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**WILLOW ROCK ENERGY STORAGE CENTER PROJECT
BURROWING OWL FOCUSED SURVEY**



UNINCORPORATED COMMUNITY OF ANSEL, KERN COUNTY, CALIFORNIA

Prepared for:

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1.0 INTRODUCTION

WSP USA Environment & Infrastructure Inc. (WSP) was contracted by GEM A-CAES LLC, a subsidiary of Hydrostor Inc. (Hydrostor) to conduct a focused survey for the burrowing owl (*Athene cunicularia*) at the site of the proposed Willow Rock Energy Storage Center (WRESC) in the unincorporated community of Ansel, Kern County, California. This report provides methods, results, and discussion of the survey. All figures referenced in this report are provided in Appendix A; photographs may be provided upon request.

1.1 Project Description

The proposed project includes the development of an energy storage facility (approximately 88 acres) and approximately 19 miles (287 acres) of electrical transmission right-of-way connecting to the existing Southern California Edison Whirlwind Substation. The total area, including the energy storage facility, transmission lines and their corridor (125-foot buffer), is approximately 375 acres and will be herein collectively referred to as the "WRESC of Action Area " unless otherwise specified. In general, GEM A-CAES LLC proposes to construct and operate a 500-megawatt (MW) advanced compressed air energy storage (A-CAES) facility deploying Hydrostor proprietary A-CAES technology. The site will be designed to store 500 MW for up to 14 hours and deliver up to 4,000 megawatt hours (MWh) over an 8-hour period when discharging.

1.2 Project Location and Topography

The WRESC is located on private property in and around the rural community of Ansel, just north of State Route (SR) 138, south of SR 58, east of Interstate 5, and west of Edwards Air Force Base (Figure 1, Regional Location).

The energy storage facility is located on the 7.5-minute Soledad Mountain, California, U.S. Geological Survey (USGS) topographic quadrangle (topo quad). The transmission line route 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 W to 2,720 feet (830 meters) along Dawn Road, just south of an existing water tank facility (Figure 3, Local Vicinity).

2.0 REGULATORY FRAMEWORK

2.1 Federal

2.1.1 Migratory Bird Treaty Act

Treaties signed by the United States, Great Britain, Mexico, Japan, and the republics of the former Soviet Union make it unlawful to pursue, capture, kill, and/or possess, or attempt to engage in any such conduct regarding any migratory bird, nest, egg, or parts thereof listed in the documents. The Migratory Bird Treaty Act (MBTA) allows the U.S. Secretary of the Interior to grant permits for the incidental take of these protected migratory bird species. Impacts include direct disturbance to nests, eggs, and birds, as well as indirect effects such as loud construction noises (e.g., drilling, operation of heavy equipment, etc. in excess of 60 decibels at the nest site) and increased site activities (e.g., moving vehicles, use of guard dogs, presence of personnel) in close proximity to active nests (USFWS n.d.).

2.1.2 National Environmental Policy Act

Portions of the proposed project could fall under the jurisdiction of a federal agency (i.e., U.S. Army Corps of Engineers). The National Environmental Policy Act establishes certain criteria that must be adhered to for any project that is "financed, assisted, conducted, or approved by a federal agency. The federal lead agency is required to "determine whether the proposed action will significantly affect the quality of the human environment."

2.2 State of California

2.2.1 California Environmental Quality Act

The basic goal of the California Environmental Quality Act (CEQA) is to retain a high-quality environment now and in the future. The specific goals are for California's public agencies to:

- Identify the significant environmental effects of their actions; and either
- Avoid those significant environmental effects, where feasible; or
- Mitigate those significant environmental effects, where feasible.

CEQA applies to "projects" proposed to be undertaken or requiring approval by state and/or local governmental agencies. Projects are activities that have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of tentative subdivision maps. Where a project requires approvals from more than one public agency, CEQA requires one of these public agencies to serve as the "lead agency."

A "lead agency" must complete the environmental review process required by CEQA. The most basic steps of the environmental review process are:

- Determine if the activity is a "project" subject to CEQA.
- Determine if the "project" is exempt from CEQA.

- Perform an Initial Study to identify the environmental impacts of the project and determine whether the identified impacts are “significant”. Based on its findings of “significance,” the lead agency prepares one of the following environmental review documents:
 - Negative Declaration if it finds no “significant” impacts
 - Mitigated Negative Declaration if it finds “significant” impacts but revises the project to avoid or mitigate those significant impacts
 - Environmental Impact Report (EIR) if it finds “significant” impacts.

While there is no ironclad definition of “significance,” Article 5 of the CEQA Guidelines provides criteria to lead agencies for determining whether a project may have significant effects.

The purpose of an EIR is to provide state and local agencies and the public with detailed information on the potentially significant environmental effects that a proposed project is likely to have, provide ways that those effects may be minimized, and indicate alternatives to the project.

2.2.2 Sections 3503, 3505.5, 3513 of the California Fish and Game Code

Section 3503 of the California Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3505.5 of the code makes it unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey, i.e., owls, hawks, eagles, etc.) or to take, possess, or destroy the nest or eggs of any bird of prey. Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA.

3.0 BACKGROUND ON THE BURROWING OWL

The burrowing owl, a member of the *Strigidae* (the typical owl family), is a small, tan, short-tailed, ground-dwelling owl. Since it both nests and roosts underground, it is uniquely vulnerable to ground-disturbing activities. The burrowing owl is federally designated as a Bird of Conservation Concern and state-designated as a Species of Special Concern. Burrowing owl is protected by the federal MBTA (USFWS 2022), and California Fish and Game Code Sections 3503, 3503.5, 3513, and 3800.

