at Rosamond Skypark Airport (KCAROSAM2), total rainfall for 2023 was recorded at 11.03 inches, and thus far for 2024, the rainfall total is 8.06 inches. The past two years have had well above average rainfall, making it easier to identify areas where water may flow

less often. The last recorded rainfall (0.21 inches) prior to the jurisdictional delineation surveys in June 2024 was recorded on April 14, 2024.

### **3.5 Vegetation**

The study area encompasses a total of 11 vegetation communities and land cover types, which comprise creosote bush scrub, cheesebush scrub, developed/disturbed, allscale scrub, creosote bush-white bursage scrub, rubber rabbitbrush scrub, Joshua tree woodland, tamarisk thickets, non-native grassland and forbes, white bursage scrub, and needleleaf rabbitbrush scrub (Figure 5, Vegetation and Land Cover Types). The study area site features a diverse range of desert vegetation cover, ranging from sparse to moderately high densities, interspersed with disturbed areas, developed lands, and both dirt and paved roads. Notably, no hydrophytic vegetation, such as desert willow (*Chilopsis linearis*), smoke tree (*Psoralea arguta*), mesquite (*Prosopis* sp.), or desert broom (*Baccharis sarothroides*), were identified in drainage features in the study area. A small patch of tamarisk thickets was observed along the Rosamond Boulevard right-of-way as a man-made windrow. Although tamarisk is a facultative species per the National Wetland Plant List (Lichvar et al. 2014), it is located along a disturbed roadside area, and not in definable drainage feature.

### **3.6 National Wetlands Inventory**

The USFWS is the principal federal agency that provides information to the public on the extent and status of the nation's wetlands. The USFWS has developed a series of maps, known as the NWI to show wetlands and deepwater habitat. This geospatial information is used by federal, state, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands and non-wetland waters identified by the NWI program are not always considered jurisdictional waters if present.

The NWI Mapper (USFWS 2024) was accessed online to examine mapped wetlands or riverine areas within the study area. Twelve drainages identified in the NWI database were observed in the field, while two were determined to be absent (Figure 6, NWI Data). All water features identified in the NWI Mapper and confirmed during field assessments are categorized as R4SBJ, riverine, intermittent, streambed, excavated (seasonally flooded) based on the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979).

### **3.7 National Hydrography Dataset**

The National Hydrography Dataset (NHD) is a dataset that provides information about surface water features, such as rivers, lakes, and streams. It is maintained by the USGS and is widely used for various applications, including environmental research, resource management, and mapping.

The NHD includes information on the flow and relationships between different water features, helping to create a detailed and interconnected representation of the nation's hydrography. It is important to note that the dataset has its limitations in accuracy and should not be used to

determine jurisdiction of waters. The NHD was accessed online to aid in the identification of potentially jurisdictional waters. Cottonwood Creek was the only drainage feature identified on the NHD that was determined to be jurisdictional. Two detentions based along Rosamond Boulevard were confirmed during the field assessment to be absent or non-jurisdictional features.

### **3.8 Soils**

In the study area, 27 soil types were delineated and mapped (USDA 2024) (Figure 7, USDA Soils). The identified soil types include the following:

- Adelanto coarse sandy loam, on slopes with a 2 to 5 percent grade
- Adelanto loamy sand, 2 to 5 percent slopes
- Arizo gravelly loamy sand, 0 to 5 percent slopes
- Arujo sandy loam, 9 to 15 percent slopes
- Cajon loamy sand, 0 to 2 percent slopes
- Cajon loamy sand, 0 to 5 percent slopes
- Cajon loamy sand, 2 to 9 percent slopes
- Cajon loamy sand, loamy substratum, 0 to 2 percent slopes
- Cajon sand, 5 to 15 percent slopes
- DeStazo sandy loam, 0 to 2 percent slopes
- Garlock loamy sand, 2 to 9 percent slopes
- Hesperia fine sandy loam, 0 to 2 percent slopes
- Hesperia fine sandy loam, 2 to 5 percent slopes
- Hesperia loam, 0 to 2 percent slopes
- Hesperia loamy fine sand, 0 to 2 percent slopes
- Hesperia loamy fine sand, 0 to 2 percent slopes hummocky
- Hi Vista sandy loam, 2 to 9 percent slopes
- Mohave coarse sandy loam, 2 to 5 percent slopes
- Muroc sandy loam, 2 to 9 percent slopes
- Porterville cobbly clay, 5 to 9 percent slopes
- Rock land; Rock outcrop; Rosamond clay loam
- Rosamond fine sandy loam; Rosamond loam
- Rosamond loamy fine sand, hummocky
- Rosamond loamy fine sand, slightly saline
- Rosamond silty clay loam
- Rosamond silty clay loam, saline-alkali

- Torriorthents-Rock outcrop complex, very steep.

None of the soils listed above are considered hydric and are categorized as either well-drained, somewhat excessively drained, or excessively drained.

#### 4.0 RESULTS

Based on the field visit, no jurisdictional wetlands were identified and 19 non-wetland ephemeral drainages were documented in the study area (Figure 8, Jurisdictional Waters). The lateral limits of non-wetland drainages ranged from 6 inches to 18 feet in width and were determined by heterogeneity in soils, vegetation, and geomorphology compared to the adjacent uplands. Soils in the ephemeral drainage features were composed of well-drained, coarse textures, such as sandy or gravelly materials with low organic content. Two hydrologic low spots were identified along Rosamond Boulevard that ranged in width from 125 to 330 linear feet. Soils in the ponded area contained some evidence of cracking but were mostly similar to surrounding upland soils. The total acres of the non-wetland waters contained in the study area summed to 15.17 acres and 21,471 linear feet (6,544 meters). No hydrophytic or native riparian plant species were observed in the study area. Table 1 details the drainage names and their related acreages, linear feet, and activity comprised in the study area. A more detailed narrative of each drainage feature is included below. Site photos of representative portions of the on-site drainages are included in Appendix B.

**Table 1. Potentially Jurisdictional Drainages (Study Area)**

| Drainage | Activity  | Jurisdiction | Acres/Linear Feet              |
|----------|-----------|--------------|--------------------------------|
| A        | Active    | WSC/CDFW     | 0.19 acres/1,037 linear feet   |
| B        | Active    | WSC/CDFW     | 0.26 acres /1,077 linear feet  |
| C        | Abandoned | WSC/CDFW     | 0.53 acres /2,101 linear feet  |
| D        | Dormant   | WSC/CDFW     | 0.56 acres /895 linear feet    |
| E        | Active    | WSC/CDFW     | 0.06 acres /954 linear feet    |
| F        | Active    | WSC/CDFW     | 8.1 acres /1,857 linear feet   |
| G        | Active    | WSC/CDFW     | 3.0 acres /1,169 linear feet   |
| H        | Dormant   | WSC/CDFW     | 0.04 acres /66 linear feet     |
| I        | Dormant   | WSC/CDFW     | 0.02 acres / 215 linear feet   |
| J        | Dormant   | WSC/CDFW     | 0.01 acres / 61 linear feet    |
| K        | Dormant   | WSC/CDFW     | 0.01 acres / 52 linear feet    |
| L        | Active    | WSC/CDFW     | 0.05 acres / 2,128 linear feet |
| M        | Dormant   | WSC/CDFW     | 0.08 acres / 541 linear feet   |
| N        | Dormant   | WSC/CDFW     | 0.22 acres / 883 linear feet   |
| O        | Active    | WSC/CDFW     | 0.30 acres / 2,500 linear feet |
| P        | Dormant   | WSC/CDFW     | 0.10 acres / 688 linear feet   |



| Drainage     | Activity | Jurisdiction                          | Acres/Linear Feet              |
|--------------|----------|---------------------------------------|--------------------------------|
| Q            | Dormant  | WSC/CDFW                              | 0.16 acres / 530 linear feet   |
| R            | Active   | WSC/CDFW                              | 0.19 acres / 2095 linear feet  |
| S            | Active   | WSC/CDFW                              | 1.29 acres / 2,622 linear feet |
| <b>TOTAL</b> |          | <b>15.17 acres/21,471 linear feet</b> |                                |

### Drainage A

Drainage A is characterized as an active dirt access road that currently conveys storm flows during large storm events (Photos 1 and 2, Appendix B). Flows originate from Cottonwood Creek to the northwest. During the 2023 rain season, excessive storm run-off redirected flows from the historic channel to a new active channel that flows along an active dirt access road. The low-flow channel is generally 1 to 2 feet wide, which is consistent with upstream portions of Cottonwood Creek. The active portion of the channel is 6 to 10 feet wide and correlates with the width of the previously disturbed access road. There was no evidence of flow beyond the edge of the disturbed access road. Soils within the drainage consisted of loose sand with no organic streaking.

