DOCKETED	
Docket Number:	23-OPT-02
Project Title:	Darden Clean Energy Project
TN #:	256296
Document Title:	CEC Data Request Response Set 4
Description:	Provides the Applicant's fourth and final response set to data requests received from the CEC. Responses address data requests related to Air Quality, Biological Resources, Socioeconomics, Transmission System Design, and Water Resources. The document includes the following appendices to support responses: Appendix A DR AQ-2 SJVAPCD Completeness Determination Letter, Appendix B DR BIO-7 Burrowing Owl Management Plan, Appendix C DR BIO-7 PV and Gen-tie Biological Resources Management Plan, Appendix D DR BIO-7 Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan, Appendix E DR BIO-18 Land Cover Maps, Appendix F DR BIO-20 Model Parameters and Assumptions, Appendix G DR BIO-23 CNDDB Form Data Tables, Appendix H DR BIO-24 CDFW Correspondence, Appendix I DR BIO-45 Agency Correspondence, Appendix J DR BIO-47 Updated Section 5.12.5 LORS, Appendix K DR WATER-3 Water Quality Lab Results, Appendix L DR WATER-14 Westlands Water District Option Agreement (Redacted)
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Darden Clean Energy Project (23-OPT-02)

CEC Data Request Response Set #4

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1 Introduction

On December 11, 2023, IP Darden I, LLC and Affiliates (Applicant) received a Determination of Incomplete Application and Request for Information from the California Energy Commission (CEC) for the Darden Clean Energy Project (23-OPT-02) in response to the Applicant's application filed on November 9, 2023. The following document provides the Applicant's fourth and final set of responses to the Data Requests received from the CEC. Table 1 lists all Data Requests for which a response is provided in Response Set #4.

Table 1 Data Responses Included in Response Set #4

Data Request Resources Area	Data Request Number
Air Quality	AQ-2 (Additional Information)
Biological Resources	BIO-1 through BIO-47
Cultural and Tribal Cultural Resources	–
Efficiency, Energy and Energy Resources	–
Geologic Hazards	–
Greenhouse Gas Emission (Climate Change)	–
Hazardous Materials Handling	–
Land Use	–
Noise	–
Project Description	–
Public Health	–
Socioeconomics	SOCIO-7 (Resubmitted)
Soils	–
Traffic and Transportation	–
Transmission System Design	TSD-3 and TSD-6
Visual Resources	–
Waste Management	–
Water Resources	WATER-1 through WATER-23
Worker Safety	–

The responses are grouped by individual discipline or topic area and are presented in the same order and with the same numbering provided by the CEC. New or revised graphics, tables, or attachments are provided throughout and as appendices to this document. The responses included in this document are considered complete responses to the corresponding Data Requests.

All Data Requests received from the CEC have been addressed in Response Set #1, Response Set #2, Response Set #3, and Response Set #4.

2 Air Quality

2.1 Data Request DR AQ-2 (Additional Information)

2.1.1 Data Request DR AQ-2

DR AQ-2: Please provide a completeness determination letter from the SJVAPCD confirming that the application submitted to the District has been deemed complete.

Response: An initial response to this data request was provided with Data Response Set #3. Since submittal of Data Response Set #3, the Applicant received a completeness determination letter from the San Joaquin Valley Air Pollution Control District (SJVAPCD) on the preliminary draft air permit application package, which was submitted to SJVAPCD on April 5, 2024. The completeness determination letter, dated May 7, 2024, is provided as Appendix A to this response set.

3 Biological Resources

3.1 Data Requests DR BIO-1 through DR BIO-47

3.1.1 Data Request DR BIO-1

DR BIO-1: Please describe the placement of the gen-tie poles or structures at the intersection of where the gen-tie line crosses over Cantua Creek. Information should include where and at what distance apart the gen-tie poles or structures would be placed east and west of Cantua Creek and any known potentially state-jurisdictional water features in an area which could be impacted by placement of gen-tie poles or structures (see also DR-BIO-26). Include any measures that would be taken to protect and avoid impacts to Cantua Creek.

Response: The gen-tie does not cross the jurisdictional limits of Cantua Creek at any point along its corridor. The creek's channel features terminate approximately 1,100 feet west of the California Aqueduct. At its closest point, Cantua Creek is within approximately 200 feet south of and parallel to the gen-tie corridor (refer to Appendix Q – Volume 1 Biological Resources Assessment Section 1.1.1, *Solar Facility, Step-Up Substation, and Gen-tie*, and Section 3.1.2, *Watershed and Drainages*; Appendix Q – Volume 2 and 3, Appendix Q-9, Aquatic Resources Delineation and Appendix Q-10, Aquatic Resources Representative Photographs).

The gen-tie poles will be spaced approximately 1,300 feet apart and will span the aqueduct. The final locations of the gen-tie poles will be confirmed during later stages of design, and the precise distance of the structures from the aqueduct has not been finalized at this time. No impacts to, or work within the jurisdictional limits of Cantua Creek will occur. As described in Section 5.13, *Water Resources* of the Opt-in Application in the Impact WAT-1 discussion, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented during construction of the gen-tie to apply best practices to control erosion and sedimentation and protect local surface water drainages and water quality.

3.1.2 Data Request DR BIO-2

DR BIO-2: Please provide a map that shows the placement of gen-tie poles or structures to the east and west of Cantua Creek where the gen-tie line crosses.

Response: Please refer to the response to DR BIO-1 above.

3.1.3 Data Request DR BIO-3

DR BIO-3: Please discuss the hydrology of the entire project site as it pertains to the canals and whether any of the canals drain into the Fresno Slough.

Response: The hydrology of the entire Project site was evaluated and characterized in Appendix Q – Volume 1 Biological Resources Assessment, Section 2.3.5, *Aquatic Resources Delineation*, Section 3.1.2, *Watershed and Drainages*, and Appendix Q-9, Aquatic Resources Delineation, and potentially jurisdictional features were discussed in Section 5.12.1.3, *Sensitive Biological Resources* "Jurisdictional Waters and Wetlands" (page 5.12-32) and Appendix Q – Volume 1 Biological Resources Assessment, Section 4.3, *Jurisdictional Waters and Wetlands*. In the Project area, U.S. Geological Survey (USGS) topographic mapping illustrates Cantua Creek and drainages on the hills to

the west of Project's proposed utility switchyard development area, but no streams or other natural water bodies are mapped on the Project site. The California Aqueduct bisects the Project's gen-tie corridor, and the Fresno Slough is located approximately 2.8 miles northeast of the Project area. The NHD depicts an approximately 1.3-mile flowline segment at the northeast corner of the Project site but this location was examined in the field and no stream or hydrologic feature exists at the mapped location.

Field delineation indicated that all of the on-site agricultural ditches, basins, and canals are manmade and part of a site drainage and irrigation system, which forms an isolated interconnected system. There is no downstream connection from the on-site ditches to any receiving water inclusive of the Fresno Slough, nor do they receive flow from any natural upstream waters, inclusive of the Fresno Slough. Rather, the ditches appear to collect agricultural runoff and direct it to pumps (presumably for irrigation re-use) or allow it to infiltrate.

3.1.4 Data Request DR BIO-4

DR BIO-4: Please describe the different water source(s) for irrigation of the farmlands in a one-mile buffer around the project site and 1,000-foot buffer of the linear corridors (project site and linear buffers) identify if any water sources come from ground water. This information will allow California Department of Fish and Wildlife (CDFW) and CEC staff to fully evaluate the potential for impacts to occur within CDFW's jurisdiction under Fish and Game Code section 1600 et seq.

Response: CDFW's section 1600 jurisdiction only extends to activities that would "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" (Fish and Game Code section 1602(a)). The Project will not impact any rivers, streams, lakes, or other jurisdictional water features. As described in Section 5.13, *Water Resources* of the Opt-in Application in the Impact WAT-1 discussion, a SWPPP will be prepared and implemented during construction of the Project to apply best practices to control erosion and sedimentation and protect local surface water drainages and water quality. These practices will prevent impacts to jurisdictional water resources outside the Project footprint.

Publicly available data regarding water resources within the Project region is presented in Section 5.13, *Water Resources* of the Opt-in Application. As discussed in the response to DR BIO-3 above, the agricultural ditches within the Project site form a closed loop and do not drain into or receive water from jurisdictional waters, such as the Fresno Slough or Crescent Ditch.

3.1.5 Data Request DR BIO-5

DR BIO-5: Please provide a table showing impacts by acreage (temporary and permanent), by project feature and land cover type.

Response: The Applicant is unclear on how the CEC is defining the term "impacts" in the context of this data request. The Applicant would not consider the conversion of either (a) agricultural land consisting of orchards or occasionally cultivated vegetable crops only during years with greater-than-normal precipitation, or (b) non-active, non-irrigable agricultural land (under an ongoing regimen of regular disking to manage weed infestations) to a solar farm and associated infrastructure as an "impact" under the California Environmental Quality Act (CEQA) for any biological resources other than Swainson's hawk and burrowing owl (as described in Appendix Q – Volume 1 Biological Resources Assessment). Additionally, areas of "temporary impacts" would be

restored to habitat of higher quality for Swainson's hawk foraging, burrowing owl occupation, and potentially other special-status and non-special-status species, including pollinators, under the procedures outlined in the Swainson's Hawk Conservation Strategy (refer to Mitigation Measure BIO-9 in the response to DR BIO-41) and the Vegetation Management Plan (refer to Mitigation Measure BIO-10 in the response to DR BIO-42). The total permanent and temporary impacts provided in Table 2 below are similar to those provided in the submitted documentation (refer to Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*); however, permanent impacts in the PV Development Footprint are based on the number and size of panel racking piles and inverter-transformer stations needed.

Table 2 DR BIO-5 Maximum Permanent and Temporary Impacts According to Project Component and Land Cover

Project Feature	Land Cover Type	Permanent Impacts (acre)	Temporary Impacts (acre)
PV Development Footprint	Non-active agriculture; Agriculture: occasionally cultivated vegetable crops during years with greater-than-normal precipitation	10.23*	9,120
O&M structures (Option 1 and Option 2)	Non-active agriculture	11	-
Green Hydrogen Facility and Step-Up Substation (Options 1 and Options 2)	Non-active agriculture	242	-
Alt Green Hydrogen Switchyard and Substation (if required)	Non-active agriculture	120	-
Utility Switchyard	Agriculture: Orchard	35	-
Battery Storage (BESS) (Option 1 and Option 2)	Non-active agriculture	32	-
Gen-tie Corridor (not including extension into PV footprint or utility switchyard)	Non-active agriculture; Agriculture: Orchard and occasionally cultivated vegetable crops during years with greater-than-normal precipitation	1.85	233.15
Maximum Total Impacts		**452.08**	**9,353.15**

*Panel racking piles and inverter-transformer stations within the PV Development Footprint. Each pile would be approximately 6x9 inches; approximately 452,000 piles would be required for a total of 24,408,000 square inches or 3.89 acres. Each inverter-transformer station would be approximately 40x25 feet; approximately 276 inverter-transformer stations would be required for a total of 276,000 square feet or 6.34 acres. Total permanent impact in the PV Development Footprint would be 10.23 acres.

The solar array blocks (PV modules), in combination with the BESS, substation, and green hydrogen facility, will cover or permanently impact an estimated maximum of 452.08 acres. This is based on the number and size of panel racking piles and inverter-transformer stations needed in the PV development footprint, which totals approximately 10.23 acres of permanent impacts.

Permanent impacts within the gen-tie corridor are based on a 0.05-acre disturbance footprint for each of the 37 anticipated poles for a total impact area of 1.85 acre. This is a conservative estimate based on H-frame poles; if monopoles are used each pole will have a smaller disturbance footprint.

No Project impacts, permanent or temporary, will occur outside of the proposed Project site shown in Figure 2-2 of Chapter 2, *Project Description* of the Opt-in Application.

3.1.6 Data Request DR BIO-6

DR BIO-6: Please explain why the applicant's proposed measure (APM) APM BIO-1 is in Chapter 2 Project Description, while Mitigation Measures BIO-1 through BIO-8 occur in Section 5.12 Biological Resources. Explain why there are two different types of measures proposed for impacts to biological resources (APM and BIO)?

Response: APM BIO-1 provided in Chapter 2, *Project Description* of the Opt-in Application, includes actions and plans the Applicant has proposed to prepare and implement as an integrated part of Project design that folds into a partnership for a Swainson's hawk conservation research program. Much of the proposed Swainson's Hawk Conservation Strategy goes beyond simply mitigating for impacts, and includes research intended to better inform restoration success on this and future renewable energy projects in the San Joaquin Valley. The conservation plan needs the flexibility to establish and adaptively manage a complex research design, so cannot be overly prescriptive at this stage of development. Based on feedback from CEC, Mitigation Measure BIO-9 for the Swainson's Hawk Conservation Strategy is provided in the response to DR BIO-41.

3.1.7 Data Request DR BIO-7

DR BIO-7: Please provide monitoring plan details (particularly during construction and operation) for San Joaquin kit fox (*Vulpes macrotis*), American badger (*Taxidea taxus*), and burrowing owl (*Athene cunicularia*), as well as blunt-nosed leopard lizard (*Gambelia sila*), if necessary, based on DR BIO-9. The monitoring plans should include methods for pre-construction surveys, and avoidance and minimization measures proposed for construction and operations.

Response: Please refer to the responses to DR BIO-9, DR BIO-10, and DR BIO-11 regarding blunt-nosed leopard lizard.

A Burrowing Owl Management Plan has been prepared (Appendix B to this document) which outlines the procedures and protocols to fully minimize and mitigate potential impacts to burrowing owl. The Burrowing Owl Management Plan would be implemented regardless of the listing status of burrowing owl; however, because the plan would avoid, minimize, and fully mitigate impacts to western burrowing owl, no additional mitigation would be required in the event the species becomes a candidate under the California Endangered Species Act (CESA).

The following plans have been prepared, which detail the monitoring approach for San Joaquin kit fox and American badger during construction activities:

- PV and Gen-tie Biological Resources Management Plan (Appendix C to this document)
- Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D to this document)

Mitigation Measure BIO-11 has been added for preparation of the Burrowing Owl Management Plan, and Mitigation Measure BIO-12 has been added for preparation of an Operations and Maintenance Biological Resources Management Plan.

Mitigation Measure BIO-11 Burrowing Owl Management Plan

The Applicant shall prepare a Burrowing Owl Management Plan that will address the following topics to fully minimize and mitigate potential impacts to the species, particularly in the case that it becomes a candidate species under the California Endangered Species Act (CESA). The management plan will include the following:

1) Burrowing owl existing conditions, including site conditions and burrowing owl observations
2) Management Strategy
    a. Pre-construction surveys
    b. Construction monitoring
    c. Sound or visual barriers
    d. Burrow avoidance and buffers
    e. Passive relocations and exclusion, including installation of artificial burrows if necessary
    f. Burrow excavation
3) Reporting
4) Operation and Maintenance Measures

Mitigation Measure BIO-12 Operations and Maintenance Biological Resources Management Plan

The Applicant shall prepare an Operations and Maintenance Biological Resources Management Plan to be implemented during Project operations that incorporates elements of final Project layout and design and baseline conditions. The plan will address the following topics to avoid and minimize potential impacts to sensitive biological resources including San Joaquin kit fox, American badger, and Swainson's hawk, including from vehicle use; solar panel, facility, and equipment maintenance and repair; and vegetation management activities; among other operations activities. The management plan will be prepared prior to initiation of Project operations and will include the following:

1) Existing conditions, including sensitive biological resources
2) Management Strategy
    a. Worker Environmental Awareness Program
    b. Avoidance and minimization measures
    c. Surveys
    d. Monitoring
3) Reporting

The plan will be reviewed and updated every 5 years to incorporate changed conditions and adaptive management, as needed.

3.1.8 Data Request DR BIO-8 [Reserved]

3.1.9 Data Request DR BIO-9 and DR BIO-10

DR BIO-9: Please provide a habitat assessment or survey results for blunt-nosed leopard lizard for the entire project site and linear buffers.

DR BIO-10: Please explain and provide supporting information for why the applicant considers there to be no suitable habitat or potential for blunt-nosed leopard lizard to occur in the project area.

Response: Section 2.3.1, *Field Reconnaissance Survey* of the Biological Resources Assessment (Appendix Q – Volume 1) describes the reconnaissance surveys completed throughout the Project site to evaluate land cover and habitat and determine the potential for any areas to support special-status plant and wildlife species. These surveys included evaluation for blunt-nosed leopard lizard. The summarized conclusion for blunt-nosed leopard lizard occurrence in the Project area is identified on page Q-2-10 of Appendix Q-2, *Special-Status Species Evaluation Tables*, as having No Potential to occur on the Project site.

The results of the initial habitat evaluation determined that no suitable habitat is present within the Project due to extensive disturbance and agricultural practices. A formal habitat assessment report for blunt-nosed leopard lizard was not drafted because the very nature of all lands within the Project limits was unsuitable for blunt-nosed leopard lizard (i.e., regularly disked inactive crop fields and one orchard). The undeveloped lands west of the Project include grasslands within the Ciervo Hills representing marginally suitable habitat due to high topographic relief, dense vegetation, no areas of bare ground, and no shrubs or other vegetation for shade or cover. There are no known occurrences of blunt-nosed leopard lizard in the past 30 years within 10 miles of the Project site.

Based on these results it was determined the blunt-nosed leopard lizard is not expected to occur within the Project site and a stand-alone habitat assessment was not warranted.

3.1.10 Data Request DR BIO-11

DR BIO-11: Please provide proposed mitigation measures needed to fully avoid impacts to blunt-nosed leopard lizard if an individual were to wander into the project area or be encountered during construction and operation activities.

Response: Blunt-nosed leopard lizard is not expected to occur within any of the Project component locations due to the lack of suitable habitat, and the low potential of occurrence in adjacent marginal grassland habitat west of the Project footprint (utility switchyard). Potential impacts to blunt-nosed leopard lizard will be avoided through implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 (refer to Section 5.1.2, *Biological Resources* of the Opt-in Application).

3.1.11 Data Request DR BIO-12

DR BIO-12: Please provide a complete list of plant species observed during surveys on the project site and linear facility corridor buffers.

Response: The tables below include the plant species observed during the surveys, as provided in Appendix Q-5, *Species Compendia*, and Appendix Q-11, *Delineation Data Sheets*.

Plant Species Observed During Biological Surveys

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Eucalyptus camaldulensis	red gum eucalyptus	None	Introduced
Populus fremontii	Fremont cottonwood	None	Native
Salix lasiolepis	arroyo willow	None	Native
Herbs			
Brassica nigra	black mustard	Cal-IPC Moderate	Introduced
Triticum aestivum	bread wheat	None	Introduced
Phacelia ciliate	great valley phacelia	None	Native
Convolvulus arvensis	field bindweed	None	Introduced

Plant Species Observed During Jurisdictional Delineation Surveys*

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Tamarix parviflora	smallflower tamarisk	Cal-IPC High	Introduced
Herbs			
Atriplex lentiformis	big saltbush	None	Native
Helianthus annuus	common sunflower	None	Native
Lactuca serriola	prickly lettuce	None	Introduced
Typha latifolia	broadleaf cattail	None	Native
Salsola tragus	Russian thistle	Cal-IPC Limited	Introduced
Schoenoplectus acutus	hardstem bulrush	None	Native

*Impacts to jurisdictional resources will be avoided (refer to response to DR BIO-26). Many of the above species were observed in basins used for agricultural purposes near the center of the Project, which will not be impacted by Project activities.

CEC Comment Regarding Lost Hills Crownscale: Lost Hills crownscale (*Atriplex coronata var. vallicola*) and other Atriplex spp., palmate-bracted birds's-beak *(Chloropyron palmatum)*, as well as other species with similar habitat requirements:

The "potential to occur" listed for several plant species is inconsistent with the "Habitat Suitability/Observations" column. Specifically, for Lost Hills crownscale it states this species has a "Low Potential" to occur and that "suitable chenopod scrub, valley and foothill grassland does occur within the BSA but does not occur within 200 ft. of the Project Site (utility switchyard)". However, other Atriplex spp., as well as several other species (e.g. palmate-bracted bird's beak) that have similar habitat requirements, it states that these species have "No Potential" to occur and "suitable chenopod scrub, valley and foothill grassland does not occur within the BSA."

These discrepancies should be resolved as part of the response to data requests (DR BIO-13 and BIO-14) as discussed during the meeting and the applicant should explain why the potential to occur differs for this host of species that occur in similar habitats.

Response: Grassland is present within the western edge of the BSA adjacent to and outside of the Project boundary at the utility switchyard. Based on the presence of this adjacent grassland habitat and the definitions listed in Section 4, *Sensitive Biological Resources* of the Biological Resources Assessment (Appendix Q), the following species with similar habitat requirements as Lost Hills

crownscale, with elevation ranges that include the BSA and with CNDDB records within 5 miles of the BSA, have "Low Potential" to occur within grassland habitat west of the utility switchyard site:

- San Joaquin woollythreads (*Monolopia congdonii*) – CNDDB records of this species are from 1941 or earlier
- Showy golden madia (*Madia radiata*) – this species can occur in grasslands, but typically occurs in adobe clay soils, which are not present where the grasslands occur west of the utility switchyard site

Lost Hills crownscale is the only special-status plant species documented within 1 mile of the BSA (approximately 0.5 mile west of the utility switchyard location in 2002 within the Ciervo Hills; refer to Appendix Q – Volume 1 Biological Resources Assessment Section 4.1.1, *Special-Status Plant Species*). The utility switchyard has been continually disturbed by agricultural activities since at least July 2004; therefore, the species listed above are not expected to occur within the utility switchyard location or anywhere else within the Project site.

3.1.12 Data Request DR BIO-13

DR BIO-13: Please define and describe survey buffers used for all surveys. There were some areas of the project that did not include the 1,000-foot linear facility corridor buffer. Please explain why this buffer was not surveyed.

Response: A variety of survey areas were used based on the purpose and standard protocols for each survey conducted. General reconnaissance surveys and annual site inspections were conducted within a BSA that was defined for this Project as the approximately 9,500-acre Project site (encompassing all Project components, including the gen-tie line corridor) and a 100-foot survey buffer where publicly accessible. General reconnaissance surveys were not conducted out to a 1,000-foot buffer because the Applicant does not have permissions to access private lands outside the Project site. The biological study area for Swainson's hawk was expanded to include local protocol Swainson's hawk surveys to assess nesting within 0.5 mile of the Project site, and regional Swainson's hawk nest surveys to inform a Swainson's hawk foraging analysis. These studies incorporated species-specific buffers of 0.5 mile for the protocol surveys and 10 miles for the foraging analysis. The Aquatic Resources Delineation study area included the Project site and a 250-foot buffer (refer to Appendix Q – Volume 1 Biological Resources Assessment Section 2.1, *Biological Study Area*).

In addition, please refer to the response to DR BIO-14.

3.1.13 Data Request DR BIO-14

DR BIO-14: If a minimum of at least a 1,000-foot buffer was not used for biological resources surveys around the entire project site and gen-tie line ROW, perform surveys in the 1,000-foot buffer.

Response: The Applicant does not have landowner permissions to access areas within a 1,000-foot buffer around the Project site.

The reference to the 1,000-foot buffer in Appendix B (g)(13)(B) is in the section requesting a high level "regional overview and discussion of terrestrial and aquatic biological resources" and not in section D(i) describing biological surveys. A regional overview was provided in the Biological Resources Assessment Section 3, *Existing Conditions*, and Appendix R, Species Observed and with

Potential to Occur and 10-mile CNDDB. With respect to field surveys, section D(i) instructs applicants to prepare surveys using "appropriate field survey protocols" identified in consultation with state and federal resource agencies. The Project's Swainson's hawk surveys and aquatic resources delineation were prepared consistent with applicable survey protocols. As such, we do not believe that Appendix B requires survey buffers to be extended to the one-mile and 1,000-foot buffers referenced in the deficiency letter and it would not be practical to do so.

CEC Comment Regarding California Tiger Salamander (CTS): The Special-Status Species Evaluation Table (Appendix Q-2, p. Q-2-9) states: "A perennial pond for grazing cattle with nearby ground squirrel burrows occurs west of the utility switchyard within the BSA. However, there is no suitable habitat in the BSA within the 1.2-mile dispersal distance of this species". However, according to staff's review of applicant's data (including shapefiles), Impoundments 1 and 2 (TN 253038-3, pps. 31 of 57 and 32 of 57) are located immediately adjacent to the border of the "Utility Switchyard Parcel" and less than 0.26 and 0.16 miles (respectively) from the boundary of the "Utility Switchyard".

These locations may contain suitable habitat for CTS and are well within dispersal distance of 1.2 miles. There is also another immediately offsite portion described under San Joaquin coachwhip as "An area of suitable open dry habitat with nearby ground squirrel burrows occurs west of the switch yard within the BSA." (p. Q-2-11), that could be potentially suitable habitat for CTS within dispersal distance. Portions of the utility switchyard and gen tie line may also provide suitable habitat for CTS with the presence of ground squirrel burrows.

These mapping discrepancies should be resolved as part of the response to data requests (DR BIO-13, BIO-14 and BIO-34). Please ensure the responses provide additional information on the applicant's determination that there is no potential for CTS to occur and include the results of any offsite survey data.

Response: The entire Project site consists of agricultural lands that are disked and managed as retired agricultural parcels, with a small number of orchards and occasionally active agriculture fields cultivated with vegetables in years with greater-than-normal precipitation (refer to the response to DR BIO-5). While marginally suitable habitat and marginal aquatic habitat are present in the vicinity as described below, the Project site itself supports no suitable aquatic or refugia habitat for CTS.

California tiger salamander inhabits annual grasslands and open woodlands and requires upland habitat with underground refugia and seasonal water sources for breeding. The species spends most of its life with little movement in underground small mammal burrows; however, during the breeding season typically between November and February, this species migrates at night during rain events, traveling between upland habitat and breeding ponds (Orloff 2011). This species is closely associated with California ground squirrel underground burrows (Trenham 2001), and active populations of burrowing rodents are likely required to sustain California tiger salamanders as inactive burrow systems collapse and become progressively unsuitable over time (Loredo et al. 1996). Aquatic breeding sites include vernal pools and other seasonal ponds and stock ponds that typically have minimal emergent vegetation, lack predatory fish or bullfrogs, and are inundated for at least 12 weeks during the breeding season to allow for larval metamorphosis to be completed.

The utility switchyard and gen-tie line are in areas of agricultural production comprised of actively managed orchards, occasional vegetable crops tilled and planted only during years of greater-than-normal precipitation, retired agricultural parcels that are regularly disked, or disturbed areas that are graded and non-friable (as shown in Photographs 1 through 9 in Appendix Q-4, Site

Photographs). While California ground squirrels were observed within the BSA along roadsides, and around the edges of the alternate green hydrogen component location, most of the Project site (including the orchard within the utility switchyard footprint, as shown in Photograph 1 in Appendix Q-4, Site Photographs) is unsuitable for California ground squirrels. Annual grassland occurs along the western edge of the Ciervo Hills. Two seasonal cattle ponds (Impoundments 1 and 2) are within the non-native grassland, approximately 0.46 mile west of, and immediately adjacent to the Project site. Both ponds are small (approximately 0.07 and 0.09 acre), intermittently dry, and isolated (no other ponded water occurs within California tiger salamander dispersal range of Impoundments 1 and 2).

As identified on page Q-2-9 of Appendix Q-2, *Special-Status Species Evaluation Tables*, there are no California tiger salamander occurrences within 10 miles of the BSA. Additionally, there are no known occurrences of this species on the eastern edge of the Ciervo Hills. As such, there is low potential for this species to occur within the grassland habitat or cattle ponds outside the Project site. While a limited number of California ground squirrels occur along roadsides in the vicinity of the utility switchyard and gen-tie line, there is low potential for California tiger salamander to occur within these areas, as the only potential dispersal location is the grassland habitat to the west, which has a low potential for this species to occur, as described above. Additionally, the land cover within the utility switchyard Project area consists of an actively managed orchard and areas that are regularly disked. This area does not present suitable dispersal habitat and California tiger salamander are not expected to occur within the Project site.

3.1.14 Data Request DR BIO-15

DR BIO-15: Please provide a habitat assessment, documentation, and proposed avoidance and minimization measures to avoid potential impacts to tricolored blackbird (*Agelaius tricolor*). Tricolored blackbird are known to nest in alfalfa, wheat, and other low agricultural crop fields and therefore they could nest within and/or adjacent to the project site.

Response: Section 2.3.1, *Field Reconnaissance Survey* of the Biological Resources Assessment (Appendix Q – Volume 1) describes the reconnaissance surveys completed throughout the Project site to evaluate land cover and habitat and determine the potential for any areas to support special-status plant and wildlife species. These surveys included evaluation for tricolored blackbird. The species is also discussed in the Biological Resources Assessment Section 4.1.3, *Species Discussions*. These surveys and analysis determined tricolored blackbird have a low potential to forage within the BSA and no potential to nest within the BSA. Based on these results it was determined tricolored blackbird are not expected to occur within the Project site and a stand-alone habitat assessment was not warranted. Proposed avoidance and minimization measures are described in the Biological Resources Assessment Section 5, *Impact Analysis and Recommended Measures*.

3.1.15 Data Request DR BIO-16

DR BIO-16: Please provide a discussion of all suitable habitat for tricolored blackbird in the project site and linear facility corridor buffers.

Response: Please refer to the response to DR BIO-15 above.

3.1.16 Data Request DR BIO-17

DR BIO-17: Please provide a map of all suitable habitat for tricolored blackbird in the project area including the 1,000-foot buffer.

Response: Please refer to the response to DR BIO-13 and DR BIO-15 above.

3.1.17 Data Request DR BIO-18

DR BIO-18: Please provide map(s) of land cover types at a scale consistent with Appendix B (g) (13) (B) (i).

Response: Maps in compliance with requirements in Appendix B (g) (13) (B) (i) were submitted in Section 5.12 *Biological Resources*, Appendix Q Section 4, *Sensitive Biological Resources*, and Appendix R, *Species Observed and with Potential to Occur and 10-mile CNDDB* of the Opt-in Application. Maps identifying land cover types are provided as Appendix E to this document. Data inputs for the maps includes observations during biological resources surveys and the agricultural uses map depicted in Figure 5.2-5a through Figure 5.2-5h in Section 5.2, *Land Use.* Land cover terminology is consistent with designations identified in Section 5.12, *Biological Resources*, including Orchard (active agriculture), Non-Active Agriculture, Developed (Interstate 5), Grassland (in the westernmost buffer area of the BSA outside the utility switchyard parcel), and Open Water (California Aqueduct).

3.1.18 Data Request DR BIO-19

DR BIO-19: Please provide map(s) of the project site and linear facility corridor buffers identifying where pedestrian and windshield surveys were conducted.

Response: Please refer to the response to DR BIO-13 for a discussion of the survey areas used.

- General reconnaissance and site inspection survey areas (Project site plus a 100-foot buffer where accessible) are depicted in Figure 3, Figures 4a-4f, and Figures 5a-5e of Appendix Q – Volume 1 Biological Resources Assessment.
- Protocol Swainson's hawk nesting survey areas (within 0.5 mile of the Project site) are depicted in Figure 3 of Appendix Q-7, *Swainson's Hawk Nesting Survey Report*.
- Swainson's hawk foraging analysis survey areas (within 10 miles of the Project site) are depicted in Figures 2-6 of Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*.
- Aquatic resource delineation survey areas (Project site and a 250-foot buffer where accessible) are depicted in Appendix Q-9, *Aquatic Resources Delineation*.

Survey methodologies are described in Appendix Q – Volume 1 Biological Resources Assessment Section 2.3, *Field Surveys*.

3.1.19 Data Request DR BIO-20

DR BIO-20: Please perform nitrogen deposition modeling for the diesel-fueled emergency backup generators (backup generators), including the complete citation for references used (including the source document for documents not readily available online) in determining deposition rates and location. Specify the amount of total annual nitrogen deposition in kilograms of nitrogen per hectare per year (kg N/ha/yr) in special status species habitats and vegetation types for wet and dry

deposition. Describe each habitat and species potentially affected by nitrogen deposition. Please provide modeled nitrogen deposition rates, map(s), and other information as specified for the project's backup generators. See Appendix B (g) (13) (B) (ii), Appendix B (g) (13) (C) (iii), and Appendix B (g) (15) (B) (ii). Please include a discussion of the potential for all anticipated emissions that may adversely affect soil-vegetation systems.

Response: The Project includes emergency backup generators (LPG and diesel) and fire pump engines, which would operate during major power supply failures to ensure the safe and reliable shutdown of the green hydrogen facility. Criteria air pollutant emissions would be generated during the operation of emergency backup generators and fire pump engines, including nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulates (PM10 and PM2.5). Nitrogen oxide gases (NO, NO_2) convert to nitrate particulates suitable for uptake by most plants. Increases in nitrate from Project-related combustion could accumulate in soils, potentially promoting growth of nonnative or invasive plant species allowing them to outcompete native species adapted to soils with lower levels of nitrogen. Nitrogen deposition modeling was performed for the emergency backup generators and the methodology is detailed in Appendix F. Nitrogen deposition modeling results within special status species habitats and vegetation types, a discussion of potential impacts to habitats and species potentially affected by nitrogen deposition, and the references used in this analysis are detailed in Appendix F.

Operation of the Project's emergency backup generators and fire pump engines would not lead to nitrogen deposition levels that exceed critical thresholds associated with significant impacts to non-native grassland, dune or riparian vegetation communities in the vicinity of the Project site or special status species that may occur within the vegetation communities. Therefore, operation of the Project's emergency backup generators and fire pump engines would result in less than significant impacts to natural vegetation communities and special status species within 6 miles of equipment operation.

3.1.20 Data Request DR BIO-21

DR BIO-21: Please provide revised project GIS shapefiles identifying the proposed laydown area(s) and hydrogen pipeline stub.

Response: Laydown area locations will be finalized in later stages of design. Please see the response to DR BIO-22 for additional details on laydown areas. Updated GIS files were provided via Kiteworks on March 14, 2024 as part of Response Set #2 indicating potential pipeline stub locations (refer to the response to DR PD-2 in Response Set #2).

3.1.21 Data Request DR BIO-22

DR BIO-22: Please provide a discussion of where the laydown area(s) would be and what it would be used for, including what types of items would be stored in the laydown area, what grading or other surface preparation would be required. Include avoidance and minimization measures for potential impacts to species, such as burrowing owl and San Joaquin kit fox, which may utilize pipes and other equipment stored in these areas. Also, would the laydown area(s) be fenced, and if so, please describe the fencing.

Response: The number, size, and location of laydown areas will be defined during continuing design stages. A laydown area will be sited inside each of the separate fenced Project areas. No laydown areas will be located outside the Project boundary. Locations will be based on delivery routes,

construction access roads, avoidance areas, and easements. Sizes will vary from approximately 1 to 10 acres.

Laydown areas will be used for the temporary staging and storage of Project materials during construction such as tracker components, wire spools, module pallets, and steel piles. The laydown areas will generally be compacted native soils with compacted gravel overtop. Minimal grading will be required as the site is very flat, but graders will be used to compact the soil.

Please refer to the response to DR BIO-32 for fence information.

General measures to avoid and minimize potential impacts to biological resources are provided in Mitigation Measure BIO-1: Construction Worker Environmental Awareness Training and Education Program, and Mitigation Measure BIO-2: Construction Best Management Practices in Section 5.12, *Biological Resources*. Measures to avoid and minimize potential impacts to burrowing owl and San Joaquin kit fox are provided in the following plans prepared for the Project:

- Burrowing Owl Management Plan (Appendix B to this document)
- PV and Gen-tie Biological Resources Management Plan (Appendix C to this document)
- Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D to this document)

3.1.22 Data Request DR BIO-23

DR BIO-23: Please provide copies of all California Natural Diversity Database (CNDDB) forms for species listed by a state or federal agency and other special status species encountered during project surveys.

Response: CNDDB form data tables have been prepared for special-status species observations made during biological resources surveys. The CNDDB form data tables are provided in Appendix G to this document.

3.1.23 Data Request DR BIO-24

DR BIO-24: Please provide copies of any correspondence or records of conversations to confirm that CDFW was consulted regarding Swainson's hawk protocol guidance, per Appendix B (g) (13) (D) (i).

Response: Coordination with CDFW regarding Swainson's hawk survey protocol occurred via email and are documented in Appendix H to this document.

3.1.24 Data Request DR BIO-25

DR BIO-25: Please perform appropriate surveys for Crotch's bumble bee (*Bombus crotchii*) pursuant to CDFW protocol guidelines (CDFW 2023). Please coordinate with CDFW to ensure adherence to appropriate protocol (focal survey area(s) may be refined based upon the maps requested per DR Bio-18).

Response: No suitable vegetated habitat with appropriate floral resources for Crotch's bumble bee occurs within the Project BSA (refer to the responses to DR BIO-5 and DR BIO-9), and no current occurrences have been recorded within 10 miles of the Project site. While this species was historically common in the Central Valley of California, the 2014 IUCN Assessment indicates Crotch's bumble bee is considered by most authorities to be absent from most of the central portion of its historic range due to extensive agricultural intensification and increased use of pesticides (refer to

page Q-2-8 of Appendix Q-2, *Special-Status Species Evaluation Tables*). Therefore, Crotch's bumble bee has no potential to occur in the BSA and protocol surveys are not necessary, as confirmed through verbal consultation with CDFW (Julie Vance) on January 8, 2024.

3.1.25 Data Request DR BIO-26

DR BIO-26: Please justify the determination that there are no CDFW jurisdictional features as determined under Fish and Game Code section 1600 et seq. See also DR BIO-1 through BIO-4.

Response: The extent of CDFW jurisdiction over streams and basins within the Project site was determined based on a review of applicable statutes (CFGC Sections 1600 et seq.) and associated regulations, guidance, and case law. Justifications for the determinations regarding CDFW jurisdiction can be found in Appendix Q – Volume 1 Biological Resources Assessment Section 2.3.5, *Aquatic Resources Delineation*, Section 4.3, *Jurisdictional Waters and Wetlands*, Section 5.3, *Jurisdictional Waters and Wetlands*, and Appendix Q-9, *Aquatic Resources Delineation*). CDFW jurisdictional features identified within the Jurisdictional Study Area (Project site and 250-foot buffer) include: California Aqueduct, Cantua Creek, and four ephemeral swales (ES-1 through ES-4) near the utility switchyard. Cantua Creek and the four ephemeral swales are not within the Project footprint and will not be impacted by Project activities. Cantua Creek is approximately 200 feet south of the gen-tie corridor (see response to DR BIO-1); the four ephemeral swales are within 250 feet of the utility switchyard parcel, but more than 250 feet from the proposed utility switchyard footprint. The California Aqueduct bisects the gen-tie corridor approximately 3 miles west of the solar facility; however, gen-tie pole installation locations and activities will avoid impacts to the aqueduct (refer to the response to DR BIO-1 and Chapter 2, *Project Description*).

3.1.26 Data Request DR BIO-27

DR BIO-27: Please discuss potential impacts and avoidance measures, particularly during operations, when San Joaquin kit fox may be struck by vehicles, have dens crushed, or experience other direct impacts from project activities.

Response: Please refer to the responses to DR BIO-7. Based on the San Joaquin kit fox habitat assessment completed for the Project (refer to Appendix Q-6, San Joaquin Kit Fox Habitat Assessment) there is no expectation that San Joaquin kit fox will occur on the site during construction or operation. However, in the event that restoration of annual grassland habitat within the Project site ultimately results in a return of San Joaquin kit fox to this portion of the Central Valley, an Operations and Maintenance Biological Resources Management Plan will be prepared that will contain measures to avoid and minimize potential impacts to San Joaquin kit fox from vehicle use; solar panel, facility, and equipment maintenance and repair; vegetation management activities; and other operations activities.

3.1.27 Data Request DR BIO-28

DR BIO-28: Please discuss potential impacts to blunt-nosed leopard lizard, burrowing owl, or other protected species, from artificial nuisance attractants or "subsidies" (e.g., trash/food waste, water, and perching/nest sites) for common raven (Corvus corax), and any known methods to avoid such impacts, particularly those associated with facility structures such as buildings and poles mounted at the ends of sub-arrays and along the gen-tie line (Options 1 and 2). These structures provide artificial perching opportunities for hunting.

Response: Subsidization of common ravens has the potential to directly impact sensitive biological resources within the Project site; however, there is low or no potential for most special-status species to occur within the Project site. Increasing nesting opportunities and the potential for attractants (e.g., trash) during construction could result in increased predation on special-status species by common ravens. Potential impacts from artificial nuisance attractants or subsidies are addressed through Mitigation Measure BIO-2: Construction Best Management Practices. Trash will be placed in sealed containers and removed from the Project site at a minimum of once per week. Any open water sources, such as tanks, will be covered to prevent animals from entering. In addition, dust control will be done in a way as to minimize overwatering and pooling of water that could attract animals. Gen-tie structures and other facility structures will be designed in compliance with the Avian Power Line Interaction Committee (APLIC) Avian Protection Plan Guidelines (APLIC 2005). The measures within these guidelines have been created to discourage perching or nesting by raptors and other predatory birds (i.e., common raven).

3.1.28 Data Request DR BIO-29

DR BIO-29: Please provide a discussion of impacts resulting from artificial lighting, polarization of light, and any other potential adverse impacts to insects and avian fauna. Discuss also the potential "lake effect" of PV panels, which may act as an attractant to migratory birds. Also, provide a discussion of impacts on migratory birds, as well as potential adverse impacts to tricolored blackbird nesting habitat.

Response: The response to this comment includes individual discussions related to 1) artificial lighting; 2) polarization of light and the "lake effect;" 3) avian mortality related to the lake effect; and 4) polarization of light and the "lake effect" as it relates to invertebrates. Tricolored blackbird, and the lack of suitable breeding habitat was addressed in response to DR BIO-15.

Artificial Lighting

Context for artificial lighting impacts was presented in Section 5.5.1.2, *Visual Resources Project Appearance* of the Opt-in Application. Construction of the Project would generally occur during daytime hours. During limited times some construction activities, such as de-energizing and re-energizing existing lines along the Project footprint may be required or finished at night while electrical demand is low, and these activities would require lighting for safety. Any required lighting during construction would be limited to individual work areas and would be temporary in nature. Project lighting for operations would be restricted to areas required for safety, security, and operational activities, such as the operations and maintenance (O&M) facilities, step-up substation, green hydrogen facility, BESS, and entrance gates, and would be less than 1 percent of the total Project area. The level and intensity of lighting during operations would be the minimum needed and all lighting would be shielded and directed downward (full cut-off) to minimize the potential for glare or spillover into adjacent areas. As a result, the Project is not expected to significantly impact avian or invertebrate species as a result of artificial lighting, particularly in the context of the few species expected to occur at the site, including Swainson's hawk and burrowing owl.

Light Polarization and Lake Effect Regarding Avian Species

The lake effect hypothesis, which posits that aquatic birds misinterpret PV solar panels for water due to panels reflecting polarized light, was developed based on the occurrence of aquatic bird carcasses at a single PV solar facility in the Mojave Desert. Koschiuch et al. (2021) examined the lake effect hypothesis using data from numerous PV solar sites in the desert southwest and beyond, and

found aquatic bird mortality rates were low (less than 0.01 to 0.09 fatalities/ha/study period) and varied between grassland, agricultural, and desert habitats. Additionally, flocks of aquatic birds were not observed approaching PV solar sites exhibiting landing, circling, or approaching behavior, indicating aquatic birds were not misinterpreting PV solar panels for water on a large scale. While individuals of some aquatic bird species could be attracted to PV solar sites, the causal mechanisms are not understood and are likely site and landscape context dependent, mortality rates are low, and attraction of aquatic birds is not occurring on a widespread or large-scale basis, despite the widespread deployment of solar in places where large numbers of these aquatic bird species migrate through. In light of this, the Project is not expected to contribute significantly to avian mortality as a result of the lake effect hypothesis.

Avian Mortality at Solar Facilities

Substantial avian mortality monitoring efforts over the last 10 years and robust, data-driven scientific research projects over the last 5 years have attempted to identify whether solar facilities have an adverse effect on avian fauna due to attraction, interference with migration, or some other mechanism. Fatality monitoring has shown that there are avian injuries and fatalities associated with solar energy facilities, but the cause of the morbidity and mortality has been inconclusive (collision, predation, etc.), and there has been no report or evidence of large-scale avian fatality events at any PV solar project, and if avian carcasses are discovered, it is typically a single individual detection.

Research on background rates of mortality at reference sites demonstrates that avian fatalities at solar facilities are statistically equivalent to fatality rates at reference sites with one exception: solar sites in the desert southwest. Research shows that there is a very small, but statistically significant, attraction effect resulting in a small adverse attraction-related effect of solar facilities on avian species in the southern California and Nevada desert region, with a high-end fatality estimate of 2.49 birds per megawatt per year (Kosciuch et al. 2020). Attraction and resultant fatalities of avian species has not been demonstrated in other regions. A background fatality study conducted at the California Valley Solar Ranch project in San Luis Obispo County resulted in a similar number of carcasses per unit area found in the reference transects outside the solar project compared to the transects surveyed in the solar facility. In addition, the composition of the species was similar, providing evidence that background rates of avian mortality are equivalent to mortality rates at a solar facility in central California (EPRI 2021).

Research is ongoing, including work by Diehl, Roberson, and Kosciuch (with funding from the California Energy Commission), and from Walston and Hamada (Argonne National Labs with funding from Department of Energy), the latter of which is using computer vision to track avian activity at solar PV facilities across the United States, including partnering with Intersect Power's Oberon Renewable Energy Project in eastern Riverside County. Preliminary results of the Walston and Hamada work show no daytime collisions of birds with solar PV infrastructure despite 24/7 monitoring (unpublished presentation to REWI, November 2023).

Light Polarization and Lake Effect Regarding Invertebrate Species

Research on invertebrate attraction to solar panels is limited. One study in Africa on solar energy facility effects on invertebrates found no differences in abundance or order richness in epigaeic or flying invertebrate communities between solar fields or surrounding rangeland communities (Jeal et al 2019). Another study in Hungary found aquatic insects (mayfly, caddisfly, and empidoidea and tabanid flies) were attracted to and exhibited oviposition behavior above solar panels with higher

degrees of polarization (Horvath et al. 2010); however, the research was conducted on individual solar panels placed adjacent to a creek in a montane ecosystem. Aquatic invertebrate attraction to solar panel arrays on solar sites in more arid environments is not yet known, and distance from solar site to aquatic habitats has not yet been investigated as a determining factor. Additionally, decreased insect biodiversity in agricultural areas is well known (Raven and Wagner 2021), and invertebrate biomass in the Project BSA and surrounding region may be limited by historical and current agricultural practices within the region. In light of this, the Project is not expected to contribute significantly to changes in invertebrate populations, densities, or locations in the general region. Nor are significant impacts expected to avian species due to invertebrate prey attraction to solar panels.

Conclusion

Based on substantial evidence in the scientific and grey literature, the Project is not anticipated to result in direct or indirect avian morbidity or mortality above baseline conditions, and avian mortality monitoring is not proposed nor warranted beyond what is proposed in the Swainson's Hawk Conservation Strategy, and other Plans described in the response to DR BIO-7. It is possible and anticipated that the Project site, once revegetated and operational in accordance with the Swainson's Hawk Conservation Strategy, may improve habitat for nesting and foraging Swainson's hawks and other avian species, including migratory birds, as well as invertebrate species relative to baseline conditions.

Citations

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Horvath, G., M. Blaho, A. Egri, G. Kriska, I. Seres, and B. Robertson. 2010. Reducing the Maladaptive Attractiveness of Solar Panels to Polarotactic Insects. Conservation Biology (24 (6): 1644-1653.

Jeal, C., V. Perold, C.L. Seymour, S. Ralston-Paton, and P.G. Ryan. 2019. Utility-Scale Solar Energy Facilities – Effects on Invertebrates in an Arid Environment. J. Arid Environments 168: 1-8.

Kosciuch, K., D. Riser-Espinoza, M. Gerringer, and W. Erickson. 2020. A Summary of Bird Mortality at Photovoltaic Utility Scale Solar Facilities in the Southwestern U.S. PLoS ONE 15(4): e0232034. doi: 10.1371/journal.pone.0232034.

Kosciuch, K., D. Riser-Espinoza, C. Moqtaderi, and W. Erickson. 2021. Aquatic Habitat Bird Occurrences at Photovoltaic Solar Energy Development in Southern California, USA. Diversity 13(11): 524. doi: 10.3390/d13110524.

Raven, P.H., D.L. Wagner. 2021. Agricultural Intensification and Climate Change are Rapidly Decreasing Insect Biodiversity. Proc Natl Acad Sci USA 118(2).

3.1.29 Data Request DR BIO-30

DR BIO-30: Please provide a discussion of noise and vibratory impacts to sensitive wildlife, particularly on fossorial mammals (American badger, burrowing owl, and San Joaquin kit fox), and whether proposed buffers are sufficient to avoid impacts to nesting migratory birds and raptors, particularly Swainson's hawk.

