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Document Title:	Section 5_2_Biological_Resources_Gem Energy Storage Center
Description:	***This Document Supersedes TN 240751-8*** This section discusses the biological resources and regulatory setting as well as, includes an analysis of potential impacts associated with the Applicant's Advanced Compressed Air Energy Storage (A-CAES) facility in unincorporated Kern County, California (CA).
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***** This Document replaces TN 240751-8*****

5.2 Biological Resources

This section discusses the biological resources and regulatory setting as well as, includes an analysis of potential impacts associated with the Applicant's Advanced Compressed Air Energy Storage (A-CAES) facility in unincorporated Kern County, California (CA). The approximately 71-acre Gem Energy Storage Center (GESC) will be located just over one mile north of Willow Springs, CA. Herein, references to GESC equate to the location of the A-CAES facility.

The GESC will provide electricity to the existing Southern California Edison (SCE) Whirlwind Substation via an estimated 10.9-mile interconnection transmission line from the 500-megawatt (MW) A-CAES system. There are several alternative routes to the SCE Whirlwind Substation in addition to the *Preferred Route.* Los Angeles County Department of Water and Power (LADWP) has proposed construction of a substation approximately 3 miles to the south of GESC but the timing for development of this substation is uncertain. Two possible alternative routes from GESC to the proposed LADWP substation have been included in the analysis. This evaluation of biological resources within the study area includes the following elements:

- Section 5.2.1 discusses the affected environment, including an overview of the region, habitat and vegetation communities, and special-status species.
  - Section 5.2.1.5 presents the results of biological surveys in and near the GESC site.
- Section 5.2.2 presents an environmental analysis of the GESC, including standards of significance, potential impacts of construction and operation of the GESC, and impacts to special-status species.
- Section 5.2.3 evaluates any potential cumulative effects to biological resources in the project vicinity.
- Section 5.2.4 addresses mitigation measures that will avoid, minimize, or compensate for adverse impacts.
- Section 5.2.5 describes the laws, ordinances, regulations, and standards (LORS) that apply to the GESC.
- Section 5.2.6 presents permit requirements.
- Section 5.2.7 presents the regulatory agency contacts.
- Section 5.2.8 contains the references used to prepare this section.

The Applicant contracted Blackhawk Environmental (Blackhawk) to perform the biological resources evaluation for the GESC California Energy Commission (CEC) Application for Certification (AFC). Blackhawk's findings were presented to Hydrostor, Inc. in the *Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project Biological Technical Report* dated September 17, 2021 (Blackhawk 2021). This section includes several figures which will be attached at the end of the section. **Appendix 5.2C** includes the resume of the study's lead biologist.

5.2.1 Affected Environment

This section discusses the affected environment and provides an overview of the region, significant habitats, and special-status plant and wildlife species. Affected environment includes the two parcels (APN No. 315-081-09 and APN No. 315-081-01) totaling a 71-acre project site (Project Site) as well as the generator tie line route (gen-tie line), collectively called GESC Project. The GESC is 2,623 feet above mean sea level and is located at approximate address 8684 Sweetser Road, Rosamond CA, one mile north of Willow Springs (EDR 2021). Land

use in the surrounding area is generally vacant/undeveloped, residential, or agricultural use. The literature overview of the project area will include a 10-mile radius, measured from the perimeter of the subject property.

5.2.1.1 Regional Overview

The United States Department of Agricultural Forest Service has established ecoregions which describe ecosystems that share common climactic and vegetation characteristics. Ecoregions are hierarchically organized and range from level I to level IV. Level I identifies 15 broad areas with general characteristics and each subsequent level thereafter features smaller ecological regions that provide more detail. The project area is categorized by the following: North American Deserts (I), Warm Deserts (II), Mojave Basin and Range (III), and Western Mojave Basin (IV) (USEPA 2006).

The Mojave Basin spans through the southeastern and central portions of California, smaller parts of southern Nevada, and northwestern Arizona. The subject property is located approximately 25 to 30 miles from the western Sierra Nevada Mountain boundary of the Ecoregion. The region experiences four distinct seasons with large diurnal fluctuations in temperature. Winter storms from the northern Pacific Ocean can bring rain into the region; however, the Sierra Nevada Mountain Range act as a boundary that prevents west coast moisture and storms from moving east. The rain shadow that the Sierra Nevada Mountain Range creates causes this region to be the hottest and driest portion of the Mojave Desert. In some of the driest sites, average rainfall can be less than 2 inches. Winter temperatures have been recorded to drop to 20 degrees in the valleys (Bunn et al 2007).

Despite the arid climate, the region supports a large variety of flora and fauna, many of which have evolved specifically for the region. Common habitats found typically include creosote bush scrub, desert saltbush, Joshua tree scrub, desert wash, alkali scrub and juniper-pinyon woodlands. Some of the mid-elevation areas in this region can support up to 70 species of shrubs per hectare (Nature Conservatory 2010).

Current land use within close proximity of the subject property is mixed with undeveloped land, and residential properties. A small agricultural farm is located adjacently north of the Project Site. Several wind farms and solar farms are located throughout the 10-mile radius surrounding the GESC project. Willow Springs is located approximately 1 mile south of the subject property, while the City of Rosamond is located approximately 7 miles southeast. A defining feature of the landscape is the Willow Springs Butte Mountain, located adjacently southeast.

5.2.1.2 Significant Regional Wetlands and Protected Areas

The National Wetland Inventory (NWI) and National Hydrography Dataset (NHD) were reviewed to identify wetland or hydrographic features (USFWS 2021; USGS 2021). **Figure 5.2-1a** presents bodies of water found within a 10-mile radius of the GESC project and **Figure 5.2-1b** presents bodies of water found within a 1000-foot buffer of the GESC project. **Figure 5.2-1c** presents mapped water features observed during the preliminary jurisdictional delineation survey.

Protected areas were determined by the California Protected Area Database (CPAD) and California Conservation Easement Database (CCED) mapping tools (CPA 2021). **Figure 5.2-2** presents protected areas identified within a 10-mile radius of the GESC project.

5.2.1.2.1 Hydrologic Features

The review of the NWI and NHD indicated that numerous water bodies including riverine features, a lake, and freshwater ponds may occur within 1000-feet of the gen-tie line. A preliminary field-based delineation by the Applicant's biologist was conducted to determine the current accuracy of the NWI/NHD data and the

presence/absence of potentially jurisdictional resources throughout GESC project area. The preliminary field-based delineation was performed in accordance with the following guidance and regulations:

- **United States Army Corps of Engineers (USACE) Wetland Delineation Manual.** According the USACE, a wetland are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland (USACE 1987).
- **Waters of the United States (WOTUS).** Includes all waters identified in the Clean Water Act Section 404.
- **Non-Wetland WOTUS.** As defined by USACE in 33 CFR Part 328.3, these waters must have strong hydrologic indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). According to the Navigable Waters Protection Rule of 2020, ephemeral drainages are no longer considered jurisdictional under USACE. Drainage features must have at least intermittent flow to be considered jurisdictional under USACE (EPA and Department of Army 2020).

Based on the results of the preliminary field-based delineation, the Applicant's biologist concluded the GESC project area does not contain the riverine, lakes, freshwater ponds, or other water bodies identified in the NWI and NHD. Although the preliminary field survey did not reveal any wetlands or WOTUS, the Applicant's biologist identified the presence of 58 drainage features within the GESC project area. All drainage features are similar in character, varying between one and 125 feet in width, and typically flowing northwest to southeast. The drainage features had observable hydrologic indicators such as shelving, sedimentation, and cracked soil surfaces with drainage patterns. However, none of the drainage features identified contained water at the time of the survey. The Applicant's biologist determined that many of the drainage features originated from upland swales, and many dissipated into uplands with no observable downstream connection. This observation is consistent with the NWI/NHD dataset.

The Applicant's biologist delineated all 58 drainage features for their OHWM limits for Regional Water Quality Control Board (RWQCB) jurisdiction, as well as top-of-bank or OHWM limits, as applicable on a case-by-case basis, for California Department of Fish and Wildlife (CDFW) streambed jurisdiction. The following summarizes the findings of the preliminary jurisdictional determination:

- All 58 drainage features within the GESC project area were identified by the Applicant's biologist as ephemeral, therefore, there is no USACE jurisdiction on the Project site, per the 2020 Rule (EPA and Department of Army 2020).
- All 58 mapped drainage features fall under the jurisdiction of two state agencies, the RWQCB and the CDFW. **Table 5.2-1** summarizes the total acreage and linear feet under the jurisdiction of RWQCB and CDWF and **Figure 5.2-1c** maps all ephemeral drainages observed.
  - The total RWQCB jurisdiction within the Project site includes 2.285 acres (23,248 linear feet)
  - The total CDFW jurisdiction includes 5.770 acres (23,248 linear feet).

Table 5.2-1: Jurisdictional Waters Within the Project Site

Ephemeral Drainage Feature Number	RWQCB Non-wetland Waters of the State		CDFW Streambed	
	Acres	Linear Feet	Acres	Linear Feet
1	0.0161	351	0.0324	351
2	0.0018	79	0.0056	79
3	0.0591	449	0.2452	449
4	0.0198	588	0.1157	588
5	0.0065	283	0.0566	283
6	0.0037	163	0.0273	163
7	0.0202	879	0.1459	879
8	0.0017	73	0.0017	73
9	0.0089	386	0.0714	386
10	0.0134	292	0.0412	292
11	0.0147	319	0.0593	319
12	0.016	354	0.0333	354
13	0.0928	447	0.0928	447
14	0.0068	297	0.0068	297
15	0.0067	292	0.0067	292
16	0.4415	391	0.5285	391
17	0.1601	1188	0.3089	1188
18	0.0555	133	0.0555	133
19	0.0259	365	0.0535	365
20	0.0007	28	0.004	28
21	0.0188	299	0.0597	299
22	0.0441	871	0.1478	871
23	0.0101	440	0.0285	440
24	0.0026	115	0.0292	115
25	0.0446	1513	0.2715	1513
26	0.0113	254	0.0605	254
27	0.0033	145	0.0248	145
28	0.0183	399	0.1305	399
29	0.0247	270	0.0247	270
30	0.0154	276	0.1488	276
31	0.0025	108	0.0169	108
32	0.0066	293	0.0966	293
33	0.0029	125	0.0253	125

Ephemeral Drainage Feature Number	RWQCB Non-wetland Waters of the State		CDFW Streambed	
	Acres	Linear Feet	Acres	Linear Feet
34	0.0216	803	0.1046	803
35	0.0335	844	0.2304	844
36	0.018	392	0.0539	392
37	0.0107	252	0.0274	252
38	0.0125	545	0.0434	545
39	0.0035	151	0.0077	151
40	0.005	218	0.0439	218
41	0.008	188	0.0314	188
42	0.0033	145	0.0306	145
43	0.0036	155	0.0107	155
44	0.0147	433	0.0794	433
45	0.119	2180	0.637	2180
46	0.0091	111	0.0351	111
47	0.005	108	0.023	108
48	0.0488	584	0.1151	584
49	0.0058	253	0.1058	253
50	0.0133	255	0.1031	255
51	0.0755	383	0.1207	383
52	0.0011	48	0.0106	48
53	0.023	189	0.0618	189
54	0.0623	915	0.1183	915
55	0.3964	812	0.4426	812
56	0.0071	228	0.0356	228
57	0.0975	388	0.1023	388
58	0.1093	386	0.2385	386
Total	**2.285**	**23,431**	**5.77**	**23,431**

RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife;

5.2.1.2.2 Protected Areas

A review of the CPAD and CCED confirmed that there are 15 protected areas within a 10-mile radius of the GESC project area. **Figure 5.2-2** maps all the protected areas found within the CPAD and CCED database.

California Protected Area Database

The CPAD is a database that includes lands that are owned and protected for open space purposes by over 1,000 public agencies or non-profit organizations. CPAD includes national, state, or regional parks, forests,

preserves and wildlife areas. It also includes large and small urban parks; land trust preserves and special district open space lands (CPAD 2021). A description of the CPAD identified areas that occur within the 10-mile buffer of the GESC project area is provided below.

- **California Department of Parks and Recreation (CDPR):** The California Department of Parks and Recreation has over 280 state park units that protect and preserve beaches, ghost towns, historic monuments, parks, lakes and reservoirs, museums, natural and cultural preserves, recreational areas, and visitor centers (CDPR 2021a). The Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland State Park were identified within 10 miles of the GESC Project. The Antelope Valley California Poppy Reserve encompasses 8 miles of trails along gentle rolling hills. In the spring, the Mojave grassland habitat blooms with a variety of wildflowers along the trails. Wildlife common in this area include meadow larks, lizards and gopher snakes, kangaroo rats, beetles, and scorpions (CDPR 2021b). The Arthur B. Ripely Desert Woodland State Park was established to protect and preserve native Joshuas and junipers and provides two hiking trails (CDPR 2021c). In Antelope Valley, the Joshua tree was a vital source to the Native Americans that once inhabited the region.
- **California State Lands Commission (CSLC).** The California State Lands Commission was established in 1938 and includes 4 million acres of submerged lands, natural navigable bodies of water and protected lands. The Commission also manages sovereign land granted in trust by the California Legislature to approximately 70 jurisdictions (CSLC 2021). Six land units of California State Land Commission were identified within the survey area, five of which are north northeast and the other land unit to the west of the subject property.
- **Desert and Mountain Conservation Authority (DMCA).** In July 2006, the DMCA was established. DMCA is a public entity through a Joint Powers Authority Agreement between Antelope Valley Resource Conservation District and Santa Monica Mountains Conservancy. The DMCA was established to identify and acquire open space lands within the boundaries of the two founding agencies (DMCA 2006). One land unit was identified southwest of the GESC site and is approximately 480.9 acres.
- **City of Lancaster, Parks, Arts, Recreation and Community Services, Mariposa Park**. Mariposa Park is an approximately 5.5-acre park that offers open areas, baseball field, walking trails and restroom facilities (Lancaster 2021).
- **Los Angeles County, Parks and Recreation (LACPR).** There were three areas of interest that are managed and overseen by the LACPR; the Apollo Community Regional Park, Neenach Wildlife Preserve and the George R. Bones Wildlife Sanctuary. Apollo Community Regional Park is an approximately 55-acre urban park that offers open areas, fishing lakes, running trails and restroom facilities (LACPR 2021a). The Neenach Wildlife Preserve is a 40-acre natural open area with Joshua trees, juniper, and rabbit brush, and is located 20 miles west from city center of Lancaster. Some wildlife common in this area include black-tailed rabbits, chipmunks, burrowing owls, cactus wren, California thrasher, roadrunner, California rock wren, Mojave rattlesnake, glossy snake, night snake, lyre snake, desert spiny lizard, desert hairy scorpions, California ebony tarantula (LACPR 2021b). The George R. Bones Wildlife Sanctuary is a 99-acre reserve located at the edge of the Mojave Desert, adjacently north of the Llebre Mountains. It protects gray pines, Joshua trees as well as other native species (LACPR 2021c). Both the Neenach Wildlife Preserve and George R. Bones Wildlife Sanctuary offer plant walks and hiking trails.

- **Mountains Recreation and Conservation Authority (MCRA).** The MRCA is local government public entity that was established in 1985 pursuant to the Joint Powers Act and has a partnership between the Santa Monica Mountains Conservancy, Conejo Recreation and Park District and the Rancho Simi Recreation and Park District. The MRCA manages 75 acres of parkland and provides operations, ranger services, fire prevention and community-based planning (MRCA 2021). Several small units of MCRA land were identified in the CDAP database all located south of the GESC survey area.
- **Rosamond Community Services District (RCDS).** The RCDS was formed to provide domestic water, sewage, waste, stormwater and maintenance and street for recreational facilities. The Rosamond Community Services District Park System Master Plan has two parks identified by the CPAD as protected areas: the Rosamond Park and the United Street Park. The Rosamond Park is a cooperative use park that is approximately 9.7 acres in size that has developed recreational centers, basketball courts and baseball fields. The United Street Park is a neighborhood park that is approximately 10 acres in size. Both are used for recreational use that have open areas and restroom facilities (RCDS 2009).
- **United States Bureau of Land Management (BLM).** In 1976, 25 million acres of desert lands in southern California were designated as the California Desert Conservation Area (CDCA) through the Federal Land Policy and Management Act. In 2009, the Omnibus Public Land Management Act was passed by Congress which directed the Bureau of Land Management (BLM) to incorporate lands managed for conservation purposes within the CDCA as part of the national conservation lands (BLM 2021). The project identifies approximately 44 land designations, all with varying size, within a 10-mile radius.
- **United States Forest Service (USFS).** The United States Forest Service manages over 193 million acres of public lands in 43 states for multiple uses. The Angeles National Forest was established in 1982 and it covers 700,000 acres of land (USDA 2021). The Angeles National Forest is identified in **Figure 5.2-2** however it is not within the 10-mile radius of the GESC site.