This feature is not identified in the NWI or NHD database but is on the western edge of the FEMA National Flood Hazard Area. Although it is not a naturally occurring drainage feature, it is the current channel and therefore would be considered jurisdictional by RWQCB and CDFW. The edges of the drainage feature were identified by a change in sediment structure from sandy deposits to upland soils. The access road lacked vegetation, but due to on-going grading to maintain the road, there was evidence of small berms along the outer edges of the road that contain the flows from extending beyond the road edge.

### Drainage B

Drainage B is characterized as a naturally occurring active channel that currently conveys a portion of the storm flows that originate from Cottonwood Creek. Although most of the flow from Cottonwood Creek currently flows in Drainage A, a portion of the flow still occur in Drainage B. This was evident by the active channel erosion and ponding evidence on the north side of the earthen berm (Photos 3 through 5). This feature did not contain a similar low-flow channel like Drainage A. This feature contains an active channel between 9 and 13 feet wide. There was no evidence of flow beyond the edge of the active channel. Soils in the drainage consisted of loose sand with no organic streaking. As a result of clearing Rosamond Boulevard of sediment during storm events, a portion of the flows from Drainage A sheet flow along the southern edge of Rosamond Boulevard and enter Drainage B (Photos 6 and 7).

This feature is identified in the NWI database and is also on the western edge of the FEMA National Flood Hazard Area. This feature is a natural occurring diversion of Cottonwood Creek and was defined by a change in sediment. There was no change in the upland areas adjacent to the

channel. It is considered an active channel and therefore would be considered jurisdictional by RWQCB and CDFW.

### **Drainage C**

Drainage C is likely a remnant braid from the historic Cottonwood Creek. This feature was not identified in the NWI database but it is within the western part of the FEMA National Flood Hazard Area and is visible on an aerial photograph with an average width of approximately 2 to 4 feet. It likely collects sheet flow from the existing dirt access road, then flows over Rosamond Boulevard and then enters a man-made earthen channel (likely to contain the drainage and reduce erosion). Although there was no definitive evidence of flows on the upstream side of Rosamond Boulevard, the earthen berm, and downstream flows south of Rosamond Boulevard are clearly identified on an aerial photograph. Currently, this channel has no upstream connection to Cottonwood Creek; however, there is evidence that this feature conveys some amount of flow during storm events or is simply used to convey sheet flow off of Rosamond Boulevard. This feature is considered a dormant channel but is still capable of conveying flows during a storm event, and therefore would be considered jurisdictional by RWQCB and CDFW.

### **Drainage D**

Drainage D is the historic portion of Cottonwood Creek (USGS Fairmont Butte 7.5-minute topographic quadrangle), but no longer conveys active flows, even during a storm event. Due to complete flow diversion into Drainages A and B, this feature is now considered a relict. Although there is historic evidence of flows (e.g., sandy soils) the feature has been used for off-road vehicle use and no longer contains evidence of recent flows (OHWM or clearly defined bed and bank features). (Photo 8) If the drainage contains flow, it is likely limited to the immediate surrounding area, which does not generate sufficient velocity or volume to maintain the active channel. This feature currently ranges from 26 to 48 feet in width. Downstream of Rosamond Boulevard, Drainage D is conveyed in an earthen berm (Photo 9) and eventually sheet flows south of the project site.

This feature is identified in the NWI database and is also on the western edge of the FEMA National Flood Hazard Area. Since this is the historic flow channel of Cottonwood Creek, it is likely that this area may revert to an active channel if the flows upstream are naturally diverted due to a heavy storm event. For that reason, it is considered a relict channel and therefore would be considered jurisdictional by RWQCB and CDFW. Drainage D completely sheet flows south of Rosamond Boulevard and has no evidence of channel flow; therefore, the jurisdictional limits of CDFW and RWQCB are limited to the northern side of the road.

### **Drainage E**

Drainage E is a localized drainage feature that only has evidence of flows immediately upstream and downstream of Rosamond Boulevard. This feature is considered dormant and flows have been

limited by surrounding rural residences. This feature also conveys sheet flow from Rosamond Boulevard (See Photo 10). The portion of the channel that has evidence of flows ranges from 1 to 3 feet in width. This channel is characterized by a lack of vegetation cover and a small berm along the active channel. Since this feature contains some evidence of flows, it is considered a dormant channel and may continue to convey flows during storm events. This feature is identified in the NWI database and is located within the central portion of the edge of the FEMA National Flood Hazard Area. Therefore, Drainage E would be considered jurisdictional by RWQCB and CDFW.

### **Drainage F**

Drainage F contains evidence of ponding, including cracked soils and a lack of dense understory vegetative cover (See Photo 11). The ponding is likely the result of either an undersized or blocked storm drain beneath Rosamond Boulevard allowing flows to back up on the north side of the road. This area was also mapped as a freshwater pond in the NWI database and is located on the eastern edge of the FEMA National Flood Hazard Area. The ponded area was mapped as 1,000 feet in length and 300 feet in width. An underground culvert continues to convey flows south of Rosamond Boulevard in a channel that ranges from 3 to 9 feet in width (Photo 12). The portion of the channel south of Rosamond Boulevard contains an earthen berm and the jurisdictional limits are indicated by a change in vegetative cover. Therefore, Drainage F is considered active and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage G**

Drainage G is similar to Drainage F described above. It is identified as a freshwater ponded area on the NWI database and located on the eastern edge of the FEMA National Flood Hazard Area. Although this feature contains a small remnant upland drainage upstream of the ponded area, there is no downstream evidence of flows. This feature is approximately 1,158 linear feet, averages 90 to 212 feet in width, and terminates at the northern edge of Rosamond Boulevard (Photo 13). This feature does not continue south of Rosamond Boulevard. The portion of the channel north of Rosamond Boulevard contains an earthen berm and the jurisdictional limits are indicated by a clear change in vegetative cover. Drainage G is on the eastern edge of the FEMA National Flood Hazard Area. Therefore, Drainage G is considered active and would be considered jurisdictional by RWQCB and CDFW.

### **Drainages H, I, J, and K**

All four of these features are described as underground culverts that convey sheet flow from one side of Rosamond Boulevard to the other. Flows are contained in the underground culvert (Photos 14 through 21). Except for Drainage I, no evidence of flows upstream or downstream were recorded at these crossings. Drainage I has a small erosion feature that continues downstream of Rosamond Boulevard but is limited to about 140 linear feet and was measured no wider than 2 feet. These drainages are not identified in the NWI Map and are not in the FEMA National Flood

Hazard Area. Since there is evidence of flows, Drainages H, I, J, and K are considered dormant, but would be considered jurisdictional by RWQCB and CDFW.

### **Drainage L**

Drainage L is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates on the east side of Covington Mountain, approximately 23 miles northwest of the study area. This drainage has a defined low-flow channel that ranges between 1 and 3 feet in width. The bed and bank feature ranges from 8 to 12 feet in width (Photo 22). The upstream portion of the channel was recently burned in 2024. The downstream portion of the channel was filled with broken pieces of concrete and asphalt presumably placed to reduce erosion. The active channel was wider and deeper than the upstream portion of the channel and the width ranged from 12 to 18 feet (Photo 23). Drainage L is located within the NWI database and is located within the FEMA National Flood Hazard Area. Drainage L is an active channel and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage M**

Drainage M is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates on the west side of Rosamond Hills, approximately 2.2 miles northwest of the study area. This drainage has a defined low-flow channel that ranges between 6 inches and 1 foot in width. The defined bed and bank feature ranges from 3 to 6 feet in width (Photo 24). This feature also has evidence of off-road vehicle use and therefore limits of jurisdiction are difficult to distinguish. Drainage M is located within the NWI database and is located within the FEMA National Flood Hazard Area. Drainage M is an active channel and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage N**