The burrowing owl occurs in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Haug et al. 2011). In southern California, burrowing owls are found not only in undisturbed natural areas but also in fallow agricultural fields, margins of active agricultural areas, livestock farms, airports, and vacant lots. Burrowing owls are opportunistic in their selection of burrows, typically utilizing the burrows of small mammal burrows, drainpipes, culverts, and other suitable natural or manmade cavities at or below ground level. In the project area, California ground squirrel (*Otospermophilus beecheyi*) and kit fox (*Vulpes macrotis*) burrows are important natural burrow sources for the burrowing owl. Burrows and other areas occupied by burrowing owls can be recognized by sign, including tracks, molted feathers, cast pellets, prey remains, eggshell fragments, owl whitewash, and decoration materials (e.g., paper, foil, plastic items, livestock, or other animal manure, etc.) (CDFG 2012). The species may be active both day and night and may be seen perching on fence posts or standing

at the entrance of their burrows. Due to the characteristic fossorial habits of burrowing owls, nesting and roosting burrows are a critical component of their habitat.

Analyses of regional patterns for breeding populations of burrowing owls have detected declines both locally in their central and southern coastal breeding areas, and statewide where the species has experienced breeding range retraction (Wilkerson 2010). Threats affecting burrowing owl populations include habitat loss, degradation and modification, and eradication of ground squirrels, resulting in a loss of suitable burrows that the species requires for nesting, protection from predators, and shelter (USFWS 2023). Regional and long-term conservation for burrowing owls may include, but is not limited to, protecting remaining breeding pairs, providing for population expansion, protecting and enhancing breeding and essential habitat, and amending or augmenting land adjacent to occupied habitat.

4.0 METHODS

4.1 Literature Review and Records Search

- A literature review and record search were conducted to identify burrowing owl occurrences in the project vicinity. The review included:
 - A report from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDDB) for a 5-mile radius of the project site (CDFW 2023a)
 - Aerial photographs
 - Pertinent documents from the WSP library and project files (e.g., other biological surveys from the general vicinity)

4.2 Focused Surveys

The burrowing owl focused survey methods followed the guidelines per the Staff Report on Burrowing Owl Mitigation (CDFG 2012), with a few exceptions. The CDFW survey guidelines stipulate that four site visits constitute a complete focused burrowing owl survey (survey pass 1 through 4), with the first occurring between February 15 and April 15 and the remaining three to occur at least three weeks apart, with the last survey occurring between June 15 and July 15. However, during the 2023 burrowing owl focused survey effort, a prolonged winter rainy season occurred. This required the surveys to be altered from the CDFW survey guidelines. Changes to the surveys included conducting the first survey after the April 15 deadline for Survey Pass 1, and instead on April 18th. Second, the spacing of some of the surveys occurred within the 3-week minimum survey spacing window. However, this was discussed with and approved by the CDFW during surveys. The four surveys were conducted accordingly within the peak breeding season based on weather conditions, with the first survey conducted after most or all burrowing owl migrants were expected to have moved out of the area, but with any resident burrowing owls present. Therefore, the confidence level that these surveys accurately captured burrowing owl presence/absence is high.

WSP biologists (Table 1) walked a maximum of 30-meter-wide belt transects within the project site, including a 150-meter (500-foot) survey buffer, herein referred to as the burrowing owl “study area”, allowing for 100 percent visual coverage within the study area (Figure 4, Survey Transects). While walking the transects, biologists searched for burrowing owls and their sign (i.e., pellets, whitewash, feathers, tracks, nest adornments), suitable natural burrows, complexes, and surrogate burrow structures. Natural burrows are described as those created by other species, such as desert kit fox, black-tailed jackrabbit, desert cottontail, and ground squirrel. In deciding the size of a suitable burrow, the entrance must be larger than four (4) inches (11 cm), the burrow must have a sloping entrance (no vertical holes), and the burrow should be more than 36 inches deep (91 cm) to provide cover. Surrogate burrows would include rock piles, pipe, and culverts. Biologists paused at least every 100 meters, as appropriate, to scan for burrowing owl using binoculars and/or the naked eye. In addition, the biologists listened for burrowing owl vocalizations. For habitat where biologists could not safely survey or gain permission to access, such as private property, surveys were conducted by using binoculars to meticulously scan the area. All burrowing owl locations and those burrows and burrow surrogate burrow structure identified as suitable were mapped using a global positioning system (GPS).

The burrowing owl survey personnel, dates, times, and weather conditions are presented in Table 1, below.

Table 1. Burrowing Owl Survey Data

Date (2023)	Survey Pass	Surveyor(s) ¹	Time	% Cloud Cover, Wind miles per hour (mph)	Temperature °Fahrenheit (°F)	Burrowing Owl Observed?
April 18	1	SC, MB	Full day	Clear (0%), winds 0–2 mph	N/A	No
April 19	1	SC, MB, EU, PC	0700–1000	Clear (0%), winds 1–3 mph	60–71°F	No
April 25	1	NM, SC, MB, LD, KD	0700–1000	Clear (0%), winds 4–12 mph	46–54°F	No
April 26	1	NM, SC, MB, LD, AK	0535–0850	Clear (0%), winds 0–3 mph	62–73°F	No
April 27	1	NM, SC, MB, LD, KD, AK	0700–1000	Clear (0%), winds 4–12 mph	64–75°F	No
May 10	2	MB, SC, NM, CS, PC	0500–0910	0–5% cover, winds 3–8 mph	53–61°F	No
May 11	2	MB, SC, NM, CS	0530–930	0–5% cover, winds 3-8 mph	52-62°F	No
May 23	2	MB, NM	0700–1000	Clear (0%), winds 0–3 mph	54-63°F	No
June 7	3	NM	0700–1000	0–5% cover, winds 3–8 mph	52–62°F	No
June 21	3	NM, JG	0530–1100	0–5% cover, winds 3–8 mph	60–65 °F	No
June 22	3	NM, JG, MB, SC	0545–1000	Clear (0%), winds 1–3 mph	52–62°F	No

Date (2023)	Survey Pass	Surveyor(s) ¹	Time	% Cloud Cover, Wind miles per hour (mph)	Temperature °Fahrenheit (°F)	Burrowing Owl Observed?
June 23	3	NM, JG, MB, SC	0530–1100	Clear (0%), winds 4–12 mph	55–64°F	No
July 5	4	NM; TC	0545–1030	0–5% cover, winds 3–8 mph	52–62°F	No
July 27	4	NM	0540–0940	Clear (0%), winds 5–6 mph	54–66°F	No

¹ AK=Alexa Kerr; CS= Ciara Shirley; EU=Emily Urquidi; JG=John Green; KD=Kyralai Duppel; LD=Liz Diaz; MB=Melanie Bukovac; NM=Nathan Moorhatch; PC=Phil Clevinger; SC=Scott Crawford; TM= Tim Chumley

5.0 RESULTS

5.1 Literature Review and Records Search

The nearest known CNDDDB record of burrowing owl is approximately 3.5 miles southwest of the project site (2004) near the Rosamond Dry Lake and 5 individuals (2 adults and 3 juveniles) observed 500 feet south of the Transmission Line Alignment along Rosamond Boulevard at 100th Street W (2009) (CDFW 2023a).