California Conservation Easement Database

The CCED is a database that defines boundaries of easements and deed-based restrictions on private lands. These lands may be actively farmed, grazed, forested, or held as nature preserves and typically have no public access (CPA 2021). The following easements were discovered and mapped on **Figure 5.2-2**: Bi-Centennial, Pacific Crest Trail, Portal Ridge Conservation Easement, Sequoia Riverlands Trust Conservation Easement, TMV-A, and Tri-Centennial

5.2.1.3 Sensitive Habitat Types and Critical Habitat

Sensitive habitat types and critical habitats within 10-mile radius of the GESC Project are shown in **Figure 5.2-3a and 5.2-3b** respectively. The descriptions of the sensitive and critical habitats identified are described below.

5.2.1.3.1 Sensitive Habitat Types

As CDFW defines, sensitive habitats are plant communities that have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in the CNDDB. Currently, CDFW publishes the California Sensitive Natural Communities List online (CDFW 2021a). Vegetation rarity ranking is based on a rank calculator developed by NatureServe. Vegetation maps were taken from the CDFW Vegetation Classification Reports (CDFW 2021b). CDFW’s Vegetation Program considers vegetation

alliances with state ranks of S1-S3 as sensitive vegetative habitats. CDFW considers species or natural communities with one of the following NatureServe rankings as sensitive:

- Global(G)/State(S)
- X= Presumed Extinct
- G/S H= Possibly Extinct
- G/S 1= Critically Imperiled
- G/S 2= Imperiled
- G/S 3= Vulnerable

The Applicant's biologist identified the following sensitive habitat types within a 10-mile radius of the GESC Project.

Scale broom scrub. Scale broom scrub (*Lepidospartum squamatum*) is described as a long-lived perennial, clone-forming shrub. The scale broom scrub can erect to one to two meters high and spread in a broom-like shape and scale-like leaves. At the tips of branches, 9-17 disk flowers are subtended by three to four series of closely phyllaries that are unequal in size. This community can be found in elevations between 30 and 1600 meters in low gradient alluvial deposits along intermittently flooded washes streams, stream terraces and fans (USDA 2017). CDFW considers this habitat as a Sensitive Natural Community as its rarity rank is G3/S3 (CDFW 2021a). Within the study area, two communities reside west, and one community resides northwest of the GESC site and covers approximately 141 acres in total.

Big sagebrush. Big sagebrush (*Artemisia tridentata*) is described as a rounded and somewhat spreading evergreen shrub that normally grows 3 to 10 feet in height. Plant height is variable and occurs along broad spectrums of moisture gradients. Larger plants occur in mesic sites. General physical characteristics include a thick truck leading to a multi-stemmed and irregular crown. Big sagebrush tends to grow in deep and fertile soils and are an indicator of productive sites (USDA 1999). CDFW considers this habitat as a Sensitive Natural Community as its rarity rank is G2/S2 (CDFW 2021a). Within the study area, small communities of big sagebrush can be found southeast and covers approximately 44 acres in total.

5.2.1.3.2 Critical Habitat

Critical habitat are designated areas occupied by the species at the time it was listed that contain the physical or biological features that are essential to the conservation of endangered and threatened species. In designating critical habitat, USFWS and National Oceanic Atmospheric Administration Fisheries consider the following requirements of the species:

> *"Space for individual and population growth, and for normal behavior; nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing offspring; and, generally, and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (USFWS 2017)."*

The following critical habitat was identified within 10 miles of the GESC project area.

Desert Tortoise Conservation Unit. The desert tortoise (*Gopherus agassizii*) was listed as threatened in April of 1990. Due to desert tortoises occurring in a variety of habitats and elevations, the Desert Tortoise Conservation Unit is a general region including a variety of vegetation communities including saltbush scrub, blackbush scrub, cheesebush scrub, iodinebush-alkali scrub complex and desert needlegrass scrub steppe with tortoises typically occurring in valleys, alluvial fans, bajadas and rolling hills. The habitat areas are also characterized as being friable enough for digging of burrows but firm enough so that burrows do not collapse (USFWS 2011). The designated desert tortoise conservation unit is located within the GESC project area.

California Condor Critical Habitat. It is estimated that 350,000 acres of eastern and southern Kern County are used regularly by the endangered California Condor (*Gymnogyps californianus*). A small population of condors occupy rangeland in the western part of the county. Condor populations fluctuate depending on the time of year in this region. Habitat throughout eastern portions of Kern County provides roosting and feeding areas in the fall and winter months however in the summer, nonbreeding populations of condors typically move south to the Ventura and Los Angeles counties. Habitat for condors vary, with roosting areas including rock cliffs or dead conifer snags located in isolated or semi-secluded areas (Wilbur et al. 1979). The southeast corner of this critical habitat is located approximately 5.3 miles northwest of the GESC project site and is associated with the Transverse Ranges and Tehachapi Mountains.

5.2.1.4 Regional Sensitive or Special-status Species

Appendix 5.2A provides a list of special-status species found within a 10-mile radius of the GESC project area during literature review. This appendix includes the status designation for each species, habitat types that may support these species in the regional vicinity, a determination of potential for these species to occur within the GESC project area, and a rationale for the occurrence determination. Additionally, **Figure 5.2-4** illustrates the potential known locations of special-status species within a 10-mile range of GESC Project. Sensitive or special-status species meet at least one of more of the following criteria:

- Regional species listed as threatened or endangered that have special requirements under the federal Endangered Species Act (ESA) (USFWS 1973).
- Regional species listed as threatened or endangered that have special requirements under the California Endangered Species Act (CESA) (Fish and Game Code, Section 2050 et seq.).
- Other non-listed sensitive and special-status species, including California Native Plant Society (CNPS) List 1-4 species, CDFW Species of Special Concern (SSC), CDFW Fully Protected (FP) Species, and other CDFW Special Animals.

The California Natural Diversity Database (CNDDB) was used in preparing **Appendix 5.2A**. The results of the special-status species identified during the biological reconnaissance and rare plant surveys are discussed in Sections 5.2.1.9 and 5.2.1.10, respectively.

5.2.1.5 Biological Surveys

In order to determine whether sensitive habitats occur within or near the GESC project area, the Applicant's biologist performed six surveys: reconnaissance survey that included a biological survey and vegetation mapping, preliminary hydrological delineation, Swainson's Hawk survey, burrowing owl survey, rare plant survey, and desert tortoise survey.

All biological surveys and resource assessments were performed according to the latest protocols and guidelines for biological surveys and reporting. **Table 5.2-2** defines the characteristics of the biological surveys conducted. The results of each of these surveys are described below.

Table 5.2-2: Biological Surveys Conducted

Survey	Survey Target or Purpose	Date / Time (if applicable)	Biologists	GESC Site[a] Parameters	Gen-Tie Line Survey Area[b] Parameters
Reconnaissance Survey	Biological Survey	March 31, 2021 through August 23, 2021	Kris Alberts, Tawni Gotbaum	Gem project site and 0.5-mile buffer	gen-tie line and 0.5 mile-buffer
Reconnaissance Survey	Vegetation Mapping	March 31, 2021 / 0805 –1745	Kris Alberts, Tawni Gotbaum	Gem project site and 150 feet buffer	gen-tie line and 150 feet buffer
Preliminary Hydrological Delineation	Jurisdictional Waters	August 16, 2021; August 17, 2021; and August 23, 2021	Kris Alberts, Lorena Bernal	Gem project site	gen-tie line
Swainson's Hawk Survey	Swainson's Hawk	March 31, 2021; April 5, 2021; April 6, 2021; April 28, 2021; April 29, 2021	Kris Alberts, Tawni Gotbaum	Gem project site and 0.5-mile buffer	gen-tie line and 0.5 mile
Burrowing Owl Survey	Burrowing Owls and Burrows	See Table 5.5-5	See Table 5.5-5	Gem project site and 492-foot buffer	gen-tie line and 492-foot buffer
Rare Plant Survey	Rare Plant Survey	See Table 5.2-6	See Table 5.2-6	Gem project site	gen-tie line
Desert Tortoise Survey	Desert Tortoise Habitat	April 12, 2021 / 0728 – 1542; April 14, 2021 / 0645 – 1500; May 4, 2021 / 0545 – 1515 ; May 5, 2021 / 0545 – 1530	Katie Quint, Tamara Kramer, Tawni Gotbaum	Gem project site	gen-tie line

[a]Project Site includes the Gem 71-acre parcel

[b]gen-tie line includes the Preferred and Alternate Route circuit tie line

Note(s): All biological surveys were conducted by Blackhawk Environmental (Blackhawk 2021).

Reconnaissance Survey

- ***Vegetation Mapping.*** Vegetation mapping was conducted to determine the vegetation communities and habitat suitability for special-status and listed species within and near the Project boundary. Mapping was completed following the *National Vegetation Classification System per the Manual of California Vegetation (MCV), Second Edition* (Sawyer et al. 2009). Biologist drove the entire Survey Area and accessed areas as

needed on foot. Environmental Systems Research Institute (ESRI) ArcGIS Collector software was used to map various vegetation communities, and all relevant data, including dominant and sub-dominant plant species. For any community that could not be easily classified under the MCV, then *Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California* was used (Holland 1986). On-site and adjacent areas were characterized for their existing conditions and current land uses. A total of 38 plant species were observed during the field surveys, seven of which were non-natives. The vegetation observed and land cover types are discussed in Section 5.2.1.6. A comprehensive list of all plant species observed is available in **Appendix 5.2B**

- ***Biological Survey*.** The potential for occurrences of special-status wildlife species, resulting from the literature review, were assessed in relation to Survey Area. A total of 79 wildlife species were observed either on or in the vicinity of the project. Among the vertebrate species, the total includes nine reptilians, 58 avian and 12 mammalian species. Many of these species are common to the region and would be expected in terrestrial habitats present within the Survey Area. Special-status species that are threatened, endangered, or protected found on this list are discussed in detail in Section 5.2.1.10. A comprehensive list of all wildlife species observed is available in **Appendix 5.2B**

Preliminary Hydrological Delineation. The preliminary field-based delineation was conducted to identify hydrologic features that are potentially jurisdictional hydrological resources throughout the GESC Project area. The Survey Area was assessed for the presence/absence of potentially jurisdictional WOTUS as well as, RWQCB and CDFW regulated waterbodies such as wetlands, vernal pools, washes, drainages, streams, lakes, ponds, and any other water bodies. Methods and results of the preliminary field-based hydrological delineation are summarized in Section 5.2.1.2.1.

Swainson's Hawk (SWHA) Survey. Swainson's Hawk (*Buteo swainsoni*) observations in literature review records included 18 records, ranging from 2009 through 2013, 2016 through 2018 and 2020, detailing multiyear SWHA nesting activity in two to three different territories within ten miles of the GESC site. Following CDFW protocols, nine focused surveys were conducted that would include the identification of all Swainson's hawk-suitable nest trees, documentation of next competitors, a CDFW-protocol level Swainson's hawk surveys catered specifically toward the Antelope Valley region and all Swainson's hawk observations within the Survey Area. **Table 5.2-3** presents the Swainson's Hawk survey period dates.

Table 5.2-3: Swainson's Hawk Survey Dates and Personnel for GESC Site

Survey Date	Survey Period I	Survey Period II	Survey Period III	Survey Period IV
March 31, 2021	X	--	--	--
April 5, 2021	--	X	--	--
April 6, 2021	--	X	--	--
April 28, 2021	--	X	--	--
April 29, 2021	--	X	--	--

--= Survey not performed
X= Survey performed
Source: Blackhawk 2021

The survey methods generally followed the latest accepted CDFW SWHA protocol specifically referencing Kern County (CEC and CDFW 2010). CDFW protocol designates ten surveys to be conducted over four Survey Periods aiming to capture progressive nesting behaviors and activity.

- Survey Period I: This includes a preliminary survey of potential nest locations.
- Survey Period II: Surveys targeting initial occupancy of traditional nest territories and nesting behaviors.
- Survey Period III: Direct monitoring of known/identified active nests to confirm incubation.
- Survey Period IV: Direct monitoring of known/identified active nests to confirm young rearing.

Swainson's hawk-suitable nesting trees were generally found throughout the Survey Area. The focused SWHA surveys resulted in mapping a total of 433 suitable potential nest trees within the Survey Area, 45 of which occurred within potential gen-tie line project areas, and one observed on the GESC site. Of the 433 total suitable nesting trees observed within the half-mile buffer surrounding the Project, SWHA only occupied one. Of the remaining suitable potential nest trees, 56 were occupied by competitors (namely red-tailed hawks and common ravens). The competitors were observed in trees, distribution poles, lattice towers and other structures within the survey area.

One active SWHA pair and their associated active nest within their territory was documented within approximately 810 feet of the gen-tie line and first confirmed within the survey area during the May 19, 2021. Ultimately, a nesting failure at this active territory was confirmed on June 29 and July 13, 2021. This SWHA pair utilized a native Joshua tree as nesting substrate and native open creosote scrub with Joshua trees intermixed as immediately adjacent foraging habitat. Six additional transient/dispersing individual Swainson's hawks were observed within the Survey Area. Results from surveys are summarized in **Table 5.2-4**.

Table 5.2-4: Focused Swainson's Hawk Survey Results

Observation	Total within Survey Area	Total Subset located within Project Right of Way
Active SWHA Pair and Nesting Territory	1	0
SWHA-Suitable Potential Nesting Trees	433	45
Active Competitor Nests	56	4
Transient/dispersing individual SWHA	6	1

Source: Blackhawk 2021

While a large portion of the Project site is comprised of open creosote bush- and saltbush-dominated vegetation communities with scrub density often suitable for SWHA foraging, nesting opportunities are limited to those areas supporting suitable nesting trees including landscaping and ornamental plantings often in the form of windrows. Except for rural residential parcels with suitable nesting trees, most of the developed areas within the Survey Area were excluded from the surveys due to a lack of suitable habitat for foraging and nesting.

Moderate to high densities of creosote bush, combined with saltbush, white bursage, non-native forbs and grasses that occur within the northern, central, and western portions of the Survey Area, as well as scattered landscaped and ornamental shrubs and trees generally associated with disturbed/ developed areas, preclude fossorial mammal movement in a general capacity. These areas offered limited foraging suitability at the time of the surveys due to an absence of open ground suitable for Swainson's hawk to maneuver and hunt prey and evade ground predators.

Burrowing Owl (BUOW) Survey. Since suitable burrowing owl habitat was observed on site and the species is known to occur in the area, a focused burrowing owl survey became required per CDFW guidelines. No surveys were conducted within five days following a rain event. **Table 5.2-5** presents the survey dates and during the Burrowing Owl Survey.

Table 5.2-5: Burrowing Owl Survey Dates and Personnel for GESC Site

Dates	Pass	Field Personnel
April 12, 2021	1	Desiree Johnson, Katie Quint
April 13, 2021	1	Desiree Johnson, Katie Quint, Hayley Milner
April 14, 2021	1	Desiree Johnson, Katie Quint, Hayley Milner Tamara Kramer
April 15, 2021	1	Desiree Johnson, Katie Quint, Hayley Milner, Tamara Kramer, Tawni Gotbaum
April 16, 2021	1	Desiree Johnson, Katie Quint, Hayley Milner, Tamara Kramer, Tawni Gotbaum
May 3, 2021	2	Desiree Johnson, Hayley Milner
May 4, 2021	2	Desiree Johnson, Hayley Milner
May 5, 2021	2	Desiree Johnson, Hayley Milner
May 25, 2021	3	Desiree Johnson, Hayley Milner, Tamara Kramer
May 26, 2021	3	Desiree Johnson, Hayley Milner, Tamara Kramer
June 16, 2021	4	Desiree Johnson, Hayley Milner

Source: Blackhawk 2021

The survey methods followed the latest accepted CDFW burrowing owl protocols. The applied methods were in alignment with other burrowing owl surveys for similar projects in the Antelope Valley/Willow Springs area (ICF 2019, Western EcoSystems Tech 2020). CDFW protocol stipulates those four visits constitute a complete suite of focused burrowing owl surveys (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 so that the last occurs between June 15 and July 15. The four surveys were conducted accordingly within the peak breeding season, 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.

