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CalCapture CCS Project

Biological Resources Technical Report

Stantec

Prepared for:
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Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
APCD	Air Pollution Control District
BMP	best management practice
BNLL	blunt-nosed leopard lizard
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
BUOW	burrowing owl
CARB	California Air Resources Board
CBB	Crotch's bumble bee
CCH	Consortium of California Herbaria
CCS	Carbon Capture and Sequestration
CCU	Carbon Capture Unit
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2	carbon dioxide
CRC	California Resources Corporation
CRPR	California Rare Plant Rank
CTV	Carbon TerraVault Holdings, LLC
CTV I	Carbon TerraVault I
CUP	Conditional Use Permit
the CUP	Collectively, CUP No. 13, Map 118; CUP No. 14, Map 118; CUP No. 5, Map 119; CUP No. 3, Map 120; CUP No. 2, Map 138; and CUP No. 6, Map 119
CWA	Clean Water Act
EFG+	Econamine FG Plus^{SM}
EHOF	Elk Hills Oilfield
EHPP	Elk Hills Power Plant
ESA	Federal Endangered Species Act of 1973, as amended
FR	Federal Register
GIS	Geographic Information System
GKR	giant kangaroo rat
GPS	Global Positioning System
GT	gas turbine
HCP	Habitat Conservation Plan
HDD	horizontal directional drilling
HMMP	Habitat Mitigation and Monitoring Plan
HRSG	heat recovery steam generator

Acronym / Abbreviation	Full Name
HSE	Health, Safety, and Environment
IPaC	Information for Planning and Consultation
ITP	Incidental Take Permit
Kern County	Kern County Planning and Natural Resources Department
kV	kilovolt
LSAA	Lake and Streambed Alteration Agreement
M	magnitude
MCVII	Manual of California Vegetation, Second Edition
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
MMTPY	million metric tons per year
MTPD	metric tons per day
MWe	megawatt equivalent
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	CalCapture Carbon Capture and Sequestration Project
RWQCB	Regional Water Quality Control Board
SJAS	San Joaquin antelope squirrel
SJKF	San Joaquin kit fox
SSC	California Species of Special Concern
ST	State Threatened
Stantec	Stantec Consulting Services Inc.
TLL	Temblor legless lizard
UIC	Underground Injection Control
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
U.S. EPA	United States Environmental Protection Agency
USWFS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
WOTUS	Waters of the United States

1 Introduction

Carbon TerraVault Holdings, LLC (CTV), a carbon management subsidiary of California Resources Corporation (CRC), is proposing to construct and implement the CalCapture Carbon Capture and Sequestration (CCS) Project (Project). The Project involves the capture and underground sequestration of carbon dioxide (CO_2) generated as a by-product of CRC's 550-Megawatt equivalent (MWe) Elk Hills Power Plant (EHPP), located in the Elk Hills Oilfield (EHOF) near Tupman, Kern County, California (refer to Appendix A: Figure 1 [Regional Location]).

Most of the Project construction area will follow existing disturbance and pipe infrastructure that is actively maintained, but temporary and permanent disturbance is anticipated. Project construction would consist of site preparation of the proposed sub location, new pipeline construction, trenching or horizontal drilling to install below-ground pipelines, a capture facility, temporary parking and office areas, substation extension and new overhead electrical lines, and post-construction monitoring. Site preparation would include vegetation removal and grading. Project element construction and installation of the new pipeline will occur primarily within already developed areas and established pipeline corridors, but new disturbance is anticipated.

The Project is estimated to be operational for up to 26 years; however, the operational life of the proposed Project will be controlled by the storage reservoir's capacity and volume of CO_2 captured per year, which will fluctuate. A detailed description of the Project and Project components are outlined in Section 2, Project Description. Disturbance and impact acreage calculations are discussed further in Section 5, Existing Conditions.

1.1 Purpose of the Report

This Biological Resources Technical Report (BRTR) prepared by Stantec Consulting Services Inc. (Stantec) evaluates the potential for biological resources to be impacted by the proposed Project. This BRTR documents the biological resources that are associated with the Project and includes a discussion of the current baseline environmental conditions for biological resources that occur within the Biological Study Area (BSA) to support future California Environmental Quality Act (CEQA) documentation for the Project and other Project related permitting. This BRTR focuses on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities in the BSA and evaluates the potential for these to occur within the BSA. In addition, the BRTR provides information on Project impacts and lists impact avoidance and minimization measures that will be implemented during the Project.

1.2 Biological Study Area

The BSA for the Project totals approximately 466.11 acres and is shown in Appendix A: Figure 2 (Project Location Map) and Figure 3 (BSA and Project Components Map). The BSA includes the Project footprint, which encompasses the proposed construction areas including all areas of temporary and permanent impacts, as well as a 500-foot buffer extending outward from the Project footprint, including on either side

of proposed pipeline alignments. The 500-foot buffer includes areas of potential direct and indirect Project impacts on plant and wildlife species from construction activity. A 500-foot buffer around proposed construction areas is commonly applied in biological surveys to account for potential indirect impacts of the project on sensitive species and habitats located outside the direct impact area. This buffer also helps address the mobility of wildlife species and the use of adjacent habitats that may not be directly affected by construction activities but could still be influenced by project-related disturbance. A more limited 50-foot buffer was used for assessing the presence of rare plants and potentially jurisdictional waters.

2 Project Description

2.1 Project Description

The proposed Project would capture carbon dioxide (CO_2) generated as a by-product by CRC's 550-megawatt-equivalent (MWe) Elk Hills Power Plant (EHPP), located in the EHOF near Tupman, Kern County, California. The EHPP was commissioned in 2003 and is powered by two General Electric 7FA gas turbines (GTs), with two heat recovery steam generators (HRSGs) providing steam to a General Electric D11 steam turbine (ST). The Carbon Capture Unit (CCU), not including pipelines and equipment and staging areas, would be located immediately south of the EHPP in a 7.64-acre existing disturbed area.

Implementation of the Project will require approval of a Petition for Modification Application from the California Energy Commission (CEC), who has the exclusive authority for licensing thermal power plants of 50 MW or larger, as well as related transmission lines, fuel supply lines, and other facilities.

The CCU would utilize Fluor's Econamine FG Plus^{SM} (EFG+) process to capture and concentrate the CO_2. The EFG+ process is designed to capture 95 percent of the CO_2 from the total flue gas feed to the unit. The EFG+ CCU can be divided into seven primary subsystems or sections: Flue Gas Cooling, CO_2 Absorption, Solvent Regeneration, Solvent Maintenance, Chemical Storage and Supply, CO_2 Compression, and Utility Support Systems. The treated flue gas is vented to the atmosphere directly from the EFG+ CCU plant absorber. The concentrated CO_2 would then be compressed, dehydrated, and stripped of oxygen prior to conveyance to the permitted manifold pad, permitted as part of the approved Carbon TerraVault I (CTV I) project (State Clearinghouse No. 2022030180), which will direct the CO_2 to the U.S. Environmental Protection Agency (U.S. EPA) approved Class VI Underground Injection Control (UIC) wells to be injected into a depleted oil and gas reservoir located on the CRC property and approved as part of the CTV I project. The previously approved CTV I manifold pad, injection wells, depleted oil and gas reservoir and related facilities further discussed in Section 1.2 below are not part of the CalCapture CCS Project analyzed in this report.

A new, approximately 0.5-mile, 8- to 10-inch pipeline, installed primarily below ground utilizing either trenching or horizontal directional drilling (HDD) techniques, would transport the CO_2 from the CCU to the tie-in with the Carbon TerraVault I (CTV I) permitted 35R manifold facility (pad). It is anticipated that the proposed Project would capture approximately 4,400 metric tons of CO_2 per day (MTPD) (1.6 million metric tons of CO_2 per year [MMTPY]). The proposed Project is estimated to be in operation for up to 26 years.[1]

[1]The life of the project is dependent on the sources permitted for injection into the CTV I approved storage reservoir, the ability of the project year by year to obtain CO_2 and inject at the maximum 2,210,000 million tons per year, and the total estimated storage capacity of up to 48 million tons of CO_2.

Water use during operation of the CalCapture CCU would be minimized by the inclusion of a hybrid cooling system (Wet Surface Air Coolers [WSAC], air coolers, secondary glycol cooling, and water cooling). Additionally, the CCU would be equipped with a water treatment system, consisting of a reverse osmosis (RO) Unit that is designed to recover and reuse water from the Cooling Tower blowdown. The recovered water is utilized as make-up to the CO_2 absorption system and the Wash Water WSAC Basin. A wastewater stream (less than 10 gallons per minute) would be collected at the CalCapture CCU and transferred by a new surface pipeline to the EHPP for disposal via an existing UIC Class I injection well.

The proposed Project includes a single connection to the CRC Power System and would include a connection of a new 115-kilovolt (kV) transmission line to a new CRC electrical substation. The proposed Project would require a new transmission tie line to connect the Project switching station to the existing CRC substation. Electrical power would be supplied to the CalCapture Substation with a new dedicated electrical transformer. The new 115-kV transmission tie line is expected to be built using pre-engineered steel poles with anchor bolt foundation designs.

During construction, temporary offices and existing parking areas would be used by construction personnel. Temporary office and parking areas have been designated on previously disturbed areas to the south and northeast of the Project site. Two additional areas are located approximately 5.5 miles southeast of the Project site. There are no permanent new buildings proposed for the Project, and no grading would occur within the temporary office and parking areas. Total temporary staging and parking area would be approximately 30.74 acres.

2.2 CTV I Background Information

On December 31, 2024, the U.S. EPA issued four UIC Class VI well permits to CTV, a carbon management subsidiary of CRC.

The specific U.S. EPA permits issued for the four wells are as follows:

- R9UIC-CA6-FY22 1.1 for well 373-35R
- R9UIC-CA6-FY22 1.2 for well 345C-36R
- R9UIC-CA6-FY22 1.3 for well 353XC-35R
- R9UIC-CA6-FY22 1.4 for well 363C-27R

These four wells would be utilized to inject the CO_2 captured from the proposed Project into the Monterey Formation 26R storage reservoir located approximately 6,000 feet below the ground surface. The CTV I project area is located within the EHOF, which is a suitable area for long-term CO_2 storage and sequestration. The CTV I project was designed to implement sustainable CCS in support of California's initiative to combat climate change by reducing CO_2 levels in the atmosphere.

In addition to the Class VI Permit, CTV obtained a land use permit from the Kern County Planning and Natural Resources Department (Kern County) in 2024. Specifically, the CTV I project was approved by the Kern County Board of Supervisors on October 21, 2024, based on a final Environmental Impact Report (EIR, State Clearinghouse #2022030180) prepared by Kern County and certified by it on the same

date. A Notice of Determination was filed with the Kern County Clerk on October 22, 2024. The CTV I project is subject to the terms, conditions and restrictions set forth in the Conditional Use Permits (CUP) issued by Kern County and identified as CUP No. 13, Map 118; CUP No. 14, Map 118; CUP No. 5, Map 119; CUP No. 3, Map 120; CUP No. 2, Map 138; and CUP No. 6, Map 119 (collectively, "the CUP"). Implementation of the CUP authorizes the construction and operation of underground CO_2 facility pipelines to support the CTV I CCS facility and related infrastructure (e.g., injection/monitoring wells, CO_2 manifold piping and metering facilities) within the 9,104-acre project site, located within the EHOF.

Four monitoring wells permitted by the California Geologic Energy Management Division (CalGEM), as part of the CUP issued by Kern County for the CTV I project would be used for CO_2 monitoring. In addition, six CTV I permitted wells would be used to monitor for seismic activity. The seismic monitoring wells will be used to detect seismic events at or above magnitude (M) 1.0 in real time as required by the California Air Resources Board (CARB) CCS Protocol under the Low Carbon Fuel Standard (LCFS) (C.4.3.2.3). Additionally, the California Integrated Seismic Network will be monitored continuously for indication of a 2.7 M or greater earthquake or greater occurring within a 1-mile radius of injection operations from commencement of injection activity to its completion.

Monitoring activities would extend beyond the injection phase of the Project pursuant to Code of Federal Regulation (CFR) Title 40 Section 146.93 until site closure is granted. Monitoring requirements during post-injection are similar to those during injection, with activities such as sampling occurring quarterly and monitoring well integrity testing at frequency per U.S. EPA requirement.

As noted above, the facilities approved as part of the CTV I project, including but not limited to the manifold, pad, injection wells, monitoring wells and related transmission lines, pipelines and other related facilities that have already been approved by applicable agencies with jurisdiction over those facilities, including the U.S. EPA, CalGEM and Kern County, are not included as part of the proposed Project. Accordingly, such facilities are not analyzed in this report.

2.3 Project Location

The Project is located within the EHOF in the southwestern edge of the San Joaquin Valley near Tupman in Kern County, California. The Project comprises portions of six parcels owned by CRC. The Project is contained within the following sections of EHOF: sections 26, 34, and 35 of Township 30 South Range 23 East and sections 10 and 11 of Township 31 South Range 24 East, Mount Diablo Base and Meridian (MDB&M), Kern County, State of California (Table 1). The Project site is limited to 7.64 acres.

Table 1 Project Parcel Data

Assessor's Parcel Number	Section/ Township/ Range	Acreage*
158-090-19	Section 35/ Township 30S/ Range 23E	590.61
158-090-16	Section 35/ Township 30S/ Range 23E	14.78
158-090-02	Section 26/ Township 30S/ Range 23E	640
158-090-04	Section 34/ Township 30S/ Range 23E	682.86
298-070-05	Section 11/Township 31S/Range 24E	640
298-070-06	Section 10/Township 31S/Range 24E	640

Notes:
Assessor's parcel acreages from Kern County Web Map (Kern County GIS, 2025).

Elevation in the BSA is approximately 1,340 feet. The EHOF underlies the Elk Hills range, which is bound on the north and east by the San Joaquin Valley and on the south and west by the Buena Vista Valley. Skyline road runs in an east-west direction through the BSA, intersecting with Elk Hills Road, which runs in a north-south direction through the eastern portion of the BSA. Elk Hills Road intersects State Route 119 approximately 6 miles south of the BSA. The Project site is approximately 6.80 miles west of Tupman and 8.70 miles north of Taft, California. The unincorporated areas of Dustin Acres and Valley Acres are located to the southeast, and the unincorporated areas of Derby Acres and Fellows are located to the southwest. The BSA extends less than 1.25 miles east, 0.25 miles west, 0.65 miles north, and 0.30 miles south of the intersection of Elk Hills Road and Skyline Road.

2.3.1 Current Site Conditions

The BSA consists of existing disturbed and undisturbed areas with ongoing oilfield exploration and production operations. Existing operations are comprised of single and multi-well pads and support oil and gas infrastructure, including, but not limited to, pipelines, powerlines, access roads, and production facilities. The undisturbed areas within the oilfield contain scattered fragments of saltbush scrub and non-native grassland habitat. The majority of the proposed Project facilities, pipelines, and infrastructure are within existing disturbed areas within the EHOF, but approximately 9.58 acres of new permanent habitat disturbance is anticipated (Refer to Table 2.4 below).

2.3.2 Project Permits and Approvals

The CEC will be the lead agency for the Project. CRC will submit a Petition to Amend to modify the existing EHPP Siting Certification. In addition, an Authority to Construct/Permit to Operate from the San Joaquin Valley Air Pollution Control District (APCD) and a modification to the CTV I UIC Class VI permit would be required for the proposed Project.

2.4 Proposed Project Components

The Project consists of the CCU in addition to supporting infrastructure as described below. Project components are shown in Appendix A: Figure 3 (Biological Study Area and Project Components). A breakdown of disturbance by land cover type is included in Table 2 and is shown in Appendix A: Figure 5 (Vegetation Communities and Land Cover Types).

Table 2 Anticipated Disturbance by Project Component within the Project Area

Project Component	Permanent Impact Area (Acres)[1]	Temporary Impact Area (Acres)[2]	Total Impact Area (Acres)
Facilities	9.46	0.00	9.46
Pipelines	0.01	5.45	5.46
Electrical Line	0.11	2.60	2.70
Temporary Parking, Office, Staging Areas, and Onsite Borrow Sites	0.00	34.02	34.02
TOTAL	**9.58**	**42.06**	**51.65**

[1] Potential sources of permanent project impacts include primarily clearing and grubbing and construction of the carbon capture facility structure and associated transmission line. Permanently impacted areas would result in permanent structures with no revegetation/restoration.

[2] Potential sources of temporary project impacts include use of heavy equipment and worker foot-traffic along the construction corridor, access and staging, temporary parking areas, temporarily graded and grubbed areas, and future maintenance activities. No new structures or hardscape would remain in temporarily disturbed areas.

Additional notes:
Totals may be off due to rounding.
Refer to Table 4 for detailed impacts per component and vegetation community/land cover type.

2.4.1 Facilities

The Project would include construction of multiple facilities, including the Capture Facility, cooling water sump, electrical transformer, and substation. Construction of the proposed facilities would result in an impact of 9.46 acres.

The Project would utilize existing, maintained access roads where possible and improvements to existing access roads may be required. Within the previously disturbed CalCapture footprint, a new perimeter road approximately 1,550 feet in length would be constructed around the capture facility for general access as well as emergency access.

2.4.2 Pipelines

The below ground installation of a new 0.5-mile 8- to 10-inch CO_2 pipeline would utilize either trenching or HDD techniques resulting in approximately 0.01 acres of temporary disturbance. The remaining pipelines would be constructed above ground and would follow established pipeline corridors where possible, resulting in approximately 5.45 acres of temporary disturbance, and 0.01 acres permanent disturbance.

Steel pipelines would utilize existing pipe supports or sleepers (wood or cement pipeline holders placed on the ground); however, in some cases, new sleepers would be added to replace older or missing sleepers. The estimated disturbance per sleeper is approximately 1 square foot. New composite pipelines would add new disturbance based on the portion of the pipeline that touches the ground and is estimated at 3 inches for a 3-inch-diameter pipeline or 0.25 feet for the length of the pipeline, excluding buried access road crossings. Composite pipelines would lay on the ground surface and be sited to avoid small mammal burrows. The composite pipelines would be anchored in place to prevent movement, thereby avoiding the potential for pipelines to shift onto any adjacent burrows or newly established burrows over time. Steel pipelines would be placed on existing sleepers or pipe supports that are spaced approximately every 20 feet. Both composite and steel pipelines would be elevated over drainages using pipe supports to achieve full avoidance of the drainages and would be buried at all existing access road crossings.

All road crossings would be trenched using traditional cut and cover techniques and restored to the road grade. The trench would be approximately 5 to 6 feet deep depending on field conditions and between 2 to 3 feet wide. Excavated soils may be preserved and used as backfill where a temporary construction easement is available. Materials deemed unsuitable for backfill would be disposed of off-site at an approved disposal site. Pipeline tie-in points would occur at new and existing facilities.

2.4.3 Power Lines and Power Poles

CRC would construct, operate, and maintain approximately 4,420 feet of new 115-kV transmission lines to the CRC-owned substation and new proposed electrical substation located at the Project site. The 15 tubular steel poles and pre-engineered steel poles would require approximately twenty to thirty feet of embedment. Construction would involve temporary ground disturbance around each new power pole location (approximately a 20-foot radius). The estimated disturbance of the 115-kV electrical interconnection and substation would be 2.6 acres of temporary disturbance. The Project would result in 0.11 acres of permanent disturbance for power poles and 0.55 acres for the substation. Approximately 595 feet of the powerline between the new substation and the existing substation would be trenched and buried. To support the major construction efforts, electrical connections are anticipated to be in place prior to significant field activities.

2.4.4 Temporary Office, Parking Areas, Staging Areas, and Onsite Borrow Sites

Temporary offices, parking, and laydown areas are needed for implementation of the Project and would cover a total of 30.74 acres. In addition, approximately 12,700 cubic yards of fill would be sourced from two onsite borrow sites located north of the EHPP within existing, pre-disturbed well pads. Excavation of the existing well pads would lower the existing grade by approximately 2 to 3 feet to provide the required fill needed for the Project, resulting in a temporary disturbance of 3.28 acres. A total of 34.02 acres would be temporarily impacted for these temporary uses.

2.5 Project Operation, Maintenance, and Decommissioning

All facilities, pipelines, and equipment would be operated, maintained, and inspected in accordance with applicable regulatory requirements. These regulations specify the types and frequencies of safety inspections and maintenance to be performed. Records documenting compliance with these requirements would be maintained on site and would be periodically reviewed by CRC personnel to ensure compliance. In addition, safety and compliance inspections and audits of the facilities are performed on a regular basis by U.S. EPA or other regulatory personnel.

If CRC decides to no longer use the EHOF properties as a CCS facility, CRC would then either divest the Project or decommission the Project site facilities and wells in accordance with appliable law. Removal of wells would be conducted under CTV I and permits for the removal of surface facilities would be obtained from CEC and Kern County. In lieu of removal, surface facilities may potentially be re-purposed for other site uses in accordance with applicable law. Any surface facility removal activities would be limited to removal or demolition of existing equipment and performed in accordance with applicable law.

3 Methodologies

The biological resource assessment of the BSA included, but was not limited to, a literature review, reconnaissance-level field surveys, a habitat assessment, and vegetation mapping. Prior to the survey, a preliminary literature review of reasonably available resources was performed. The surveys were conducted on foot within accessible areas of the BSA based on terrain, vegetative cover, and availability of access. The surveys were designed to encompass all habitat and terrain types present within the BSA. Literature review and survey details are described in further detail below. Additional focused surveys for rare plants and Crotch's bumblebee (*Bombus crotchii*; CBB), as well as a habitat assessment for Temblor legless lizard (*Anniella alexanderae*; TLL), were conducted and are described in further detail below. For other species such as blunt-nosed leopard lizard (*Gambelia sila*; BNLL) and burrowing owl (*Athene cunicularia*; BUOW), additional protocol surveys may be necessary and are described in Section 8, Avoidance, Minimization, and Mitigation Measures.

3.1 Literature Review

A literature review was performed in conjunction with the field surveys for the Project site. The purpose of the literature review was to determine the special-status plants, wildlife, and vegetation communities that have been historically documented within the vicinity of the BSA. A query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted on February 20, 2025, using Geographic Information System (GIS) tools to spatially search the area encompassing the Project site and a 10-mile buffer (CDFW, 2025a). The Project site is located within the *East Elk Hills* United States Geological Survey (USGS) 7.5-minute topographic quadrangles of the MDB&M. A query was conducted for the BSA and a 10-mile surrounding buffer area. The query area included the following USGS 7.5-Minute Series quadrangles: *Lokern, Buttonwillow, Rio Bravo, Reward, West Elk Hills, East Elk Hills, Tupman, Panorama Hills, Fellows, Taft, and Buena Vista Lake Bed*. Maps of special-status plant and wildlife occurrences listed in the CNDDB are shown in Figures 4-0 through 4-3 (Appendix A).