5.2 Focused Surveys

No burrowing owls were identified within the action area. The surveys resulted in a total of 29 unoccupied suitable burrowing owl burrows, the majority of which were found in the energy storage facility area (Figure 5, Burrowing Owl Observation and Suitable Burrow Locations). Of the documented suitable burrows, none contained burrowing owl sign or any indication of burrowing owl use. Three burrowing owls were incidentally observed by WSP biologists during the 2023 survey efforts. The first owl was observed foraging in the desert scrub roughly 1-mile southeast of the intersection of Dawn Road and Sierra Highway. The second owl was observed along Hamilton Road near 110th Street approximately 2 miles north of the transmission line alternative along Rosamond Boulevard. The third observation was located near the intersection of 75th Street W and Hamilton Road (where it transitions to Sweetser Road (Figure 5, Burrowing Owl Observation and Suitable Burrow Locations). These owls were not observed on-site or were associated with any burrows on-site and therefore were assumed to be migrating or foraging within the vicinity of the action area.

6.0 DISCUSSION

Focused burrowing owl surveys conducted during the breeding season did not detect burrowing owls or their sign within the burrowing owl study area (which included the action area plus a 500-foot buffer). Although burrowing owls are considered absent at this time, suitable habitat foraging habitat remains present and widespread. Therefore, the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) requires pre-construction take avoidance surveys for burrowing owls in case they occupy the site between the focused surveys and initiation of construction:

Field experience from 1995 to present supports the conclusion that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the Detection Surveys section above. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls. Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance.

Consequently, within 14 days of initiating initial ground disturbance and/or construction activities, a pre-construction take avoidance survey for burrowing owl should be conducted per the guidelines described above. In addition, within 24 hours of initiating initial ground disturbance and/or construction activities, a final pre-construction take avoidance survey should be conducted. Surveys shall include areas within the project site and a surrounding 500-foot (150-meter) buffer.

If no burrowing owl sign is observed during the pre-construction clearance surveys, no additional biological monitoring is needed unless a burrowing owl is identified within the project site during construction. To ensure that construction workers can identify a burrowing owl, a Worker Environmental Awareness Program (WEAP) will be required.

Prior to construction, a WEAP will be provided to all construction workers. A sign-in sheet will be kept on-site to ensure attendance from all construction workers. The WEAP will include burrowing owl identification, biological monitor contact information, and next steps if any burrowing owl are identified within the action area during construction.

If occupied burrows are found during the take avoidance surveys and cannot be avoided by project activities, the CDFW would require a Burrowing Owl Exclusion Plan to be prepared, approved, and implemented. Burrowing Owl Exclusion Plans typically describe burrowing owl exclusion and monitoring methods, including discussion of artificial burrow construction, if necessary, and reporting protocols.

If burrowing owls are present during construction, adaptive mitigation measures for impacts to burrowing owls may include, but are not limited to, scheduling construction during non-breeding periods, biological monitoring of occupied burrow sites during construction, passive relocation of non-breeding burrowing owls, and instituting construction-free buffer zones and/or "shelter in place" techniques around occupied burrows.

7.0 REFERENCES

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2023. California Natural Diversity Database (CNDDDB) RareFind 5 records of sensitive elements.

WRESC Project
Burrowing Owl Focused Survey
January 2024

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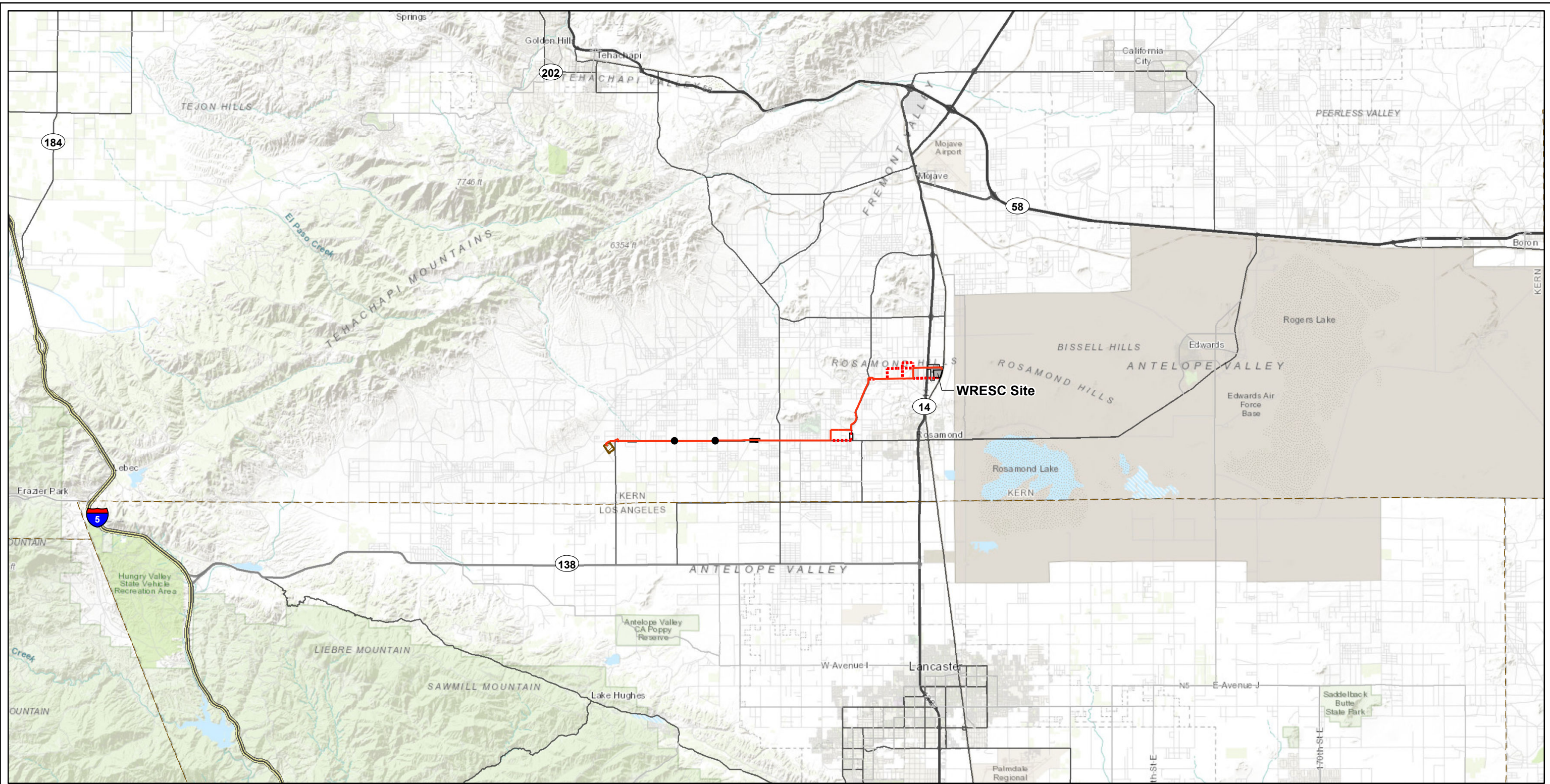
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Burrowing Owl. 2023