The Applicant's biologists walked a maximum of 30-meter-wide belt transects within the survey area to provide 100-percent visual coverage within the Survey Area. While walking the transects, biologists specifically searched for BUOW, BUOW sign (i.e., cough pellets, whitewash, feathers, tracks, nest decorations) and BUOW-suitable burrows, and burrow complexes. Burrow complexes are composed of a cluster or suitable burrows and burrow surrogates. Biologists paused at least every 100 meters, as appropriate, to scan for BUOW using binoculars and/or the naked eye. In addition, the biologists listened for BUOW calls. For habitat where biologists could not safely survey or gain permission to access, such as private property, surveys were conducted by meticulously scanning the area using binoculars. If BUOW were not directly observed at a suitable burrow with BUOW sign, sign was cleared from around the burrow entrances to facilitate detection of fresh sign that would indicate recent occupation in subsequent survey passes. Survey pass 1 included a full sweep of the entire Survey Area, while subsequent survey passes focused only on areas known to have suitable burrows that resulted from survey pass 1.

BUOW-suitable burrows were found in several portions of the Survey Area, the majority of which were along or within 500 feet of dirt roads. The focused burrowing owl surveys resulted in a total of 65 unoccupied, suitable burrowing owl burrows and 41 unoccupied suitable burrowing owl burrow complexes in the Survey Area. Within the project right of way 15 suitable burrows and five suitable burrow complexes were observed. Of the documented suitable burrows, only three contained burrowing owl sign (i.e., pellets and/or whitewash); however, the pellets were extremely desiccated, and the whitewash appeared to be fairly old, indicating owl presence in the recent past, perhaps within the last three years, but not currently occupied. One incidentally observed burrowing owl was observed within the gen-tie line adjacent to Hamilton Road, however this owl was not observed with an associated burrow and therefore was assumed to be migrating through the Project.

No fresh BUOW sign was observed on any of the focused burrowing owl surveys. Suitable burrowing owl habitat occurs over most of the Project site and the Survey Area, strongly correlated with areas associated with ephemeral drainages and earthen berms adjacent to dirt roads in open landscapes.

Rare Plant Survey. Rare plant survey methods were based on the following resources: 1) *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities* (CDFW 2009), 2) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), and 3) *General Rare Plant Survey Guidelines* (Cypher 2002). However, due to certain topographic limitations, not all areas could be observed directly (e.g., steep, or treacherous areas, where safety was a concern). Surveying of inaccessible areas occurred to the extent possible from a safe vantage point, using binoculars and other methods/equipment, as appropriate. Biologists meandered through the Survey Area to obtain as much coverage as possible. **Table 5.2-6** presents the survey dates and during the Rare Plant Survey.

Table 5.2-6: Rare Plant Survey Dates and Personnel for GESC Site

Date	Start/End Time (military time)	Field Personnel
April 13, 2021	0645 – 1520	Desiree Johnson, Haylee Milner
April 14, 2021	0645 – 1550	Desiree Johnson, Haylee Milner
May 3, 2021	0545 – 0800	Desiree Johnson, Haylee Milner
	1740 – 1950	
May 4, 2021	0540 – 0755	Desiree Johnson, Haylee Milner
	1735 – 1920	
May 5, 2021	0545 – 0800	Desiree Johnson, Haylee Milner

Source: Blackhawk 2021

Plant species were identified to species or subspecies level and recorded in the field notes of the biologists. All Joshua trees occurring within the Project Site and gen-tie line were mapped in the ESRI ArcGIS Collector application. In some cases, surveyors obtained samples from the site, so that a dissecting microscope could later be used for plant identification. Taxonomy of plant species identified within the Survey Area was based on *The Jepson Manual* (Hickman) and *The Jepson Manual, 2nd Edition* (Baldwin et al. 2012). In addition to documenting plant species, biologists recorded all incidental wildlife occurrences by sight, sound and/or sign (e.g., tracks, burrows, scat, etc.). Results of the plant survey are discussed in Section 5.2.1.6. with a discussion of special-status plant species found in Section 5.2.1.8.

Desert Tortoise Survey. The initial literature review indicated that the GESC project is located within a Desert Tortoise Recovery Unit, and the CNDDB search identified three records of desert tortoise observations within five miles of the Project. Further, habitat, topography, and soils within the majority of the Survey Area are suitable for desert tortoise. For this effort, surveys were conducted following the protocol set forth in Chapter 4. General Ecology and Survey Protocol for Determining Presence/Absence and Abundance for the Desert Tortoise - Mojave Population (USFWS 2009).

Desert tortoise surveys were conducted in the morning and afternoon hours of April 12 and 14, and May 4 and 5 by walking 10-meter-wide belt transects to provide 100-percent visual coverage of the Survey Area. With respect to desert tortoise and their sign, the Applicant's biologist documented and classified any observed burrows, dens, scats, and shell remains.

Developed areas within the Survey Area were excluded from the survey as unsuitable habitat. For habitat where biologists could not safely survey or gain permission to access, such as private property, surveys were conducted by meticulously scanning the Survey Area using binoculars. All desert tortoise relevant data and wildlife species were recorded in the field notes of the biologists and suitable tortoise burrow locations were recorded using the ESRI ArcGIS Collector application.

Focused surveys resulted in the detection and mapping of three Class 5 burrows suitable for juvenile desert tortoises within the Survey Area. No tortoise sign was present in the vicinity of these burrows. Additionally, spider webbing was present at one of the burrow entrances indicating that burrow was not occupied at the time of the surveys, and no juvenile or adult desert tortoises were observed during either the focused surveys or other surveys completed for the GESC project area.

5.2.1.6 Land Cover Types and Vegetation Communities

Figure 5.2-5 presents the land cover types and vegetation communities identified within the Survey Area. The following sections discuss land cover types and vegetation communities survey. **Table 5.2-7** presents a summary of the acreage of landcover and vegetation communities.

Table 5.2-7: Acreage of Land Use and Vegetation Communities

Vegetation Community / Land Use	Acreage
Creosote-White Bursage Series	2,516.82
Saltbush Scrub	1,013.02
Developed/Disturbed	392.76
Creosote-Saltbush Series	180.12
Developed	120.38
California Matchweed-Rubber Rabbitbrush Series	78.73
Agricultural Land	64.48
Annual Buckwheat/Grasses	33.75
Creosote-White Bursage Series - Disturbed	43.16
Rubber Rabbitbrush Scrub	7.08
Saltbush Scrub - Disturbed	5.49
Disturbed	3.11
Ornamental	0.85

Source: Blackhawk 2021

5.2.1.6.1 Creosote-White Bursage Series

A total of 2,516.82 acres of Creosote-White Bursage Series habitat was mapped in the Survey Area, including 513.26 acres within the Project site. Creosote-White Bursage Series habitat within the Project is characterized by dominant and co-dominant creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with sub-dominant species that include Cooper's goldenbush (*Ericameria cooperi*), Joshua tree and Nevada ephedra (*Ephedra nevadensis*). This vegetation community becomes increasingly creosote-bush dominant with reduced white bursage coverage in the central and western portions of the GESC project area.

5.2.1.6.2 Saltbush Scrub

A total of 1,013.02 acres of Saltbush Scrub habitat was mapped in the Survey Area, including 215.60 acres within the GESC project area. Saltbush Scrub habitat within the Project is characterized by dominant and co-dominant cattle saltbush (*Atriplex polycarpa*), fourwing saltbush (*Atriplex canescens*), shadscale saltbush (*Atriplex confertifolia*), and creosote bush with subdominant species that include shortpod mustard (*Hirschfeldia incana*), doveweed (*Croton setiger*), Nevada ephedra and Joshua tree. Total shrub cover varies throughout the GESC project area with increased cover corresponding with greater dominance by creosote bush.

5.2.1.6.3 Developed/Disturbed

A total of 392.76 acres of Developed/Disturbed habitat was mapped in the Survey Area, including 140.38 acres within the GESC project area. Developed/Disturbed habitat within the Project site is composed of areas of bare ground either sparsely or moderately vegetated with a mix of mostly non-native, invasive, annual, weedy plant

species with marginal cover of native species; developed areas consist of buildings, residences, and their associated parcel footprints, as well as existing solar array facilities. Dominant plant species included shortpod mustard, brome grasses (*Bromus* spp.), Russian thistle (*Salsola tragus*), bristly fiddleneck (*Amsinckia tessellata*), anglestem buckwheat (*Eriogonum angulosum*) and doveweed. Additional disturbed habitat was mapped as large areas of bare ground supporting little to no vegetation that indicate historical or current anthropogenic use (i.e., dirt roads, staging areas, vacant lots, and margins of developed areas).

5.2.1.6.4 Cresote-Saltbush Series

A total of 180.12 acres of Creosote-Saltbush Series habitat was mapped in the Survey Area, including 44.80 acres within the GESC project area. Creosote-Saltbush Series habitat is characterized by dominant and co-dominant creosote bush, cattle saltbush, fourwing saltbush and shadescale saltbush with sub-dominant species that include white bursage, shortpod mustard and non-native grasses.

5.2.1.6.5 California Matchweed-Rubber Rabbitbrush Series

A total of 78.73 acres of California Matchweed-Rubber Rabbitbrush Series habitat was mapped in the Survey Area, including 18.32 acres within the GESC project area. California Matchweed-Rubber Rabbitbrush Series habitat is characterized by dominant and co-dominant California matchweed (*Gutierrezia californica*), matchweed (*Gutierrezia sarothrae*) and rubber rabbitbrush (*Ericameria nauseosa*) with subdominant species including creosote bush, Joshua tree and non-native grasses. Additionally, this vegetation community exhibits low overall cover and large gaps between shrubs.

5.2.1.6.6 Agriculture Land

A total of 64.48 acres of Agricultural Land was mapped in the Survey Area, including 4.49 acres within the GESC project area. Agricultural Land within the project area is characterized by landscaped and cultivated areas that have historically been or are currently associated with agricultural operations (i.e., cultivated land and vineyards) and livestock pastureland. This vegetation community does not support native species or natural community types and is adjacent to both developed areas and disturbed habitat.

5.2.1.6.7 Annual Buckwheat/Grasses

A total of 33.75 acres of Annual Buckwheat/Grasses habitat was mapped in the Survey Area, including 10.41 acres within the GESC project area. Annual Buckwheat/Grasses habitat is characterized by dominant and co-dominant anglestem buckwheat, annual wild buckwheat (*Eriogonum* spp.), and non-native grasses (*Bromus* spp.). At the time of the surveys, most species within this vegetation community were either senescent or exhibiting signs of stress due to enduring prolonged drought conditions.

5.2.1.6.8 Creosote-White Bursage Series – Disturbed

A total of 43.16 acres of Creosote-White Bursage Series – Disturbed habitat was mapped in the Survey Area, including 9.79 acres within the GESC project area. Similar to Creosote-White Bursage Series, dominant plant species include creosote and white bursage, however, co-dominant species consist of non-native, invasive, annual, weedy plant species characteristic of Disturbed/ Developed habitat. Signs of anthropogenic disturbance (i.e., dirt roads and partially cleared residential lots) are apparent within this vegetation community.

5.2.1.6.9 Developed Areas

Developed areas are areas that are entirely developed with no vegetation. They include the Whirlwind Substation, fenced solar array fields, houses and other miscellaneous structures. A total of 120.38 acres of developed areas are mapped, including 12.07 acres within the GESC project area.

5.2.1.6.10 Rubber Rabbitbrush Series

A total of 7.08 acres of Rubber Rabbitbrush Scrub habitat was mapped within the Survey Area, including 4.37 acres within the GESC project area. Rubber Rabbitbrush Series habitat is characterized by dominant rubber rabbitbrush and sub-dominant creosote bush, with low overall shrub cover and gaps between vegetation comprised of non-native grasses or bare ground.

5.2.1.6.11 Saltbush Scrub – Disturbed

A total of 5.49 acres of Saltbush Scrub – Disturbed habitat was mapped in the Survey Area, including 0.59 acre within the GESC project area. Similar to Saltbush Scrub, this habitat is dominated by cattle saltbush, fourwing saltbush, shadscale saltbush and creosote bush with co-dominant species occurring as non-native grasses (*Bromus* spp.) and forbs, including shortpod mustard, in addition to both increased gaps between shrubs and prevalence of bare ground. Saltbush Scrub – Disturbed habitat within the Project occurs predominantly along the margins of roads, within previously developed areas, and adjacent to existing development.

5.2.1.6.12 Disturbed Areas

Disturbed areas mapped included areas lacking any associated development but exhibited signs of disturbance such as grading or soil irregularities that support bare ground and native or non-native species. A total of 3.11 acres of disturbed areas were mapped including 1.63 acres on the GESC project area.

5.2.1.6.13 Ornamental Habitat

A total of 0.85 acres of Ornamental habitat was mapped in the Survey Area, all of which was within the GESC project area. Ornamental habitat occurs in the form of landscaped and planted trees that include cottonwoods (*Populus* spp.), pines (*Pinus* spp.) and tamarisk associated with developed areas or as windbreaks adjacent to dirt and paved roads. Additional Ornamental habitat was mapped as landscaped succulents (e.g., *Opuntia* spp., *Cholla* spp.), turfgrass and oleander (*Nerium* sp.) also associated with developed areas.

5.2.1.7 Generator Tie-Line

Generator transmission line construction will occur concurrently with construction activities at the Project Site. The gen-tie line will include a 10.9-mile 230 kV single circuit tie-line interconnecting SCE Whirlwind Substation (Preferred Route) or an approximately 3.5-mile 230 kV single-circuit tie-line interconnecting to the future LADWP Rosamond Substation (Alternative Routes).

Construction will affect approximately 50 feet on either side of the generator tie-line. Generator tie-line construction includes the installation of new transmission towers and associated access roads. The contractor will install on-site access roads for construction equipment and vehicle circulation. These roadways will be of similar design and construction to the existing access roadways established for access to the existing transmission structures. Access to the off-site transmission line and support structures will be available from the existing utility maintenance roadways.

5.2.1.8 Sensitive and Special-Status Species

The Applicant's biologist evaluated the regional special-status plant species list against observed conditions. This list includes regulatory status, habitat requirements, occurrence determination, and a rationale for the occurrence determination. The potential for each special-status species to occur was evaluated according to the following criteria:

- **Presumed Absent.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species was observed on site or within survey area.

5.2.1.8.1 Sensitive and Special-status Plant Species

The Applicant's biologist evaluated the special-status plant species for their potential to occur within the GESC project area and study area. The special-status species within a 10-mile radius identified in **Appendix 5.2A** include:

> Horn's milk-vetch (*Astragalus hornii var. hornii*), Alkali mariposa-lily (*Calochortus striatus*), Clokey's cryptantha (*Cryptantha clokeyi*), Recurved larkspur (*Delphinium recurvatum*), Rosamond eriastrum (*Eriastrum rosamondense*), Tejon poppy (*Eschscholzia lemmonii ssp. kernensis*), Pale-yellow layia (*Layia heterotricha*), Madera leptosiphon (*Leptosiphon serrulatus*), Sagebrush loeflingia (*Loeflingia squarrosa var. artemisiarum*), Tehachapi monardella (*Monardella linoides ssp. oblonga*), Aparejo grass (*Muhlenbergia utilis*), Spreading navarretia (*Navarretia fossalis*), Latimer's woodland-gilia (*Saltugilia latimeri*), Grey-leaved violet (*Viola pinetorum ssp. grisea*), and Joshua tree (*Yucca brevifolia*) (Blackhawk 2021).

The Applicant's biologist performed seasonally timed botanical surveys within portions of the study area. As discussed in Section 5.2.1.5, due to certain topographic limitations, not all areas could be observed directly (e.g., steep, or treacherous areas, where safety was a concern). Surveying of inaccessible areas occurred to the extent possible from a safe vantage point, used binoculars and other methods/equipment, as appropriate. Specific methods used during biological surveys are discussed in Section 5.2.1.5.

Out of the 15 special-status species identified within a 10-mile radius of the GESC site (**Appendix 5.2A**), the Joshua Tree was the only one special-status plant species that was observed in the survey area. All other assessed special-status plant species were presumed absent, except for alkali mariposa lily, which has a low

potential to occur in limited areas of the gen-tie line. **Figure 5.2-6** maps all documented occurrences of special-status plant species identified during biological surveys.

Observed Special-Status Species:

Joshua Tree. Joshua tree is a State Candidate Threatened species that occurs in well-drained soils within hot, dry sites on flats, mesas, bajadas, and gentle slopes. This species persists in areas with cold winters, hot summers, and nominal precipitation. Joshua trees provide cover for a variety of wildlife and nesting substrate for numerous avian species, including special-status species such as loggerhead shrike and Swainson's hawk. Primary threats to Joshua trees include climate change and habitat loss due to development. This species was found throughout the Project site and within most of the Survey Areas primarily associated with creosote-white bursage scrub, saltbush scrub, and California matchweed-rubber rabbitbrush vegetation communities. On the GESC parcel approximately 112 of Joshua trees were observed while the remaining 1,178 number were found in the Preferred Route or Alternative Routes tie lines, totaling 1,290 Joshua trees documented.