Additional data regarding the potential for occurrence of special-status species and policies relating to these special-status species and other natural resources were gathered from the following sources:

- State and Federally Listed Endangered and Threatened Animals of California Special Animals List (CDFW, 2025b)
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW, 2025c)
- Special Animals List (CDFW, 2025d)
- Special Vascular Plants, Bryophytes, and Lichens (CDFW, 2025e)
- Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2025)
- California Sensitive Natural Communities (CDFW, 2025f)
- Consortium of California Herbaria (CCH, 2025)

- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Resource List (USFWS, 2025a)
- CDFW California Wildlife Habitat Relationships
- Aerial photographs of the BSA
- Carbon TerraVault 1 – Carbon Capture and Sequestration Project Biological Analysis Report (QK, 2024)

3.2 Biological Surveys and Habitat Assessments

3.2.1 Reconnaissance Wildlife and Plant Surveys

Surveys of the BSA were conducted by Stantec biologists Hannah Hart, Tori Prado, Lysa DuCharme, Angel Ramirez, and Cassandra Cortez, who are all experienced field biologists. Stantec biologists conducted a habitat assessment and biological resource surveys to document the existing biological resources within the BSA over 3 initial days, February 19, 20, and 27, 2025, and they also surveyed additional lay down areas on May 8 and June 10, 2025. Focused rare plants surveys were also conducted within a 50-foot buffer of all Project areas during the early, mid-, and late blooming seasons. Early season focused rare plant surveys were conducted during the reconnaissance surveys. Mid-season and late season focused rare plant surveys were conducted on March 17 and 18, 2025, and on May 7 and 8, 2025, respectively. Early and mid-season focused rare plant surveys were not conducted on three proposed staging sites and laydown areas located west of State Route 119, and no rare plant surveys were conducted at two laydown areas immediately northeast of the facility. Lack of complete rare plant survey coverage resulted from late Project description and component revisions. Final assessment of potential impacts to special-status plant species will be provided in an addendum or revised BRTR upon completion of the early and mid-season May 2026 surveys for Project components added after the early and mid-season surveys in 2025 were conducted.

The reconnaissance-level surveys were performed within all habitat and terrain types present within the BSA. The primary goals of the habitat assessment and biological surveys were to identify habitat types within the BSA, assess habitats in terms of their suitability for supporting special-status plants and wildlife species, document and inventory the plant and wildlife species observed within the BSA, and document any special-status species and sensitive biological resources.

The focused rare plant surveys were floristic in nature, timed to allow for the best possible opportunity to observe rare plants during suitable phenological periods. These surveys effectively followed the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018) and USFWS *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS, 2000).

The surveys were conducted on foot where accessible, based on terrain and vegetative cover, and by vehicle in highly developed areas with little or no vegetation. Biologists conducted foot surveys by walking meandering transects within the BSA where accessible. Biologists ensured that the different habitats and topographic conditions were encompassed during the surveys. During the surveys, biologists would walk while visually scanning for wildlife, and listening for wildlife songs, calls, and other signs. Surveying was

halted periodically to listen for wildlife and to identify, record, enumerate, or photograph any detected species or habitat features. Species that were present were identified and recorded through direct visual observation, sound, or their sign (e.g., scat, tracks). Species identifications conform to the most up-to-date field guides and technical literature.

Plant species and vegetation communities within the BSA were identified to the maximum extent possible during the reconnaissance surveys. The February and March 2025 rare plant surveys included early and mid-season assessment for the potential occurrence of rare plants. Additional floristic botanical surveys for rare and special-status plant species with late spring flowering periods were conducted on May 7 and 8, 2025. These results are included within this assessment.

To the extent possible, reconnaissance surveys of the BSA were conducted during the season and time of day that migratory birds were expected to be present, resident bird species were nesting and fledging, small mammals were active and detectable visually or by sign, and above-ground amphibian and reptile movement would generally be detectable. However, some wildlife species and/or individuals may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. Surveys were conducted during daylight hours when temperatures were such that reptiles and other wildlife would be active. Results of the reconnaissance surveys are used to help guide decisions regarding which, if any, additional focused surveys may be necessary for the Project. If determined to be necessary, additional focused surveys would follow established protocols that require the surveys to be conducted during the appropriate time when the target species is most likely to be detected.

A habitat assessment for TLL was conducted by Stantec sub-consultant Dr. Ted Papenfuss on February 28, 2025, and determined that the proposed CalCapture Project areas do not provide suitable habitat for TLL (Papenfuss, 2025).

Additionally, a total of three focused surveys for CBB were conducted by Stantec sub-consultant biologist Donna Noce on May 7–9, May 19–21, and June 17–19, 2025.

3.2.2 Vegetation and Habitat Assessment

The primary purpose of the habitat desktop assessment was to evaluate and document the various existing conditions within the BSA and map the vegetation communities present. Habitat assessment desktop review and vegetation mapping characterizes the plant communities within the BSA and determines presence or absence of sensitive plant communities and habitats, including wetland, aquatic, and riparian habitats.

Vegetation maps were prepared by drawing tentative vegetation type boundaries onto high-resolution aerial images while in the field, or through a Global Positioning System (GPS)-enabled tablet with recent aerial photo base map. Most boundaries shown on the resulting maps are accurate within approximately 3 feet; however, boundaries between some vegetation types are less precise due to difficulties interpreting aerial imagery and accessing stands of vegetation. Further, classification of vegetation types should be viewed as coarse due to highly variable nature and diagnostic characteristics of each community. The results of the field mapping were incorporated into vegetation maps using GIS. The total area of each plant community in acres was calculated using GIS.

The mapping and description of plant communities in the BSA were classified based on the alliance classification system described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986) and described in the second edition of *A Manual of California Vegetation* (Sawyer et al., 2009). Scientific names and common names are according to the second edition of *The Jepson Manual* (Baldwin et al., 2012).

Incidental wildlife species observed in the BSA were recorded by sight, calls, tracks, scat, and other signs during reconnaissance surveys. In addition to species observed, expected wildlife use of the BSA was determined by known habitat preferences of local species and knowledge of their relative distributions in the region.

Photo documentation of habitats within the BSA was recorded during reconnaissance surveys and is included in Appendix B: Photo Documentation.

4 Regulatory Framework

4.1 Federal Regulations

4.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (ESA) includes provisions that protect federally listed threatened and endangered species and their habitats from unlawful take, requiring that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The ESA regulations define harm as "an act which actually kills or injures fish or wildlife." Harm is further defined to include significant habitat modification or degradation that kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering" (50 CFR § 17.3). On April 17, 2025, USFWS and the National Marine Fisheries Service (NMFS) proposed to rescind the current regulatory definition of "harm" within the context of "take" under the ESA. The proposed rule would not change the statutory definition of "take," which still includes "harm." However, by rescinding the existing regulatory definition, the agencies aim to align their interpretation with a narrower reading of the statute based on its plain language. No replacement definition for "harm" has been proposed. The rescission would apply prospectively and would not affect existing permits. If finalized, the change would limit the scope of actions that qualify as "take" under the ESA.

Activities that may result in "take" of listed species, and have a federal permit or funding nexus, are typically regulated by USFWS and NMFS through Section 7(a)(2) of the ESA. Activities that may result in take that do not have a federal permit or funding nexus are regulated through Section 10(a)(1)(B) of the ESA and require a federal Incidental Take Permit (ITP) and Habitat Conservation Plan (HCP).

Critical habitat is defined in Section 3(5)(A) of the ESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior (Secretary) that such areas are essential for the conservation of the species."

The effects analyses for designated critical habitat must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the Ninth Circuit juridical opinion, Gifford Pinchot Task Force v. USFWS. USFWS produced an updated list of candidate species December 6, 2007 (72 Federal Register [FR] 69034). Candidate species are not afforded any legal protection under ESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

4.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [U.S.C.] 703-711) makes it unlawful to possess, buy, sell, purchase, barter, or "take" any migratory bird listed in CFR Title 50 Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by USFWS. This act encompasses whole birds, parts of birds, and bird nests and eggs.

4.1.3 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

USFWS is the primary federal agency authority charged with the management of golden eagles in the United States. A permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required if this Project affects such resources. On November 10, 2009, USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Act which has been the primary regulation protection unlisted eagle populations since 1940.

All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in the western United States, it is expected permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

4.1.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all federal agencies consult with NMFS, USFWS, and state wildlife agencies (i.e., CDFW) when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider the potential effects that these projects would have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows NMFS, USFWS, and CDFW to provide comments to United States Army Corps of Engineers (USACE) during review of projects under Section

404 of the Clean Water Act (CWA) (concerning the discharge of dredged materials into navigable waters of the United States [WOTUS]) and Section 10 of the Rivers and Harbors Act regarding obstructions in navigable waterways. NMFS comments provided under the Fish and Wildlife Coordination Act are intended to reduce environmental impacts to migratory, estuarine, and marine fisheries and their habitats. If the proposed Project involves impacts to WOTUS, the USACE would be the lead federal agency and would initiate consultation with USFWS and CDFW per the requirements of this act.

4.1.5 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA into other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision-making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans and documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 USC 4321- 4327; 40 CFR 1500-1508). These guidelines establish an overall federal process for the environmental evaluation of projects.

4.1.6 Clean Water Act Section 404 and Federal Jurisdictional Waters

The CWA, introduced in 1972 via amendatory legislation of the Federal Water Pollution Control Act, is the primary federal law in the United Sates regulating water pollution. Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation within federal WOTUS and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). Terrestrial WOTUS as defined by the CWA have typically included rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands. Wetlands are defined by the CWA as “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 generally include swamps, marshes, bogs, and similar areas.” The definition of WOTUS has changed over the years, and USACE has adopted several revisions to their regulations to more clearly define WOTUS. The protection of federal jurisdictional WOTUS has been particularly contentious and subject to numerous legal decisions since 2001.

A full description of this rule and its applicability to this Project is provided in Appendix C: CalCapture CCS Project Aquatic Resources Delineation Report (Stantec, 2025).

4.2 State Regulations

4.2.1 California Environmental Quality Act

CEQA establishes state policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to discretionary actions directly undertaken, financed, or permitted by local or state lead agencies when those actions are found to have or are likely to have direct or indirect environmental impacts. Regulations for implementation are found in the CEQA Guidelines published by the California Natural Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

4.2.2 California Endangered Species Act

Provisions of the California Endangered Species Act (CESA) protect state-listed Threatened and Endangered species. The CDFW regulates activities that may result in "take" of individuals ("take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") listed under CESA. Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFW may authorize take under the CESA via an ITP through California Fish and Game Code Section 2081(b). CDFW also maintains lists for Candidate-Endangered Species and Candidate-Threatened Species. California Candidate Species are afforded the same level of protection as listed species. Additionally, the California Fish and Game Code contains lists of vertebrate species designated as "fully protected" (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed without an approved Natural Communities Conservation Plan.

In addition to federally and state-listed species, the CDFW also has produced a list of California Species of Special Concern (SSCs) to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. These SSCs may receive special attention during environmental review, but they do not have statutory protection.

4.2.3 Native Plant Protection Act (Fish & Game Code 1900-1913)

California's Native Plant Protection Act (NPPA) requires all state agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

4.2.4 California Fish and Game Code Section 1602

Section 1602 of the California Fish and Game Code requires an entity to notify CDFW before commencing an activity that will:

- Substantially divert or obstruct the natural flow, or substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit or dispose of debris, waste or other material where it may pass into any river, stream, or lake.

If any of these activities may substantially alter its bed, channel, or bank, or adversely affect existing fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) is required. A LSAA lists the CDFW conditions of approval relative to a proposed project and serves as an agreement between an applicant and the CDFW for the performance of activities subject to Section 1602. For the purposes of this BRTR, potential CDFW jurisdiction is interpreted as extending from the streambed/thalweg to the outer edge of adjacent riparian vegetation (for both natural and anthropogenic drainage features), and for this BSA, potential CDFW jurisdiction is roughly equivalent to "waters of the State" as defined by the Regional Water Quality Control Board (RWQCB).

4.2.5 Section 3503 & 3503.5 of the Fish and Game Code

Birds of prey are protected under the California Fish and Game Code. Sections 3503 and 3503.5 state it is "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) 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." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Under sections 3503 and 3503.5 of the California Fish and Game Code, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to Fish and Game Code Section 3800 are prohibited.

4.2.6 Porter-Cologne Water Quality Control Act

The State Water Resources Control Board or the applicable RWQCB regulate the discharge of waste to waters of the State. All projects proposing to discharge waste that could affect waters of the State must file a waste discharge report with the appropriate regional board. The board responds to the report by issuing Waste Discharge Requirements (WDR) or a waiver for that project discharge. Both of the terms "discharge of waste" and "waters of the State" are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other "discharge." Isolated waters/wetlands within California, which are no longer considered WOTUS as defined by Section 404 of the CWA and limited by the *Sackett* decision, are addressed under the Porter-Cologne Act.

4.3 Other Applicable Regulations, Plans, and Standards

4.3.1 California Native Plant Society Rare Plant Program

The mission of the California Native Plant Society (CNPS) Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats) are entered into the online CNPS Inventory and given a California Rare Plant Rank (CRPR). In 2011, the CNPS officially changed the name "CNPS List" to "CRPR." The Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California.

Vascular plants listed as rare or endangered by the CNPS, but which might not have a designated status under state endangered species legislation, are defined by the following CRPR:

- CRPR 1A – Plants considered by the CNPS to be extinct in California
- CRPR 1B – Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2 – Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3 – Plants about which we need more information – a review list
- CRPR 4 - Plants of limited distribution – a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered, and are described as follows:

- 0.3 – Seriously threatened in California (high degree/immediacy of threat)
- 0.2 – Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known.

4.3.2 Kern County General Plan

The Kern County General Plan identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County during the decision-making process for any project that could impact biological resources.

The Land Use, Open Space, and Conservation Element of the Kern County General Plan provides for a variety of land uses for future economic growth while also assuring the conservation of the County's agricultural, natural, and resource attributes. Section 1.10, General Provisions, provides goals, policies,

and implementation measures that apply to all types of discretionary projects. Applicable Policies and implementation measures from Section 1.10 of the Kern County General Plan are outlined below.

- 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 the 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 of community of local, State, and federal programs concerning endangered species conservation issues.
- Policy 31 – Under the provisions of CEQA, the County, as lead agency, will solicit comments from the CDFW and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.
- Implementation Measure Q – Discretionary projects shall consider effects to biological resources as required by the California Environmental Quality Act.
- Implementation Measure R – Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.
- 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.

4.3.3 Recovery Plan for Upland Species of the San Joaquin Valley

Recovery plans delineate reasonable actions that are believed to be required to recover and protect listed species. Plans are published by USFWS, sometimes prepared with the assistance of recovery teams, contractors, State agencies, and others. A recovery plan delineates, justifies, and schedules the research and management actions necessary to support the recovery of a species. Recovery plans do not, of themselves, commit manpower or funds, but are used in setting regional and national funding priorities and providing direction to local, regional, and State planning efforts. The Recovery Plan for Upland Species of the San Joaquin Valley provides individual species accounts for 34 San Joaquin Valley species listed as federally protected or as candidates or species of concern.

5 Existing Conditions

5.1 Setting

The Project is located within the EHOF, which lies within a low mountain range with a maximum elevation of 1,546 feet. The Buena Vista Valley separates the Elk Hills range from the Buena Vista hills to the south. The BSA is surrounded by gently sloping hills that are highly disturbed by oil and gas industrial activities. Elevation ranges from 1,280 to 1,382 feet above sea level. Surrounding land use consists of an active oilfield with existing wells, well pads, oilfield roads, surface pipelines, and overhead power and communication lines. Large portions of the EHOF footprint have been developed and are maintained to be devoid of vegetation. Fragments of saltbush scrub and non-native grassland habitat occur among the oilfield infrastructure. Adjacent to the EHOF to the west is the McKittrick Oilfield, to the south is the Buena Vista (Hills) Oilfield, and southwest of the Buena Vista Oilfield is the Midway-Sunset Oilfield, the largest in California and third largest in the United States. Agricultural fields are located to the north, east, and southeast of the Elk Hills within the San Joaquin Valley.

5.2 Vegetation Communities and Land Covers

As defined in the Manual of California Vegetation, Second Edition (MCVII), a vegetation alliance is “a category of vegetation classification which describes repeating patterns of plants across a landscape. Each alliance is defined by plant species composition and reflects the effects of local climate, soil, water, disturbance and other environmental factors” (Sawyer et al., 2009). Generally, Stantec’s mapping and description of plant communities follows the classification system described in MCVII. The MCVII is generally limited to communities that are native or naturalized within California.

Biological resources observed within the BSA during the field surveys comprised primarily common plant species and vegetation community characteristic of the southern San Joaquin Valley. The extent and condition of vegetation communities within the BSA varied depending on the level of existing development and ongoing mineral extraction activities. Within the BSA, Stantec biologists mapped two plant communities defined by Sawyer et al. (2009) in the MCVII and one landcover type. These are described further in Section 5.2.1, Vegetation Communities and Land Cover Types, and are depicted in Figure 5 (Appendix A). Acreages for each plant community and land cover type within the BSA, as well as temporary and permanent Project impacts, are provided in Table 3 and Table 4, respectively.

Table 3 Vegetation Communities and Land Cover Types Occurring within the BSA and Estimated Permanent and Temporary Impacts

Vegetation Community/Land Cover Type	Acreage Within BSA
Disturbed/Developed	229.21
Allscale Shrubland	235.58
Red Brome or Mediterranean Grass Grasslands	1.31
Total	**466.11**

Table 4 Vegetation Communities and Land Cover Types with Estimated Permanent and Temporary Impacts

	Vegetation Community/ Land Cover Type	Permanent Impact	Temporary Impact	Total
Facilities		**9.46**		**9.46**
Capture Facility	Allscale saltbush scrub	0.71		0.71
	Disturbed/Developed	6.93		6.93
Cooling Water Sump	Disturbed/Developed	0.02		0.02
New BPSTG & Transformer	Disturbed/Developed	0.04		0.04
Proposed Sub Location (250 x 250)	Allscale saltbush scrub	0.55		0.55
	Disturbed/Developed	0.87		0.87
	Red Brome Mediterranean Grassland	0.01		0.01
Substation Extension Proposal	Allscale saltbush scrub	0.10		0.10
	Disturbed/Developed	0.07		0.07
Warehouse	Disturbed/Developed	0.17		0.17
Pipelines[1, 2]		**0.01**	**5.45**	**5.46**
Above Ground				
Cooling Water Sump Line	Allscale saltbush scrub		0.003	0.00
	Disturbed/Developed	0.0006	0.29	0.29
Proposed Condensate Line	Disturbed/Developed	0.0007	0.34	0.34
Proposed CWR Line	Disturbed/Developed	0.0009	0.45	0.45
Proposed CWS Line	Disturbed/Developed	0.0009	0.41	0.41
Proposed HP Steam Line	Disturbed/Developed	0.0007	0.34	0.34
Proposed LP Steam Line	Disturbed/Developed	0.0010	0.48	0.48
Proposed Raw Water Line	Allscale saltbush scrub		0.07	0.07
	Disturbed/Developed	0.0032	1.47	1.48
Proposed RO Permeate Stream Line	Disturbed/Developed	0.0009	0.45	0.45
Below Ground/Trenched				
Proposed CO2 Line	Allscale saltbush scrub		0.01	0.01
	Disturbed/Developed	0.0025	1.14	1.14
Temporary Parking, Office, and Staging Areas			**34.02**	**34.02**
Temporary Parking, Office, Staging Areas, and Onsite Borrow Sites	Allscale saltbush scrub		2.37	2.37
	Disturbed/Developed		31.64	31.64
Electrical Line[3]		**0.11**	**2.60**	**2.70**
Electrical Line	Disturbed/Developed	0.11	2.60	2.70
	Grand Total	**9.58**	**42.06**	**51.65**

Notes:
[1] 12-foot Buffer (24-foot width) calculated for Temporary Impacts.
[2] Permanent Pipeline Impacts of sleepers assumed to reside in Disturbed/Developed areas only.
[3] Assumed 15 poles (not mapped). Perm Impact of 0.007212 acre (10-foot radius) and Temp Impact of 0.180303 acre (50-foot radius). All impacts of pole locations are assumed to reside in Disturbed/Developed areas only.

5.2.1 Vegetation Communities and Land Cover Types

5.2.1.1 *Atriplex polycarpa* Shrubland Alliance (Allscale Scrub)

Allscale (*Atriplex polycarpa*) Scrub occurs intermittently throughout the BSA, where it has formed relatively open stands and/or is interspersed with annual grasslands described below. Allscale Scrub is characterized by an open to continuous canopy with a variable herbaceous layer near the ground, which includes seasonal annuals and non-native grasses. Within the BSA, this alliance consists primarily of allscale saltbush (*Atriplex polycarpa*) with a varied herbaceous layer that consists of *Bromus* sp. non-native grasses. Commonly known as salt-scrub or saltbush scrub communities, these common arid-land upland communities are found in flat or hilly areas of the southern San Joaquin Valley and are typically characterized by alkaline soils and open canopy with interspersed shrubs with varying densities dependent on slope, aspect, and moisture levels. Approximately 235.58 acres of this land cover type occur within the BSA (refer to Table 3; Figure 5 [Appendix A]). These acreages should be viewed as coarse assessments due to the interspersed nature of this community with annual grasslands.

5.2.1.2 Red Brome/Mediterranean Grass Grasslands Herbaceous Semi-Natural Alliance (Red Brome or Mediterranean Grass Grasslands)

Non-native annual grasslands occur in dense stands throughout the BSA. This vegetation community is also often interspersed with Allscale Scrub. Red Brome or Mediterranean Grass Grasslands consist primarily of non-native grasses from the Mediterranean region such as red brome (*Bromus madritensis* ssp. r*ubens*), non-native barley (*Hordeum* sp.*)* and Mediterranean grass (*Schismus barbatus*). Red Brome or Mediterranean Grass Grasslands are typically found in disturbed and non-disturbed habitats along roadsides, railroads, and cultivated fields. This vegetation community is highly invasive and widely distributed in the western U.S. and provides a source of fuel for wildfires. Approximately 1.31 acres of this land cover type occur within the BSA (refer to Table 3; Figure 5 [Appendix A]). This community is heavily interspersed with the Allscale Scrub community, and the two are often intermixed throughout the BSA.

5.2.1.3 Disturbed/Developed

This classification was used to map portions of the Project site that are developed, which are primarily existing roadways and development/infrastructure related to oil and gas operations for mineral extraction. Where vegetated, these areas are generally composed of sparse occurrences of non-native and ruderal vegetation both within and in the margins of the mapped areas. Approximately 229.21 acres of this land cover type occur within the BSA (refer to Table 3; Figure 5 [Appendix A).

5.2.2 Common Plant Species Observed

Plants observed during the 2025 reconnaissance-level surveys and floristic surveys were recorded. These surveys resulted in documentation of 47 species of native and non-native plants within the BSA, a list of which is provided in Table 5. Species scientific and common names correspond to those described in the second edition of *The Jepson Manual* (Baldwin et al., 2012).