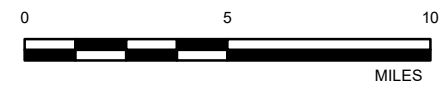
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Appendix A Figures

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- 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
 - Project Boundary
 - SCE Whirlwind Substation



CLIENT
GEM A-CAES LLC



CONSULTANT	YYYY-MM-DD	2024-02-29
	DESIGNED	MK
	PREPARED	MK
	REVIEWED	SC
	APPROVED	VG/LL

REFERENCE(S)

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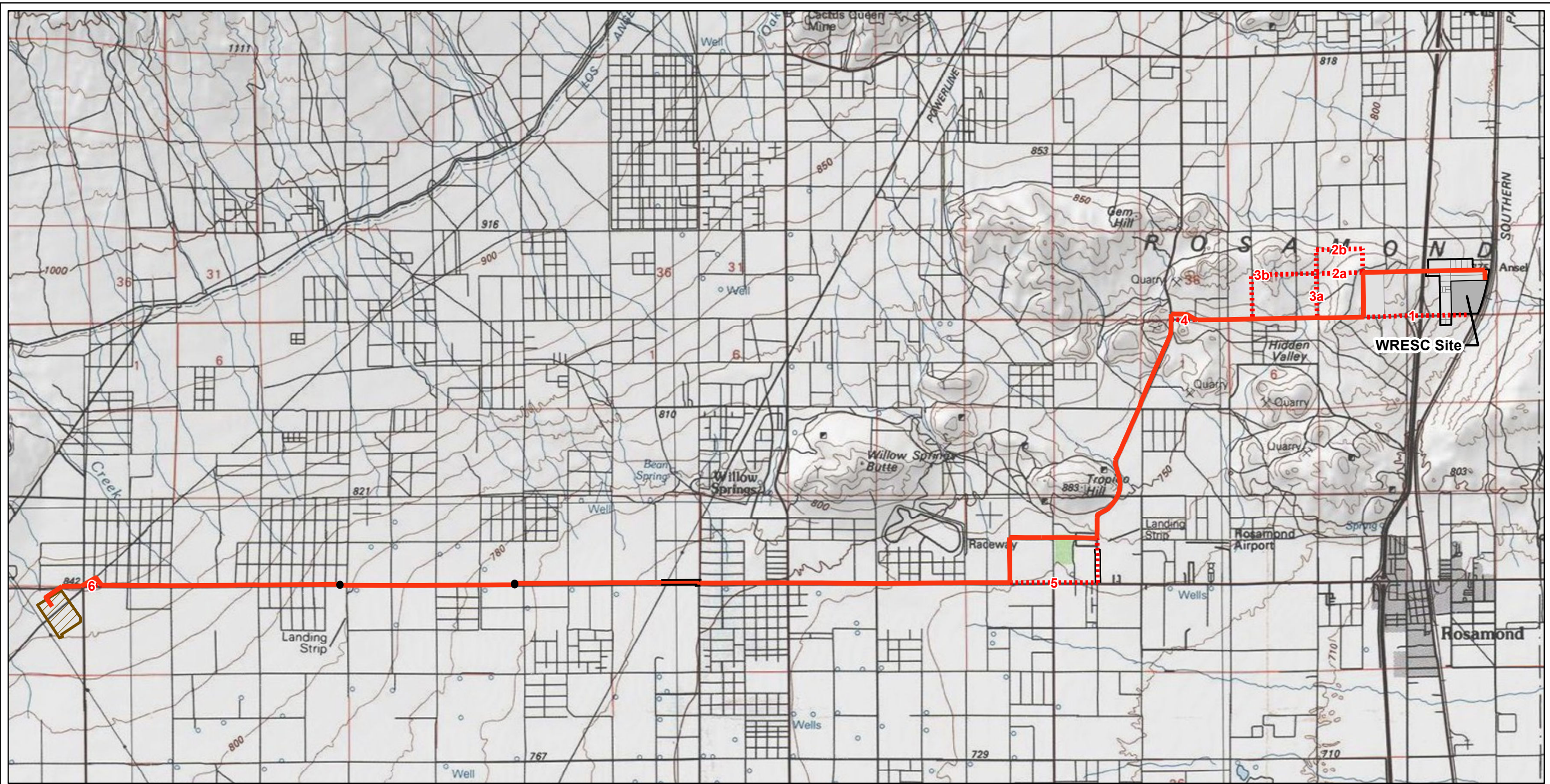
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WILLOW ROCK ENERGY STORAGE CENTER
BIOLOGICAL RESOURCES ASSESSMENT
BURROWING OWL FOCUS SURVEY