Response: The Project will be implemented in accordance with the Mitigation Measures provided in Section 5.12, *Biological Resources*, the Swainson's Hawk Conservation Strategy, and the biological resources management plans prepared for the Project, described in the response to DR BIO-7. The Mitigation Measures and Plans include buffer distances identified for each species and/or taxa and monitoring during Project construction. As a result, construction noise and vibrations will not lead to significant impacts to fossorial mammals, nesting birds, or raptors.

In particular, construction will be limited to daytime periods when ambient noise levels are highest, and the Project is not proposing to use any equipment that will create unusual levels of noise and vibration. Construction of each Project component will be spatially distributed across the Project site, and the large average distance between areas actively under construction during different phases will ensure that noise generated does not compound. Operational activities of the constructed Project facility will not generate high noise levels,. Sources of operational noise will include general operation of the facility such as transformers, energy storage systems and substation equipment (refer to Section 5.3, *Noise*).

- **San Joaquin kit fox** is not expected to occur within the Project area for foraging or breeding. If a kit fox wanders into the Project site, Mitigation Measure BIO-4 (including no-work buffers of 500 feet) and the Project Plans described in the response to DR BIO-7 will be implemented to avoid significant noise and vibratory impacts to the species.
- **Burrowing owl and American badger:** Mitigation Measures BIO-3, BIO-5, and BIO-6, and the Project Plans described in the response to DR BIO-7 will minimize potential impacts to breeding and non-breeding burrowing owls and American badger to less than significant. The measures include preconstruction surveys, burrow occupancy and nesting determination, and establishment of no-disturbance buffer zones. Buffer distances for burrowing owls will be established and maintained using the distances recommended in the 2012 CDFW Staff Report on Burrowing Owl Mitigation, or any updated mitigation guidelines for the species. Buffer distances for American Badger include 50 feet for occupied dens and 250 feet for natal dens. All occupied burrows and dens will be monitored for signs of noise or vibratory disturbance during construction, and buffers will be increased as needed to avoid significant impacts.
- **Nesting birds:** Mitigation Measures BIO-7 and BIO-8 include pre-construction nesting bird surveys during the nesting season, and establishment of no-disturbance nest buffers around all active nests to reduce potential noise and vibratory impacts to less than significant. These measures specify that active nest buffer distances will be determined by a Qualified Biologist and established based on the species and nest location. Standard nest buffers are typically 200-500 feet for common raptors and 30-50 feet for most common passerines. The Qualified Biologist will monitor active nests for signs of disturbance during construction. If noise or vibratory disturbance is observed, the Qualified Biologist will increase the size of the no-disturbance nest buffer to ensure that impacts to nesting birds are avoided and minimized.
- **Swainson's hawk:** Mitigation Measure BIO-9 requires the preparation of the Swainson's Hawk Conservation Strategy (see response to DR BIO-41), which will include no-disturbance buffers ranging from 50 feet to 1,320 feet around all active Swainson's hawk nests depending on

construction activity intensity and duration. Active Swainson's hawk nests within 0.25 mile of construction activities will be monitored for signs of disturbance by a Qualified Biologist. If noise or vibratory disturbance is observed, the Qualified Biologist will increase the size of the nest buffer to ensure that impacts to Swainson's hawk are avoided and minimized to a less than significant level.

Per Mitigation Measure BIO-3, if other sensitive wildlife species are observed during preconstruction surveys or biological monitoring, the Qualified Biologist will monitor construction activities to avoid and minimize noise and vibratory impacts to less than significant.

3.1.30 Data Request DR BIO-31

DR BIO-31: If nitrogen deposition impacts to sensitive species or habitat are anticipated (based on analysis performed in support of DR BIO-20), please discuss these impacts on specific sensitive species or habitat that may be potentially adversely impacted.

Response: As discussed in DR BIO-20 above, nitrogen deposition impacts to sensitive species or habitat would not be significant based on the analysis performed.

3.1.31 Data Request DR BIO-32, DR BIO-33, and DR BIO-34

DR BIO-32: Please discuss if there would be any temporary or permanent fencing around the project elements and what type of fencing material would be used.

DR BIO-33: If there would be fencing, please provide a map of where the fencing would occur for both construction and operations.

DR BIO-34: If there would be a fence, please discuss the potential impacts to listed and special-status species and provide mitigation measures to reduce impacts.

Response: Permanent wildlife-friendly fencing will be installed along the perimeter of all PV areas. The use of wildlife-friendly fencing is intended to avoid and minimize potential impacts to special-status species through design. Security fencing will be installed around the O&M facility, BESS, hydrogen facility, step-up substation, and switchyard areas. Permanent fencing will be installed at the onset of construction so that it is in place during construction activities, as feasible. Typical fence details are provided in application materials in Appendix F page C.402. Temporary fencing such as orange plastic or snow fencing may be used during construction to identify areas of avoidance or to limit access. Temporary fencing will also include wildlife exclusion fencing and/or silt fencing, as needed, to exclude general and sensitive species from the construction areas. Final fence locations and specifications have not been finalized and will be determined during future stages of design.

Monitoring of fence installation and maintenance (and removal of temporary fencing) during Project construction and operation are also included to avoid and minimize potential impacts to special-status species (refer to the Mitigation Measures in Section 5.12, *Biological Resources*, and the biological resources management plans described in the response to DR BIO-7). As a result, significant impacts to special-status species from fence installation and maintenance are not expected.

3.1.32 Data Request DR BIO-35

DR BIO-35: Please discuss potential impacts to burrowing owl. CEC staff and CDFW disagree with the applicant that the duration of construction impacts (18 to 36 months) are temporary in nature. Please provide further analysis on available burrows, including satellite burrows both on the project site and within all areas that could directly or indirectly affect burrowing owl, as defined by Appendix B (g) (13) (E), as well as all information as required in the 2012 CDFG guidelines (CDFG 2012). See DR BIO-7.

Response: Direct and indirect impacts to burrowing owls are discussed in Section 5.12, *Biological Resources* and Appendix Q – Volume 1 Biological Resources Assessment Section 5.1.2 *Special-Status Wildlife Species*. Impacts to burrowing owls were discussed within the context of what is considered permanent impacts for any burrows or habitat that would be permanently impacted (i.e., burrows that would be evicted and collapsed because construction would occur at the burrow site), and those burrows that would experience only temporary impacts during the construction period (i.e., those burrows that would be evicted but not collapsed, or those burrows that would require avoidance buffers and visual barriers). As described in the Biological Resources Assessment and documented during site surveys, most of the burrowing owls or their signs on the site were located primarily on the outer edges of the PV solar site as a result of disking activities that have resulted in unsuitable burrowing habitat within the parcels. Only one individual and one occupied burrow were located within the interior of the site. No other burrows were found in the interior of the site. Accordingly, construction activities are expected to have minor direct or indirect impacts to burrowing owl, as the burrowing owls located on the edge of the site would not be within the Project's development footprint. Those burrows would not require eviction and collapse and, therefore, would not result in permanent impacts. Further, any temporary impacts from construction would be avoided and minimized through appropriate buffers, barriers, and monitoring (refer to the Burrowing Owl Management Plan provided in Appendix B to this document). Impacts to burrowing owl habitat are considered temporary in all areas designated for restoration, as those areas will be restored to suitable foraging and breeding habitat. The entire site will not be disturbed for the full length of the construction timeframe due to construction phasing and construction methods designed to limit overall grading of the site. Construction phasing and preliminary construction schedules are discussed in the Project Description in Section 2.3, *Project Construction* in the original application materials. Minimal grading is anticipated across the PV solar area due to existing flat conditions with minimal grade changes and current land use practices that regularly disk the lands. Further, current site conditions provide poor quality habitat for burrowing owl—the Project site consists of retired agricultural lands that are regularly disked to control invasive weeds such as mustard and Russian thistle; the intervening growth of weeds creates cover that is too tall for burrowing owls to have a clear viewshed for foraging and predator avoidance, and the regular disking prevents the establishment of long-term burrows for breeding or winter cover. Suitable habitat is predominantly limited to the margins of the managed fields where irrigation ditches and berms occur, which would be avoided as described above. Following construction, the Project would implement a Vegetation Management Plan that would result in restoration of the Project site to a mix of native and naturalized grassland and forb species which would provide a more consistent source of foraging habitat for the species than currently exists under the regular disking regimen. Thus, construction would not result in permanent impacts to burrowing owl habitat, given the requirements for restoration of temporary impact areas in the Project site to suitable foraging habitat for Swainson's hawk, burrowing owl and other wildlife. Moreover, extensive suitable habitat is present immediately adjacent to the Project site and throughout the region for burrowing owls to

utilize. The only permanent impacts to burrowing owl habitat would be those areas where permanent structures are built (e.g., O&M building, substation).

For limited permanent impacts to burrows which occur during construction, the Burrowing Owl Management Plan (provided as Appendix B) prepared for the Project outlines measures during construction to evaluate potentially suitable alternate natural burrows and/or provide artificial burrows to adequately compensate for burrows made unavailable during Project construction. Based on existing surveys, it is also anticipated that many of the burrows that could potentially be occupied by owls, would not be excavated or directly impacted, but rather will remain available for use during and after construction; thus, they will not be permanently impacted by Project construction. Temporarily affected burrowing owls may spend up to 36 months in adjacent natural burrows and/or artificial burrows; however, burrowing owl occupancy of the Project site during operations is expected to closely resemble occupation prior to Project construction, if not improve as a result of site restoration, since burrowing owl are expected to return from the adjacent alternate or artificial burrows once construction is complete and the temporarily closed burrows are made available again.

3.1.33 Data Request DR BIO-36

DR BIO-36: No compensatory mitigation was proposed in the application for foraging raptors. Appendix Q, Volume 2, Appendix Q-8, p. 16, states that "... 48% of the study area was conservatively assumed to be rendered unsuitable foraging for [Swainson's hawk] (i.e., permanently impacted by panel cover at peak horizontal orientation and other permanent project infrastructure)." Please discuss why compensatory mitigation was not provided for other aerially foraging raptors and owls (such as the northern harrier, golden eagle (*Aquila chrysaetos*), and great horned owl (*Bubo virginianus*), etc.) that could be impacted by the project including a similar reduction in available foraging habitat.

Also, discuss avoidance, minimization, and mitigation measures for impacts to insects and avian fauna from artificial lighting, polarization of light, and any other potential adverse impacts to these species. In addition, discuss the potential "lake effect" of PV panels, which may act as an attractant to migratory birds, as well as any measures proposed to avoid and/or reduce potential adverse impacts to tricolored blackbird nesting habitat.

Response: Aerially foraging raptors, such as northern harrier and golden eagle are relatively mobile, are not expected to rely solely on the Project site for foraging and are expected to locate additional foraging habitat remaining in the region. We consider Swainson's hawk an umbrella species as it relates to raptor impacts. The Swainson's hawk is the more sensitive species within the context of the Project site itself, having both nesting and foraging habitat within the site, and a high abundance of active nests within both the region and the Project site. We consider the analysis of impacts to Swainson's hawk foraging habitat and associated mitigation in the form of restoration capture impacts and mitigation to all raptors. As discussed in Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*, a total of 205,133 acres of suitable raptor foraging habitat occur within the region of the Project site. The Project will result in the loss of only 2.3 percent of this foraging habitat. Additionally, implementation of the Swainson's Hawk Conservation Strategy (refer to Mitigation Measure BIO-9 in the response to DR BIO-41) and the Vegetation Management Plan (refer to Mitigation Measure BIO-10 in the response to DR BIO-42) will restore almost all of the Project site to suitable foraging habitat for all of these species. Project impacts to foraging habitat for other raptors, such as great horned owl, will not be significant considering the remaining

foraging habitat adjacent to the Project site and in the region. As a result, no compensatory mitigation is proposed.

As discussed in the response to DR BIO-29 above, impacts to insects and avian fauna from artificial lighting and polarization of light would not be significant; therefore, no avoidance and minimization measures or mitigation measures are proposed.

Please refer to the response to DR BIO-15 above regarding potential adverse impacts to tricolored blackbird nesting habitat. As no suitable tricolored blackbird nesting habitat occurs within the Project site, no avoidance or minimization measures are proposed for tricolored blackbird nesting habitat.

3.1.34 Data Request DR BIO-37

DR BIO-37: Please discuss any feasible mitigation measures, outside of a revegetation plan, for San Joaquin kit fox and burrowing owl, as well as provide an evaluation of the anticipated efficacy of the measures.

Response: The following provides a discussion of feasible mitigation measures and evaluation of the anticipated efficacy of the measures for burrowing owl and San Joaquin kit fox.

Burrowing Owl

Direct impacts to burrowing owl will be avoided and minimized through implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-5 as presented in Section 5.12, *Biological Resources* of the Opt-in Application. In addition, the Vegetation Management Plan, Burrowing Owl Management Plan, PV and Gen-tie Biological Resources Management Plan, and Operations and Maintenance Biological Resources Management Plan prepared for the Project will further avoid and minimize potential direct and indirect impacts to burrowing owl. With the implementation of these measures it is anticipated that any impacts to burrowing owl will be less than significant.

- Mitigation Measure BIO-1 requires the implementation of a Construction Worker Environmental Awareness Training and Education Program inclusive of burrowing owl life history and legal protection status. Educating construction workers about the potential presence of burrowing owl on the Project site in addition to required avoidance and minimization actions, the role of biological monitoring during construction, actions to take if burrowing owl is observed near construction activities, and potential penalties for violations, increases sensitive resource awareness and improves compliance.
- Mitigation Measure BIO-2 includes limiting the spread of weeds and maintaining work areas free of trash or pets to avoid and minimize impacts to burrowing owl such as degradation of habitat quality and introduction of predators (i.e., coyote). In addition, implementation of the Project's Vegetation Management Plan (Mitigation Measure BIO-10, refer to the response to DR BIO-42) provides for control of weeds post-construction and promotes the maintenance of foraging habitat and prey base for Swainson's hawk, which would also contribute to maintain suitable burrowing owl habitat. The Vegetation Management Plan includes success criteria and adaptive management to adjust targets and approaches as needed.
- Measure BIO-3 requires a pre-construction survey for special-status species such as burrowing owl no more than 30 days prior to ground disturbing activities. Measure BIO-5 outlines burrowing owl avoidance measures if occupied burrowing owl burrows are confirmed prior to construction, such as focused burrowing owl surveys, no-disturbance buffer zones, and passive

relocation when avoidance is infeasible. The Project's Burrowing Owl Management Plan includes these measures and provides additional detail regarding their implementation during construction activities. These measures comply with the requirements of the Staff Report on Burrowing Owl Mitigation (CFGC 2012) to ensure effective burrowing owl avoidance, mitigation, and management.

- An Operations and Maintenance Biological Resources Management Plan will be prepared for the Project that will contain measures to avoid and minimize potential impacts to sensitive species during the Project's operations.

San Joaquin Kit Fox

San Joaquin kit fox is not expected to occur throughout the majority of the Project site. There is only a low potential the species would occur incidentally in the work area west of Interstate 5. However, in the unlikely event San Joaquin kit fox occur during construction, impacts will be avoided and minimized through implementation of Mitigation Measures BIO-1, BIO-2, and BIO-4 as presented in Section 5.12, *Biological Resources* of the Opt-in Application. With the implementation of these measures, it is anticipated that any impacts to San Joaquin kit fox will be less than significant.

- Mitigation Measure BIO-1 requires the implementation of a Construction Worker Environmental Awareness Training and Education Program inclusive of San Joaquin kit fox life history and legal protection status. Educating construction workers about the potential for San Joaquin kit fox in addition to required avoidance and minimization actions, the role of biological monitoring during construction, actions to take if San Joaquin kit fox is observed near construction activities, and potential penalties for violations, increases sensitive resource awareness and improves compliance.
- Mitigation Measure BIO-2 includes limiting the spread of weeds and maintaining work areas free of trash or pets to avoid and minimize impacts to San Joaquin kit fox that could result from attracting them to the Project site and/or encouraging introduction of predators (i.e., coyote).
- Mitigation Measure BIO-3 requires a pre-construction survey for special-status species such as San Joaquin kit fox no more than 30 days prior to ground disturbing activities. Identification of potential San Joaquin kit fox presence and location aids in identifying the most suitable avoidance and minimization measures during construction.
- Mitigation Measure BIO-4 outlines construction monitoring and buffer zone requirements for San Joaquin kit fox. The Project's Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan also outlines construction phase requirements for monitoring that will contribute to avoiding and minimizing impacts to any potential San Joaquin kit fox that unexpectedly travel into the Project site.

Given the absence of occupied suitable habitat for kit fox throughout the entire Project site and given that the species is not expected to occur, these measure have been developed to address the unlikely event of an incidental occurrence of kit fox at the utility switchyard area from the Ciervo Hills. Given the low potential for kit fox and the absence of habitat, these industry standard measures for preconstruction clearance surveys, biological monitoring, speed limits and attractant control would reduce potential impacts to this species to less than significant.

3.1.35 Data Request DR BIO-38

DR BIO-38: Please provide a mitigation measure that would reduce potential impacts to Crotch's bumble bee, see also DR BIO-25 and DR BIO-18.

Response: No suitable habitat for Crotch's bumble bee species occurs within the BSA, and this species has likely been extirpated from the region. Therefore, Crotch's bumble bee is not expected to occur. Refer to response to DR BIO-25.

3.1.36 Data Request DR BIO-39

DR BIO-39: The applicant's proposed Mitigation Measure, BIO-1, item 3 discusses a "project biologist", whereas the applicant's APM BIO-1, items 3 and 4 discuss a "qualified biologist". Please clarify each term and provide a separate mitigation measure which details the qualifications and duties of a "qualified biologist" and a "project biologist".

Response: The use of "project biologist" in Mitigation Measure BIO-1, item 3 was a typo. It should instead read "Qualified Biologist." The Qualified Biologist will have relevant experience with the taxa and species in the Central Valley and San Joaquin Valley for which pre-construction surveys, monitoring, or other support is required during Project construction and/or operation. The Qualified Biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa.

3.1.37 Data Request DR BIO-40

DR BIO-40: No closure/revegetation plan was included as mitigation. Please prepare and submit a closure and revegetation mitigation measure that includes goals, objectives, and success criteria, etc.

Response: A Reclamation Plan has been submitted as Appendix H of the Opt-In Application, which contains the anticipated Project life, timeline for decommissioning, and measures for returning the Project site to its previous agricultural capability. The Reclamation Plan informs the post-decommissioning revegetation plan identified in Mitigation Measure BIO-10.2 in the response to DR BIO-42 below.

3.1.38 Data Request DR BIO-41

DR BIO-41: The Swainson's Hawk Conservation Strategy, included as Appendix V, needs to be provided as a mitigation measure which includes goals and objectives, performance criteria, regular monitoring schedules and reporting, etc. Please provide a mitigation measure to address potential impacts to Swainson's hawk.

Please include additional information regarding proposed measures to avoid impacts to Swainson's hawk and other protected species during helicopter use.

Response: Mitigation Measure BIO-9, provided below, incorporates the elements of the Swainson's Hawk Conservation Strategy (Appendix V of the Opt-in Application) and specifies both short-term and long-term conservation strategies for Swainson's hawk nesting and foraging habitat.

As indicated in the Helicopter Use Plan submitted with Data Response Set #2, a full-time avian monitor will be onsite to monitor helicopter activities and ensure all mitigation measures for avoidance and minimization of impacts to Swainson's hawk and other avian species are

implemented and effective, including the construction buffers outlined in the Swainson's Hawk Conservation Strategy.

Mitigation Measure BIO-9 Swainson's Hawk Conservation Strategy

The Applicant shall prepare a Swainson's Hawk Conservation Strategy to be implemented during Project construction and operations. The goals of the conservation strategy will be to avoid and minimize direct impacts to individuals present within the Project vicinity, and manage nesting and foraging habitat within the Project site to benefit the Swainson's hawk through implementation of both short-term and long-term conservation strategies during Project construction and operation, including specific methodologies, location of specific mitigation and management actions, success criteria, and evaluation of success criteria. The Swainson's Hawk Conservation Strategy will include the items described below.

Short-Term Conservation Strategy

Short term conservation measures are intended to address potential impacts to nesting and temporary loss of foraging habitat during the Project's construction phase, and will include a discussion of:

1) Nesting habitat
    a. Preservation of nest trees
    b. Temporary construction buffers
    c. Temporary nest structure establishment
    d. Establishment of new nest trees
2) Foraging habitat
    a. Habitat restoration

Long-Term Conservation Strategy

Long-term conservation measures are intended to address potential cumulative impacts and promote Swainson's hawk population stability and growth, as well as address potential impacts to nesting Swainson's hawks during some O&M phase activities, and will include a discussion of:

1) Implementation of a Vegetation Management Plan
2) Monitoring and management of nest tree plantings and artificial nest structures
3) Implementation of Swainson's hawk management research program

Success Criteria and Evaluation

1) Short-term conservation strategy success criteria
2) Long-term conservation strategy success criteria
3) Success criteria evaluation

3.1.39 Data Request DR BIO-42

DR BIO-42: The applicant's proposed Vegetation Management Plan is included as Appendix D of Appendix U.3 in Appendix U, Volume 3. Please provide the Vegetation Management Plan as a standalone mitigation measure to address impacts to Swainson's hawk. See also DR BIO-43.

Response: Mitigation Measure BIO-10, provided below, specifies the preparation of a Vegetation Management Plan for the Project. It will include the goals and framework of revegetation, invasive weed maintenance, and habitat management for the Project. It will entail an independent research program, to be implemented by Cornell University, under Dr. Steven Grodsky. The intent of the research program will be to evaluate the restoration and management practices that provide the best results towards meeting success criteria for development of Swainson's hawk foraging habitat, including soil and land preparation, seed mix, and management regimes (e.g., mechanical vs grazing). The final vegetation management plan will be developed in conjunction with the experimental design for the study and informed by the results of the study in real-time. The research design is currently under development and the goals and objectives, as well as content to be included in the Draft Vegetation Management Plan (captured in Mitigation Measure BIO-10) is intended to function as a preliminary strategy and conceptual outline to establish goals and success criteria.

Mitigation Measure BIO-10 Vegetation Management Plan

Revegetation and Vegetation Management Goals and Objectives

Revegetation and vegetation management of the Project site will occur during the Project construction and operation phases. Revegetation will account for on-site constraints including a lack of irrigation, saline soils, and poor drainage conditions. The Project will facilitate a Before-After-Control-Impact (BACI) research design to test the efficacy of multiple vegetation management regimes on the establishment of Swainson's hawk foraging habitat with the goal of achieving the following success criteria:

- Establish permanent, regenerative vegetative cover that will:
  - Represent high-quality foraging habitat for Swainson's hawks (i.e., appropriate vegetative structure that maintains a sufficient prey base).
  - Provide suitable floral resources for native pollinators.
  - Prevent and control noxious weed infestations.
  - Allows for safe and efficient O&M Project activities.

Additional benefits of a vegetation management plan that achieves these primary goals would be reduced fire risk through management of fuel loads, erosion control, stormwater runoff control, and water quality control during the Project's operational phase.

Preparation of a Vegetation Management Plan

The Applicant shall prepare a Vegetation Management Plan to be implemented during construction and operations Project phases. The plan shall be developed to address the goals and objectives outlined above and will contain the following sections and information:

1) Purpose of the plan
2) List and discussion of target species

3) Prevention methods
    a. Specifications for completing preconstruction weed survey
    b. Discussion of control methods including preconstruction, construction, and O&M methods
    c. Vehicle inspections and cleaning during construction
    d. Weed free materials
    e. Preliminary seeding
4) Weed control methods
    a. Mechanical and manual controls
    b. Chemical controls
    c. Grazing controls
5) Revegetation Implementation Plan
    a. Site preparation methods
        i. Soil testing
        ii. Methods
        iii. Timing
    b. Seed Pallet
6) Planting Methods and Guidelines
    a. Seeding
    b. Tree container planting
7) Vegetation Maintenance and Long-Term Management
8) Preliminary Monitoring Plan
    a. Study Design
        i. Vegetation Sampling
        ii. Soils/Phytoremediation
        iii. Wildlife Sampling
9) Success Criteria
10) Adaptive Management
11) Post Decommissioning Revegetation Plan

3.1.40 Data Request DR BIO-43

DR BIO-43: The applicant's proposed measure, APM BIO-1, included in Chapter 2, page 2-32 to 2-33, is inadequate since it lacks specific details regarding performance criteria, methodology, location of specific mitigation and management actions, at a minimum, for the following bullet points, listed in Section 2.4, page 2-33: preservation of existing nest trees; temporary nest structure establishment; and establishment of new nest trees, see also DR BIO-42.

Response: Please refer to response to DR BIO-42.

3.1.41 Data Request DR BIO-44

DR BIO-44: Please provide proposed compensatory mitigation for burrowing owl. See also DR BIO-37.

Response: Compensatory mitigation for burrowing owl is outlined in Mitigation Measure BIO-5, as presented in Section 5.12, *Biological Resources* of the Opt-in Application, and the Burrowing Owl Management Plan prepared for the Project (refer to the response to DR BIO-7 and Appendix B).

3.1.42 Data Request DR BIO-45

DR BIO-45: Please submit any preliminary correspondence (emails and record of conversations) with state and federal resource agencies.

Response: The following coordination was conducted with state and federal resource agencies. Notes from the February 21, 2023, site walk with the agencies and a September 11, 2023, meeting to discuss the Swainson's hawk conservation strategy are included as Appendix I to this document.

- August 23, 2022 - project introduction virtual meeting with CDFW (Lawrence Bonner, Carrie Swanberg, Kari Daniska, Jeremy Pohlman)
- October 27, 2022 - Project introduction virtual meeting with USFWS (Matthew Nelson)
- February 21, 2023 - site walk with CDFW (Carrie Swanberg, Kari Daniska) and USFWS (Matthew Nelson)
- Meetings with CDFW to discuss Swainson's hawk conservation strategy approach: June 22, 2023; August 25, 2023; September 11, 2023

3.1.43 Data Request DR BIO-46

DR BIO-46: Several fully protected species (e.g., white-tailed kite (*Elanus luecerus*), golden eagle and blunt-nosed leopard lizard) are known or expected to occur on-site or immediately offsite based on species, yet there is no accompanying proposed mitigation. Please provide proposed mitigation measures to reduce potential impacts to these fully protected species.

Response:

- **White-tailed Kite:** Analysis of potential impacts to white-tailed kite provided in Section 5.12, *Biological Resources*, pages 5.12-40 to 5.12-41 of the Opt-in Application, concludes that the implementation of Mitigation Measures BIO-1, BIO-7, and BIO-8 would mitigate potential direct impacts to white-tailed kite to less than significant; and potential indirect impacts to white-tailed kite are less than significant without mitigation. No additional mitigation is required.
- **Golden Eagle:** Analysis of potential impacts to golden eagle provided in Section 5.1.2, *Biological Resources*, page 5.12-40 of the Opt-in Application, concludes that potential direct impacts are less than significant and no indirect impacts are expected. The presence of golden eagle at the Project site would be incidental during migration or dispersal, and thus golden eagles would not be expected to rely on the Project site for breeding or wintering habitat. Incidental golden eagles passing through would be able to avoid direct impacts during construction activities, therefore resulting in no significant impact. Foraging habitat is present throughout the Project site, but loss of foraging habitat due to Project implementation would be less than significant as it would not jeopardize an individual's survival. No indirect impacts are expected. In the case of incidental occurrence of golden eagle at or adjacent to the Project site during migration or dispersal, Mitigation Measures BIO-1, BIO-2, BIO-3; Project Plans described in the response to

DR BIO-7; and the Vegetation Management Plan (Mitigation Measure BIO-10) would avoid impacts to the species.

- **Blunt-nosed Leopard Lizard:** Please refer to responses to DRs BIO-9, BIO-10, and BIO-11. Potential impacts to blunt-nosed leopard lizard would be avoided through implementation of the Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D of this document) and Mitigation Measures BIO-1, BIO-2, and BIO-3 (refer to Section 5.1.2, *Biological Resources* of the Opt-in Application).

3.1.44 Data Request DR BIO-47

DR BIO-47: Please provide a table that includes specific mitigation measures and/or actions to be taken during construction and operations to show conformity with all biological resources laws, ordinances, regulations and standards (LORS) as well as any adopted local, regional, state, and federal land use plans, leases, and permits that would apply to the project.

Response: A Laws, Ordinances, Regulations, and Standards (LORS) table is provided in Section 5.12.5, *Laws, Ordinances, Regulations, and Standards*, which summarizes the LORS relevant to the Project. This table has been modified to reference the relevant Project Mitigation Measures and/or actions for each LORS identified to demonstrate Project conformity and is included as Appendix J to this document.

4 Socioeconomics

4.1 Data Request SOCIO-7 (Resubmitted)

4.1.1 Data Request SOCIO-7

DR SOCIO-7: Per Appendix B (g) (7) (B) (xi), provide an estimated dollar amount of the property taxes generated during an operational year of the project.

Response: An initial response to this data request was provided with Data Response Set #2. An updated response is provided below.

Over a typical operating year of the Project, it is expected to generate between an average of $2.6 million to $9.4 million per year in property tax, depending on which option of the project is eventually built. This estimate is subject to assuming the current regulations and policies governing property tax remain static throughout the life of the Project. If any change of law or method of assessment were to occur during the life of the Project, this range could be affected materially. These values assume a 35-year useful life for the Project.

5 Transmission System Design

5.1 Data Requests DR TSD-3 and DR TSD-6

5.1.1 Data Request DR TSD-3

DR TSD-3: If the California ISO Phase I or (when available) Phase 2 Interconnection Study indicate that the Darden Clean Energy Project cannot be reliably connected to the PG&E grid without additional transmission facilities not analyzed in the Opt-in Application, please provide the necessary information to support a CEQA analysis for all downstream upgrades needed for the Darden Clean Energy Project.

Response: Table 3 below lists the network upgrades associated with the Project and how the activities will be analyzed under CEQA. The downstream upgrades were identified in the California Independent System Operator (ISO) Phase 2 Interconnection Study, which will be submitted separately to CEC under confidential cover. Following the table, an updated description of the Pacific Gas and Electric Company (PG&E) utility switchyard is provided with additional details from PG&E.

Table 3 DR TSD-3 Downstream Network Upgrades

Upgrade Classification	Upgrade	Description	Project Cost Allocation	CEQA Analysis
Reliability Network Upgrade (RNUs)				
Interconnection RNU- Allocated (IRNU-A)	Darden Utility Switchyard	▪ See PG&E Utility Switchyard project description	100.00%	Included as a part of the Project's application for Opt-In certification under AB 205.
IRNU-A	Los Banos Substation	▪ Install a megawatt (MW) terminal and Direct Transfer Trip (DTT) scheme between the Darden Utility Switchyard and Los Banos Substation using existing IT T1 infrastructure for the communication circuits.	100.00%	Work will occur within the fence line of the Los Banos Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant.
IRNU-A	Midway Substation	▪ Install a DTT scheme between the Darden Utility Switchyard and Midway Substation using existing IT T1 infrastructure for the communication circuits. ▪ Remove existing shunt reactor and install a new smaller shunt reactor to maintain the level of compensation. ▪ Replace or modify line relays installed with the new control building to maintain compatibility with line relays at the Darden Utility Switchyard.	100.00%	Work will occur within the fence line of the Midway Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant.
IRNU-A	Gates (or Manning) Substation	▪ Modify the Series Capacitor, as required. ▫ A new series capacitor bank would need to be installed at Manning Substation, if that facility is built and comes online before Darden. If Darden comes online first, the series capacitor would then need to be installed at the Gates Substation instead.	100.00%	Work will occur within the fence line of the Gates Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant. Or, this scope will be considered as part of the Manning Substation scope, which is being permitted under a separate California Public Utilities Commission (CPUC) formal process with proponent, LS Power.
IRNU-A	Transmission Line and Fiber Install	▪ See PG&E Utility Switchyard project description	100.00%	Included as a part of the Darden Project's application for Opt-In certification under AB 205.

Upgrade Classification	Upgrade	Description	Project Cost Allocation	CEQA Analysis
Network Upgrade Interconnection Facility (NU/IF)	Transmission Line Transposition Towers (Manning Substation Scope)	A Transposition Structure will be added at approximately 8 miles and 16 miles south of the Manning Substation (two total structures) in the existing PG&E 500 kV corridor. Scope includes concrete foundations and Lattice Steel Poles or Tubular Steel Poles to transpose the line conductors. This upgrade is currently in the Manning Substation scope and would only be associated with the Darden Clean Energy Project if both of the following occurred: ▪ Harlan switching station seeks in-service prior to the Manning Substation ▪ The scope currently assigned to Manning Substation cannot be scheduled ahead of the Harlan switching station's desired in-service date	TBD	Work is being considered as part of the Manning Substation scope, which is being permitted under a separate CPUC formal process with proponent, LS Power.
General RNU (GRNU)	Los Banos 500 kV circuit breakers 822, 832 & 842 overstress	▪ Replace Los Banos 500 kV circuit breakers 822, 832 & 842	15.17%	Work will occur within the fence line of the Los Banos Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant.
GRNU	Midway 500 kV CB 742, 822, 912, 942 Overstress beyond 50 kA	▪ Replace Midway 500 kV circuit breakers 742, 822, 912, 942	17.40%	Work will occur within the fence line of the Midway Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant.
Conditionally Assigned Network Upgrades (CANUs)				
GRNU	Midway 230 kV Bus Overstress	▪ Install 2 x 16 ohm series bus reactors between Midway substation 230 kV bus sections D and E (16 ohm parallel/8 ohm net)	6.43%	Work will occur within the fence line of the Midway Substation. PG&E standard Construction Measures will be implemented to ensure impacts are less than significant.

PG&E Utility Switchyard Project Description

The information below provides additional details on the utility switchyard that have been developed during continued engineering and design since submittal of the Opt-In Application. The size and quantities of some of the structural components have been updated; however, changes are minor in nature and do not affect the Project's impact findings.

Introduction and Background

To accommodate interconnection of the Darden Clean Energy Project to the California electrical grid, the Project will include a new 500 kilovolt (kV) switching station (utility switchyard) to be constructed by the Project Applicant and transferred to PG&E, after construction and inspection, for operation as a PG&E utility facility. The utility switchyard will connect to the existing transmission system by rerouting and looping in the existing Los Banos-Midway No. 2 500 kV Transmission Line into the facility. Further description of potential network upgrades, potential transmission line improvements, and potential telecommunication scope alternatives are provided in the sections below.

Project Description

Project Location and Setting

The Los Banos-Gates No. 1 and Los Banos-Midway No. 2 500 kV Transmission Lines bisect the Project site immediately west of the proposed utility switchyard. The existing transmission line corridor consists of one 500 kV transmission line circuit located on a single row of transmission towers and one 500 kV transmission line circuit located on another single row of transmission towers that parallel each other within the same corridor. The existing transmission lines in the vicinity of the Project are spaced approximately 1,200 to 1,600 feet apart and have towers that range between approximately 100-feet tall to 160-feet tall.

Utility Switchyard

The utility switchyard is anticipated to occupy approximately 50-acres located immediately east of the Los Banos-Gates No. 1 and Los Banos-Midway No. 2 500 kV Transmission Lines in an existing agricultural field. The utility switchyard will be constructed approximately 9 miles west from the solar facility and would have separate access and security fencing than that of the other Project facilities. Upon completion of construction, the utility switchyard would be transferred to PG&E for ownership and operation. The utility switchyard will contain approximately five (5) 500 kV circuit breakers and will be surrounded by a new security wall or chain link barbed wire security fence up to approximately 20-feet in height with a secure gate accessible only by PG&E staff.

Structural components within the utility switchyard area would include:

- One up to 200-foot-tall free-standing digital microwave antenna (radio tower) to support Supervisory Control and Data Acquisition (SCADA) communication between the switchyard and the off-site PG&E operations center. The foundation would either be a concrete slab of up to 50 feet by 50 feet or drilled-pier depending on the results of future soils studies. Support guy wires may be utilized if deemed necessary.
- Series capacitor banks (sizing to be determined by utility requirements).

- Approximately fifteen (15) 500 kV steel A-frame dead-end structures up to approximately 150-feet in height with foundations up to approximately 20-feet deep.
- Busbar (a conductor bar that carries heavy currents to supply several electrical circuits).
- Two (2) Modular Protection Automation and Control (MPAC) enclosure(s) approximately 150-feet by 25-feet by 12- feet tall for PG&E's substation control and protection equipment (MPAC enclosure would be installed on a concrete foundation).
- Two (2) switchyard battery enclosure area(s) approximately 34-feet by 16-feet by 12-feet tall.
- Five (5) 500 kV circuit breakers and air disconnect switches.
- On-site stormwater retention pond (approximately 1,300-feet by 130-feet) for temporary run-off storage during rainfall events.
- New security wall or chain link barbed wire security fence up to approximately 20-feet in height with a secure gate accessible only by PG&E staff.

Construction

The Project Applicant will construct the utility switchyard and deed it to PG&E upon completion and inspection, to be owned and operated by PG&E as a public utility. Construction will occur in a phased approach beginning with site preparation and grading of the site, installing foundations and underground equipment, and then installing and testing electrical equipment. Site preparation will involve grubbing, clearing, and grading of the utility switchyard footprint (grading would be minimal due to the existing flat terrain) as well as installing the security wall or fence. Underground equipment, if necessary, will be installed in trenches and backfilled with suitable material (e.g., excavated soil or clean fill). Utility switchyard equipment will be installed on concrete foundations. Equipment used for construction of the utility switchyard may include, but is not limited to: cranes, aerial lift, skid steer loaders, rubber tired loaders, rubber tired dozer, welders, trencher, forklift, bore/drill rig, grader, roller, tractor/loader/backhoe, haul trucks, and UTVs. Approximately 3-acre-feet of water will be used during construction of the utility switchyard, at an average of 50 to 100 gallons per day (this number is included in the overall 1,100 acre-feet of construction water needed for the Project as a whole).

Construction of the power line interconnection and other interconnection facilities will be completed by PG&E or a PG&E contractor. The new structures will require permanent concrete foundations approximately 6 feet in diameter and up to 35 feet deep. Construction will involve temporary ground disturbance around each new power pole location (approximately a 50-foot radius) as well as temporary ground disturbance associated with access to each proposed structure location (approximately a 15-foot-wide access route if there is an adequate turning radius). All new structures and access thereto will be located within existing agricultural areas or along a dirt road. Temporary staging and lay down areas may also be needed for the construction of the interconnection facilities to be identified by PG&E.

Los Banos-Midway No. 2 500 kV Transmission Line Interconnection

Although design is preliminary, interconnection from the new utility switchyard to the existing transmission grid will require constructing, re-routing, and looping the 500 kV transmission line into and out of the new utility switchyard. It will be supported by up to approximately eighteen (18) Tubular Steel Pole (TSP), Light-Duty Steel Pole (LDSP), or Lattice Steel Tower (LST) structures. To relocate the transmission line, PG&E will remove two existing lattice steel towers and inter-set approximately six (6) new structures along the existing Los Banos-Midway No. 2 500 kV

Transmission Line. The towers that will be removed and the installation of the new structures are all within the parcel where the utility switchyard will be located. To relocate the transmission line, PG&E will install approximately six (6) structures located adjacent to the new utility switchyard on each side, creating a loop. The total length of the rerouted transmission line between the existing Los Banos-Midway No. 2 500 kV Transmission Line and the new utility switchyard would be approximately 3,000 linear feet. The structures will be supported on concrete foundations approximately 6-feet in diameter and up to 35-feet high. The structures will be approximately 175-feet above grade.

Electric Distribution Services

A backup 240/120 volt alternating current service will be established from the existing distribution pole line that runs parallel to the proposed utility switchyard. The line will run underground from the property edge to a metering enclosure at the northern portion of the utility switchyard. This will serve as backup for the control enclosure and low voltage equipment in case the station service voltage transformer (SSVT) loses power.

Utility Switchyard Safety and Security

Site access would be provided to the PG&E utility switchyard from South Derrick Avenue. The utility switchyard would be fenced separately from the rest of the Project with access secured by a locked gate. It would be surrounded by an up-to 20-foot-high security wall or chain link fence topped with 1-foot of barbed wire and be accessible only by PG&E staff.

Telecommunication Facilities

To meet PG&E's communications reliability standards microwave and fiber line communications paths will be established to support redundant communication paths for the utility switchyard.

Microwave Path Scenarios

The following digital microwave pathway options will utilize the utility switchyard's new approximately 120- foot to 200-foot microwave antenna tower. Direction of the path and required remote end work may be required. Selection of the path will be determined upon completing in-field site survey to verify line of sight.

1. Microwave path to an existing microwave tower located at the Giffen Substation.
2. Microwave path to an existing microwave tower located at the Excelsior Switching Station.
3. Microwave path to an existing microwave tower located at Joaquin Ridge.
4. Microwave path to Cantua Substation, which will require installation of one new microwave tower.

Fiber Line Scenarios

PG&E proposes to install a combination of fiber lines on existing electric transmission 230-kV structures using Optical Ground Wire (OPGW) and on existing electric distribution structures using All-Dielectric Self-Supporting (ADSS). The fiber line would be installed under one of the following scenarios described below and illustrated in Figure 1.

Scenario 1: Approximately 15 miles of communication line, which will be a mixture of OPGW and ADSS, would be installed to provide communication between the utility switchyard and

existing telecommunications infrastructure along the Panoche-Tranquility 230kV line. The communication line would be co-located within an existing PG&E electric distribution and 230 kV transmission line corridor in Fresno County.

Scenario 2: Approximately 28 miles of communication line, which will be a mixture of ADSS and OPGW, would be installed to provide communication between the utility switchyard and the existing PG&E Gates Substation located approximately 30 miles southeast of the Project site. The communication line would be co-located within an existing PG&E electric distribution and 230 kV transmission line corridor in Fresno County.

Scenario 3: Approximately 25 miles of communication line would be installed to provide communication between the utility switchyard and the existing PG&E Gates Substation located approximately 30 miles southeast of the Project site. The communication line would either be located underground, overhead on a dedicated pole line, or a mixture of both located within PG&E's existing 500 kV transmission line corridor, transitioning to OPGW within PG&E's existing 230 kV transmission line corridor.

The communication line is anticipated to transition from overhead to underground at the locations described below. It is possible that undergrounding at other locations may also be required depending on ground conditions. The underground termination segments would be routed for up to approximately 2,000-feet.

- Within the Project boundary from where the line originates at the Project's utility switchyard to the dead-end electric distribution structure immediately adjacent to the Project (scenario 1 and 2).
- Where the line transitions between existing distribution structures to transmission structures (scenario 1 and 2).
- From the dead-end electric transmission line or electric distribution line structure to the existing PG&E Gates Substation (scenario 2 and 3).

Fiber Line (OPGW/ADSS/Dielectric) Characteristics

The installation of the OPGW/ADSS/Dialectric line would include one, or a combination, of the five following characteristics:

1. Install the fiber on existing overhead electric transmission (OPGW) and electric distribution structures (ADSS) using the existing infrastructure in place today. No improvements other than addition of OPGW and ADSS line would be necessary under this scenario.
2. Install the fiber on existing overhead electric transmission (OPGW) and distribution (ADSS) line structures but include minor structure reinforcements and extend the vertical height of the structures to accommodate the OPGW line.
3. Replace the existing electric transmission and electric distribution structures with new structures that can support existing infrastructure plus the stringing of fiber. The number of the structures subject to replacement would be finalized during detailed design. However, any new structures would be replaced within proximity of the same location previously disturbed by the existing distribution and/or transmission structure, and no taller than 200-feet.
4. Install the fiber underground or on a dedicated pole line within an existing franchise or PG&E electric distribution or transmission line right-of-way. The number of new structures or underground segments would be finalized during detailed design. Fiber lines constructed in this

manner shall only be ADSS or equivalent Dielectric cable (OPGW is only to be used on transmission structures).

5. For all fiber pull scenarios, a section must cross Interstate 5. Assessment is still pending, but would result in either replacing existing structures, or installing new structures within an existing franchise or PG&E electric distribution line right-of-way, to provide the appropriate height of attachment to clear the roadway. Alternatively, a directional bore may accommodate an underground section of fiber path construction.