5.2.1.8.2 Sensitive or Special-status Wildlife Species

A comprehensive list of special-status species that the CNDDB identified within a 10-mile radius of the GESC site is located in **Appendix 5.2A**. CNDDB Field Survey Forms are provided in **Appendix 5.2D**. The species characterized as special-status within the survey area include the following:

> Crotch's bumble bee (*Bombus crotchii*), Northern California legless lizard (*Anniella pulchra*), Desert tortoise (*Gopherus agassizii*), Coast horned lizard (*Phrynosoma blainvilliil*), Tricolored blackbird (*Agelaius tricolor*), Golden eagle (*Aquila chrysaetos*), Burrowing owl (*Athene cunicularia*), Ferruginous hawk (*Buteo regalis*) Swainson's hawk, Western snowy plover (*Charadrius alexandrinus nivosus*), Mountain plover (*Charadrius montanus*), Prairie falcon (*Falco mexicanus*), California condor (*Gymnogyps californianus*), Loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), Townsend's big-eared bat (*Corynorhinus townsendii*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), Tehachapi pocket mouse (*Perognathus alticola inexpectatus*), American badger (*Taxidea taxus*), and Mohave ground squirrel (*Xerospermophilus mohavensis*) (Blackhawk 2021.)

Three species (Long-eared Owl (*Asio otus*), Vaux's Swift (*Chaetura vauxi*), and Yellow Warbler (*Setophaga petechia*)) were observed within the GESC project area, however there are no records of their presence within the CNDDB. Only historically known species are included in CNDDB and therefore the following species are not included in **Appendix 5.2A**.

Descriptions of each of the species identified during the biological survey. The Applicant's biologist evaluated the special-status wildlife species for their potential to occur within the GESC project area and study area. Of these, 8 were observed during biological surveys and 4, including the golden eagle, ferruginous hawk, American badger, and desert tortoise, have moderate to high probability of being found on or near the study area. The remaining species that were evaluated either have low probability due to limited habitat or are presumed absent due to no suitable habitat. **Figure 5.2-7** maps all occurrences of wildlife special-status species identified during the biological survey.

Potential to Occur Special-Status Species:

- **Golden Eagle.** Potential of occurrence is moderate. Suitable foraging habitat occurs throughout the survey area; however, no suitable nesting habitat occurs within the Survey Area. Potentially suitable nesting habitat occurs east of and outside of the survey area.
- **Ferruginous hawk.** Potential of occurrence is high. Suitable foraging and wintering habitat occurs throughout and adjacent to the survey area.
- **American badger.** Potential of occurrence is moderate. Suitable habitat occurs throughout the Survey Area and large burrows suitable for this species were documented during the 2021 surveys.
- **Desert Tortoise.** Suitable habitat is found throughout the Survey Area and there are no barriers to exclude tortoises from the GESC project area. This species is known to occur in the Survey Area; however, the most recent CNDDB record within 10 miles of the GESC Project is from 2013. Additionally, no tortoises or tortoise sign were found within the Survey Area, indicating it is unlikely the GESC project area is currently occupied by desert tortoise. While three suitable burrows were found within the Survey Area in suitable habitat, the lack of tortoise sign indicated burrow usage by wildlife other than tortoises.

Observed Special-Status Species:

- **Long-eared Owl.** The long-eared owl is an SSC that occurs in riparian habitat, live oak thickets, and dense stands of trees. This species utilizes old corvid, hawk, heron, and squirrel nests in trees with a dense canopy. One adult long-eared owl was observed on April 9, 2021, within a narrow window composed of non-native tamarisk west of the intersection of Rosamond Boulevard and 90th Street West, in the gen-tie line area. Stands of trees offering a dense canopy and unoccupied stick nests suitable for nesting occur irregularly along the southern and eastern portions of the Survey Area; however, these trees are associated with residential development. Additionally, the Survey Area and surrounding areas support a high number of nest competitors such as common ravens, which may also result in increased rates of predation of long-eared owl young. Potential for long-eared owl to nest within the Survey Area is low, given the likelihood of competition for nesting sites and proximity of available nest trees to development. With the implementation of avoidance and minimization measures, direct impacts to this species are not anticipated during construction.
- **Burrowing Owl.** The burrowing owl is currently an SSC. This species occurs in a variety of habitats that include agricultural land, fallow fields, and sparsely vegetated areas that allow for visibility of both prey and predators. The burrowing owl feeds on arthropods and small mammals, lizards, amphibians, and birds. Mammal burrows or natural cavities are required for nesting and for shelter during variable weather conditions. On April 16, 2021, a single adult burrowing owl was documented within the Survey Area. Although no occupied burrows were found within the vicinity of the detection, numerous suitable, unoccupied burrows were present. Subsequent focused burrowing owl surveys resulted in no additional burrowing owl detections; however, numerous suitable burrows and burrow complexes, as well as three burrows with burrowing owl sign were found throughout the Survey Area. Due to the species' presence in suitable habitat and availability of suitable burrows, the burrowing owl has a moderate potential to nest in the Survey Area. With the implementation of avoidance and minimization measures, direct impacts to this species are not anticipated during construction.

- **Swainson's Hawk.** The Swainson's hawk is a State Threatened species and Federal Bird of Conservation Concern that occurs in open desert, grasslands, agricultural land, and open riparian habitat that contain scattered, large trees or small groves. Nests are constructed using sticks, bark, and leaves, typically placed in trees or large bushes; old stick nests built by ravens and hawks may be utilized by this species, and Swainson's hawks in Antelope Valley have been documented to nest in Joshua trees. A total of eight Swainson's hawks were observed during surveys on April 4, 14, and 15, and May 18 and 19, 2021. Of these observations, two formed a nesting pair and six were individual transients. Incubation was confirmed for one Swainson's hawk pair and their associated active nest/territory within the Survey Area, approximately 810 feet south of the nearest gen-tie line, during the May 19, 2021, focused survey. Incubation continued through subsequent nest checks on May 25 and June 16, 2021; however, a nesting failure was determined and confirmed during surveys on June 29 and July 14, 2021. There is potential for this species to re-nest within and/or adjacent to the GESC project area. With the implementation of avoidance and minimization measures, direct impacts to this species may be avoided during construction.
- **Vaux's Swift.** The Vaux's swift is an SSC that occurs in a wide variety of habitats, but breeds in redwood, Douglas-fir, and other coniferous forests. Nests are generally built within large, hollow trees and snags. One Vaux's swift was observed flying overhead on April 28, 2021, in the western portion of the Survey Area and a second was observed on May 4, 2021, at the far northeast corner of the Survey Area. Due to the GESC project area being located outside of this species' breeding territory and lack of suitable nesting habitat, there is no potential for Vaux's swift to nest in the Survey Area. Direct impacts to this species are not anticipated during construction.
- **Prairie Falcon.** The prairie falcon is a Federal Bird of Conservation Concern that occurs in desert scrub, rangeland, grasslands, savannahs, and agricultural land. Open terrain is used for foraging, though nest sites are usually located on sheltered cliff ledges. This species may utilize old raven or eagle stick nests on cliffs, bluffs, or rock outcrops for nesting. This species was observed during surveys on March 31, April 13, and April 14, 2021, perched on telephone poles and flying overhead. Due to a lack of suitable nesting habitat within the Survey Area, there is no potential for this species to nest in the Survey Area. Direct impacts to this species are not anticipated during construction.
- **Loggerhead Shrike.** The loggerhead shrike is an SSC and USFWS Bird of Conservation Concern that occurs in a variety of open habitats with scattered shrubs and availability of perches, including Joshua tree habitats where high densities of this species are known to thrive. Nests are built in densely foliaged shrubs or trees, typically no higher than 50 feet above the ground. Numerous loggerhead shrikes were observed throughout the Survey Area and were generally seen on each of the 2021 surveys. Due to the species' presence in suitable, connected habitat, the loggerhead shrike has a high potential to nest in the Survey Area. With the implementation of avoidance and minimization measures, direct impacts to this species are not anticipated during construction.
- **Yellow Warbler.** The yellow warbler is an SSC and Federal Bird of Conservation Concern that occurs in shrub, woodland, forest, and riparian woodlands. This species breeds in riparian woodlands as well as montane chaparral, open ponderosa pine, and mixed conifer habitats with a moderate brush understory in which an open cup is typically built in a deciduous sapling or shrub. One yellow warbler was observed on April 28, 2021, foraging among creosote bush along the southcentral edge of the Survey Area and a second was observed on May 5, 2021, also foraging in creosote, in the western portion of the Survey Area. Due to a

lack of suitable nesting habitat within the Survey Area, there is no potential for yellow warbler to nest in the Survey Area. Direct impacts to this species are not anticipated during construction.

- **Le Conte's Thrasher.** The Le Conte's thrasher is an SSC and USFWS Bird of Conservation Concern that occurs in open desert wash and desert scrub, as well as open Joshua tree habitat. Preferred habitat includes areas with scattered shrubs that are used for cover and large, open areas that allow for visibility and ease of foraging. Le Conte's thrashers nest in dense, spiny shrubs that include saltbush. Within the Survey Area, multiple detections of this species were found during the 2021 surveys within native saltbush scrub and creosote-white bursage series habitat, including in and adjacent to the gen-tie line. In addition to adult thrashers, at least one fledgling was observed in a foraging family group within a portion of the gen-tie line. Due to the species' presence in suitable habitat, the Le Conte's thrasher has a high potential to nest in the Survey Area. With the implementation of avoidance and minimization measures, direct impacts to this species are not anticipated during construction.

5.2.1.8.3 Migratory Bird Treaty Act

GESC will cover their on-site reservoir. This should reduce the likelihood that onsite water storage will attract migratory birds. Additionally, GESC's stack is low in profile (125 feet in height) and is not likely to result in significant bird strikes due its distance from bodies of water. The 230-kV transmission line is inherently raptor safe against electrocution and collisions and would parallel existing aboveground electrical infrastructure. The Applicant will protect any active migratory bird nests identified during preconstruction surveys against take.

5.2.1.8.4 Bald and Golden Eagle Protection Act

The golden eagle is a state FP species and a CDFW watchlist (WL) species that is also protected by the federal Bald and Golden Eagle Protection Act. The Applicant's biologists determined that the potential to occur within the GEST Project is moderate. The habitat within the study area is suitable for golden eagle foraging however no suitable habitat for nesting occurs within the GESC project area. Potentially suitable nesting habitat occurs east of and outside of the survey area. Birds that may forage near the site may attract eagles. Stacks will be low in profile (125 feet) and are not likely to result in significant bird strikes. The transmission line is raptor safe and would parallel existing electrical infrastructure.

5.2.1.8.5 Federal Endangered Species Act

Applicants for projects that could result in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS. The GESC site supports suitable habitat for federally listed species. The literature review indicated no federal ESA listed species within the 10-mile radius except for the California Condor. However, the Applicant's biologist did not observe the California Condor during the biological reconnaissance surveys. The California Condor has a low potential for occurrence with limited foraging habitat located approximately 8 miles northwest of the GESC project area. Construction and operation will avoid significant impacts on federally listed species and their habitat by consulting under Section 7 of the ESA.

5.2.1.8.6 California Endangered Species Act

Species listed under this act cannot be taken or harmed, except under specific permit. The literature review indicated that the California Condor is the only State ESA listed endangered species that occurs within the GESC project area. The California Condor has a low potential for occurrence with limited foraging habitat located approximately 8 miles northwest of the GESC project area. As a result of certain state-listed species also being

federally protected, a formal consultation with the USFWS will entail a letter of concurrence from CDFW for the shared species. As a result of agency consultation and implementation of conservation measures by the Applicant, neither construction, nor operation of GESC will not adversely affect CESA species.

5.2.1.8.7 State Fully Protected Species

Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP). Within the following are the only state FP species identified within the GESC project area.

- **Golden eagle.** Potential for occurrence is moderate, with suitable foraging habitat occurring, but suitable nesting habitat occurring throughout the survey area. Suitable habitat occurs east of and outside of the survey area.
- **California Condor.** Potential for occurrence is low with limited foraging habitat located approximately 8 miles northwest of the GESC Project.

5.2.1.8.8 State Species of Special Concern

The following SSC have been documented within the vicinity of the GESE project area, with probability of occurrence labeled within parentheses:

- **Reptiles**: Northern California legless lizard (presumed absent), coast horned lizard (presumed absent)
- **Birds**: Tricolored blackbird (presumed absent), burrowing owl (present), western snowy plover (presumed absent), mountain plover (low), loggerhead shrike (present), le conte's thrasher (present)
- **Mammals**: Townsend's big-eared bat (low/presumed absent), Tulare grasshopper mouse (presumed absent), Tehachapi pocket mouse (presumed absent), American badger (presumed absent) (Blackhawk 2021.)

5.2.1.8.9 State Special Species

State special species are considered to be sensitive but do not have regulatory protection. Approximately 13 plants are registered within the CNPS that are not state or federally protected but are considered rare. Of the 13 identified, only one, alkali mariposa-lily, has a low potential for occurrence within the eastern portion of the Survey Area. The survey was conducted during the blooming season and no sightings were found.

5.2.2 Environmental Analysis

Potential direct and indirect impacts to biological resources were evaluated to determine the permanent and temporary effects of construction and operation of t GESC . Results from the field surveys, habitat evaluations and aerial imagery interpretation were evaluated to address the potential for presence of sensitive biological resources within the GESC Project were presented in Section 5.2.1.

Section 5.2, contained herein, identifies the biological resources that may be affected directly or indirectly and may have temporary or permanent impacts. These impact categories are defined as follows:

Direct. The California Environmental Quality Act (CEQA) defines direct impacts as those that result from the project and occur at the same time and place. Project related activities, such as alteration, disturbance or destruction of biological resources are considered a direct impact.

Indirect. CEQA defines indirect impacts are impacts that are caused by the project but do not occur at the same time but rather at different but a reasonably foreseeable future time.

Permanent. All impacts that result in the irreversible removal of biological resources are considered permanent.

Temporary. Temporary impacts are considered to have reversible effects on biological resources.

5.2.2.1 Significance Criteria

Factors typically used to evaluate the significance of project-related impacts are set forth in Appendix G CEQA. Appendix G is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to determine whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration.

As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive. Significant biological impacts resulting from the GESC Project were assessed by the following criteria:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, threatened, candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on federal or state protected WOTUS (including wetlands) as defined by Sections 404 and 401 of the 1972 Amendments to the Federal Water Pollution Control Act, commonly known as the Clean Water Act, or the Porter-Cologne Act, either through direct removal, filling, hydrological alteration, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory native wildlife corridors or impede the use of wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, NCCP, or other approved local, regional, or state habitat conservation plan.
- Threaten to eliminate a plant or animal community.

CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if the species is not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

5.2.2.2 Potential Impacts of Construction

5.2.2.2.1 GESC Facility

The generating facility site will require up to a 71-acre footprint. As described in Section 2, Project Description, Appendix 2B illustrates the 63-month construction schedule and will require several construction tasks to occur simultaneously. Construction will start with site preparation and clearing which is expected to take 3 months. Subsequently, construction of the cavern will begin and will likely occur throughout the rest of the schedule. Approximately 8 months into construction is when transmission construction will begin and will take 24 months to complete. Surface works for the A-CAES plant won’t occur until 15 months after the start of the construction schedule. Pre-commissioning activities will require 3 months.

Associated support equipment and an administration building are included in the facility general arrangement. Installation of temporary access roads and laydown areas may result in impacts to previously disturbed vegetative communities and land uses. Noise and construction activities could temporarily displace wildlife from foraging and nesting in the GESC Project vicinity. Any special-status species found nesting during preconstruction surveys will be protected by implementation of the measures listed in Section 5.2.3.

5.2.2.2.2 Construction Laydown Area

The A-CAES construction tasks include site civil foundations, turbine hall construction, spherical pressure vessels, surface reservoir, reservoir fill time, installation of primary equipment/modules, structural and architectural work, controls and piping, mechanical and electrical work. Laydown area for the All A-CEAS construction will occur within the boundaries of the GESC parcels. The GESC site is located on 2 undeveloped parcels (APN No. 315-081-09 and APN No. 315-081-01) totaling a 71-acre project site. There is no existing asphalt and will only require clearing of existing vegetation discussed in Section 5.2.1.6 and 5.2.1.8. Impacts of special-status species vegetation is discussed in 5.2.2.2.4. Construction of the GESC Project may also result in temporary noise impacts to wildlife species within the vicinity. The Applicant will coordinate with USFWS and CDFW on construction mitigation measures and as such, impacts will be less than significant from the construction laydown area.