REGIONAL LOCATION MAP

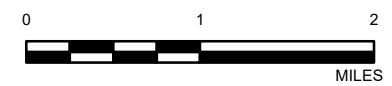
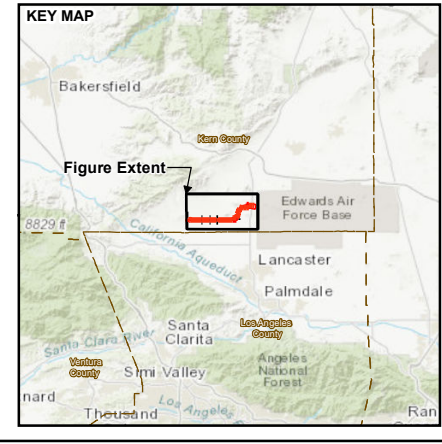
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- LEGEND**
- Proposed Transmission Line**
- Preferred Route, Aboveground
 - - - Preferred Route, Underground
 - - - - - Route Options 1-6, Aboveground
 - - - - - Route Options 1-6, Underground
- Project Components**
- WRESC Site
 - Other Project Parcels
 - Project Boundary
 - SCE Whirlwind Substation



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GEM A-CAES LLC



CONSULTANT	YYYY-MM-DD	2024-02-29
	DESIGNED	MK
	PREPARED	MK
	REVIEWED	SC
	APPROVED	VG/LL

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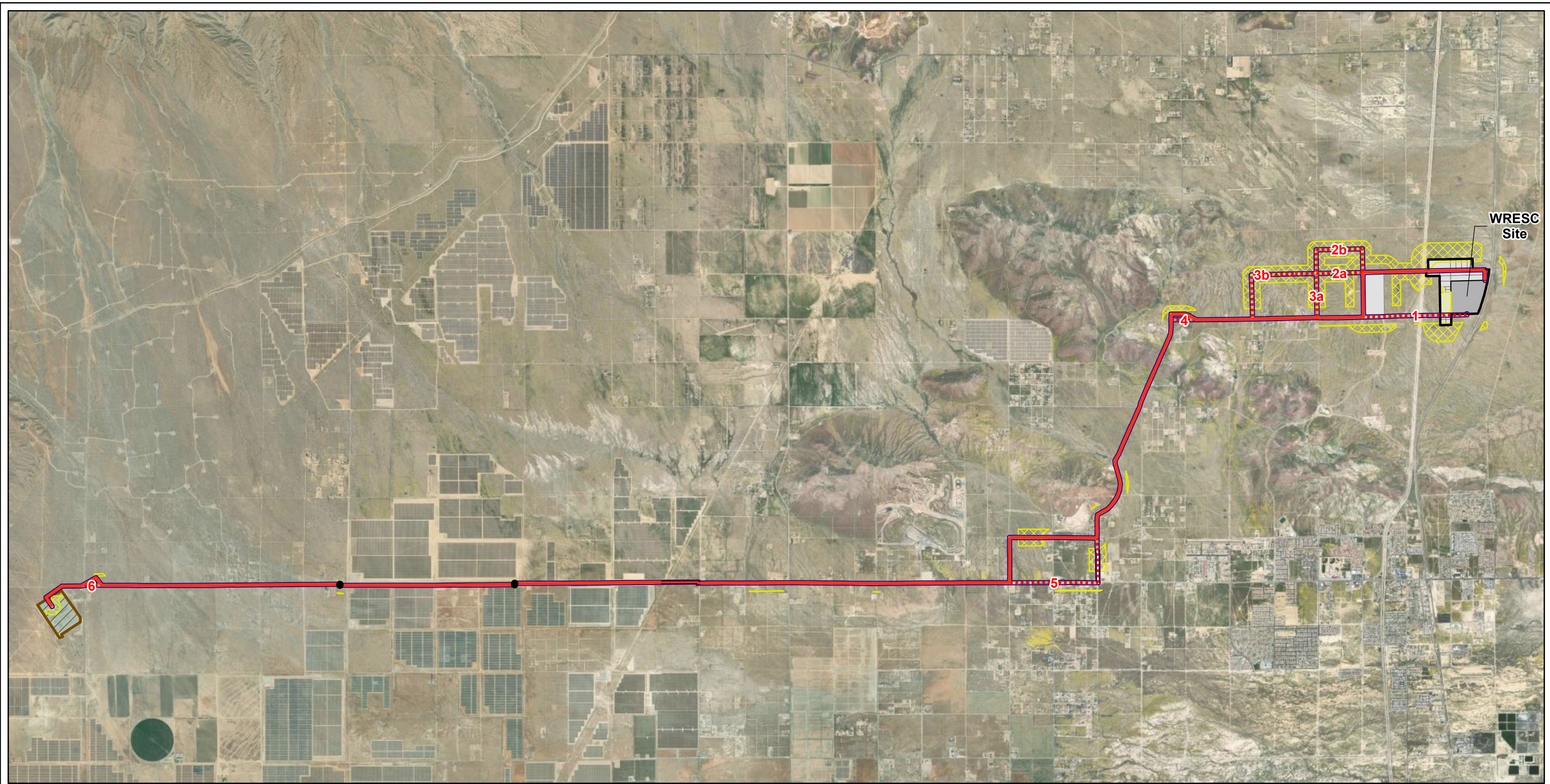
PROJECT
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BIOLOGICAL RESOURCES ASSESSMENT
BURROWING OWL FOCUS SURVEY