Table 5 Plant Species Observed within the BSA

Scientific Name	Common Name
Aizoaceae	
Mesembryanthemum nodiflorum	slender-leaved iceplant
Arecaceae	
Washingtonia robusta	Mexican fan palm
Asteraceae	
Baccharis salicifolia	mule fat
*Centaurea melitensis**	Tocalote
Ericameria ericoides	California goldenbush
Gutierrezia californica	California matchweed
Isocoma acradenia	alkali goldenbush
Laennecia coulteri	Coulter's horseweed
Lasthenia californica	California goldfields
Lasthenia sp.	Goldfields
Logfia filaginoides	California cottonrose
Malacothrix coulteri	snake's head
*Senecio vulgaris**	common groundsel
Stephanomeria pauciflora	wire-lettuce
Bolbitiaceae	
Conocybe tenera	common conecap
Boraginaceae	
Amsinckia menziesii	small-flowered fiddleneck
Amsinckia tessellata	fiddleneck
Cryptantha sp.	cryptantha
Pectocarya penicillate	northern pectocarya
Phacelia ciliata	Great Valley phacelia
Phacelia tanacetifolia	tansy leafed phacelia
Plagiobothrys canescens	valley popcornflower
Brassicaceae	
Lepidium nitidum	shining peppergrass
*Sisymbrium irio**	London rocket
Tropidocarpum gracile	dobie pod
Bryaceae	
Bryum argenteum	silvery bryum
Candelariaceae	
Candelaria concolor	candleflame lichen
Chenopodiaceae	
Atriplex lentiformis	big saltbush
Atriplex polycarpa	allscale saltbush
*Salsola tragus**	Russian thistle
Cleomaceae	
Cleomella arborea	bladderpod
Crassulaceae	
Crassula connata	pygmy-weed
Euphorbiaceae	

Scientific Name	Common Name
Croton setiger	doveweed
Fabaceae	
Acmispon wrangeleanus	Chilean trefoil
Astragalus lentiginosus	freckled milk vetch
Medicago polymorpha	California burclover
Geraniaceae	
*Erodium cicutarium**	redstem filaree
Lamiaceae	
*Marrubium vulgare**	white horehound
Parmeliaceae	
Flavoparmelia sp.	greenshield lichen
Poaceae	
Bromus madritensis ssp. *rubens**	red brome
Polygonaceae	
Eriogonum fasciculatum	California buckwheat
Eriogonum sp.	unknown *Eriogonum*
Eriogonum pusillum	yellow turbans
Pottiaceae	
Aloina bifrons	N/A
Syntrichia ruralis	twisted moss
Solanaceae	
Nicotiana glauca	tree tobacco
Teloschistaceae	
Xanthoria sp.	sunburst lichen

Notes:
*Denotes non-native species

5.3 Common Wildlife

5.3.1 Invertebrates

Conditions in the BSA provide a suite of microhabitat variations for a wide variety of terrestrial insects and other invertebrates. As in all ecological systems, invertebrates in the BSA play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of birds, reptiles, and mammals; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients.

Three focused surveys for CBB were conducted within the BSA by biologist Donna Noce, on May 7–9, May 19–21, and June 17–19, 2025. No CBB were observed during the focused surveys (Noce, 2025). Species observed within the BSA during the focused surveys include American honeybees (*Apis mellifera*), tarantula hawk (*Pepsis* sp.), hoverflies (*Syrphidae*), and longhorn bee (*Apidae*). Other invertebrate species observed within the BSA included various darkling beetles (*Eleodes* sp.*)* and American honeybees (*Apis mellifera),* among other common insects and invertebrates including ants and grasshoppers.

5.3.2 Fish

Although ephemeral drainages within the BSA are capable of conveying seasonal flows during rain events, no water was present within the BSA at the time of the 2025 survey effort. Furthermore, there are no known species of fish that occur within the BSA.

5.3.3 Amphibians

Amphibians typically require a source of standing or flowing water for an extended period (2 to 3 months) to complete their life cycle. However, some terrestrial amphibian species can survive in drier areas by remaining in moist environments or by burrowing into the soil. Downed logs, bark, and other woody material in various stages of decay (often referred to as coarse woody debris), resources that are largely absent from the BSA, can provide shelter and feeding sites for a variety of wildlife, including amphibians. These species are highly cryptic and often difficult to detect. Amphibians require aquatic habitat for all or part of their life cycle, which may only be present within the BSA for a short period of time during and immediately after substantial rain events. Therefore, amphibians are not expected to occur within the BSA.

5.3.4 Reptiles

The number and type of reptile species that may occur at a given site is related to a number of biotic and abiotic features. These include the diversity of plant communities, substrate, soil type, climate, and presence of refugia such as rock piles, boulders, and native debris. Optimal weather conditions for reptile surveys are clear with temperatures between 77 and 95 degrees Fahrenheit.

Many reptile species, even if present, are difficult to detect because they are cryptic and their life history characteristics (e.g., foraging, thermoregulatory behavior, fossorial nature, camouflage) limit their ability to be observed during most surveys. Furthermore, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most species take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators. In some cases, they are only observed when flushed from their refugia. The BSA is within range of BNLL; however, the risk for impacts to BNLL is low within the existing on-site disturbances due to minimal suitable habitat within the Project footprint. Species observed onsite include the common side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*). Dr. Pappenfus concluded that suitable habitat conditions for TLL were not present within the Project area. Some suitable TLL habitat may be present within the BSA buffer areas but is not likely to be directly affected by the Project (Pappenfus, 2025).

5.3.5 Birds

Birds were identified by sight and sound and were frequently observed throughout the BSA. It is likely that many bird species use the BSA at different periods, either as wintering habitat, for seasonal breeding, or as occasional migrants. Common species observed include mourning dove (*Zenaida macroura*) and

common raven (*Corvus corax*). Many other common and protected species are known to occur in the vicinity of the BSA. A full account of wildlife species observed within the BSA is provided in Table 6.

5.3.6 Mammals

Generally, the distribution of mammals on a given site is associated with the presence of factors such as access to perennial water, topographical and structural components (e.g., rock piles, vegetation) that provide cover and support a prey base, and the presence of suitable soils for fossorial (burrowing) mammals (e.g., sandy areas). San Joaquin antelope squirrel (*Ammospermophilus nelson*) and desert cottontail rabbit (*Sylvilagus audubonii*) were among several species observed within the BSA. Additionally, domestic sheep were observed grazing within the southeastern portion of the survey area. A full account of species observed is presented in Table 6.

Table 6 Wildlife Species Observed within the BSA

Scientific Name	Common Name	Class
Ammospermophilus nelsoni	San Joaquin antelope squirrel	Mammal
Apis mellifera	Western honeybee	Invertebrate
Artemisiospiza belli	Bell's sparrow	Bird
Buteo jamaicensis	red-tailed hawk	Bird
Calliopepla californica	California quail	Bird
Calypte anna	Anna's hummingbird	Bird
Canis latrans	coyote	Mammal
Charadrius vociferus	killdeer	Bird
Chondestes grammacus	lark sparrow	Bird
Corvus corax	common raven	Bird
Colaptes auratus	northern flicker	Bird
Columba livia	rock pigeon	Bird
Eleodes sp.	desert stink beetle	Invertebrate
Falco sparverius	American kestrel	Bird
Formica sp.	wood ants, mound ants, and field ants	Invertebrate
Geococcyx californianus	greater roadrunner	Bird
Geophilidae family	soil centipedes	Invertebrate
Haemorhous mexicanus	house finch	Bird
Lanius ludovicianus	loggerhead shrike	Bird
Lepus californicus	black-tailed jackrabbit	Mammal
Mimus polyglottos	northern mockingbird	Bird
Pepsini tribe	tarantula hawk wasps and allies	Invertebrate
Salpinctes obsoletus	rock wren	Bird
Sceloporus occidentalis	western fence lizard	Reptile
Sayornis saya	Say's phoebe	Bird
Sturnella neglecta	Western meadowlark	Bird
Sturnus vulgaris	European starling	Bird
Sylvilagus audubonii	desert cottontail	Mammal
Toxostoma redivivum	California thrasher	Bird
Tylobolus uncigerus	black round millipede	Invertebrate

Scientific Name	Common Name	Class
Uta stansburiana	side-blotched lizard	Reptile
Veromessor pergandei	black harvester ant	Invertebrate
Zenaida macroura	mourning dove	Bird
Zonotrichia leucophrys	white-crowned sparrow	Bird

5.4 Jurisdictional Waters/Wetlands

5.4.1 Potential Jurisdictional Features

The USACE Regulatory Program regulates activities pursuant to Section 404 of the CWA; the CDFW regulates activities under California Fish and Game Code Sections 1600-1607; and the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Prior to the field delineation, the National Wetland Inventory Mapper (USFWS, 2025b) and USGS National Hydrography Dataset (USGS, 2025) were used to determine if there were any previously mapped waters within the BSA. A modified protocol field delineation was conducted on February 11, 19, and 20, 2025; May 8, 2025; and June 24, 2025. The field delineation identified two ephemeral drainages within the BSA. Both ephemeral streams are located within the survey buffer of temporary staging areas northwest of Taft Highway and do not overlap the Project site. Further survey details are provided in Appendix C: CalCapture CCS Project Aquatic Resources Delineation Report.

5.4.2 Preliminary Jurisdictional Determination

Table 7 quantifies the aquatic features (in acres, square feet, and linear feet) delineated during the aquatic resource surveys, their characteristics, and their potential jurisdiction for each agency based on Stantec's understanding of current regulatory guidance. The ephemeral drainages (Aquatic Resource 1 and Aquatic Resource 2) were both identified as potentially under the jurisdiction of the RWQCB and CDFW due to clear evidence of a bed and banks. Although Aquatic Resource 1 and Aquatic Resource 2 intersect the field delineation study area, which includes the Project footprint and a 50-foot buffer, they do not directly overlap the Project site. The Project has been designed to avoid all jurisdictional aquatic features and impacts to potentially jurisdictional aquatic features are not expected.

Table 7 Aquatic Resources and Potential Jurisdiction within the BSA

Potential Jurisdictional Waters[1]	Acres*	Square Feet*	Linear Feet*
Potential RWQCB Jurisdiction			
Aquatic Resource 1	0.25	10,792.88	406.77
Aquatic Resource 2	0.36	15,819.36	823.50
Total	**0.61**	**26,612.24**	**1,230.27**
Potential CDFW Jurisdiction			
Aquatic Resource 1	0.28	12,139.41	406.77
Aquatic Resource 2	0.58	25,278.51	823.50
Total	**0.86**	**37,417.92**	**1,230.27**

*Numbers are rounded up to the nearest 100th.
[1] Areas of potential jurisdiction are subject to final verification and approval by the regulatory agencies (i.e., USACE, RWQCB, and CDFW).
[2] No potential federal Waters of the U.S. were delineated with the BSA due to lack of an ordinary high-water mark (OHWM) and/or no evident connectivity to any other federal Waters of the U.S. recognized as a traditional navigable water.

5.5 Soils

Prior to conducting the field reconnaissance, historic soils data from the Natural Resources Conservation Service (NRCS) was used to determine potential soil types that may occur within the BSA, including where hydric soils may have historically occurred (refer to Figure 6 [Appendix A]). Characteristics of soils present on the Project site are summarized in Table 8.

Table 8 Historic Soils Occurring within the BSA

Map Unit Symbol	Map Unit Name	Description	Hydric	Acreage in BSA
146	Elkhills sandy loam, 9 to 50 percent slopes, eroded	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks.	No	36.46
150	Elkhills-Torriorthents stratified complex, 9 to 15 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	133.11
151	Elkhills-Torriorthents stratified, eroded complex, 15 to 50 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	60.28

Map Unit Symbol	Map Unit Name	Description	Hydric	Acreage in BSA
176	Kimberlina sandy loam, 5 to 9 percent slopes	The Kimberlina series consists of very deep, well drained soils on flood plains and recent alluvial fans. These soils formed in mixed alluvium derived dominantly from igneous and/or sedimentary rock sources.	No	100.14
217	Kimberlina-Urban land complex, 0 to 5 percent slopes	The Kimberlina series consists of very deep, well drained soils on flood plains and recent alluvial fans. These soils formed in mixed alluvium derived dominantly from igneous and/or sedimentary rock sources.	No	32.83
445	Sodic Haplocambids, thick-Elkhills complex, 30 to 50 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	2.99
729	Sodic Haplocambids, thick-Torriorthents, thin-Torriorthents, very thin, eroded, complex, 30 to 60 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	27.64
733	Sodic Haplocambids, thick-torriorthents, thin, complex, 15 to 30 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	45.69
735	Sodic haplocambids, thick-Elkhills-Torriorthents, thin, complex, 30 to 60 percent slopes	The Elkhills series consists of deep, well drained soils formed in mixed stratified alluvium from sedimentary and granitic rocks. Taxonomic class is coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents	No	26.98
		Total		**466.11**

Source: NRCS, 2025a

6 Special-Status Biological Resources

The background information presented above, combined with field observations taken during the survey, was used to generate a list of special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur within the BSA and/or adjacent habitats. For the purposes of this report, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either ESA or CESA;
- Are candidate species being considered or proposed for listing under ESA or CESA;
- Are recognized as SSCs by the CDFW;
- Are ranked as CRPR 1, 2, 3 or 4 plant species;
- Are Fully Protected by California Fish and Game Code, Sections 3511, 4700, 5050, or 5515; or
- Are of expressed concern to resource/regulatory agencies or local jurisdictions.

6.1 Special-Status Natural Communities

Special-status natural communities are defined by CDFW (2025f) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank; however, only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA. Allscale Scrub/Shrubland is located sporadically throughout the BSA; this habitat type is utilized by a variety of special-status species, but it only has a state rarity rank of S4 and is not considered sensitive (CDFW, 2025g).

6.2 Designated Critical Habitat

Literature review determined that no critical habitat occurs within the BSA (USFWS, 2025c). The nearest designated critical habitat units include: 1) a critical habitat unit for Buena Vista Lake ornate shrew (*Sorex ornatus relictus*) located approximately 6.5 miles northeast of the BSA; 2) a critical habitat unit for Buena Vista Lake ornate shrew located approximately 17.0 miles north; and 3) a critical habitat unit for vernal pool fairy shrimp (*Branchinecta lynchi*) located approximately 23.5 miles west of the BSA.

6.3 Special-Status Plants

Table 9 presents a list of special-status plants, including federally and state-listed species and CRPR 1-4 species that are known to occur in the region surrounding the BSA (within 10 miles). A records search of the CNDDB, the CNPS Online Inventory, the Consortium of California Herbaria (CCH), and the USFWS IPaC was performed for special-status plant taxa with potential to occur within the BSA; CNDDB occurrences for special-status plants within a 10-mile and 2-mile radius of the BSA are displayed in Figure 4 and Figure 4-1 (Appendix A).

These surveys effectively followed the CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018) and USFWS *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS, 2000). No special-status plant species were observed during the February, March, and May 2025 survey events. Additional early, mid-, and late season surveys will be conducted in 2026 within the laydown and staging areas that were not able to be surveyed in 2025 due to Project description revisions and component additions. The rare plant survey buffer is shown in Figure 7 (Appendix A). Each of the taxa identified in the record searches was assessed for their potential to occur within the BSA based on the following criteria:

- **Present**: Taxa were observed within the BSA during recent botanical surveys or population has been acknowledged by CDFW, USFWS, or local experts.
- **High**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Moderate**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the BSA; the BSA is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Low**: A historical record (over 10 years) exists of the taxa within the BSA or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the BSA.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 9 Known and Potential Occurrences of Special-Status Plant Taxa within the BSA

Species	Status	Habitat and Distribution	Blooming Period*	Potential to Occur
Astragalus hornii var. *hornii* Horn's milk-vetch	**1B.1**	Found in meadows, seeps and playas on lake margins in alkaline soils between 195 and 2,790 feet (60–850 meters) in elevation.	May-Oct	**Not Likely to Occur:** The nearest occurrence is approximately 4.64 miles southwest of the BSA from 1988; however, the most recent occurrence is approximately 8.74 miles northeast of the BSA from 1998. Suitable habitat for this species does not exist within the BSA. Not observed during 2025 rare plant protocol surveys.
Atriplex cordulata var. *cordulata* heartscale	**1B.2**	Found in chenopod scrub, meadows and seeps, and valley and foothill grasslands in sandy, saline or alkaline soils below 1,835 feet (560 meters) in elevation.	Apr-Oct	**Moderate:** The nearest and most recent occurrence is approximately 6.48 miles southeast of the BSA from 2003; Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Atriplex coronata var. *vallicola* Lost Hills crownscale	**1B.2**	Found in chenopod scrub, valley and foothill grasslands, and vernal pools in alkaline soils between 160 and 2,085 feet (50–635 meters) in elevation.	Apr-Sep	**High:** The nearest recorded occurrence is approximately 1.78 miles east-southeast of the BSA from 2000, and the most recent occurrence is 5.56 miles west-southwest of the BSA from 2011. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Atriplex subtilis subtle oranche	**1B.2**	Found in chenopod scrub, valley and foothill grassland, in alkaline soils between 131 feet and 328 feet (40–100 meters) in elevation.	Apr-Oct	**Low:** The nearest and most recent occurrence is currently 9.24 miles north-northeast from 1999. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Caulanthus californicus California jewelflower	**FE, SE, 1B.1**	Found in chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands in sandy soils between 200 and 3,280 feet (61–1,000 meters) in elevation.	Feb-May	**Low:** The nearest and most recent recorded occurrence is approximately 4.93 miles east-southeast of the BSA from before 1986. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Cirsium crassicaule slough thistle	**1B.1**	Found in chenopod scrub, marshes and swamps, and riparian scrub between 10 and 330 feet (3–100 meters) in elevation.	May-Aug	**Not Likely to Occur:** The nearest and most recent recorded occurrence is approximately 5.50 miles east-northeast of the BSA from 1990. Elevation of the BSA is above the known elevational range for the species. Not observed during 2025 rare plant protocol surveys.
Delphinium recurvatum recurved larkspur	**1B.2**	Found in chenopod scrub, cismontane woodland, and valley and foothill grasslands in alkaline soils between 5 and 2,590 feet (3–750 meters) in elevation.	Mar-Jun	**Moderate:** The nearest recorded occurrence is approximately 2.17 miles northeast of the BSA from 1995; however, the most recent occurrence is approximately 6.10 miles west-northwest of the BSA from 2011. Suitable habitat for this species does exist within the BSA. Not observed during 2025 rare plant protocol surveys.

Species	Status	Habitat and Distribution	Blooming Period*	Potential to Occur
Eremalche parryi ssp. *kernensis* Kern mallow	**FE, 1B.2**	Found in in chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands in dry, open sandy to clay soils between 225 and 4,230 feet (70–1,290 meters) in elevation.	(Jan, Feb) Mar-May	**High:** The nearest and most recent recorded occurrence is approximately 3.01 miles east of the BSA from 2020. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Eriastrum hooveri Hoover's eriastrum	**4.2**	Found in chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands, sometimes in gravelly soils between 160 and 3,000 feet (50–915 meters) in elevation.	(Feb) Mar-Jul	**Moderate:** The nearest recorded occurrence is approximately 3.63 miles north-northwest of the BSA (year unknown); however, the most recent occurrence is approximately 8.64 miles north-northeast of the BSA from 1986. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Eriogonum temblorense Temblor buckwheat	**1B.2**	Found in valley and foothill grasslands in clay or sandstone soils between 990 and 3,280 feet (300–1,000 meters) in elevation.	(Apr) May-Sep	**Not Likely to Occur:** The nearest and most recent recorded occurrence is approximately 5.5 miles northwest of the BSA from 2011. Suitable habitat/soil for this species does not exist within the BSA. Not observed during 2025 rare plant protocol surveys.
Eschscholzia lemmonii ssp. *kernensis* Tejon poppy	**1B.1**	Found in chenopod scrub, and valley and foothill grasslands between 520 and 3,280 feet (160–1,000 meters) in elevation.	(Feb) Mar-May	**High:** The nearest occurrence 0.96 miles southeast of the BSA from 1998; however, the most recent occurrence is approximately 8.01 miles south-southwest of the BSA from 2016. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Lasthenia chrysantha alkali-sink goldfields	**1B.1**	Found in vernal pools in alkaline soils between 0 and 655 feet (0–200 meters) in elevation.	Feb-Apr	**Not Likely to Occur:** The nearest recorded occurrence is approximately 5.44 miles east-northeast of the BSA (year unknown but likely around 1985). Elevation of the BSA is above the known elevational range for the species and suitable habitat does not exist within the BSA. Not observed during 2025 rare plant protocol surveys.
Layia heterotricha pale-yellow layia	**1B.1**	Found in cismontane woodland, coastal scrub, pinyon and juniper woodlands, and valley and foothill grasslands in alkaline or clay soils between 980 and 5,595 feet (300–1,705 meters) in elevation.	Mar-Jun	**Low:** The nearest and most recent recorded occurrence is approximately 8.27 miles west of the BSA from a 1905 collection. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.
Madia radiata showy golden madia	**1B.1**	Found in cismontane woodland and valley and foothill grasslands between 80 and 3985 feet (25–1,215 meters) in elevation.	Mar-May	**Low:** The nearest and most recent recorded occurrence is approximately 9.95 miles north-northwest of the BSA in 1988. Suitable habitat for this species exists within the BSA.. Not observed during 2025 rare plant protocol surveys.

Species	Status	Habitat and Distribution	Blooming Period*	Potential to Occur
Monolopia congdonii San Joaquin woollythreads	**FE, 1B.2**	Found in chenopod scrub, and valley and foothill grasslands, in sandy soils between 195 and 2,625 feet (60–800 meters) in elevation.	Feb-May	**Low:** The nearest and most recent recorded occurrence is approximately 3.85 miles southwest of the BSA from 1988. Suitable habitat for this species exists within the BSA. Not observed in the BSA during February and March focused rare plant surveys. Not observed during 2025 rare plant protocol surveys.
Puccinellia simplex California alkali grass	**1B.2**	Found in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools in sinks, alkaline soils, flats, lake margins, and mesic vernal pools between 5 and 3,050 feet (2–930 meters) in elevation.	Mar-May	**Not Likely to Occur:** The nearest recorded occurrence is approximately 7.72 miles west of the BSA from 1937; the most recent occurrence is approximately 8.36 miles north-northwest of the BSA from 1983. Suitable habitat for this species is marginal within the BSA. Not observed during 2025 rare plant protocol surveys.
Stylocline citroleum oil neststraw	**1B.1**	Found in chenopod scrub, coastal scrub, and valley and foothill grasslands in clay soils between 160 and 1,310 feet (50–400 meters) in elevation.	Mar-Apr	**High:** The nearest occurrence is approximately 0.10 miles north-northeast of the BSA from 1988; however, the most recent occurrence is approximately 2.89 miles east of the BSA from 2013. Suitable habitat for this species exists within the BSA. Not observed during 2025 rare plant protocol surveys.

Notes:
* Months appearing in parenthesis indicate an additional but uncommon blooming period for that specific species.
Key:

Federal Rankings
FE = Federally Endangered
FT = Federally Threatened

State Rankings
SE = State Endangered
SR = State Rare

California Rare Plant Rank (CRPR)
1B = Plants rare, threatened, or endangered in California and elsewhere.
2B = Plants presumed extinct in California but more common elsewhere.
4 = Plants of limited distribution – a watch list

Sources: CCH, 2025; CDFW, 2025a; CNPS, 2025; USFWS, 2025a

6.4 Special-Status Wildlife

Special-status taxa include those listed as threatened or endangered under the ESA or CESA, taxa proposed for such listing, SSCs, and other taxa that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare and which have the potential to occur within the BSA.

The CNDDB was queried for occurrences of special-status wildlife taxa within a 10-mile radius around the BSA; CNDDB occurrences for special-status wildlife within a 10-mile and 2-mile radius of the BSA are included in Figures 4-1, 4-2, and 4-3 (Appendix A). The specific habitat requirements and the locations of known records of occurrence of each special-status wildlife species were the principal criteria used for inclusion in the list of taxa potentially occurring within the BSA. In addition, observations during reconnaissance surveys identified individuals or sign of special-status wildlife species including 47 potential San Joaquin kit fox (*Vulpes macrotis mutica*) (SJKF) dens, 1 San Joaquin antelope squirrel *(Ammospermophilus nelsoni*) (SJAS), and 3 loggerhead shrike (*Lanius ludovicianus*) observations. Small mammal burrows with evidence of kangaroo rat (*Dipodomys* spp.) activity were observed and American badger (*Taxidea taxus*) sign was observed in two potential dens. Low density small mammal burrows were observed in the BSA, and burrow size and characteristics were not typical of giant kangaroo rat (*Dipodomys ingens;* GKR); no giant kangaroo rats were observed in the BSA. Special-status species observed in the BSA are shown in Figure 7 (Appendix A). Table 10 summarizes the special-status wildlife taxa known to occur (within 10 miles), and their potential for occurrence in the BSA. Each of the taxa identified in the database reviews/searches were assessed for its potential to occur within the BSA based on the following criteria:

Present: Taxa (or sign) were observed in the BSA or in the same watershed (aquatic taxa only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.