Drainage N is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates within the Rosamond Hills, approximately 2.6 miles northwest of the study area. This drainage has a defined bed and bank feature that ranges from 3 to 8 feet in width with no discernable low-flow channel (Photos 26 and 27). The active channel is defined by a change in sediment and vegetation cover. There is no braided channel system or other evidence of flows in the upland areas adjacent to the drainage feature. This drainage eventually sheet flows with no evidence of flows just north of the Rosamond Airport. Drainage N is located within the NWI database and the downstream portion of this drainage is located within the FEMA National Flood Hazard Area, but not in the project study area. Drainage N is an active channel and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage O**

Drainage O is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates within the Rosamond Hills, approximately 1 mile north of

the study area. This drainage has a defined bed and bank feature that ranges from 3 to 6 feet in width with no low-flow channel (Photos 28 and 29). The active channel is defined by a change in sediment and vegetation cover and includes a small tributary at the northern edge of the study area. There is no braided channel system or other evidence of flows in the upland areas adjacent to the drainage feature. This drainage eventually sheet flows with no flows just north of the Rosamond Airport. The downstream portion of Drainage O (south of the project study area) is located within the NWI database and the drainage is located within the FEMA National Flood Hazard Area. Drainage O is an active channel and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage P and Q**

Drainage P and Q are characterized as naturally occurring dormant channels that periodically convey flows and were likely impacted during the installation of Dawn Road. Both features have a defined channel, but only on the south side of Dawn Road. Flows upstream and downstream of these areas sheet flow with no evidence of flows. These drainages have a defined bed and bank feature that ranges between 1 and 3 feet in width. There is a change in soil texture and vegetative cover. Drainages P and Q are both listed on the NWI database but are not included in the FEMA National Flood Hazard Area. For these reasons, Drainages P and Q are considered dormant channels and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage R**

Drainage R is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates from run-off along US Highway 14. Flows are collected along the paved road and conveyed into an underground culvert that outlets on the east side of the highway, just north of the Dawn Road intersection. This drainage has a defined bed and bank feature that ranges from 3 to 12 feet in width, with a low-flow channel that averages 1 to 3 feet (Photos 30 and 31). The active channel is defined by a change in sediment and vegetation cover and includes a small tributary at the northern edge of the study area. There is no braided channel system or other evidence of flows in the upland area adjacent to the drainage feature. This drainage eventually sheet flows with no evidence of flows just south of the project study area on the south side of Dawn Road. Drainage R is not located within the NWI database and is not located within the FEMA National Flood Hazard Area. Drainage R is an active channel and would be considered jurisdictional by RWQCB and CDFW.

### **Drainage S**

Drainage S is characterized as a naturally occurring active channel that currently conveys flows from a local watershed that originates from run-off north of Champagne Avenue, south of Sopp Road, east of 30th Street, and west of US Highway 14 and conveyed into an underground culvert that outlets on the east side of the railroad tracks, just north of the Dawn Road intersection with Sierra Highway. This drainage has a clearly defined bed and bank feature that ranges from 3 to

12 feet in width with a low-flow channel that averages 1 to 3 feet. The active channel is defined by a change in sediment and vegetation cover and includes at least two small tributaries along the eastern edge of the study area. Additional tributaries occur outside of the study area. There is no braided channel system or other evidence of flows in the upland area adjacent to the drainage feature. This drainage eventually sheet flows with no evidence of flows just south of the project study area on the south side of Dawn Road. Drainage S is located within the NWI database and is also located within the FEMA National Flood Hazard Area. Drainage S is an active channel and would be considered jurisdictional by RWQCB and CDFW.

## **5.0 DISCUSSION AND CONCLUSIONS**

On August 29, 2023, the USACE and U.S. Environmental Protection Agency issued the final rule to amend the final Revised Definition of the “Waters of the United States” rule. This was a direct result of the U.S. Supreme Court decision on May 25, 2023, in the case of *Sackett v. Environmental Protection Agency*. Under the revised definition, USACE jurisdiction areas must have a hydrologic surface connection to any Relatively Permanent Water or Traditionally Navigable Waterway. Since all the drainage features are considered ephemeral and have no hydrologic connection to any downstream Relatively Permanent Waters or Traditionally Navigable Waterways, they are no longer under the USACE jurisdiction.

Conclusions derived from the jurisdictional delineation field effort determined that 19 individual ephemeral drainage features documented in the study area are considered jurisdictional WSC regulated by the CDFW and RWQCB. Given the episodic flow regime and well-drained soils, both CDFW streambed and RWQCB jurisdictions coincided across the study area. There was no evidence of adjacent riparian habitat at the 19 drainage features that would expand the CDFW jurisdictional limits.

Since the proposed project will be permitted through the CEC, the CEC will be issuing a final decision and will incorporate the required mitigation measures typically associated with CDFW and RWQCB state law permitting, if applicable. During the agency consultation, CDFW and RWQCB staff will assess the application information and reach out to the CEC for any necessary clarifications or site visits.

## **6.0 IMPACTS TO JURISDICTIONAL WATERS**

For the reasons discussed herein, no impacts to jurisdictional waters are proposed or anticipated for the project. All the jurisdictional waters within the study area are situated in the footprint of the additional workspace areas or transmission line alignments, allowing for avoidance. The transmission line will be above ground and sited so that the impact footprint avoids adverse impacts on jurisdictional waters.

## **6.1 Permitting Requirements**

The project site is currently designed to avoid impacts to jurisdictional waters; therefore, no permits associated with jurisdictional waters are anticipated to be required from the USACE, RWQCB, or CDFW. Details on the Regulatory Framework is provided in Appendix C of this report.

## 7.0 REFERENCES

- Brady, R.H. III, and K. Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior.
- Google Earth. 2023. U.S. Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. [earth.google.com/](http://earth.google.com/)
- Kiewit. 2024. Preliminary Hydrology & Hydraulic Analysis for the Willow Rock Energy Storage Center
- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. Phytoneuron 2014-41: 1-42
- Natural Resources Conservation Service (NRCS). 2023. AgACIS Climate Data. <http://agacis.rcc-acis.org>.
- U.S. Army Corps of Engineers (USACE). 1987. Wetlands Delineation Manual.
- U.S. Army Corps of Engineers (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.
- U.S. Army Corps of Engineers (USACE). 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.
- U.S. Department of Agriculture (USDA). 2024. Soil Survey Staff, Natural Resources Conservation Service, U.S. Department of Agriculture (USDA). Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/>. Accessed October 2023.
- U.S. Fish and Wildlife Service (USFWS). 2024. National Wetlands Inventory Mapper. <http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed October 2023.
- U.S. Geological Survey (USGS). 2024a. 7.5-Minute Series, *Fairmount Butte, Little Buttes, Tylerhorse Canyon and Willow Springs*, California, Topographic Quadrangles. Reston, Virginia.
- U.S. Geological Survey (USGS). 2024b. National Hydrography Dataset. <https://www.usgs.gov/core-science-systems/ngp/national-hydrography>. Accessed December 2023.
- Weather Underground. 2024. <https://www.wunderground.com/dashboard/pws/KCANEWBE16> Accessed December 2024.



Willow Rock Energy Storage Center  
Delineation of Jurisdictional Waters  
August 2024

Western Regional Climate Center. 2024. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9325>. Accessed January 2024.

## **8.0 LIMITATIONS**

This document has been prepared for the exclusive use of Hydrostor Inc. and its Construction Contract(s) in support of the preparation of the California Energy Commission's Application for Certification for the Willow Rock Energy Storage Center Project. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report was prepared, based in part, on information obtained from historic information sources. In evaluating the subject site, WSP has relied in good faith on information provided. We accept no responsibility for any deficiency or inaccuracy contained in this report as a result of our reliance on the aforementioned information.

The findings and conclusions documented in this report have been prepared for the specific application to this project and have been developed in a manner consistent with that level of care normally exercised by environmental professionals currently practicing under similar conditions in the jurisdiction.

With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time, and should be reviewed.

If new information is discovered during future work, the conclusions of this report should be re-evaluated and the report amended as required prior to any reliance upon the information presented herein.

## 9.0 REPORT CERTIFICATION STATEMENT

We certify that the information in the survey report and attached exhibits fully and accurately represents our work.