TITLE
HISTORIC USGS TOPOGRAPHIC MAP

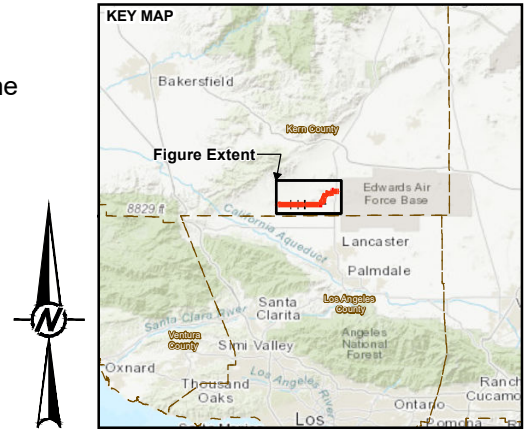
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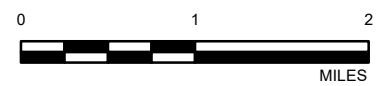
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- LEGEND**
- Proposed Transmission Line
 - Preferred Route, Aboveground
 - Preferred Route, Underground
 - ⋯ Route Options 1-6, Aboveground
 - ⋯ Route Options 1-6, Underground
 - WRESC Site
 - Other Project Parcels
 - Project Boundary
 - Portions of the Survey Area Not Surveyed
 - SCE Whirlwind Substation
 - 125 ft Buffer Around Transmission Line



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CONSULTANT	YYYY-MM-DD	2024-02-29
DESIGNED	MK	
PREPARED	MK	
REVIEWED	SC	
APPROVED	VG/LL	

NOTE(S)
1. PROJECT BOUNDARY IS CALCULATED BASED ON A 125 FT BUFFER AROUND TRANSMISSION LINES AND PROJECT PARCELS.

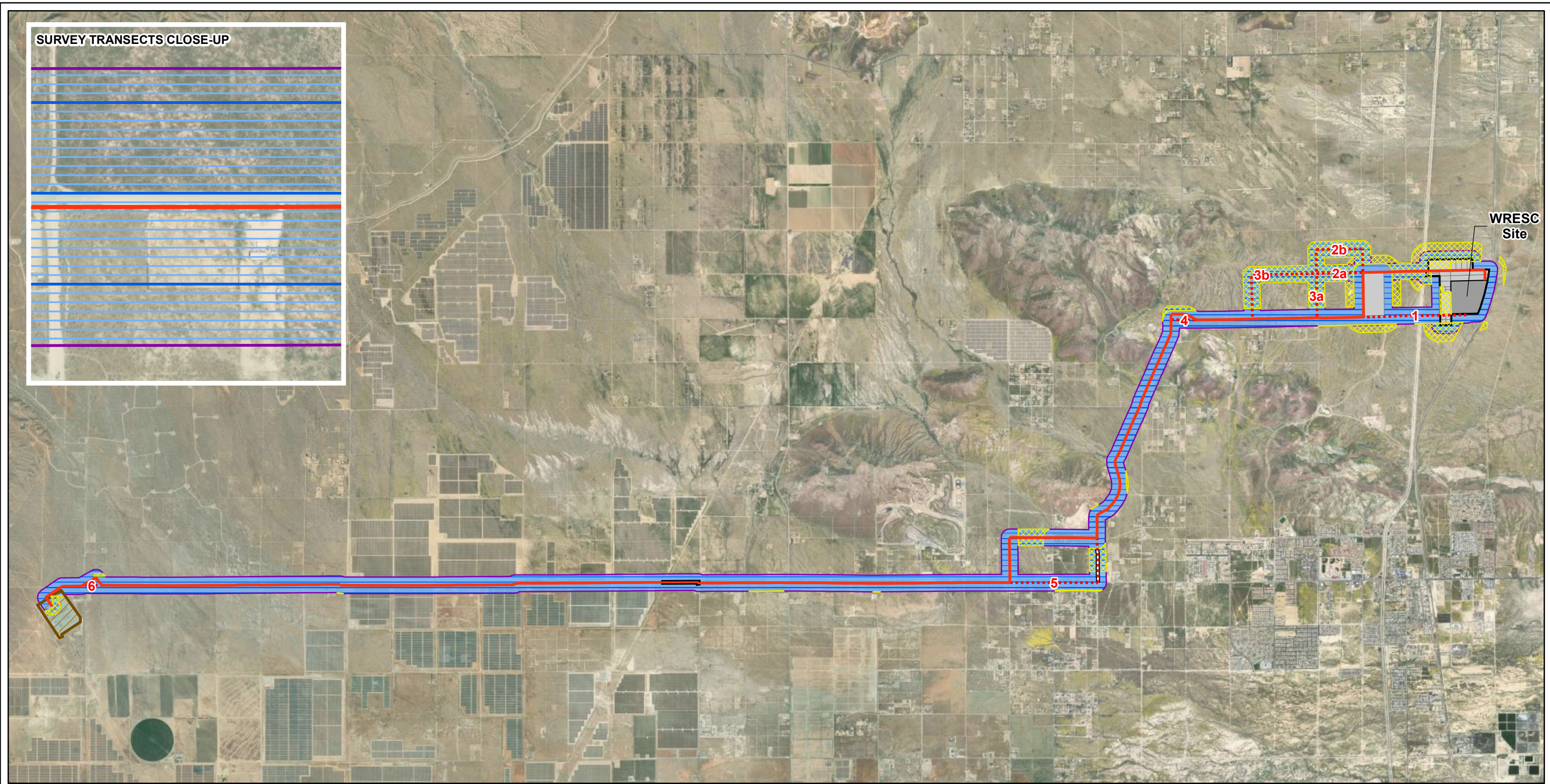
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SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

PROJECT
**WILLOW ROCK ENERGY STORAGE CENTER
BIOLOGICAL RESOURCES ASSESSMENT
BURROWING OWL FOCUS SURVEY**

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LEGEND

Survey Transects

- 100 m transect
- 10 m transect

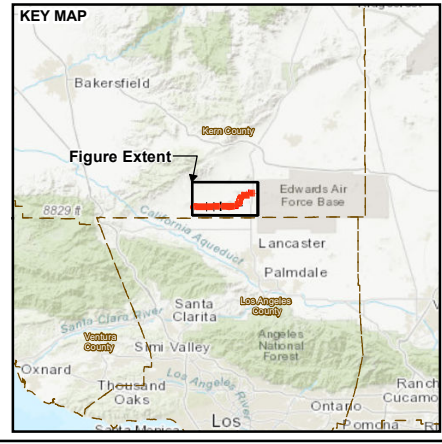
Proposed Transmission Line

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

Project Components

- WRESC Site
- Other Project Parcels
- Project Boundary
- Portions of the Survey Area Not Surveyed
- SCE Whirlwind Substation

500 ft Buffer Around Project Parcels and Transmission Line



CLIENT
GEM A-CAES LLC

CONSULTANT
wsp

0 1 2
MILES

YYYY-MM-DD	2024-02-29
DESIGNED	MK
PREPARED	MK
REVIEWED	SC
APPROVED	VG/LL

NOTE(S)

- PROJECT BOUNDARY IS CALCULATED BASED ON A 500 FT BUFFER AROUND TRANSMISSION LINES AND PROJECT PARCELS.