5.2.2.2.3 Generator Tie-Line

As discussed in Section 3, Electric Transmission, the Preferred Route circuit will connect to the existing SCE Whirlwind Substation located 10.9 miles west southwest of the subject property and Alternative Routes will connect to the future LADWP substation located 3.5 miles southwest of the subject property (see Section 3, Electric Transmission). Activities related to the construction of the Preferred Route or Alternative Routes of the tie-line will require site preparation. The grid connection shall be capable of power import and export, rated to suit all operating scenarios.

The construction of the gen-tie line will occur in areas mixed between previously developed/disturbed and undeveloped areas however will follow already existing overhead powerlines. Construction will affect approximately 50 feet on either side of the gen-tie line. Generator tie line construction includes the installation of new transmission towers and associated access roads, if needed.

Potential temporary impacts to biological resources from gen-tie line construction include clearing and grubbing and noise. The Applicant will coordinate with regulatory agencies on the appropriate mitigation requirements for GESC's construction. Based on the results of agency consultations, the Applicant will prepare and implement a mitigation plan and work training program that will assist in minimizing adverse impacts to biological resources. Standard conservation practices that assist in limiting adverse impacts to special-status plant species include preconstruction surveys and installation of construction fencing around protected species. The Applicant will coordinate with CDFW on construction mitigation measures and as such, gen-tie line construction related impacts will be less than significant.

5.2.2.2.4 Construction Impacts to Special-status Plant Species

Impacts on special-status plant species could occur during construction of the GESC Project. As discussed in Section 5.2.1.8, the only special-status plant species identified during the rare plant survey is the Joshua Tree. Joshua tree is a State ESA Candidate Threatened species. Approximately 1,290 Joshua Trees were documented within the survey area. Although impacts to Joshua Trees are anticipated as a result of the GESC site and gen-tie line construction, mitigation and avoidance measures will assist in minimizing impacts to the special-status plant species. The Applicant with coordinate Joshua tree mitigation with state and local agencies. As such, permanent impacts to Joshua trees from the construction of GESC may have less than significant impact with mitigation measures incorporated. Mitigation measures for Joshua Trees are discussed in Section 5.2.4.2.

5.2.2.2.5 Construction Impacts to Special-status Wildlife Species

Temporary impacts on special-status wildlife species could occur during construction of the GESC project. Construction activities could temporarily displace birds, small mammals, reptiles, and amphibians that burrow or nest within the project area. Specific construction activities that could cause adverse impacts to special-status wildlife species include the following:

- Removal of vegetation growing along the transmission line corridor.
- Any trenching through the ephemeral drainages could potentially affect aquatic habitat and thus have an impact on the aquatic wildlife that likely occur there.
- Ground-dwelling animals could become trapped in uncovered trenches if left open overnight or if the contractor does not provide suitable egress for special-status wildlife species.
- Impacts on nesting birds could occur if construction activities take place adjacent to natural habitat during the nesting season.
    - Temporary adverse impacts could be associated with increased noise from construction or incidental incursions into nesting habitat.
    - CDFW has defined nesting season as February 1st through August 15th.

The implementation of avoidance and minimization measures and agency approved mitigation practices will assist in preventing permanent direct adverse impacts to special-status wildlife species.

5.2.2.2.6 Impacts to Wildlife Corridors

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may

serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The GESC Project area consists primarily of undeveloped land which can provide opportunity for undisturbed wildlife movement. The survey area broadly includes areas of sparce to moderately high desert vegetation cover, intermixed with disturbed areas. Temporary impacts to wildlife corridors would be limited to the construction laydown area and permanent impacts to wildlife corridors would be limited to the GESC project site boundaries of the A-CAES site. Area within the overhead powerline would be constructed in existing right of way with disturbed habitat. Therefore, a less than significant temporary and permanent adverse impact to wildlife corridors is expected.

5.2.2.2.7 Wetlands and Waters of the United States

A review of the NWI and NHD resulted in numerous water bodies, within 1,000 feet gen-tie line (**Figure 5.2-1b)**. Although the preliminary field survey did not reveal any wetlands or WOTUS, approximately 58 drainage features that bisect the project site were revealed. All 58 drainage features had observable hydrologic indicators such as shelving, sedimentation, cracked soil surfaces with drainage patterns. Since all features were found to be ephemeral, there is no USACE jurisdiction on the GESC Project area. Despite ephemeral status of local drainages to the project area, construction will adopt best management practices and apply to applicable agencies for work within water if drainages become viable during construction. With appropriate mitigation measures, temporary and permanent adverse impacts to wetlands and WOTUS would be less than significant.

5.2.2.3 Potential Impacts of Operation

Hydrostor's energy storage technology provides long-duration, emission-free storage, providing multi-hundred megawatts of generation capacity and a suite of ancillary services. The system stores compressed air in purpose-built underground storage caverns. This energy storage system uses non-toxic materials and does not use fossil fuels during normal operation. During operation, GESC will produce water discharge, noise, and light. The potential for each of these biproducts to adversely impact sensitive biological resources is discussed in the following subsections.

5.2.2.3.1 Combustion Turbine Emissions

The A-CAES system does not involve the use of a combustion turbine. GESC will be an energy storage facility consisting of five 100 MW power blocks. Each power block will contain an electric motor-driven air compressor drivetrain, heat exchangers, and an air turbine generator and their ancillary equipment.

5.2.2.3.2 Stormwater and Process Water Discharge

The project site will be developed so that no industrial stormwater is discharged offsite. Industrial stormwater will be collected by perimeter culverts and directed to onsite retention ponds to be retained for future site use or evaporated. Non-industrial stormwater from the upland areas to the south of the project site will be diverted around the site where it will continue to flow to its current pre-construction locations. Industrial stormwater will be retained onsite for use as makeup water; and therefore, there will be no floodplain or stormwater runoff impacts from GESC operations. The retained industrial stormwater will be treated as necessary prior to re-use.

The Applicant will construct a surface reservoir utilizing earthen berms. The surface reservoir will be equipped with an engineering liner and a floating cover to minimize evaporative water loss. As discussed in Section 5.15, Water Resources, the GESC is expected to generate non-potable recharge quality water. The surplus water will either be stored in the surface compensation reservoir or injected into the local aquifer for recharge. As a result of not discharging water off-site, the GESC operations will not adversely impact water quality that supports sensitive habitats and species.

5.2.2.3.3 Noise and Light from Plant Operations

The GESC site is adjacent to agricultural and undeveloped land uses. These existing conditions result in minimal sources of noise emissions. Operation of the GESC will produce some noise, as described in Section 5.7, Noise. As previously noted, the project consists of five, 100 MW power blocks. Each power block will contain a motor-driven air compressor drivetrain, heat exchangers, and an air turbine generator and their ancillary equipment. Such equipment is not known to cause off-site ground vibration nor airborne low-frequency noise during normal operations.

The GESC site is undeveloped. As discussed in Section 5.13 Visual Resources, sources of light come from rural residents, nearby communities, and numerous red safety lights related to wind turbines along the horizon to the east. GESC's operations will introduce new light sources into the existing nighttime environment such as, facility lighting for safety and security purposes. GESC's outside lighting will include a combination of pole-mounted LED lighting and wall-mounted fixtures. The Applicant will apply best practices to minimize the effects of obtrusive exterior lighting. These practices include shielding light fixtures directed downward and scheduling controls.

Based on GESC's equipment and the limited application of outdoor lighting and best practices, noise, and light impacts from GESC's operations will likely have a less than significant impact on special-status wildlife.

5.2.2.3.4 Potential for Collision and Electrocution Hazard to Wildlife

The new facility will include multiple structures that range in height from 40 to 125 feet tall. The tallest structure is the low-pressure exhaust stack at 125 feet above land surface. The structure as well as, a new 230-kV transmission line could potentially result in bird collisions. Most collisions involve nocturnal migrants flying at night in inclement weather and low-visibility conditions. The collisions typically occur when migrating birds collide with tall, guyed television or radio transmission towers (CEC 1995; Kerlinger 2000). Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over topographic features or when inclement weather forces the birds closer to the ground. Based on GESC's design and location, the project's operations are likely to result in less than significant impacts from potential collisions.

Bird collisions with electric conducting wires occur when birds are unable to see the lines, especially during fog or rain events. Factors that affect the risk of collision include weather conditions, behavior of the species of bird, and design and location of the line.

Electrocutions occur when a bird simultaneously contacts two conductors of different phases or contacts a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these components. On a 230-kV transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds according to the Avian Power Line Interaction Committee (APLIC 1996). As such, operation of the GESC will not result in adverse impacts to wildlife from electrocution.

5.2.2.3.5 Effects of Operation on Special-status Species

Impacts to Special-status Plants

The A-CAES system does not involve the use of a combustion turbine. As such, the operation of GESC will not produce combustion emission that could adversely impact special-status species plants. Industrial stormwater water will be retained onsite for use as makeup water; and therefore, there will be no floodplain or stormwater runoff impacts from GESC operations that could adversely impact sensitive habitat types. Based on GESC's design, the facility's operations will have a less than significant impact on special-status plant species and their habitat.

Impacts to Sensitive and Special-status Wildlife Species

The A-CAES system does not involve the use of a combustion turbine. As such, the operation of GESC will not produce combustion emissions that could adversely impact special-status species wildlife. Industrial stormwater water will be retained onsite for use as makeup water. Therefore, there will be no floodplain or stormwater runoff impacts from GESC operations that could adversely impact surface waters supporting special-status wildlife species.

It is GESC's intention to anticipate the potential for low-frequency noise in the design and specification of the project equipment and to take necessary steps to prevent ground or airborne vibration impacts. Only a nominal amount of habitat outside of the GESC site will experience noise levels within in the 60 A-weighted-decibel (dBA) equivalent sound level (Leq) contour. The wildlife species observed in the GESC Project vicinity occur in areas that has been impacted by agriculture, agricultural machinery, traffic, and overhead power lines in sparsely developed parcels in Willow Springs. As such, they are expected to adapt to the new noise levels that are less than the typical noise effect threshold of 60 dBA Leq hourly. Ambient noise levels and ground vibration from the operation of GESC will be less than significant.

While lighting required during GESC operations will create prominent new sources of light for nearby wildlife, effects from light will not result in substantial light or glare. Based on the localized adverse affect of new mitigated lighting sources, the long-term impact to special-status wildlife from GESC generated light will be less than significant. Based on GESC's design, the facility's operations will have a less than significant impact on special-status wildlife species and their habitat.

5.2.2.3.6 Operation Phase Impacts to Wetlands and Waters of the United States

5.2.3 Cumulative Effects

Cumulative effects on biological resources because of past, present, and reasonably foreseeable future actions, in combination with the Project, would mainly result from loss of habitat and habitat disturbance and degradation. A cumulative impact refers to a project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the GESC (Public Resources Code [PRC] Section 21083; 14 CCR 15064[h], 15065[c], 15130, and 15355). Cumulative impacts from GESC are expected to be less than significant.

5.2.4 Avoidance and Minimization Measures

The following section describes the measures that are intended to avoid and minimize potential adverse effects of the project to biological resources. A Biological Resources Mitigation Implementation and Minimization Plan will

be prepared prior to construction that outlines how the Applicant will implement the mitigation and protection measures developed specifically for the project through consultation.

5.2.4.1 Minimization Measures for Construction

Pre-Construction Surveys. Prior to onset of work, a qualified biologist shall conduct a pre-construction survey for sensitive biological resources within and near the project area. Should special-status species be found, then measures recommended by the qualified biologist shall be incorporated into the project to reduce the likelihood of species impacts.

Biological Monitoring. A qualified biologist shall monitor and be present on-site during all clearing, grubbing, vegetation removal, leveling, drilling, grading, and/or other ground-disturbing activities to monitor work and ensure conservation measures are appropriately implemented. A qualified biologist will also monitor during construction activities on or near sensitive communities and special-status species identified.

Nesting Bird and Raptor Avoidance. The potential impacts exist for avian species during the breeding season typically occurring between February 1 and August 31 for general nesting birds and January 1 through September 15 for raptors. Work conducted during these months will require a nesting bird survey conducted by a qualified biologist within and near the project footprint within seven days of onset of any activities. Should the qualified biologist discover any nesting birds, then appropriate measures, as determined by the qualified biologist, will be implemented to minimize impacts. These measures may include: (1) redirecting work to other locations within the Project area, (2) staking/flagging near the nest, (3) establishing a minimum “no work” buffer, and/or (4) installing temporary fencing. No work shall start or resume in the area of concern until the nest has fledged or failed.

Best Management Practices.

- For jurisdictional drainages, GESC adhere to all avoidance and minimization mitigation measures required by the local agencies. For areas with unavoidable impacts, the Applicant will obtain the appropriate permits prior to any work.
- Best Management Practices (BMPs) to address erosion and excess sedimentation shall be incorporated into the Project plans.
- Work shall be limited to the construction footprint, as outlined in the Project plans. Access routes, staging areas, and the total footprint of disturbance shall be the minimum number/size necessary to complete the Project and will be selected/placed to avoid impacts to sensitive habitat/resources.
- Sensitive resources will be marked and protected by temporary fencing (e.g., orange plastic fencing, silt fencing, signage) or other acceptable method. Work limits will be clearly marked in the field and confirmed by the Project biologist/biological monitor prior to the start of operations. All staked/fenced boundaries will be maintained in good repair throughout construction. GESC will consult with state and local agencies to generate conservation measures for the Joshua Tree.
- Where applicable, weed-free products shall be used to minimize the accidental spread of exotic plants. All construction equipment used for the GESC Project shall be clean and free of soil and plant material before arrival on-site and before leaving the work area to prevent the spread of invasive plants.

- All storage and staging areas should be placed on existing developed or disturbed locations to the greatest extent feasible (e.g., paved, or bare ground surfaces) that have been reviewed and approved by the Project biologist and Project archaeologist.
- All areas used for stockpiling shall be kept free from trash and other waste. No Project-related items shall be stored outside approved staging areas at any time.
- All contractor equipment and vehicles shall be inspected for leaks immediately prior to the start of construction, and regularly thereafter until the equipment and/or vehicles are removed from Project premises. Any leaks shall be properly contained, or the equipment/vehicle(s) repaired, and if failing repair, removed off-site.
- Unless authorized by regulatory authority, project activities particularly involving cleaning or fueling or motorized equipment, will occur greater than 100 feet from jurisdictional waters or potentially jurisdictional waters. Contaminated water, sludge, spill residue, or other hazardous compounds will be disposed of outside Project boundaries at a lawfully authorized destination.
- Dust impacts shall be minimized by implementing appropriate measures that will reduce/control emissions generated by the Project. Water shall be applied (e.g., using a water truck) at sufficient quantities to prevent airborne dust from leaving the Project area.
- Any areas of excavation (e.g., pits, trenches, drilling holes) shall be covered overnight or during periods of inactivity. Routes of escape from excavated pits and trenches shall also be installed for wildlife that could potentially become entrapped (e.g., wood planks, sticks, or equivalent with dimensions of roughly 2-inch-thick by 6-inch-wide, and earthen ramps/slopes). These locations will be regularly inspected over the course of the Project and immediately prior to filling. Should any entrapped wildlife be discovered, then work shall be suspended at the excavation site until the animal can be safely relocated by the biological monitor or Project biologist.

5.2.4.2 Minimization Measure for Special-Status Species

Environmental Awareness Training. A qualified biologist shall present an education program on Joshua tree, burrowing owl, Swainson's hawk, and other listed/special-status species found within the Project area to all Project employees prior to the start of construction and before new employees begin work on-site. Materials discussed in the program will include, at a minimum, the following topics: (1) species description, general behavior, and ecology, (2) distribution and occurrence near the Project site, (3) species' sensitivity to human activities, (4) legal protection, (5) penalties for violation of State and Federal laws, (6) reporting requirements, and (7) Project conservation measures. The biological monitor shall document the names, dates, and affiliation of those persons who attend the training.

Burrowing Owl.

- Within 14 days of initiating initial ground disturbance and/or construction activities, a pre-construction take avoidance survey for burrowing owl will be conducted per guidelines specified in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). In addition, within 24 hours of initiating initial ground disturbance and/or construction activities, conduct a final pre-construction take avoidance survey. Surveys shall include areas within the Project footprint and a surrounding 500-foot (150-meter) buffer.

- If occupied burrows are found during the take avoidance surveys, a Burrowing Owl Exclusion Plan shall be developed and approved by CDFW, and shall include the following: burrow excavation procedures, on-site and post-relocation monitoring of occupied burrows, and reporting.
- A qualified biologist shall be on-site during all ground-disturbing construction activities in potential burrowing owl habitat. The qualified biologist shall be responsible for implementing and overseeing burrowing owl avoidance and minimization measures. The qualified biologist shall have the authority to stop construction if activities are in violation of avoidance and minimization measures. A qualified biologist possesses a bachelor's degree in wildlife biology or a related field and has demonstrated field experience in the identification and life history of burrowing owl.
- If burrowing owls are present during construction, adaptive mitigation measures for temporary impacts may include, but not necessarily be limited to; scheduling the construction during non-breeding periods; avoiding proximal areas of occupied burrows during construction; biological monitoring of occupied burrow sites during construction; passive relocation of non-nesting burrows, and instituting buffer zones and/or "shelter in place" techniques around occupied burrows.