Figure 1a DR TSD-3 Proposed Fiber Line Scenario 1

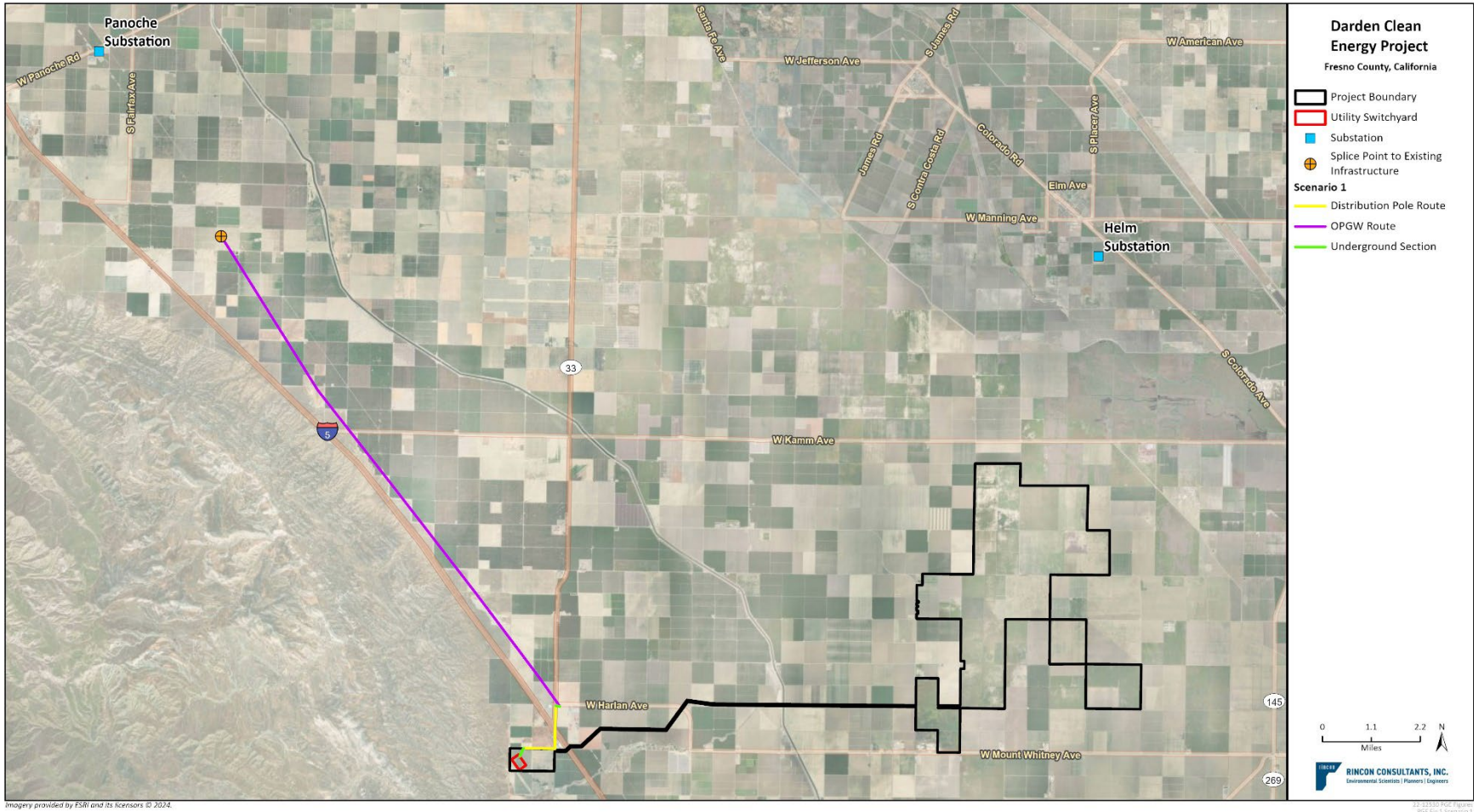


Figure 1b DR TSD-3 Proposed Fiber Line Scenario 2

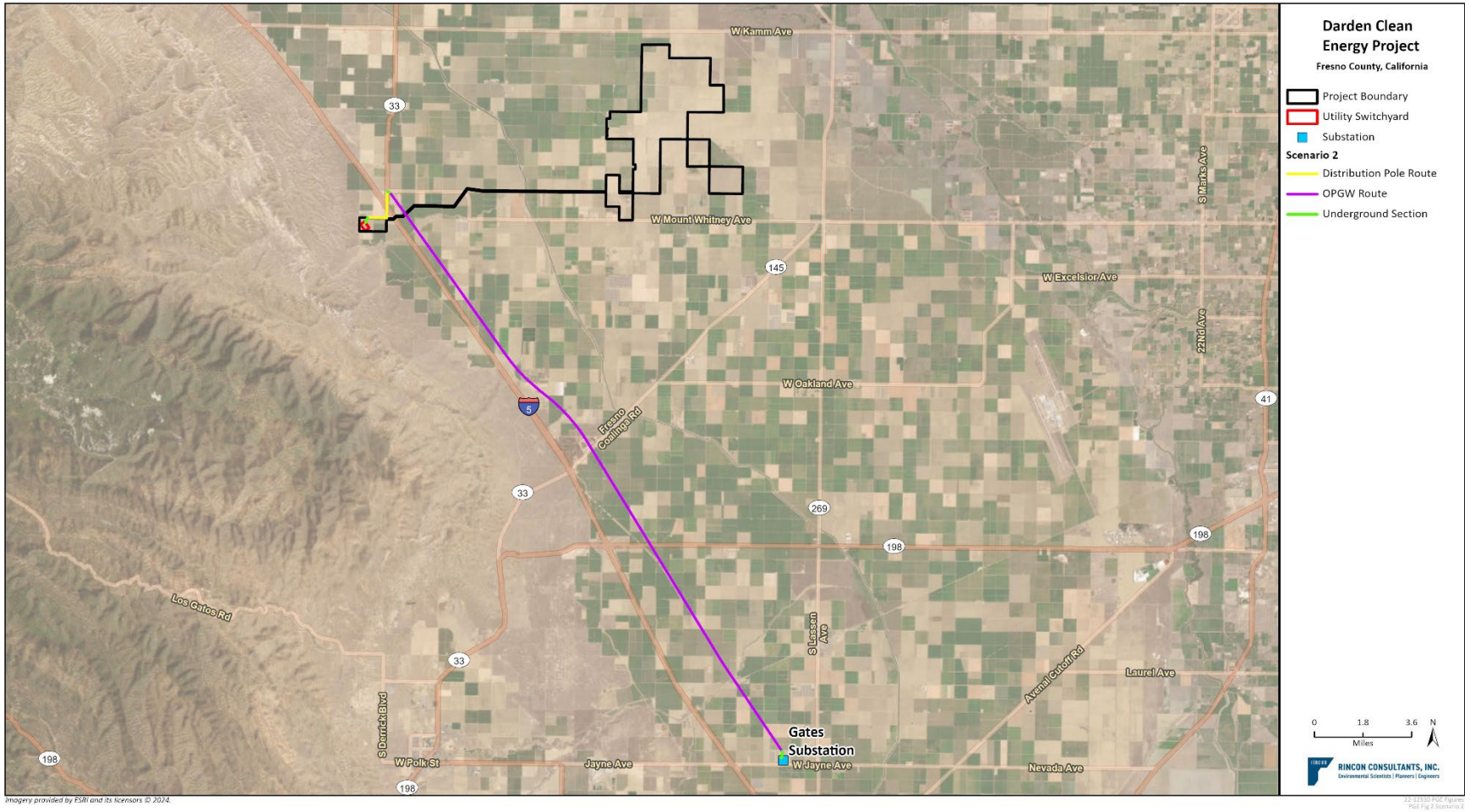
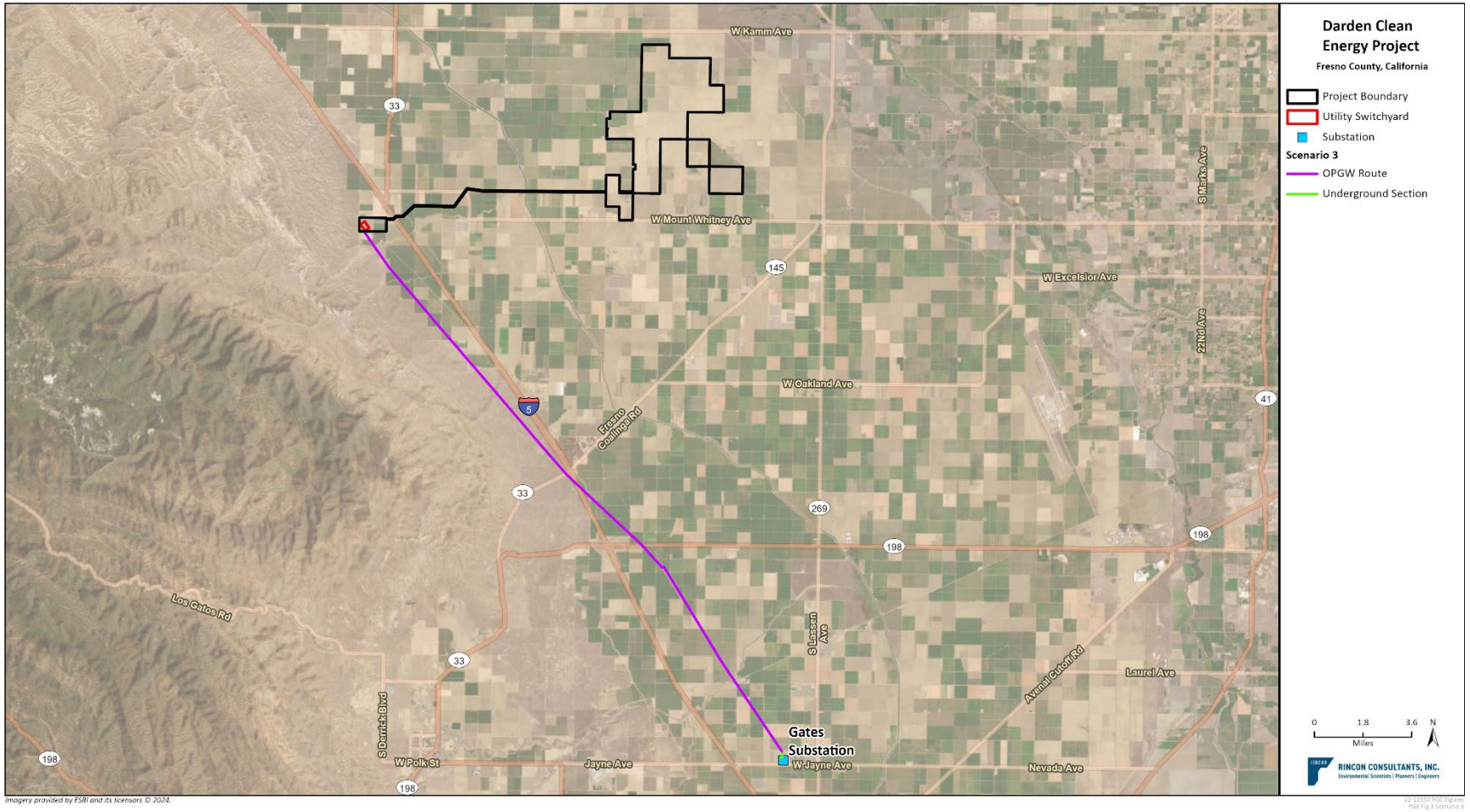


Figure 1c DR TSD-3 Proposed Fiber Line Scenario 3



Fiber Line Installation Details

Information is provided in this section to describe the installation construction process for the OPGW fiber lines. If it is determined that upgrades or replacement of existing structures and equipment is needed to accommodate the fiber cables, those activities would occur concurrently with the fiber installation.

The OPGW line installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the existing PG&E transmission line would be used to install the OPGW line, and PG&E would use the same methods when maintaining the electrical system.

The OPGW line comes on reels that hold approximately 23,000 linear feet of cable. It is estimated that up to 20 temporary pull/reel and splice sites would be established along the existing electric transmission line corridor. Each splice and pull/reel site would require an approximate 150-foot by 250-foot work area between the structure sites within the existing PG&E transmission corridor right-of-way. The locations of the pull/reel sites will be finalized during detailed design. The criteria used in selecting the final pull/reel sites will be as follows:

- Accessibility for vehicles.
- Presence of flat or nearly flat land next to existing transmission line route for equipment set-up.
- Existing land use.
- Absence of or minimal habitat for sensitive species.
- Absence of resources that would restrict work.

Preparation of the temporary pull/splice sites would require minor ground disturbance in the form of drive and crush, but not grading. Minor structural modifications would also be made to each of the transmission structures to allow splice boxes to be mounted where the sections of OPGW would be spliced (every three to five miles). The pull/reel sites and transmission structures would be accessed generally along existing unimproved roads or improved unsurfaced or surfaced roads that lead to many of the structures; no new roads would be constructed. Helicopters may be used to place materials at the point of installation for structures inaccessible by existing roads or as otherwise needed.

At each of the existing structures along the 230 kV electric transmission line route, minor upgrades to the steel attachments may be required to accommodate installation of the OPGW. These upgrades would include only overhead work on the existing tower, such as replacing the gode peaks with a pulley to accommodate the OPGW line. The existing static wire would then be used to pull the new OPGW through each structure's pulley. Existing roads or helicopters would be used to provide access to the sites to fashion the attachments needed on each structure.

Construction would be completed using a combination of helicopter and ground crews. Helicopters would be used to transport electrical workers to the towers, to deliver materials, and to assist in pulling the OPGW from structure to structure. Approximately ten 200-foot by 200-foot landing zones would be situated approximately every three to five miles using minimal surface disturbance, similar to the pull sites. Establishing these landing zones would involve minimal temporary ground disturbance, and the zones would facilitate the use of helicopters to reduce overall impacts associated with the work. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters.

Overhead crossings of public roadways or existing transmission or distribution lines would require the use of temporary guard structures at each crossing. The structures would be designed to prevent tools or materials from falling into the roadway or utility. Guard structures typically consist of two to four wooden structures and cross beams attached between the structures. They are generally installed in pairs with a net strung between them, but in some cases a net would not be required. A PG&E line truck would be used to auger and set the wooden structures. For roadway crossings, the temporary structures would be placed in or next to the disturbed road shoulder in an approximately 75-foot by 75-foot area. No grading or vegetation removal is anticipated during installation of the guard structures. Guard structures would be removed following OPGW line installation, and the holes would be backfilled.

Fiber Line Operation Details

Since the OPGW line will be collocated with an existing PG&E electric transmission line, inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur. ADSS or dielectric cables installed on existing distribution structures, or underground, will be inspected and maintained in a similar manner.

Utility Switchyard Access

Primary access to the utility switchyard and power line interconnection would be provided from South Derrick Avenue (State Route 33). The Project would include road improvements to accommodate an increased volume of traffic, construction vehicles, and large delivery vehicles. The main access road would be approximately 15 to 30-feet wide and constructed to be consistent with facility maintenance requirements. These roads would be surfaced with gravel, asphalt, or another commercially available surface and would accommodate PG&E's O&M activities and facilitate on-site circulation for emergency vehicles.

Utility Switchyard Operations and Maintenance

Following completion, testing, and energizing, the PG&E facilities would operate continuously. Routine maintenance would occur for the utility switchyard and power line as needed in accordance with PG&E standard operations and maintenance procedures. PG&E personnel or approved contractors would visit the facilities on a regular basis for inspections and to replace or service equipment. Access to the facilities would typically be by crew truck using existing access routes.

Utility Switchyard Signage

PG&E would install signage as required by the CPUC and any other entities with jurisdiction over the Project.

PG&E Construction Measures

PG&E facilities fall under the jurisdiction of the CPUC, and PG&E will separately comply with CPUC permitting requirements for its interconnection facilities. Because PG&E is not an applicant in this CEC proceeding, PG&E is not subject to mitigation measures or other requirements to which the PG&E team has not formally agreed and that are not included as separate PG&E construction measures. Below is a list of standard Construction Measures. PG&E shall implement the applicable Construction Measures as part of the construction and operation of the Darden utility switchyard. These measures would be applied by PG&E and its contractors during construction and operation of

the utility switchyard and telecommunication lines described in this document and do not apply to other Project components. The Construction Measures are incorporated into PG&E's project for purposes of CEQA review and should be considered when analyzing project impacts. PG&E's permitting through the CPUC will rely on the CEC's CEQA review and, as such, its Construction Measures will be mandatory.

Aesthetics
Security Lighting • Security lighting will be designed and positioned to minimized casting light and/or glare to off-site locations.
Agricultural and Forestry Resources
Landowner Coordination PG&E will coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide notice to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the project restored in accordance with lease agreements, applicable operation and maintenance standards, and environmental permit requirements. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner.
Air Quality
Fugitive Dust Control The following actions will be taken, as applicable and feasible, to control fugitive dust during construction. SJVAPCD notifications will be made in accordance with any requirements in effect at the time of construction. • Applying water to disturbed areas and to storage stockpiles. • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities. • Limit vehicle speed to 15 miles per hour. • Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater. • Cover the top of the haul truck load. • When material are transported off site, all material will be covered or wetted to limit visible dust emissions, and at least 6-inches of freeboard space from the top of the container shall be maintained. • Clean-up track-out at least daily. • Minimize unnecessary idling time through application of a "common sense" approach to vehicle use-if a vehicle is not required immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicles use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in good working order. • Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp or larger and manufactured in 2000 or later will be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program, or shall meet a minimum US EPA/CARB Tier 1 engine standards.
Biological Resources
Worker Environmental Awareness Training A qualified biologist will develop an environmental awareness training program that is specific to the project. All on-site construction personnel will attend the training before they begin work on the project. Training will include a discussion of the construction management practices that are being implemented to protect biological resources as well as the terms and conditions of any project permits.

Standard Construction Practices

The following standard construction practices will be implemented, as feasible, to reduce the potential for environmental impacts.

- Vehicle parking: vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- Work hours: work will occur only during daylight hours, unless required to occur at night due to line clearances for worker safety.
- Vehicle access: the development of new access and ROW roads will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- Speed limit: vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
- Restoration and erosion control: on completion of any project component, all areas that are significantly disturbed and not necessary for future operations, shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.

Dead or injured listed species: personnel will be required to report any accidental death or injury of a listed species or the finding of any dead or injured listed species to a qualified Biologist. Notification of CDFW and/or USFWS of any accidental death or injury of a listed species shall be done in accordance with standard reporting procedures.

Special-status amphibians and reptiles.

If suitable habitat for listed amphibians and reptiles is present, and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an appropriate exclusion zone around the potentially occupied habitat. No monofilament plastic will be used for erosion control in the vicinity of listed amphibians and reptiles. Barrier fencing will be removed upon completion of work.

Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander-which will not be handled) are moved to nearby suitable habitat.

Avoid giant kangaroo rat and San Joaquin antelope squirrel.

Personnel shall avoid occupied or potentially occupied burrows identified by a qualified biologist within two core-areas for San Joaquin antelope squirrel and giant kangaroo rat identified by CDFW. If occupied or potentially occupied burrows in the core areas cannot be avoided, a qualified biologist shall stake and flag an appropriate work-exclusion zone and remain on-sight as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around active burrows prior to covered activities at the job site. If work must proceed in the exclusion zone, crews will pursue techniques to minimize direct mortality including using approved biologists to trap and hold the species in captivity, and excavating and closing burrows.

The approved biologist will hold an ESA Section 10(a)(1)(A) permit for the species. The approved biologist will release the mammals as soon as possible when the work is complete. If active (occupied or potentially occupied) burrows for San Joaquin antelope squirrel or giant or Tipton kangaroo rat are present outside the two core areas identified by CDFW, a qualified biologist will stake and flag an appropriate exclusion zone and remain on-site as a biological monitor, or the biologist shall stake and flag an appropriate work exclusion zone around the burrows prior to work activities on the job site.

Exclusion zones for blunt-nosed leopard lizard. If activities take place within the range of the species and outside the road shoulder, a qualified biologist will identify if burrows are present and if work can avoid burrows. If work cannot avoid the burrows, a qualified biologist will evaluate the site for occupancy and stake and flag an appropriate exclusion zone around the burrows prior to activities at the job site.

Conduct preconstruction surveys and avoidance of active western burrowing owl burrows.

PG&E will retain a qualified biologist to conduct preconstruction surveys for active burrows no more than 30 days prior and no less than 14 days prior to the start of construction in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). If western burrowing owls are present at the site, a qualified biologist will establish an exclusion zone in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW, 2012).If a biologist experienced with burrowing owl determines the relocation of owls is necessary, a passive relocation effort may be conducted as described below, in coordination with CDFW as appropriate. During the nonbreeding season (generally 1 September–31 January), a qualified biologist may passively relocate burrowing owls found within construction areas. Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW for review as required. The biologist shall accomplish such relocations using one-way burrow doors installed and left in place for at least two nights; owls exiting their burrows will not be able to re-enter. Then, immediately before the start of construction activities, the biologists shall remove all doors and excavate the burrows to ensure that no animals are present in the burrow. The excavated burrows shall then be backfilled. To prevent evicted owls from occupying other burrows in the impact area, the biologist shall, before eviction occurs,

(1) install one-way doors and backfill all potentially suitable burrows within the impact area, and

(2) install one-way doors in all suitable burrows located within approximately 50 feet of the active burrow, then remove them once the displaced owls have settled elsewhere. When temporary or permanent burrow-exclusion methods are implemented, the following steps shall be taken: Prior to excavation, a qualified biologist shall verify that evicted owls have access to multiple, unoccupied, alternative burrows, located nearby (within 250 feet) and outside of the projected disturbance zone. If no suitable alternative natural burrows are available for the owls, then, for each owl that is evicted, at least two artificial burrows shall be installed in suitable nearby habitat areas. Installation of any required artificial burrows preferably shall occur at least two to three weeks before the relevant evictions occur, to give the owls time to become familiar with the new burrow locations before being evicted. The artificial burrow design and installation shall be described in the Burrowing Owl Exclusion Plan per Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). Passive relocation of burrowing owls shall be limited in areas adjacent to Project activities that have a sustained or low-level disturbance regime; this approach shall allow burrowing owls that are tolerant of Project activities to occupy quality, suitable nesting and refuge burrows. The use of passive relocation techniques in a given area shall be determined by a qualified biologist who may consult with CDFW, and shall depend on existing and future conditions (e.g., time of year, vegetation/topographic screening, and disturbance regimes).

Exclusion zones for special-status plants.

If a covered plant species is present following special-status plant surveys, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to performing the activities. If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels).

Nesting Birds

If work is anticipated to occur within the nesting bird season (February–September), nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and/or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. For nests discovered during construction, PG&E implements Work Procedure (WP) 2321 to identify and avoid impacts to nesting birds. WP 2321 generally requires assistance from the project biologist to determine if the construction action will impact the nest, and if so, identify whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist.

Cultural and Paleontological Resources
Worker Awareness Training PG&E will provide environmental awareness training on archeological and paleontological resources protection. This training may be administered by the PG&E cultural resources specialist (CRS) or a designee as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource, human remain, or fossil discovery; and penalties for disturbing cultural or paleontological resources.
Flag and Avoid Known Resources Sites will be marked with flagging tape, safety fencing, and/or sign designating it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment will not intrude on these sites during construction. At the discretion of the PG&E CRS, monitoring may be done in lieu of or in addition to flagging. If it is determined that the project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historic Resources (CRHR) will be conducted. Should the site be found eligible, appropriate measures to reduce the impact to a less-than-significant level will be implemented, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures will be implemented to reduce the impact to a less-than-significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate.
Unanticipated Cultural Resources and Paleontological Discoveries a. Unanticipated Cultural Resources. If unanticipated cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until CRS or their qualified designee can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on other portions of the site with the CRS's approval. PG&E will implement the CRS's or their designee's recommendations for treatment of discovered cultural resources. *b. Human Remains.* In the unlikely event that human remains or suspected human remains are uncovered during preconstruction testing or during construction, all work within 100 feet of the discovery will be halted and redirected to another location. The find will be secured, and the CRS or designated representative will be contacted immediately to inspect the find and determine whether the remains are human. If the remains are not human, the CRS will determine whether the find is an archaeological deposit and whether paragraph (a) of this APM should apply. If the remains are human, the cultural resources specialist will immediately implement the applicable provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has two working days to examine human remains after being notified. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the cultural resources specialist contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant. *c. Paleontological Discoveries.* If significant paleontological resources are discovered during construction activities, work will stop within 100 feet and the PG&E cultural resource specialist will be contacted immediately. The CRS will work with the qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approval by the CRS in coordination with the paleontologist. In the event that significant paleontological resources are encountered during the project, protection and recovery (if feasible and safe) of those resources may be required. Treatment and curation of fossils will be conducted in consultation with the landowner, PG&E, and CPUC. The paleontologist will be responsible for developing the recovery strategy and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and

reporting, and securing a curation agreement from the approved facility.

Geology and Soils

Minimize Construction in Soft or Loose Soils

Where soft or loose soils are encountered during project construction, several actions are available, feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these actions may be implemented to eliminate impacts from soft or loose soils:

- Locating construction facilities and operations away from areas of soft and loose soil.
- Over-excavating soft or loose soils and replacing them with engineered backfill materials.
- Increasing the density and strength of soft or loose soils through mechanical vibration and/or
- compaction.
- Installing material, such as aggregate rock, steel plates, or timber mats, over access roads.
- Treating soft or loose soils in place with binding or cementing.

Greenhouse Gas Emissions

The following actions will be taken, as feasible, to minimize greenhouse gas emissions.

- Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect
- worker arrival time and the project's construction schedule.
- Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with PG&E standards.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment, where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- Encourage recycling construction waste where feasible.

Hazards and Hazardous Material

Hazardous-Substance Control and Emergency Response

PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on-site, as applicable.

Project construction will involve soil surface blading/leveling, excavation of up to several feet, and augering to a maximum

depth of 35 feet in some areas. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.

Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

Worker Environmental Awareness

The training will include the following components related to hazards and hazardous materials:

- PG&E Health, Safety, and Environmental expectations and management structure.
- Applicable regulations.
- Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed.
- Summary of the primary workplace hazards to which workers may be exposed.
- Overview of the controls identified in the Storm Water Pollution Prevention Plan

Fire Risk Management

PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season in designated State Responsibility Areas, all motorized equipment driving off paved or maintained gravel/dirt roads will have federally approved or State-approved spark arrestors. All off-road vehicles will be equipped with a backpack pump (filled with water) and a shovel. Fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions (as determined by CalFire), welding will be curtailed. Every fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all flammable materials will be removed from equipment parking and storage areas.

Hydrology and Water Quality

Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP)

PG&E will prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body. BMPs to be part of the project-specific SWPPP may include, but are not limited to, the following control measures.

- Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas.
- Protecting drainage facilities in downstream off-site areas from sediment using appropriate BMPs.
- Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations.
- Restoring disturbed areas, after project construction is completed, unless otherwise requested by the landowner in agricultural land use areas.

Noise
Employ Noise-Reducing Construction Practices during Temporary Construction Activities PG&E will employ standard noise-reducing construction practices such as the following: • Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. Minimize noise-related disruption by notifying residents. Should nighttime project construction be necessary because of planned clearance restrictions, affected residents will be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.
Transportation
Temporary Traffic Controls PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in or along or that cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area.
Air Transit Coordination PG&E will implement the following protocols related to helicopter use during construction and air traffic: • PG&E will comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator will coordinate all project helicopter operations with local airports before and during • project construction. • Helicopter use and landing zones will be managed to minimize impacts on local residents.
Coordinate Road Closures with Emergency Service Providers At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.

5.1.2 Data Request DR TSD-6

DR TSD-6: An expected schedule for necessary approvals from the California Public Utilities Commission.

Response: PG&E anticipates that its interconnection work will qualify for the Advice Letter (AL)/Notice of Construction (NOC) process under General Order (GO) 131-D, Section III.B.1.f, relying on the CEC's CEQA document for the larger Darden project. PG&E's typical permitting timeframe for the CPUC's NOC process is summarized below.

- PG&E works with IP Darden to develop and share information necessary for proceeding with the CEC's CEQA review. This collaboration began in October 2023.
- PG&E AL/NOC preparation (typically 60 days to 120 days). This is internal to PG&E and the timeframe may vary depending on completion of the 60 percent design and supporting constructability scope.

- Darden Clean Energy Project CEC CEQA review and Opt-in Certification, anticipated to be complete in Q1 2025.
- PG&E will file an AL/NOC with the CPUC once the Darden project's CEQA document is adopted covering all of PG&E's interconnection facilities, including the utility switchyard, interconnection, and related system upgrades, and finding no significant unavoidable impacts as a result of PG&E's work, anticipated Q1 2025.
- The timing and sequence is as follows:
  - AL/NOC filing and NOC newspaper publication (published for two successive weeks in a local newspaper of major circulation). The NOC is also posted on and off the project site and served on relevant local and state agencies.
  - NOC public review and public protest period after first publication (approximately 20 days).
  - PG&E responds to public comments and protests, generally within 5 business days of the end of the public comment period.
  - NOC 45-day noticing period ends; last day for CPUC to submit a data request or suspension on the Advice Letter.
- CPUC review and decision on AL/NOC (generally 2-4 months after filing if no public comments or protests; can take 6-9 months if there is a protest or other controversy that requires a Commission decision.
  - This time is used for the CPUC to develop a resolution if there is public protest, which generally must be approved at a regularly scheduled meeting of the Commission. The CPUC may issue a suspension to allow time for review of an AL/NOC, and often submits CPUC data requests to PG&E during this period.
- PG&E's project may begin construction once the CPUC rules on the AL/NOC (either through staff or by Commission action), any other required permits are obtained, and Construction Measures are in place.

6 Water Resources

6.1 Data Requests DR WATER-1 through DR WATER-23

6.1.1 Data Request DR WATER-1 and WATER-2

DR WATER-1: For each wastewater disposal option being considered, please provide information including a detailed description of all facilities to be used in water conveyance, a process flow diagram showing a water balance table, and estimated flow rates in average, maximum daily, and annual water demand and wastewater discharge.

DR WATER-2: For all wastewater management options, please provide a discussion related to significant assumptions, methodologies, and computational methods used in arriving at the wastewater disposal impact conclusions.

Response: After further diligence and analysis of options for disposal of wastewater resulting from processing of water for the hydrogen electrolyzer, the Applicant has opted to pursue zero liquid discharge for brine treatment and is no longer considering other options for disposal of wastewater produced from the hydrogen facility water treatment plant (WTP). See response to DR WATER-3 for additional information.

6.1.2 Data Request DR WATER-3

DR WATER-3: Please provide the expected physical and chemical characteristics of all project source water and discharge wastewater streams including identification of both organic and inorganic constituents before and after any project-related treatment. For source waters with seasonal variation, provide seasonal ranges of the expected physical and chemical characteristics. Provide copies of background material used to characterize all project wastewater streams (e.g. laboratory analysis).

a. If any project wastewater stream would be disposed via deep injection well, please provide the following items to comply with Department of Conservation Geologic and Energy Management Division (CalGEM) UIC regulation (CCR Title 14, Section 1961): injection reservoir conditions; method of injection; map showing contours on the geologic marker at or near the intended injection zone: and, one or more cross-sections showing the wells involved.
b. If any project wastewater stream would be disposed by discharge to land option, please provide the information required to apply for individual waste discharge requirements (WDR). Please note that if any project wastewater stream would also be discharged to land, a separate WDR application for discharge from each wastewater stream would be required. Please submit a complete Report of Waste Discharge (RWD) in accordance with California Water Code section 13260. The RWD must include a completed Form 200, the required application fee, and a technical report that provides the necessary information about the proposed discharge(s). Please consider the general guidance document “Technical Information for a Report of Waste Discharge for Discharges to Land in the WDR (Non-15) Program (Individual WDRs Only)” that provides information for submitting a RWD for individual WDRs, and include any relevant information noted.
    i. Please include a detailed description of the wastewater containment/handling facilities (including production facility and ancillary equipment such as water treatment facilities,

filters, storage tanks, backwash systems and chemical dosing systems, evaporative ponds, etc.) and associated discharges, the expected physical and chemical characteristics of the proposed wastewater discharges, and provide groundwater quality and groundwater depth/elevation information for the Shallow Zone/first encountered groundwater (See DR WATER-11).

c. For the discharge of brine or any other project wastewater stream using zero liquid discharge, explain how system fluids are transported and handled to produce final solids, how solids would be stored on-site before disposal, and show system processes on process flow diagram (DR WATER-1).

Response:

Water Quality Constituents

This portion of the response for DR WATER-3 addresses water quality constituents, with respect to physical and chemical characteristics of source water and wastewater, organic and inorganic constituents before and after water quality treatment, and waste stream characterization.

- **Physical and chemical characteristics of source water.** Water for the Project would be sourced from local groundwater and from surplus surface water stored via aquifer storage and recovery (ASR) in coordination with Westlands Water District (WWD). Common water quality constituents in the Project area include total dissolved solids (TDS), which can include both organic and inorganic components. Organic water quality constituents are derived from living organisms and consist of carbon-containing compounds, whereas inorganic constituents are derived from nonliving components and commonly contain salts. Source water quality for the Project is characterized in the Opt-in Application, with groundwater quality addressed in Section 5.13.1.1, Groundwater, under "Westside Subbasin" and "Groundwater Quality," and surface water quality addressed in Section 5.13.1.2, Surface Water, under "Surface Water Quality."
- **Physical and chemical characteristics of discharge wastewater streams.** The Project would include a water treatment plant (WTP) to treat source water to the ultrapure standards required to produce hydrogen via electrolysis. Water quality treatment processes that would be conducted at the Project WTP, discussed below under "Water Quality Treatment Processes," would result in a wastewater stream that would be processed for disposal using a zero-liquid discharge (ZLD) system. Wastewater generated from Project-related treatment would be conveyed from the onsite Project WTP to the onsite ZLD system, such that no liquid wastewater stream would leave the Project site or be disposed of on the Project site.

  Due to the Project design being revised to include a ZLD system for wastewater and brine management, DR WATER-3 Items (a) and (b), which request information regarding disposal via deep injection well or discharge to land, are not applicable and are not addressed further herein. DR WATER-3 Item (c), which requests information regarding how system fluids would be transported and handled to produce final solids, and how solids would be stored and disposed of, is addressed under "Zero Liquid Discharge System,"-below.
- **Organic and inorganic constituents before and after Project-related treatment.** Source water quality (before Project-related treatment) is characterized in the Opt-in Application, including with respect to organic and inorganic water quality constituents; see Section 5.13.1.1 of the Opt-in Application for groundwater quality and Section 5.13.1.2 for surface water quality.

  The organic and inorganic water quality constituents after Project-related treatment are defined by the water quality parameters of ultrapure water required for the Project electrolyzer.

Ultrapure water contains as few impurities as possible, which provides a higher electric resistivity ratio and lower conductivity. Water quality treatment steps that would be conducted to produce ultrapure water for the Project are discussed under "Water Quality Treatment Processes," below.

- **Source waters with seasonal variation.** There would be no seasonal variation in the quality of the Project's operational water supply because it would remain in storage via ASR, for use as needed during operation of the Project. Details regarding the quality of water stored via ASR will depend upon the location and design of the ASR system to be implemented, as well as the conveyance infrastructure that would be used to deliver the stored water to the Project site. Appendix K of this document provides laboratory results for water collected from agricultural wells located approximately 5 miles from the Project site; this water sample is considered representative of groundwater collected from the Project site.

Water Quality Treatment Processes

Steps in the water quality treatment process are described below and shown in the process flow diagram in Figure 2. These water quality treatment processes would produce ultrapure water for inflow (feedstock) to the electrolyzer and generate wastewater that would be disposed of using a ZLD system, discussed below under respective heading.

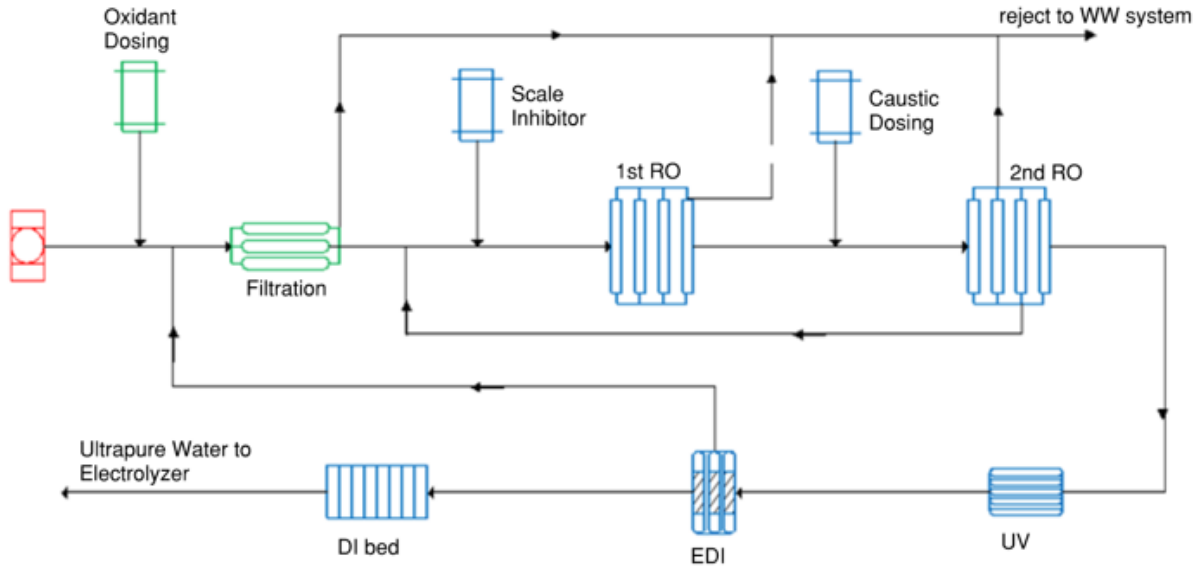
- **Oxidant Dosing.** For those installations requiring removal of iron or manganese from the source water (also referred to as "feed water" or "feedstock"), a chemical oxidant dosing system would be used to ensure that iron and manganese are oxidized in the media filter. Oxidizer dosing would be conducted as needed.
- **Media Filtration.** A media filter is used to remove suspended solids from the source water. The media filter is comprised of multiple vessels containing a zeolite filtration media. The media filter is backwashed with raw source water. In those applications requiring removal of iron or manganese, the media filters are equipped with greensand filtration media. The media filter would have a loading rate of 6 gallons per minute (gpm) per square foot of filter area.
- **Activated Carbon Filtration.** Activated carbon is used to remove any remaining oxidant from the feed water as well as to reduce total organic carbon (TOC) content of the feed water. The carbon filter would have a loading rate of 2 gpm per cubic foot of carbon media.
- **Cartridge Filtration.** The cartridge filter acts to ensure that stray particulate does not inadvertently enter the high-pressure pump or reverse osmosis (RO) membrane elements. The cartridge filtration would have a loading rate of less than 3 gpm per 10 inches of filter segment.
- **Scale Inhibitor Dosing.** Use of a high-performance organic scale inhibitor reduces the scaling and fouling potential from sparingly soluble salts, metal oxides, and naturally occurring organic materials in the feed water. Scale inhibitor dosing would be conducted at a rate of 2 to 3 parts per million (ppm).
- **First Pass RO.** The First Pass RO removes the majority of TDS in the feed water. The RO is arranged into a multi-stage array or single stage array with reject recycle. Average flux rate for the First Pass RO would be less than 12 gallons per square foot per day (GFD), with a recovery rate of approximately 70 to 85 percent.
- **Inter-Pass Caustic Dosing.** Dosing of a small amount of caustic before the Second Pass RO unit increases the rejection of TOC and silica in the Second Pass RO. It also converts carbon dioxide in the first pass permeate to bicarbonate thus allowing it to be removed in the Second Pass RO.
- **Second Pass RO.** The Second Pass RO further removes TDS which remain in the First Pass RO permeate. The RO is arranged into either a single stage array with reject recycle or a two-stage

array depending upon system size. Average flux rate for the Second Pass RO would be less than 20 GFD, with a recovery rate of approximately 90 percent.

- **Ultraviolet (UV) Treatment.** The Second Pass RO permeate is treated with 185 nanometers (nm) of UV light to oxidize any organic compounds remaining after the RO treatment step. The UV unit is situated before the Continuous Electrodeionization (CEDI) unit to allow the CEDI unit to remove ionized organic compounds that result from the oxidation. UV dosing would be conducted at a rate of 300 millijoules per square centimeter (mJ/cm2), equivalent to 254 nm.
- **Membrane Degassifier.** The degassifier is used to remove carbon dioxide from the second pass permeate to lower ionic content entering the CEDI unit. These systems often utilize a hydrophobic degassing membrane coupled with a regenerative blower to conduct CO2 removal.
- **CEDI Polishing.** Final polishing of the Second Pass RO permeate is accomplished using a CEDI unit and deionization (DI) bed. The CEDI unit recovery rate would be approximately 95 percent.

The overall recovery rate for water quality treatment processes would be between approximately 60 and 80 percent. Figure 2, below, provides a graphical overview of the WTP processes.

Figure 2 DR WATER-3 Process Flow Diagram – Water Quality Treatment



The efficiency of water quality treatment processes conducted at the Project WTP, as presented above, determines the quantity and concentration of wastewater conveyed to the Project ZLD system for processing in preparation for disposal. Table 4, below, identifies process efficiency rates for each of the key water quality treatment steps, where efficiency is characterized by the feedstock inflow rate compared to waste generation rate for each step.

Table 4 DR WATER-3 WTP Processes and Balance

Process Step*	Feedstock Water Inflow*	Waste Generation Rate	Process Efficiency
Total Inflow (Raw Water)	892,747 GPD (2.74 AF/day)	n/a	n/a
Membrane Microfiltration	892,747 GPD (2.74 AF/day)	17,855 GPD (0.05 AF/day)	98% (2% loss)
First Pass RO	874,892 GPD (2.68 AF/day)	218,724 GPD (0.67 AF/day)	75% (25% loss)
Second Pass RO	656,168 GPD (2.01 AF/day)	65,617 GPD (0.20 AF/day)	90% (10% loss)
Other Uses	95,145 GPD (0.29 AF/day)	n/a	n/a
EDI	590,551 GPD (1.81 AF/day)	29,528 GPD (0.09 AF/day)	95% (5% loss)
Total Outflow (Ultrapure Water)	561,023 GPD (1.72 AF/day)	236,579 GPD (0.73 AF/day)	63 % (27% loss)

* RO = reverse osmosis; EDI = electrodeionization; GPD = gallons per day; AF = acre-feet; AFY = acre-feet per year

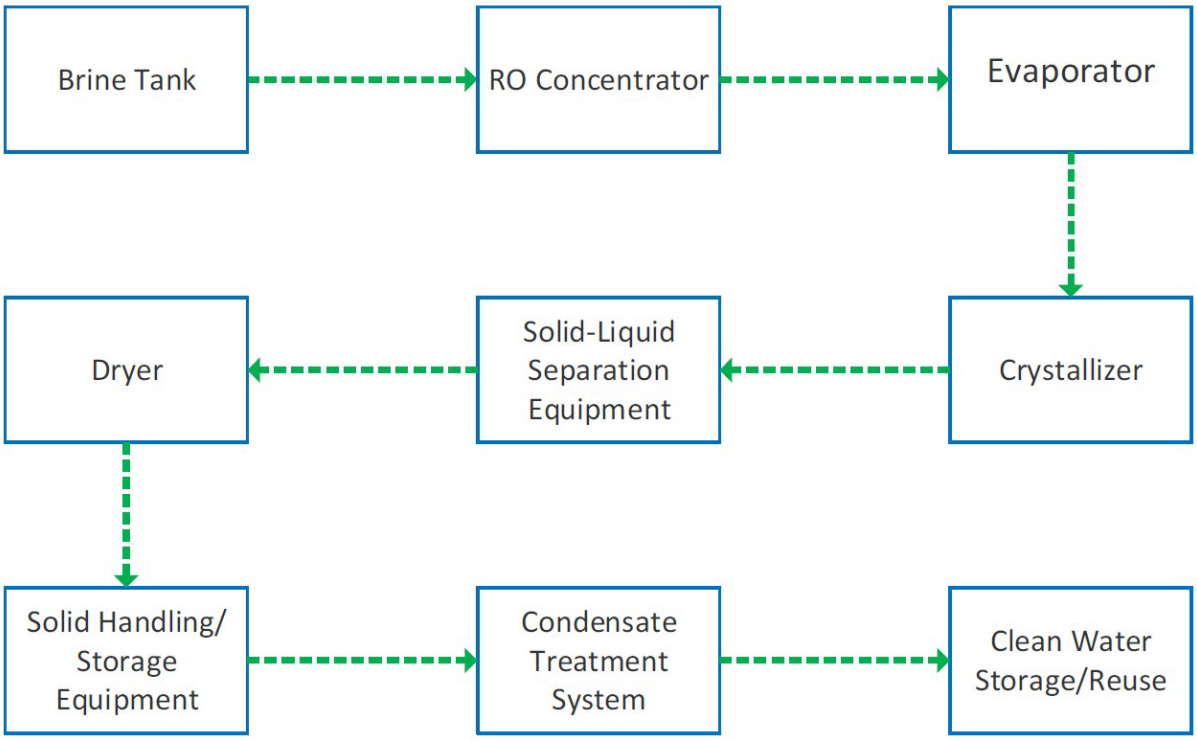
As shown above, during each day of Project WTP operation, an average of 892,747 gallons (2.74 acre-feet) of raw water would enter the WTP and 561,023 gallons (1.72 acre-feet) of ultrapure feedstock water would be produced for the electrolyzer, for an overall efficiency rate of approximately 63 percent. Assumptions used to inform the efficiency estimates presented above, based upon input from water quality treatment vendors, are presented below.

- The raw water inflow to the Project WTP would consist of locally produced groundwater with low to moderate concentrations of TDS.
- The overall efficiency rate of 63 percent would produce a wastewater stream representing approximately 27 percent of the total raw water inflow rate.
- Backwash from filtration and First Pass RO would contribute to the wastewater stream.
- Wastewater from the CEDI unit and Second Pass RO would be recycled back to the front of the water quality treatment process (Membrane Microfiltration).

Zero-Liquid Discharge System

The Project would implement a ZLD system to concentrate wastewater generated from water quality treatment processes. It is assumed that TDS content in the wastewater entering the ZLD system would be approximately 200,000 ppm, premised upon a solids constitution percentage by weight of 60 (salts and minerals). Based upon this assumption and the processes summarized below, the ZLD system would generate approximately 40,600 pounds per day of solids, which would be stored in a roll-off container and hauled off-site at regular intervals to a solids landfill for disposal. Steps that would be conducted in the ZLD system are presented in the process flow diagram in Figure 3 and discussed below.

Figure 3 DR WATER-3 Process Flow Diagram – Zero-Liquid Discharge System



As shown above, the ZLD system initiates with a brine tank, where wastewater from the WTP is received. Processes identified in the process flow diagram above are described below.

- **Primary Processes**
  - **RO Concentrator**. The first step in the ZLD system is pretreatment through an RO concentrator. This removes TDS and adjusts the pH of the wastewater and brine entering the ZLD system. Pretreatment can include filtration, chemical addition, or other methods to prepare the liquid for further processing.
  - **Evaporation/Concentration**. The pretreated wastewater is then sent to an evaporator, where the majority of the remaining liquid is removed through boiling and evaporation. This step concentrates the remaining solids in the brine. This concentrated brine solution would either be trucked out from site and disposed of or processed further into solids, as detailed in response to DR WASTE-1 and DR TRANS-7 in Data Response Set #2.
- **Optional Drying Processes**
  - **Crystallization.** Following evaporation, the concentrated brine enters a crystallizer, where the remaining liquid is evaporated out, typically under vacuum conditions, which causes the dissolved solids to form crystals. This is often the final step in the reduction of liquid waste.
  - **Solid Separation**. The mixture of solids and minimal remaining liquid from the crystallizer is sent to a solid-liquid separation process, which can include the use of a centrifuge, filter press, or drying beds, to separate the solid crystals from any residual liquids.
  - **Drying**. The solid separation process results in a wet solid cake which is then dried to remove any remaining moisture, producing a dry solid product.

- **Solids Handling and Storage.** Remaining solids are handled using standard solid material handling equipment such as conveyors or pneumatic systems, and are stored on-site in appropriate containers or silos until they can be disposed of.
- **Post-treatment of Condensate**. Water vapor from the evaporation and crystallization processes is condensed and typically treated to remove any remaining contaminants, resulting in treated water that is often of high enough quality to be reused within the facility's processes.

As noted above, the ZLD system is anticipated to generate approximately 40,600 pounds per day of solids, which would be stored in a roll-off container and hauled off-site to a solids landfill for disposal.

6.1.3 Data Request DR WATER-4

DR WATER-4: Please re-evaluate Figure 5.13-3 and provide a detailed explanation of modifications made and any assumptions, methodologies, and computational methods used.

Response: The original Figure 5.13-3, *Depth to Groundwater*, incorrectly showed ground surface elevation, not depth to groundwater. That figure should be replaced with the graphics presented below, identified as Figures 5.13-3a through 5.13-3f, which were sourced from the Westside Subbasin GSP (WWD GSA and County of Fresno GSA-Westside 2022a) and reflect three different time periods representing current conditions, dry years, and wet years, as follows:

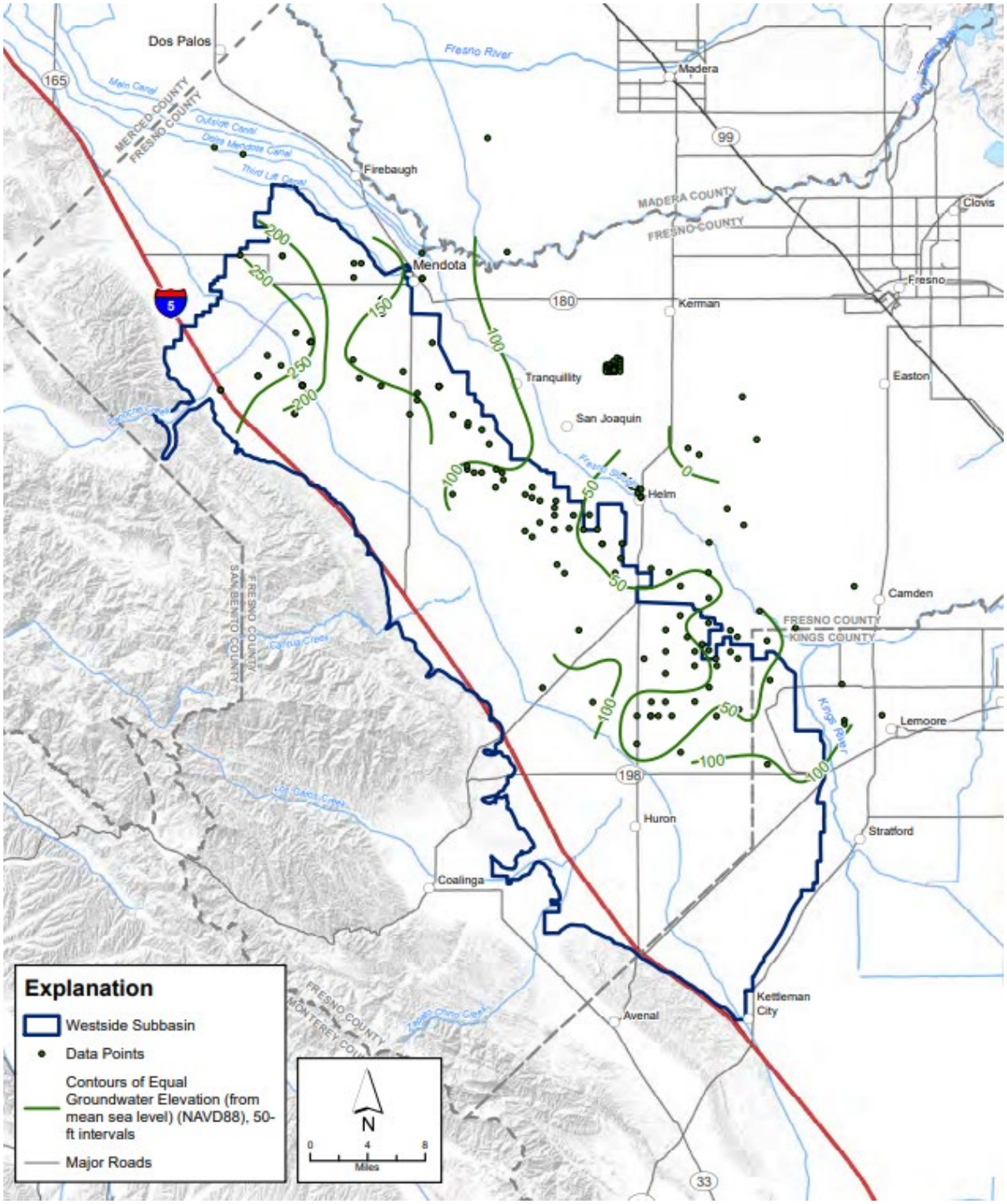
- Current Conditions = Winter, 2014/2015; see Figures 5.13-3a and 5.13-3b
- Typical Dry Year = Summer/Fall, 2009; see Figures 5.13-3c and 5.13-3d
- Typical Wet Year = Winter/Spring, 2006/2007; see Figures 5.13-3e and 5.13-3f

As described in the Westside Subbasin GSP, the extent of data available for groundwater levels (elevation) varies across the Subbasin, impeding the characterization of flow direction in some areas. Increasing data availability suggests that flow direction within the Subbasin is influenced by groundwater production in adjacent subbasins (WWD GSA and County of Fresno GSA-Westside 2022a, pg. 2-39), as reflected in the elevation contours portrayed in Figures 5.13-3a through 5.13-3f, below. These figures generally indicate a trough of low groundwater elevations along a north-south orientation in the central portion of the Subbasin, where groundwater elevations are around 160 feet below mean sea level (msl).