High: Habitat (including soils) for the taxa occurs on site and a known occurrence occurs within the BSA or adjacent areas (within 10 miles of the BSA) within the past 20 years; however, these taxa were not detected during the most recent surveys.

Moderate: Habitat (including soils) for the taxa occurs on site and a known regional record occurs within the database search, but not within 10 miles of the BSA or within the past 20 years; or a known occurrence occurs within 10 miles of the BSA and within the past 20 years and marginal or limited amounts of habitat occurs on site; or the taxa's range includes the geographic area and suitable habitat exists.

Low: Limited habitat for the taxa occurs on site and no known occurrences were found within the database search and the taxa's range includes the geographic area.

Not Likely to Occur: The environmental conditions associated with taxa presence do not occur within the BSA.

Table 10 Known and Potential Occurrences of Special-Status Wildlife within the BSA

Species	Status	Habitat Requirements	Potential to Occur
AMPHIBIANS			
Spea hammondii western spadefoot	**FPT, SSC**	Occurs in Central valley grasslands and adjacent foothills, although some populations can be found in pine-oak woodlands of the valley foothills. Require shallow, temporary pools or streams during the breeding season. Resides in burrows most of the year.	**Low:** The nearest recorded occurrence was documented in 2009 and is approximately 5.10 miles east-northeast of the BSA. The most recent occurrence is approximately 8.99 miles north-northeast of the BSA. Suitable upland habitat for this species is present in the BSA but there is no suitable breeding habitat. Not observed during reconnaissance surveys.
BIRDS			
Agelaius tricolor tricolored blackbird	**ST, SSC, BCC**	Occurs throughout the San Joaquin Valley. Utilizes irrigated crops for foraging and typically nests in marshes and wetlands with cattails, bulrushes, and willows, as well as in triticale fields.	**Not Likely to Occur (Nesting) / Low (Transient):** The nearest recorded occurrence is approximately 5.56 miles east of the BSA in 1937; the most recent occurrence was recorded approximately 9.15 miles east in 2011. This species could potentially forage in the BSA; no suitable nesting habitat. Not observed during reconnaissance surveys.
Athene cunicularia burrowing owl	**SSC, BCC**	Occurs in dry open grasslands, prairies, and low foothills. Highly tolerant of human activity and development including road shoulders, drainage sumps and under portable buildings.	**High (Nesting / Transient):** The nearest recorded occurrence is approximately 2.65 miles east-southeast of the BSA in 2000; the most recent occurrence was documented approximately 6.13 miles east-northeast in 2008. Suitable nesting and foraging habitat for this species is present in the BSA. Not observed during reconnaissance surveys.
Buteo swainsoni Swainson's hawk	**ST**	Occurs in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Not Likely to Occur (Nesting) / Moderate (Transient):** The nearest recorded occurrence was documented approximately 6.48 miles east-northeast of the BSA in 2016; the most recent record was documented approximately 8.61 miles east-northeast of the BSA in 2019. While this species could potentially forage in the BSA, there are limited potential nesting trees within a 0.5-mile radius of the BSA.
Charadrius montanus mountain plover	**SSC, BCC**	Occurs in grasslands, cultivated fields, and foothill valleys.	**Moderate (Nesting / Transient):** The nearest recorded occurrence was from 1990 and is approximately 6.30 miles east-northeast of the BSA. Suitable nesting and foraging habitat for this species is present in the BSA. Not observed during reconnaissance surveys.

Species	Status	Habitat Requirements	Potential to Occur
Charadrius nivosus nivosus western snowy plover	**FT, SSC**	Occurs year round in the San Joaquin Valley, where they breed on barren, sparsely vegetated flats and along shores of alkaline and saline lakes, agricultural wastewater ponds, and salt evaporation ponds.	**Not Likely to Occur (Nesting) / Low (Transient):** The nearest and most recent recorded occurrence is from 1912 and located 7.29 miles east-southeast of the BSA. This recorded occurrence was noted as extirpated in 1978. There is a low likelihood the species could occur as a transient forager, but no nesting habitat is present. Not observed during reconnaissance surveys.
Coccyzus americanus occidentalis western yellow-billed cuckoo	**FT, SE**	Riparian forest nester occurring along broad, lower flood-bottoms of larger river systems. Nests in riparian forests of willow, often mixed with cottonwoods, with well-developed understories of blackberry, nettles, or wild grape.	**Not Likely to Occur (Nesting / Transient):** The nearest and most recent recorded occurrence is 7.29 miles east-southeast of the BSA from 1922. This recorded occurrence is noted as extirpated. The BSA does not contain suitable habitat for this species.
Dendrocygna bicolor fulvous whistling-duck	**SSC**	Prefers freshwater and coastal marshes or irrigated fields like rice fields and tall grasses and sedges. Occurs mainly as a summer resident and migrant from mid-April (formerly mid-March) to late August.	**Not Likely to Occur (Nesting / Transient):** The nearest and most recent recorded occurrence is 7.29 miles east-southeast of the BSA from 1922. The BSA does not contain suitable habitat for this species.
Falco mexicanus prairie falcon	**WL**	Occurs in grasslands, savannahs, rangelands, some agricultural fields, and desert scrub. The known range is from southeastern deserts through Central Valley along the inner Coast Ranges and Sierra Nevada.	**Not Likely to Occur (Nesting) / Moderate (Transient):** The nearest and most recent occurrence is approximately 0.87 miles west of the BSA and was documented in 1989. This species could potentially forage in the BSA but there is no suitable nesting habitat.
Lanius ludovicianus loggerhead shrike	**SSC**	Occurs in broken woodlands; savannahs; pinyon-juniper, Joshua tree, and riparian woodlands; desert oases; and scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Moderate (Nesting) / Present (Foraging/Transient):** The nearest and most recent recorded occurrence is approximately 7.01 miles west of the BSA and was documented in 1999. Suitable nesting and foraging habitat for this species is present in the BSA. This species was observed in the BSA during reconnaissance-level surveys.
Toxostoma lecontei Le Conte's thrasher	**SSC**	Occurs in dry, sparsely vegetated deserts, grasslands, and foothills. Populations in California are known to occur in Fresno, Kern, and Kings counties.	**Moderate (Nesting / Transient):** The nearest recorded occurrence is approximately 5.84 miles east-northeast of the BSA. The most recent occurrence is approximately 6.47 miles east-southeast of the BSA in 2016**.** Suitable nesting and foraging habitat for this species is present in the BSA. Not observed during reconnaissance surveys.

Species	Status	Habitat Requirements	Potential to Occur
Vireo bellii pusillus least Bell's vireo	**FE, SE**	Summer resident of southern California in low riparian areas in the vicinity of water or in dry river bottoms. Usually occurs below 2,000 feet in elevation. This species often inhabits structurally diverse woodlands along watercourses including cottonwood-willow and oak woodlands and mulefat scrub. Nests are placed along margins of bushes, generally willows, mulefat, or mesquite.	**Not Likely to Occur (Nesting / Transient):** The nearest and most recent recorded occurrence is approximately 8.53 miles east-southeast of the BSA, documented in 1907. This recorded occurrence is noted as possibly extirpated. Nesting and foraging habitat for this species is not present in the BSA. Not observed during reconnaissance surveys.
Xanthocephalus xanthocephalus yellow-headed blackbird	**SSC**	Present throughout the United States Midwest region, the Central Valley of California, central Canada, and Mexico. This species breeds in wetlands within prairies, mountain meadows, quaking aspen parklands, and shallow areas of marshes, ponds, and rivers. They generally nest in cattails, bulrushes, or reeds, often alongside red-winged blackbirds. They forage in surrounding grasslands, croplands, or savannahs. A year-round population exists along the southwestern edge of Central Valley.	**Not Likely to Occur (Nesting / Transient):** The nearest and most recent recorded occurrence is approximately 7.29 miles east-southeast of the BSA in 1923. Limited habitat for this species occurs within the BSA. Not observed during reconnaissance surveys.
INVERTEBRATES			
Bombus crotchii Crotch's bumble bee	**SCE**	Occurs from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	**Low:** Suitable foraging and nesting habitat are present; potential food plants, *Phacelia and Eriogonum,* occur within the BSA. The nearest recorded occurrence is potentially within the BSA from 1957; however, the most recent occurrence is approximately 9.16 miles west of the BSA from 1996. Not observed during focused surveys conducted in 2025 (Noce, 2025).
MAMMALS			
Ammospermophilus nelsoni San Joaquin antelope squirrel	**ST**	Occurs in open grasslands but prefers areas that are lightly vegetated. Found in saltbush scrub lands mainly in the San Joaquin Valley.	**Present:** San Joaquin antelope squirrel individuals have been recorded within the BSA; however, the occurrence was from 1993. The most recent occurrence was located approximately 4.21 miles west-northwest of the BSA in 2018. Suitable habitat for this species is present in the BSA and this species was observed in the BSA during reconnaissance surveys.

Species	Status	Habitat Requirements	Potential to Occur
Dipodomys ingens giant kangaroo rat	**FE, SE**	Inhabits annual grasslands on the western side of the San Joaquin Valley, with marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	**Low to Moderate:** The nearest occurrence is approximately 0.16 miles northeast of the BSA from 1987. The most recent occurrence record was located approximately 9.54 miles south-southwest of the BSA in 2005. Suitable habitat for this species is present in the BSA. Not observed during reconnaissance surveys and no other sign was observed.
Dipodomys nitratoides brevinasus short-nosed kangaroo rat	**SSC**	Occurs in lightly vegetated grasslands in the Central San Joaquin Valley of California, primarily in areas with sandy soils conducive to burrowing. Found exclusively west of the California Aqueduct.	**Low to Moderate:** Individuals have been recorded within the BSA; however, the occurrence was from 1990. The most recent occurrence record was located approximately 6.44 miles east-southeast of the BSA in 2016. Suitable habitat for this species is present in the BSA. Not observed during reconnaissance surveys.
Dipodomys nitratoides nitratoides Tipton kangaroo rat	**FE, SE**	Occurs in lightly vegetated grasslands in the Central San Joaquin Valley of California, primarily in areas with sandy soils conducive to burrowing. Found exclusively east of the California Aqueduct.	**Not Likely to Occur:** The nearest occurrence record is approximately 3.28 miles east-northeast of the BSA in 1988. The most recent occurrence record was located approximately 7.30 miles north-northwest of the BSA in 2011. The BSA is outside the known range of the species, which occurs east of the California Aqueduct. Not observed during reconnaissance surveys.
Eumops perotis californicus western mastiff bat	**SSC**	Occurs in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**Low:** The nearest and most recent recorded occurrence is approximately 6.28 miles west-southwest of the BSA; however, this occurrence was recorded over 60 years ago in 1959. Marginal roosting habitat (buildings, other structures) for this species is present in the BSA. Not observed during reconnaissance surveys.
Onychomys torridus tularensis Tulare grasshopper mouse	**SSC**	Occurs in grasslands in the Central San Joaquin Valley of California, primarily in areas with sandy soils conducive to burrowing.	**Low to Moderate:** Individuals have been recorded within the BSA; however, the occurrence was from 1995. The most recent occurrence record was located approximately 8.78 miles south-southeast of the BSA in 2021. Suitable habitat for this species is present in the BSA. Not observed during reconnaissance surveys.
Sorex ornatus relictus Buena Vista Lake ornate shrew	**FE, SSC**	Occurs in marshlands and riparian areas in the Tulare Basin. Prefers moist soil. Uses stumps, logs, and litter for cover.	**Not Likely to Occur:** The nearest recorded occurrence is from 1909 and located approximately 6.71 miles north of the BSA. The most recent occurrence is approximately 7.45 miles east-southeast of the BSA in 1999. Suitable habitat does not occur within the BSA. Not observed during reconnaissance surveys.

Species	Status	Habitat Requirements	Potential to Occur
Taxidea taxus American badger	**SSC**	Uncommon, permanent resident found throughout most of California, except in the northern North Coast area. Most abundant in drier open stages of most shrub, forest and herbaceous habitats, with friable soils.	**Moderate:** The nearest recorded occurrence is approximately 6.34 miles north-northwest of the BSA in 1999; the most recent known occurrence was approximately 8.13 miles east of the BSA in 2016. No individuals were observed during reconnaissance surveys; however, potential sign was observed near burrow locations.
Vulpes macrotis mutica San Joaquin kit fox	**FE, ST**	Occurs in drier open stages of most shrub, forest, and herbaceous habitats. Needs a sufficient food supply, friable soils, and open, uncultivated ground. Highly tolerant of human activity and will opportunistically utilize man-made structures for cover and denning sites. Preys on burrowing rodents and discarded food-trash.	**High:** Individuals have been recorded within the BSA; however, the occurrence was from 1994. The most recent occurrence record was located approximately 4.51 miles northwest of the BSA in 2017. Suitable habitat for this species is present in the BSA. No individuals were observed during reconnaissance surveys, but the species is assumed to occur within the BSA and numerous potential denning sites were observed throughout the BSA and surrounding area.
REPTILES			
Actinemys (Emys) marmorata western pond turtle	**FPT, SSC**	Occurs near permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams west of the Sierra-Cascade crest, except along the Mojave River.	**Not likely to occur:** The nearest recorded occurrence is approximately 5.35 miles east-northeast of the BSA with no record date listed; the most recent known occurrence was approximately 6.31 miles east-northeast of the BSA in 1990. Suitable habitat for the species does not occur within the BSA. Not observed during reconnaissance surveys.
Anniella alexanderae Temblor legless lizard	**SCE, SSC**	Occurs in moist, warm, loose soils with plant cover; sparsely vegetated area of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Suitable habitat is indicated by leaf litter beneath trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather. Can often be found under surface objects such as rocks, boards, driftwood, and logs. Moisture is essential for this species.	**Low:** The nearest recorded occurrence is approximately 2.22 miles southwest of the BSA; however, no date was recorded. The most recent occurrence was approximately 6.09 miles southwest of the BSA in 2024. Suitable habitat for this species may be present within the associated buffer areas but was not found to be present within the Project disturbance areas. Not observed during reconnaissance surveys (Papenfuss, 2025).

Species	Status	Habitat Requirements	Potential to Occur
Anniella grinnelli Bakersfield legless lizard	**SSC**	Range is restricted to the southern San Joaquin Valley and east side of the Carrizo Plain, including within the city limits of Bakersfield. Occurs in moist, warm, loose soil with plant cover, sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. This species can often be found under surface objects such as rocks, boards, driftwood, and logs. Moisture is essential for this species.	**Not Likely to Occur:** The nearest and most recent recorded occurrence is approximately 8.93 miles east-northeast of the BSA documented in 2020. Suitable habitat for this species is not likely present in the BSA. Not observed during reconnaissance surveys.
Arizona elegans occidentalis California glossy snake	**SSC**	Occurs in scrub and grassland habitats, often with loose or sandy soils.	**Moderate:** The nearest recorded occurrence is approximately 5.56 miles east of the BSA in 1939; the most recent occurrence was approximately 7.88 miles west-northwest of the BSA in 2015. Suitable habitat is present within the BSA. Not observed during reconnaissance surveys.
Gambelia sila blunt-nosed leopard lizard	**FE, SE, FP**	Occurs mainly in the Carrizo Plain, Cuyama, Panoche and San Joaquin valleys. Typically inhabits grasslands, saltbush scrub, and alkali sink scrub. Uses animal burrows for shelter.	**Moderate:** The nearest recorded occurrence is approximately 1.98 miles south-southeast of the BSA in 1972; the most recent occurrence was approximately 4.32 miles north of the BSA in 2023. Suitable habitat for this species is present in the BSA. However, the habitat is fragmented and surrounded by disturbance associated with oil and gas production. Not observed during reconnaissance surveys.
Masticophis flagellum ruddocki San Joaquin coachwhip	**SSC**	Occurs in grasslands with an understory of saltbush scrub and alkali sink scrub in areas with an abundance of small mammal burrows.	**Moderate:** The nearest recorded occurrence is approximately 4.47 miles south of the BSA and was documented in 1997; the most recent occurrence was approximately 8.00 miles east of the BSA in 2017. Suitable habitat for this species is present in the BSA. Not observed during reconnaissance surveys.

Species	Status	Habitat Requirements	Potential to Occur
Thamnophis gigas giant gartersnake	**FT, ST**	A California endemic species. The historic range included Kern County north along the Central Valley to Butte County; however, the range has been reduced to areas in Glenn County to the southern edge of the San Francisco Bay Delta, and from Merced County to northern Fresno County. They generally reside below 400 feet in elevation and are found in marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks. They prefer vegetation close to the water for basking.	**Not Likely to Occur:** The nearest recorded occurrence is approximately 4.55 miles east-northeast of the BSA and was documented prior to 1986. The most recent occurrence was approximately 8.61 miles east-southeast of the BSA in 2006. Suitable habitat for this species is not present in the BSA. Not observed during reconnaissance surveys.

Key:
Federal Rankings:
FPT = Federally Proposed Threatened
FE = Federally Endangered
FT = Federally Threatened
FC= Federal Candidate for Listing
BCC = USFWS Bird of Conservation Concern

State Rankings:
FP = Fully Protected
SE= State Endangered
ST = State Threatened
WL = CDFW Watch List
SCE = State Candidate for Listing as Endangered
SSC = Species of Special Concern

Sources: CDFW, 2025a; USFWS, 2025a

6.5 Wildlife Corridors and Special Linkages

Wildlife corridors and linkages facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat.
- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.
- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll, 1997). Habitat linkages themselves may serve as source areas for food, water, and cover, particularly for small- and medium-size animals.
- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll, 1997).
- Wildlife crossings are small, narrow areas of limited extent that allow wildlife to bypass an obstacle or barrier. Crossings typically are manmade and include culverts, underpasses, drainage pipes, bridges, and tunnels to provide access past roads, highways, pipelines, or other physical obstacles. Wildlife crossings often represent choke points" along a movement corridor because useable habitat is physically constricted at the crossing by human-induced changes to the surrounding areas (Meffe and Carroll, 1997).

6.5.1 Wildlife Movement in the Project Site

Wildlife likely use both the natural and developed portions of the BSA on a regular basis during normal foraging, migration, nesting, and denning activities. The CDFW maintains GIS data for "Missing Linkages in California's Landscapes," "South Coast Missing Linkages," and "Essential Connectivity Areas" (i.e., wildlife corridors) derived from the California Essential Habitat Connectivity (CEHC) Project, which is the best available information on important areas needed for maintaining connectivity between large blocks of land for wildlife corridor purposes (CDFW, 2001, 2008, 2010). Essential Connectivity Areas are intended to be a broad scale representation of areas that provide essential connectivity.

The northwestern portion of the BSA falls within an Essential Connectivity Area but does not fall within any South Coast Missing Linkages (CDFW, 2008). Figure 8 (Appendix A) shows the Essential Connectivity Area and South Coast Missing Linkages. Due to the size and extent of existing disturbance within the BSA, it is unlikely that Project implementation will substantially impact wildlife movement through the area. Existing infrastructure is already present within the BSA, linear Project features have been designed to primarily follow existing linear features; therefore, will not substantially increase barriers to wildlife movement from existing conditions. Permanent facility construction will take place on previously disturbed habitat and is also not likely to result in additional barriers to movement as a result of Project activities.

7 Impact Assessment for Special-status Species and Sensitive Habitats

The CalCapture Facility and infrastructure are proposed within existing developed areas within and adjacent to the EHPP. The developed areas can accommodate most of the new facilities, pipelines, parking areas, and temporary construction offices. Access to the Project site will be through existing roads and staging areas will be in areas that are already disturbed. Pipelines will follow existing routes where possible. The remaining pipeline installations are located adjacent to existing access roads and no overland vehicle travel will be required at these locations. However, minor habitat disturbance is anticipated for expansion of developed areas to accommodate new facilities, infrastructure, and an emergency access road. The proposed emergency access road would be located within the existing disturbed footprint of the proposed Capture Facility site. Temporary disturbance is anticipated for the installation of underground pipelines, aboveground pipelines, and power lines. Limited foot or vehicle traffic will be required within suitable habitat to install pipelines on existing sleepers or to directly place the pipeline on the ground. Installation of powerlines and power poles will require limited overland travel through potentially suitable habitat as well as temporary and permanent impacts for placement of power poles. As the Project is expected to avoid all jurisdictional aquatic features, impacts to potentially jurisdictional aquatic features are not expected. As noted in Section 6.5.1, Wildlife Movement in the Project Site, due to the size and extent of existing disturbance within and surrounding the Project site, substantial impacts to wildlife movement through the area are not anticipated. Final assessment of potential impacts to special-status plant species will be provided in an addendum or revised BRTR upon completion of the early and mid-season May 2026 surveys for Project components added after the early and mid-season surveys in 2025 were conducted.

7.1 Direct Effects

Direct effects to special-status species may occur during Project activities. Temporary overland travel required for pipeline and powerline installation may result in minor construction traffic through suitable habitat (overgrown access roads or previously cleared pipeline right of way). These effects would be temporary and limited to direct impacts associated with vehicle tires, etc. Ground disturbing activities would be limited to the construction timeframe, and thus temporary in nature. Access to the various Project components would occur within existing roadways, though the majority of the BSA is only accessible through gates monitored by CRC personnel.

Construction activities associated with any temporary overland travel or powerline installations would most likely be adverse to ground dwelling plants and animals or fossorial animals (i.e., animals that live in nests, dens, burrows, or substrate below ground). Impacts associated with overland travel would be temporary in nature and may include direct clearing of vegetation. If determined to be present, animals such as foraging and nesting birds, CBB, reptiles, small mammals such as kangaroo rats and SJAS, BUOW, SJKF, and American badger have the potential to be injured or killed while above ground or while occupying dens/burrows from heavy equipment used during construction activities. Direct impacts could include crushing of individuals and crushing or collapse of burrows by construction vehicles and during construction

work. Such animals could also fall into excavated areas and become trapped, which could result in mortality or injury. Additionally, if left unimpeded, individuals that could move through the work areas and across access roads could be at risk of injury or mortality from foot and vehicle traffic. Direct effects on wildlife, including injury or mortality, may also result from the regrading of dirt roads with heavy equipment and/or maintaining paved roads with paving equipment if wildlife were to enter construction areas or be near where this work is being performed.

Construction activities could also directly impact ground nesting birds or birds that nest in shrubs. Clearing/grubbing could directly impact active bird nests if these activities are conducted during the nesting season, resulting in potential damage or destruction to nests, eggs, and/or young. Direct effects on special-status wildlife could also result from increased equipment and human presence, including construction related disturbance and ground vibration during excavation. Construction noise, disturbance, and ground vibration could cause collapse of burrows and may deter wildlife from inhabiting or foraging in areas near construction activities, though these effects would be temporary. Foraging and other above-ground behaviors could be disrupted, and exposure to predators and competition with other animals for resources could result from displacement behavior as wildlife migrate to other areas without construction disturbance.

Species with high and moderate potential to occur within the BSA were assessed within Table 10. This assessment considers the range and habitat quality for the respective species as well as any observations during protocol and reconnaissance surveys. However, the Project will be constructed within highly fragmented and impacted oilfield infrastructure, and direct permanent impacts associated with facility construction and other permanent Project components are predominantly located in areas of previous disturbance not likely to support special-status species. Temporary and permanent impacts associated with pipeline and electrical line Project components (particularly those that could result in injury and/or mortality) are expected to be low and implementation of avoidance and minimization measures will reduce the likelihood of direct effects to these species.