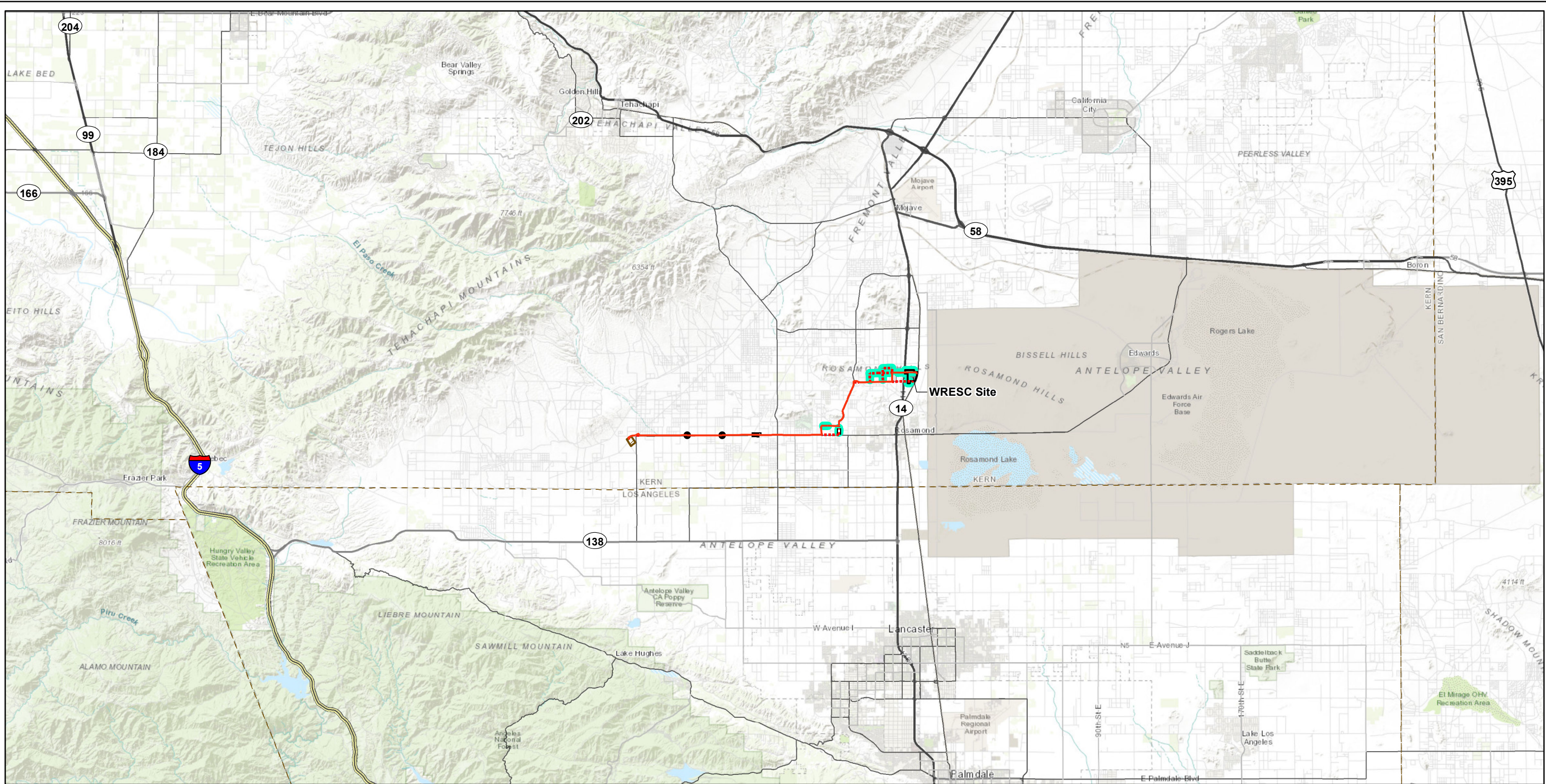
Signed:  Date: 08/02/2024

Signed:  Date: 08/02/2024

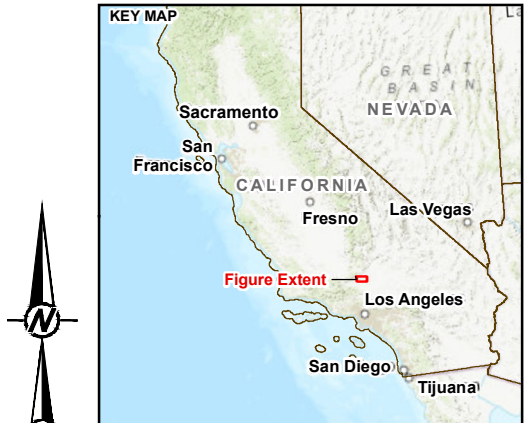
## **Appendix A    Jurisdictional Maps**



PATH: G:\Hydro\Area\09\_PROD\ECTS\1406639\_000\_Hydro\Area\Bldg\Survey\01\_LBR\_PN1\_Bldg\Survey\02\_PROD\CTON\MAX\01\_FIGURES\Jurisdictional\_Delineation\Rev13\1406639\_000\_01\_01\_FIG\01\_RegionalLocationMap.mxd PRINTED ON: 2024-07-30 AT: 9:39:07 AM



- LEGEND**
- Freeway
  - Major Road
  - Secondary Road
  - Local Connecting Road
  - Important Local Road
  - Proposed Transmission Line
    - Preferred Route, Aboveground
    - Preferred Route, Underground
    - Route Options 1-6, Aboveground
    - Route Options 1-6, Underground
- Project Components**
- WRESC Site
  - Other Project Parcels
  - No Right of Entry Areas
  - Project Boundary
  - 2024 Project Area
  - SCE Whirlwind Substation