The Project site is located generally in the central portion of the Subbasin; therefore, it is assumed that groundwater at the Project site is located at an elevation of 160 feet below msl. The ground surface elevation at the Project site is generally around 200 feet above msl, as shown in Google Earth. Therefore, the depth to groundwater at the Project site is approximately 360 feet.

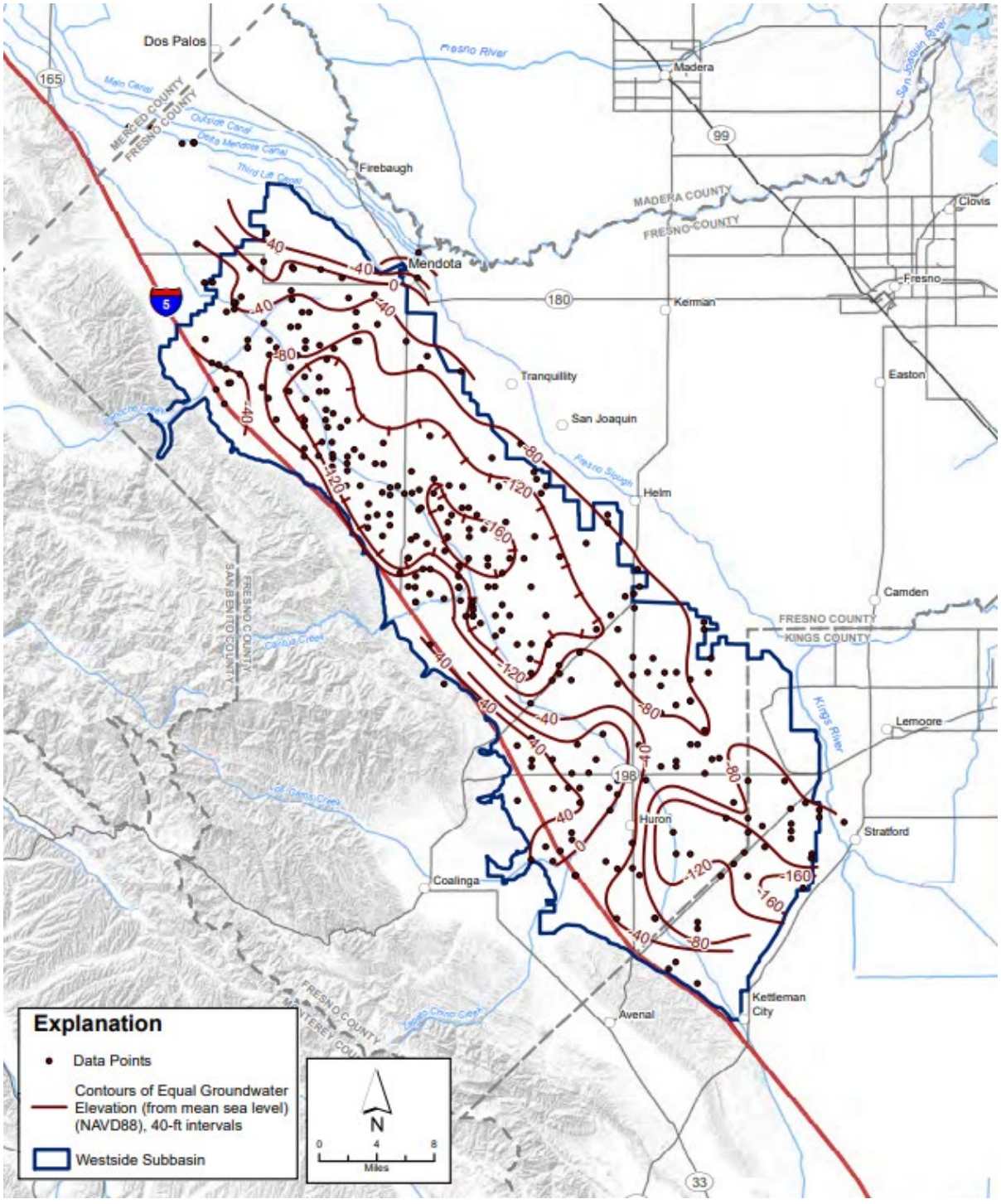
In the Lower Aquifer, the two winter/spring scenarios indicate that groundwater flow direction is eastward out of the Subbasin during wet years, with flows returning into the Subbasin during extended drought periods (WWD GSA and County of Fresno GSA-Westside 2022a, pg. 2-39).

Figure 5.13-3a Groundwater Elevation Contours – Current Conditions, Upper Aquifer



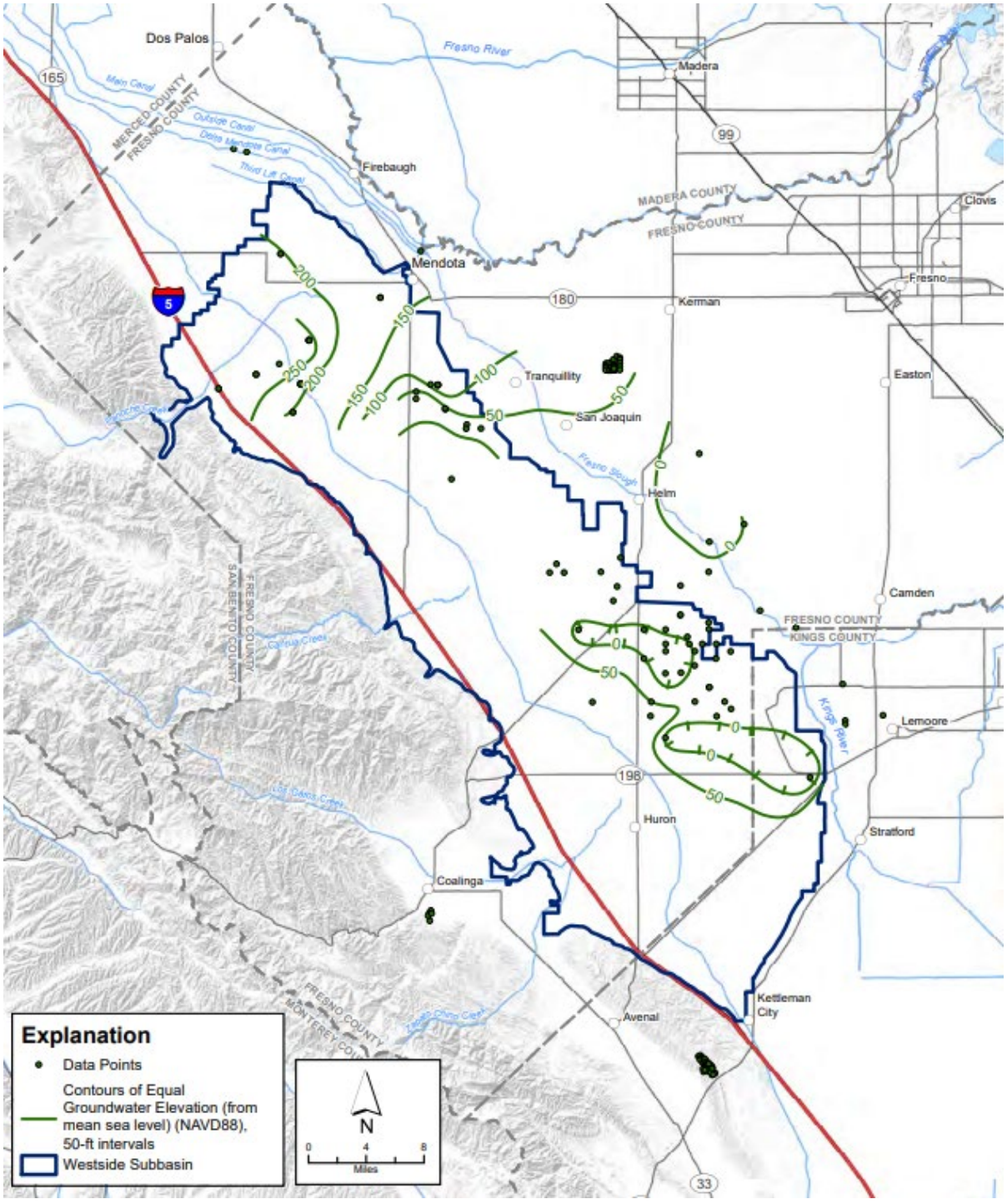
Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 177)

Figure 5.13-3b Groundwater Elevation Contours – Current Conditions, Lower Aquifer



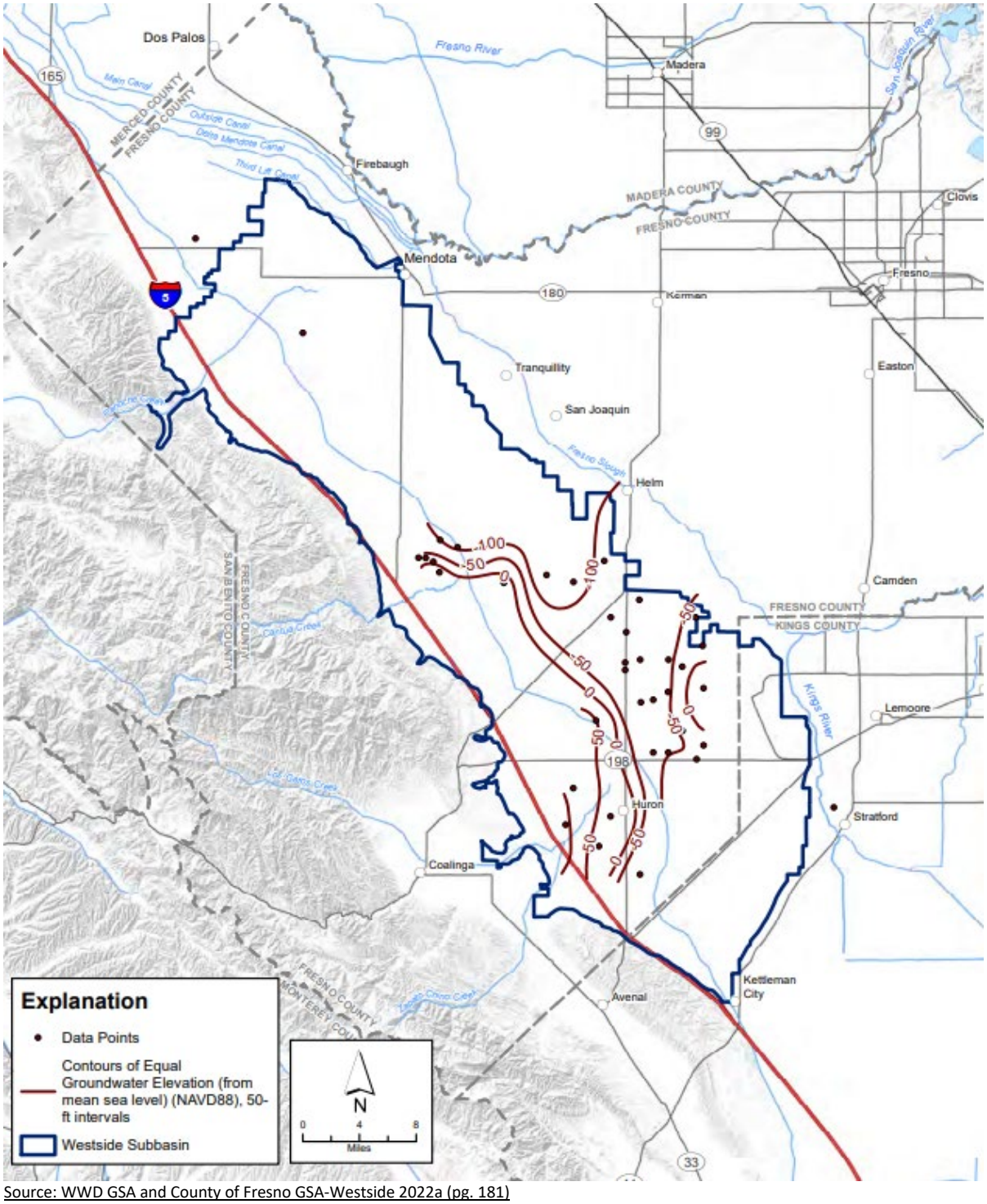
Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 182)

Figure 5.13-3c Groundwater Elevation Contours - Typical Dry Year, Upper Aquifer



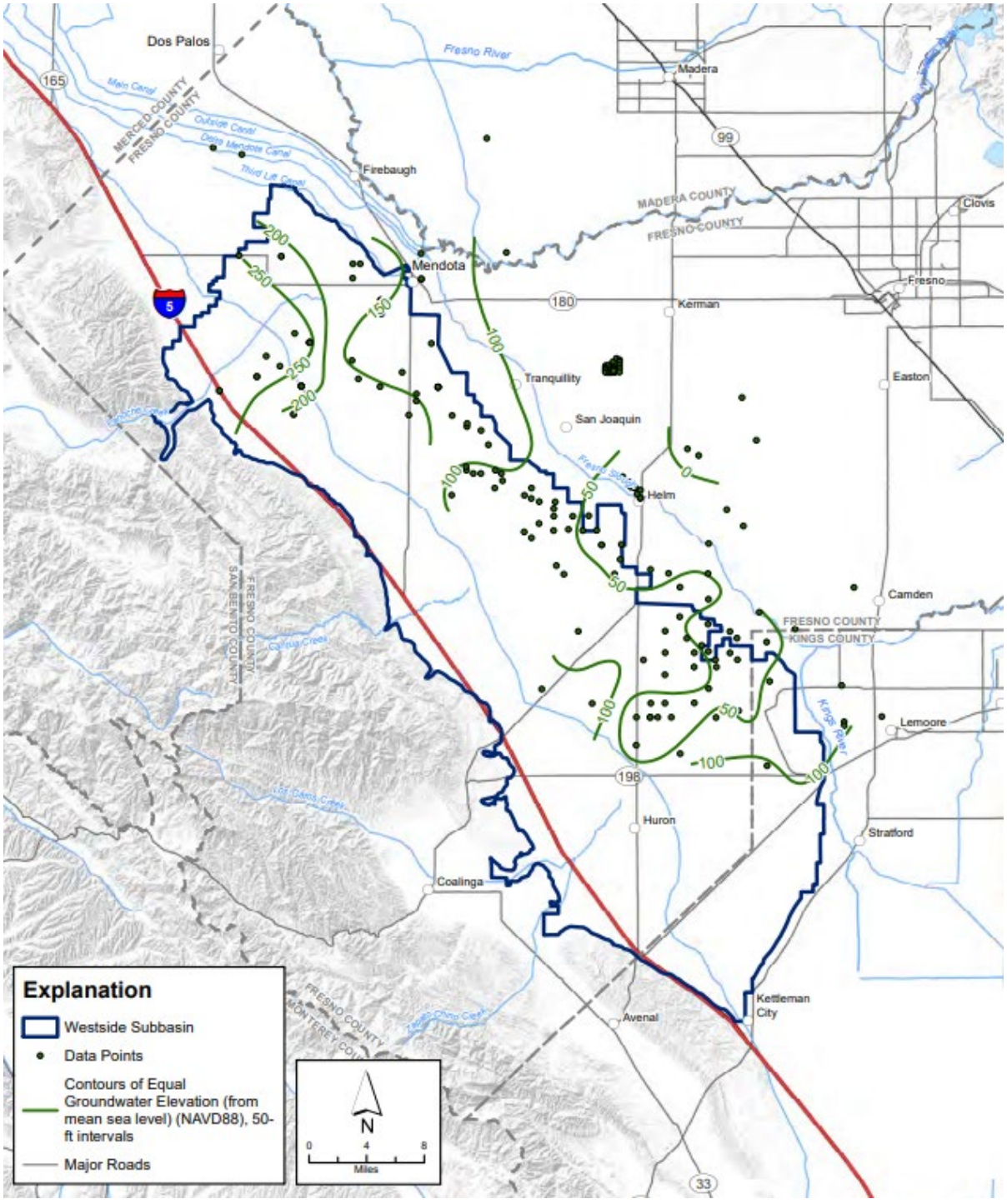
Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 178)

Figure 5.13-3d Groundwater Elevation Contours - Typical Dry Year, Lower Aquifer



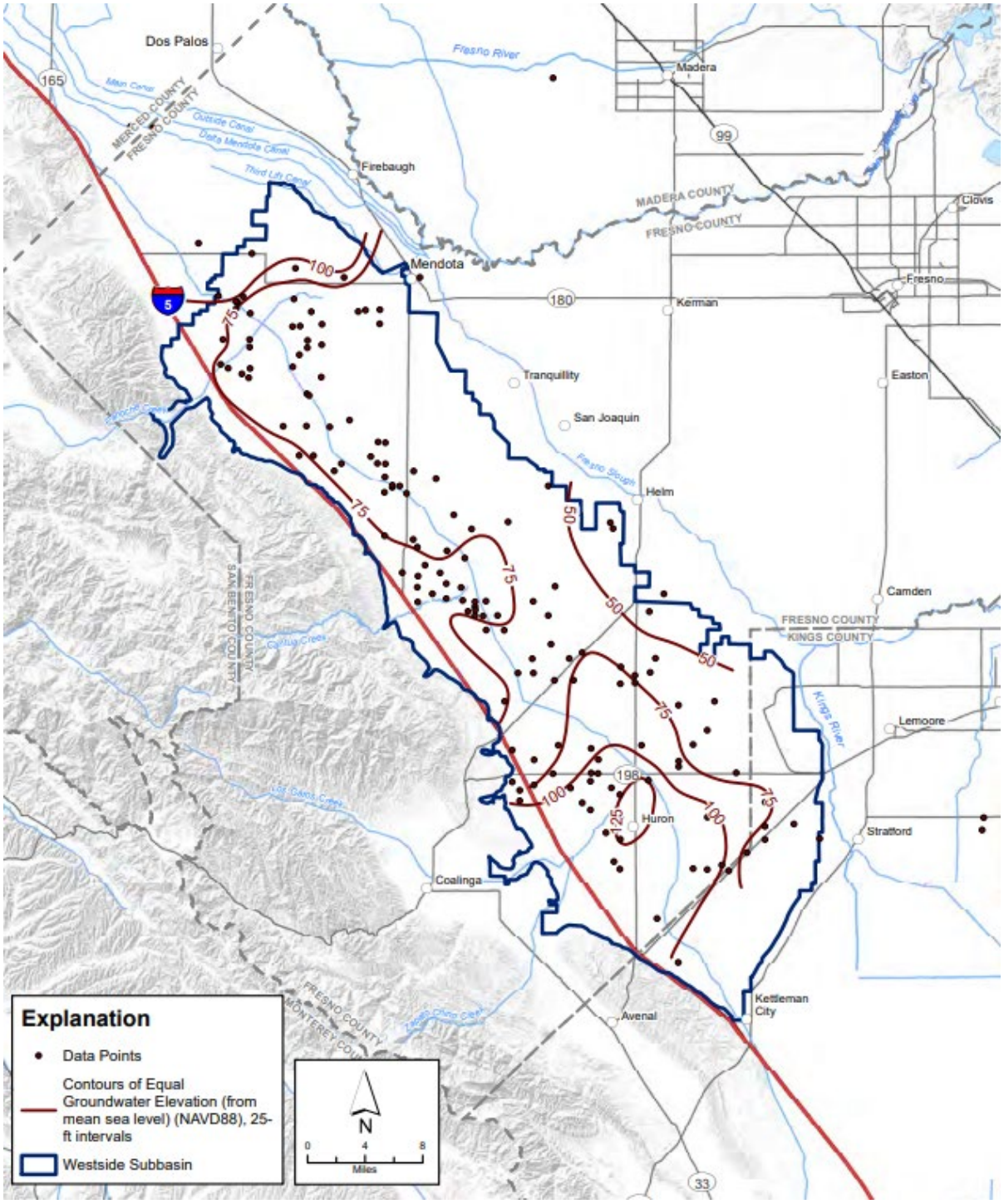
Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 181)

Figure 5.13-3e Groundwater Elevation Contours - Typical Wet Year, Upper Aquifer



Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 177)

Figure 5.13-3f Groundwater Elevation Contours - Typical Wet Year, Lower Aquifer



Source: WWD GSA and County of Fresno GSA-Westside 2022a (pg. 180)

6.1.4 Data Request DR WATER-5

DR WATER-5: To the extent that various impact analyses were based on the apparent erroneous assumption that the depth to groundwater below the Project site is approximately 200-300 feet, please re-evaluate the stated conditions and provide revised analysis and information. Provide a detailed explanation of modifications made and any assumptions, methodologies, and computational methods used.

Response: As discussed in response to DR WATER-4, the depth to groundwater at the Project site is approximately 360 feet. Revisions associated with incorporating this clarification are provided in the response to DR WATER-4 above. In addition, in Section 5.13.1.1, *Groundwater*, of the Opt-In Application under "Nearby Wells," the final sentence should be deleted ("As shown in Figure 5.13-3….to the east of the Project site."). No other revisions are necessary, including the impact analysis provided in Section 5.13.3.

6.1.5 Data Request DR WATER-6

DR WATER-6: Chapter 2 Project Description, Subsection 2.1.5.2, describes the ratio of demineralized water per pound of hydrogen produced and the ratio of potable water per pound of hydrogen produced. The section also references potential potable water infeasibility and indicates non-potable water use as an option.

Please provide discussion related to significant assumptions, methodologies, and computational methods used in arriving at these statements along with clarification of both potable and non-potable sources cited.

Response: The discussions below describe the significant assumptions, methodologies, and computational methods used to determine the ratios of demineralized water and potable water per pound of hydrogen produced, as well as clarification of water sources.

The computations and assumptions made are grounded on fundamental chemistry principles and typical operational parameters of electrolysis systems. Specific values can vary depending upon the type of electrolyzer, the purity of the water, and other operational conditions.

Assumptions

- **Electrolyzer Efficiency.** Standard efficiencies for the functionality of the electrolyzer involved in the hydrogen production operation fluctuate between 60 and 80 percent, with the hypothetical efficiency (100 percent) serving as a standard for comprehending stoichiometric necessities, although efficiencies in practical scenarios are invariably lesser.
- **Water Purity.** Demineralized water is more desirable based on its minimal impurities. Although potable water is fit for consumption, it comprises minerals and other substances that can interfere with the efficacy of electrolysis. Therefore, the water used in electrolysis needs to be purified, a process through which minerals are extracted and concentrated in a waste stream. Water quality treatment efficiency depends upon the quality of source water; treatment of potable water to ultrapure standards typically results in a waste stream of 20 to 40 percent.
- **Energy Source.** It is assumed that the energy source for electrolysis remains stable and has no impact on the water-to-hydrogen ratio. Nonetheless, the origin and supply of energy plays a significant role in the overall sustainability of hydrogen production.

- **Water Recovery and Recycling.** It is assumed that the water used in electrolysis is completely converted into hydrogen and oxygen, not including potential water recovery and recycling systems that could be integrated into a closed-loop process.

Methodologies and Computational Methods

- **Stoichiometry of Water Splitting**. The primary calculation is grounded on the chemical equation of water splitting: $2H_2O \rightarrow 2H_2 + O_2$. This implies that 2 moles of water yield 2 moles of hydrogen. The molar mass of water is roughly 18 g/mol, such that producing 1 pound (453.6 grams) of hydrogen (molar mass = 2 g/mol) requires 9 pounds of water.
- **Adjustment for Electrolyzer Efficiency**. To accommodate real-world electrolyzer efficiency, the stoichiometric requirement is divided by the efficiency of the electrolyzer to convert water into hydrogen (expressed in decimal form). Electrolyzer efficiency is measured by the use of power required to generate 1 kilogram (kg) of hydrogen, rather than by the amount of water used. The electrolyzer would operate as a closed loop system with water continuously circulating. The water used for generating hydrogen would be replenished to the electrolyzer from the WTP. Approximately 20 percent of water circulating in the electrolyzer system would be routed for repolishing and recycled back to the electrolyzer. All feedstock water entered into the electrolyzer system would ultimately be converted into hydrogen and oxygen; no wastewater stream would be produced by the electrolyzer.

Clarification of Water Sources

Section 2.1.5.2, *Overview of Green Hydrogen Technology*, provided a general discussion of hydrogen electrolysis and indicated that both potable and non-potable water could be used. Water sources being considered for the Project are discussed in 5.13.1.6, *Water Supply*, of the Opt-in Application materials. The choice between potable and non-potable water for hydrogen production rests on local availability, water treatment costs, and needs of the specific electrolysis technology used.

- **Potable Water.** This is water that is deemed safe for consumption and food preparation. It typically contains several minerals that are beneficial for health and may also contain added substances such as fluoride or residual disinfectants like chlorine.
- **Non-Potable Water.** This is water that is not fit for drinking but may still be suitable for industrial processes, including hydrogen production. This category can encompass certain types of reclaimed water or brackish water.

Both potable water and non-potable water would need to be pre-treated and purified before it could be used for hydrogen production.

6.1.6 Data Request DR WATER-7

DR WATER-7: Please clarify the waste stream sources and if from the same source, correct inconsistency between these amounts. Provide the computational methods used in arriving at waste stream amounts shown.

Response: The discrepancy in the amount of waste stream quantities in Section 5.11, *Waste Management*, Subsection 5.11.1.3 and Section 5.13, *Water Resources*, Subsection 5.13.1.5 was a typo. However, waste stream amounts, sources, and computational methods are updated and detailed in the response to DR WATER-3 with a wastewater generation rate of 236,579 GPD or 265 AFY.

6.1.7 Data Request DR WATER-8

DR WATER-8: Please reconsider and confirm whether the Industrial Stormwater Permit would apply to the green hydrogen facility and provide analysis justifying your position.

Response: The NPDES Statewide General Permit for Stormwater Discharges Associated with Industrial Activities (Stormwater General Permit; Order 2014-0057-DWQ) is applicable to any action that would result in discharge to on-site drainage features that connect to or could contribute flow to federally jurisdictional waters, which fall under the authority of the United States Army Corps of Engineers (USACE). As discussed in the response to DR BIO-3, all of the existing on-site drainage features are manmade and part of a closed-loop drainage and irrigation system; there is no downstream connection from the on-site ditches to any receiving water, nor do they receive flow from any natural upstream waters. Rather, the ditches appear to collect agricultural runoff and direct it to pumps (presumably for irrigation re-use) or allow it to infiltrate the ground surface.

Based on these characteristics of the existing drainage patterns and the Project avoiding the contribution of flow to drainage features beyond the existing closed-loop drainage and irrigation system, the Project would not require coverage under the Stormwater General Permit. If the final engineering and design of Project facilities includes off-site pipelines that would cross federal waters, such that direct or indirect discharge to federal waters could occur, the Stormwater General Permit may be applicable to the Project; therefore, Table 5.13-18, *Permit Application Requirements for Federal and State LORS*, has been revised as shown in the table excerpt below.

Table 5.13-18 Permit Application Requirements for Federal and State LORS

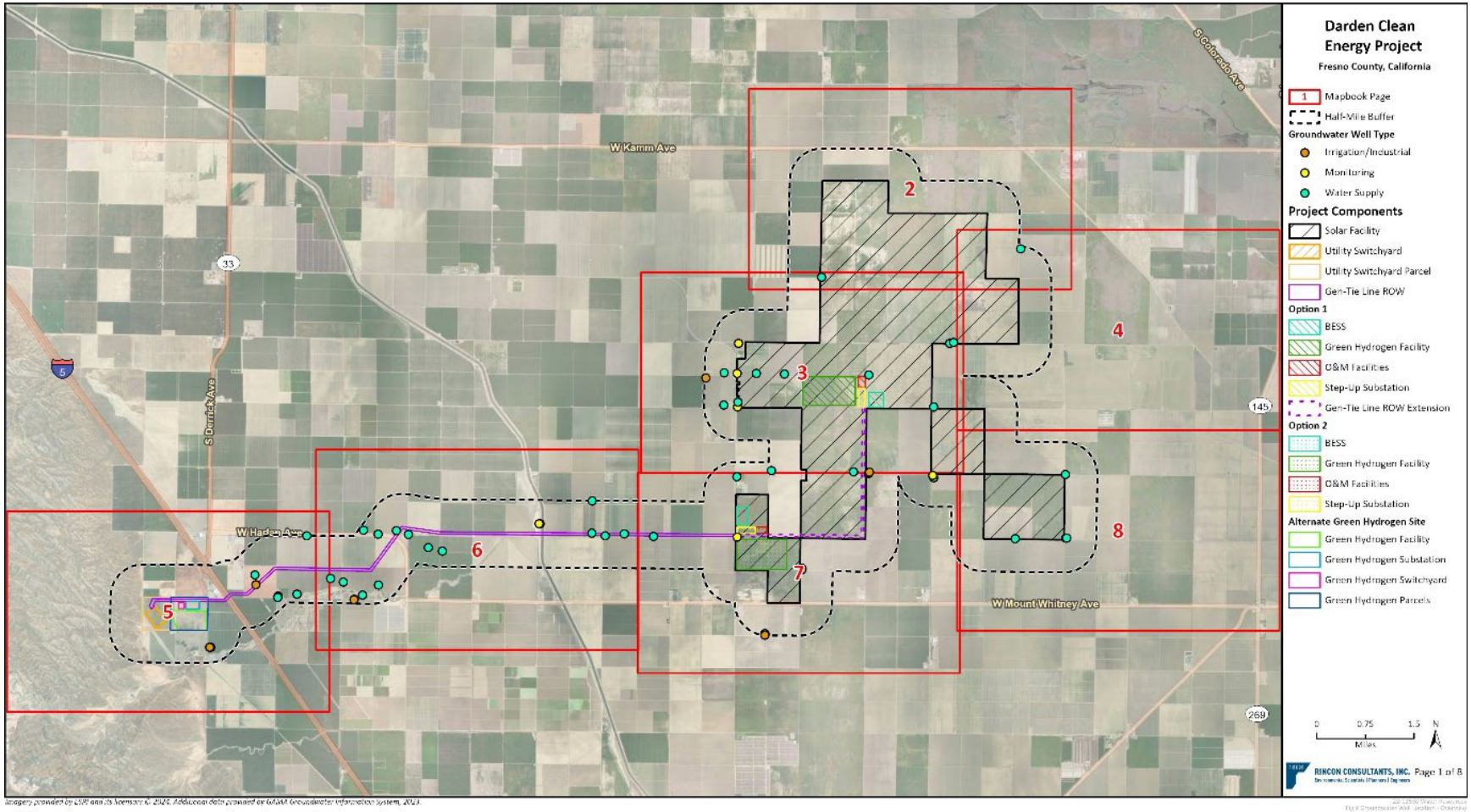
NPDES Statewide General Permit for Stormwater Discharges Associated with Industrial Activities ▪ Central Valley RWQCB - Order 2014-0057-DWQ ▪ Industrial stormwater discharges to Waters of the US.	Not applicable based on current design; pending final engineering and design of off-site pipelines and whether such facilities would traverse federal waters. The Stormwater General Permit implements the federally required stormwater regulations in California for stormwater from industrial activities discharging to Waters of the US. This permit is applicable if the Project would result in "any discharge to onsite drainage features... that may, at times, ultimately drain [to federal waters]." While the Project does not propose to discharge directly or indirectly to federal waters, the Stormwater General Permit would be applicable if Project facilities including off-site pipelines would cross federal waters such that direct or indirect discharge to federal waters could occur, compliance with the Stormwater General Permit would be required. Regardless of applicability of the Stormwater General Permit, a SWPPP would be implemented under the proposed Project to control stormwater runoff associated with Project activities, in compliance with Porter-Cologne and the Construction General Permit, discussed above.

6.1.8 Data Request DR WATER-9

DR WATER-9: Please revise the figures to indicate the well types (e.g., irrigation, domestic, etc.).

Response: Figures 5.13-9a through 5.13-9h have been revised to identify the types of wells present within 0.5 mile of the Project site; the updated figures are provided below.

Figures 5.13-9a Groundwater Well Locations Overview

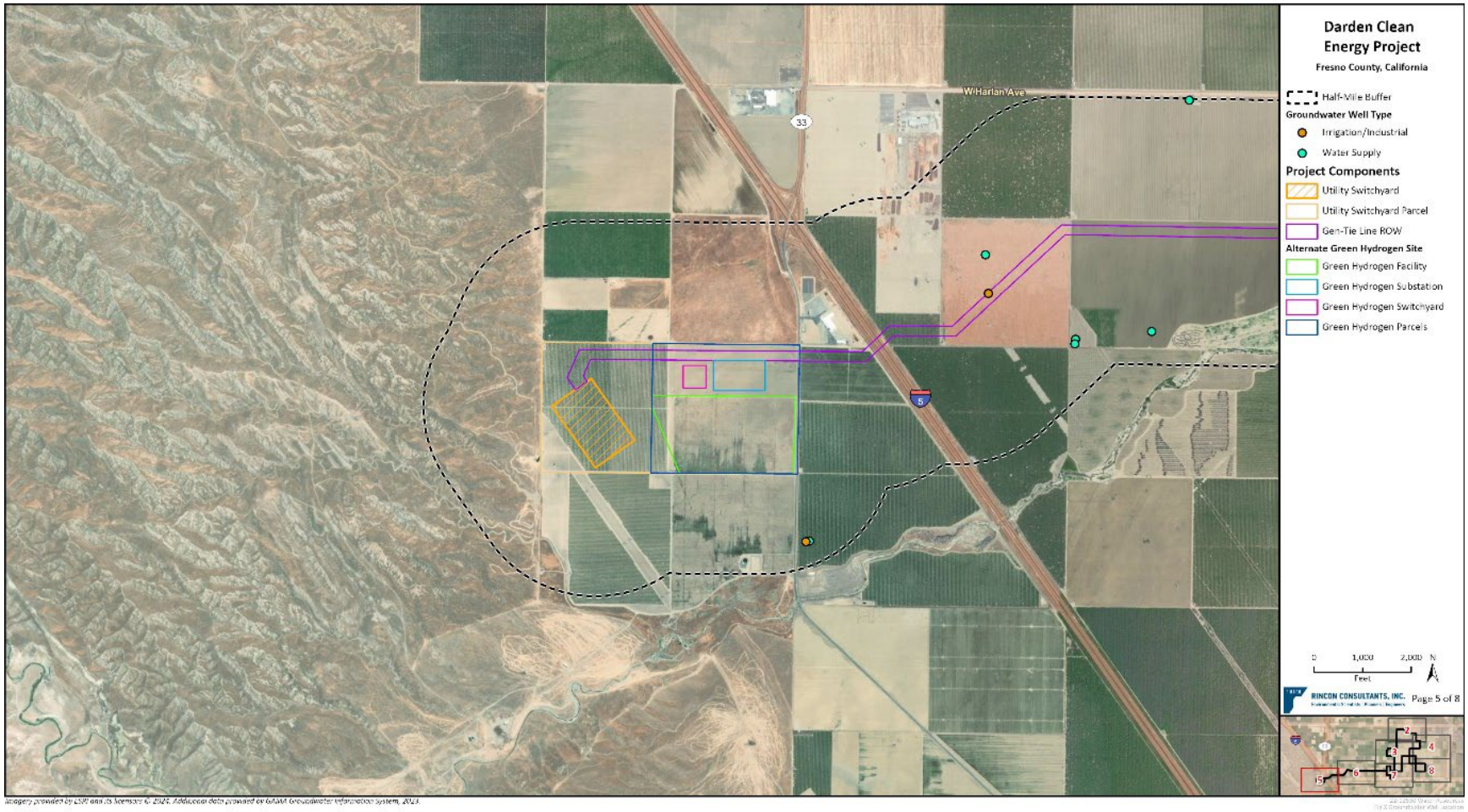


Figures 5.13-9b Groundwater Well Locations (Mapbook Page 2)

Figures 5.13-9c Groundwater Well Locations (Mapbook Page 3)

Figures 5.13-9d Groundwater Well Locations (Mapbook Page 4)

Figures 5.13-9e Groundwater Well Locations (Mapbook Page 5)



Figures 5.13-9f Groundwater Well Locations (Mapbook Page 6)

Figures 5.13-9g Groundwater Well Locations (Mapbook Page 7)

Figures 5.13-9h Groundwater Well Locations (Mapbook Page 8)

6.1.9 Data Request DR WATER-10

DR WATER-10: Please amend the Shallow Zone paragraph to describe the present groundwater depth and/or groundwater elevation information (as related to ground surface datum).

Response: Information about the Shallow Zone is lacking because the GSAs have determined the Shallow Zone is not hydrologically connected to the Lower Aquifer or Upper Aquifer and, in addition to being recharged by surface water and irrigation return flows, the Shallow Zone is therefore not "groundwater" and subsequently does not require management under the GSP for SGMA compliance. The GSP describes the Shallow Zone as follows:

> "It is evident that groundwater elevations in the shallow zone generally do not strongly correlate with climatic conditions or seasonal pumping patterns. Of the eight examples presented, depths to water for seven of these shallow zone wells are within 40 feet of the ground surface. Each of these wells show little to no long-term decline or seasonal variation. The one shallow zone well with depths to water greater than 40 feet was screened between 80 and 90 feet below ground surface. In this example, the well also shows no seasonal variation, very little variation from climatic conditions, and no long-term decline. Many of the Upper Aquifer wells screened below the shallow zone show significant seasonal variations of groundwater elevation up to hundreds of feet." (WWD WSA and County of Fresno WSA-Westside 2022a, pg. 2-38)

Future Annual Reports prepared for the DWR-approved 2023 GSP may include groundwater monitoring data for the Shallow Zone, primarily to understand interconnected surface waters within the basin (WWD WSA and County of Fresno WSA-Westside 2022a, pg. 3-46). The GSA has applied for DWR Technical Support Services to drill several new shallow wells in early 2024. No revisions are suggested in response to DR WATER-10.

6.1.10 Data Request DR WATER-11

DR WATER-11: Please revise to include water quality information for the Shallow Zone/first encountered groundwater.

Response: Please see response to DR WATER-10, above; there is limited information available for the Shallow Zone, due to it not being addressed in the Westside GSP as groundwater requiring SGMA compliance. While the GSP mentions "shallow groundwater salinity in agricultural areas during the irrigation season" (WWD WSA and County of Fresno WSA-Westside 2022a, pg. 2-55), the GSP does not present groundwater quality information for the Shallow Zone. Future Annual Reports prepared for the DWR-approved 2023 GSP may include groundwater quality data for the Shallow Zone; however, this data is not explicitly listed in the GSP's monitoring program.

6.1.11 Data Request DR WATER-12

DR WATER-12: Please revise references including: NPDES Construction General Permit to show U.S. Army Corps. of Engineers 404 Permit; NPDES Statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order 2009-0009-DWQ to show the correct Order number WQ 2022-0057-DWQ.

Response: The first row in Table 5.13-18 currently identifies "USACE – CWA Section 404" under "NPDES Construction General Permit" as suggested. The second row of Table 5.13-18 presents

"NPDES Statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities" and has been revised below to show the correct Order number.

Table 5.13-18 Permit Application Requirements for Federal and State LORS

NPDES Statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities: ▪ Central Valley RWQCB - Order WQ 2022-0057-DWQ ▪ Stormwater discharges in non-federal waters	Applicable. Under the Porter-Cologne Water Quality Control Act ("Porter-Cologne"), the SWRCB via the RWQCBs administers California's stormwater permitting program; construction projects disturbing more than one acre of land require coverage under the General Permit for stormwater with a site-specific Stormwater Pollution Prevention Plan (SWPPP) and BMPs to manage runoff. Requirements for application for coverage under the General Permit include: ▪ Set up an account with Stormwater Multiple Application and Report Tracking System (SMARTS), the State's online project application and reporting system. ▪ Electronically submit all required permit registration documents, including: ▫ Site Risk Assessment ▫ Site-specific SWPPP, documenting all proposed stormwater control measures and BMPs, and describing how each measure would prevent discharge under the project, including maps and runoff calculations ▫ Construction Site Monitoring Plan ▫ Site Map ▪ Send the project-specific acreage-based Permit fee to the SWRCB.

6.1.12 Data Request DR WATER-13

DR WATER-13: Subsection 5.13.1.5, states sanitary facilities would either consist of temporary or permanent facilities; however, it is unclear how and by what process permanent treatment would be provided. Please provide a detailed description of proposed permanent facilities to be used, estimated flow rates in average, maximum daily, annual water demand and waste discharge, and method of wastewater disposal. Include discussion related to significant assumptions, methodologies, and computational methods used in arriving at design of permanent facilities and generated flow rates and waste quantities.

Response: Sanitary facilities would consist of a permanent septic system co-located with the Project's O&M facilities. Key components of the septic system will include a pipe to convey effluent from the sanitary facility to the septic tank, where the septic tank consists of a watertight container to hold the effluent long enough for solids to separate from liquids and settle to the bottom, and a drain field, also referred to as "leach field," which consists of a series of pipes that are perforated and buried throughout the field to control the release of effluent into the soil.

Effluent flow rates were estimated for average, maximum daily, and annual waste discharges based upon the number of permanent and intermittent staff that would be on-site to support Project operation and maintenance, and consideration of a per-person sewage flow rate. Below are the staffing assumptions used to inform sewage flow rate calculations:

- 12 staff per day for solar operations
- 4 staff per day for BESS operations
- 16 staff per daytime shift for hydrogen operations
- 16 staff per nighttime shift for hydrogen operations
- 1 FTE staff accounting for intermittent needs

A daily per capita effluent generation rate of 15 gallons per person per 12-hour shift was used to inform these estimates; this flow rate reflects non-residential wastewater design flow for "factory" operational facilities that do not include showers or food service (Tulare County HHSA 2024). Based upon the staff estimates listed above and the per capita flow rate of 15 gallons per day, below is an overview of the estimated daily average, daily maximum, and annual sewage generation rates for the Project:

- 720 gallons per day = AVERAGE flow rate, does not include intermittent staff
- 735 gallons per day = MAXIMUM flow rate, accounting for intermittent staff
- 268,275 gallons = total ANNUAL flow, based upon MAXIMUM rate of 735 gallons/day

6.1.13 Data Request DR WATER-14

DR WATER-14: Please provide the status of WWD approval for the proposed use (including any correspondence or documentation), the environmental impact analysis of the specific transfers or exchanges required to obtain the proposed water supplies, a copy of any agency regulations that govern the use of the water, and an explanation of how the project complies with the agency regulation(s).

Response: As described in Section 5.13.1.6, *Water Supply*, two water supply sources would be used for the Project: (1) groundwater allocated for municipal and industrial (M&I) uses and conferred to the Project company by Westlands Water District (WWD) in connection with the option to purchase the property, and (2) surplus surface water purchased through Article 21 of State Water Project (SWP) contracts and stored for use as needed in an ASR system, creating Groundwater Credits in the Westside Subbasin pursuant to WWD's Article 1, Section 1.10.

Source 1, groundwater allocated for M&I uses, is available in the following allocations, which are accounted for in WWD's approved GSP:

- Two (2) acre-feet per 320 acres per year of operations, as follows: "…Buyer or its successors or assigns may extract two (2.0) acre-feet of groundwater per year for operation of its solar power generation facilities for each 320-acre portion of land acquired by Buyer…" (see redacted Purchase Option Agreement, Exhibit B, Section C.1(a) in Appendix L to this document).
- One hundred thirty (130) acre-feet per 320 acres per year of construction, as follows: "Also, during construction of the solar project facilities located on the Property, Buyer or its successors and assigns may extract an additional one hundred and thirty (130) acre-feet of groundwater per year for construction water purposes for each 320 acre portion of land acquired by Buyer…" (see redacted Purchase Option Agreement, Exhibit B, Section C.1(a) in Appendix L).

Source 2, surplus surface water, consists of Qualifying Surface Water that has been recharged to create Groundwater Credits in accordance with WWD's Article 1, Section 1.10. Qualifying Surface Water for the Project is being purchased by the Applicant through Article 21 of SWP contracts, and consists of flows that occurred during a particularly wet year, in excess of contracted Table A allocations. Volumes of water are currently being purchased in various quantities from a range of sellers within WWD's jurisdiction. Volumes of water subject to the purchase transactions are being generated and transferred in accordance with WWD Article 1, including subtraction of evaporative losses and leave-behind percentages required by WWD.

A total of 8,800 acre-feet of Groundwater Credits were purchased by the Applicant in 2023 and Q1 2024. The Applicant will continue to purchase Groundwater Credits up to a total of approximately 35,000 acre-feet to accommodate the operational lifetime of the Project's green hydrogen facility.

6.1.14 Data Request DR WATER-15

DR WATER-15: Subsection 5.13.1.6 provides total water demand over a future projection of 20 years; however, the operational lifetime of the project may extend for up to 35 years. Please revise water supply information to identify water demand for the operational lifetime of the project.

Response: Table 5.13-8, *Summary of Water Demands*, presented in Section 5.13.1.6, *Water Supply* of the Opt-In Application, under "Water Demands" and "Summary of Demands," has been revised to reflect the anticipated Project lifetime of 35 years rather than the 20-year timeline required by SB 610 to be addressed in a WSA.

Table 5.13-8 Summary of Water Demands

Demand Type	Water Demand (per year)[1]	Water Demand (total)[1]
Construction (1.5 years or 3 years)		
18 months (1.5 years)	733 AFY	1,100 AF
36 months (3 years)	403 AFY	1,210 AF
Operation (35 years)		
PV solar and M&I	39 AFY	1,365 AF
Electrolyzer	1,000 AFY	35,000 AF
Total Construction + Operation[2]		
Total water demand (18-month construction)		37,465 AF
Total water demand (36-month construction)		37,575 AF

1. AF = acre-feet; AFY = acre-feet per year; PV = photo voltaic; M&I = municipal and industrial

2. The Project's total water demand is provided as a range to account for construction duration ranging from 18 to 36 months. To provide a conservative analysis, the combined construction and operational water demand is assessed as 37,575 AF, accounting for the maximum construction duration of 36 months.

Revising the Project's total anticipated water demands from the SGMA 20-year planning horizon to the 35-year Project lifetime increases the total anticipated demand from 21,990 AF to 37,575 AF, shown in the revised table above.

6.1.15 Data Request DR WATER-16

DR WATER-16: Please indicate locations of existing or proposed water source or storage facilities. Provide a map showing existing pipelines for potential use and proposed new pipelines. Include these appurtenant facilities on the process flow diagram requested in DR WATER-1 for all treatment and disposal systems considered.

Response: Water will be sourced from two or more onsite wells. One well will be located adjacent to the raw water treatment system as shown in Section 4.0, *Engineering*, Figure 4-1, *Hydrogen Facility Preliminary Site Plan*, and water pumped from that well would be provided directly to the water treatment plant. The second well would be located within the Option 1 or Option 2 O&M facility area. Water would be stored in tanks at the hydrogen facility for use as feedstock water for

electrolysis, in tanks at the BESS facility for emergency use, and at the O&M facilities for use in the buildings. Water trucks would be used to deliver water to storage tanks at the BESS facility. O&M facilities would use water from a combination of groundwater wells and storage tanks that would be filled directly from the on-site well or using water trucks. Exact well locations will be selected based on final Project design and layout, pump tests, and water quality tests.

6.1.16 Data Request DR WATER-17

DR WATER-17: Please provide a copy of the application and supporting materials for a water system to support the project activities and human consumption by onsite operational workers.

Response: A community water system application will be prepared based upon final engineering and design of the water system, which will be owned by the Applicant and will only serve a business. Water will be provided from two or more wells (see response to DR WATER-16), and water service will be provided 365 days per year for approximately 40 full-time operations personnel. The total number of connections to be included in the Project's water system will be determined based upon the final layout and number of buildings included in the O&M facilities. Below is an overview of the information that will be included in the community water system application package.

- **Preliminary Technical Report (PTR).** Six months prior to any construction, a PTR for the Project's proposed community water system will be submitted to the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) and to the Fresno County District Engineer.[1] The DDW Fresno District Office (District 23) or County must approve the PTR before a permit application will be considered. There is no established timeline for application review.