Direct effects on special-status wildlife and plants as a result of the loss of suitable habitat in the BSA are therefore expected to be low for the reasons set forth above. Because most of the areas where Project construction would occur are already impacted and developed with oil and gas extraction infrastructure, the potential for direct impacts on special-status species, including from loss of burrows and other suitable habitat in the BSA, is expected to be low. Additionally, direct impacts from construction are expected to be mainly temporary and would cease after construction within affected areas has been completed. Due to the relatively small size and primarily temporary nature of impacts expected on suitable habitat in the BSA, the Project is not anticipated to substantially reduce the overall availability of habitat for special-status plant and wildlife species.

7.2 Indirect Effects

Project construction activities may temporarily increase airborne dust that may settle on vegetation surrounding construction areas within the BSA. The dust from construction activity may temporarily degrade the overall quality of the local vegetation communities and rare plants in the BSA. Additionally, heavy equipment working in the BSA may disrupt or compact soils in localized areas associated with powerline

installations and temporarily make some habitat less suitable for digging burrows by mammals. These indirect effects may temporarily diminish the suitability of habitat near construction areas for special-status wildlife following construction while vegetation regenerates, windstorms and rainstorms may remove dust from vegetation, and burrows are re-established. Noise disturbance could also have the potential to alter the foraging and/or dispersal/migration behaviors of various species and nesting behaviors of various bird species. However, these indirect impacts would be temporary and localized and are not expected to translate into adverse effects on special-status wildlife because most locations within the Project site and beyond would not be subjected to these indirect effects. In areas impacted by the temporary indirect effects, implementation of avoidance and minimization measures may reduce the likelihood of impacts to special-status species.

7.3 Cumulative Effects

Due to the Project's location within an existing oil and gas field, the impacts of the Project together with the impacts of past, present, and reasonably foreseeable future oil and gas and CO_2 storage development including wells and abandonment activity to implement CCS projects constitute cumulative impacts. A number of other projects have been developed or are planned for the Elk Hills or adjacent regions. Therefore, potential impacts of this Project contribute to the cumulative impact of increased development in the Elk Hills and southwestern San Joaquin Valley. Additional projects located within the EHOF, particularly within 1 mile of the Project area, include CTV I CCS. Other projects located within approximately 10 miles of the Project area include CTV Clean Energy Park Projects, Direct Air Capture with CCS, Kern County Oil and Gas Ordinance Second Supplemental Revised EIR (SSR-EIR) and CRC's Oil and Gas CUPs for Elk Hills, Buena Vista Hills, Kern Front, which will most likely be superseded by the return of the KC SSR-EIR for oil and gas activities. Further, projects located within the southwestern San Joaquin Valley, and within approximately 30 miles of the Project area, include Salt Creek CCS, Lost Hills Solar to Hydrogen Project, Crimson Resource Management Oil and Gas CUP, Carbon Frontier CCS, Eastridge CCS, Aera Energy South Belridge Oil and Gas CUP and Gas Extraction, and Pond Road Biomass CCS.

Potential cumulative effects must be considered in context of the intensive oilfield operations that have been ongoing in the region for decades. The BSA consists mostly of existing disturbed oil and gas infrastructure interspersed with impacted Allscale Scrub shrubland, and Red Brome or Mediterranean Grass grasslands within roughly the southern half of the Project site, with more natural stands of Allscale Scrub and grasslands within roughly the northern half of the BSA. Although the size of the Project footprint is relatively large, the estimated permanent and temporary impacts are relatively minor, with much of the Project occurring within areas previously disturbed or subject to high intensity oil extraction activities. Potential impacts to special-status species would be mitigated with a suite of comprehensive measures. As a result, no substantial cumulative effects are anticipated.

8 Avoidance, Minimization, and Mitigation Measures

8.1 Avoidance and Minimization Measures

The avoidance and minimization measures below pertain to Project activities in the BSA. Through the Project design features and application of the general and species-specific avoidance and minimization measures outlined below, CRC will avoid and minimize potential impacts on federally and state-listed species and minimize loss and degradation of federally listed species habitat in the BSA to the greatest extent practicable.

Qualified biologist(s) will be identified prior to start of Project construction and will be responsible for monitoring Project activities to ensure compliance with avoidance and minimization measures and Project permit measures. Qualified biologist(s) may require approval from USFWS and/or CDFW, and/or CEC. The qualified biologist(s) will have the authority to immediately stop any activity not complying with avoidance and minimization measures or other conditions prescribed by Project permits. At least 30 days prior to the start of ground-disturbing activities, CRC will submit biologist qualifications to the applicable agencies for approval. Qualifications will include the necessary experience and/or permits for handling special-status species (if authorized), excavating burrows or dens, and monitoring construction activities.

8.1.1 General Avoidance and Minimization Measures

The avoidance and minimization measures below will be implemented for all grading and construction activities on all project components in the defined disturbance area.

GEN-1: Qualified Biologist: The Owner/operator shall use a qualified biologist to prepare any biological technical report(s) submitted to regulatory agencies. The qualified biologist must have a Bachelor of Science Degree or Bachelor of Arts Degree in biology or related environmental science, have demonstrated familiarity with the natural history, habitat affinities and identification of Covered Species of the San Joaquin Valley and have conducted work in California for at least one (1) year of field level reconnaissance survey work in the San Joaquin Valley. The resume of the biologist preparing the technical report(s) shall be included as part of the submittal. Lack of these specific qualifications will result in immediate rejection of the technical report without further review.

GEN-2: Focused/Protocol Surveys: Based on the information gathered from the biological reconnaissance survey and any informal consultation with USFWS and CDFW, any required focused/protocol surveys shall be conducted by a qualified biologist consistent with protocol study timelines to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts (FESA and CESA) and potential Project impacts to those species. Protocol surveys shall be conducted in accordance with the most current standard protocol of the USFWS and CDFW.

a. The purpose of focused/protocol surveys is to confirm the presence or absence of any species listed as threatened or endangered under the FESA, threatened, endangered, or candidate under the CESA, rare or endangered in the California Native Plant Protection Act, designated as Fully Protected in the California Fish and Game Code (collectively, "Protected Species"), to confirm the presence or absence of any other species considered "sensitive" under CEQA ("Sensitive Species"), and to identify and implement avoidance and minimization measures for such species.

b. The surveys shall be conducted in accordance with all currently applicable presence and absence survey and/or species protocols established by the USFWS and the CDFW ("Species Protocols").

c. In the absence of any approved protocols, the survey shall extend for a minimum of 250 feet from all areas where any ground disturbance activities would occur, provided that permission to access has been obtained.

GEN-3: Incidental Take Avoidance: No incidental take of any species listed as threatened or endangered under the FESA; threatened, endangered, or candidate under the CESA; rare or endangered under the California Native Plant Protection Act, may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of an ITP or other written authorization consistent with applicable state and federal law. An ITP or other written authorization would require avoidance and minimization measures, establish appropriate compensatory habitat ratios, and require monitoring and reporting.

GEN-4: Pre-disturbance Surveys: Within 30 days before any ground-disturbing activities in special-status species habitat, the qualified biologist shall conduct a pre-disturbance survey to record existing conditions of the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where sensitive species avoidance buffers will be established.

GEN-5 Biological Monitoring: A biological monitor with the same qualifications as a qualified biologist shall be present during ground-disturbing activities in Project locations that have special-status species habitat or are adjacent to potential special-status species habitat. The monitor will verify that all Avoidance, Minimization, and Mitigation Measures are implemented.

GEN-6: Protected Species Avoidance Buffers: Protective buffers, as shown in Table 11, shall be used, where required in the opinion of the qualified biologist, to avoid any unauthorized incidental take of Protected Species and to minimize any impacts to Sensitive Species by separating the planned disturbance area from any locations where the qualified biologist has detected the presence of Protected Species or Sensitive Species. Protective buffers shall be delineated using brightly colored stakes and/or flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers must be removed. Protective buffers shall be established around active dens and/or burrows of special-status animal species or populations of special-status plant species to avoid unauthorized take of Protected Species as included in Table 11. The protective buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. Protective buffer distances that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the USFWS and/or the CDFW requirements and shall be implemented and overseen by the qualified biologist.

Table 11 Disturbance Buffers for Sensitive Resources

Sensitive Resource	Buffer Zone from Disturbance
Potential San Joaquin kit fox den	50 feet
Known San Joaquin kit fox den	100 feet
Natal San Joaquin kit fox den	500 feet
Atypical San Joaquin kit fox den	50 feet
Rodent and small mammal burrows	50 feet
Listed bird species active nests	500 feet to 0.5 miles dependent on species and sight line
Non-listed bird species active nests	250 feet
Non-listed raptor active nests	500 feet
Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California CDFW guidelines (see Table 12)
San Joaquin coachwhip, all legless lizard species, coast horned lizard, and California glossy snake	30 feet
Blunt-nosed leopard lizard	50 feet
American badger non-maternity den	50 feet
American badger maternity den	200 feet
Crotch's bumble bee and nests	50 feet
Special-status plants	50 feet

GEN-7: The existing WEAP for CTV I shall be updated as needed and implemented for all CalCapture personnel that could access the site prior to commencing any disturbance activities. The program shall consist of an on-site or center presentation that will describe the locations and types of sensitive plant, wildlife, and sensitive natural communities (collectively, "Biological Resources") on and near the site, an overview of the laws and regulations governing the protection of Biological Resources, the reasons for protecting the Biological Resources, the specific protection and avoidance measures that are applicable to the site, and the identity and contact information of designated points of contact in addition to the qualified biologist should questions or issues arise. The program shall provide training to recognize, avoid and report to applicable qualified biologists any Biological Resources on the site.

a. The WEAP shall emphasize the need to avoid contact with onsite wildlife and avoid entry into areas where Biological Resources have been identified based on pre-disturbance field surveys and to implement the buffer avoidance or other protection measures established by the USFWS and/or CDFW or as required by the Biological Resources mitigation measures. The training shall emphasize the importance of not feeding or domesticating wildlife and the need to avoid any trash, micro trash, or potential food disposal onsite except in animal-proof containers emptied daily to avoid attracting or causing adverse impacts to special status wildlife.

b. All onsite personnel must sign a statement verifying that they have completed the WEAP, and that they understand and agree to implement the biological requirements for the worksite. If signed employee statements are not available, documentation may be provided by WEAP training records. Each Owner/operator shall maintain a list of all persons who have completed the training program

and shall provide the list to the CEC or to state and federal wildlife agency representatives upon request.

GEN-8: The following additional measures shall be implemented to avoid and minimize potential significant adverse impacts to Protected and Sensitive Species:

a. All vehicles shall observe a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted. Off-road traffic outside of designated access routes is prohibited. Speed limit signs shall be posted in visible locations at the point of site entry and at regular intervals on all unpaved access roads.

b. CRC will prohibit the use of erosion control materials potentially harmful to special-status species, such as monofilament netting or similar material.

c. All disturbance activities, except emergency situations or construction that may require continuous operations, shall only occur during daylight hours. Nighttime disturbance activity for construction purposes shall use directed lighting, shielding methods, and comply with applicable lighting mitigation measures.

d. All food-related trash items and all forms of micro trash, such as wrappers, cans, bottles, bottle tops, and food scraps shall be disposed of in closed, animal proof containers and removed daily from the site.

e. Excavations, spoils piles, access roadways, and parking and staging areas shall subject to dust control as set forth in the dust control mitigation measures.

f. The use of herbicides for vegetation control shall be restricted to those approved by the USFWS and the CDFW. No rodenticides shall be used on any site unless approved by the USFWS, and the CDFW, and shall observe label and other restrictions mandated by the U.S. EPA, California Department of Food and Agriculture, and state and federal laws and regulations.

g. No plants or wildlife shall be collected, taken, or removed from the site or any adjacent locations except as necessary for Project-related vegetation removal or wildlife relocation by a qualified biologist and subject to all applicable permits and authorizations.

h. All open trenches or excavations shall be covered at the end of each workday to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work.

i. To enable San Joaquin kit foxes and other wildlife to pass through the Project site, any new or updated perimeter fencing shall include a 4- to 8-inch opening between the fence mesh and the ground, or the fence shall be raised 4 inches above the ground except for blunt-nosed leopard lizard exclusion fencing. The bottom of the fence fabric shall be knuckled (wrapped back to form a smooth edge) to protect wildlife.

j. All vertical tubes used in Project construction and chain link fencing poles shall be temporarily or permanently capped to avoid the entrapment and death of special-status wildlife and birds. All pipes 1.5 inches or greater in diameter stored overnight on a Project location must have end caps or other physical barriers that prevent wildlife from entering the pipe.

k. All dead or injured special status wildlife shall be left in place and reported to the USFWS and the CDFW within 48 hours of discovery for rescue or salvage. Discovery of state or federal listed species that are injured, or dead shall also be managed consistently with regulatory requirements, including being reported immediately via telephone and within 24 hours in writing, and with a copy to CEC.

l. During pre-construction surveys, the Owner/operator shall delineate previously disturbed areas to be used by the Owner/operator to minimize the amount of new disturbance and confirmed by the qualified biologist.

m. All concrete and asphalt surface debris shall be removed from the site for recycling or disposal at an authorized, permitted facility.

n. Tracked vehicles and other construction equipment must be washed or maintained to be weed-free prior to entering and working within areas of new disturbance.

o. All painting, cleaning of equipment, or similar activities shall occur in areas where runoff is fully contained for collection and offsite disposal. Painting or cleaning of equipment shall no occur during precipitation events. Wash water may not be discharged from the site and shall be located at least 100 feet from any water body, or sensitive biological resources.

p. All areas that must be avoided as a result of the pre-disturbance surveys, and areas where new disturbance will occur, shall be clearly delineated by fencing or staking and flagging and/or rope or cord.

q. No firearms shall be allowed on the Project site; excludes law enforcement or security personnel authorized to carry firearms.

r. No pets shall be allowed on the Project site.

s. No smoking may occur except in designated areas.

t. If ground disturbance is intended to be temporary, perform topsoil segregation during construction activities to preserve the seed bank for restoration efforts. Store the segregated topsoil separate from the subsoil and restore the segregated topsoil to its original location.

8.2 Species-Specific Avoidance and Minimization Measures

The following avoidance and minimization measures are proposed for special-status species that have either been observed within the BSA, assessed as having the potential to occur within the BSA, or are otherwise assessed as having the potential to be impacted by the proposed Project.

8.2.1.1 Rare Plants

RP-1: Prior to ground disturbance plant surveys for Protected Species and Sensitive Species must be completed by a qualified biologist during the appropriate blooming periods for species identification and detection. Plant surveys shall be conducted in accordance with all applicable protocols established by the USFWS and the CDFW for particular plant species ("Plant Survey Protocol") and shall extend 50 feet from areas where any new disturbance would occur unless a greater survey distance is specified in the Plant Survey Protocol. All detected plant populations of Protected Species and Sensitive Species shall be identified in the field during the surveys with temporary flags or other visible materials to avoid and minimize impacts to the plant populations from any disturbance activities.

RP-2: For the proposed Project activities no incidental take or relocation of any plant listed under the FESA, the CESA, or the California Native Plant Protection Act may occur unless the incidental take is authorized by the USFWS and/or the CDFW in a permit or other authorization, or in an approved Habitat Conservation Plan or Natural Communities Conservation Plan. If focused plant surveys detect the presence of any listed plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the USFWS and/or the CDFW unless incidental take authority is obtained. Projects covered under incidental take authority shall conduct activities in accordance with the take authorization. The qualified biologist may consult with the CDFW to determine if reduced buffers are appropriate. The qualified biologist shall confirm that all applicable listed plant buffers have been implemented prior to the commencement of any disturbance activity. All compensation for measurable habitat loss shall be as determined through consultation with the wildlife agencies.

8.2.1.2 Crotch's Bumble Bee (CBB)

Although no CBB were observed during focused surveys conducted in 2025, the CDFW Survey Considerations for CESA Candidate Bumble Bee Species indicate that bumble bees move nests sites each year, and surveys are encouraged to be conducted each year that Project activities will occur (CDFW, 2023).

CBB-1: Focused surveys for CBB and its requisite habitat features shall be conducted by a qualified biologist during the blooming period immediately prior to Project construction following the methodology outlined in the Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW, 2023).

CBB-2: If CBB is detected during biological monitoring or observed at any point, CRC will implement the avoidance buffer provided in Table 11. In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.3 Burrowing Owl (BUOW)

BUOW-1: Occupied burrowing owl burrows shall not be disturbed during the species nesting season (February 1 through August 31). The following distances shall be maintained between all disturbance areas and burrowing owl nesting sites (Table 12).

Table 12 Setback Distances for Burrowing Owl Nest Sites by Level of Proposed Project Impacts

	Location	
Nesting sites	Nesting sites	Nesting sites
Time of Year		
April 1 – August 15	August 16 – October 15	October 16 – March 31
Project Impact Level		
Low		
656 feet (200 meters)	*656 feet (200 meters)*	*164 feet (50 meters)*
Medium		
1,640 feet (500 meters)	*656 feet (200 meters)*	*328 feet (100 meters)*
High		
1,640 feet (500 meters)	*1,640 feet (500 meters)*	*1,640 feet (500 meters)*

BUOW-2: If the burrowing owl buffer distances in Table 12 are not feasible during construction, a qualified biologist shall submit a Burrowing Owl Mortality Reduction Plan to CDFW at least 30 days prior to beginning construction activities in buffer areas. Burrow exclusion, burrow excavation, artificial burrow construction, and other relocation activities shall only proceed under a state ITP.

BUOW-3: In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.4 California Horned Lark, Loggerhead Shrike, LeConte's Thrasher, and Other Nesting Birds (NB)

The following avoidance and minimization measures will be implemented to protect special-status bird species that have been observed in the BSA as well as the numerous bird species protected under the MBTA and California Fish and Game Code.

NB-1: If feasible, clearing and grubbing shall be scheduled to occur in the fall and winter (between September 16 and January 31), outside of the typical nesting season. If any construction activities are proposed to occur during the typical nesting season (February 1 to September 15), a nesting bird survey in areas of suitable nesting habitat as determined by a qualified biologist shall be conducted no more than 14 days prior to construction to determine presence/absence of nesting birds. A Nesting Bird Survey Report documenting the results of nesting bird surveys shall be submitted to the involved regulatory agencies prior to construction.

NB-2: If an active bird nest is observed during preconstruction surveys or during construction, at a minimum, a 500-foot avoidance buffer surrounding the nest for nesting raptors and a 250-foot avoidance buffer shall be implemented for other nesting bird species. Nest avoidance buffers may be reduced if monitoring determines nesting birds are acclimated to construction disturbance and under the discretion of a qualified biologist. For applicable species CRC will implement the conditions within a valid USFWS MBTA Special Purpose – Relocation Permit under 16 U.S.C. 703-712 50 CFR Part 13, 50 CFR21.95.

NB-3: Nests, eggs, or young of birds covered by the MBTA, California Fish and Game Code, or any other regulatory laws shall not be moved or disturbed until a qualified biologist has determined that the nest has become inactive or young have fledged and become independent of the nest. Project construction activities may proceed and no further mitigation measures for nesting birds are required if a qualified biologist determinates that the nest has become inactive or young have fledged and become independent of the nest. If active nest(s) are identified, the active nest(s) should be surveyed to establish a behavioral baseline prior to any construction-related activities. For applicable species CRC will implement the conditions within a valid USFWS MBTA Special Purpose – Relocation Permit under 16 U.S.C. 703-712 50 CFR Part 13, 50 CFR21.95.

NB-4: Once construction commences, all nests shall be monitored to detect any behavioral changes as a result of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change shall cease until the Owner/operator's qualified biologist consults with the CDFW and the USFWS and the qualified biologist used by the Owner/operator implements any CDFW and USFWS recommended measures. Work would not continue until revised measures were implemented to minimize the potential for take. During such times as the qualified biological monitor is not onsite while construction workers are onsite, a minimum non-disturbance buffer of 250 feet shall be established around active nests and a 500-foot no-disturbance buffer around the nests of raptors until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, and any adult birds are no longer occupying the nest. Deviations from these no disturbance buffers may be implemented if the qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography) provided that notification of this determination of a deviation in the no-disturbance buffer is provided by the qualified biologist no less than 15 days in advance to the CDFW and the USFWS. For applicable species CRC will implement the conditions within a valid USFWS MBTA Special Purpose – Relocation Permit under 16 U.S.C. 703-712 50 CFR Part 13, 50 CFR21.95.

8.2.1.5 Blunt-Nosed Leopard Lizard (BNLL)

BNLL were not observed during the Project's reconnaissance surveys. CRC proposes utilizing the measures below to avoid take of BNLL during Project activities.

BNLL-1: Project activities will avoid all potential burrows that may be occupied by BNLL. Suitable burrows within and adjacent to potential habitat for the species shall be avoided by a minimum distance of 50 feet in all areas where ground-disturbing Project activities will occur.

BNLL-2: No more than one year prior to ground disturbing activities, focused surveys following current CDFW and USFWS protocols for detection of this species, or other methods approved by both agencies, shall be conducted in all potential blunt-nosed leopard lizard habitat within the work site and a 250-foot buffer area. If no individual blunt-nosed leopard lizards are observed during focused surveys, and surveys are current (e.g., completed in the same calendar year), then Project activities may proceed.

BNLL-3. If BNLL are detected within the proposed Project area during focused surveys, a blunt-nosed leopard lizard avoidance plan shall be prepared for the Project that will result in avoidance of incidental take of this species unless take is separately authorized under a Natural Communities Conservation Plan and appropriate federal authorization is obtained. At a minimum, the BNLL avoidance plan shall be provided to the CEC, CDFW, and USWFS , and shall contain the following elements:

a. A WEAP shall be implemented for all construction personnel before construction begins (see **GEN-7**).

b. During periods that are optimal for blunt-nosed leopard lizard activity (early spring through late fall), a qualified biologist will be present during all ground disturbing activities. The qualified biologist will check the project site(s) and access route(s) daily during the BNLL active season to determine presence or absence of lizards in or near the work areas. Monitoring by a qualified biologist is not required during periods of inactivity (the winter season).

c. All open trenches or excavations shall be covered at the end of each workday or protected with the use of exclusion fencing to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work. If BNLL are observed at the work site during construction, Project related construction shall cease within a 250-foot radius and the USFWS, and the CDFW shall be consulted to to prevent take of this species.

d. Offsite locations within the BSA, where BNLL have been observed or are likely to occur shall be clearly marked to prevent workers from driving off the road and to prevent inadvertent destruction of burrows. Barriers to prevent entry into buffer zones, such as exclusionary fencing may be installed using appropriate buffer distances per **BNLL-1.** All construction equipment and construction personnel vehicles will be checked prior to moving to ensure no blunt-nosed leopard lizard are under equipment/vehicles.

e. A speed limit of 10 miles per hour shall be posted and observed within the Project Area if BNLL are observed within the BSA or during monitoring.

f. All individual BNLL observed above-ground will be avoided. Any individual BNLL that may enter the project site(s) would be allowed to leave unobstructed, and on its own accord. If BNLL is detected during biological monitoring or observed at any point, CRC will implement the avoidance buffer provided in **BNLL-1**. In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.6 Northern California Legless Lizard, California Glossy Snake, San Joaquin Coachwhip, Coast Horned Lizard, and Other Reptiles (OR)

OR-1: A qualified biologist shall conduct visual preconstruction surveys within the Project footprint in areas of suitable habitat no more than 30 days prior to ground disturbing activities.