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

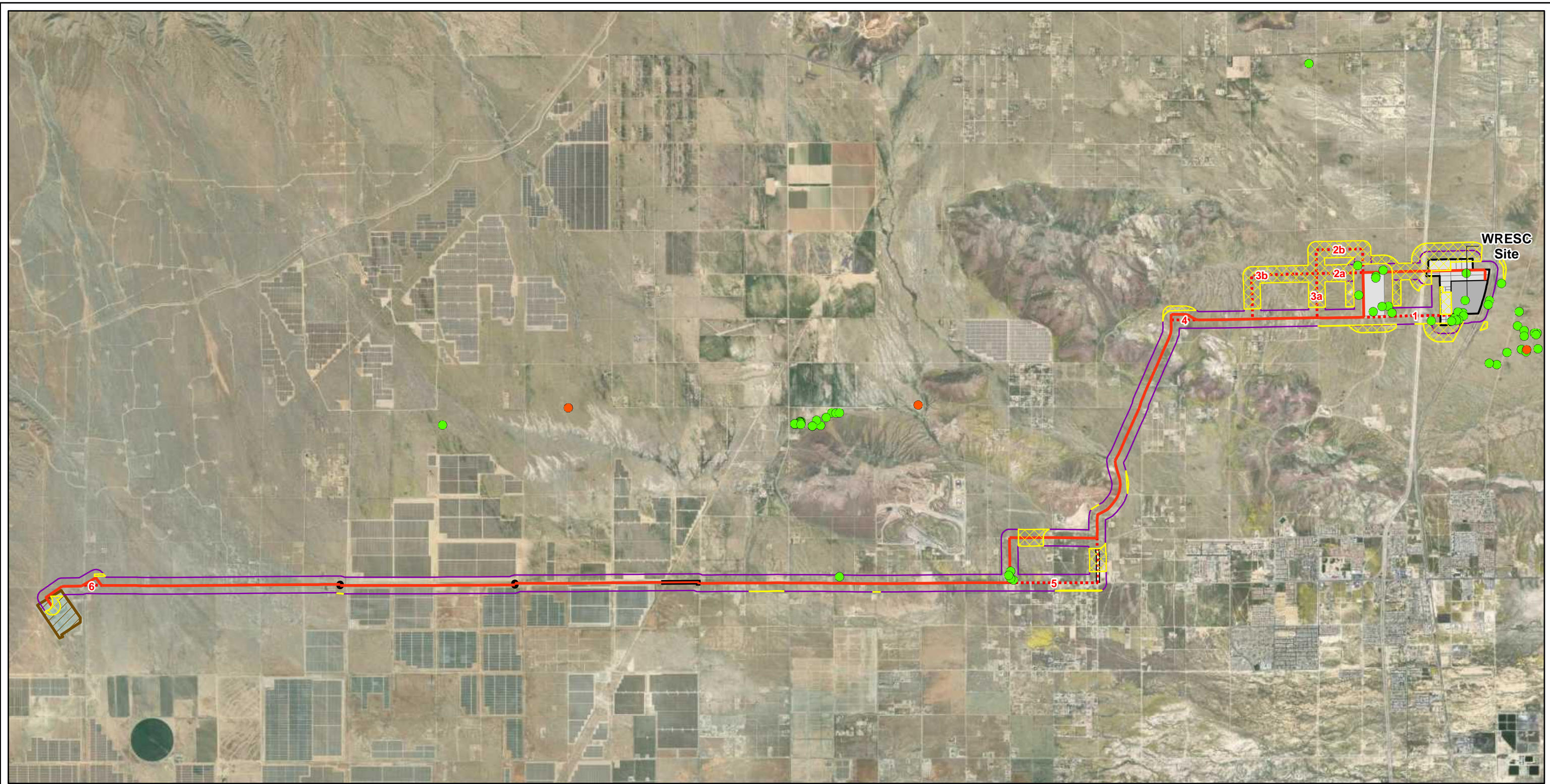
PROJECT
WILLOW ROCK ENERGY STORAGE CENTER
BIOLOGICAL RESOURCES ASSESSMENT
BURROWING OWL FOCUS SURVEY

TITLE
SURVEY TRANSECTS

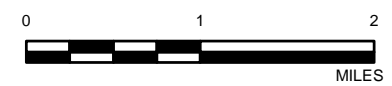
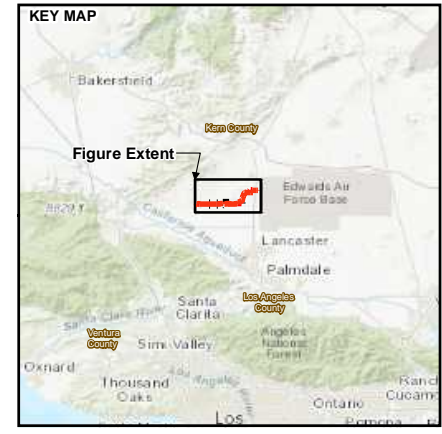
PROJECT NO.	PHASE	REV.	FIGURE
31406639.000	01.LBR	0	4

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

PATH: G:\Hydro\Area\03a_PROJECT\31406639.000_Hydro\Area\Biosurvey\01.LBR_011_BioSurvey\02_PROD\COM\XDF\FIGURES\Burmrow\Owl_Focus_Survey\Rev\031406639.000_01_06_F03-05_Rev0_BUOL_Occurrences.mxd PRINTED ON: 2024-02-29 AT: 4:21:44 PM