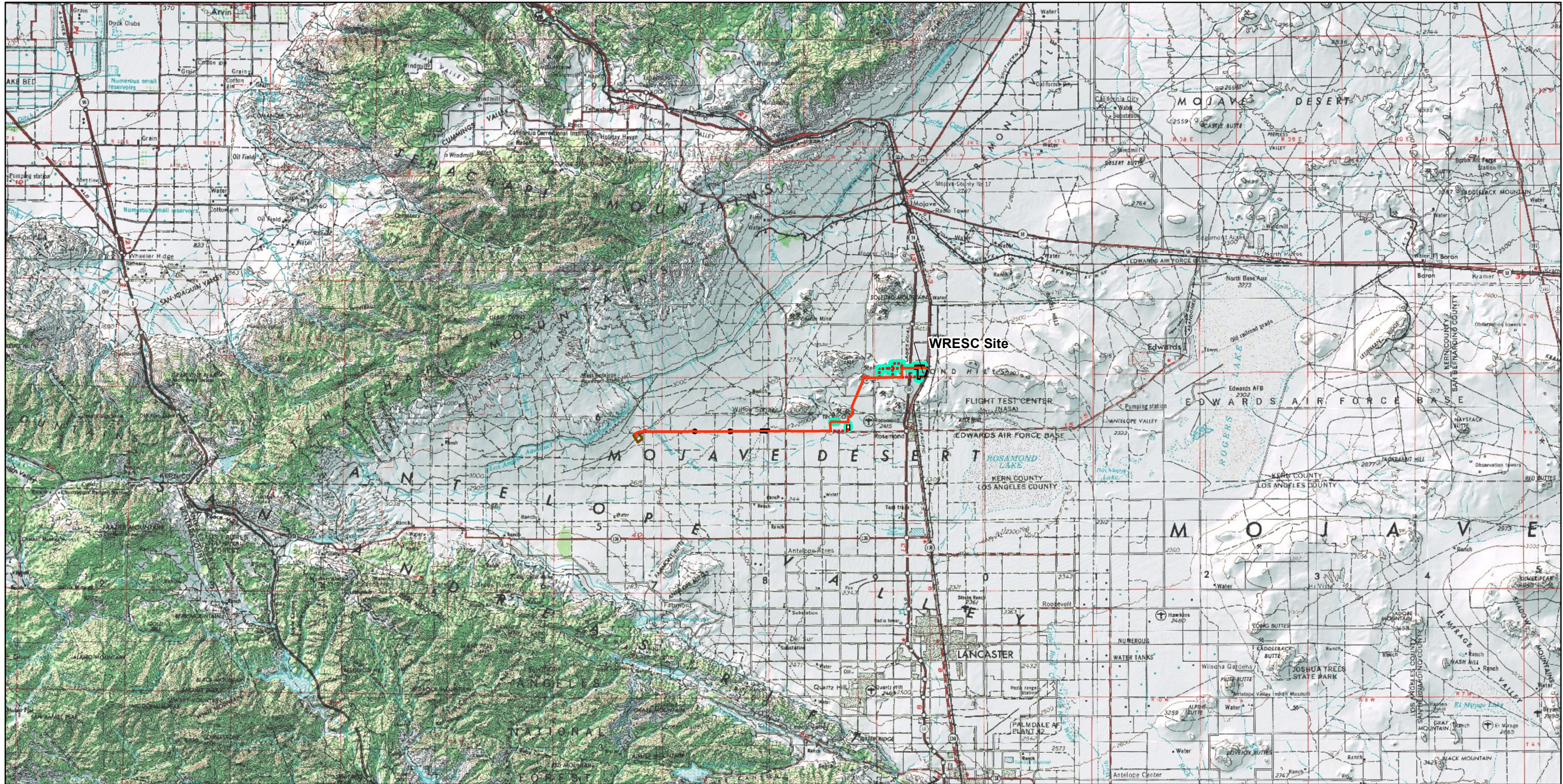


|              |        |                                                                                |            |
|--------------|--------|--------------------------------------------------------------------------------|------------|
| CLIENT       |        | GEM A-CAES LLC                                                                 |            |
| CONSULTANT   |        | YYYY-MM-DD                                                                     | 2024-07-30 |
|              |        | DESIGNED                                                                       | MK         |
|              |        | PREPARED                                                                       | MK         |
|              |        | REVIEWED                                                                       | SC         |
|              |        | APPROVED                                                                       | VG/LL      |
| PROJECT      |        | WILLOW ROCK ENERGY STORAGE CENTER<br>JURISDICTIONAL DELINEATION FOCUSED SURVEY |            |
| TITLE        |        | REGIONAL LOCATION MAP                                                          |            |
| PROJECT NO.  | PHASE  | REV.                                                                           | FIGURE     |
| 31406639.000 | 01.LBR | 1                                                                              | 1          |

1m IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B



R:\TH:G\Hydro\Area\09\_P\PROJECTS\31406639\_000\_Hydro\Area\09\_P\01\_LBR\_P\1\_BioSurvey\02\_PRODUCT\X\020\FIGURES\Jurisdictional\_Delineation\Rev131406639\_000\_01\_02\_F07-02\_Reel\_ID\_TopographicMap.mxd PRINTED ON: 2024-07-30 AT 04:48:58 AM



LEGEND

Proposed Transmission Line

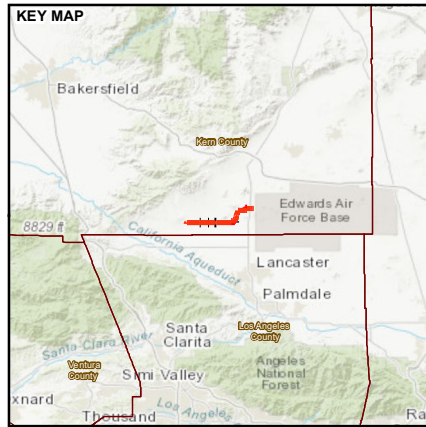
- Preferred Route, Aboveground
- Preferred Route, Underground
- Route Options 1-6, Aboveground
- Route Options 1-6, Underground

Project Components

- WRESC Site
- Other Project Parcels
- No Right of Entry Areas
- Project Boundary

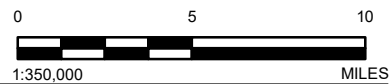
2024 Project Area

SCE Whirlwind Substation



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | VG/LL      |

REFERENCE(S)

- COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET
  - MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
- COPYRIGHT: © 2013 NATIONAL GEOGRAPHIC SOCIETY, I-CUBED

PROJECT  
WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY

TITLE  
USGS TOPOGRAPHIC MAP

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 2      |

1m IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



R:\TH: G:\Hydro\Area\09\_P\PROJECTS\31406639\_000\_Hydro\Area\09\_P\PROJECTS\31406639\_000\_01\_03\_07\03\_Reel\_ID\_LocalVicinityMap.mxd PRINTED ON: 2024-07-30 AT: 9:49:28 AM



LEGEND

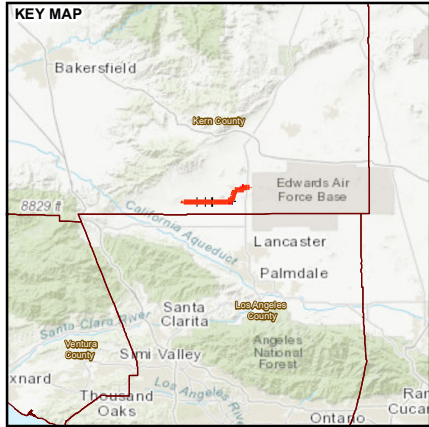
Proposed Transmission Line

- Preferred Route, Aboveground
- Preferred Route, Underground
- Route Options 1-6, Aboveground
- Route Options 1-6, Underground

Project Components

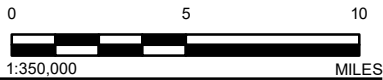
- WRESC Site
- Other Project Parcels
- No Right of Entry Areas
- Project Boundary

- 2024 Project Area
- SCE Whirlwind Substation



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | VG/LL      |

NOTE(S)

- PROJECT ROW IS A 62.5 FT BUFFER ON EITHER SIDE OF THE TRANSMISSION LINE.

REFERENCE(S)

- COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET
  - MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
- SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

PROJECT

WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY

TITLE

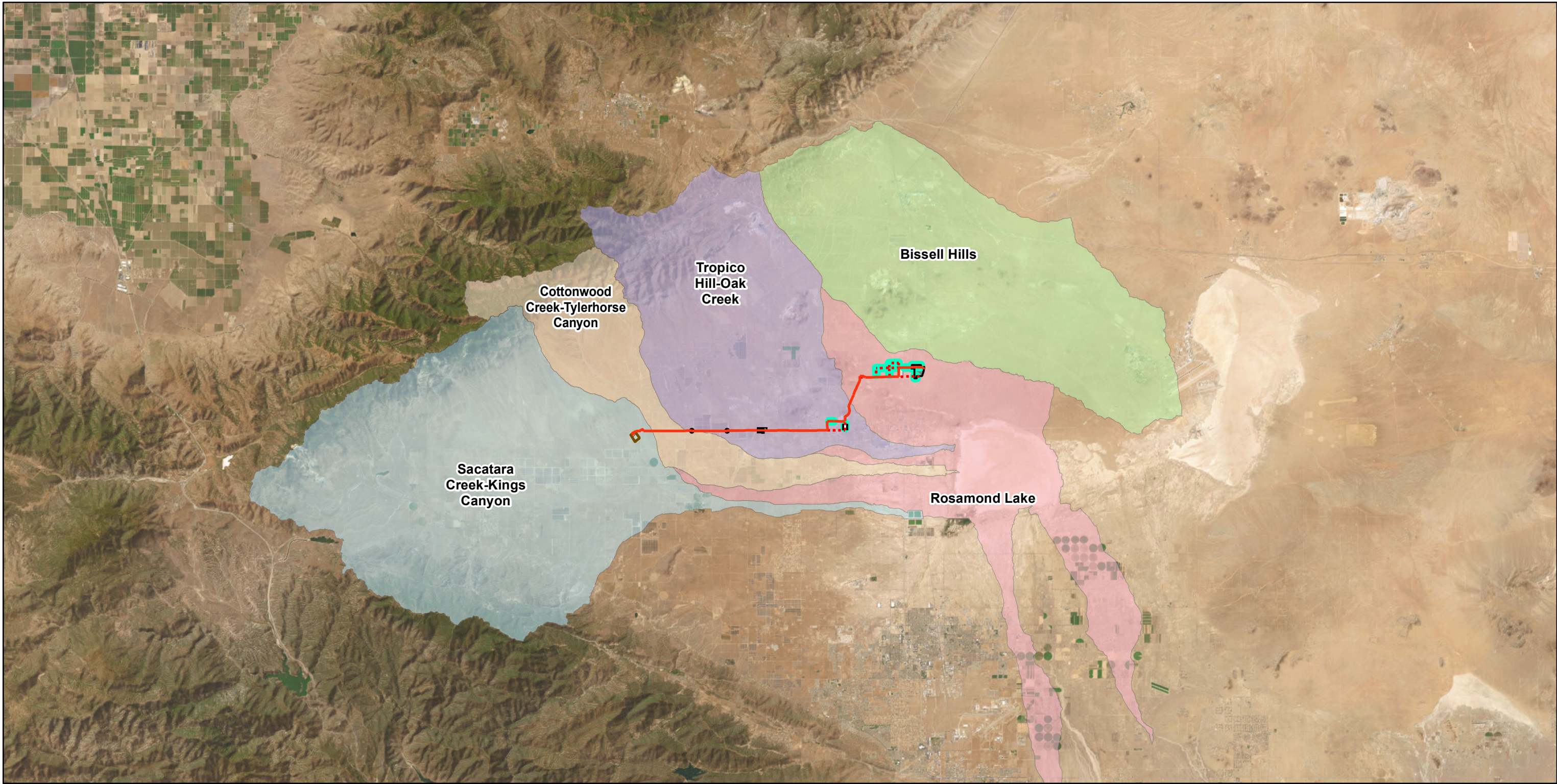
LOCAL VICINITY MAP

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 3      |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