OR-2: At minimum, a 30-foot avoidance buffer shall be maintained surrounding California glossy snake, San Joaquin coachwhip, or other special-status reptile species unless CDFW agrees to a reduced buffer.

8.2.1.7 Temblor Legless Lizard (TLL)

Suitable habitat for TLL was not observed within the proposed Project area during a site assessment conducted by Dr. Ted Papenfuss on February 28, 2025. There is no suitable habitat anywhere on the CRC CalCapture Project site, per Dr. Papenfuss (email dated May 30, 2025). Suitable or marginally suitable habitat may be present within the adjacent buffer areas not subject to direct Project impacts. Impacts to the species are not expected as a result of Project activities (Papenfuss, 2025).

TLL-1: In the unlikely event that TLL is observed in the Project footprint during construction, at minimum, a 30-foot avoidance buffer shall be maintained surrounding observed or unearthed TLL unless CDFW agrees to a reduced buffer. If it becomes evident that TLL is at risk of take during construction, CRC may recommend and implement site specific measures to avoid take and notify CDFW for further coordination as required to avoid or mitigate impacts and to determine if a State ITP will be required.

TLL-2: In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.8 Bat Maternity Roosts (BAT)

CRC proposes utilizing the measure below to avoid and minimize impacts to bat maternity roosts during Project activities.

BAT-1: The qualified biologist surveys shall determine whether active bat maternity roosts are located in or within 250 feet of any disturbance area. All active bat maternity roosts shall be avoided during breeding periods, including postponing disturbance activities. If an active Sensitive or Protected Species bat maternity roost location is proposed to be disturbed, the qualified biologist shall consult with CDFW.

8.2.1.9 Giant Kangaroo Rat (GKR)

Neither GKR nor their sign were observed during the 2025 reconnaissance surveys and no small mammal burrows with GKR characteristic (i.e., size, vertical entrances, haystacking, etc.) were observed. GKR have a low to moderate potential to occur within the BSA based on historical occurrence records and suitable habitat using the potential to occur thresholds as described in Section 6.4. This determination is regarding the potential to occur, not a determination of presence or absence. CRC will utilize the measures below to avoid and minimize impacts on GKR during Project activities.

GKR-1: No more than 14 days prior to construction, the USFWS-approved biologist will conduct surveys to identify all potential burrows used by GKR within the disturbance areas and within 50 feet of areas where ground disturbance will occur.

GKR-2: The USFWS-approved biologist will establish a buffer of at least 50 feet around potential GKR burrows to avoid impacts on burrows. The buffer area will be delineated prior to construction activities and marked with brightly colored markers that will be visible to workers as well as signs, stakes, flags, and/or rope or cord.

GKR-3: In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.10 Short-Nosed Kangaroo Rat, Tulare Grasshopper Mouse, San Joaquin Pocket Mouse, and Other Small Mammals (SM)

The following avoidance and minimization measures will be implemented to protect special-status small mammal species that have potential to occur in the BSA.

SM-1: During construction, any short-nosed kangaroo rat, Tulare grasshopper mouse, San Joaquin pocket mouse, or other small mammals incidentally unearthed during construction activities or entrapped in work areas shall be captured and relocated outside of the Project footprint by a qualified biologist, or be allowed to leave the Project site.

8.2.1.11 San Joaquin Antelope Squirrel (SJAS)

CRC will utilize the measures below to avoid and minimize impacts on SJAS during Project activities.

SJAS-1: No more than 14 days prior to construction, the CDFW-approved biologist will conduct surveys to identify all potential burrows used by SJAS within the disturbance areas and within 50 feet of areas where ground disturbance will occur.

SJAS-2: The CDFW-approved biologist will establish a buffer of at least 50 feet around potential small mammal burrows to avoid impacts on burrows. The buffer area will be delineated prior to construction activities and marked with brightly colored markers that will be visible to workers as well as signs, stakes, flags, and/or rope or cord.

SJAS-3: In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.12 San Joaquin Kit Fox (SJKF)

The following measures will be deployed during Project activities to avoid or minimize adverse effects on SJKF as well as avoid injury or mortality.

SJKF-1: Any potential SJKF dens (as defined in USFWS, 2011) detected during reconnaissance or focused/protocol surveys shall be reevaluated by the qualified biologist for species activity no more than 30 days prior to the commencement of ground disturbance in the required pre-construction survey. Potential

and atypical kit fox dens shall be marked, and a 50-foot avoidance buffer shall be delineated using brightly colored stakes and flagging or similar materials to prevent inadvertent damage to the potential den.

SJKF-2: If the qualified biologist determines that an unoccupied potential den cannot be avoided, CRC will follow USFWS's Standardized Recommendations for Protection of the Endangered SJKF Prior to or During Ground Disturbance (USFWS, 2011).

SJKF-3: If SJKF activity is detected, the location shall be identified as a "known" kit fox den in accordance with the USFWS species guidelines (USFWS, 2011). A minimum 100-foot buffer from any disturbance area shall be maintained for known dens and a minimum 500-foot buffer from any disturbance area shall be maintained for natal dens.

SJKF-4: For activities occurring on land covered under an approved federal and/or state incidental take authorization, the requirements set forth in those documents shall be implemented. Other standard measures to protect SJKF, including capping pipes, covering trenches, adding exit ramps to excavated areas, shall be implemented in accordance with **GEN-8**.

SJKF-5: In the event that complete avoidance of this species is not feasible, **GEN-3** shall be implemented.

8.2.1.13 American Badger

AB-1: Occupied American badger dens detected during pre-disturbance surveys shall be flagged and ground-disturbing activities avoided within 50 feet of the den. Maternity dens shall be avoided and a minimum 200-foot buffer from disturbance shall be maintained during pup-rearing season (February 15 through July 1). Maternity dens must be avoided to the maximum extent feasible in the opinion of the qualified biologist. If an active maternity den is proposed to be disturbed, the qualified biologist, shall consult with the CDFW and implement recommended measures.

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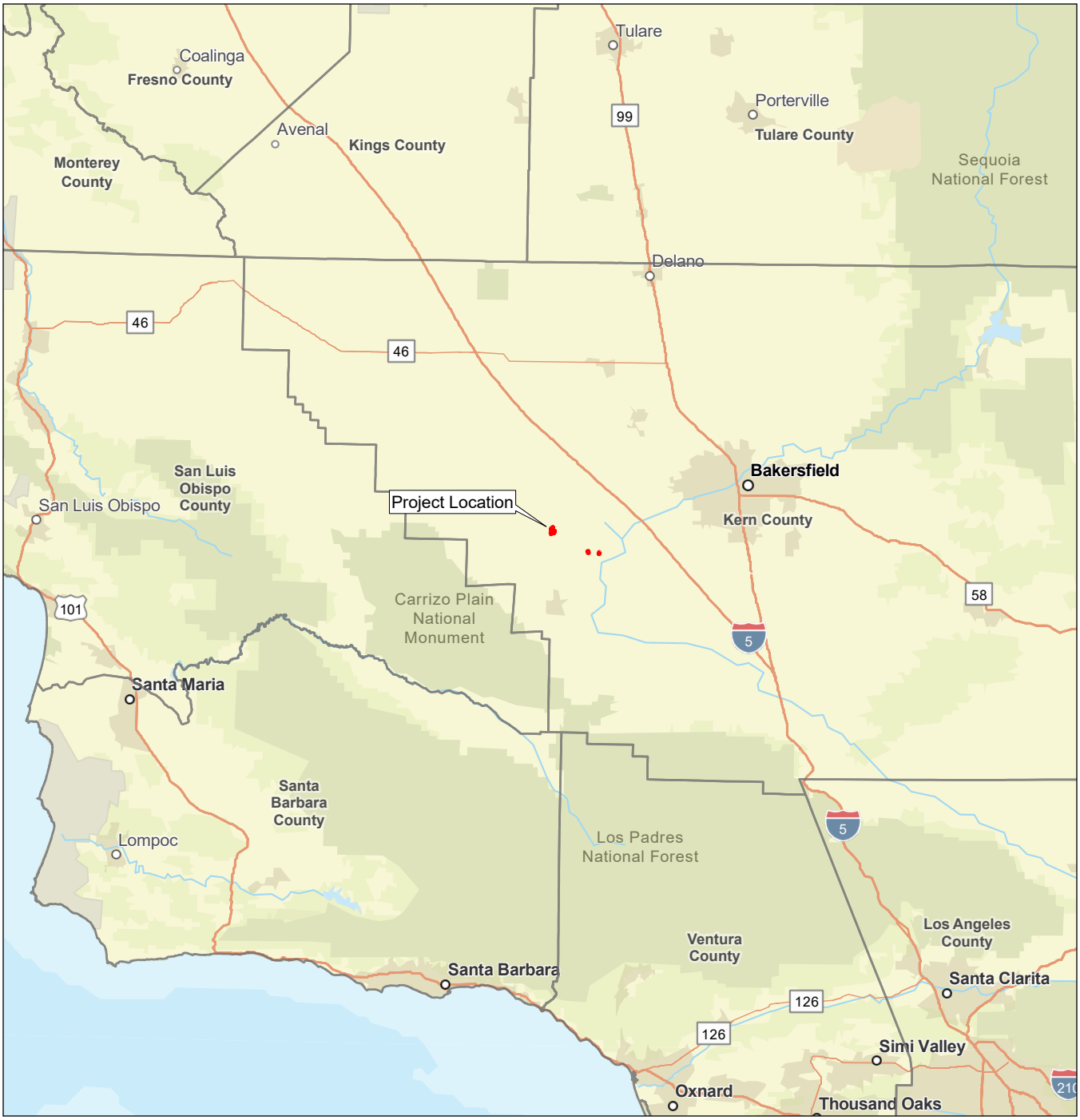
Appendices

Appendix A Figures



Project Area

0 10 20 Miles

(At original document size of 8.5x11)
1:1,267,200

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, USGS, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

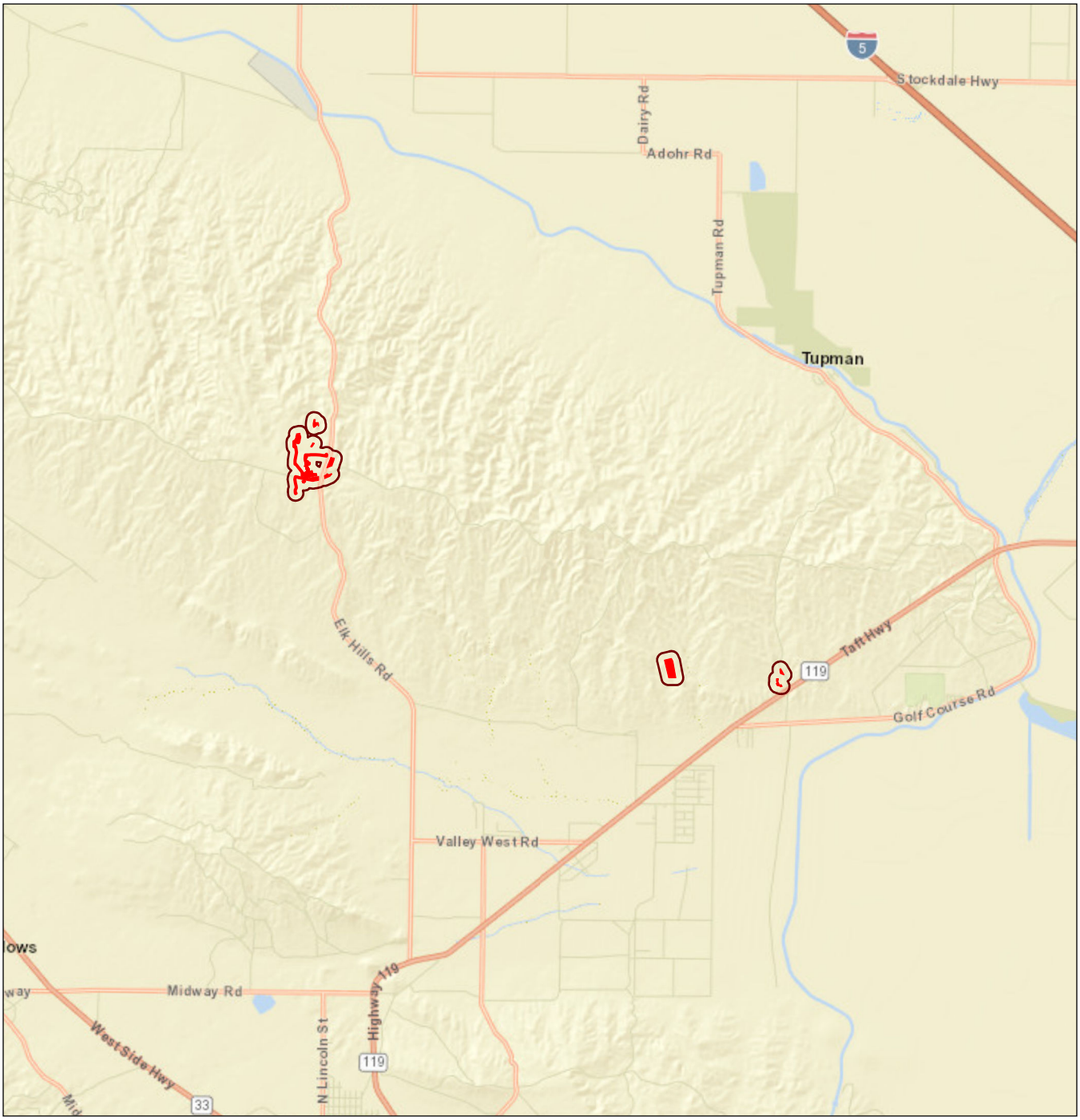
Project Location	Prepared by MMD on 2025-07-07
	TR by CT 2025-07-07
Kern County, CA	IR by ES on 2025-07-07
Client/Project	185806775

California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
1

Title
Regional Location

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo



Project Area

Biological Study Area

0 1 2 Miles

(At original document size of 8.5x11)
1:126,720

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Project Location
Kern County, CA

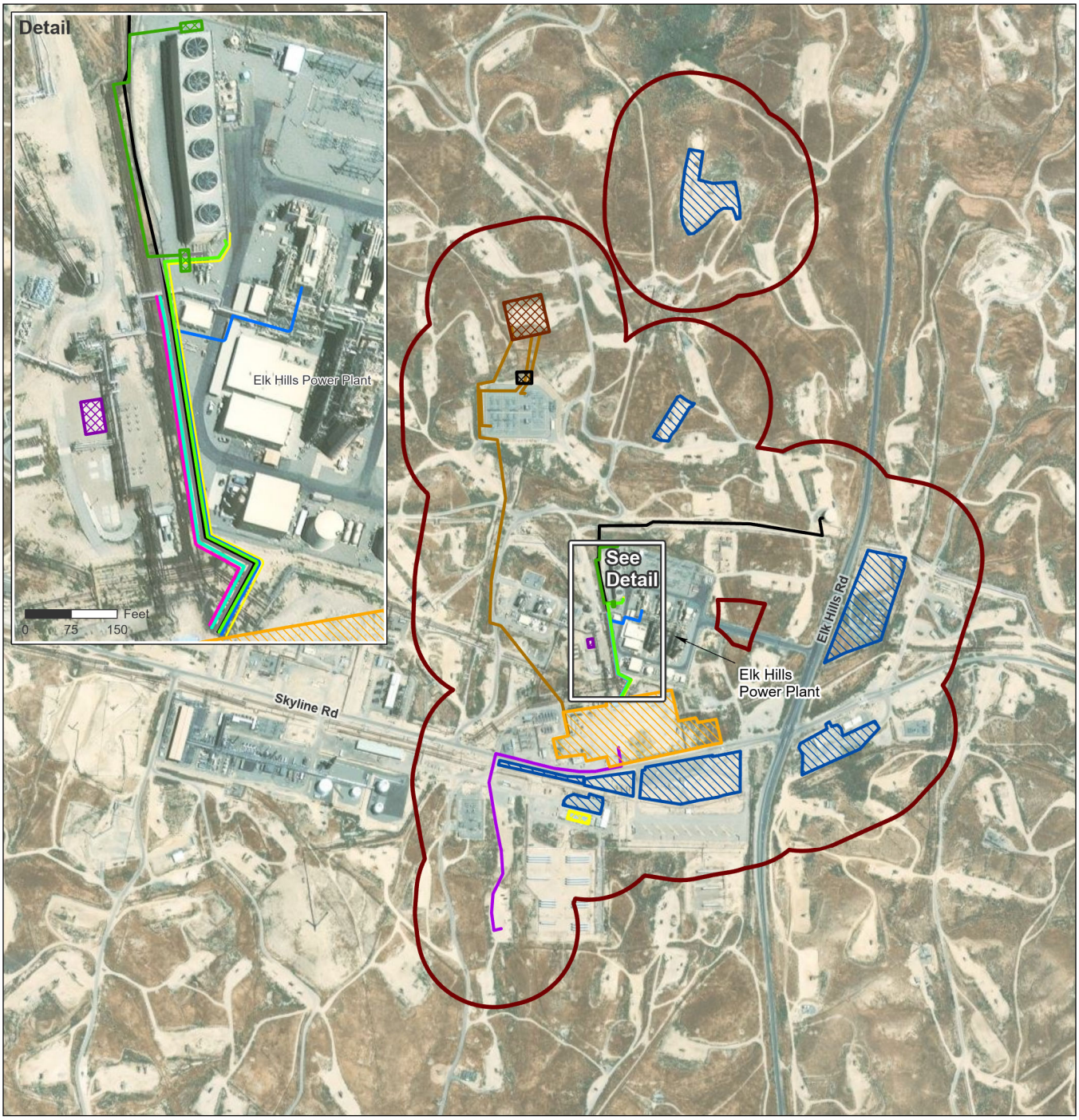
Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
2

Title
Project Location

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo



Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

- Biological Study Area

Project Features

- Capture Facility
- Temporary Parking, Office, and Staging Areas
- Proposed Sub Location (250 x 250)
- Substation Extension Proposal
- New BPSTG & Transformer
- Warehouse
- Cooling Water Sump
- Electrical Lines
- CO2 Line
- CWR Line
- CWS Line
- Condensate Line
- HP Steam Line
- LP Steam Line
- Raw Water Line
- RO Permeate Stream Pipeline
- CWS Line Alternative

0 500 1,000 Feet
(At original document size of 8.5x11)
1:12,000

N

Stantec

Project Location
Kern County, CA

Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
3a

Title
Biological Study Area and Project Components

V:\185806\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\proj\BRT\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo

Biological Study Area

Project Features

Temporary Parking, Office, and Staging Areas

0 800 1,600 Feet

(At original document size of 8.5x11)
1:19,200

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Project Location
Kern County, CA

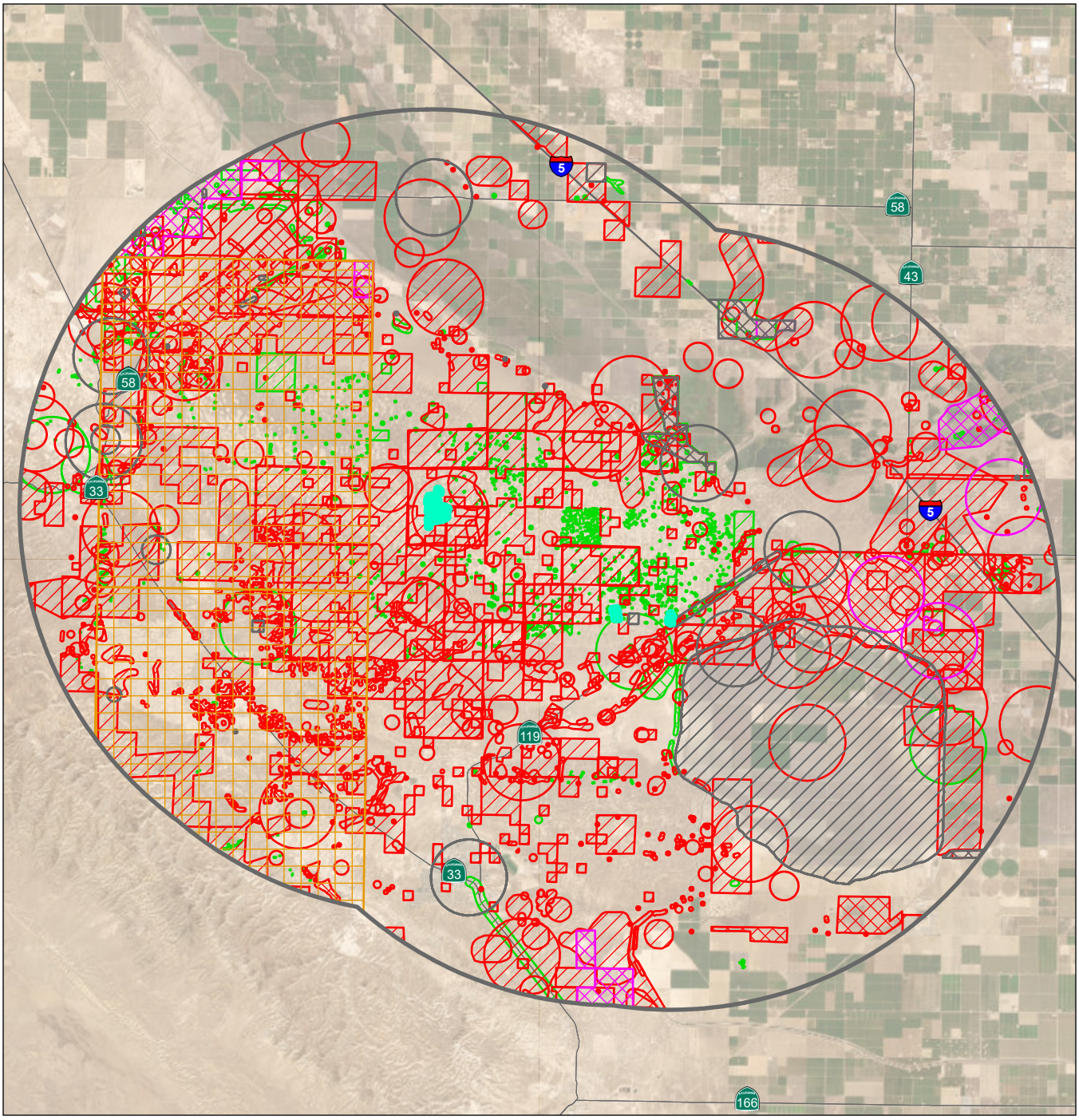
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
3b

Title
Biological Study Area and Project Components

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRT\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec 2025. CNDDB data from CDFW, April 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

- Biological Study Area
- 10-Mile Search Radius

10-Mile CNDDB Results

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

0 2 4 Miles

(At original document size of 8.5x11)
1:253,440

N

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Project Location
Kern County, CA