Swainson's Hawk. The Project has the potential to adversely affect locally occurring Swainson's hawks, both permanently and temporarily. By preparing a Swainson's Hawk Monitoring and Mitigation Plan as required by CDFW and providing targeted mitigation measures, temporary and permanent SWHA impacts may be adequately mitigated. If direct SWHA impacts cannot be avoided, additional consultation with CDFW may be required to mitigate for Project-related impacts. Along with an approved Swainson's Hawk Monitoring and Mitigation Plan, additional measures may be required for Project authorization upon finalization of the Project design or as Project construction needs may dictate.

Joshua Tree. Prior to construction, a Joshua Tree Mitigation Plan or Joshua Tree Preservation Plan will be prepared by a qualified biologist and submitted to all appropriate agencies including Kern County for approval. The plan will include CDFW take requirements, explore mitigation measures available (i.e., revegetation plans/ conservation easements, compensatory mitigation measures, or any other measures available), and documentation of any take activities required and conducted during construction. Avoidance measures will be adopted for the 1,178 Joshua trees found along the gen-tie line. The gen-tie line is adjacent to already existing overhead powerlines. By placing project components to avoid maximum amount of Joshua tree locations, impacts are expected to be minimized significantly.

Other Special-Status Plant Species Avoidance. Prior to surface-disturbing activities, a survey for special-status plants will be conducted within and near the Project footprint boundaries to assess the presence/absence of rare plants potentially not detected during the 2021 rare plant surveys. Joshua trees occur throughout the GESC Project area but should any additional special-status plants be found (either individuals or populations), then measures shall be incorporated into operations to prevent/reduce disturbance. At a minimum, temporary fencing or flagging shall be placed around/near the plant(s) to provide a conspicuous, visual barrier. Any other measures deemed necessary by the Project biologist shall also be implemented to prevent disturbance to the species. Regular updates shall be provided during construction meetings or the environmental awareness training to inform staff of areas supporting special-status plants and measures needed to avoid/minimize potential impacts.

Other Special-Status Wildlife Species Avoidance. During vegetation clearing, trimming or removal, and/or ground disturbing work, the qualified biologist shall be on-site to monitor for the presence of special-status

species. If any wildlife of concern is discovered during these activities, the qualified biologist shall coordinate with the Project biologist regarding appropriate measures to safeguard the health/life of the individual(s) (e.g., flushing, safely relocating away from the site).

5.2.4.3 Minimization Measure for Site Restoration

Over the long term, once the GESC facilities are no longer needed, the structures will be removed and the GESC area will be restored to approximate preconstruction conditions. Because rehabilitation of the site is not expected to occur for approximately 50 years, a draft conceptual plan may be included as part of the Biological Resources Mitigation Implementation and Minimization Plan. This draft plan can then be updated at a later date (but no later than 1 year prior to closure) to reflect the current technology and regulatory requirements at the time of facility closure. A formal rehabilitation plan for the GESC facility closure will be developed by the project owner and submitted to the CEC Compliance Project Manager at least 1 year prior to facility closure. The GESC facility closure restoration plan will include the following sections and details:

- Goals and objectives of the restoration
- A description of methods employed to achieve the restoration goals and objectives
- Success criteria used to determine whether the restoration is successful
- A monitoring and maintenance program, including details on remedial measures
- A description of annual reporting
- A restoration implementation and monitoring timeline and schedule of planned activities

5.2.5 Laws, Ordinances, Regulations, and Standards

The following subsections within Section 5.2.5 describe the LORS that apply to potential impacts on biological resources in the GESC area and list the agencies responsible for enforcing the regulations. A summary of the LORS is provided in **Table 5.2-8**.

Table 5.2-8 - Laws, Ordinances, Regulations, and Standards for Biological Resources

LORS	Requirements/Applicability	Administering Agency
Federal		
Federal ESA (16 USC 1531 et seq.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Applicants for projects that could result in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS.	USFWS
MBTA (16 USC 703 to 711)	Protects all migratory birds, including nests and eggs.	USFWS
Bald and Golden Eagle Protection Act (16 USC 668)	Specifically protects bald and golden eagles from harm or trade in parts of these species.	USFWS

LORS	Requirements/Applicability	Administering Agency
State		
CESA (Fish and Game Code Section 2050 et seq.)	Species listed under this act cannot be “taken” or harmed, except under specific permit. Take in the context of CESA means to hunt, pursue, kill, or capture a as well as any other actions that may result in an adverse impact when attempting to take a listed species.	CEC, CDFW
Fish and Game Code Section 3511	Describes bird species, primarily raptors that are FP. FP birds may not be taken or possessed, except under specific permit requirements.	CDFW
Fish and Game Code Section 3503	States that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	CDFW
Fish and Game Code Section 3503.5	It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.	CDFW
Fish and Game Code Section 3513	It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.	CDFW
Fish and Game Code Section 3511, 4700, 5050 and 5515	Lists bird, mammal, amphibian/reptile, and fish species that are FP in California.	CDFW
NPAA Fish and Game Code Sections 1900 et seq.,	The Native Plant Protection Act lists threatened, endangered, and rare plants listed by the State.	CDFW
Fish and Wildlife Code Sections 1900 et seq.,	The Native Plant Protection Act lists threatened, endangered, and rare plants listed by the State.	CDFW
Title 14 CCR, Sections 670.2 and 670.5	List’s animals designated as threatened or endangered in California.	CDFW
California Fish and Game Code Sections 1601 – 1607	Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFW.	CDFW
CEQA PRC Section 15380	CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.	CEC
Warren Alquist Act PRC Section 25000, et seq.	Warren-Alquist Act is a CEQA-equivalent process implemented by the CEC.	CEC

5.2.5.1 Federal LORS

5.2.5.1.1 Federal ESA (16 United States Code [USC] 153 et seq.)

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531-1543) provides policy and authority for the conservation of threatened and endangered plants and animals and their habitats. The lead federal agencies for implementing the ESA are the USFWS and the NMFS, known collectively as the Services. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a “taking” of any ESA listed species.

The ESA prohibits the taking of listed species unless specifically authorized by permit from the USFWS or the NMFS. “Take” is defined in 16 USC § 1532 (19) as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” The law’s definition of “Harm” includes significant habitat modification or degradation that results in death or injury to ESA listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3).

Section 7(a)(2) of the ESA requires the lead federal agency to consult with either the USFWS or NMFS, depending which agency has jurisdiction over the ESA listed species in question, when a federally funded project either may have the potential to adversely affect an ESA listed species, or a federal action occurs within or may have the potential to impact Designated Critical Habitat (DCH). Section 7 of the ESA requires that federal agencies must ensure that any activities they authorize, fund, or carry out are not likely to destroy or adversely modify an ESA listed species DCH.

5.2.5.1.2 MBTA (16 USC 703 to 711)

The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the international conservation of migratory birds that fly through lands of the United States. The lead federal agency for implementing the MBTA is the USFWS. The law makes it illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid federal permit.

5.2.5.1.3 Bald and Golden Eagle Protection Act (16 USC 668)

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts*, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part*, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

5.2.5.2 State LORS

5.2.5.2.1 CESA

CESA (Fish and Wildlife Code Sections 2050-2116) created the categories of “threatened” and “endangered” species to align with federal regulations. It converted all “rare” animals into the Act as threatened species and requires mitigation for impacts to species and their habitat. CDFW requires a CESA Section 2081(a) permit for take of candidate or listed threatened and endangered animals for scientific, educational, or management

purposes, as well as a CESA Section 2081(b) permit for incidental take of listed threatened and endangered animals from all activities.

Incidental Take Permits allow a permittee to take a CESA-listed species if such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. These permits are most commonly issued for construction, utility, transportation, and other infrastructure-related projects. Permittees must implement species-specific minimization and avoidance measures, and fully mitigate the impacts of the project. (Fish & G. Code § 2081 (b); CCR., tit. 14, §§ 783.2-783.8)

5.2.5.2.2 Fish and Game Code Sections 3500, 3503.5, and 3800

All birds are provided protection under Sections 3500, 3503.5, and 3800 of the California Fish and Game Code. Section 3503.5 prohibits the take, possession, and needless destruction of any bird of prey or nests or eggs of any species on the MBTA list except as otherwise provided in the codes and regulations. Disturbance of any active bird nest during the breeding season is prohibited. When nesting birds are present on a specific property, take must be avoided, and project proponents are required to reduce or eliminate disturbances within the active nesting territories or during the nesting season.

5.2.5.2.3 Fish and Game Code Section 3511

This code identifies bird species, primarily raptors, that are FP. FP birds may not be taken or possessed except under specific permit requirements.

5.2.5.2.4 Fish and Game Code Section 3513

This code makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

5.2.5.2.5 Plants and Animals of California Declared to be Endangered or Threatened (Title 14, CCR, Sections 670.2 and 670.5)

These codes list plants and animals designated as threatened or endangered in California. State SSC is a category conferred by CDFW on those species that are indicators of regional habitat changes or are considered potential future protected species. These species do not have any special legal status but are intended by CDFW for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

5.2.5.2.6 CEQA (PRC Section 15380)

CEQA defines “rare” in a broader sense than the definitions of threatened, endangered, or species of special concern. Under this definition, CDFW can request additional consideration of species not otherwise protected. CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.

5.2.5.2.7 Warren Alquist Act (PRC Section 25000, et seq.)

The AFC process is a certified regulatory process pursuant to the Warren-Alquist Act and, therefore, fulfills the requirements of CEQA. CEQA is codified in the California PRC, Section 21000-21178.1. Guidelines for implementation of CEQA are codified in the California Code of Regulations (CCR), Sections 15000-15387.

5.2.5.3 Local LORS

The GESC facility will conform to all local requirements. The following local authorities and documents were identified and apply to the Project.

5.2.5.3.1 Kern County General Plan

The Project has identified that 1.10.5 Threatened and Endangered Species and 1.10.10 Oak Tree Conservation subsections within the Kern County General Plan, General Provisions would apply to the GESC project. The General Plan has identified Kern County as "County" in the following Policies and Implementation Measures (KPNRD 2009):

Kern County General Plan 1.10.5 Threatened and Endangered Species

Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.

Policy 28. County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29. The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 30. The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, State, and federal programs concerning endangered species conservation issues.

Policy 31. Under the provisions of the CEQA, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32. Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measure Q. Discretionary projects shall consider effects to biological resources as required by CEQA.

Implementation Measure R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the California Environmental Quality Act.

Implementation Measure S. Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Kern County General Plan 1.10.10 Oak Tree Conservation

Policy 65. Oak woodlands and large oak trees shall be protected where possible and incorporated into project developments.

Policy 66. Promote the conservation of oak tree woodlands for their environmental value and scenic beauty.

Implementation Measure KK. The following applies to discretionary development projects (General Plan Amendment, zone change, conditional use permit, tract maps, parcel maps, precise development plan) that contains oak woodlands, which are defined as development parcels having canopy cover by oak trees of at least ten percent (10%), as determined from base line aerial photography or by site survey performed by a licensed or certified arborist or botanist. If this study is used in an Environmental Impact Report, then a Registered Professional Forester (RPF) shall perform the necessary analysis.

a) Development parcels containing oak woodlands are subject to a minimum canopy coverage retention standard of thirty percent (30%). The consultant shall include recommendations regarding thinning and diseased tree removal in conjunction with the discretionary project.

b) Use of aerial photography and a dot grid system shall be considered adequate in determining the required canopy coverage standard.

c) Adjustments below thirty percent (30%) minimum canopy standard may be made based on a report to assess the management of oak woodlands.

d) Discretionary development, within areas designated as meeting the minimum canopy standard, shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

Implementation Measure LL. The following applies to development of parcels having oak tree canopy cover of less than ten percent (10%) but containing individual oak trees equal to or greater than a 12-inch diameter trunk at 4.5 feet breast height.

a) Such trees shall be identified on plot plans.

b) Discretionary development shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

c) Specified tree removal related to the discretionary action may be granted by the decision-making body upon showing that a hardship exists based on substantial evidence in the record.

5.2.5.3.2 Kern County Valley Floor Habitat Conservation Plan

The Kern County Valley Floor Habitat Conservation Plan, (VFHCP Program) distributed December 2006, was designed to conserve federally protected species, state-protected species, and other species of concern. The VFHCP Program includes most of the San Joaquin Valley floor and portions of the Kern County and up to an elevation of 2,000 feet. The project area is not within the defined VFHCP Program boundaries and is not subjected to the conditions it establishes.

5.2.6 Permits and Permit Schedule

Permits and mitigation plans required prior to construction will be the responsibility of the qualified biologist assigned by the Applicant.

5.2.7 Agency Contacts

Table 5.2-9 lists regulatory agency contacts for biological resources for this project.

Table 5.2-9: Regulatory Agency Contacts for Biological Resources

Issue	Agency	Contact Information
State-listed species	CDFW, Central Region	(559) 243-4005; reg4sec@wildlife.ca.gov
Federally listed species	USFWS	2493 Portola Road Suite B Ventura, CA 93003 (805) 644-1766
Mitigation Measures for Construction Phase	Kern County Planning Department	661-862-8600 2700 M Street Suite #100 Bakersfield, CA 93301

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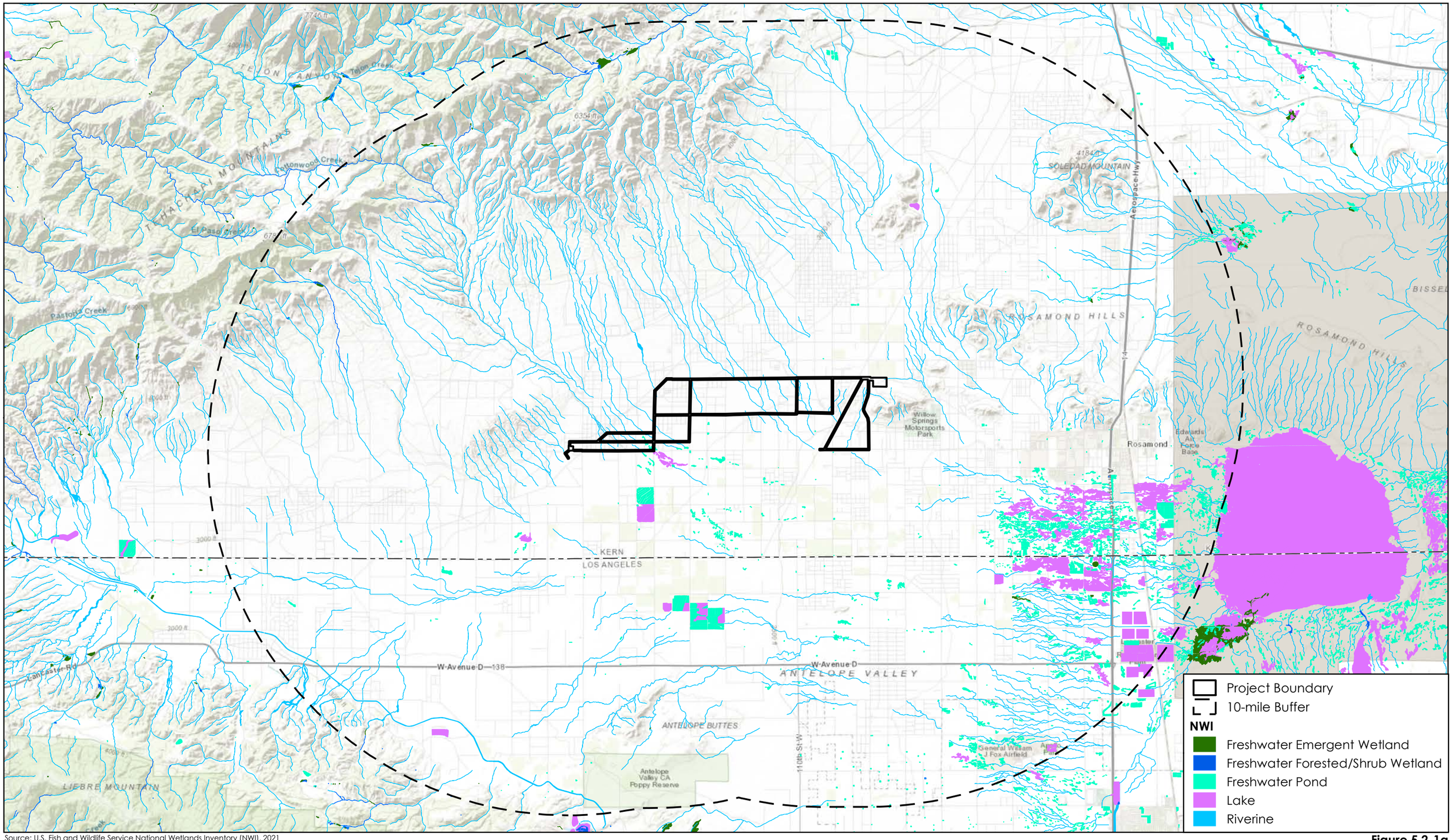
FIGURES