  The PTR will be prepared in accordance with the SWRCB's 2021 *Preliminary Technical Report Guidance*,[2] with contents including but not limited to the following:

  - Summary description of the water system, including any proposed new physical facilities and existing facilities that would be incorporated.
  - Description of any contamination present in the local area and associated water quality treatment that will be conducted.
  - A feasibility report evaluating the possibility of obtaining water from an existing public water system within 3 miles or within an existing sphere of influence.[3]
  - A cost report detailing the costs to construct, operate, and maintain the proposed system over 20 years, including costs associated with rates and regulatory agencies such as DDW and the Local Area Formation Commission (LAFCo), as applicable.[4]

[1] PTRs for projects located within certain counties are also required to be submitted to the respective county's Local Primacy Agency-Small Water System Program; however, the proposed project is located within Fresno County which is not subject to this requirement.
[2] The SWRCB's 2021 *Preliminary Technical Report Guidance* is available online and lists all required contents of a PTR: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/permits/ptr_guidance_aug2021.pdf
[3] Preparation of the feasibility report will involve the identification of any existing public water systems, documentation of contact and communication with respective public water system(s), description of all actions taken to obtain water service for the project from any existing public water system(s), and description of the feasibility of annexing the project site into an existing system or otherwise supplying domestic water for the project. If it is not feasible to connect to an existing public water system, documentation of all actions taken to pursue a contract for such managerial or operational oversight will also be provided, including summary of names, dates, contact information, and discussions conducted to inform the determination that connection to an existing system would not be feasible.
[4] The cost report should be prepared by an engineer with experience working on public water systems, and should consider all costs applicable to the proposed system as detailed in CCR Title 22, Division 5 and described in Section VI, *20 Year Evaluation of Proposed New Public Water System's Supply Capacity CHSC 116527(c)(8)*, of the SWRCB's 2021 *Preliminary Technical Report Guidance.*

- A supply reliability analysis documenting the proposed water system's total projected water supplies available over 20 years, including with consideration to varying climatic (drought) conditions, existing demands, and anticipated demands.[5]
- A comparison analysis assessing 20-year costs of the proposed water system compared to an existing water system, including costs associated with groundwater contamination migration, global climate change, and potential treatment needs.[6]

- **Technical, Managerial, and Financial (TMF) Assessment.** Following its approval of the Project's PTR, the SWRCB DDW Fresno District Office will review the Project's TMF Assessment for consideration of approval. The SWRCB's TMF Assessment Form[7] will be completed for the Project in accordance with the SWRCB's 2014 *Instructions for Completing the TMF Assessment Form for Public Water Systems.*[8] The following will be included with TMF information:
  - A copy of the deed of trust for the location where water treatment facilities, including any wells, are proposed to be located.
  - An organizational chart and description of the organization(s) that will own and operate the water system.
  - Identification of the median household income(s) of the zip code(s) in the area to be served by the public water system based on the most recent year available from the U.S. census.
  - Calculated average annual rate per customer needed to support the water costs calculated in Section V of the application materials, including depreciation and replacement of all infrastructure based on its usable life over a 20-year period.
  - Discussion of the annual rate per customer and whether it would be greater than 1.5% of the surrounding median household income.

- **Environmental Intake Form (EIF).**[9] The SWRCB requires that any application for a new community water system include analysis of potential environmental impacts. Projects for which environmental documentation under CEQA or the National Environmental Policy Act (NEPA) has been completed may satisfy this requirement by providing Section 1 of the SWRCB's EIF, with the following attachments:
  - Attachment 1 will include the Project's completed CEQA documentation, the Mitigation Monitoring and Reporting Plan if applicable, the CEQA lead agency's Resolution adopting the CEQA document and approving the Project, and the Notice of Determination.
  - Attachment 2 will include project design plans.

  The CEC will prepare CEQA documentation and render a decision on the Project based upon information contained within the Opt-in Application; therefore, the Opt-in Application materials were developed to contain the information and analysis necessary to facilitate CEQA review, including with respect to the proposed community water system. Design of the water system

[5] The required contents of the supply reliability analysis are detailed in Section VI, *Cost of Proposed New Public Water System*, of the SWRCB's 2021 *Preliminary Technical Report Guidance*, and mirror the requirements of a Water Supply Assessment (WSA) under Senate Bill 610, which amended California Water Code Sections 10635, 10910, 10911, 10912, and 10915 as related to water.
[6] See Section VII, *Cost-Comparison CHSC 116527(c)(6)*, of the SWRCB's 2021 *Preliminary Technical Report Guidance*.
[7] The SWRCB's TMF Assessment Form is available online: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/dw_tmf_assessment.doc
[8] The SWRCB's 2014 *Instructions for Completing the TMF Assessment Form for Public Water Systems* is available online: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/instructions_tmf_assessment.pdf
[9] The SWRCB's EIF includes Section 1 for projects with a completed CEQA or NEPA environmental document, and Section 2 for projects with no environmental documentation, such as exempt public agency projects or those requiring no discretionary approvals; the EIF is available online: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/env_intake_form.docx.

will be determined by final engineering of the Project and is therefore not currently detailed in Project plans; however, the types of infrastructure and activities associated with the water system are accounted for in the application materials. Finalization of the water system design is not anticipated to introduce new or substantially different potential for environmental impacts than already characterized in the Opt-in Application materials.

As discussed above, the community water system application that will be prepared for the Project will be based upon final engineering and design, and will include all SWRCB-required contents, including a PTR, a TMF Assessment, and a complete CEQA document to satisfy the EIF Section 1.

6.1.17 Data Request DR WATER-18

DR WATER-18: Please provide a schedule indicating when all permits or other approvals outside the authority of the Commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits. Please consider permits or approvals for any conveyance or pipeline crossing waters of the U.S. or otherwise encroaching on federal or state facilities or rights of way.

Response: Table 5, below, provides an overview of permit application requirements and processing timelines. This information supplements Table 5.13-18, *Permit Application Requirements for Federal and State LORS* provided in the original application materials.

Table 5 DR WATER-18 Permit Application Requirements and Processing Timelines

Permit	Application Requirements and Timeline
NPDES Statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities: ▪ SWRCB - Order WQ 2022-0057-DWQ ▪ Construction stormwater discharges	SWRCB processing time is 30 days. Submittal of application materials anticipated at least 60 days prior to the start of construction. SWRCB will initiate processing upon receipt of Permit Registration Documents, including: ▪ Notice of Intent with Site Risk Level Determination ▪ Site-specific SWPPP ▪ Site Map ▪ Plans, calculations, and other supporting documentation for compliance with post-construction requirements ▪ First annual permit fee
New Well Permit ▪ Fresno County Department of Public Health, Environmental Health Division (EHD) ▪ Fresno County Code of Ordinances (Title 14, Chapter 14.04 and Chapter 14.08)	Processing time depends upon availability of the GSAs as well as the County EHD; new well permit applications for domestic public wells, industrial wells, and commercial wells may require additional time due to GSA review. A properly licensed contractor must provide the following materials through the Fresno County Citizen Portal: ▪ Completed Well Permit Form ▪ Plot plan ▪ Applicable permit fees Once approved, the well permit is valid for 180 days.

6.1.18 Data Request DR WATER-19

DR WATER-19: Please provide information related to flood control facilities (existing and proposed) including a narrative discussion of project-related impacts.

Response: A discussion of drainage facilities and design criteria is provided below, including capacity, design storm, and estimated runoff characteristics. Project impacts associated with drainage facilities are discussed in Section 5.13.3.2, *Impact Evaluation Criteria* of the Opt-In Application, under the discussion of Impact WAT-3 for the Solar Facility, Step-Up Substation, and Gen-Tie.

Drainage Facilities and Design Criteria

Drainage facilities and the design criteria used to inform the drainage facilities' characteristics, including required and provided capacities, account for Project characteristics including:

- Low-maintenance vegetation would be established below solar panels; due to vegetation between and beneath the panels, the area is not considered an impervious surface.
- Existing terrain is relatively flat and would not require significant changes to grades or slopes, and the grading is designed to maintain existing drainage patterns.
- Access roads are installed at grade and allow for runoff to sheet flow through the proposed vegetation which provides treatment, infiltration, and reduction in runoff.
- Project operational facilities other than the solar panels (substation, O&M pad, and BESS) would be placed on raised pads, with runoff occurring as sheet flow to detention basins that would provide infiltration and drainage outlets similar to existing conditions.

Two models were prepared to evaluate infiltration, runoff, and drainage conditions on the Project site, including a two-dimensional (2D) Hydraulic Model (Intersect Power 2023a) and a Drainage Model (IP Darden I, LLC 2023b). The data sources and approach for each model are summarized below and detailed in the respective reports, incorporated by reference.

2D Hydraulic Model

A 2D Hydraulic Model was performed to characterize flood hazards for the Project site, under the design flow of the 100-year storm event. The model was created in HEC-RAS Version 6.3 by generating a 2D mesh from the composite Digital Elevation Model (DEM) raster image, coupled with a land cover layer characterizing the "manning's n" surface roughness coefficients, the impervious area percentages for given land cover types, and the soils layer with HSG defined by the SSURGO database (Intersect Power 2023a, pg. 2-21). The 2D Hydraulic Model then generated an intersection of the land cover with the soils to compute losses of stormwater flows to infiltration. Table 6, below, presents the data sources used to inform the 2D hydraulic model.

Table 6 DR WATER-19 Data Sources – 2D Hydraulic Model

Data Type	Source
Land cover	USGS National Land Cover Database 2018 Land Cover Classifications
Elevation (topography)	NextMap 5m and 10m USGS Topographic Raster in NAVD88 and NAD83
% Impervious area	USGS National Land Cover Database 2018 Impervious Area
Hydrologic soil groups	NRCS gSSURGO 30 m 2018 and 10m Rasters for Dominant Conditions
Catchment areas	Subwatersheds areas delineated by ArcHydro tools within ArcGIS and compared with NHD Plus V2.1 data layers
Curve numbers	SCS Curve Numbers were selected based on (Moglen 2016) and the literature

Source: Intersect Power 2023a, pg. 1-4

As stated in Section 5.13.3.2, *Impact Evaluation Criteria*, under "Impact WAT-4," the 2D Hydraulic Model indicates depth and velocity of stormwater flows at the Project site are minimal due to the flat nature of the terrain. The characteristics of the terrain coupled with the low rainfall volume in the Project area produces a floodplain that is dispersed and not particularly well defined, except in those areas where runoff begins to pool at low elevation.

The 100-year rainfall event for the Project area was determined by Atlas 14 to be 2.99 (3) inches, which is very low. The flat and gentle sloping of the topography at the foot of the mountainous area to the west distributes the rainfall uniformly across the watershed area into very shallow sheet flows. The maximum depth of the floodplain, where the water does not pool, is for the most part between 0 and 0.70 feet, with most flood depths shown by the model to be less than 0.5 feet for the vast majority of the Project area (Intersect Power 2023a, pg. 2-25).

Discussion of existing floodplains and flood hazard areas in the Project area is provided in Section 5.13.1.4, *Flooding and Inundation,* under "Flood Hazard Areas."

Drainage Model

The Project site was also modeled for existing and proposed drainage conditions, as reported in a Preliminary Drainage Report (IP Darden I, LLC 2023b). Table 7, below, presents the data sources used to inform the Drainage Model.

Table 7 DR WATER-19 Data Sources – Drainage Model

Data Type	Format	Source	Use
Elevation	5-meter DTM	Intermap	Onsite model elevations
Land cover	Shapefile	USDA 2021 Crop Data Layer	Existing landcover
Soils	Shapefile	USGS gSSURGO Dataset	Curve numbers
Precipitation	PDF	NOAA Atlas 14	Design storms
Site boundary	KMZ	Intersect Power	Define model extents
2014 aerial photography	ArcGIS Map Service	USDA FSA	Reference
Hydrology Report	PDF	Intersect Power	Hydrology information

Source: IP Darden I, LLC 2023b, pg. 4

In addition to the data sources identified above, runoff coefficients were determined based upon the *Partial Fresno County Improvement Standards Manual* and appropriate "C values" for the Project site, where C values are dimensionless coefficients relating the amount of stormwater runoff of the amount of precipitation received. Table 8 below provides an overview of runoff characteristics on the Project site, representing pre- and post-construction conditions.

Table 8 DR WATER-19 Existing and Proposed Runoff Coefficients

Land cover	Runoff Coefficient (C Value)[1]	Area (acres)
Existing		
Row crops; Poorly infiltrated soils	0.49	8,897.60
Proposed		
Roads; Substation; BESS gravel	0.35	269.72
O&M pads and piles[2]	1.00	21.49
Low-maintenance desert vegetation[3]	0.45	8,605.99

[1] A runoff coefficient is a dimensionless number representing the ratio of surface water runoff to precipitation. Runoff coefficients are larger for areas with low infiltration and high runoff (ex., pavement and steep gradients), and lower for permeable, well-vegetated areas (ex., forested areas and flat land).

[2] An assumption was made that 0.2% of each drainage area was impervious from the proposed piles on site.

[3] The panels will be mounted above the ground with a low maintenance natural vegetation below. Due to the area between and beneath the panels being vegetated, panels are not considered an impervious surface.

Source: IP Darden I LLC, 2023 (pg. 7-8)

In rural areas such as the Project site and as detailed in Appendix D of the Drainage Report (IP Darden I LLC 2023b), C values normally fall between 0.30 and 0.55, with values below 0.30 considered low, values of 0.55 to 0.75 considered high, and values above 0.75 considered extremely high. As shown above, the only high or extremely high C values on the Project site are associated with new concrete pads and pilings, based upon the assumption that 0.2 percent of each drainage area would be impervious under post-construction conditions.

Detention Basin Design

Data from the 2D Hydraulic Model (Intersect Power 2023a) and the Drainage Model (IP Darden I, LLC 2023b) were used to inform preliminary design of drainage and stormwater management features of the Project. In particular, drainage basins were designed for each of the Project site's 16 defined drainage areas. The equations below were used to calculate storage capacity and required storage volume for the Project's onsite detention basins; these stormwater management features are designed to retain stormwater flows as necessary to avoid adverse impacts associated with stormwater exiting the Project site unconstrained (IP Darden I LLC 2023b, pg. 9).

$$(Permanent\ Storage)\ V_s = 0.5CA$$

Where,

V_s = Retention basin storage capacity in acre feet or cubic feet.

C = Composite runoff coefficient (Dimensionless)

A = Drainage area in acres or square feet

$$V = \frac{\left[A_B + A_{WS} + (A_B * A_{WS})^{\frac{1}{2}}\right] * D_W}{3}$$

Where,

V = Basin design capacity in cubic feet

A_{WS} = Area of water surface in square feet

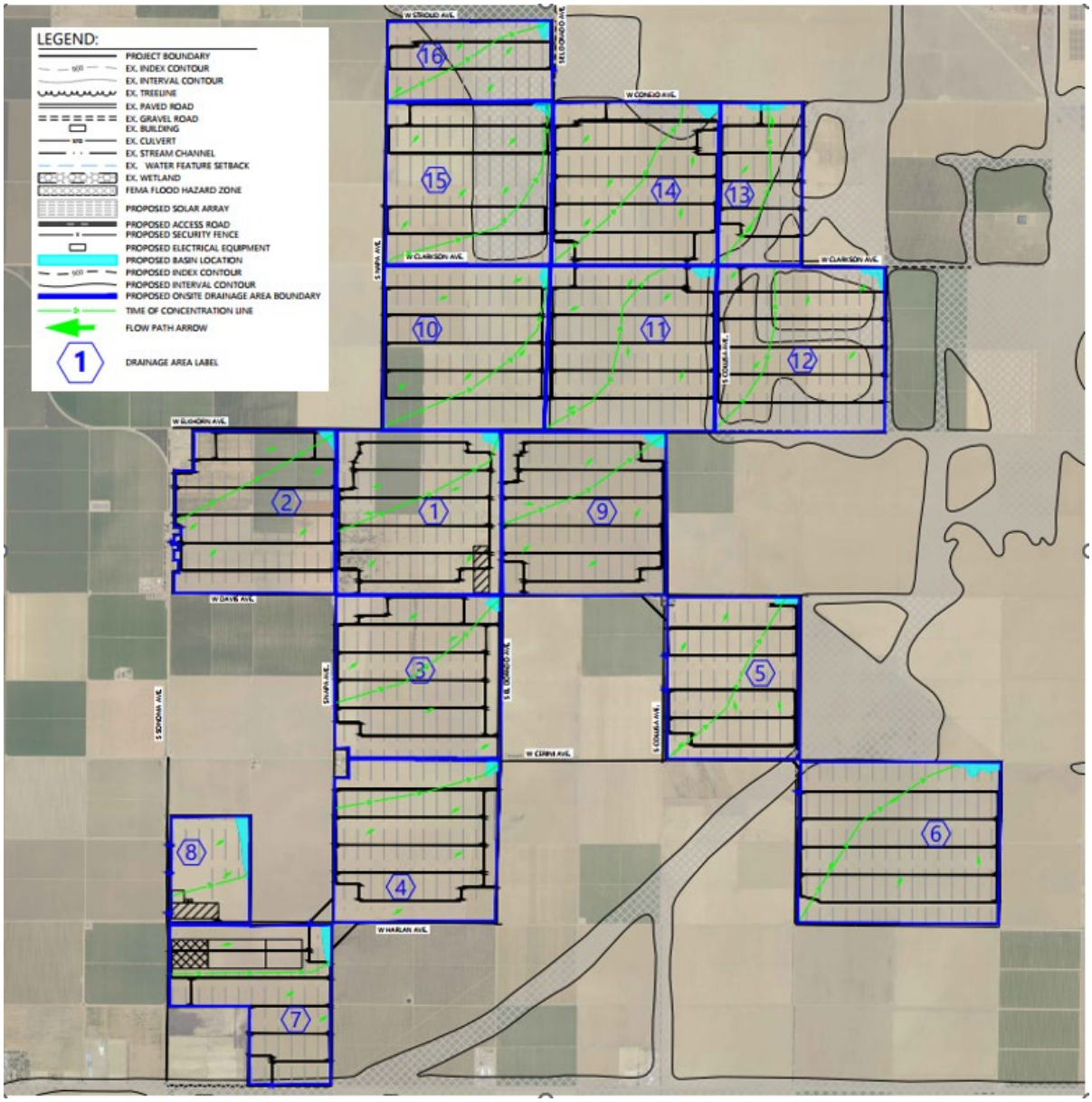
A_B = Area of bottom in Square feet

D_W = Average depth of water in feet not including freeboard depth

Using the equations provided above, required and provided storage volumes were calculated for detention basins sited in each of the Project site's drainage areas. Detention basins are sited within each drainage area to control stormwater quantity and quality at each discharge location. In accordance with Fresno County requirements, all detention basins are designed to retain a minimum of 0.5 inch of runoff over the proposed impervious surfaces within the respective drainage area (IP Darden I LLC, 2023, pg. 9).

Figure 4, *Proposed Drainage Map with Detention Basins,* below, identifies the location and extent of each detention basin within the Project's 16 drainage areas. As shown, the detention basins are located in the northeast portion of each drainage area, intercepting the flow of stormwater drainage across the Project site. The characteristics of each detention basin shown in the figure are provided in Table 5.13-13, *Proposed Project On-site Detention Basins*, presented in Section 5.13.3.2, *Impact Evaluation Criteria*, under the discussion of Impact WAT-3 for the Solar Facility, Step-Up Substation, and Gen-Tie. The Project would provide more storage capacity than necessary for balanced conditions, based upon 100-year storm conditions, such that potential impacts associated with stormwater runoff would be less than significant. Additional drainage modeling may be conducted during continued engineering and design phases to incorporate changes in final design and layout and ensure detention basins are adequately sized and sited throughout the Project area.

Figure 4 DR WATER-19 Preliminary Drainage Map with Detention Basins



Source: IP Darden I LLC, 2023 (pg. 36)

6.1.19 Data Request DR WATER-20

DR WATER-20: Please provide information related to all assumptions and calculations used to calculate runoff and to estimate changes in flow rates between pre- and post-construction including detention basin design and a narrative discussion of project related impacts. Include a map and associated basin sizing calculations and anticipated quantities for design storms analyzed.

Response: Please see the response to DR WATER-19 above.

6.1.20 Data Request DR WATER-21

DR WATER-21: Please provide information related to applicable regional and local requirements regulating the drainage systems, and a discussion of how the project's drainage design complies with these requirements.

Response: The design characteristics of the Project's proposed drainage system are consistent with regional and local requirements. As described in the Preliminary Drainage Report (IP Darden I LLC 2023b) for the Project, the Project's stormwater management features including drainage design and detention basin characteristics were informed by the requirements listed below. Please see response to DR WATER-19 above for detailed discussion of the drainage system design.

- **State of California, California SMARTS Calculator**: post-construction runoff rates must be less than pre-construction runoff rates. The Rational Method was used in the modeling for predicting direct runoff. The proposed site meets the rate control requirements of the state (IP Darden I LLC 2023b, pg. 8).
- **Fresno County Code of Ordinances**: Title 14, Chapter 14.24 regulates stormwater runoff and return flows from agricultural lands, as well as diverted stream flows and landscape irrigation. Post-construction runoff volume must be less than pre-construction runoff volume, and the Rational method must be used for runoff calculations.

  The Fresno Metropolitan Flood Control District (FMFCD) *Post-Development Standards Technical Manual* requires the use of 100-year 48-hour rainfall data for the analysis. The intensity from this storm for each drainage area was determined by HydroCAD extrapolating from an IDF curve from Atlas 14 Data based on individual times of concentration (IP Darden I LLC 2023b, pg. 6).

  Fresno County also requires a minimum of one inch of freeboard from the 100-year high water mark to the top of a flood control berm (IP Darden I LLC 2023b, pg. 10).
- **Fresno County, *Partial Fresno County Improvement Standards Manual Table***: Runoff coefficients were found using this manual to calculate the appropriate C values. Appendix D of the Drainage Report (IP Darden I LLC 2023b) presents a page from the *Partial Fresno County Improvement Standards Manual*, which informed determination of runoff coefficients for the Project site, which were in turn used to design the Project's stormwater management features including detention basins.
- **Fresno County Code of Ordinances**: Title 14, Chapter 14.04 and Chapter 14.08, regulate groundwater well drilling and operation in the county. Any new groundwater wells that would be introduced under the Project would comply with all applicable requirements of the Fresno County Code of Ordinances.

6.1.21 Data Request DR WATER-22

DR WATER-22: Please provide information related to the effects of the project on the 100-year flood plain, flooding potential of adjacent lands or water bodies, or other water inundation zones. Provide all assumptions, evidence, references, and calculations used in the analysis to assess these effects.

Response: As discussed in the response to DR WATER-19 above, the Project includes stormwater design features to control the rate and pattern of post-development surface flows across the Project site, such that the Project would not result in adverse impacts associated with flooding. The response to DR WATER-19 includes methodology and assumptions used to assess post-development stormwater flows across the Project site. The Project would provide more storage capacity than

necessary for balanced conditions, based upon 100-year storm conditions, and would not alter the 100-year floodplain.

6.1.22 Data Request DR WATER-23

DR WATER-23: Please revise the information to explicitly reference pages in the application's impact analysis wherein conformance with each law or standard during both construction and operation of the facility is discussed.

Response: Table 5.13-16, *LORS Applicable to Water Resources*, from Section 5.13, *Water Resources,* of the Opt-In Application has been updated to include page numbers where each identified LOR is addressed within the impact analysis and is provided below.

Table 5.13-16 LORS Applicable to Water Resources

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity
Federal	Clean Water Act (CWA)	Section 303(d), Impaired Water Bodies; Section 404, discharge to federal waters; Section 401, Water Quality Certification; Section 402, NPDES	Impact WAT-1 – see page 5.13-47	The Project would comply with all regulatory requirements of the CWA
State	Porter Cologne Water Quality Control Act	The Water Quality Control Plan for the Tulare Lake Basin sets forth beneficial use objectives and water quality standards for the Project area.	Impact WAT-1 - see page 5.13-47	The Project would comply with water quality standards and would not conflict with beneficial uses set forth in the Tulare Lake Basin Plan.
State	Sustainable Groundwater Management Act	Groundwater is managed by Groundwater Sustainability Agencies (GSAs) under a Groundwater Sustainability Plan (GSP).	Impact WAT-2 – see page 5.13-51 Impact WAT-5 – see page 5.13-67	The Project would be implemented in coordination with the GSAs and would not conflict with implementation of the GSP.
State	California Code of Regulations (CCR) Title 22, Title 17	California Health and Safety Code (CHSC) defines requirements for permitting a new public water system.	See Data Response Set #4 DR WATER-17 for community water system requirements.	The Project would comply with all permitting requirements for a new community water system.
Local	Fresno County Code of Ordinances: Title 14, Chapter 14.04, Chapter 14.08, and Chapter 14.24	These chapters of Title 14 include requirements for groundwater well drilling and operation.	Impact WAT-1 – see page 5.13-47 Impact WAT-2 – see page 5.13-51 Impact WAT-5 – see page 5.13-67	The Project would adhere to all requirements regarding well construction and operation.

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity
	Fresno County General Plan: Policy PF-C.1 through Policy PF-C.24	These policies aim to increase local water supply availability, improve water conservation, reverse local overdraft, and ensure that new developments include a verifiable, reliable water supply source(s) to support the project for at least 20 years.	Impact WAT-1 - see page 5.13-47 Impact WAT-2 – see page 5.13-51 Impact WAT-3 – see page 5.13-56 Impact WAT-4 – see page 5.13-63 Impact WAT-5 – see page 5.13-67	The Project would comply with policies including for water supply, by using supply sources that avoid local groundwater drawdown, overdraft, and other adverse effects.

Sources: California Code of Regulations, Fresno County Code of Ordinances, Fresno County 2000, Fresno County 2023

Appendix A

DR AQ-2 SJVAPCD Completeness Determination Letter

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

May 7, 2024

Lindsey Sarquilla
IP Darden I, LLC and Affiliates
9450 SW Gemini Drive, PMB #68743
Beaverton, OR 97008

Re: Notice of Receipt of Complete Application
Facility Number: C-10306
Project Number: C-1242025

Dear Ms. Sarquilla:

The San Joaquin Valley Air Pollution Control District (District) has received your Authority to Construct (ATC) application for the installation of two 262 LPG/propane-fired and two 805 bhp diesel-fired emergency standby internal combustion (IC) engines, each powering an electrical enerator; and two 600 bhp diesel-fired emerency IC engines, each powering a fire suppression system, located at Western Fresno County, CA. Based on our preliminary review, the application appears to be complete. This means that your application contains sufficient information to proceed with our analysis. However, during processing of your application, the District may request additional information to clarify, correct, or otherwise supplement, the information on file.

Your project triggers public notice and must therefore be public noticed for a 30-day period at the conclusion of our analysis, prior to the issuance of the final Authority to Construct.

We will begin processing your application as soon as possible. In general, complete applications are processed on a first-come first-served basis.

It is estimated that the project analysis process will take 40.5 hours, and you will be charged at the weighted hourly labor rate in accordance with District Rule 3010. This estimate includes the following major processing steps: Determining Completeness (11.5 hours), Engineering Evaluation (14 hours), BACT Analysis (5 hours), Health Risk Assessment (6 hours), CEQA Analysis (0 hours) and Permit Preparation (4 hours). The current weighted labor rate is $113.00 per hour, but please note that this fee is revised annually to reflect actual costs and therefore may change. No payment is due at this time; an invoice will be sent to you upon completion of this project.

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

www.valleyair.org www.healthyairliving.com

Please note that for projects subject to emission offsetting requirements, the following provisions apply:

- Pursuant to District Rule 2201, Section 8.0, the use of pre-baseline ERCs is prohibited if the usage of such credits during the effective period of a particular EPA-approved plan exceeds the respective pollutant's Pre-Baseline ERC Usage Cap identified in that plan. Pre-baseline ERCs are those that were banked prior to the baseline year for a given EPA-approved Attainment Plan. Please note that this prohibition applies to ATC projects issued after the Pre-Baseline ERC Usage Cap is exceeded.
- Pursuant to District Rule 2201 Section 4.8, all ATCs issued for new major sources or federal major modifications triggering federal emission offsets for NOx or VOC are required to provide ERCs that are surplus at time of ATC issuance for the federal offset quantity.

Please also be aware that according to District Rule 2201, Section 5.3, *Final Action*, the District will not be able to issue the final ATC permit(s) until the requirements of the California Environmental Quality Act (CEQA) have been fully satisfied by the Lead Agency.

Please note that this letter is not a permit and does not authorize you to proceed with your project. Final approval, if appropriate, will be in the form of an ATC permit after application processing is complete.

If you have any questions, please contact me at [redacted].

Sincerely,

Nick Peirce
Permit Services Manager

cc: Michael Stewart, Rincon Consultants, Inc.

Appendix B

DR BIO-7 Burrowing Owl Management Plan

Darden Clean Energy Project

Burrowing Owl Management Plan

prepared for

IP Darden I, LLC and Affiliates
c/o Intersect Power, LLC
9450 SW Gemini Drive, PMB #68743
Beaverton, Oregon 97008

prepared by

Rincon Consultants, Inc.
7080 North Whitney Avenue, Suite 101
Fresno, California 93720

May 2024

RINCON CONSULTANTS, INC. SINCE 1994

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Appendices

1 Introduction

This Burrowing Owl Management Plan (BOMP) outlines the procedures and protocols to fully minimize and mitigate potential impacts to western burrowing owl (*Athene cunicularia*) at the proposed Darden Clean Energy Project (Project). This BOMP requires preconstruction surveys, burrow avoidance, and/or passive relocation and burrow excavation/collapse as well as installation of artificial burrows, restoration of foraging habitat and additional O&M Phase measures. This BOMP has been prepared by Rincon Consultants, Inc. (Rincon) based on the California Department of Fish and Game (CDFG), now California Department of Fish and Wildlife (CDFW), Staff Report on Burrowing Owl Mitigation (CDFG 2012), and the Project's Biological Resources Assessment (BRA; Rincon 2023a). The BOMP would be implemented regardless of the listing status of burrowing owl; however, because this BOMP would avoid, minimize, and fully mitigate impacts to western burrowing owl, no additional mitigation would be required in the event the species becomes a candidate under the California Endangered Species Act (CESA).[1]

This BOMP has been prepared at the request of the California Energy Commission (CEC) and incorporates relevant Mitigation Measures from Section 5.12 *Biological Resources* of the CEC Application (Rincon 2023a). The management approach included in this BOMP is designed to minimize potential impacts to burrowing owl from site development.

Additional biological resources management plans that will be implemented concurrently for the Project include:

- **PV and Gen-tie Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the photovoltaic arrays (PV), battery energy storage system (BESS), hydrogen facility, and generation intertie line (gen-tie) components (including options 1 and 2) of the Project (Rincon 2024a).
- **Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the utility switchyard and, if it is developed, the alternate green hydrogen site components of the Project (Rincon 2024b).
- **Swainson's Hawk Conservation Strategy.** This conservation strategy addresses potential effects to Swainson's hawk (*Buteo swainsoni*) nesting and foraging habitat on the Project during construction, and operations, and maintenance (O&M) phases (Rincon 2023b).

1.1 Project Description

The overall Project consists of the construction, operation, and eventual repowering or decommissioning of a 1,150 megawatt (MW) solar PV facility, an up to 4,600 megawatt-hour (MWh) BESS, an up-to 800 MW green to hydrogen generator, a 34.5-500 kilovolt (kV) grid substation, a 10-mile (up to 15 mile) 500 kV gen-tie line, a 500 kV utility switchyard along the Pacific Gas and Electric Company (PG&E) Los Banos-Midway #2 500 kV transmission line, and appurtenances. Construction of the Project is anticipated to take between 18 and 36 months to complete and the Project would

[1] On March 5, 2024, a petition to list western burrowing owl was filed with the California Fish and Game Commission. The petition currently is under review.

be operational by 2028. The Project would operate for approximately 35 years, at which time Project facilities would be either repowered or decommissioned. Following decommissioning, the Project site would be restored and reclaimed to the extent practicable to pre-construction conditions consistent with site lease agreements.

1.2 Project Location

The Project site is located in an agricultural area of unincorporated Fresno County south of the community of Cantua Creek (Figure 1). The proposed PV solar facility, BESS, substation, and hydrogen facility site (including options 1 and 2 of these components) would be located on approximately 9,100 acres of land owned by Westlands Water District, between South Sonoma Avenue to the west and South Butte Avenue to the east (Figure 2). The proposed gen-tie line (approximately 10 to 15 miles) would span west from the intersection of South Sonoma Avenue and West Harlan Avenue to immediately west of Interstate 5, where it would connect to the new utility switchyard (Figure 2). The alternate green hydrogen site being considered is located adjacent to the proposed utility switchyard site (Figure 2).

Land cover types include fallow lands, tilled and disked fields containing ruderal vegetation, orchards, and other active farming on the Project site. In this BOMP, non-active agriculture fields prior to vegetation growth are referred to as “fallow,” and as “disked” if evidence of disking was present. Surrounding properties include fallow and agricultural lands. The Project’s gen-tie line spans privately-owned land on the western portion of the Project site with land-cover types including active agriculture (primarily orchards) and fallow fields. The California Aqueduct bisects the gen-tie parcels, running generally north-south. Compacted dirt and paved roads border and separate each land-cover type.

Figure 1 Regional Location Map

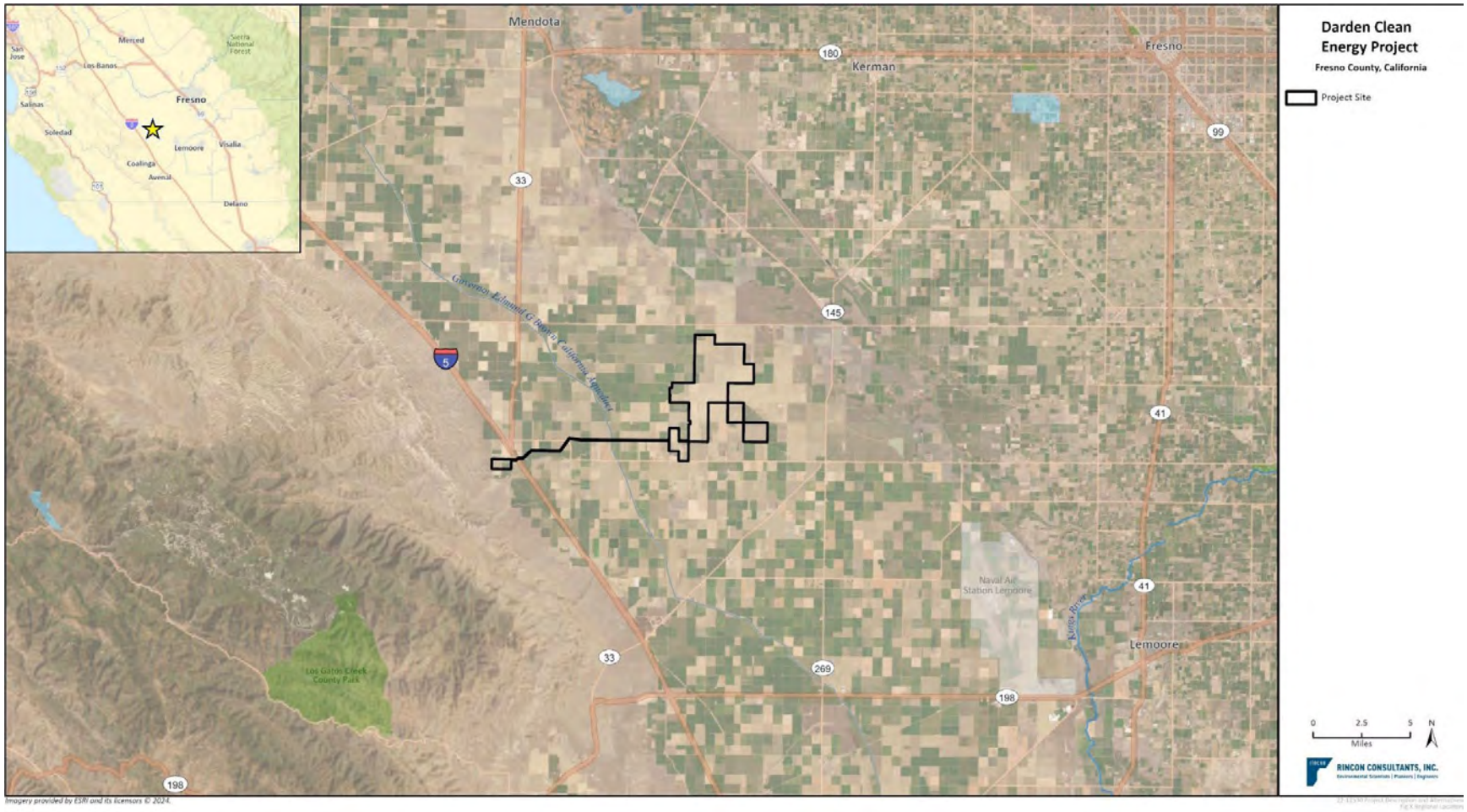
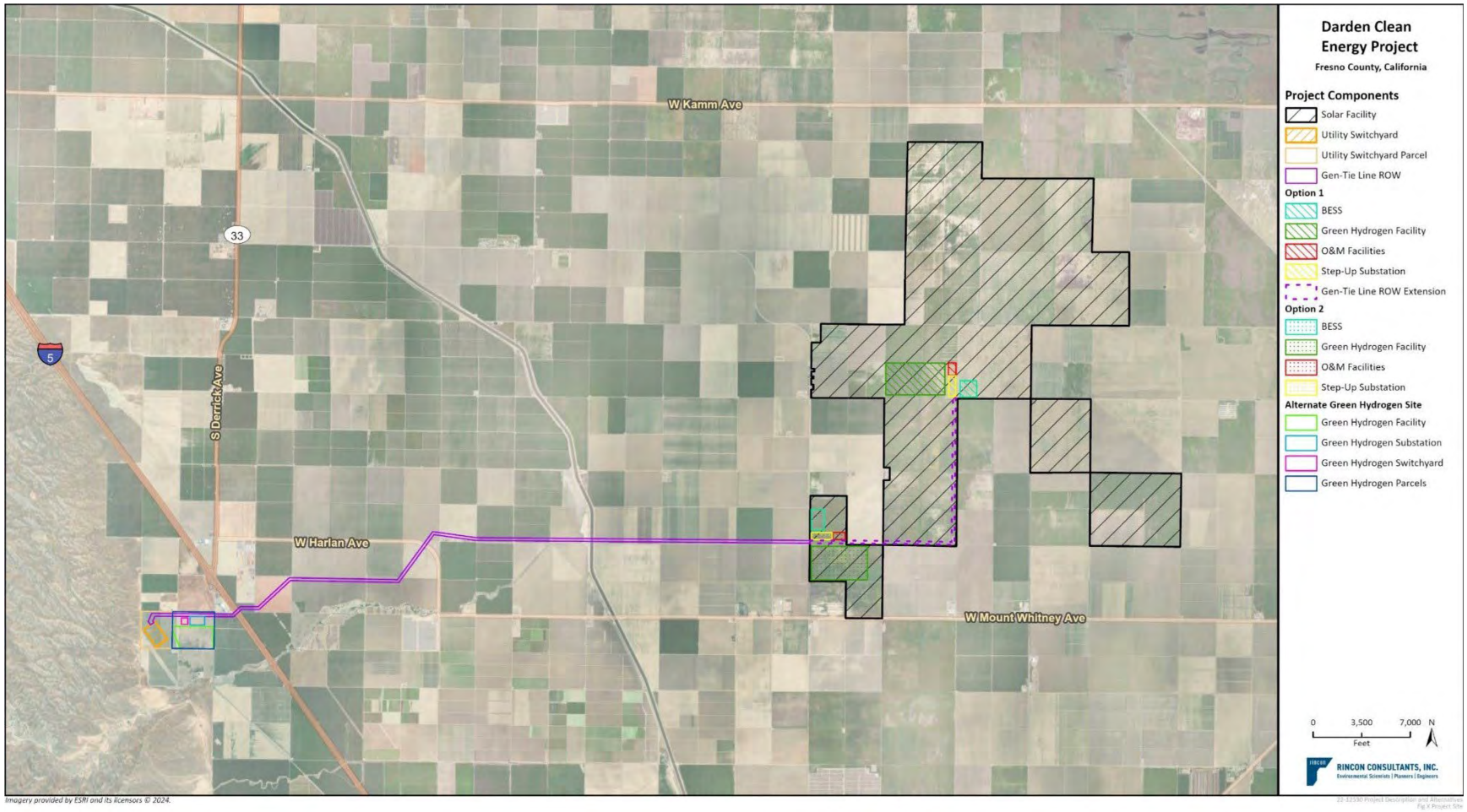


Figure 2 Project Map



2 Existing Conditions

Western burrowing owl ("burrowing owl" or "BUOW") is identified as a state species of special concern and United States Fish and Wildlife Service (USFWS) bird species of conservation concern. Burrowing owl is found throughout much of the western United States and southern interior of western Canada. Habitat types conducive to burrowing owl presence are typically arid and open with opportunities for burrowing, which can include active or fallow agricultural fields, creosote scrub, desert saltbush, ephemeral washes, and ruderal areas. Burrowing owls do not dig their own burrows and are therefore dependent on other species, such as ground squirrels and other fossorial species, to dig burrows for them each season, which they use to nest and roost. The breeding season for burrowing owl occurs approximately between February 1 and August 31.

2.1 General Site Conditions

2.1.1 Topography and Geography

The Project site is located in unincorporated Fresno County in the San Joaquin Valley. The San Joaquin Valley is bounded by the Sacramento – San Joaquin River Delta to the north, the Diablo Mountain Range to the west, the Sierra Nevada Mountains to the east, and the Tehachapi Range to the south. The region is primarily composed of agricultural land dating back to as early as the 1940s, and cattle grazing land, with areas of residential and industrial development primarily concentrated near Fresno. Vegetation occurring in the San Joaquin Valley mostly consist of annual/ruderal grassland, pasture, cropland, valley-foothill riparian, vernal pool, alkali scrub, and orchard-vineyard (Fresno County 2000). The Project's Biological Study Area (BSA)–the approximately 9,500-acre Project site encompassing all proposed Project components and a general 100-ft buffer—is relatively flat, with elevations ranging from approximately 186 to 644 feet above mean sea level, increasing in elevation from the east to the west and southwest towards the Diablo Range. Geography in the vicinity of the BSA includes agriculture with a few small scattered rural residential areas and small solar facilities, and the base of the Ciervo Hills to the west.

2.1.2 Vegetation and Other Land Cover

During biological surveys in 2022 and 2023, the BSA was dominated by active and seasonally managed non-active agricultural fields. During the spring, tomatoes and garlic were grown on some of the parcels, and most of the non-active parcels were grown over with mustard (*Brassica nigra*), then were disked in May. Plant species observed included black mustard (*Brassica nigra*), bread wheat (*Triticum aestivum),* great valley phacelia (*Phacelia ciliata)* and field bindweed (*Convolvulus arvensis*). Larger trees were generally restricted to windrows or situated around structures and included red gum eucalyptus (*Eucalyptus camaldulensis*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*) and local agricultural trees including olive, almond, and various fruit.

Crops other than orchards that were cultivated in 2023 represent isolated activity that was only feasible as the result of an unusually wet winter season, and the Project site is otherwise comprised completely of lands that have been retired from agricultural cultivation or are orchards. No crop fields such as alfalfa, wheat, or other grain fields occur within the BSA or within the surrounding landscape. The Project site occurs within a region that has limited water availability due to the

critically overdrafted groundwater subbasin. As a result, the entire region is predominantly retired agricultural lands that are disked or no longer in production. These retired agricultural lands that are regularly disked to control invasive weed such as mustard and Russian thistle represent poor habitat for burrowing owls. The intervening growth of weeds creates cover that is too tall for burrowing owls to have a clear viewshed for foraging and predator avoidance, and the regular disking prevents the establishment of long-term burrows for breeding or winter cover. Suitable habitat is predominantly limited to the margins of the managed fields where irrigation ditches and berms occur.

2.2 Burrowing Owl Survey History

Biological studies of the Project's BSA included a reconnaissance-level field survey in 2022 and 2023 and monthly site inspections in 2023 to assess annual patterns in site conditions and wildlife activity.

Eight individual BUOW were detected during the surveys, six of which were at a burrow or agricultural irrigation pipes. Seventeen burrows with recent BUOW sign (i.e., whitewash, pellets, feathers) and an additional five burrows with older BUOW sign were documented within the BSA. All BUOW or their sign documented during surveys were located in the Project's PV array area, primarily on the outer edges of the site as a result of historical and ongoing disking activities. Figure 3a through Figure 3e depict the locations of BUOW and BUOW burrows on the Project site.

Figure 3a BUOW within the BSA (Mapbook 1)

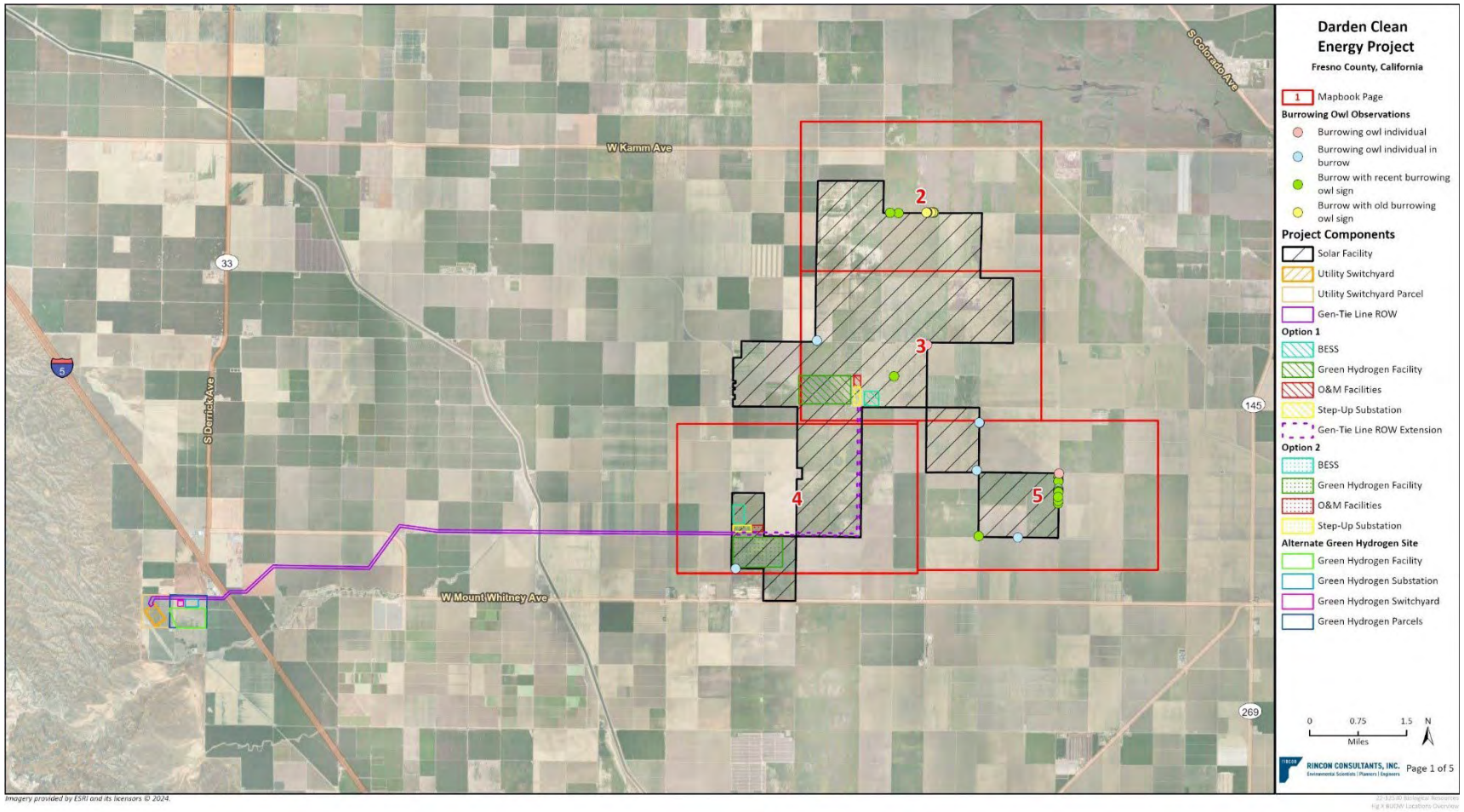


Figure 3b BUOW within the BSA (Mapbook 2)

Figure 3c BUOW within the BSA (Mapbook 3)

Figure 3d BUOW within the BSA (Mapbook 4)

Figure 3e BUOW within the BSA (Mapbook 5)

3 Management Strategy

This section describes the current standard of practice for BUOW management that will be implemented at the Project site in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012) and is designed to avoid, minimize, and fully mitigate impacts to the species.

3.1 Pre-construction Surveys

Pre-construction surveys consistent with survey methods outlined in Appendix D of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) shall be conducted no more than 30 days prior to ground disturbing activities. The first pre-construction survey will cover all areas within 500 feet of all disturbance areas. If no occupied breeding or wintering BUOW burrows are identified, no further action will be required.

If work is halted in a given area for 30 days or greater, pre-construction surveys will be repeated in work areas that are not fully cleared of vegetation following the initial pre-construction survey until all vegetation is cleared. Once vegetation is cleared and construction is ongoing, no additional surveys are required.

If suitable burrows for BUOW are found during pre-construction surveys, all actual or potential BUOW burrows shall be mapped and monitored with the use of remote cameras to assess burrow status. Active and satellite burrows will be identified, and BUOW occupancy shall be determined through up to three additional focused surveys on potential burrows during the morning and/or evening survey windows as defined in Appendix B of the *Staff Report on Burrowing Owl Mitigation*. Detailed information on burrow exclusion and passive relocation as well as burrow excavation is provided in Section 3.5 *Passive Relocation and Exclusion* and Section 3.6 *Burrow Excavation*.

If occupied BUOW burrows are discovered during construction, the following avoidance measures described in Section 3.2 *Construction Monitoring*, Section 3.3 *Sound and Visual Barriers*, and Section 3.4 *Burrow Avoidance and Buffers* will be implemented.