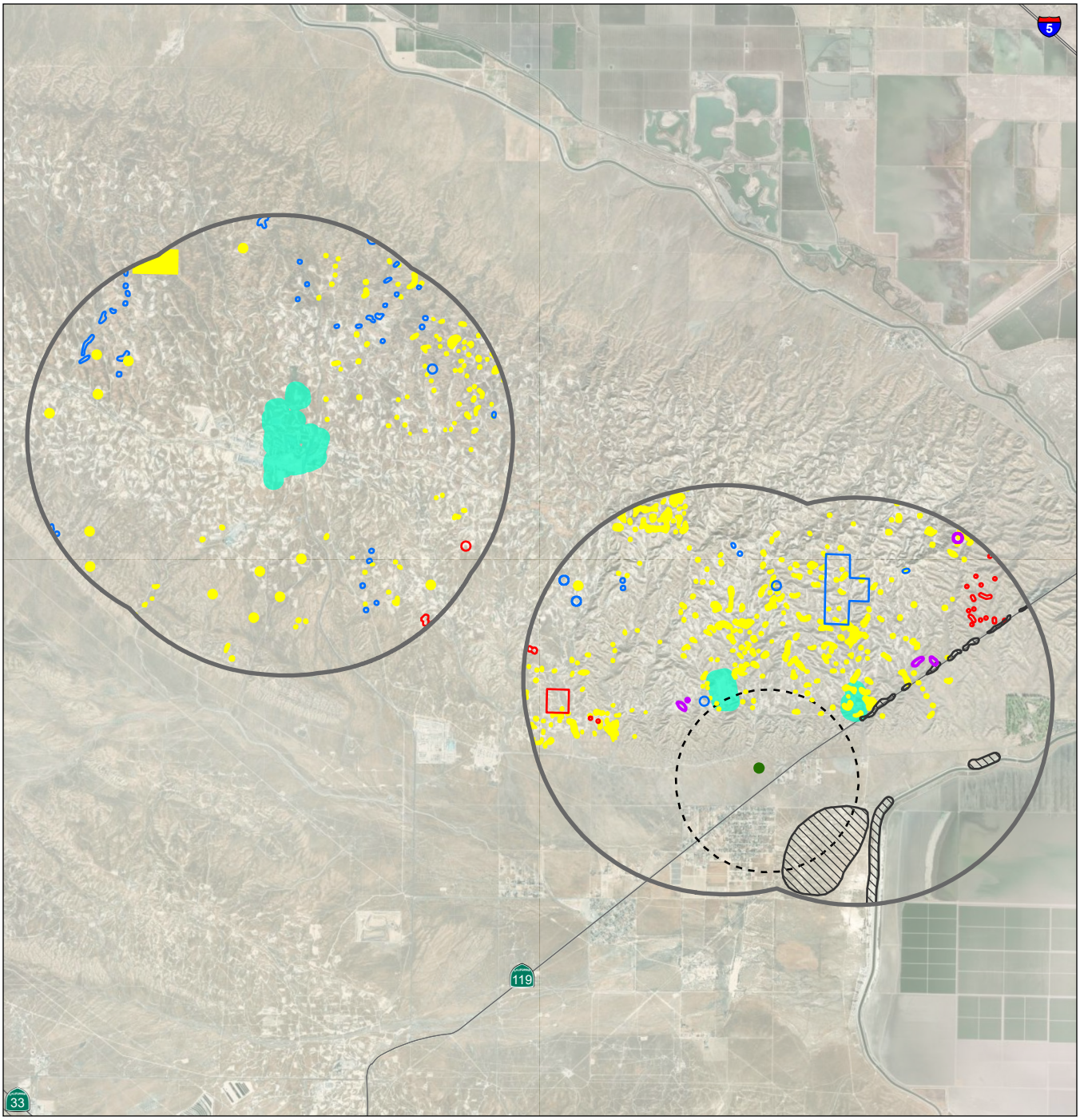
Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
4

Title
10-Mile CNDDB Results

V:\185806\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo



Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

2. Data Sources: Stantec 2025. CNDDB data from CDFW, April 2025.

3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Biological Study Area

10-Mile Search Radius

2-Mile CNDDB Results - Plants

California jewelflower

Hoover's eriastrum

Kern mallow

Lost Hills crownscale

Tejon poppy

heartscale

oil neststraw

0 4,400 8,800 Feet

(At original document size of 8.5x11)
1:105,600

N

Stantec

Project Location
Kern County, CA

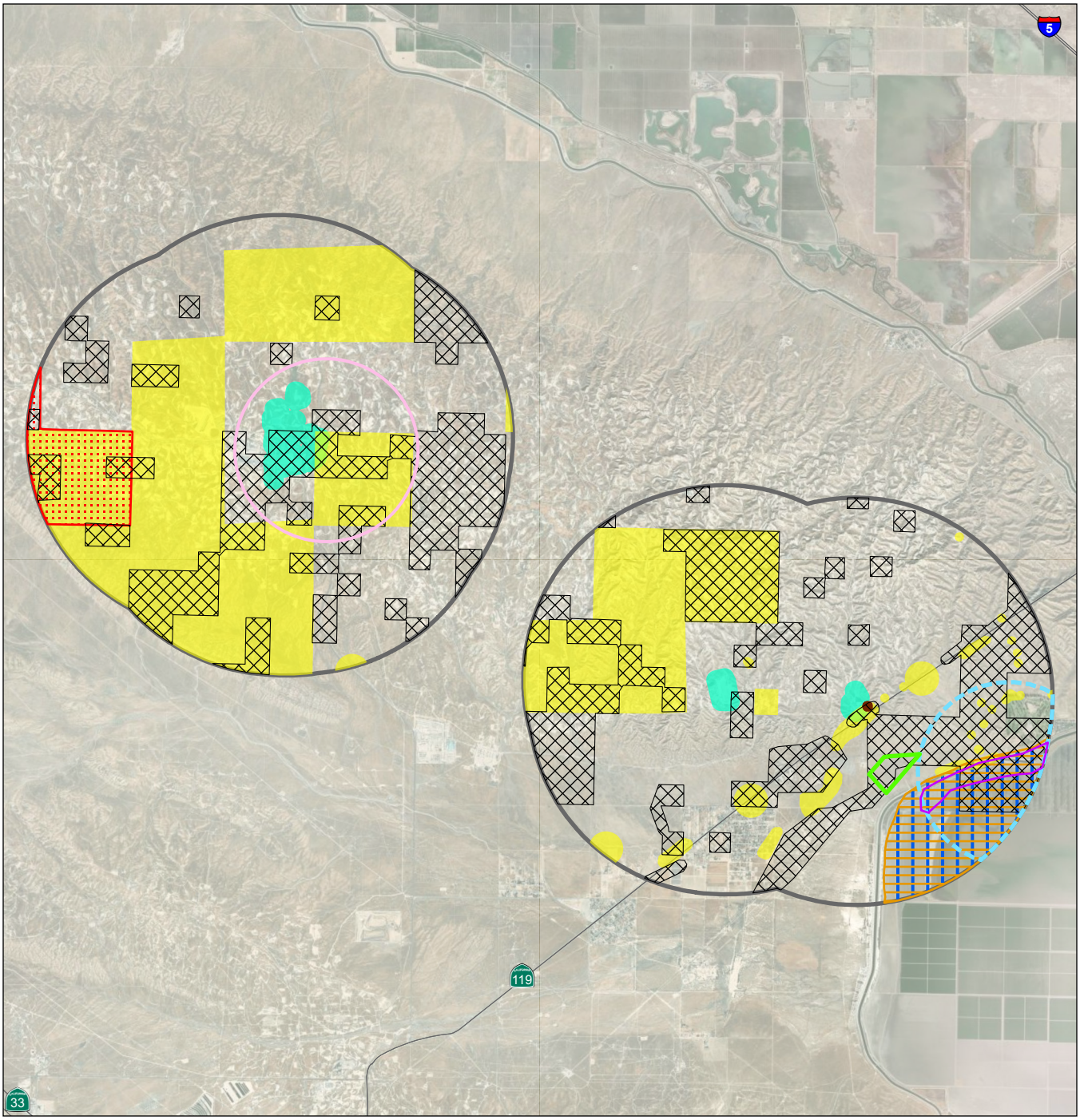
Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
4-1

Title
2-Mile CNDDB Results - Plants

V:\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo



Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec 2025. CNDDB data from CDFW, April 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Biological Study Area
10-Mile Search Radius

2-Mile CNDDB Results - Wildlife

American badger
Buena Vista Lake ornate shrew
California glossy snake
Crotch's bumble bee
Le Conte's thrasher
Nelson's (=San Joaquin) antelope squirrel
San Joaquin kit fox
San Joaquin pocket mouse
Swainson's hawk
fulvous whistling-duck

0 4,400 8,800 Feet
(At original document size of 8.5x11)
1:105,600

N

Stantec

Project Location
Kern County, CA

Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project 185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
4-2

Title
2-Mile CNDDB Results - Wildlife

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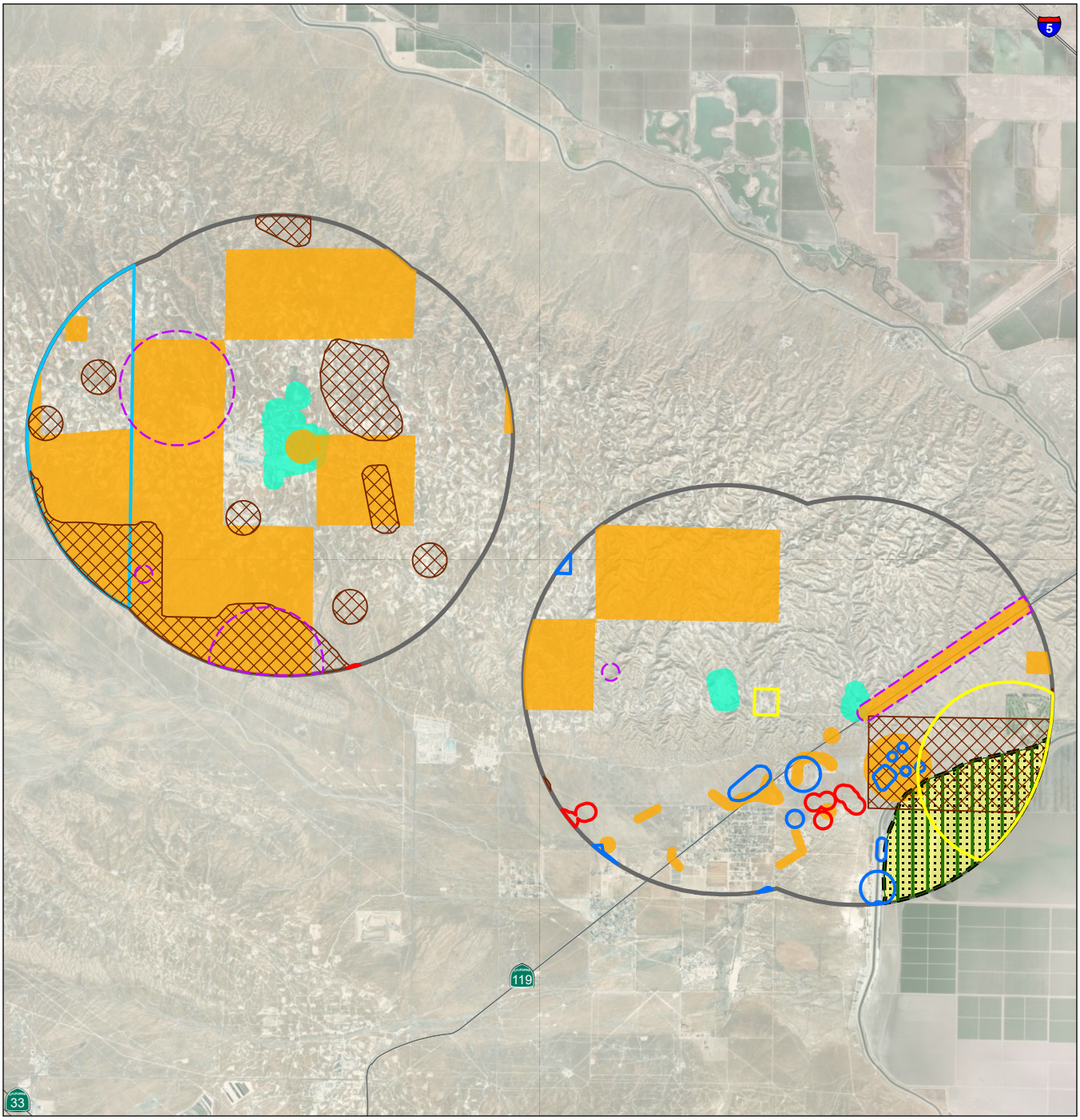


Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

2. Data Sources: Stantec 2025. CNDDB data from CDFW, April 2025.

3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Biological Study Area

10-Mile Search Radius

2-Mile CNDDB Results - Wildlife

- Tipton kangaroo rat
- Tulare grasshopper mouse
- blunt-nosed leopard lizard
- burrowing owl
- giant kangaroo rat
- prairie falcon
- short-nosed kangaroo rat
- western snowy plover
- western yellow-billed cuckoo
- white-faced ibis
- yellow-headed blackbird

0 4,400 8,800 Feet

(At original document size of 8.5x11)
1:105,600

N

Stantec

Project Location
Kern County, CA

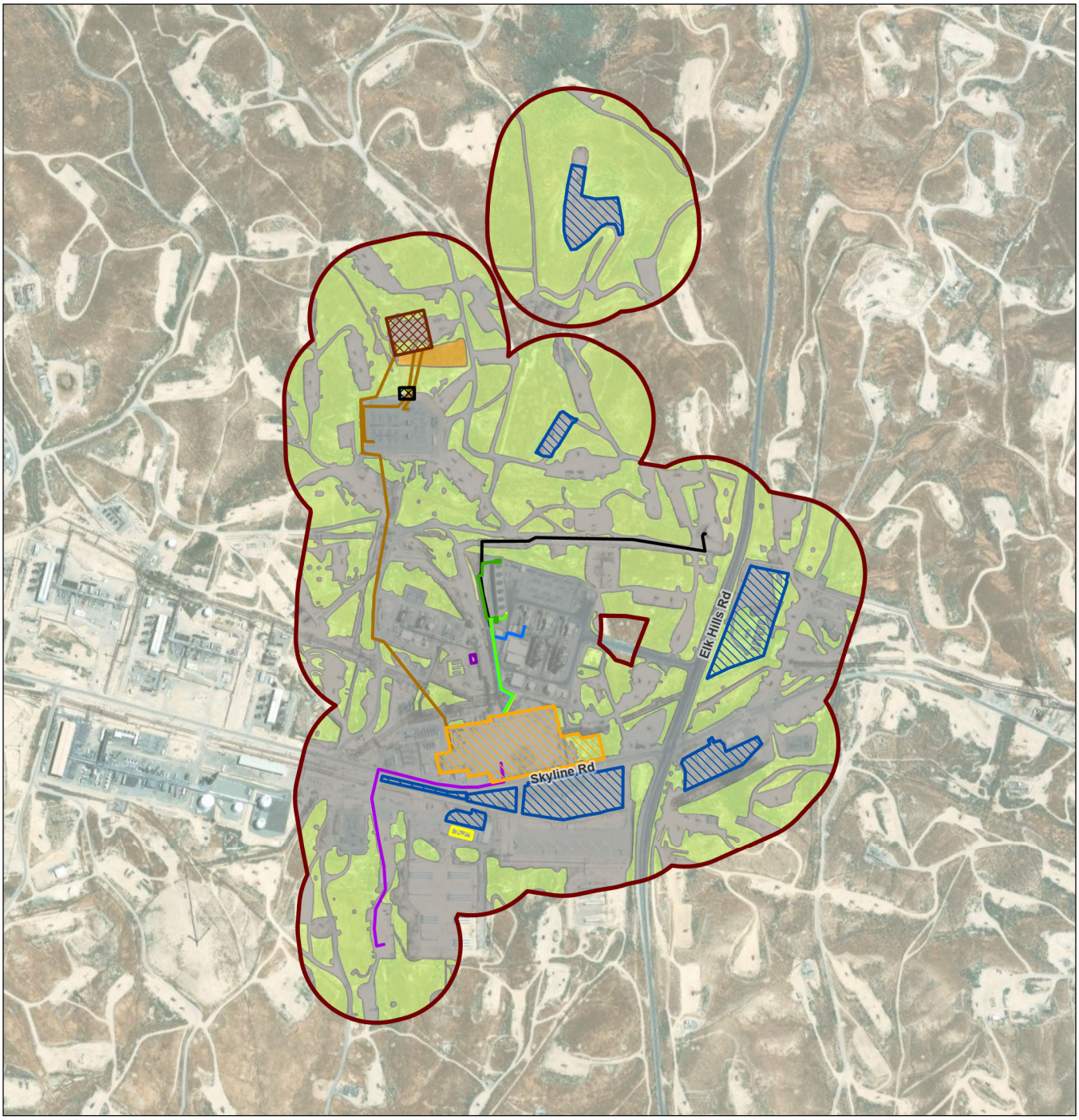
Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
4-3

Title
2-Mile CNDDB Results - Wildlife

V:\185806\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo



Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

- Biological Study Area

Vegetation Communities and Land Cover Types
- Allscale saltbush scrub
- Red Brome Mediterranean Grassland
- Disturbed/Developed

Project Features
- Capture Facility
- Temporary Parking, Office, and Staging Areas
- Proposed Sub Location (250 x 250)
- Substation Extension Proposal
- New BPSTG & Transformer
- Warehouse
- Cooling Water Sump
- Electrical Lines
- CO2 Line
- CWR Line
- CWS Line
- Condensate Line
- HP Steam Line
- LP Steam Line
- Raw Water Line
- RO Permeate Stream Pipeline
- CWS Line Alternative

0 500 1,000 Feet
(At original document size of 8.5x11)
1:12,000

N

Stantec

Project Location
Kern County, CA

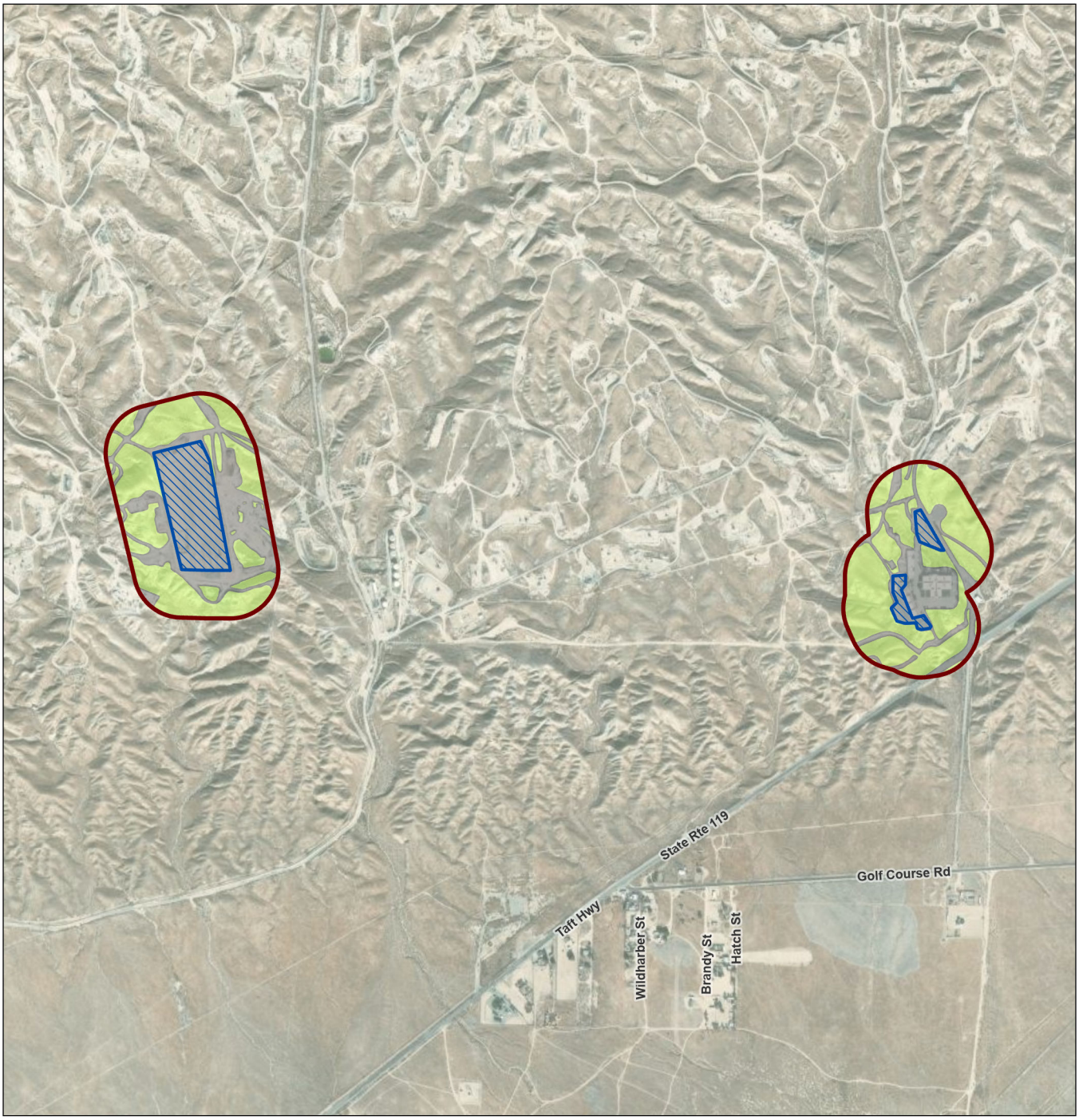
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project 185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
5a

Title
Vegetation Communities and Land Cover Types

V:\185806\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Biological Study Area

Vegetation Communities and Land Cover Types

Allscale saltbush scrub

Disturbed/Developed

Project Features

Temporary Parking, Office, and Staging Areas

0 500 1,000 Feet

(At original document size of 8.5x11)
1:19,200

N

Stantec

Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Project Location
Kern County, CA

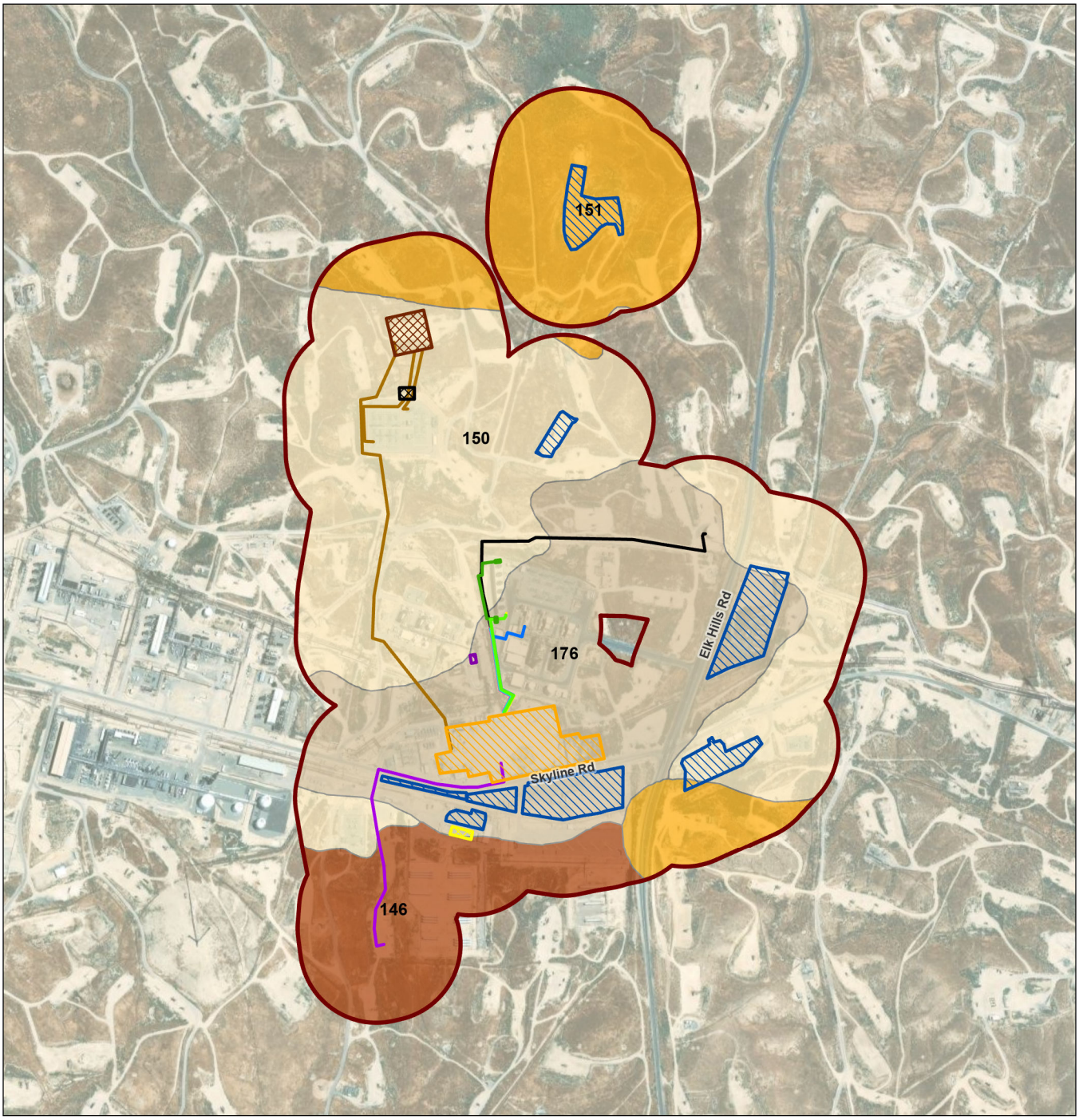
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
5b