R:\TH\_G\Hydro\del\Annel99\_P\PROJECTS\31406639\_000\_Hydro\er\AreaB\Survey\01.LBR\_P\1\_BioSurvey\02\_PRODUCT\ONMAXD\FIGURES\Jurisdictional\_Delineation\Rev1\31406639\_000\_01\_04\_F07-04\_Reel\_ID\_HydrologyMap.mxd PRINTED ON: 2024-07-30 AT: 1:34:33 PM



LEGEND

Watershed Boundary (HU-10)

- Bissell Hills
- Cottonwood Creek-Tylerhorse Canyon
- Rosamond Lake
- Sacatara Creek-Kings Canyon
- Tropico Hill-Oak Creek

Proposed Transmission Line

- Preferred Route, Aboveground
- Preferred Route, Underground
- Route Options 1-6, Aboveground
- Route Options 1-6, Underground

Project Components

- WRESC Site
- Other Project Parcels
- No Right of Entry Areas
- Project Boundary
- 2024 Project Area
- SCE Whirlwind Substation



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | VG/LL      |

REFERENCE(S)

- WBD - WATERSHED BOUNDARY DATASET
- COORDINATE SYSTEM, NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET
- MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

PROJECT

WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY

TITLE

HYDROLOGIC UNIT MAP

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 4      |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B





LEGEND

Vegetation Class

- |                                            |                                        |
|--------------------------------------------|----------------------------------------|
| Allscale scrub (ASSC)                      | Joshua tree woodland (JTW)             |
| Cheesebush Scrub (CHBS)                    | Needleleaf rabbitbrush scrub (NRS)     |
| Creosote bush - white bursage scrub (CBWS) | Non-Native (NNGF)                      |
| Creosote bush scrub (CBS)                  | Non-Native Grassland and Forbes (NNGF) |
| Disturbed/Developed (DH-DEV)               | Rubber rabbitbrush scrub (RRS)         |
|                                            | Tamarisk Thickets (TTH)                |

Proposed Transmission Line

- |                                |
|--------------------------------|
| Preferred Route, Aboveground   |
| Preferred Route, Underground   |
| Route Options 1-6, Aboveground |
| Route Options 1-6, Underground |

Project Components

- |                                 |
|---------------------------------|
| Project Site                    |
| Other Project Parcels           |
| No Right of Entry Areas         |
| Project Boundary                |
| 1,000 ft Around Project Parcels |
| 2024 Project Area               |
| SCE Whirlwind Substation        |



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | SH         |

- REFERENCE(S)
- CADFW - VEGETATION CLASSES
  - COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET
  - MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P

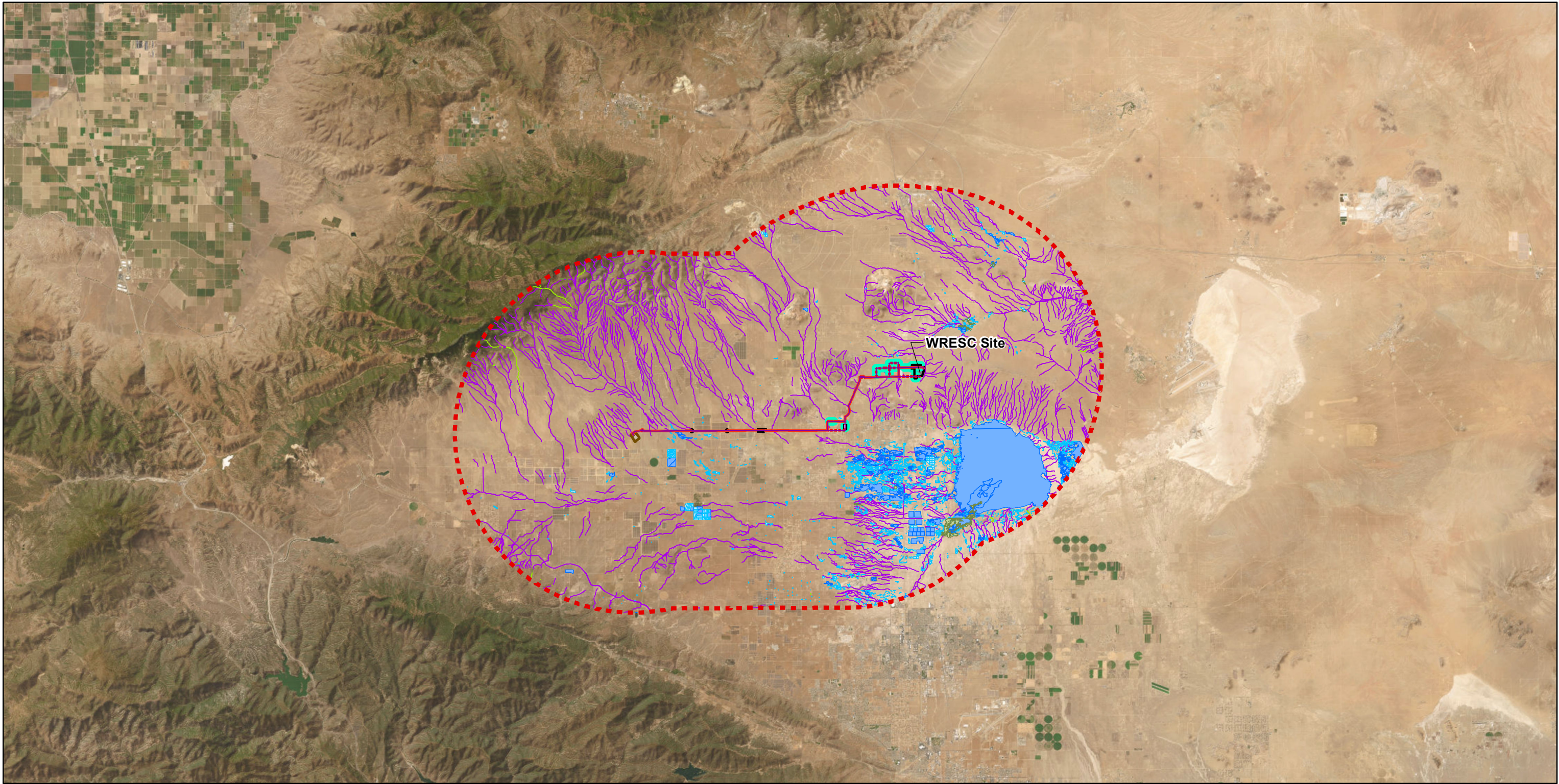
PROJECT  
WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY

TITLE  
VEGETATION AND LAND COVER TYPES

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 5      |



R:\TH: G:\Hydro\Area\09\_Productions\02\_Products\02\_FIGURES\Jurisdictional\_Delineation\Rev13\406639\000\_01\_06\_F07-08\_Reel\_ID\_NWI\_Map.mxd PRINTED ON: 2024-07-30 AT: 11:58:19 AM



LEGEND

Wetland Type

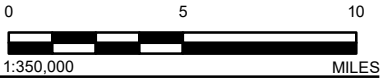
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- 10 Mile Buffer Around Transmission Line

Proposed Transmission Line

- Preferred Route, Aboveground
- Preferred Route, Underground
- Route Options 1-6, Aboveground
- Route Options 1-6, Underground

Project Components

- WRESC Site
- Other Project Parcels
- No Right of Entry Areas
- Project Boundary
- Project ROW
- 2024 Project Area
- SCE Whirlwind Substation