Source: U.S. Fish and Wildlife Service National Wetlands Inventory (NWI), 2021
The standards used for the wetlands data can be found at: https://www.fws.gov/wetlands/Data/Data-Standards.html

BLACKHAWK Environmental

N 0 2.5 Miles

Figure 5.2-1a

National Wetlands Inventory - 10 mile buffer

Hydrostor Gem Energy Storage Center Project

Project Boundary
1000-foot Buffer

National Wetlands Inventory (NWI)
Riverine
Freshwater Pond
Lake

National Hydrography Dataset (NHD)
Stream/River
Artificial Path
Pipeline
Lake/Pond

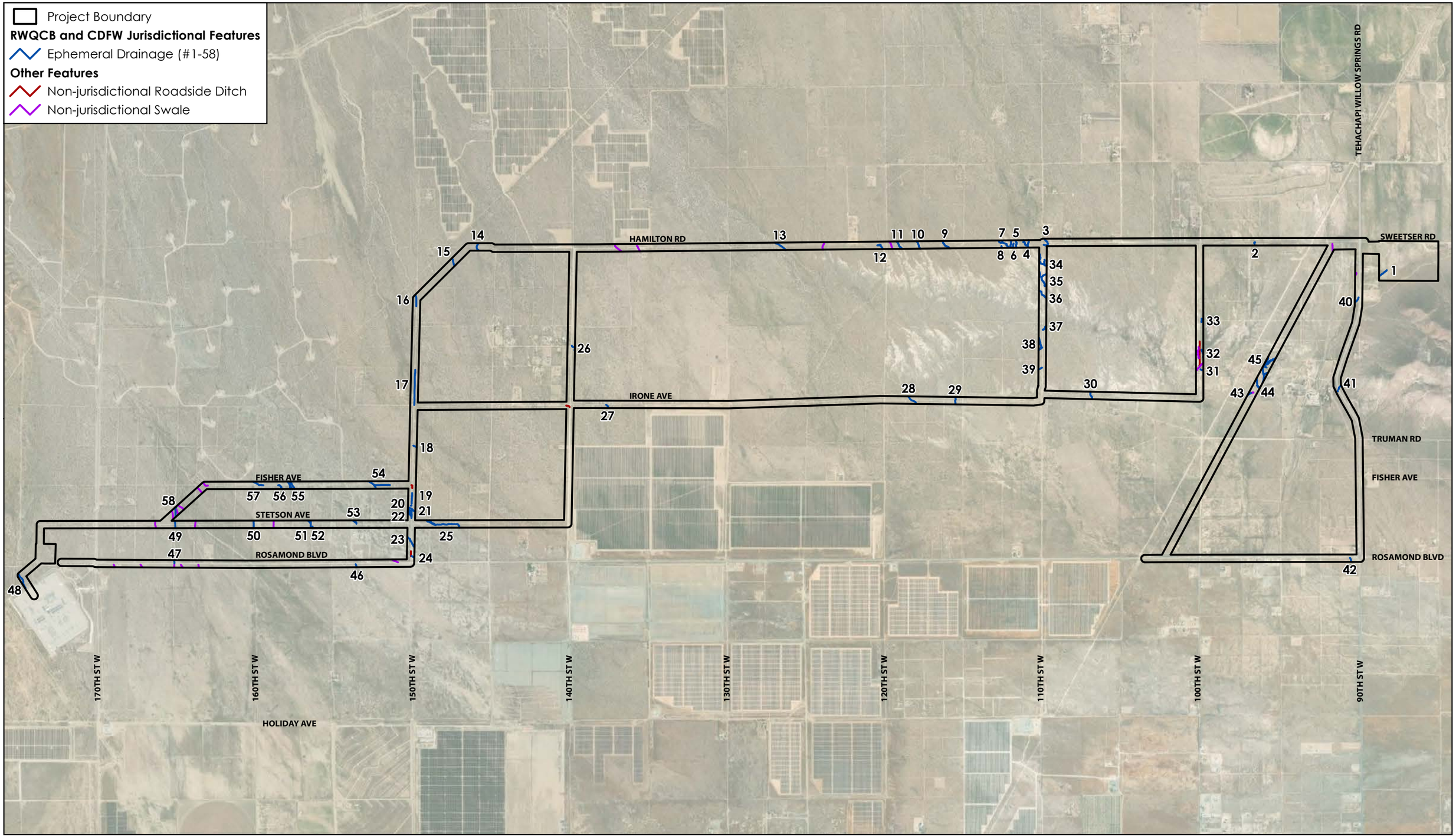
HAMILTON RD
IRONE AVE
FISHER AVE
STETSON AVE
ROSAMOND BLVD
HOLIDAY AVE
TEHACHAPI WILLOW SPRINGS RD
SWEETSER RD
TRUMAN RD
FISHER AVE
ROSAMOND BLVD
170TH ST W
160TH ST W
150TH ST W
140TH ST W
130TH ST W
120TH ST W
110TH ST W
100TH ST W
90TH ST W

Source: USFWS; USGS; Aerial Photo: Maxar, Esri 2020

BLACKHAWK Environmental

N
0 3,500 Feet

Figure 5.2-1b
Jurisdictional Survey Literature Review



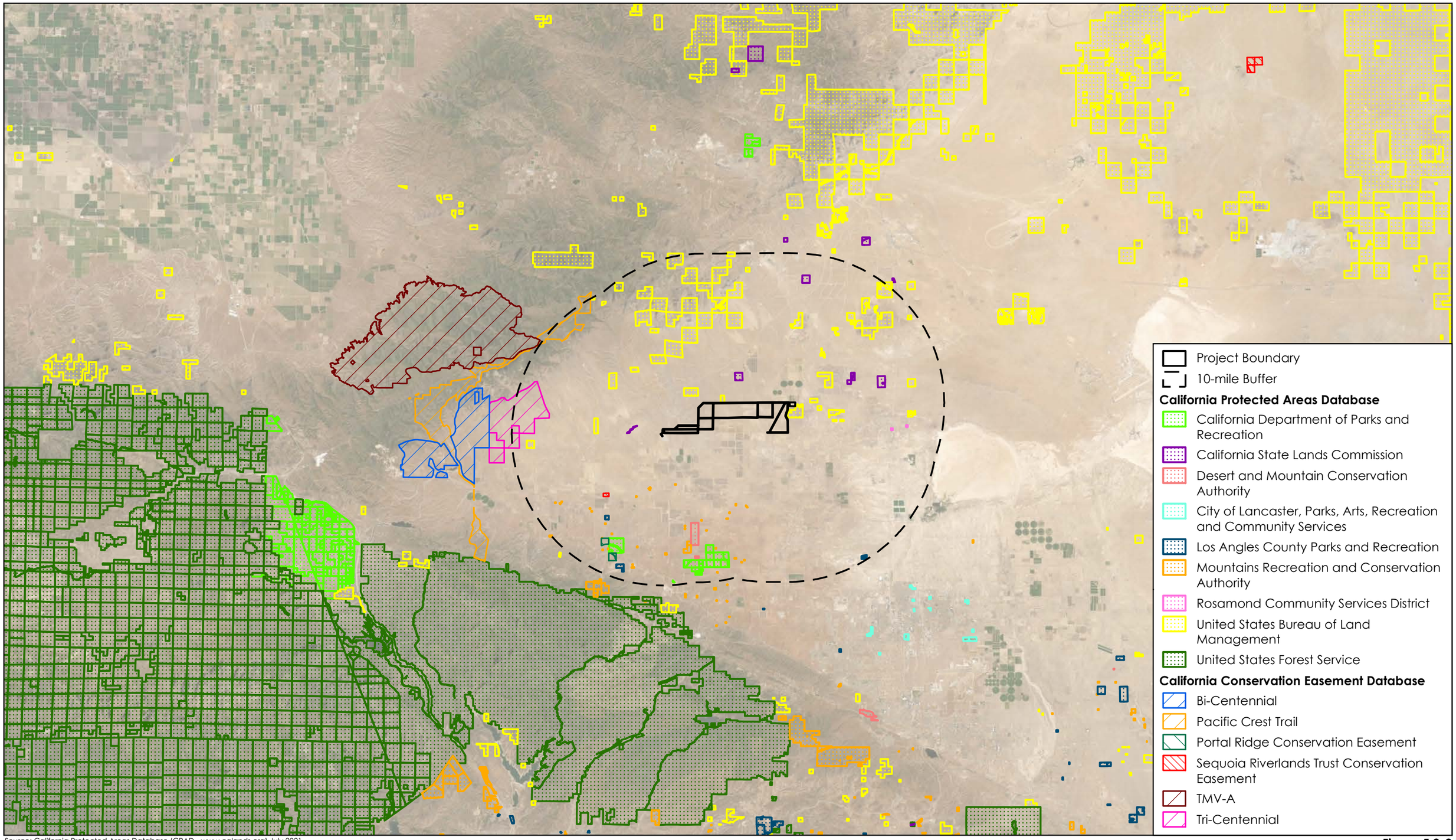
Source: USFWS; USGS; Aerial Photo: Maxar, Esri 2020

Figure 5.2-1c

Jurisdictional Survey Results Overview

Blackhawk Environmental

Hydrostor, Inc. Gem Energy Storage Center Application for Certification Project



Source: California Protected Areas Database (CPAD - www.calands.org) July 2021.
California Conservation Easement Database (CCED - www.calands.org/CCED) 2021a.

BLACKHAWK Environmental

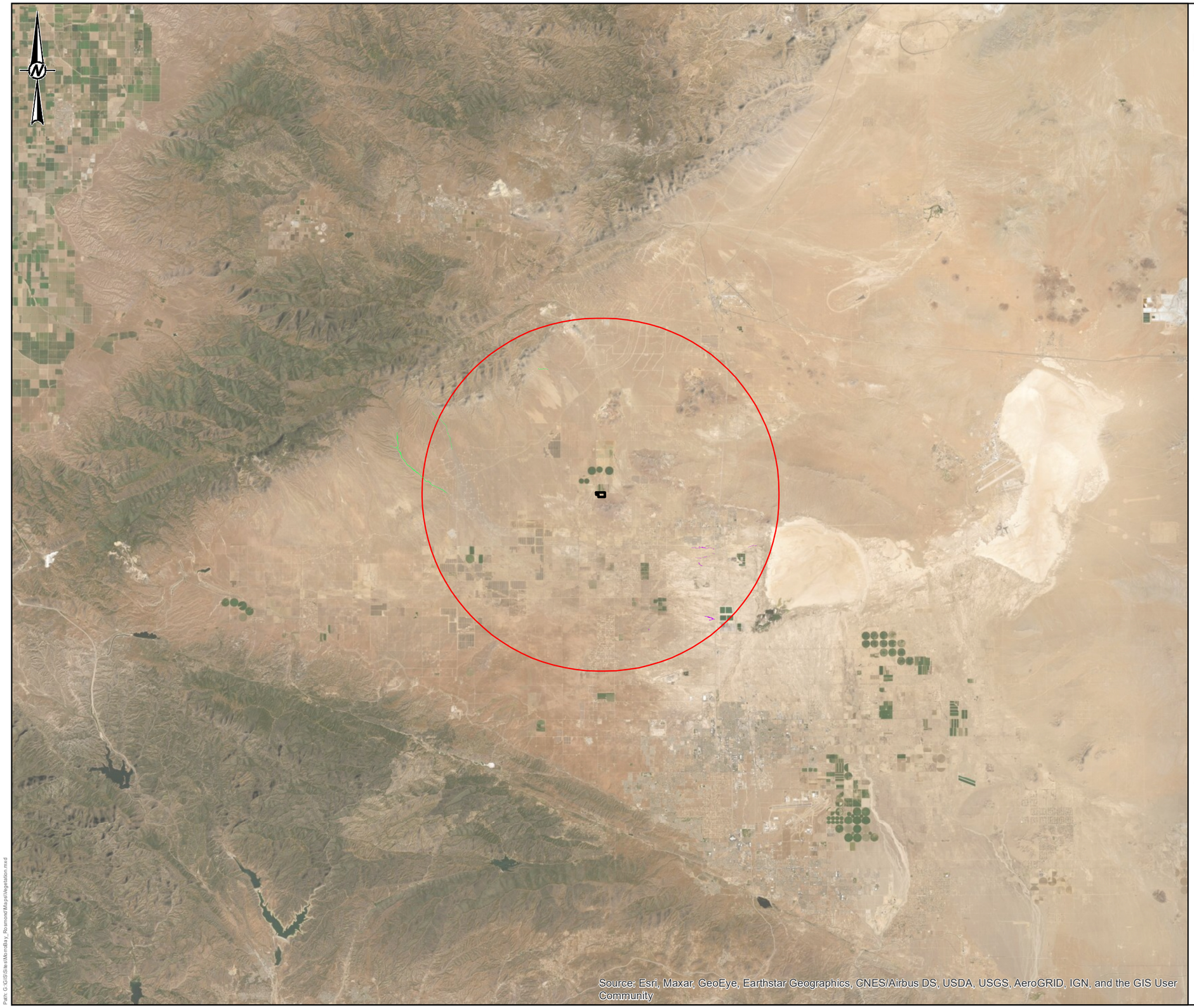
N

0 6 Miles

Figure 5.2-2

Protected Areas

Hydrostor Gem Energy Storage Center Project



LEGEND

GEM SITE

10 MILES BUFFER

SENSITIVE COMMUNITIES

BIG SAGEBRUSH (ARTEMISIA TRIDENTATA SSP. PARISHII)

SCALE BROOM SCRUB (LEPIDOSPARTUM SQAMATUM)

NOTES

SOURCE:

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. VEGETATION CLASSIFICATION REPORTS AND MAPS. AVAILABLE AT: HTTPS://WILDLIFE.CA.GOV/DATA/VEGCAMP/REPORTS-AND-MAPS. ACCESSED SEPTEMBER 20, 2021.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. SENSITIVE NATURAL COMMUNITIES LIST. AVAILABLE AT: HTTPS://WILDLIFE.CA.GOV/DATA/VEGCAMP/NATURAL-COMMUNITIES. ACCESSED SEPTEMBER 20, 2021.

1:350,000

5 0 5

Miles

REFERENCE

COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET

CLIENT
HYDROSTOR, INC.

PROJECT
GEM ENERGY STORAGE CENTER

TITLE
SENSITIVE COMMUNITIES

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-02
PREPARED	MR
DESIGN	MR
REVIEW	LD
APPROVED	DS

PROJECT No.	CONTROL	Rev.	FIGURE
20449449	---	---	**5.2-3a**

Path: G:\GIS\Sites\MormBay_Rosamond\Maps\Vegetation.mxd

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

1in

0

Project Boundary
10-mile Buffer
Desert Tortoise Recovery Unit (Western Mojave)

Critical Habitat

Arroyo Toad
Buena Vista Lake Ornate Shrew
California Condor Critical Habitat
California Red-legged Frog
Conservancy Fairy Shrimp
Desert Tortoise
Southwestern Willow Flycatcher
Vernal Pool Fairy Shrimp

Sources: California Condor Critical Habitat, USFWS, Refer to Federal Register Citation Number 32FR4001, published 19670311 for the legal critical habitat information.
Desert Tortoise Recovery Unit, U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 2011. Revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii).