Title
Vegetation Communities and Land Cover Types

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025. Soils from NRCS, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

- Biological Study Area

Project Features

- Capture Facility
- Temporary Parking, Office, and Staging Areas
- Proposed Sub Location (250 x 250)
- Substation Extension Proposal
- New BPSTG & Transformer
- Warehouse
- Cooling Water Sump
- Electrical Lines
- CO2 Line
- CWR Line
- CWS Line
- Condensate Line
- HP Steam Line
- LP Steam Line
- Raw Water Line
- RO Permeate Stream Pipeline
- CWS Line Alternative

Soil Map Unit Symbol

- 146: Elkhills sandy loam, 9 to 50 percent slopes, eroded
- 150: Elkhills-Torriorthents stratified complex, 9 to 15 perc ent slopes
- 151: Elkhills-Torriorthents stratified, eroded complex, 15 t o 50 percent slopes
- 176: Kimberlina sandy loam, 5 to 9 percent slopes

0 500 1,000 Feet

(At original document size of 8.5x11)
1:12,000

N

Stantec

Project Location
Kern County, CA

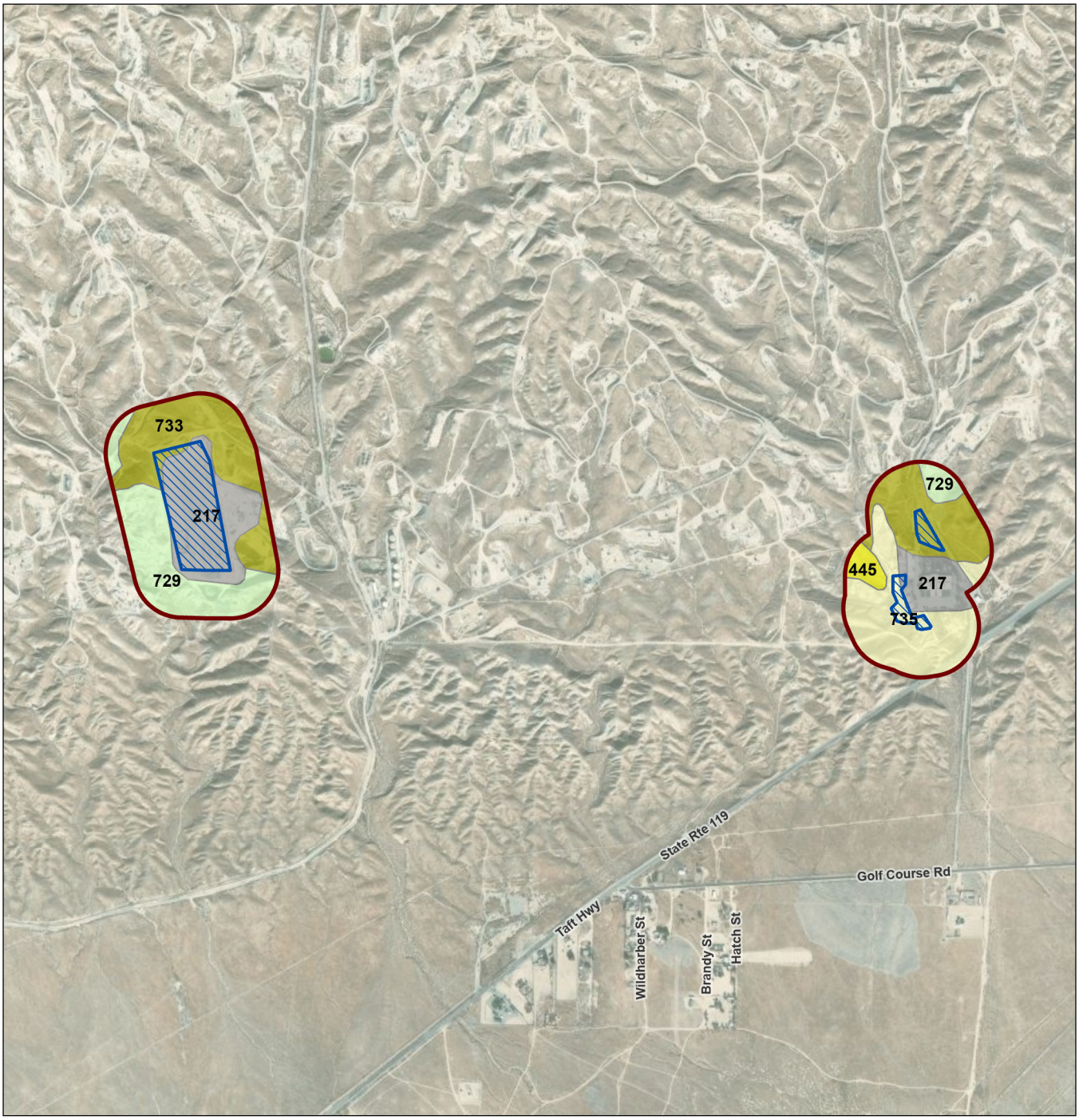
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
6a

Title
Historic Soils

V:\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Notes

1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025. Soils from NRCS, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Biological Study Area

Project Features

Temporary Parking, Office, and Staging Areas

Soil Map Unit Symbol

217: Kimberlina-Urban land complex, 0 to 5 percent slopes

445: Sodic Haplocambids, thick-Elkhills complex, 30 to 50 percent slopes

729: Sodic Haplocambids, thick-Torriorthents, thin-Torriorthents, very thin, eroded, complex, 30 to 60 percent slopes

733: Sodic Haplocambids, thick-Torriorthents, thin, complex, 15 to 30 percent slopes

735: Sodic Haplocambids, thick-Elkhills-Torriorthents, thin, complex, 30 to 60 percent slopes

0 500 1,000 Feet

(At original document size of 8.5x11)
1:19,200

N

Stantec

Project Location
Kern County, CA

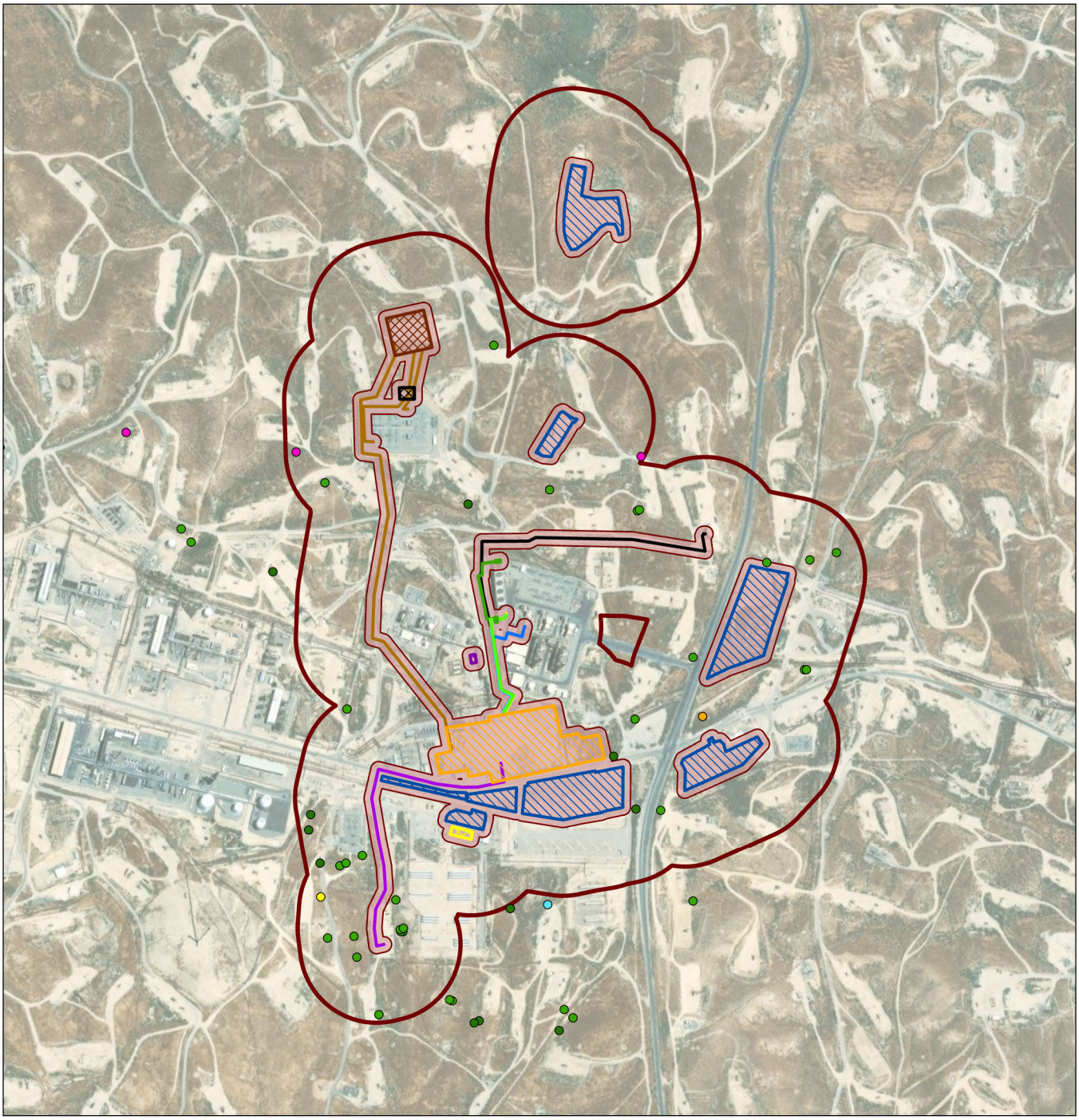
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
6b

Title
Historic Soils

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\proj\BRT\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

- Biological Study Area
- Rare Plant Study Area
- San Joaquin Antelope Squirrel
- Kangaroo Rat Precinct
- Loggerhead Shrike
- Potential San Joaquin Kit Fox Den
- Potential Kit Fox Den (w/ Trail Camera)

Project Features

- Capture Facility
- Temporary Parking, Office, and Staging Areas
- Proposed Sub Location (250 x 250)
- Substation Extension Proposal
- New BPSTG & Transformer
- Warehouse
- Cooling Water Sump
- Electrical Lines
- CO2 Line
- CWR Line
- CWS Line
- Condensate Line
- HP Steam Line
- LP Steam Line
- Raw Water Line
- RO Permeate Stream Pipeline
- CWS Line Alternative

0 500 1,000 Feet
(At original document size of 8.5x11)
1:12,000

N

Stantec

Project Location
Kern County, CA

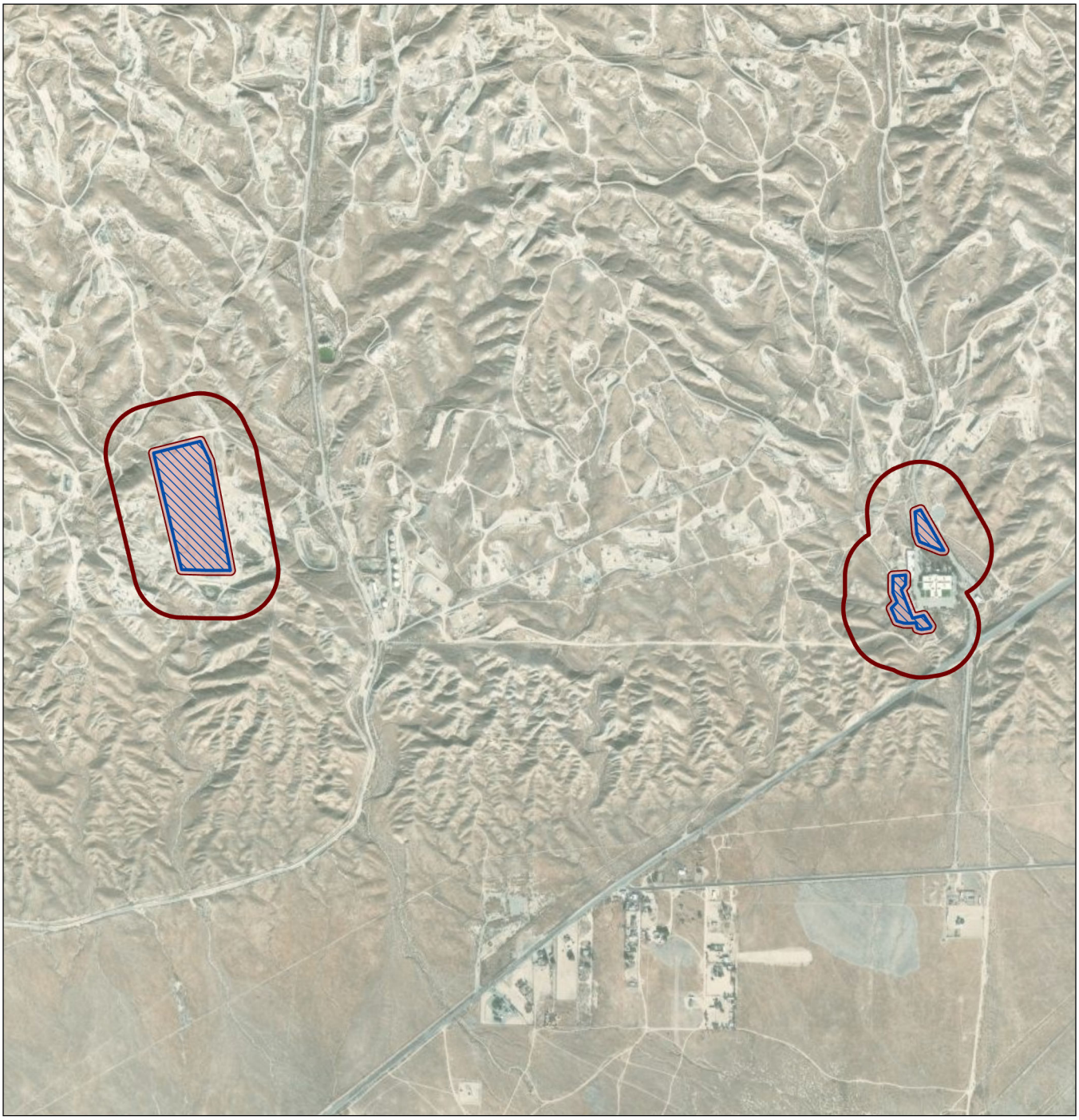
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

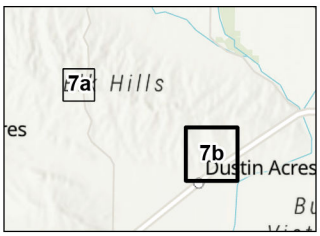
Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
7a

Title
Reconnaissance and Rare Plant Survey Results

V:\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo





Biological Study Area
Rare Plant Study Area

Project Features

Temporary Parking, Office, and Staging Areas

0 500 1,000 Feet
(At original document size of 8.5x11)
1:19,200

N

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec, 2025.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

Project Location
Kern County, CA

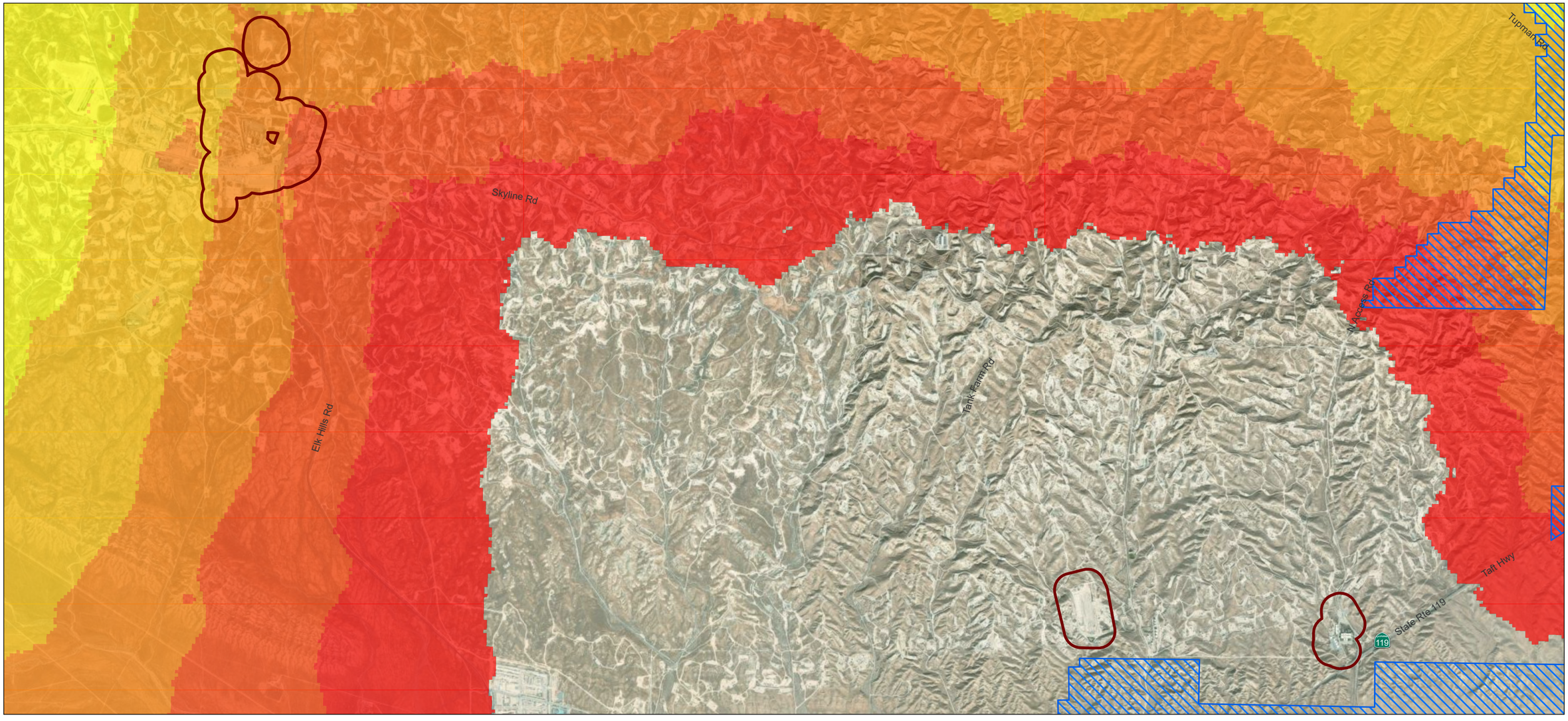
Prepared by MMD on 2025-08-04
TR by CT 2025-08-04
IR by ES on 2025-08-04

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
7b

Title
Reconnaissance and Rare Plant Survey Results

V:\1858\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-08-04 By: mdeseo



Biological Study Area

South Coast Missing Linkages

Essential Connectivity Areas - California Essential Habitat Connetivity

More Permeable

Less Permeable

0 2,000 4,000 Feet

(At original document size of 11x17)
1:36,000

N

Stantec

Project Location
Kern County, CA

Prepared by MMD on 2025-07-07
TR by CT 2025-07-07
IR by ES on 2025-07-07

Client/Project
185806775
California Resources Corporation
CalCapture Carbon Capture and Sequestration Project
Biological Resources Technical Report

Figure No.
8

Title
Connectivity Areas and Missing Linkages

Notes
1. Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
2. Data Sources: Stantec 2025. California Resources Corporation 2025.Essential Connectivity Areas from California Department of Fish and Game(CDFG) 2014. South Coast Missing Linkages from California Department of Fish and Game (CDFG) 2020.
3. Background: Esri. GEBCO, NOAA, National Geographic, Garin, HERE, Geonames.org Copyright:©2013 National Geographic Society, i-cubed

V:\185806\Active\185806775_CRC_CalCapture\03_data\gis_cad\gis\pro\BRTR\BRTR_Figures_20250625.aprx Revised: 2025-07-07 By: mdeseo

Appendix B Photo Documentation

Stantec

Photographic Log

Client:	**California Resources Corporation, LLC**	**Project:**	**Elk Hills CalCapture**
Site Name:	**Biological Survey Area**	**Site Location:**	**Kern County, CA**

Photograph ID: 1

Photo Location:
35.282460, -119.473651

Direction:
South

Survey Date:
2/11/2025

Comments:
Proposed 115 kV route

Photograph ID: 2

Photo Location:
35.285343, -119.472479

Direction:
North

Survey Date:
2/20/2025

Comments:
Proposed sub location

Client:	**California Resources Corporation, LLC**	**Project:**	**Elk Hills CalCapture**
Site Name:	**Biological Survey Area**	**Site Location:**	**Kern County, CA**

Photograph ID: 3 **Photo Location:** 35.282168, -119.466798 **Direction:** West **Survey Date:** 2/11/2025 **Comments:** Proposed raw water line route	
Photograph ID: 4 **Photo Location:** 35.280753, -119.465555 **Direction:** South **Survey Date:** 2/11/2025 **Comments:** Overflow parking area	

Client:	**California Resources Corporation, LLC**	**Project:**	**Elk Hills CalCapture**
Site Name:	**Biological Survey Area**	**Site Location:**	**Kern County, CA**

Photograph ID: 5 **Photo Location:** 35.278073, -119.471170 **Direction:** North **Survey Date:** 2/11/2025 **Comments:** Capure facility location	
Photograph ID: 6 **Photo Location:** 35.274334, -119.468324 **Direction:** Northwest **Survey Date:** 2/19/2025 **Comments:** 200 ft. south of proposed road route	

Client:	**California Resources Corporation, LLC**	**Project:**	**Elk Hills CalCapture**
Site Name:	**Biological Survey Area**	**Site Location:**	**Kern County, CA**

Photograph ID: 7 **Photo Location:** 35.277291, -119.470501 **Direction:** East **Survey Date:** 2/11/2025 **Comments:** Primary parking area	
Photograph ID: 8 **Photo Location:** 35.277642, -119.471746 **Direction:** East **Survey Date:** 2/11/2025 **Comments:** Proposed CO2 line to north, site offices to southeast, proposed alternate route	

Stantec

Photographic Log

Client:	**California Resources Corporation, LLC**	**Project:**	**Elk Hills CalCapture**
Site Name:	**Biological Survey Area**	**Site Location:**	**Kern County, CA**

Photograph ID: 9

Photo Location:
35.283711, -119.474070

Direction:
North

Survey Date:
2/11/2025

Comments:
Proposed electrical line route