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | VG/LL      |

REFERENCE(S)

- COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET
  - MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
- SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

PROJECT

WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY

TITLE

NATIONAL WETLANDS INVENTORY - 10 MILE BUFFER AROUND  
TRANSMISSION LINE

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 6      |

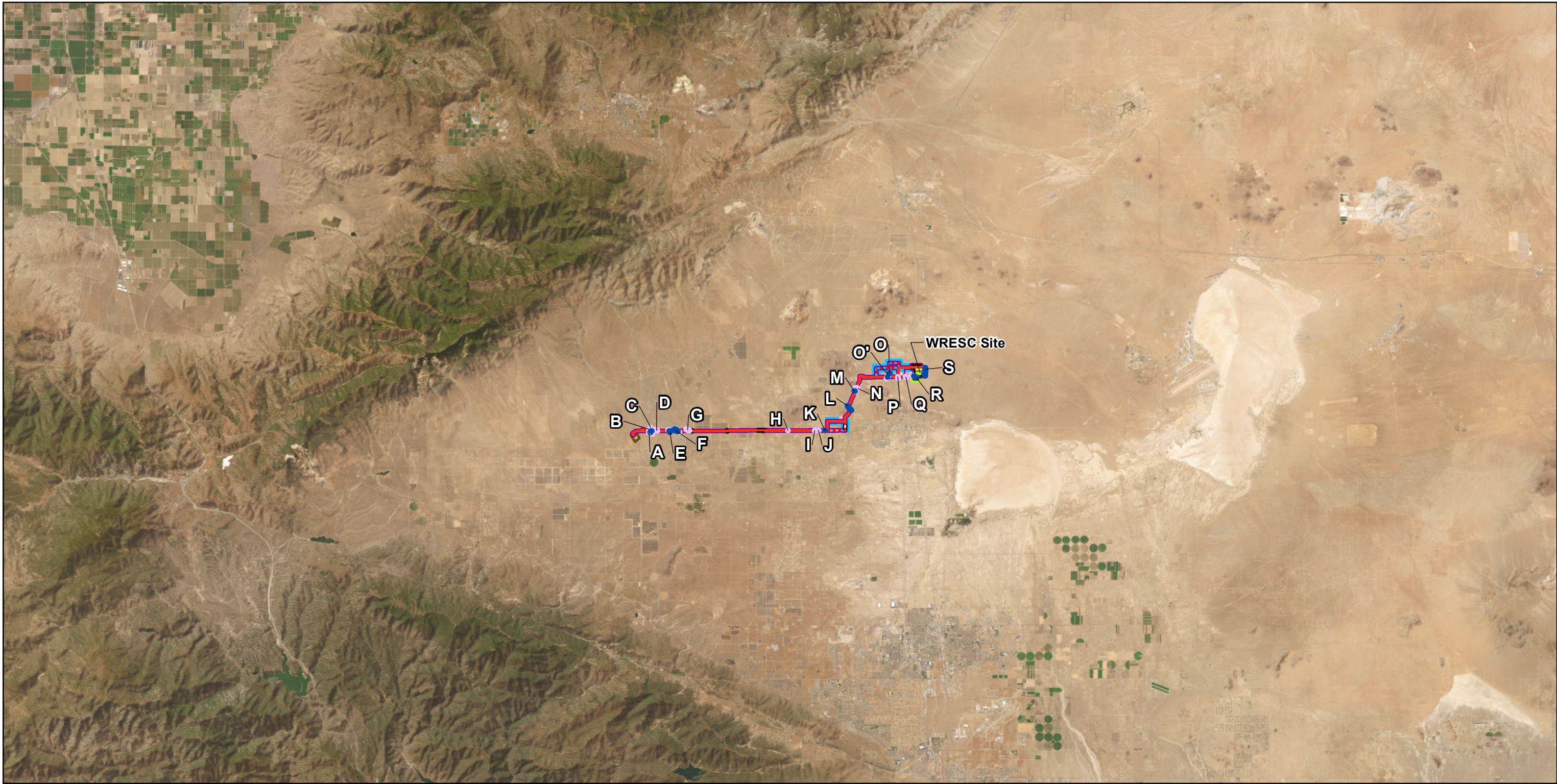
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B







PATH: G:\Hydro\Area\08\_P\PROJECTS\1406639\_000\_Hydro\Area\08\_P\BLSurvey\02\_PRODUCTION\MAXD\FIGURES\Jurisdictional\_Delineation\Rev13\1406639\_000\_01\_08\_F07-08\_Reel\_ID\_JurisdictionalDeline.mxd PRINTED ON: 2024-07-30 AT: 2:25:54 PM



**LEGEND**

**Jurisdictional Drainages**

- Mapped in Field
- Delineation as Observed

**Proposed Transmission Line**

- Preferred Route, Aboveground
- Preferred Route, Underground
- Route Options 1-6, Aboveground
- Route Options 1-6, Underground

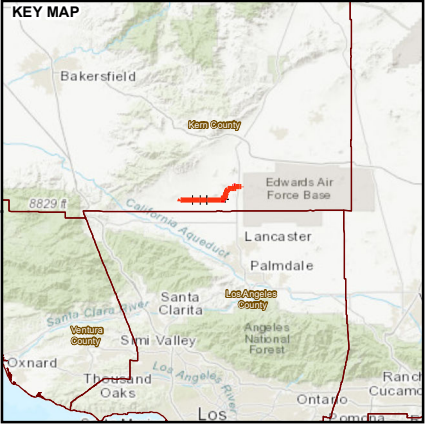
**Project Components**

- WRESC Site

- Other Project Parcels
- No Right of Entry Areas
- Project Boundary
- SCE Whirlwind Substation
- 500 ft Buffer Around Project Parcels and Transmission Line

**2024 Project Areas**

- Gen-Tie Transmission Line Variances
- P2 North
- P2 South



CLIENT  
GEM A-CAES LLC

CONSULTANT



|            |            |
|------------|------------|
| YYYY-MM-DD | 2024-07-30 |
| DESIGNED   | MK         |
| PREPARED   | MK         |
| REVIEWED   | SC         |
| APPROVED   | VG/LL      |

**REFERENCE(S)**  
1. COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET  
2. MAP SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP, GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY  
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

PROJECT  
**WILLOW ROCK ENERGY STORAGE CENTER  
JURISDICTIONAL DELINEATION FOCUSED SURVEY**

TITLE  
**JURISDICTIONAL WATERS**

|              |        |      |        |
|--------------|--------|------|--------|
| PROJECT NO.  | PHASE  | REV. | FIGURE |
| 31406639.000 | 01.LBR | 1    | 8      |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



## **Appendix B   Site Photographs**





Photo 1. Looking north at Drainage A from the north side of Rosamond Boulevard.



Photo 2. Looking south at the downstream portion of Drainage A on the south side of Rosamond Boulevard.





Photo 3. Looking north at the upstream portion of Drainage B on the north side of Rosamond Boulevard, at the end of the 200-foot buffer.



Photo 4. Looking south at the upstream portion of Drainage B on the north side of Rosamond Boulevard.





Photo 5. Looking northwest at Drainage B from the north side of earthen berm along Rosamond Boulevard. Evidence of ponding behind the berm recorded potentially caused by sedimentation removal.



Photo 6. Looking west at the area between Drainage A and Drainage B from the southern edge of Rosamond Boulevard. Sand deposits along both edges of the road.



Photo 7. Looking west at the same area described in Photo 3. Photo was taken following a rain event to show run-off flowing down Rosamond Boulevard from Drainage A to Drainage B, the result of clearing sediment from the road and redirecting flows.



Photo 8. Looking northwest at Drainage D from the north side of Rosamond Boulevard. Flow indicators were not recorded in the channel. There are some changes in vegetative cover, but the channel is otherwise undetectable.





Photo 9. Looking north at the downstream portion of Drainage D on the south side of Rosamond Boulevard. A remanent swale is the remnants of Cottonwood Creek.



Photo 10. Looking south at Drainage E from the south side of Rosamond Boulevard.





Photo 11. Looking southeast at the downstream portion of Drainage F on the south side of Rosamond Boulevard.



Photo 12. Looking north at Drainage F from the north side of Rosamond Boulevard. The lack of understory vegetation and darker soils indicate ponding.