- LEGEND**
- Burrowing Owl Observation Location
 - Potential BUOW Burrow(s)
 - Proposed Transmission Line**
 - Preferred Route, Aboveground
 - Preferred Route, Underground
 - ⋯ Route Options 1-6, Aboveground
 - - - Route Options 1-6, Underground
 - Project Components**
 - WRES Site
 - Other Project Parcels
 - Project Boundary
 - SCE Whirlwind Substation
 - Portions of the Survey Area Not Surveyed
 - 500 ft Buffer Around Project Parcels and Transmission Line



CLIENT
GEM A-CAES LLC

CONSULTANT

YYYY-MM-DD	2024-02-29
DESIGNED	MK
PREPARED	MK
REVIEWED	SC
APPROVED	VG/LL

NOTE(S)
1. PROJECT BOUNDARY IS CALCULATED BASED ON A 500 FT BUFFER AROUND TRANSMISSION LINES AND PROJECT PARCELS.

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
BIOLOGICAL RESOURCES ASSESSMENT
BURROWING OWL FOCUS SURVEY

TITLE
BURROWING OWL OBSERVATIONS AND SUITABLE BURROW LOCATIONS

PROJECT NO.	PHASE	REV.	FIGURE
31406639.000	01.LBR	0	5

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

Appendix B Vertebrate Species Detected

Fauna Compendium

Lycaenidae		Blues and Hairstreaks
<i>Brephidium</i>	<i>exilis</i>	pygmy blue
Tabanidae		Horse Flies
<i>Tabanus</i>	<i>punctifer</i>	western horse fly
Anthophoridae		Digger Bees
<i>Anthophora</i>	<i>urbana</i>	digger bees
Crotophytidae		Collared and Leopard Lizards
<i>Gambelia</i>	<i>wislizenii wislizenii</i>	large-spotted leopard lizard
Phrynosomatidae		Lizards
<i>Sceloporus</i>	<i>magister uniformis</i>	yellow-backed spiny lizard
<i>Uta</i>	<i>stansburiana</i>	side-blotched lizard
Teiidae		Whiptails
<i>Aspidoscelis</i>	<i>tigris</i>	western whiptail
Colubridae		Egg-laying snakes
<i>Arizona</i>	<i>elegans candida</i>	Mojave glossy snake
<i>Masticophis</i>	<i>flagellum piceus</i>	red coachwhip
Viperidae		Vipers
<i>Crotalus</i>	<i>scutulatus</i>	Mojave green rattlesnake
Cathartidae		Vultures
<i>Cathartes</i>	<i>aura</i>	turkey vulture
Accipitridae		Hawks
<i>Buteo</i>	<i>swainsoni</i>	Swainson's hawk*
<i>Buteo</i>	<i>jamaicensis</i>	red-tailed hawk
Falconidae		Falcons
<i>Falco</i>	<i>sparverius</i>	American kestrel
<i>Falco</i>	<i>mexicanus</i>	prairie falcon
Columbidae		Pigeons/Doves
<i>Columba</i>	<i>livia</i>	rock pigeon
<i>Zenaida</i>	<i>macroura</i>	mourning dove
Strigidae		True Owls
<i>Athene</i>	<i>cunicularia</i>	burrowing owl**
Tyrannidae		Flycatchers
<i>Myiarchus</i>	<i>cinerascens</i>	ash-throated flycatcher
<i>Tyrannus</i>	<i>verticalis</i>	western kingbird
Laniidae		Shrikes
<i>Lanius</i>	<i>ludovicianus</i>	loggerhead shrike
Corvidae		Jays/Crows
<i>Corvus</i>	<i>corax</i>	common raven
Alaudidae		Larks

* No nests observed on-site

** Incidental Observation, not on-site

Fauna Compendium

<i>Eremophila</i>	<i>alpestris</i>	horned lark
Troglodytidae		Wrens
<i>Campylorhynchus</i>	<i>brunneicapillus</i>	cactus wren
Mimidae		Mockingbirds/Thrashers
<i>Mimus</i>	<i>polyglottos</i>	northern mockingbird
<i>Toxostoma</i>	<i>lecontei</i>	Le Conte's thrasher
Sturnidae		Starlings
<i>Sturnus</i>	<i>vulgaris</i>	European starling
Parulidae		New world warblers
<i>Dendroica</i>	<i>nigrescens</i>	black-throated gray warbler
<i>Wilsonia</i>	<i>pusilla</i>	Wilson's warbler
Emberizidae		Warblers, sparrow, etc.
<i>Spizella</i>	<i>breweri</i>	brewer's sparrow
<i>Amphispiza</i>	<i>belli</i>	sage sparrow
Fringillidae		Finches
<i>Haemorhous</i>	<i>mexicanus</i>	house finch
Passeridae		True sparrows
<i>Passer</i>	<i>domesticus</i>	house sparrow
Leporidae		Hares and Rabbits
<i>Lepus</i>	<i>californicus</i>	black-tailed jackrabbit
<i>Sylvilagus</i>	<i>audubonii</i>	desert cottontail
Sciuridae		Squirrels
<i>Ammospermophilu</i>	<i>leucurus</i>	white-tailed antelope squirrel
<i>Otospermophilus</i>	<i>beecheyi</i>	California ground squirrel
<i>Xerospermophilus</i>	<i>tereticaudus</i>	round-tailed ground squirrel
Muridae		Mice, Rats, and Voles
<i>Neotoma</i>	<i>lepida</i>	desert woodrat
Heteromyidae		Pocket Mice and Kangaroo Rats
<i>Dipodomys</i>	<i>merriami</i>	Merriam's kangaroo rat
Canidae		Wolves and Foxes
<i>Canis</i>	<i>familiaris</i>	domestic dog
<i>Canis</i>	<i>latrans</i>	coyote
<i>Vulpes</i>	<i>velox</i>	kit fox
Felidae		Cats
<i>Lynx</i>	<i>rufus</i>	bobcat
Bovidae		Bison, Goats, and Sheep
<i>Ovis</i>	<i>aries</i>	domestic sheep