BLACKHAWK Environmental

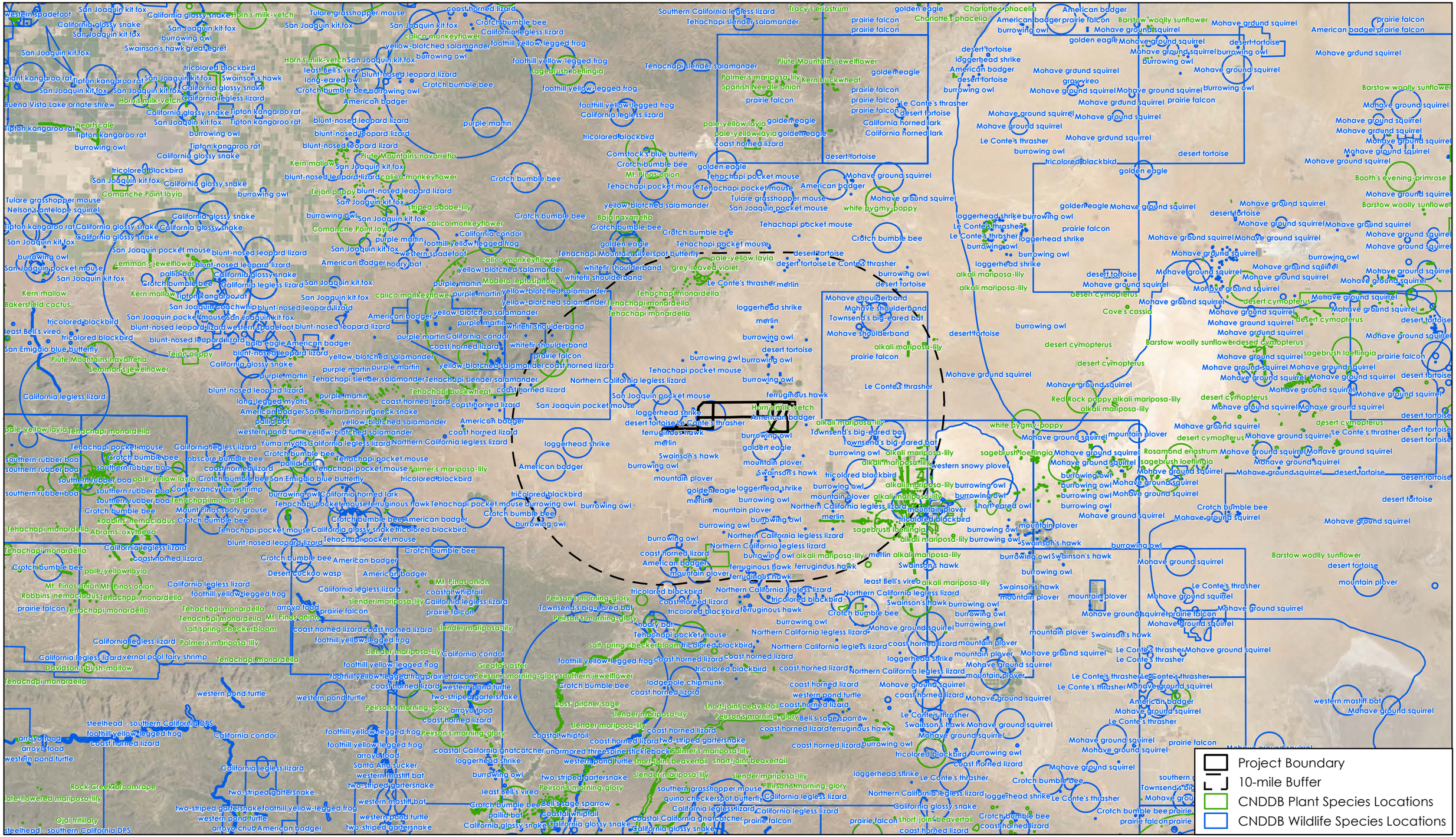
N

0 6 Miles

Figure 5.2-3b

Critical Habitat

Hydrostor Gem Energy Storage Center Project



Source: California Department of Fish and Wildlife, California Natural Diversity Database (CNDDB) April 2021

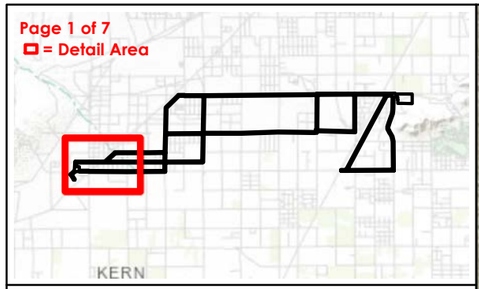
Figure 5.2-4

Potentially Occurring Special-Status Species

Hydrostor Gem Energy Storage Center Project

BLACKHAWK Environmental

Page 1 of 7
= Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-saltbush series
- Saltbush scrub
- Developed
- Developed/Disturbed

FISHER AVE
160TH ST W
ROSAMOND BLVD
170TH ST W

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

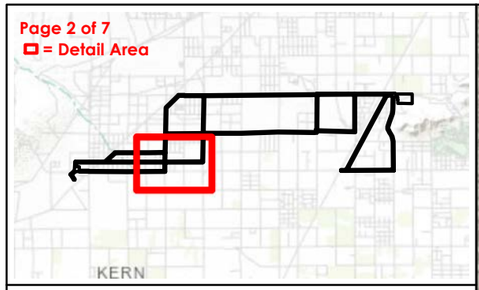
N
0 800 Feet

Figure 5.2-5 - Page 1 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 2 of 7
= Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- Developed
- Developed/Disturbed

FISHER AVE
150TH ST W
140TH ST W
ROSAMOND BLVD

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

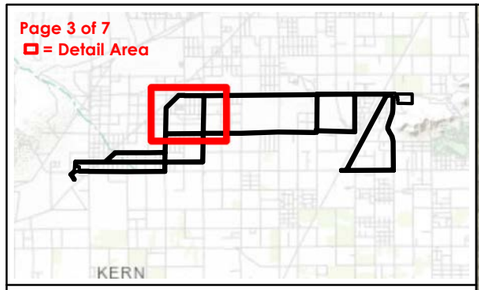
N
0 800 Feet

Figure 5.2-5 - Page 2 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 3 of 7
= Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-white bursage series disturbed
- Rubber rabbitbrush scrub
- Disturbed
- Developed
- Developed/Disturbed

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

N

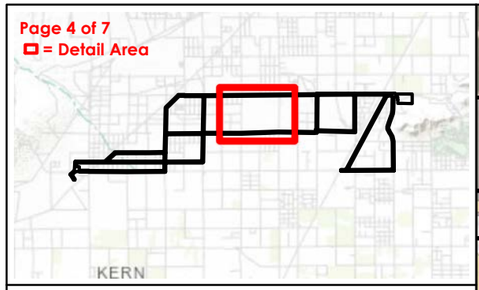
0 800 Feet

Figure 5.2-5 - Page 3 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 4 of 7
▭ = Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- Rubber rabbitbrush scrub
- Disturbed
- Developed
- Developed/Disturbed

130TH ST W

IRONE AVE

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

N

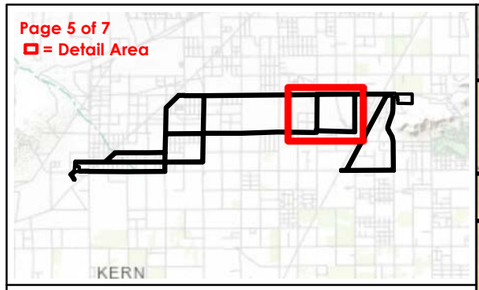
0 800 Feet

Figure 5.2-5 - Page 4 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 5 of 7
= Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-white bursage series disturbed
- Saltbush scrub
- Annual buckwheat/grasses
- Developed
- Developed/Disturbed

HAMILTON RD
110TH ST W
100TH ST W
IRONE AVE

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

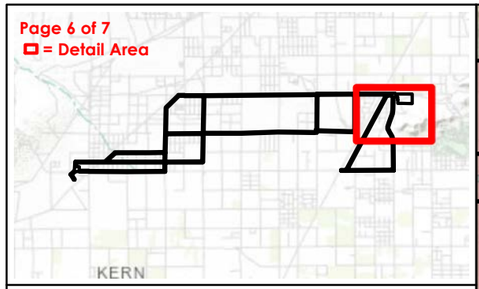
N
0 800 Feet

Figure 5.2-5 - Page 5 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 6 of 7
▭ = Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Creosote-saltbush series
- Saltbush scrub
- Saltbush scrub disturbed
- Annual buckwheat/grasses
- Agricultural land
- Disturbed
- Developed
- Developed/Disturbed

HAMILTON RD
SWEETSER RD
TEHACHAPI WILLOW SPRINGS RD
90TH ST W
MANLY RD

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

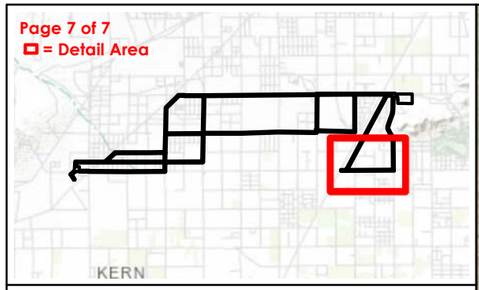
N
0 800 Feet

Figure 5.2-5 - Page 6 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project

Page 7 of 7
= Detail Area



Project Boundary
150-meter Survey Buffer

Vegetation

- Creosote-white bursage series
- Saltbush scrub
- California matchweed-rubber rabbitbrush series
- Ornamental
- Agricultural land
- Developed/Disturbed

Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BLACKHAWK Environmental

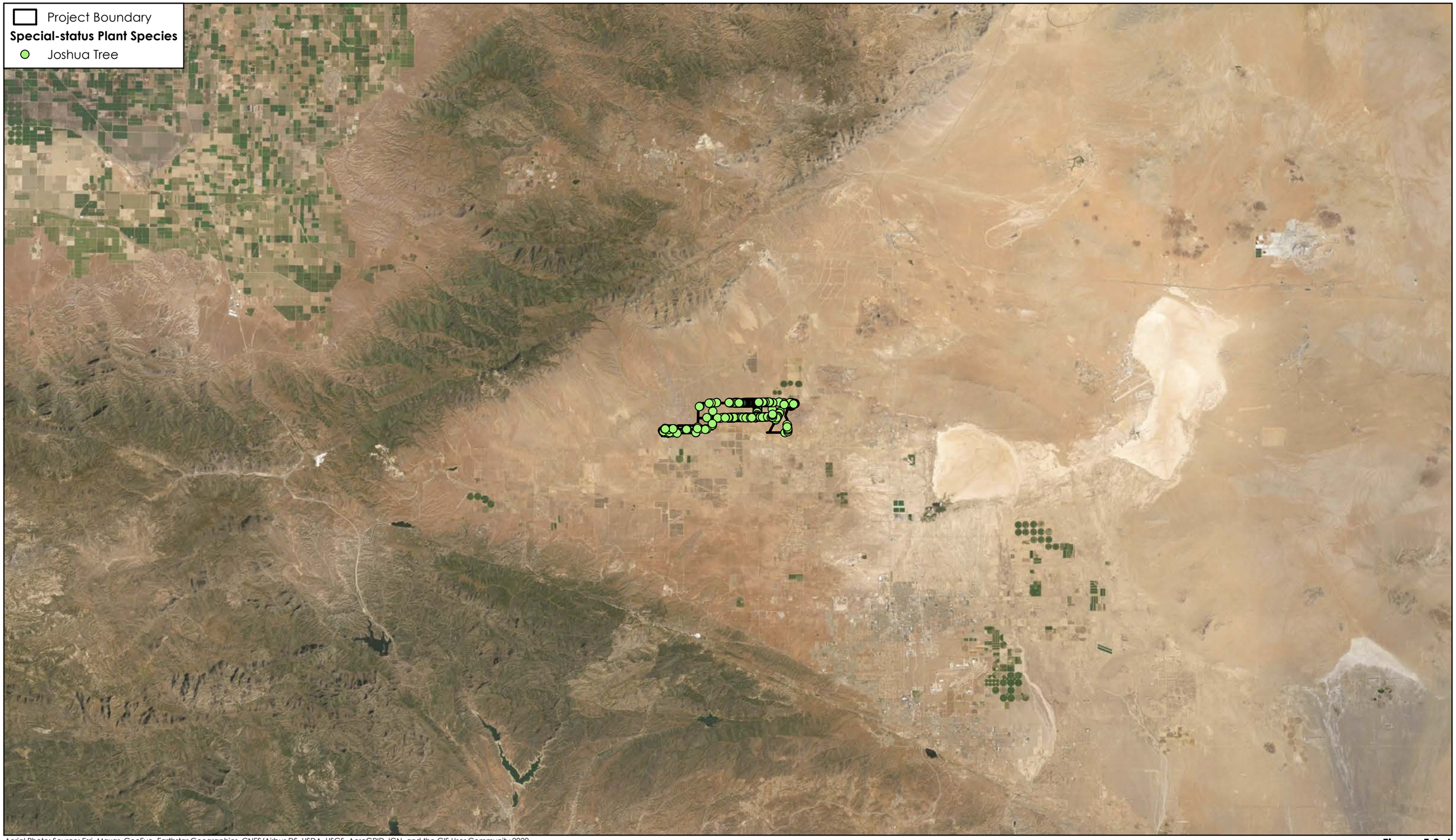
N

0 800 Feet

Figure 5.2-5 - Page 7 of 7

Vegetation

Hydrostor Gem Energy Storage Center Project



Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community 2020

BLACKHAWK Environmental

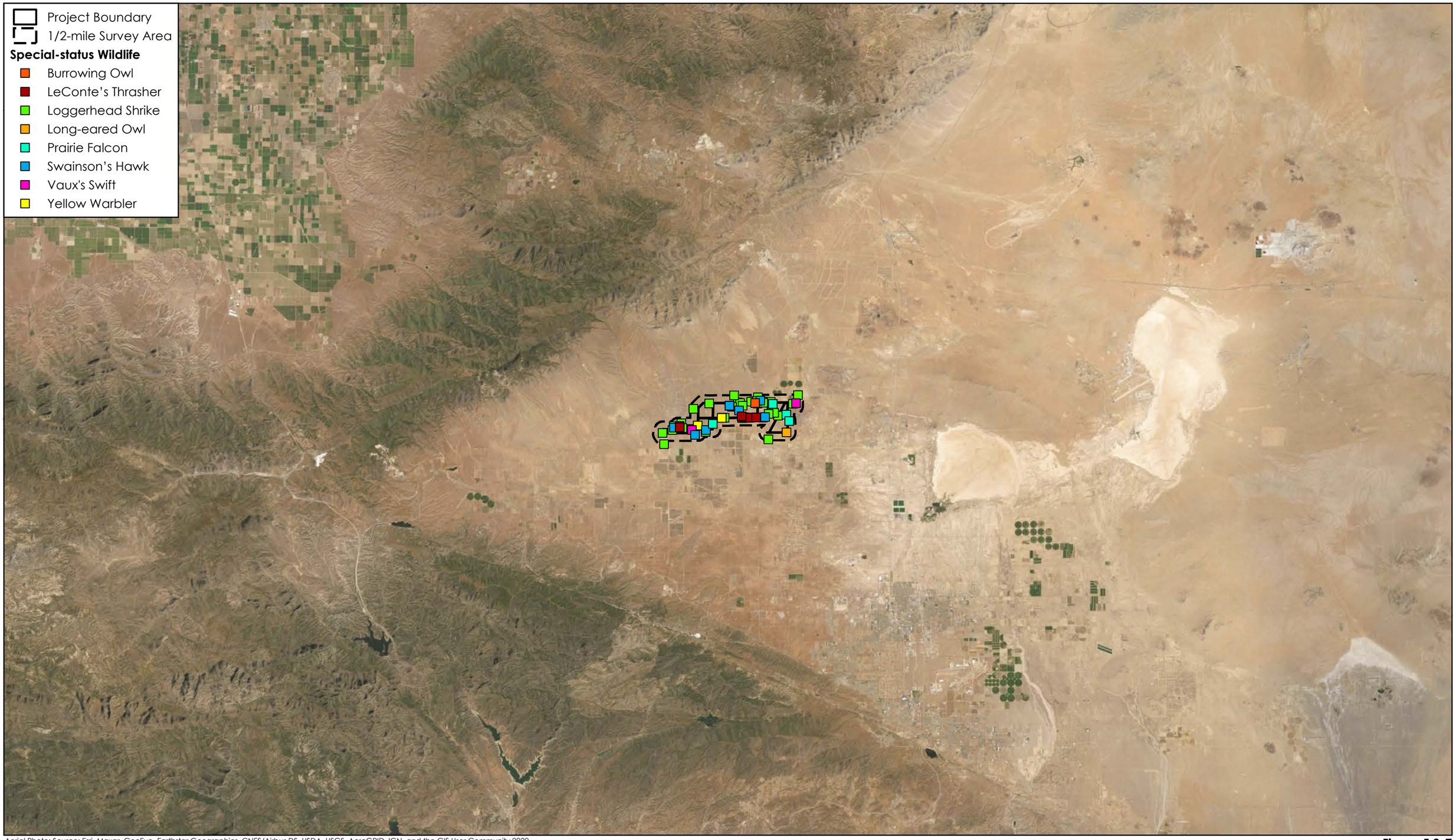
N

0 6 Miles

Figure 5.2-6

Special-Status Plant Species

Hydrostor Gem Energy Storage Center Project



Aerial Photo: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community 2020

BLACKHAWK Environmental

N

0 6 Miles

Figure 5.2-7

Special-Status Wildlife

Hydrostor Gem Energy Storage Center Project