3.2 Construction Monitoring

Monitoring of occupied BUOW burrows by a Qualified Biologist is required for all work within defined buffer areas and when sound or visual barriers are used in conjunction with reduced buffer areas, as described in Section 3.3 *Sound or Visual Barriers* and Section 3.4 *Burrow Avoidance and Buffers*. All work completed outside buffer areas defined in Section 3.4 *Burrow Avoidance and Buffers* will not require monitoring by a Qualified Biologist.

During monitoring, the Qualified Biologist will assess BUOW behavior, proximity of work activities, and effectiveness of implemented buffer areas and/or sound or visual barriers to confirm they are functioning as intended. The Qualified Biologist will have the authority to cease construction activities in the vicinity of the buffer area if BUOW become agitated, and will provide recommendations for when work may resume. Sound and visual barriers may be re-evaluated and buffer areas increased, if needed. Biological monitoring for any given activity can be reduced or discontinued once it can be demonstrated that BUOW are not disturbed by the activity, as determined by the Qualified Biologist.

At a minimum, the following information will be documented for each monitored burrow:

- Date burrow first observed/detected;
- Status of burrow and outcome (e.g., incubating, brooding, young rearing) if observed;
- Distance of the burrow to Project activities;
- Type of Project activity occurring within the vicinity of the burrow;
- Recommended buffer size including modifications to buffer size; and
- Recommended sound and/or visual barrier(s) including modifications to barriers.

3.3 Sound or Visual Barriers

If it is determined that work within an occupied burrow buffer cannot be avoided, temporary sound and/or visual barriers will be implemented to reduce visual and audible disturbance. Barriers should be placed between construction activities and the occupied burrows, at the maximum distance feasible from the occupied burrows. Barriers should be placed to interrupt the line of sound/sight between construction activities and occupied burrows. Project activities would be allowed to proceed with a reduced buffer if barriers are installed, based on the Project activity and relative level of disturbance (as outlined below in Section 3.4 *Burrow Avoidance and Buffers*).

The barriers will be established with the following general guidelines regarding configuration to ensure effective sheltering of active burrows:

- Barricades may be created with hay bales, fencing, or another physical barrier between the occupied burrow and construction activities.
- Installation of barriers will be monitored by a Qualified Biologist
- Burrows will be monitored routinely by a Qualified Biologist during any construction activity that is within reduced buffers with barriers.
- The biologist will have the authority to cease construction activities in the vicinity of the buffer area if BUOW become agitated.
- All barricades will be removed, under the supervision of a Qualified Biologist, after construction is complete.

3.4 Burrow Avoidance and Buffers

Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a Qualified Biologist verifies, through noninvasive methods, that the burrow is not an active nesting burrow. Owls present after February 1 shall be assumed to be nesting unless evidence indicates otherwise. Nest-protection buffers described below shall remain in effect until August 31 or, based upon evidence collected from direct monitoring, until all juvenile owls are foraging independently or the nest has failed as determined by a Qualified Biologist.

Site-specific no-disturbance buffer zones shall be established and maintained between Project activities and occupied burrows that will not be passively evicted and excavated or temporarily closed during construction. Temporary disturbance buffers will be established to minimize disruption to BUOW based on intensity of construction activity (Table 1) and activity period as outlined in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Smaller disturbance buffers are proposed for those activities that are substantially similar to agricultural activity that has been

occurring at the Project site (e.g., site prep work that would be similar to harvesting and disking). Larger disturbance buffers are proposed for Project activities that differ substantially from that of agricultural activity (e.g., pile driving and other high-decibel construction activity). Construction activity has been further assigned an intensity level (low, moderate, heavy) to each definable construction activity. Table 2 includes buffers distances when using sound or visual barriers as described in Section 3.3 *Sound or Visual Barriers*. Table 3 includes buffers distances when sound or visual barriers are not feasible. Specific buffers during helicopter activities are discussed in the PV and Gen-tie Biological Resources Management Plan (Rincon 2024a).

Table 1 Categories of Construction Activity Intensity

Heavy	Moderate	Low
Aerial lift	Excavation (backhoe)	Geotech
Crane work	Grading (grader)	Hand work (shovel, rake, etc.)
Pile driving	Boring/drilling	Surveying
	Clearing (mower/roller)	Staking
	Hauling (tractors, loaders, forklift)	Water truck
	Loaders (piles)	General travel (Trucks, trailers, UTV)
	Welding	
	Trenching	

Table 2 Temporary Construction Buffers with Barriers (feet)

	Buffer Distance with Barriers (in feet) and Time of Year		
Construction Activity Intensity	April 1 – August 15	August 16 – October 15	October 16 – March 31
Low	50	20	20
Moderate	75	20	50
Heavy	100	50	75

Table 3 Temporary Construction Buffers without Barriers (feet)

	Buffer Distance without Barriers (in feet) and Time of Year		
Construction Activity Intensity	April 1 – August 15	August 16 – October 15	October 16 – March 31
Low	100	40	40
Moderate	150	40	100
Heavy	200	100	150

3.5 Passive Relocation and Exclusion

If BUOW burrow avoidance is infeasible, a Qualified Biologist may passively relocate BUOW found within construction areas during the non-breeding season or during the breeding season (February 1 through August 31) where burrows can be shown as conclusively not an active nesting burrow. Passive relocation includes encouraging owls to move from occupied burrows to alternate natural burrows outside of the 500-ft buffer. Active nesting burrows will not be disturbed and avoidance buffers will be maintained during the breeding season.

If an occupied burrow within the Project footprint cannot be avoided and requires passive relocation, a Qualified Biologist will conduct the following:

- Determine if suitable burrows are located outside the impact area that would be acceptable for the BUOW to take refuge in during the relocation process;
- Verify that potential offsite refuge burrows are not currently occupied;
- Identify burrows and/or other structures in the impact footprint that may need to be collapsed, removed, or blocked;
- Assess the need for creation of artificial burrows, if necessary (i.e., there are insufficient burrows outside the impact area). If necessary, for each owl that is evicted, two artificial burrows shall be installed in suitable nearby habitat areas, per the *Users Guide to Installation of Artificial Burrows for Burrowing Owls* (Johnson et al. 2010; Appendix A).

The use of passive relocation techniques in a given area shall be determined by a Qualified Biologist based on existing and future conditions (e.g., time of year, vegetation/topographic screening, and disturbance regimes). Passive relocation of burrowing owls shall be limited in areas adjacent to Project activities that have a sustained or low-level disturbance regimen; this approach shall allow BUOW that are tolerant of existing agricultural and Project activities to occupy quality, suitable nesting and refuge burrows. Substantial agricultural land located adjacent to and on all sides of the Project site provides suitable habitat for BUOW. It is expected that any owls evicted from currently occupied burrows will naturally disperse to nearby suitable habitat outside the Project construction area. If needed, artificial burrows may be installed within a nearby suitable location following guidelines in the Mitigation Methods section of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

Exclusion of BUOW from an occupied burrow or a potentially occupied burrow (or complex of burrows) will occur through the installation of one-way doors to temporarily exclude the BUOW. One-way doors will be installed on all confirmed and potential access points to the burrows for at least three nights prior to initiating burrow excavation or left in place during construction activities. Doors will be placed to fully seal the burrow access points and will be secured in place using native soils, wire pins, or similar methods. If small gaps occur around the edges of the one-way doors, burlap cloth or similar material may be used to prevent small wildlife from accessing the burrow.

During the initial installation of one-way doors, a Qualified Biologist will record the presence and/or absence of BUOW sign at all burrow locations. All sign (tracks, molted feathers, pellets, prey remains, whitewash, nest material/decorations, and other items indicative of BUOW occupancy) will be subsequently cleared from the site in order to document the potential recurrence of BUOW presence at the burrow.

Following installation of one-way doors, all burrows proposed for excavation shall be monitored with the use of remote cameras for at least three nights prior to excavation. BUOW presence captured by remote camera monitoring will be recorded, including date and time.

If burrows will not be directly impacted by Project development, the one-way doors will remain in place throughout the construction phase of the Project and the burrow will not be excavated. Regular monitoring will be conducted to ensure the one-way doors remain operational and the burrows remain unoccupied.

3.6 Burrow Excavation

After the three-night remote camera monitoring period for burrow exclusion, a team of Qualified Biologists will excavate each burrow or burrow complex slated for eviction and collapse.

Once excavation of an entire burrow/complex is complete, the biologist will verify that no BUOW or wildlife reside within the burrow and the site will be backfilled with native soils to prevent future occupancy. Once excavation and closure of the burrow is complete, the site will be photographed to document completed exclusion and effectiveness.

If BUOW are observed within the burrow during excavation, the activity will be halted immediately. One-way doors will be immediately re-installed; and, if necessary, piping large enough to allow BUOW to exit the burrow will be placed to prevent collapse of the occupied burrow. Monitoring of the site will resume until the burrow is determined to be unoccupied. If eggs are observed, all one-way doors will be immediately removed from the burrows, excavation activities will cease, and CEC and CDFW will be notified.

Following completion of all burrow excavations within the Project site, the site will be monitored for BUOW until initiation of construction to ensure that BUOW have not returned to the burrow or burrow area. A Qualified Biologist will be present to monitor the initiation of Project construction activities around the BUOW burrow excavation area to verify that the site has not been recolonized by owls and to avoid take of BUOW.

4 Reporting

If BUOW exclusion and passive relocation is conducted, a report will be submitted to the CEC and CDFW with the following details:

- A description and representative photographs of BUOW sign observed prior to exclusion and/or burrow excavation;
- A full account of one-way doors installed, locations, methods, and photographs;
- Passive and active monitoring methods and observations;
- A description of equipment and methods used in burrow excavation (hand tools, piping, etc.) and any general wildlife relocated from the burrow;
- Photographic documentation of completed burrow excavation and completion of backfill of burrows showing effectiveness;
- Project maps showing BUOW observations, burrows excluded, and burrows excavated;
- Dates that each avoidance and minimization measure was implemented;
- Results of monitoring conducted to demonstrate effectiveness of the measures;
- Dates and description of the initial construction activities.

Any BUOW burrow discovered during the construction phase will be documented in monthly reports as outlined in the PV and Gen-tie Biological Resources Management Plan and the Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Rincon 2024a, Rincon 2024b).

5 Mitigation

Eight individual BUOW, seventeen burrows with recent BUOW sign (i.e., whitewash, pellets, feathers) and an additional five burrows with older BUOW sign were documented within the BSA. Of these eight individuals and twenty-two burrows, seven individuals and twenty-one burrows were located along the margins of seasonally managed non-active agricultural fields in areas that will likely be avoided during construction. The solar facility parcels are currently managed under an ongoing regimen of regular disking to manage weed infestations that is not conducive to nesting and provides inconsistent quality of foraging habitat.

While the exact number and location of BUOW individuals on the Project site may change (and will be verified through preconstruction surveys) prior to construction, based on existing conditions, the majority of BUOW are expected to be located in areas along the edge of the Project site outside of the project development footprint (i.e., burrows would not require excavation and colapse). Therefore, avoidance and implementation of minimization measures outlined in the Management Strategy is expected for most individuals and burrows. Project operations would continue to avoid these areas and maintenance activities would result in less disturbance to BUOW than current disking practices.

In limited cases where avoidance is not feasible, mitigation for permanent direct impacts to occupied BUOW burrows would occur through installation of artificial burrows, if necessary (i.e., when there are insufficient burrows outside the impact area), within a nearby suitable location following guidelines in the Mitigation Methods section of the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Prior to excavation, a Qualified Biologist shall verify that evicted owls have access to multiple, unoccupied, alternative burrows outside of the projected disturbance zone, and as close to the evicted burrow as feasible given Project work areas. If no suitable alternative natural burrows are available for the owls within ¼ mile, then, for each owl that is evicted, two artificial burrows shall be installed in suitable nearby habitat areas, per the Users Guide to Installation of Artificial Burrows for Burrowing Owls (Johnson et al. 2010) referenced in CDFG 2012. The artificial burrow design and installation shall be consistent with the methods described in the Burrowing Owl Exclusion Plan per Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFG 2012).

In addition, implementation of the Project's Vegetation Management Plan would result in post-construction restoration of the Project site to a mix of native and naturalized grassland and forb species which would provide a more consistent source of foraging habitat for the species than currently exists under the regular disking regimen. One of the primary goals would be to restore habitat to a vegetation community with a maximum height of 12 inches, eliminating the need for mowing as part of long-term habitat management. Elimination of mowing would substantially reduce the potential for impacts to species that may occupy the site during the O&M phase of the project. Implementation of the Vegetation Management Plan is expected to result in restoration of approximately 9,000 acres to permanent annual grassland habitat. Based on an estimated foraging range of approximately 300 acres per BUOW, once restored the Project site would include enough foraging habitat to support over 30 BUOWs which is over three times the number of owls that were observed onsite.

In additional to all previously outlined measures, as applicable, the following O&M measures will be implemented during O&M activity.

1. O&M phase WEAP
    a. The O&M Phase WEAP will include all of the content relating to BUOW included in the construction WEAP (i.e., biological information on burrowing owls, their legal protections, the consequences of impacts to the species, and the required measures and procedures to avoid impacts to this species), updated for the O&M activity, staff and applicable contact information.
2. Speed Limits
    a. O&M Phase site speed shall be limited to 15 mph on unimproved roads and 25 mph on improved road.
3. Pre-Mowing Surveys
    a. A qualified biologist shall conduct pre-activity surveys within 7 days prior to mowing following the survey guidelines outlined in the Staff Report on Burrowing Owl (CDFW 2012). Surveys shall be required during the initial phases of site restoration (up to 3 years) when mowing may be required to manage invasive weeds.
4. Pre-Activity Surveys
    a. A qualified biologist shall conduct burrowing owl clearance surveys 7 days prior to maintenance activities that would require clearing, grubbing or other ground disturbance following the survey guidelines outlined in the Staff Report on Burrowing Owl (CDFW 2012).
5. Active Burrow Avoidance
    a. Qualified biologists shall implement standard BUOW avoidance buffers for any active burrows documented during clearance surveys, following the procedures outlined in Section 3 of this Plan.
6. Biological Monitoring
    a. A qualified biological monitor shall monitor any maintenance activity occurring within avoidance buffers of an active burrow, following the procedures outlined in Section 3.2 of this Plan. The biological monitor shall have cease-work authority if burrowing owls are observed to be disturbed from maintenance activity.
7. Reporting
    a. Pre-activity and monitoring reports shall be prepared following the guidelines outlined in Section 4 of this Plan. Reports shall be submitted to the CEC. If the species is listed under the CESA, reports shall also be submitted to CDFW.

The outlined strategy of: 1) avoidance and minimization of impacts to the majority of BUOW individuals and burrows located along the margins of the Project site; 2) installation of artificial burrows at a 2:1 ratio for a limited number of burrows that are directly impacted by Project activities; 3) restoration of the Project site to improve overall habitat suitability and foraging conditions for the species; and 4) O&M phase avoidance and minimization measures would result in full mitigation of potential impacts to the species and no net loss of habitat, including in the case that BUOW is listed as a candidate species under CESA.

6 References

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. Department of Fish and Game. March 7, 2012. http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf2.

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Johnson, D. H., D. C. Gillis, M. A. Gregg, J. L. Rebholz, J. L. Lincer, and J. R. Belthoff. 2010. Users guide to installation of artificial burrows for Burrowing Owls. Tree Top Inc., Selah, Washington. 34 pp.

Rincon Consultants, Inc. (Rincon). 2023a. Darden Clean Energy Project California Energy Commission Application, Section 5.12 Biological Resources. October 2023.

_____. 2023b. Darden Clean Energy Project Swainson's Hawk Conservation Strategy. October 2023.

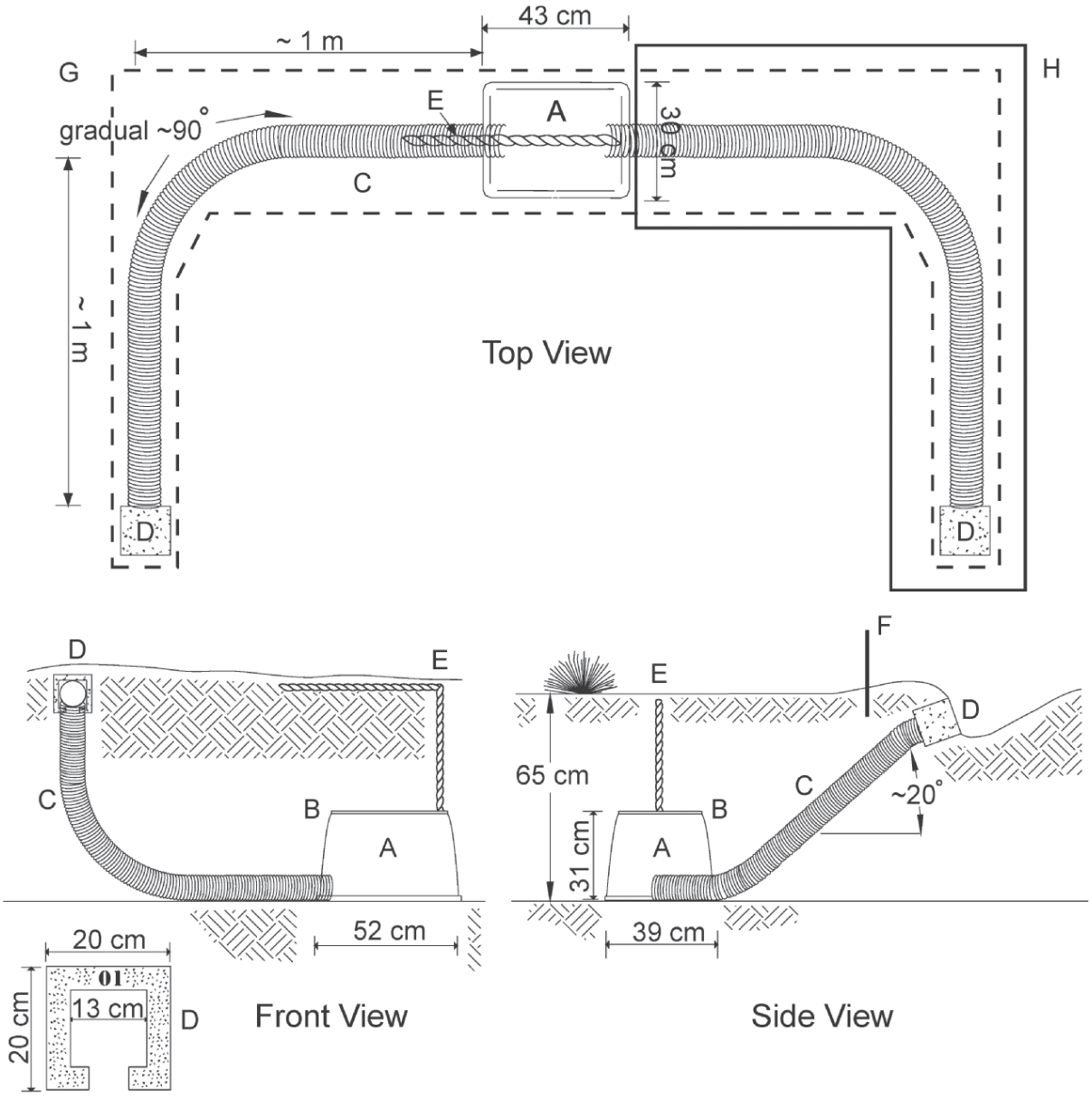
_____. 2024a. Darden Clean Energy Project PV and Gen-tie Biological Resources Management Plan. March 2024.

_____. 2024b. Darden Clean Energy Project Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan. March 2024.

Appendix A

Artificial Burrowing Owl Burrow Design

Artificial Burrowing Owl Burrow Design



A - Plastic irrigation valve box, 48 cm long x 35 cm wide x 27 cm high (inside dimensions)
B - Removable lid
C - Ca. 2 m of 10-cm diameter perforated flexible plastic pipe
D - 20 x 20 x 15 cm hollow concrete block
E - Plastic rope or chain marking location of nest chamber on ground surface
F - 0.5 m perch post (optional)
G - Excavation footprint for installation – – –
H - Optional second entrance

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Appendix C

DR BIO-7 PV and Gen-tie Biological Resources Management Plan

Darden Clean Energy Project

PV and Gen-Tie Biological Resources Management Plan

prepared for

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c/o Intersect Power, LLC
9450 Southwest Gemini Drive, PMB #68743
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April 2024

RINCON CONSULTANTS, INC. SINCE 1994

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Tables

Figures

1 Introduction

Rincon has prepared this Photovoltaic Array (PV) and Generation intertie line (Gen-tie) Biological Resources Management Plan on behalf of IP Darden I, LLC and Affiliates (Project Owner), for the Darden Clean Energy (Project), in unincorporated Fresno County, California. This plan has been prepared at the request of the California Energy Commission (CEC) and incorporates relevant information from Section 5.12 *Biological Resources* of the CEC Application (Rincon 2023a). The purpose of the plan is to outline the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the PV arrays, battery energy storage system (BESS), hydrogen facility (options 1 and 2), and gen-tie components of the Project.

Additional biological resources management plans for the Project include:

- **Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the utility switchyard and, if it is developed, the alternate green hydrogen site components of the Project (Rincon 2024a).
- **Burrowing Owl Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented for all components of the Project as they relate to burrowing owl (*Athene cunicularia*) during the pre-construction, construction, and operations and maintenance (O&M) phases (Rincon 2024b).
- **Swainson's Hawk Conservation Strategy.** This conservation strategy addresses potential effects to Swainson's hawk (*Buteo swainsoni*) nesting and foraging habitat on the Project during construction and O&M phases (Rincon 2023b).
- **Operations and Maintenance Biological Resources Management Plan.** This plan will outline the biological resources mitigation, monitoring, and reporting procedures that shall be implemented for all components of the Project during the O&M phase.

1.1 Project Description

The overall Project consists of the construction, operation, and eventual repowering or decommissioning of a 1,150 megawatt (MW) solar PV facility, an up to 4,600 megawatt-hour (MWh) battery energy storage system (BESS), an up-to 800 MW green to hydrogen generator, a 34.5-500 kilovolt (kV) grid substation, a 10-mile (up to 15 mile) 500 kV gen-tie line, a 500 kV utility switchyard along the Pacific Gas and Electric Company (PG&E) Los Banos-Midway #2 500 kV transmission line, and appurtenances. This plan is specific to construction of the PV arrays, BESS, substation, hydrogen facility (including options 1 and 2 of these components), and gen-tie portions of the Project.

Construction of the Project is anticipated to take between 18 and 36 months to complete and the Project would be operational by 2028.

The Project would operate for approximately 35 years, at which time Project facilities would be either repowered or decommissioned. Following decommissioning, the Project site would be restored and reclaimed to the extent practicable to pre-construction conditions consistent with site lease agreements.

1.2 Project Location

The Project site is located in an agricultural area of unincorporated Fresno County south of the community of Cantua Creek (Figure 1). The proposed PV solar facility, BESS, substation, and hydrogen facility (including options 1 and 2 of these components) would be located on approximately 9,100 acres of land owned by Westlands Water District, between South Sonoma Avenue to the west and South Butte Avenue to the east (Figure 2). The proposed gen-tie line (approximately 10 to 15 miles) would span west from the intersection of South Sonoma Avenue and West Harlan Avenue to immediately west of Interstate 5, where it would connect to the new utility switchyard (Figure 2). The alternate green hydrogen site being considered is located adjacent to the proposed utility switchyard site (Figure 2).

Land cover types include fallow lands, tilled and disked fields containing ruderal vegetation, orchards, and other active farming on the Project site. In this plan, non-active agriculture fields prior to vegetation growth are referred to as “fallow”, and as “disked” if evidence of disking was present. Surrounding properties include fallow and agricultural lands. The Project’s gen-tie line spans privately-owned land on the western portion of the Project site with land-cover types including active agriculture (primarily orchards) and fallow fields. The California Aqueduct bisects the gen-tie parcels, running generally north-south. Compacted dirt and paved roads border and separate each land-cover type.

This plan is applicable only to the PV arrays, BESS, substation, hydrogen facility, and gen-tie portions of the Project site (including options 1 and 2 of these components).

Figure 1 Regional Location Map

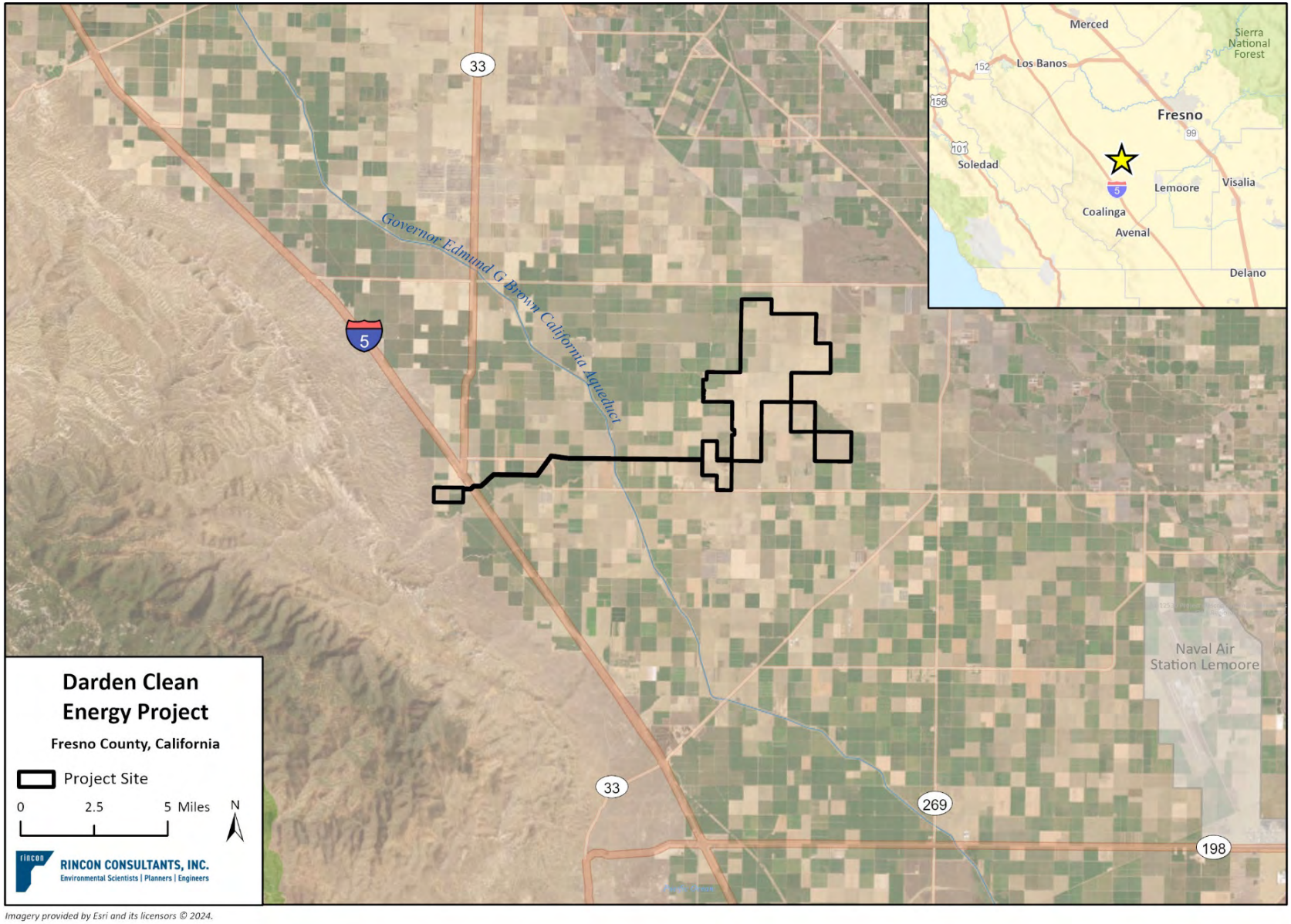
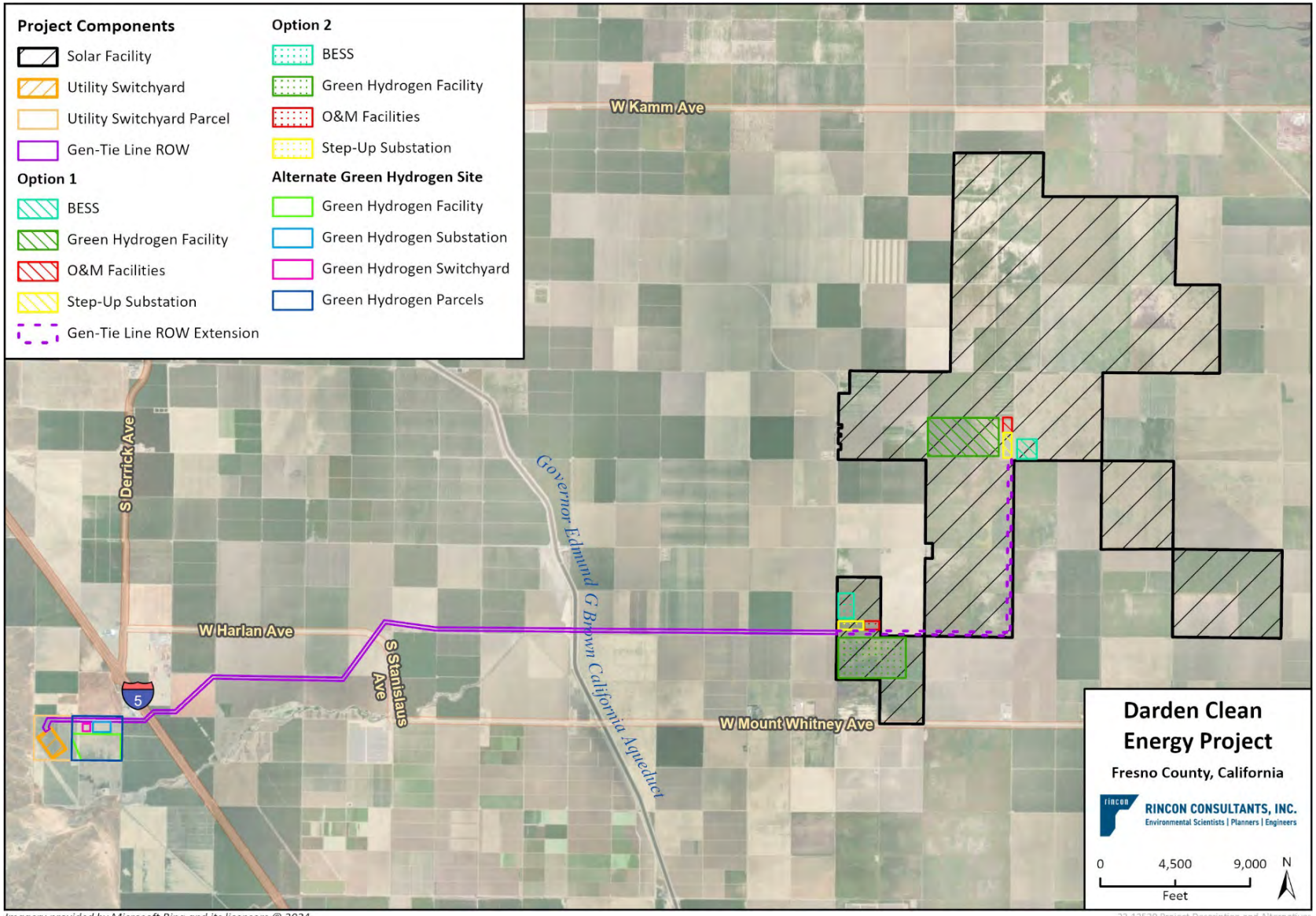


Figure 2 Project Map



2 Existing Conditions

2.1 General Site Conditions

2.1.1 Topography and Geography

The Project site is located in unincorporated Fresno County in the San Joaquin Valley. The San Joaquin Valley is bounded by the Sacramento – San Joaquin River Delta to the north, the Diablo Mountain Range to the west, the Sierra Nevada Mountains to the east, and the Tehachapi Range to the south. The region is primarily composed of agricultural land dating back to as early as the 1940s, and cattle grazing land, with areas of residential and industrial development primarily concentrated near Fresno. Vegetation occurring in the San Joaquin Valley mostly consist of annual/ruderal grassland, pasture, cropland, valley-foothill riparian, vernal pool, alkali scrub, and orchard-vineyard (Fresno County 2000). The Project's Biological Study Area (BSA), the approximately 9,500-acre Project site encompassing all proposed Project components and a general 100-ft buffer, is relatively flat, with elevations ranging from approximately 186 to 644 feet above mean sea level, increasing in elevation from the east to the west and southwest towards the Diablo Range. Geography in the vicinity of the BSA includes agriculture with a few small scattered rural residential areas and small solar facilities.

2.1.2 Vegetation and Other Land Cover

During biological surveys in 2022 and 2023, the BSA was dominated by active and seasonally managed non-active agricultural fields. During the spring, tomatoes and garlic were grown on some of the parcels, and most of the non-active parcels were grown over with mustard (*Brassica nigra*), then were disked in May. Plant species observed included black mustard (*Brassica nigra*), bread wheat (*Triticum aestivum),* great valley phacelia (*Phacelia ciliata)* and field bindweed (*Convolvulus arvensis*). Larger trees were generally restricted to windrows or situated around structures and included red gum eucalyptus (*Eucalyptus camaldulensis*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*) and local agricultural trees including olive, almond, and various fruit.

Crops other than orchards that were cultivated in 2023 represent isolated activity that was only feasible as the result of an unusually wet winter season, and the Project site is otherwise comprised completely of lands that have been retired from agricultural cultivation or are orchards. No crop fields such as alfalfa, wheat, or other grain field occur within the BSA or within the surrounding landscape. The Project site occurs within a region that has limited water availability due to the critically overdrafted groundwater subbasin. As a result, the entire region is predominantly retired agricultural lands that are disked or no longer in production.

2.2 Sensitive Biological Resources

The sensitive biological resources that are present or have potential to occur within the PV arrays or gen-tie line areas are outlined in Table 1 (Rincon 2023c). Special-status species observed during the surveys are depicted on Figure 3 through Figure 7.

Table 1 Special-Status Wildlife Species Documented as Present or with the Potential to Occur in the BSA of the PV Arrays or Gen-Tie Line

Common Name	Scientific Name	Agency Status (Federal/State/Other)	Potential to Occur within the PV Arrays or Gen-tie[1]
Birds			
tricolored blackbird	*Agelaius tricolor*	–/ST/SSC	Low Potential (foraging), No Potential (nesting)
golden eagle	*Aquila chrysaetos*	–/–/FP	High Potential (foraging), No Potential (nesting)
burrowing owl	*Athene cunicularia*	–/–/SSC	Present (nesting, foraging)
ferruginous hawk	*Buteo regalis*	–/–/WL	High Potential (winter migrant) No Potential (nesting)
Swainson's hawk	*Buteo swainsoni*	–/ST/–	Present (nesting, foraging)
northern harrier	*Circus hudsonius*	–/–/SSC	High Potential (foraging), No Potential (nesting)
mountain plover	*Choradrius montanus*	–/–/SSC	High Potential (winter migrant) No Potential (nesting)
white-tailed kite	*Elanus luecurus*	–/–/FP	High Potential (foraging), Low Potential (nesting)
California horned lark	*Eremophila alpestris actia*	–/–/WL	Present (foraging, nesting)
prairie falcon	*Falco mexicanus*	–/–/WL	High Potential (foraging), No Potential (nesting)
California condor	*Gymnogyps californianus*	FE/SE/–	Low Potential (foraging), No Potential (nesting)
loggerhead shrike	*Lanius ludovicianus*	–/–/SSC	High Potential (foraging), No Potential (nesting)
Oregon vesper sparrow	*Pooecetes framineus affinus*	–/–/SSC	High Potential (winter migrant) No Potential (nesting)
yellow warbler	*Setophaga petechia*	–/–/SSC	High Potential (migration) No Potential (nesting)
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	–/–/SSC	Moderate Potential (nesting, foraging)
Mammals			
American badger	*Taxidea taxus*	–/–/SSC	Present
San Joaquin Kit Fox[2]	*Vulpes macrotis mutica*	FE/ST/--	Low Potential

[1]Avian species observed foraging on the Project site or passing through during their migration during biological resources surveys, but which have either no or low potential to nest on the Project site: golden eagle, ferruginous hawk, northern harrier, mountain plover, white-tailed kite, prairie falcon, loggerhead shrike, Oregon vesper sparrow, and yellow warbler.

[2]Management strategies for San Joaquin kit fox are provided in the Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan since the species is not expected to occur within the PV Development Footprint.

FE = Federally Endangered, SE = State Endangered, ST = State Threatened, FP = CDFW Fully Protected, SSC = CDFW Species of Special Concern, WL = CDFW Watch List

Source: California Natural Diversity Database (CNDDB) (Fresno County), May 2021

Figure 3 Special-Status Species Observations within BSA (Mapbook Page 1)

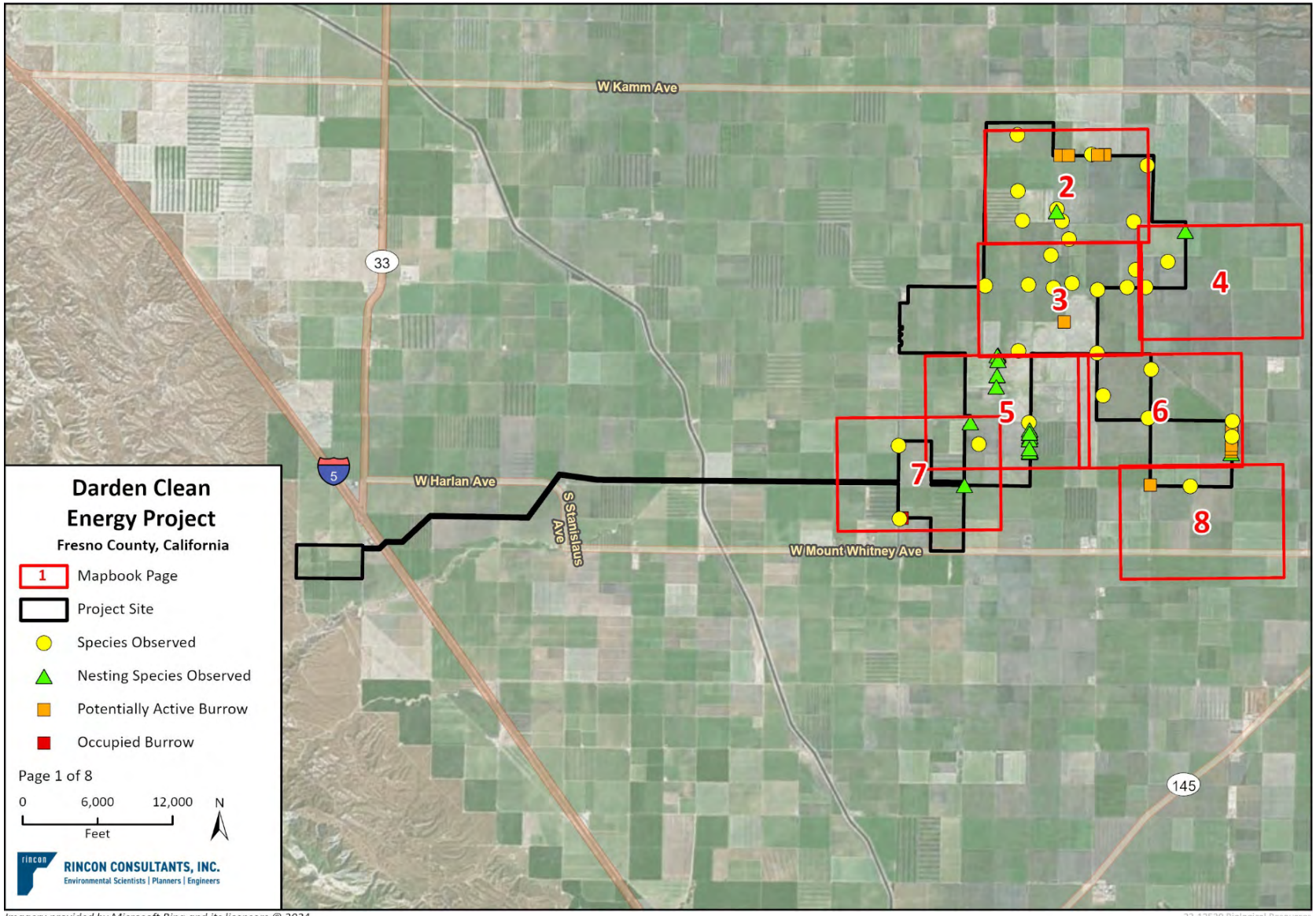


Figure 4 Special-Status Species Observations within BSA (Mapbook Page 2)

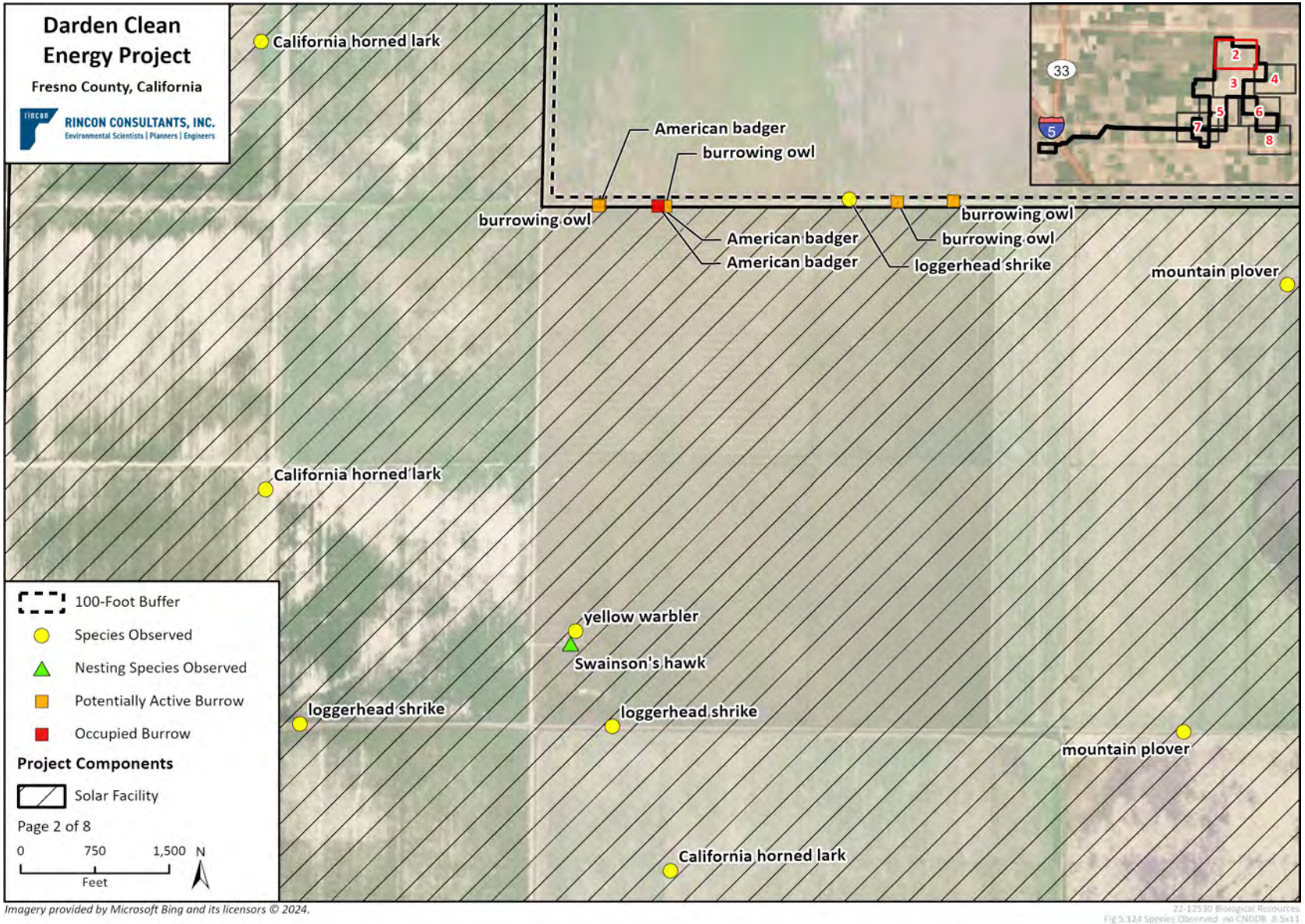


Figure 5 Special-Status Species Observations within BSA (Mapbook Page 3)

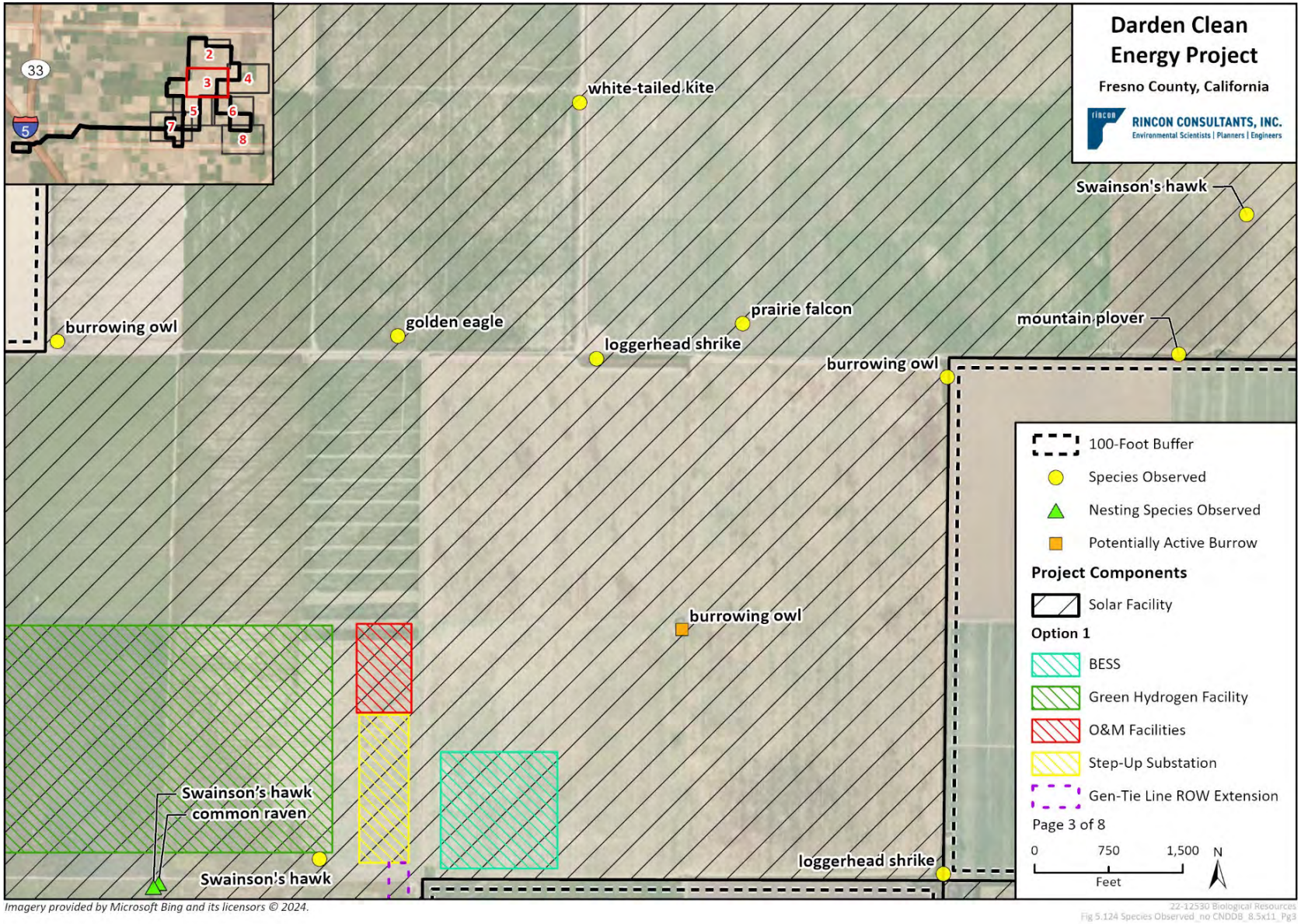


Figure 6 Special-Status Species Observations within BSA (Mapbook Page 4)