Photo 13. Looking north at the portion of Drainage G on the south side of Rosamond Boulevard. There is no underground culvert to convey flows south of the road.



Photo 14. Looking northeast at Drainage H from the south side of Rosamond Boulevard.



Photo 15. Looking southeast at the downstream portion of Drainage H on the south side of Rosamond Boulevard.



Photo 16. Looking north at Drainage I from the south side of Rosamond Boulevard.





Photo 17. Looking south at the downstream portion of Drainage I on the south side of Rosamond Boulevard.



Photo 18. Looking northwest at Drainage J from the south side of Rosamond Boulevard.





Photo 19. Looking southwest at the downstream portion of Drainage J on the south side of Rosamond Boulevard.



Photo 20. Looking northwest at upstream portion of Drainage K from the south side of Rosamond Boulevard.





Photo 21. Looking southwest at the downstream portion of Drainage K on the south side of Rosamond Boulevard.



Photo 22. Looking south at upstream portion of Drainage L from the upstream portion of the drainage with Mojave Tropic Road in the background.





Photo 23. Looking southeast at the downstream portion of Drainage L on the east side of Mojave Tropic Road.



Photo 24. Looking west at the upstream portion of Drainage M from the west side of Mojave Tropic Road.





Photo 25. Looking southeast at the downstream portion of Drainage M on the east side of Mojave Tropic Road.



Photo 26. Looking northwest at upstream portion of Drainage N from the west side of Mojave Tropic Road.





Photo 27. Looking northeast at the downstream portion of Drainage N on the east side of Mojave Tropic Road.



Photo 28. Looking north at the upstream portion of Drainage O from the north extent of the study area north of Dawn Road.





Photo 29. Looking south at the downstream portion of Drainage O on the south side of Dawn Road.



Photo 30. Looking west at the upstream portion of Drainage R from the north side of Dawn Road.





Photo 31. Looking southeast at the downstream portion of Drainage R on the south side of Dawn Road.



## **Appendix C   Regulatory Framework**

## **REGULATORY FRAMEWORK**

### **U.S. Army Corps of Engineers**

The U.S. Army Corps of Engineers regulates the discharge of dredged or fill material in waters of the United States (WOTUS) pursuant to Section 404 of the Clean Water Act (CWA).

### **Waters of the United States**

On August 29, 2023, the U.S. Environmental Protection Agency and the Department of the Army issued a final rule amending the "Revised Definition of 'Waters of the United States,'" initially published in the Federal Register on January 18, 2023. This amendment aligns the definition of "waters of the United States" with the U.S. Supreme Court's decision in the case of *Sackett v. Environmental Protection Agency* on May 25, 2023. The Supreme Court deemed certain parts of the January 2023 Rule invalid based on its interpretation of the CWA in the *Sackett* decision. Consequently, the agencies have modified key elements of the regulatory text to comply with the Court's ruling. The conforming rule, titled "Revised Definition of 'Waters of the United States'; Conforming," was published in the Federal Register and became effective on September 8, 2023.

Furthermore, due to on-going litigation, the January 2023 Rule is currently not in effect in certain states and for certain parties. The agencies are applying the January 2023 Rule, as amended by the conforming rule, in 23 states, the District of Columbia, and the U.S. Territories. In the remaining 27 states and for specific parties, the agencies are interpreting "waters of the United States" in accordance with the pre-2015 regulatory framework and the Supreme Court's decision in *Sackett* until further notice. To summarize some of the most applicable highlights, the agencies' new rule defines WOTUS as:

### **Categories of Jurisdictional Waters**

1) Waters which are:

(i) 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;

(ii) The territorial seas; or

(iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or



(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

Exclusions from the definition of "waters of the United States" are codified at paragraph (b), and key terms are defined at paragraph (c). "Adjacent" is defined at (c)(2) as "having a continuous surface connection."

- Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act.
- The preamble clarifies that Wastewater Treatment Systems (WTS) constructed prior to the enactment of the CWA can still be excluded and that WTS are not limited to man-made bodies of water consistent with longstanding practice.
- Prior converted cropland designated by USDA. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. For CWA purposes, the final authority regarding CWA jurisdiction remains with the U.S. Environmental Protection Agency.
  - o The preamble implies, but does not clearly state, that lands remain excluded as PCC even if they change to a non-agricultural use so long as wetland characteristics do not return.
- Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water.
  - o Excluded ditches would not become jurisdictional solely by virtue of connecting to a downstream WOTUS or because wetland characteristics develop within the confines of the ditch.
- Artificially irrigated areas that would revert to dry land if the irrigation ceased.
- Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
  - o The preamble says this exclusion applies only to lakes/ponds that satisfy the terms of the exclusion, so apparently other types of ponds (e.g., log cleaning ponds) would not qualify.

- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons.
- Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States.
  - o Swales and erosional features (*e.g.*, gullies, small washes) characterized by low volume, infrequent, or short duration flow

### **Key Court Rulings**

The definition of "waters of the United States" has been shaped by five key Supreme Court decisions. In 1985, *United States v. Riverside Bayview Homes, Inc.* upheld the U.S. Army Corps of Engineers' jurisdiction over wetlands near navigable waters, asserting that such wetlands are intricately connected to navigable waters and often have significant effects on water quality and aquatic ecosystems.

However, the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)* in 2001 established that the mere use of non-navigable, isolated, intrastate waters by migratory birds does not alone justify federal authority under the CWA. This decision prompted agencies to develop guidance on the "waters of the United States" definition.

In 2006, *Rapanos v. United States* presented a plurality opinion defining "waters of the United States" as relatively permanent bodies with a continuous surface connection to traditional navigable waters. Justice Kennedy, in a concurring opinion, introduced the concept of a "significant nexus," requiring a water or wetland to impact the integrity of other covered waters. Dissenting Justices argued for a broader interpretation.

Following *Rapanos*, in 2007 and 2008, additional guidance was developed to implement the definition of "waters of the United States." These legal developments illustrate on-going complexities in interpreting and applying the regulatory framework.

On May 25, 2023, the Supreme Court ruled in *Sackett v. Environmental Protection Agency*, endorsing the *Rapanos v. United States* plurality standard for defining "waters of the United States." The Court concluded that the CWA's use of "waters" includes relatively permanent bodies of water forming geographic features such as streams, oceans, rivers, and lakes, as outlined in *Rapanos*. The Court also agreed with the plurality's formulation that wetlands are part of "the waters of the United States" when they have a continuous surface connection to bodies considered "waters of the United States" in their own right.



In response to the Sackett decision, on August 29, 2023, the agencies issued a final rule amending the January 2023 Rule to align with the Supreme Court's interpretation. Parts of the January 2023 Rule were deemed invalid by the Court's decision. Consequently, key aspects of the regulatory text were amended to conform to the Court's ruling. The final conforming rule, titled "Revised Definition of 'Waters of the United States'; Conforming," became effective on September 8, 2023, following its publication in the Federal Register.

### **Regional Water Quality Control Board**

The Regional Water Quality Control Board regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit, including a Section 404 permit. Through the Porter Cologne Water Quality Control Act, the Regional Water Quality Control Board asserts jurisdiction over WSC, which is generally the same as WOTUS but may also include waters not in federal jurisdiction.

The *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* was adopted in April 2020 and put into effect statewide on May 28, 2020.

The Water Boards define an area as wetland as follows:

An area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Water Code defines WSC broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." WSC include all WOTUS but also includes waters not in federal jurisdiction.

The following wetlands are 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 any of the following criteria:
  - a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
  - b. Specifically identified in a water quality control plan as a wetland or other water of the state;
  - c. Resulted from historic human activity, is not subject to on-going operation and maintenance, and has become a relatively permanent part of the natural 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 municipal 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 irrigation 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
  - ix. Log storage
  - x. Treatment, storage, or distribution of recycled water
  - xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits)
  - xii. Fields flooded for rice growing

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not WSC.

### **California Department of Fish and Wildlife**

The California Department of Fish and Wildlife (CDFW) regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

*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.*

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW 2010). It has been the practice of CDFW to define a stream as “a body of water



that flows perennially or episodically and that is defined by the area in a channel which water currently flows or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

## REFERENCES

- Brady, R.H. III, and K. Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013.
- California Department of Fish and Wildlife (CDFW). 2010. A Review of Stream Processes and Forms in Dryland Watersheds. Prepared by Kris Vyverberg, Conservation Engineering.