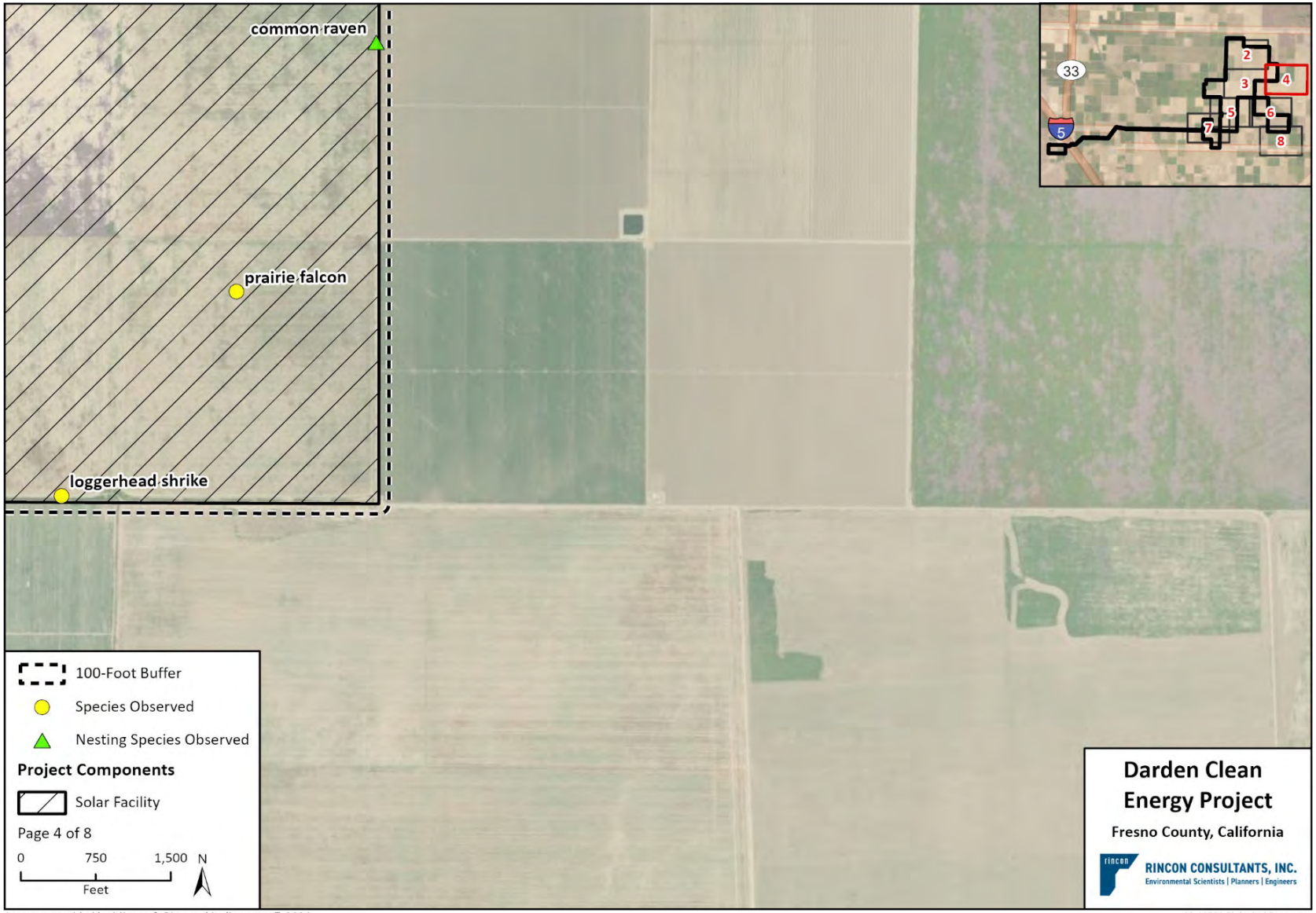


Figure 7 Special-Status Species Observations within BSA (Mapbook Page 5)

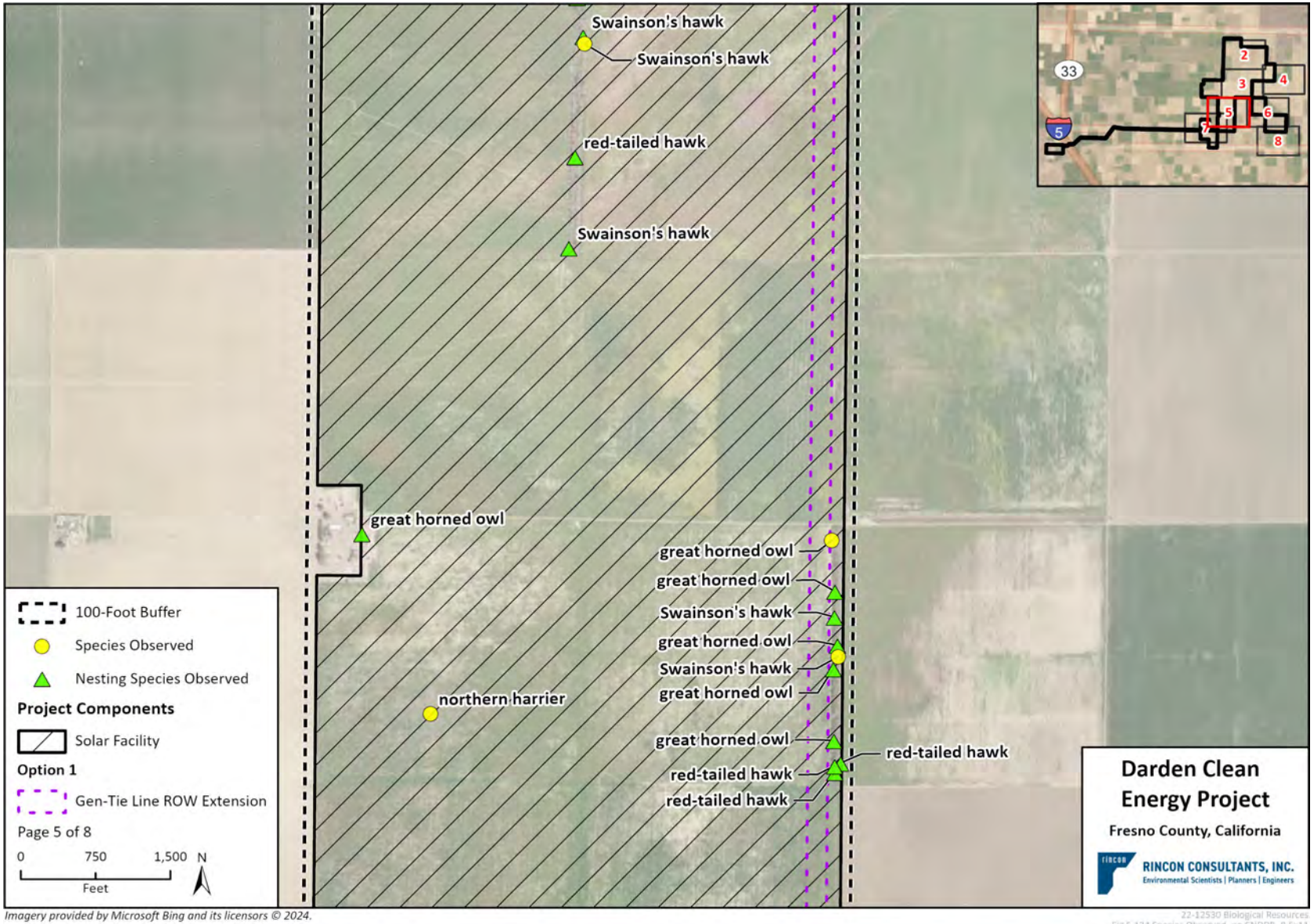


Figure 8 Special-Status Species Observations within BSA (Mapbook Page 6)

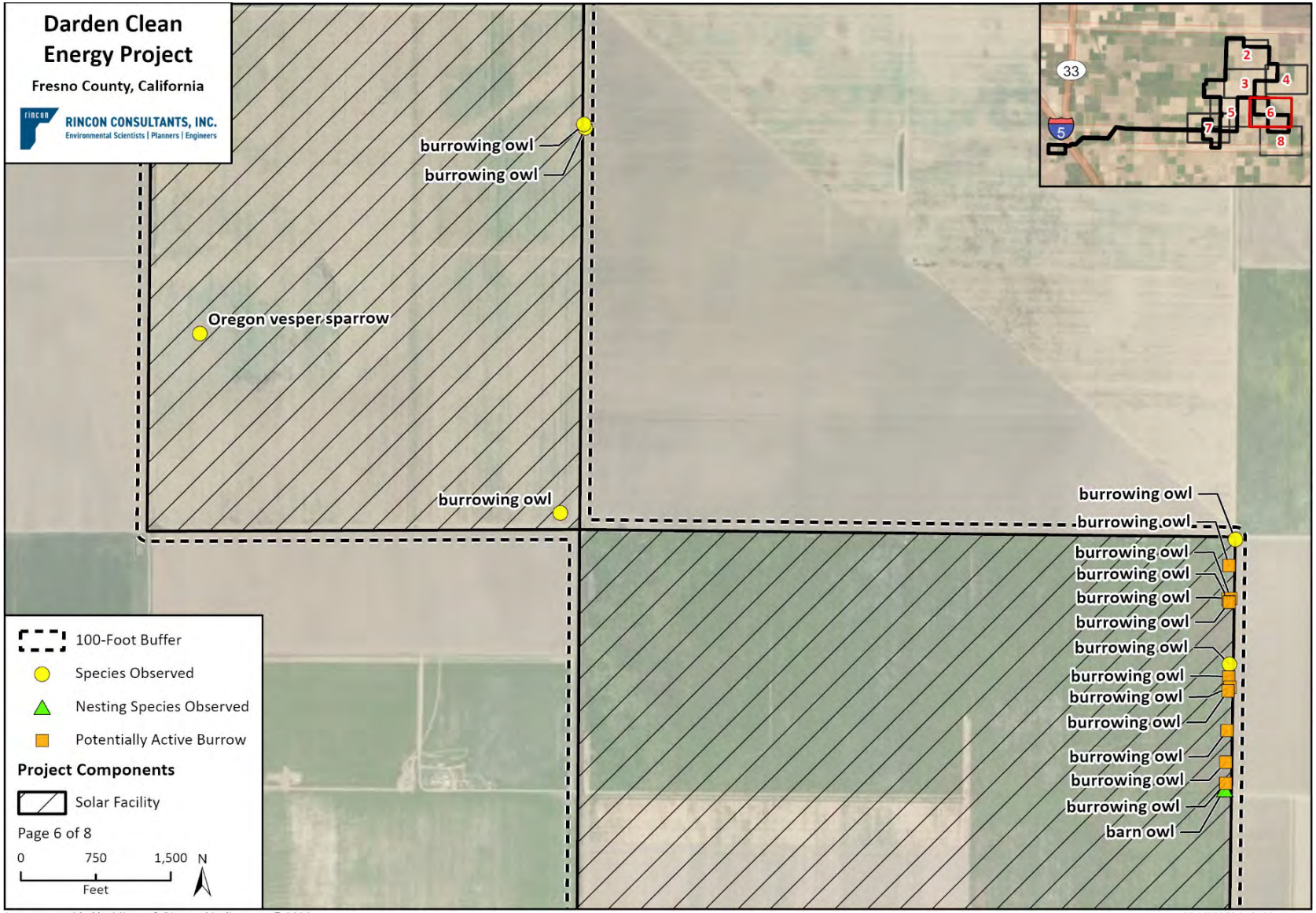


Figure 9 Special-Status Species Observations within BSA (Mapbook Page 7)

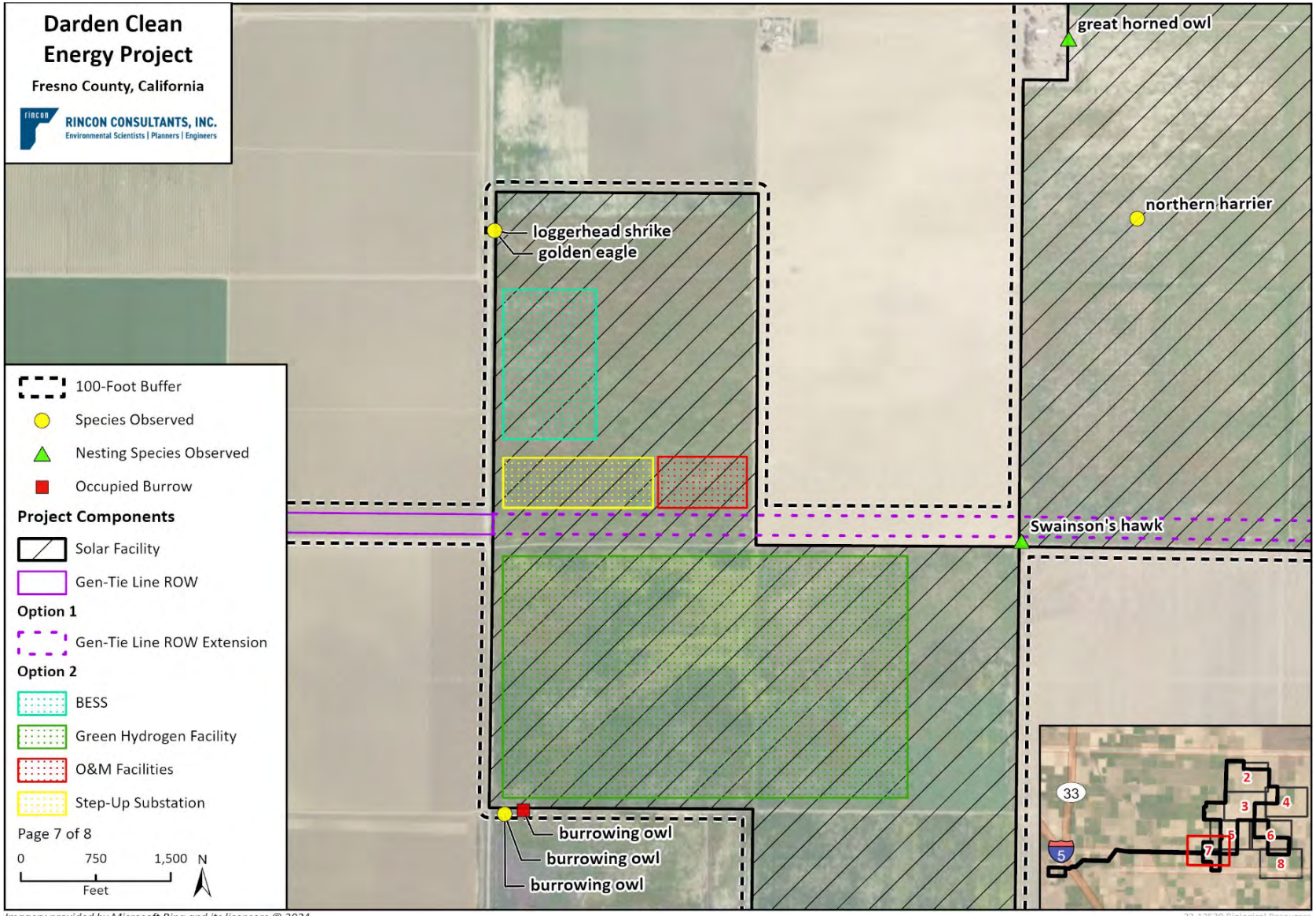


Figure 10 Special-Status Species Observations within BSA (Mapbook Page 8)

3 Management Strategy

3.1 Pre-construction Surveys

3.1.1 American Badger Surveys

Preconstruction surveys shall be conducted by a Qualified Biologist for the presence of American badger prior to commencement of construction activities in all areas with potential to support this species. This survey shall be conducted no more than 30 days prior to ground disturbing activities without prior agency approval. The surveys can be staggered to match the different construction phases and locations to reduce the need to re-survey any given area. The surveys shall be conducted in areas of suitable habitat for the species. Surveys shall conform to industry standards for American badger.

If work is halted in a given area for 30 days or greater, pre-construction surveys will be repeated in work areas that are not fully cleared of vegetation following the initial pre-construction survey until all vegetation is cleared. Once vegetation is cleared and construction is ongoing, no additional surveys will be needed as monitoring will be conducted during on-going activities.

Where special-status species habitat (e.g., burrows/dens) are known to occur and there is a potential for significant impacts, a Qualified Biologist will monitor construction activities to ensure that impacts to special-status species are avoided and minimized (as described in Section 3.2 *Construction Monitoring*).

3.1.2 Nesting Bird Surveys

If construction is scheduled to commence during the non-breeding season (September 1 to January 31), no pre-construction surveys or additional measures for nesting birds or other raptors shall be required. Prior to ground disturbing and vegetation removal activities that are initiated during the breeding season (February 1 to August 31), a Qualified Wildlife Biologist shall conduct preconstruction surveys of all potential nesting habitats within the Project area. The raptor survey shall focus on potential nest sites (e.g., owl boxes, large trees, windrows, and shrubs) within 500 feet of the site for common raptors. Nesting bird surveys shall be conducted within 14 days of the start of ground-disturbing or vegetation removal activities. Surveys need not be conducted for the entire Project area at one time and may be conducted in phases consistent with construction activity schedules. If helicopter activities occur during the breeding season, preconstruction surveys along the gen-tie corridor shall be repeated within 14 days of the start of helicopter activities. Specific survey requirements for Swainson's Hawk are discussed in the Swainson's Hawk Conservation Strategy (Rincon 2023b). Specific survey requirements for burrowing owl are discussed in the Burrowing Owl Management Plan (Rincon 2024b).

The surveying biologist shall be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance.

3.2 Construction Monitoring

The PV arrays and gen-tie Project components are sited entirely on former agricultural land that is regularly disked, with some portions of the gen-tie within active orchards. As a result, these areas

do not provide habitat for the majority of special-status species with potential to occur on the Project site. Pre-construction surveys and the implementation of no-work buffers (as described in Section 3.3 Avoidance Buffers) would result in 100% avoidance of impacts to special-status species; therefore, monitoring will be limited to spot checks. Qualified biologists will conduct weekly sweeps of the work area, inspect avoidance buffers, confirm that ground disturbance activities and impacts occur within designated limits, watch for special-status species within the work area, and confirm appropriate avoidance and minimization measures are implemented.

The qualified biologist's monitoring responsibilities will also include monitoring active nests and burrows/dens to determine if the recommended buffer is effective during active work in proximity to the nest or burrow/den. The nest and burrows/dens will be visited weekly at a minimum, but frequency will vary depending on Project activity and location. Nests and burrows/dens will be monitored until a final outcome is determined (e.g., the nest or burrow/den becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the Project), or for the duration of Project activities in proximity to the nest or burrow/den (based on the species-specific buffer), whichever occurs first. At a minimum, the following information will be documented for each burrow/den or nest:

- Date nest or burrow/den first observed/detected
- Species
- Status (e.g., nest building, incubating, brooding, young rearing, unoccupied)
- Distance of the nest to Project activities
- Type of Project activity occurring within the vicinity of the nest or burrow/den
- Recommended buffer size including modifications to buffer size

3.2.1 Helicopter Monitoring

Full-time monitoring shall be conducted during helicopter activities associated with the Project, including along the gen-tie. The helicopter landing zone (HLZ) will be swept daily for biological resources by onsite biological monitors and in compliance with all Project mitigation measures. All sensitive resource areas will be appropriately marked, and all personnel will be made aware of any sensitive biological resources areas to avoid.

If any fully protected (FP) avian species (i.e., golden eagles, condors, or white-tailed kite) are detected in Project-related helicopter use areas, avoidance buffers shall be established until they have left the area. If FP species move such that the helicopter activities are within the avoidance buffers, helicopter work in the area shall be halted until the FP species have left the area. A Qualified Biologist will have the authority to stop all activities, if needed to avoid impacts to FP avian species. Specific avoidance buffers for FP species and active nests are included in Section 3.3.3 *Helicopter Buffers* below.

3.3 Avoidance Buffers

3.3.1 American Badger

If potential American badger dens are observed at any point during pre-construction surveys or construction and avoidance is feasible, buffer distances of 50 feet for occupied dens and 250-foot, no-disturbance buffers for natal dens shall be established by the Qualified Biologist prior to construction activities.

If avoidance of the potential American badger dens is not feasible, the following measures are recommended to minimize potential adverse effects to the American badger:

- If a Qualified Biologist determines that potential dens are inactive, the biologist shall excavate the dens by hand with a shovel and collapse them to prevent American badgers from re-using them during construction.
- If the Qualified Biologist determines that potential dens may be active, the biologist shall conduct remote camera monitoring of the den for a period of three consecutive days to confirm occupancy status. If the Qualified Biologist determines that a den is an active natal den, avoidance buffers of 250 feet shall be established to demarcate no-work areas that shall be maintained until the den is no longer an active natal den. Dens that are determined to be non-natal or are active outside of the breeding season shall implement passive eviction procedures through the installation of one-way doors, and the use of remote camera monitoring to document no activity for 3 consecutive days. Dens that are determined to be unoccupied or have become inactive following passive eviction or at the end of breeding season shall be hand-excavated with a shovel and collapsed to prevent reuse during construction.

3.3.2 Nesting Birds

Buffers shall be determined by the Qualified Biologist and be established based on the species and nest location, to allow for known species' behavior and environmental factors (e.g., line of sight to nest) when establishing avoidance buffers. Standard buffers are typically 200 to 500 feet for common raptors and 30 to 50 feet for most common passerines but may be larger if necessary to prevent disturbance of nesting activity, based on species sensitivity. No access into buffer areas shall be allowed until a Qualified Biologist has determined that the nestlings have fledged and are no longer reliant on the nest or the nest has become otherwise inactive (e.g., depredation). Encroachment into the buffer for common species may occur at the discretion of a Qualified Biologist and with the appropriate biological monitoring to ensure no disruption of nesting activity; however, for State-listed or FP species, CDFW shall be consulted for approval of buffer encroachment or reduction. Specific buffers for Swainson's hawk and burrowing owl are discussed in the Swainson's Hawk Conservation Strategy (Rincon 2023b) and Burrowing Owl Management Plan (Rincon 2024b), respectively.

3.3.3 Helicopter Buffers

Specific buffers for helicopter activities will be established for avian species and their nests and adjusted at the discretion of the Qualified Biologist. Table 2 below describes general buffers for avian species and their nests during helicopter activities, to be adjusted at the discretion of the Qualified Biologist.

Table 2 Helicopter Avoidance Buffer Guidelines

Species	Vertical and Horizontal Buffer Distance (feet)*
Swainson's Hawk	1,320
Fully Protected Avian Species	1,320
Special-status Raptors	500
Common Raptors	300
Special-status Passerines	300
Common Passerines	200

* These distances are applicable to small helicopters, which typically cause a downdraft of 15 to 18 miles per hour at up to 150 feet, operating in nest vicinity for up to 3 minutes once or twice per day, with a minimum of 4 hours between helicopter activities. Buffers will be re-evaluated and adjusted for larger helicopters or longer work periods.

3.4 Qualified Biologist

The Qualified Biologist will have relevant experience with the taxa and species in the Central Valley and San Joaquin Valley for which pre-construction surveys, monitoring, or other support is required during Project construction. The Qualified Biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa.

3.5 Worker Environmental Awareness Program

All personnel that enter the Project area shall attend a Worker Environmental Awareness Program (WEAP) developed by the Qualified Biologist or authorized designee. New personnel shall receive WEAP training on the first day of work and prior to commencing work on the site.

- The program shall include information on the life history of the San Joaquin kit fox, Swainson's hawk, burrowing owl, American badger, San Joaquin coachwhip, and nesting birds as well as other wildlife and plant species that may be encountered during construction activities.
- The program shall also discuss the legal protection status of each species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent is implementing to protect the species, reporting requirements, specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act or California Endangered Species Act.
- The program shall include the contact information for the Project's environmental compliance manager.
- The program shall provide information on how and where to bring injured animals for treatment in the case any animals are injured the Project area.
- An acknowledgement form signed by each worker indicating that WEAP training has been completed shall be kept on record.
- A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the WEAP training and copies of the signed acknowledgement forms will be made available upon agency request.

3.6 General Avoidance and Minimization Measures

The following general avoidance and minimization measures shall be implemented:

- Designation of a 15 mile per hour speed limit in all construction areas.
- All vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas, and clearing of vegetation for vehicle access shall be avoided to the greatest extent feasible.
- The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the goal of the Project.
- Designation of equipment washout and fueling areas to be located within the limits of grading at a minimum of 100 feet from any sensitive resources as identified by a Qualified Biologist.
- Washout areas shall be designed to fully contain polluted water and materials for subsequent removal from the site.
- Drip pans shall be placed under all stationary vehicles and mechanical equipment that have leaking or discharging lubricants or other fluid.
- All carrion shall be removed from the Project site prior to and during construction.
- All trash, including carrion, shall be placed in sealed containers and shall be removed from the Project site a minimum of once per week.
- No pets are permitted on the Project site during construction.
- All pipes or other construction materials or supplies shall be covered or capped in storage or laydown areas. No pipes or tubing shall be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials shall be inspected for wildlife before it is moved, buried, or capped.
- Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate wildlife ramp or other means to allow trapped animals to escape. At the end of each work day, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.
- All helicopter activities shall occur within the typical construction hours Monday through Friday 6:00 a.m. to 7:00 p.m.

3.7 Reporting

During construction, monthly reports will be prepared to document compliance with all applicable measures and conditions The reports will summarize the results of surveys and biological monitoring and will document non-compliance events and the corrective actions taken to address those events. Reports will document any instances of sensitive resources being impacted as a result of Project activity. The record of compliance and documentation of impacts to biological resources will be the metrices by which the success of mitigation will be evaluated and documented in the compliance reports.

4 References

Fresno, County of. 2000. General Plan Update. Draft Environmental Impact Report.

Rincon Consultants, Inc. 2023a. Darden Clean Energy Project California Energy Commission Application, Section 5.12 Biological Resources. October 2023.

_____. 2023b. Darden Clean Energy Project Swainson's Hawk Conservation Strategy. October 2023.

_____. 2023c. Darden Clean Energy Project Biological Resources Assessment. October 2023.

_____. 2024a. Darden Clean Energy Project Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan. April 2024.

_____. 2024b. Darden Clean Energy Project Burrowing Owl Management Plan. May 2024.

Appendix D

DR BIO-7 Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan

Darden Clean Energy Project

Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan

prepared for

IP Darden I, LLC and Affiliates
c/o Intersect Power, LLC
9450 Southwest Gemini Drive, PMB #68743
Beaverton, Oregon 97008

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April 2024

RINCON CONSULTANTS, INC. SINCE 1994

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1 Introduction

Rincon has prepared this Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan on behalf of IP Darden I, LLC and Affiliates (Project Owner), for the Darden Clean Energy (Project), in unincorporated Fresno County, California. This plan has been prepared at the request of the California Energy Commission (CEC) and incorporates relevant information from Section 5.12 *Biological Resources* of the CEC Application (Rincon 2023a). The purpose of the plan is to outline the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the utility switchyard and, if it is developed, the alternate green hydrogen site, portion of the Project.

Additional biological resources management plans for the Project include:

- **PV and Gen-tie Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the photovoltaic arrays (PV), battery energy storage system (BESS), hydrogen facility, and generation intertie line (gen-tie) components (including options 1 and 2) of the Project (Rincon 2024a).
- **Burrowing Owl Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented for all components of the Project as they relate to burrowing owl (*Athene cunicularia*) during the pre-construction, construction, and operations and maintenance (O&M) phases (Rincon 2024b).
- **Swainson's Hawk Conservation Strategy.** This conservation strategy addresses potential effects to Swainson's hawk (*Buteo swainsoni*) nesting and foraging habitat on the Project during construction and O&M phases (Rincon 2023b).
- **Operations and Maintenance Biological Resources Management Plan.** This plan will outline the biological resources mitigation, monitoring, and reporting procedures that shall be implemented for all components of the Project during the O&M phase.

1.1 Project Description

The overall Project consists of the construction, operation, and eventual repowering or decommissioning of a 1,150 megawatt (MW) solar PV facility, an up to 4,600 megawatt-hour (MWh) battery energy storage system (BESS), an up-to 800 MW green to hydrogen generator, a 34.5-500 kilovolt (kV) grid substation, a 10-mile (up to 15-mile) 500 kV gen-tie line, a 500 kV utility switchyard along the Pacific Gas and Electric Company (PG&E) Los Banos-Midway #2 500 kV transmission line, and appurtenances. This plan is specific to construction of the utility switchyard and, if developed, the alternate green hydrogen site (including a facility, substation and switchyard) located adjacent to the utility switchyard.

Construction of the Project is anticipated to take between 18 and 36 months to complete and the Project would be operational by 2028.

The Project would operate for approximately 35 years, at which time Project facilities would be either repowered or decommissioned. Following decommissioning, the Project site would be restored and reclaimed to the extent practicable to pre-construction conditions consistent with site lease agreements.

1.2 Project Location

The Project site is located in an agricultural area of unincorporated Fresno County south of the community of Cantua Creek (Figure 1). The proposed PV solar facility, BESS, substation, and hydrogen facility (including options 1 and 2 of these components) would be located on approximately 9,100 acres of land owned by Westlands Water District, between South Sonoma Avenue to the west and South Butte Avenue to the east (Figure 2). The proposed gen-tie line (approximately 10 to 15 miles) would span west from the intersection of South Sonoma Avenue and West Harlan Avenue to immediately west of Interstate 5, where it would connect to the new utility switchyard (Figure 2). The alternate green hydrogen site being considered is located adjacent to the proposed utility switchyard site (Figure 2).

Land cover types include fallow lands, tilled and disked fields containing ruderal vegetation, orchards, and other active farming on the Project site. In this plan, non-active agriculture fields prior to vegetation growth are referred to as “fallow”, and as “disked” if evidence of disking was present. Surrounding properties include fallow and agricultural lands. The Project’s gen-tie line spans privately-owned land on the western portion of the Project site with land-cover types including active agriculture (primarily orchards) and fallow fields. The California Aqueduct bisects the gen-tie parcels, running generally north-south. Compacted dirt and paved roads border and separate each land-cover type.

This plan is applicable only to the utility switchyard and, if it is developed, the alternate green hydrogen site located on the far western side of the Project site.

Figure 1 Regional Location Map

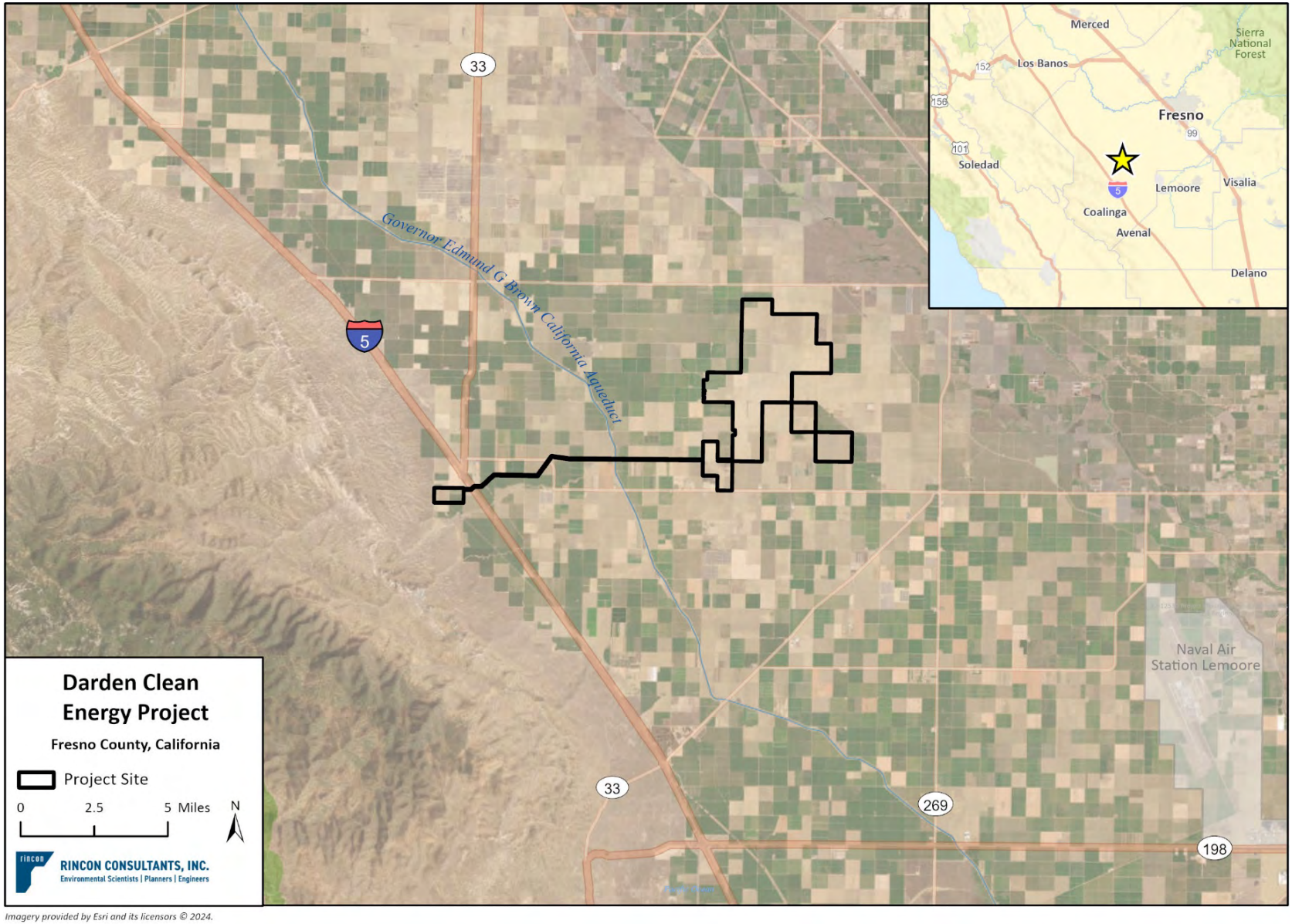
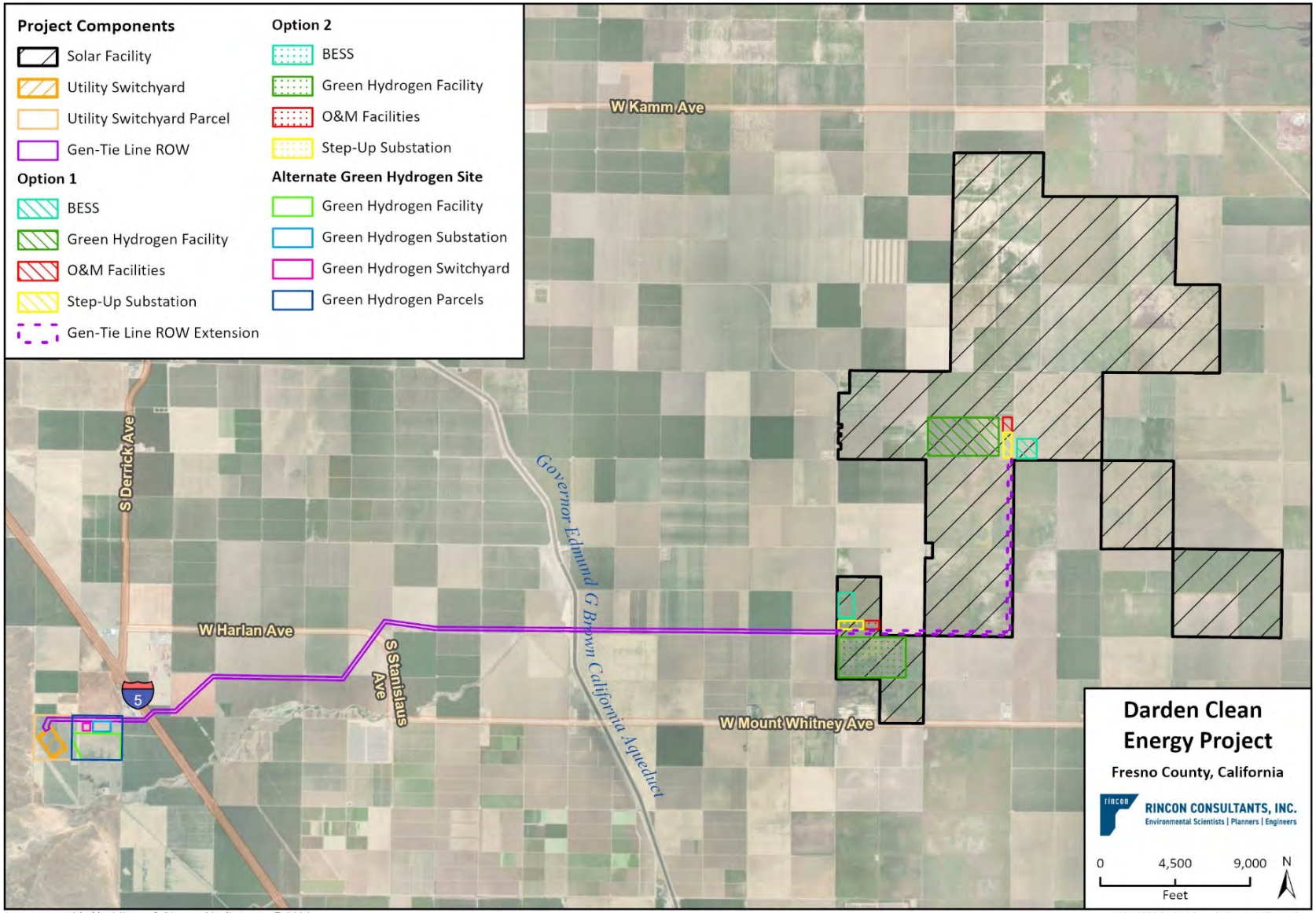


Figure 2 Project Map



2 Existing Conditions

2.1 General Site Conditions

2.1.1 Topography and Geography

The Project site is located in unincorporated Fresno County in the San Joaquin Valley. The San Joaquin Valley is bounded by the Sacramento – San Joaquin River Delta to the north, the Diablo Mountain Range to the west, the Sierra Nevada Mountains to the east, and the Tehachapi Range to the south. The region is primarily composed of agricultural land dating back to as early as the 1940s, and cattle grazing land, with areas of residential and industrial development primarily concentrated near Fresno. Vegetation occurring in the San Joaquin Valley mostly consist of annual/ruderal grassland, pasture, cropland, valley-foothill riparian, vernal pool, alkali scrub, and orchard-vineyard (Fresno County 2000). The Biological Study Area (BSA)–the approximately 155-acre utility switchyard, alternate green hydrogen site, and a general 100-ft buffer—is relatively flat, with elevations ranging from approximately 507 to 638 feet above mean sea level, increasing in elevation from the east to the west towards the Diablo Range. Geography in the vicinity of the BSA includes agriculture with a few small scattered rural residential areas and small solar facilities, and the base of the Ciervo Hills to the west.

2.1.2 Vegetation and Other Land Cover

During biological surveys in 2022 and 2023, the western portion of the BSA encompassing the proposed utility switchyard and alternate green hydrogen site was dominated by a disked field on the eastern side and an active orchard to the west with a transmission line that runs across the southwestern corner of the parcel. The surrounding habitat includes active and seasonally managed non-active agricultural fields to the north, east, and south with grassland to the west.

Crops other than orchards that were cultivated in 2023 represent isolated activity that was only feasible as the result of an unusually wet winter season, and the Project site is otherwise comprised completely of lands that have been retired from agricultural cultivation or are orchards. No crop fields such as alfalfa, wheat, or other grain field occur within the BSA or within the surrounding landscape. The Project site occurs within a region that has limited water availability due to the critically overdrafted groundwater subbasin. As a result, the entire region is predominantly retired agricultural lands that are disked or no longer in production.

2.2 Sensitive Biological Resources

The sensitive biological resources that have potential to occur specifically within the proposed utility switchyard and alternate green hydrogen site are outlined in Table 1 (Rincon 2023c). No sensitive biological resources were identified in this area during the 2022 or 2023 surveys.

Table 1 Special-Status Wildlife Species with the Potential to Occur in the BSA of the Utility Switchyard and Alternate Green Hydrogen Site

Common Name	Scientific Name	Agency Status (Federal/State/Other)	Potential to Occur within the Utility Switchyard or Alternate Green Hydrogen Site[1]
Reptiles			
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	–/–/SSC	Low Potential
Birds			
burrowing owl	*Athene cunicularia*	–/–/SSC	High Potential (nesting, foraging)
loggerhead shrike	*Lanius ludovicianus*	–/–/SSC	High Potential (foraging), No Potential (nesting)
yellow warbler	*Setophaga petechia*	–/–/SSC	High Potential (migration) No Potential (nesting)
Mammals			
American badger	*Taxidea taxus*	–/–/SSC	High Potential
San Joaquin kit fox	*Vulpes macrotis mutica*	FE/ST/–	Moderate Potential

[1]Avian species observed foraging on the Project site or passing through during their migration during biological resources surveys, but which have either no or low potential to nest on the Project site: loggerhead shrike and and yellow warbler.

FE = Federally Endangered, ST = State Threatened, SSC = CDFW Species of Special Concern

Source: California Natural Diversity Database (CNDDB) (Fresno County), May 2021

3 Management Strategy

3.1 Pre-construction Surveys

3.1.1 Burrowing Species Surveys

Preconstruction surveys for burrowing species shall be conducted by a Qualified Biologist for the presence of San Joaquin kit fox and American badger prior to commencement of construction activities in all areas with potential to support these species. This survey shall be conducted no more than 30 days prior to ground disturbing activities without prior agency approval. The surveys can be staggered to match the different construction phases and locations to reduce the need to re-survey any given area. The surveys shall be conducted in areas of suitable habitat for each species. Surveys shall conform to United States Fish and Wildlife Service (USFWS) guidelines for San Joaquin kit fox and to industry standards for American badger. Specific survey requirements for burrowing owl are discussed in the Burrowing Owl Management Plan (Rincon 2024b).

If work is halted in a given area for 30 days or greater, pre-construction surveys will be repeated in work areas that are not fully cleared of vegetation following the initial pre-construction survey until all vegetation is cleared. Once vegetation is cleared and construction is ongoing, no additional surveys will be needed as monitoring will be conducted during on-going activities.

Where special-status species habitat (e.g., burrows/dens) are known to occur and there is a potential for significant impacts, a Qualified Biologist will monitor construction activities to ensure that impacts to special-status species are avoided and minimized (as described in Section 3.2 *Construction Monitoring*).

3.1.2 Nesting Bird Surveys

If construction is scheduled to commence during the non-breeding season (September 1 to January 31), no pre-construction surveys or additional measures for nesting birds or other raptors shall be required. Prior to ground disturbing and vegetation removal activities that are initiated during the breeding season (February 1 to August 31), a Qualified Wildlife Biologist shall conduct preconstruction surveys of all potential nesting habitats within the Project area. The raptor survey shall focus on potential nest sites (e.g., owl boxes, large trees, windrows, and shrubs) within 500 feet of the site for common raptors. Nesting bird surveys shall be conducted within 14 days of the start of ground-disturbing or vegetation removal activities. Surveys need not be conducted for the entire Project area at one time and may be conducted in phases consistent with construction activity schedules. Specific survey requirements for Swainson's Hawk are discussed in the Swainson's Hawk Conservation Strategy (Rincon 2023b).

The surveying biologist shall be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance.

3.2 Construction Monitoring

A qualified biologist will be on-site to conduct full-time biological monitoring at the utility switchyard and, if developed, the alternate green hydrogen site during all initial construction activities including mobilization, vegetation grubbing and clearing, site grading, trimming and/or

removal of trees or other vegetation, and fence installation. During construction monitoring, qualified biologists will conduct morning sweeps of the work areas, inspect avoidance buffers, confirm that ground disturbance activities and impacts occur within designated limits, watch for special-status species within the work area, and confirm appropriate avoidance and minimization measures are implemented. Once vegetation is cleared and all initial ground disturbance has occurred, weekly spot checks of the utility switchyard and alternate green hydrogen site will be conducted to continue to ensure appropriate avoidance and minimization measures are implemented.

The qualified biologist's monitoring responsibilities will also include monitoring active nests and burrows/dens to determine if the recommended buffer is effective during active work in proximity to the nest or burrow/den. The nest and burrows/dens will be visited weekly at a minimum, but frequency will vary depending on Project activity and location. Nests and burrows/dens will be monitored until a final outcome is determined (e.g., the nest or burrow/den becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the Project), or for the duration of Project activities in proximity to the nest or burrow/den (based on the species-specific buffer), whichever occurs first. At a minimum, the following information will be documented for each burrow/den or nest:

- Date nest or burrow/den first observed/detected
- Species
- Status (e.g., nest building, incubating, brooding, young rearing, unoccupied)
- Distance of the nest to Project activities
- Type of Project activity occurring within the vicinity of the nest or burrow/den
- Recommended buffer size including modifications to buffer size

3.3 Avoidance Buffers

3.3.1 San Joaquin Kit Fox

If San Joaquin kit fox occurs in the Project site, work within 500 feet of the animal will be halted until the animal leaves the area, as determined by the Qualified Biologist.

3.3.2 American Badger

If potential American badger dens are observed at any point during pre-construction surveys or construction and avoidance is feasible, buffer distances of 50 feet for occupied dens and 250-foot, no-disturbance buffers for natal dens shall be established by the Qualified Biologist prior to construction activities.

If avoidance of the potential American badger dens is not feasible, the following measures are recommended to minimize potential adverse effects to the American badger:

- If a Qualified Biologist determines that potential dens are inactive, the biologist shall excavate the dens by hand with a shovel and collapse them to prevent American badgers from re-using them during construction.
- If the Qualified Biologist determines that potential dens may be active, the biologist shall conduct remote camera monitoring of the den for a period of three consecutive days to confirm occupancy status. If the Qualified Biologist determines that a den is an active natal den,

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Buffers shall be determined by the Qualified Biologist and be established based on the species and nest location, to allow for known species' behavior and environmental factors (e.g., line of sight to nest) when establishing avoidance buffers. Standard buffers are typically 200 to 500 feet for common raptors and 30 to 50 feet for most common passerines but may be larger if necessary to prevent disturbance of nesting activity, based on species sensitivity. No access into buffer areas shall be allowed until a Qualified Biologist has determined that the nestlings have fledged and are no longer reliant on the nest or the nest has become otherwise inactive (e.g., depredation). Encroachment into the buffer for common species may occur at the discretion of a Qualified Biologist and with the appropriate biological monitoring to ensure no disruption of nesting activity; however, for State-listed or FP species, CDFW shall be consulted for approval of buffer encroachment or reduction. Specific buffers for Swainson's hawk and burrowing owl are discussed in the Swainson's Hawk Conservation Strategy (Rincon 2023b) and Burrowing Owl Management Plan (Rincon 2024b), respectively.

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The Qualified Biologist will have relevant experience with the taxa and species in the Central Valley and San Joaquin Valley for which pre-construction surveys, monitoring, or other support is required during Project construction. The Qualified Biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa.

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- The program shall include the contact information for the Project's environmental compliance manager.

- The program shall provide information on how and where to bring injured animals for treatment in the case any animals are injured the Project area.
- An acknowledgement form signed by each worker indicating that WEAP training has been completed shall be kept on record.
- A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the WEAP training, and copies of the signed acknowledgement forms will be made available upon agency request.

3.6 General Avoidance and Minimization Measures

The following general avoidance and minimization measures shall be implemented:

- Designation of a 15 mile per hour speed limit in all construction areas.
- All vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas, and clearing of vegetation for vehicle access shall be avoided to the greatest extent feasible.
- The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the goal of the Project.
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- Washout areas shall be designed to fully contain polluted water and materials for subsequent removal from the site.
- Drip pans shall be placed under all stationary vehicles and mechanical equipment that have leaking or discharging lubricants or other fluid.
- All carrion shall be removed from the Project site prior to and during construction.
- All trash, including carrion, shall be placed in sealed containers and shall be removed from the Project site a minimum of once per week.
- No pets are permitted on the Project site during construction.
- All pipes or other construction materials or supplies shall be covered or capped in storage or laydown areas. No pipes or tubing shall be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials shall be inspected for wildlife before it is moved, buried, or capped.
- Project-related excavations shall be secured to prevent wildlife entry and entrapment. Holes and trenches shall be backfilled, securely covered, or fenced. Excavations that cannot be fully secured shall incorporate wildlife ramp or other means to allow trapped animals to escape. At the end of each workday, a biological monitor shall ensure that excavations have been secured or provided with appropriate means for wildlife escape.

3.7 Reporting

During construction, monthly reports will be prepared to document compliance with all applicable measures and conditions The reports will summarize the results of surveys and biological monitoring and will document non-compliance events and the corrective actions taken to address those events. Reports will document any instances of sensitive resources being impacted as a result of Project activity. The record of compliance and documentation of impacts to biological resources

will be the metrics by which the success of mitigation will be evaluated and documented in the compliance reports.

4 References

Fresno, County of. 2000. General Plan Update. Draft Environmental Impact Report.

Rincon Consultants, Inc. 2023a. Darden Clean Energy Project California Energy Commission Application, Section 5.12 Biological Resources. October 2023.

_____. 2023b. Darden Clean Energy Project Swainson's Hawk Conservation Strategy. October 2023.

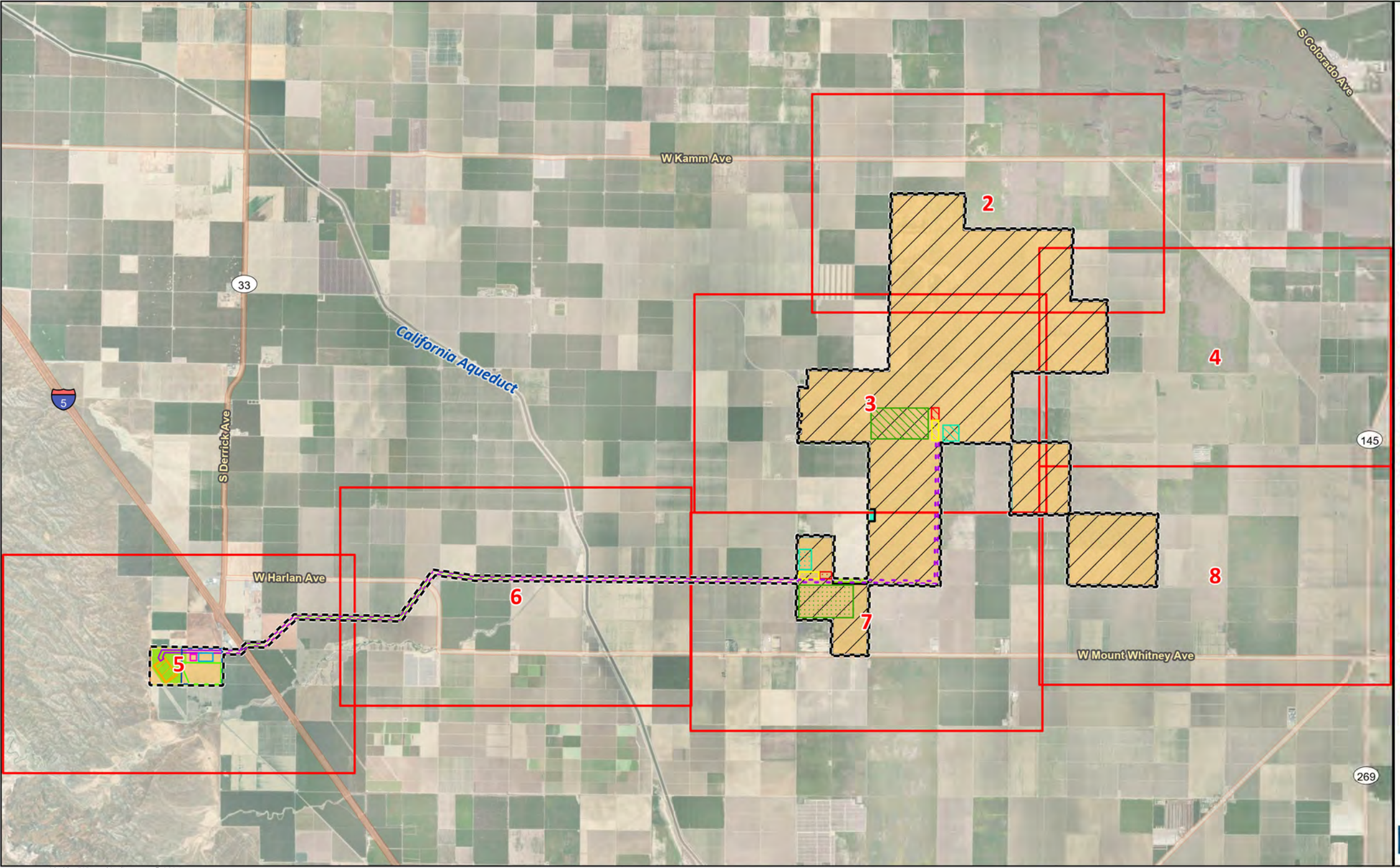
_____. 2023c. Darden Clean Energy Project Biological Resources Assessment. October 2023.

_____. 2024a. Darden Clean Energy Project PV and Gen-tie Biological Resources Management Plan. April 2024.

_____. 2024b. Darden Clean Energy Project Burrowing Owl Management Plan. May 2024.

Appendix E

DR BIO-18 Land Cover Maps



Darden Clean Energy Project

Fresno County, California

- 1 Mapbook Page
- 100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agriculture
- Orchard
- Grassland
- Open Water
- Developed

Project Components

- Solar Facility
- Utility Switchyard
- Utility Switchyard Parcel
- Gen-Tie Line ROW

Option 1

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation
- Gen-Tie Line ROW Extension

Option 2

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation

Alternate Green Hydrogen Site

- Green Hydrogen Facility
- Green Hydrogen Substation
- Green Hydrogen Switchyard
- Green Hydrogen Parcels

0 0.75 1.5 Miles N

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Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Unclassified

Non-Active Agricultural Fields

Orchard

Project Components

Solar Facility

0 1,000 2,000 N

Feet

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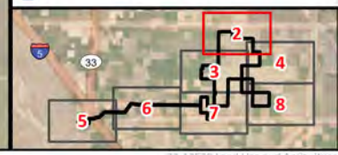

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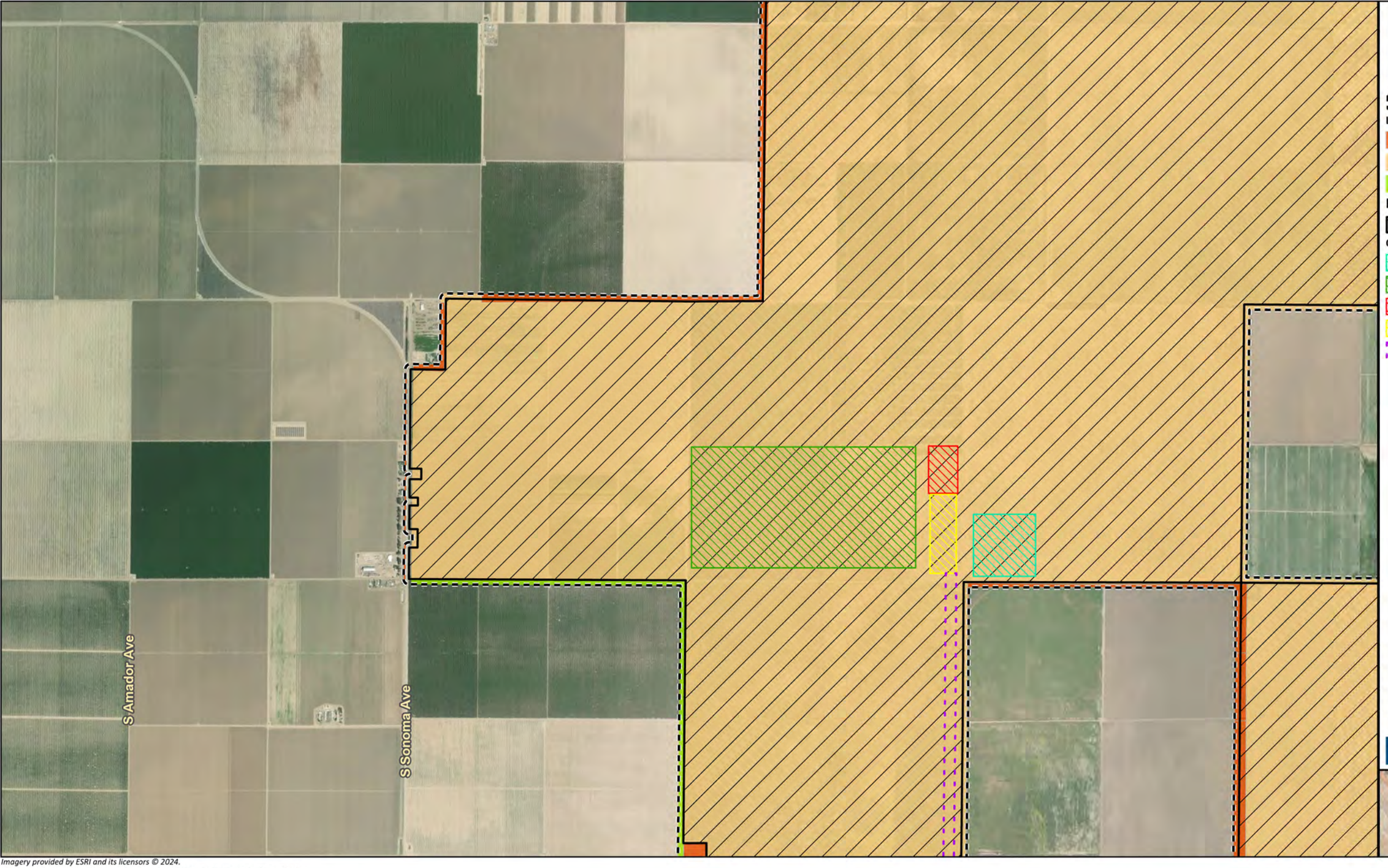
Additional data provided by the California Department of Conservation, CNRA, 2020.



Darden Clean Energy Project

Fresno County, California

- 100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

Project Components

- Solar Facility

Option 1

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation
- Gen-Tie Line ROW Extension

0 1,000 2,000 N
Feet

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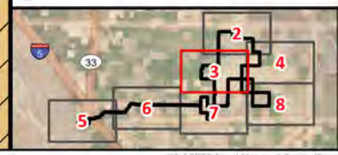

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

Project Components

- Solar Facility

0 1,000 2,000 N

Feet

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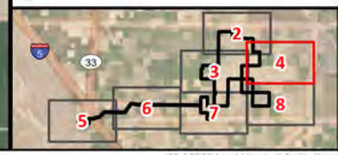

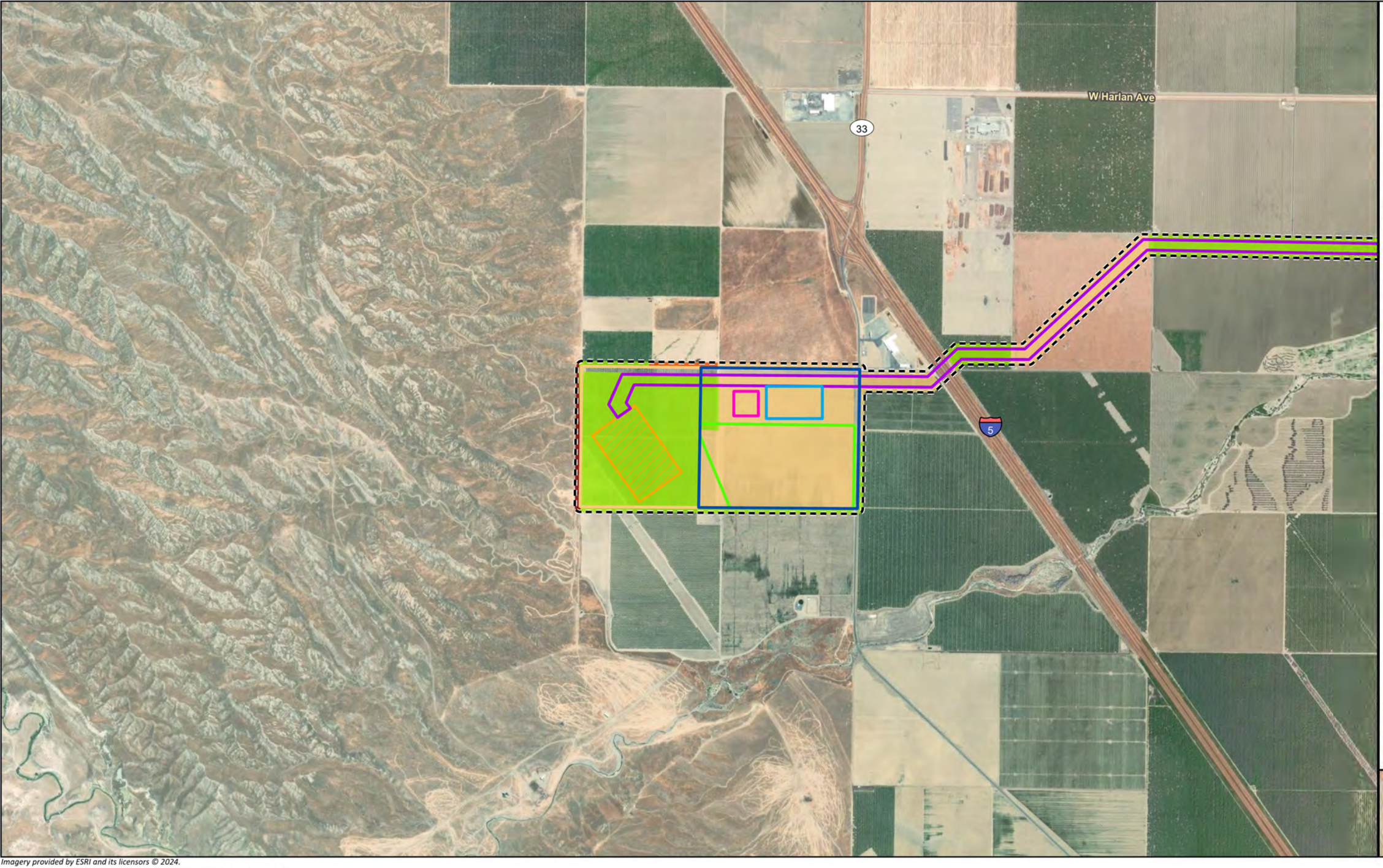

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard
- Grassland

Project Components

- Utility Switchyard
- Utility Switchyard Parcel
- Gen-Tie Line ROW

Alternate Green Hydrogen Site

- Green Hydrogen Facility
- Green Hydrogen Substation
- Green Hydrogen Switchyard
- Green Hydrogen Parcels

0 1,000 2,000 N

Feet

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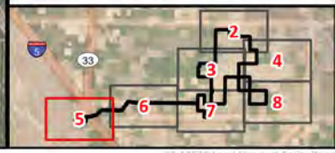

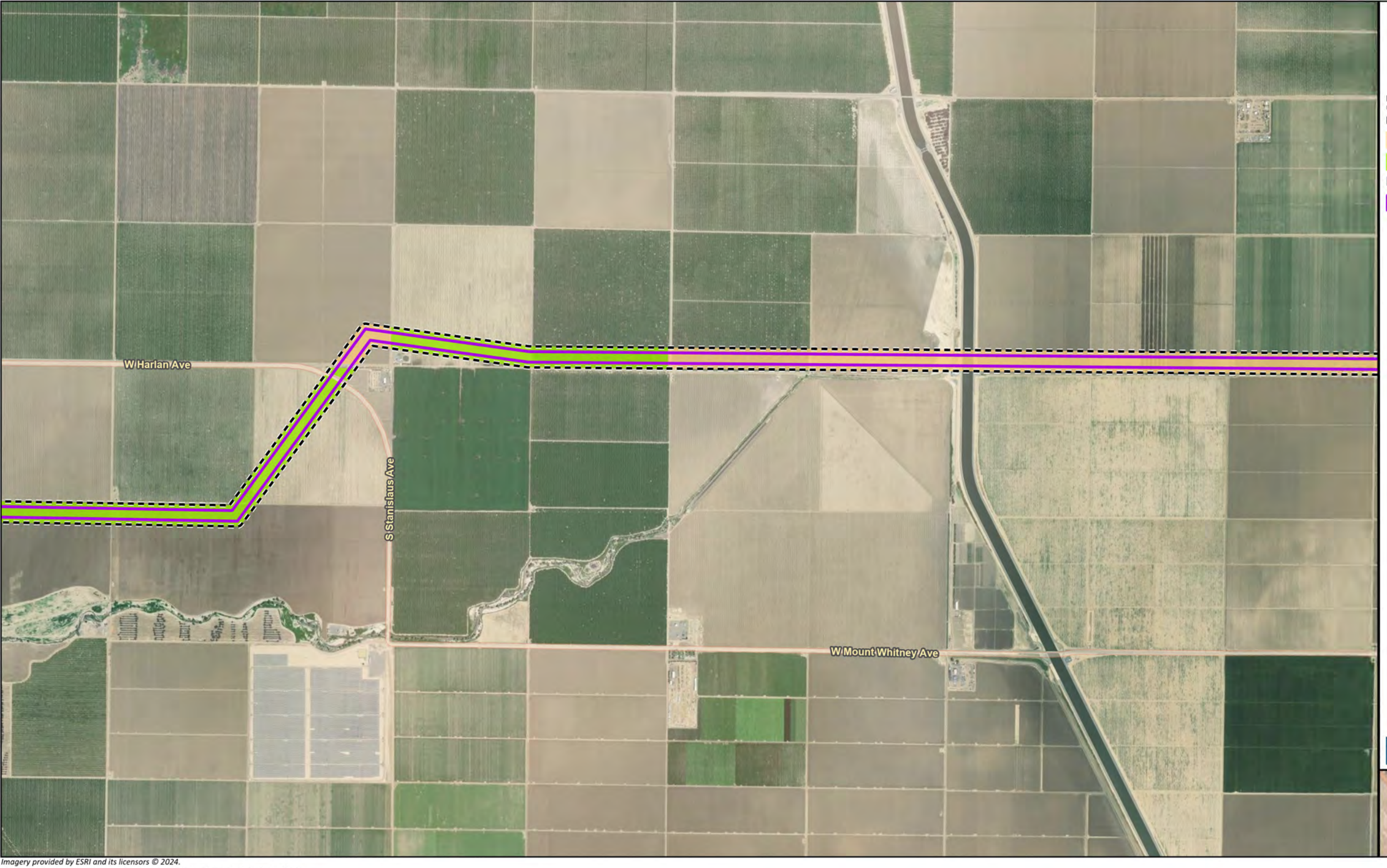

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Non-Active Agricultural Fields

Orchard

Project Components

Gen-Tie Line ROW

0 1,000 2,000 N

Feet

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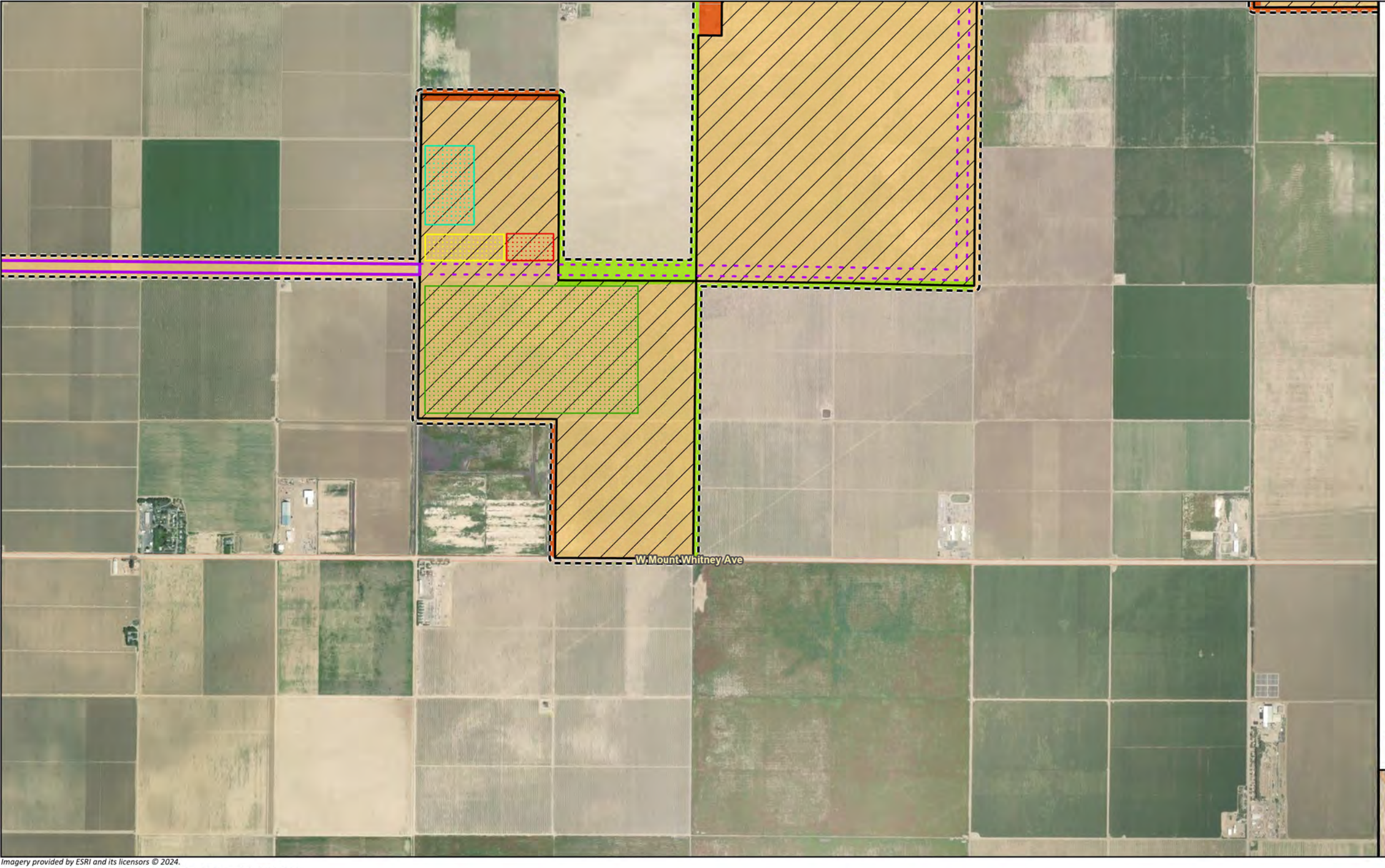
22-12530 Land Use and Agriculture
Fig X Land Cover Types



Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

Project Components

- Solar Facility
- Gen-Tie Line ROW

Option 1

- Gen-Tie Line ROW Extension

Option 2

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation

0 1,000 2,000 N

Feet

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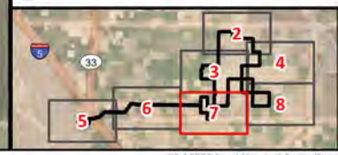


Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Unclassified

Non-Active Agricultural Fields

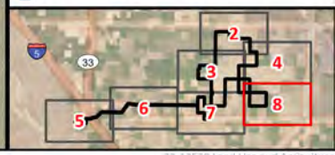
Project Components

Solar Facility

0 1,000 2,000 N

Feet

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers



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Additional data provided by the California Department of Conservation, CNRA, 2020.

22-12530 Land Use and Agriculture
Fig X Land Cover Types

Appendix F

DR BIO-20 Model Parameters and Assumptions

DR-BIO 20 Model Parameters, Assumptions, and Results

Model Parameters and Assumptions

The Project includes emergency backup generators and fire pump engines, which would operate during major power supply failures and to ensure the safe and reliable shutdown of the green hydrogen facility. Criteria air pollutant emissions would be generated during the operation of emergency backup generators and fire pump engines, including nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulates (PM10 and PM2.5). The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was used to assess nitrogen. The AERMOD regulatory non-default options for total, wet and dry deposition algorithms were implemented into the model. Additional Project assumptions include:

- Nitrogen emission sources are associated with emergency generator and/or fire pump engine use during emergency Project operations, including:
  - Two Power Solutions Int'l (PSI) 8800CAC Emergency Generator Sets, LPG-fired, 150-electrical kilowatt (ekW) rated. One will be located at either step up substation Option 1 or 2 located within the PV solar facility footprint. The other will be located at the step down substation (also referred to as the green hydrogen substation) at the alternate green hydrogen site on the west side of Interstate 5.
  - Two CAT C18 Fire Pump Engine, diesel-fired, 447-eKW rated. The equipment will be located at one of the three options for the green hydrogen facility (Option 1 and Option 2 are located in the PV solar facility footprint; the alternate is located west of Interstate 5). This equipment is assumed to meet Tier 3 emissions standards.
  - Two CAT C18 Emergency Generator Set, diesel-fired, 600-eKW rated. The equipment will also be located at one of the three options for the green hydrogen facility (Option 1 and Option 2 are located in the PV solar facility footprint; the alternate is located west of Interstate 5). This equipment is assumed to meet Tier 4 emissions standards.
- AERMOD source groups were designed for each of the Project generator/fire pump locations described above (Option 1 and Option 2 locations within the PV solar facility footprint, and the alternate green hydrogen site on the west side of Interstate 5). A source group "All" was also implemented to present a maximally conservative impacts approach, which assumes the combined operation of the equipment for each option (i.e., source duplication). The source group "All" is a conservative assessment since the emergency generators and fire pump engine will not occur at every option location, but only at the step up substation and/or the green hydrogen facility that is developed.
- A polar receptor grid was designed to capture the requested 6-mile radius from the Project site. This was accomplished by designated a center point between all Project options and creating a radius that extends beyond each potential source by at least 6 miles.
- The land use in the region is currently mixed but primarily agricultural or rural/undeveloped. The "Land Use Category" of "2 – Agricultural Land" in AERMOD was selected.

- A 100 percent conversion of NO_x and ammonia (NH_3) into atmospherically derived nitrogen (ADN or nitrogen). This conversion is assumed to occur within the engine stacks rather than in the atmosphere (which would occur over greater distances and time). Therefore, once emissions leave the engine stacks, nitrogen immediately begins to deposit in the surrounding lands.
- Nitric acid (HNO_3) has a strong affinity for impacts to soils and vegetation and was used for the AERMOD source gas particle inputs, including:
  - The molecular diffusivity (D_a) = 0.1628 centimeters squared per second (cm^2/s)
  - The diffusivity in water (D_w) = 2.98×10^{-5} cm^2/s
  - The cuticular resistance = 1.0×10^5 seconds per centimeter (s/cm)
  - The Henry's Law constant = 8.0×10^{-8} Pascal-meters cubed per mole ($Pa\text{-}m^3/mol$)
- AERMOD model default values for deposition velocities, gas deposition parameters and seasonal categories were applied.
- The model assumed an annual averaging period.
- The same meteorology file used for air permitting (Mendota MM5) was used in this AERMOD run.

The emissions calculations were based on the 100-percent conversion to nitrogen during combustion and the equipment operating for 100 hours per year, which is consistent with the annual hourly operation assumption included in the preliminary draft air permit application prepared for the Project. Ammonia is a product of combustion with equipment having selective catalytic reduction (SCR) equipment. The liquified petroleum gas (LPG)-fired and diesel-fired generators are assumed to be equipped with SCR. The diesel fire pump engine is expected to meet Tier 3 standards (without SCR equipped); however, it was also assumed to have NH_3 emissions from an SCR, should the design change to Tier 4 in the future. This assumption that all equipment would result in ammonia generation from use of a SCR results in a conservative estimation of nitrogen deposition.

The AERMOD model calculates atmospheric deposition of nitrogen by calculating the wet and dry fluxes of total nitrogen. This deposition is accomplished by using a resistance model for the dry deposition part, and by assigning particle phase washout coefficients for the wet removal process from rainout. As discussed above, depositional parameters for HNO_3 are input into the model to calculate the deposition of nitrogen. AERMOD sums the results of the wet and dry nitrogen deposition to produce annual deposition rates in units of grams per square meter (g/m^2) for the entire 5-year meteorological period modeled, which are converted to kilograms per hectare per year (kg/ha/yr) in response to DR BIO-20.

Model Results

The 6-mile radius from the Project site that was assessed in the nitrogen deposition model includes the agricultural areas within the western San Joaquin Valley, as well as non-native grassland, sand dune, freshwater emergent wetland, and riparian habitats. The non-native grassland within the Ciervo Hills west of the utility switchyard and alternate green hydrogen site footprint is located approximately 4,000 feet west of the proposed engine locations associated with the alternate green hydrogen facility. Monvero Dunes is an isolated dune habitat within the Ciervo Hills and located

approximately 5.5 miles northwest of the alternate green hydrogen site footprint. Cantua Creek and associated riparian corridor flows from within the Ciervo Hills to the California Aqueduct and runs roughly parallel to and approximately 200 feet south of the gen-tie line corridor at its nearest point. Freshwater emergent wetland habitat occurs within the Fresno Slough, located approximately 1.1 miles northeast of the solar facility footprint. As these non-agricultural areas cover a variety of elevations and distances, the annual average deposition rates calculated for all receptors modeled were used for comparison to threshold levels. The maximum Project impacts of nitrogen deposition rates for source group "All" would be 0.684 kg/ha/yr immediately adjacent to the source(s) within the boundaries of the Project site.

"Critical loads" are nitrogen deposition accumulation thresholds below which there are no discernible effects on plant diversity or soil nutrient levels. The critical load for freshwater wetlands ranges from 2.7-13 kg/ha/yr,[1] and the critical load for California grasslands ranges from 5-10 kg/ha/yr.[2] A threshold at which harmful effects from nitrogen deposition on dune, stream or riparian plant communities has not been firmly established; however, a value of 5 kg/ha/yr is often used for comparing nitrogen deposition among plant communities.[3] The Project is situated in an area of California that is typically exposed to average nitrogen deposition levels of approximately 7 to 9 kg/ha/yr.[4] The results of the nitrogen deposition model indicate the average nitrogen deposition rates using the source group "All" conservative approach would be on the order of 1.0 x 10^{-5} kg/ha/yr in the non-native grassland, dune and freshwater emergent wetland habitats and 1.0 x 10^{-4} kg/ha/yr along the Cantua Creek aquatic habitat and riparian corridor. Based on the defined critical loads the maximum and average levels of nitrogen deposition from the Project in these non-agricultural vegetation communities are well below levels that would significantly affect vegetation communities in the vicinity of the Project site. Therefore, the maximum levels of nitrogen deposition from the Project are also well below levels that would significantly affect special status species that may occur within these vegetation communities.

The quantity of nitrogen deposition from the Project emissions on vegetation would, in practice, be less than the model results because the assumptions modeled are inherently conservative (e.g., assuming the emergency backup generators and fire pump engines are duplicated at all potential locations and are running at the same time). The nitrogen deposition would also be distributed incrementally throughout a year and not all nitrogen added to the soil during each deposition event would be available for plant use because of losses associated with soil processes. As a result, operation of the Project's emergency backup generators and fire pump engines would not lead to nitrogen deposition levels that exceed critical thresholds associated with significant impacts to non-

[1] Pardo, L.H., M.J. Robin-Abbott, and C.T. Driscoll. 2011. Assessment of Nitrogen Deposition Effects and Empirical Critical Loads of Nitrogen for Ecoregions of the United States. Gen. Tech. Rep. NRS-80. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 291 p.

[2] Fenn, M.E., E.B. Allen, S.B. Weiss, S. Jovan, L.H. Geiser, G.S. Tonnesen, R.F. Johnson, L.E. Rao, B.S. Gimeno, F. Yuan, T. Meixner, and A. Bytnerowicz. 2010. Nitrogen Critical Loads and Management Alternatives for N-Impacted Ecosystems in California. J. of Env. Management 91: 2404-2423.

[3] Weiss, S.B. 2006. Impacts of Nitrogen Deposition on California Ecosystems and Biodiversity. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-165.

[4] Fenn, M.E., E.B. Allen, S.B. Weiss, S. Jovan, L.H. Geiser, G.S. Tonnesen, R.F. Johnson, L.E. Rao, B.S. Gimeno, F. Yuan, T. Meixner, and A. Bytnerowicz. 2010. Nitrogen Critical Loads and Management Alternatives for N-Impacted Ecosystems in California. J. of Env. Management 91: 2404-2423.

native grassland, dune or riparian vegetation communities in the vicinity of the Project site or special status species that may occur within the vegetation communities. Therefore, operation of the Project's emergency backup generators and fire pump engines would result in less than significant impacts to natural vegetation communities and special status species within 6 miles of equipment operation.

Darden Clean Energy Project

Equipment Summary

Engine Information

Engine No.	Make / Model	Location	# of Units	Size (ekW)	Size (bhp)	Fuel	Reference File Name
1A	Power Solutions Int'l (PSI) 8800CAC (LPG) Emergency Generator Set	Step Up Substation Option 1	1	150	262	LPG	Oberon MTU GS150 submittal file Rev. 1.pdf
1B		Step Up Substation Option 2	1	150	262		
2		Step Down Substation	1	150	262		
3A	CAT C18 Fire Pump Engine	Option 1	2	400	536	Diesel	C18FP_EM0067 Perf Data.pdf
3B		Option 2	2	400	536		
3C		Option 3	2	400	536		
4A	CAT C18 Diesel Emergency Generator Set	Option 1	2	600	805	Diesel	600kw C18_LEHE1581-02.pdf
4B		Option 2	2	600	805		
4C		Option 3	2	600	805		

Notes: ekW = electrical kilowatts; bhp = brake horsepower; LPG = liquified petroleum gas

Emission Rates

				NOx Emission Factor (g/bhp-hr)		VOC Emission Factor (g/bhp-hr)		CO Emission Factor (g/bhp-hr)		SOx Emission Factor (g/bhp-hr)		PM Emission Factor (g/bhp-hr)		NH3	CO2	CH4	N2O
Engine No.	Emission Factors Source	Max Daily Hours	Max Annual Hours	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Controlled		g/bhp-hr	
1A, 1B, 2	Spec Sheets	1	100	n/a	1	n/a	0.7	n/a	2	n/a	n/a	n/a	n/a	n/a	*	*	*
3A, 3B, 3C	US EPA Tier 3	1	100	2.85	2.85	0.15	0.15	2.6	2.6	2.05E-03	2.05E-03	0.15	0.15	n/a	568	0.023	0.005
4A, 4B, 4C	US EPA Tier 2 / Tier 4	1	100	4.56	0.5	0.24	0.14	2.6	2.6	2.05E-03	2.05E-03	0.15	0.022	n/a	568	0.023	0.005

Notes: US EPA = United States Environmental Protection Agency; NOx = oxides of nitrogen; VOC = volatile organic compounds; CO = carbon monoxide; SOx = sulfur oxides; PM = particulate matter; NH3 = ammonia; CO2 = carbon dioxide; CH4 = methane; N2O = nitrous oxides; g/bhp-hr = grams per brake horsepower-hour

* The LPG engine has emission factors based on fuel flow rates as provided by the US EPA's 2023 Emission Factor for Greenhouse Gas Inventories. The engine fuel consumption at 100% rating is 695 ft3/hr (or 19.7 m3/hr).

Per Table A of Appendix A of SCAQMD's *Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Threshold* s, for Electric Generation, PM10 is 96% of Total PM and PM2.5 is 93.7% of Total PM. For the Fire Pump Engines, PM10 is 97.6% of Total PM and PM2.5 is 96.7% of Total PM

SOx Factors from AP-42 Table 3.3-1

Stack Parameters

Engine No.	SJVAPCD Source ID	UTM X	UTM Y	Release Height (m)	Stack Diameter (m)	Temp (K)	Gas Velocity (m/s)	Gas Flow Rate (cfm)
1A	275_DE	749650	4040200	2.43	0.12	795.31	50.25	1204.2
1B	275_DE	746900	4036800	2.43	0.12	795.31	50.25	1204.2
2	275_DE	733300	4034400	2.43	0.12	795.31	50.25	1204.2
3A	600_DE	748500	4040200	3.71	0.16	793.56	92.45	3938.6
3B	600_DE	747100	4036100	3.71	0.16	793.56	92.45	3938.6
3C	600_DE	733300	4034100	3.71	0.16	793.56	92.45	3938.6
4A	825_DE	748500	4040200	6.07	0.19	784.00	87.68	5267.5
4B	825_DE	747100	4036100	6.07	0.19	784.00	87.68	5267.5
4C	825_DE	733300	4034100	6.07	0.19	784.00	87.68	5267.5

Notes: m = meters; m/s = meters per second; cfm = cubic feet per minute

SJVAPCD stack parameters provided via email on 2/15/2024.

UTM = Universal Transvers Mercator Coordinate; coordinate locations are based on assumed equipment locations.

Darden Clean Energy Project

Ammonia Calculations for Nitrogen Deposition Modeling

CARB NH3 Limit Assumed: 10 ppm

Ammonia (NH3) emissions calculations are based off of the "Stack Flow Method" provided at the following reference.
Ref: https://www4.des.state.nh.us/OneStopPub/Air/3300900021FY07-0091TypeCalculations.pdf

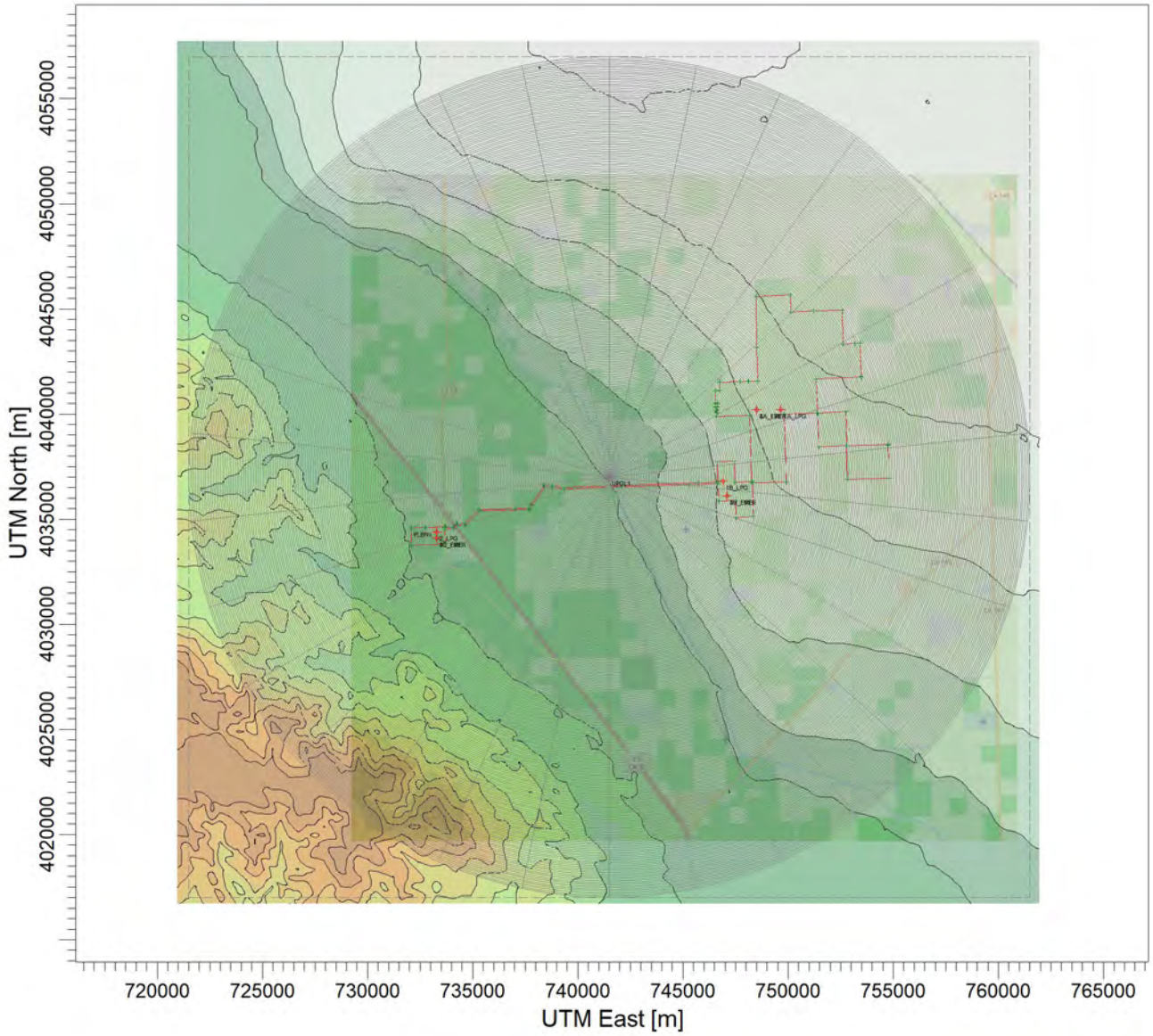
Constants:
10 ppm = 10 ft3/1,000,000 ft3 stack flow
1 lb mole NH3 = 385.3 ft3 NH3
17 lb NH3 = 1 lb-mole NH3

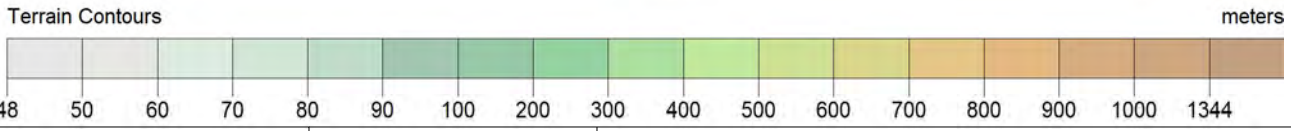
Engine No.	Make / Model	Location	NH3 Limit (ppm)	Stack Flow Rate (ft3/min)	Emissions NH3 (lb/hr)	Emissions NH3 (lb/yr)	Emissions NOx (lb/yr)	Emissions ADN (lb/yr)	Annualized g/s for AERMOD
1A	Power Solutions Int'l (PSI)	Step Up Substation Option 1	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
1B	8800CAC (LPG) Emergency	Step Up Substation Option 2	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
2	Generator Set	Step Down Substation	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
3A		Option 1	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
3B	CAT C18 Fire Pump Engine	Option 2	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
3C		Option 3	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
4A		Option 1	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
4B	CAT C18 Diesel Emergency Gener	Option 2	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
4C		Option 3	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
Notes:					**Total per Option (tpy):**	**0.02**	**0.50**	**0.51**	

ADN = atmospherically derived nitrogen; NH3 = ammonia; NOx = oxides of nitrogen; ppm = part per million; ft3/min = cubic feet per minute; lb/hr = pounds per hour; lb/yr = pounds per year; g/s = grams per second
It was assumed that all equipment are potential sources of NH3 emissions. NOx emissions are calculated for the air quality study and imported here to determine ADN.
The stack flow rates are based off of information provided by the SJVAPCD.
The annualized g/s for AERMOD column is the data enterred into the air dispersion model.

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Model Setup Overview

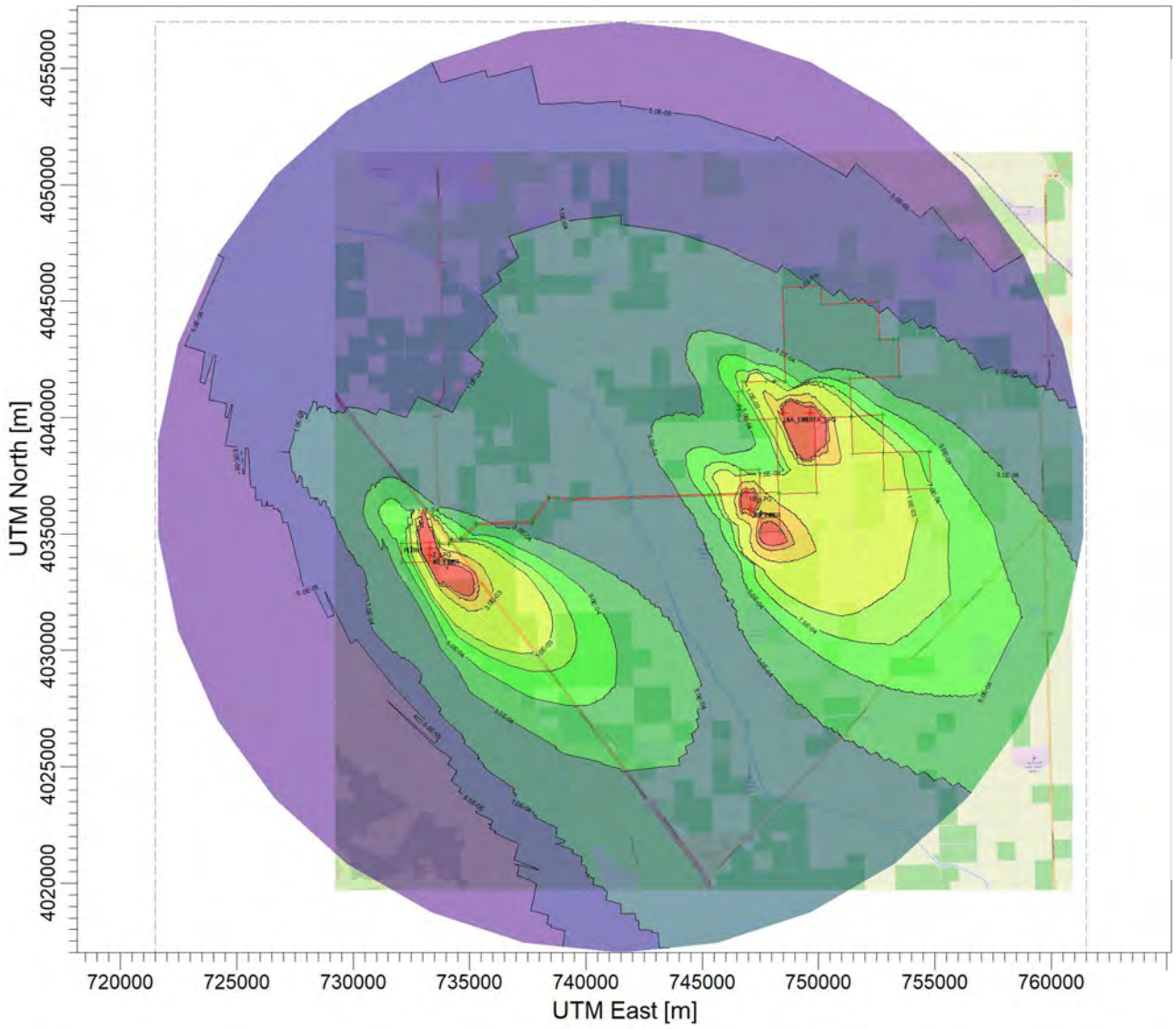




COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
		SCALE: 1:320,862 0 10 km	
		DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
ALL Project Options



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL g/m^2

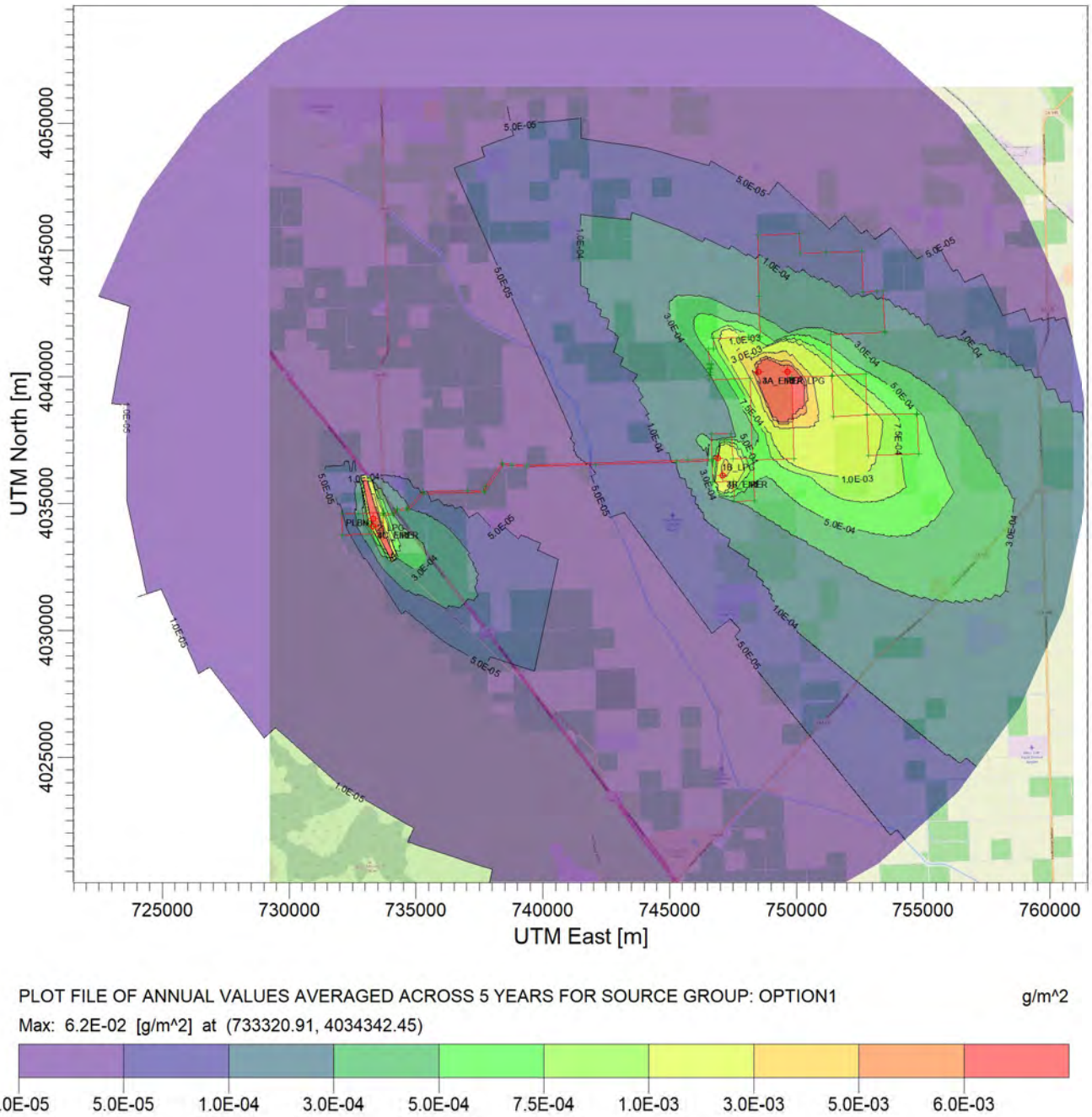
Max: 6.8E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:295,761 0 10 km	
	MAX: **6.8E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

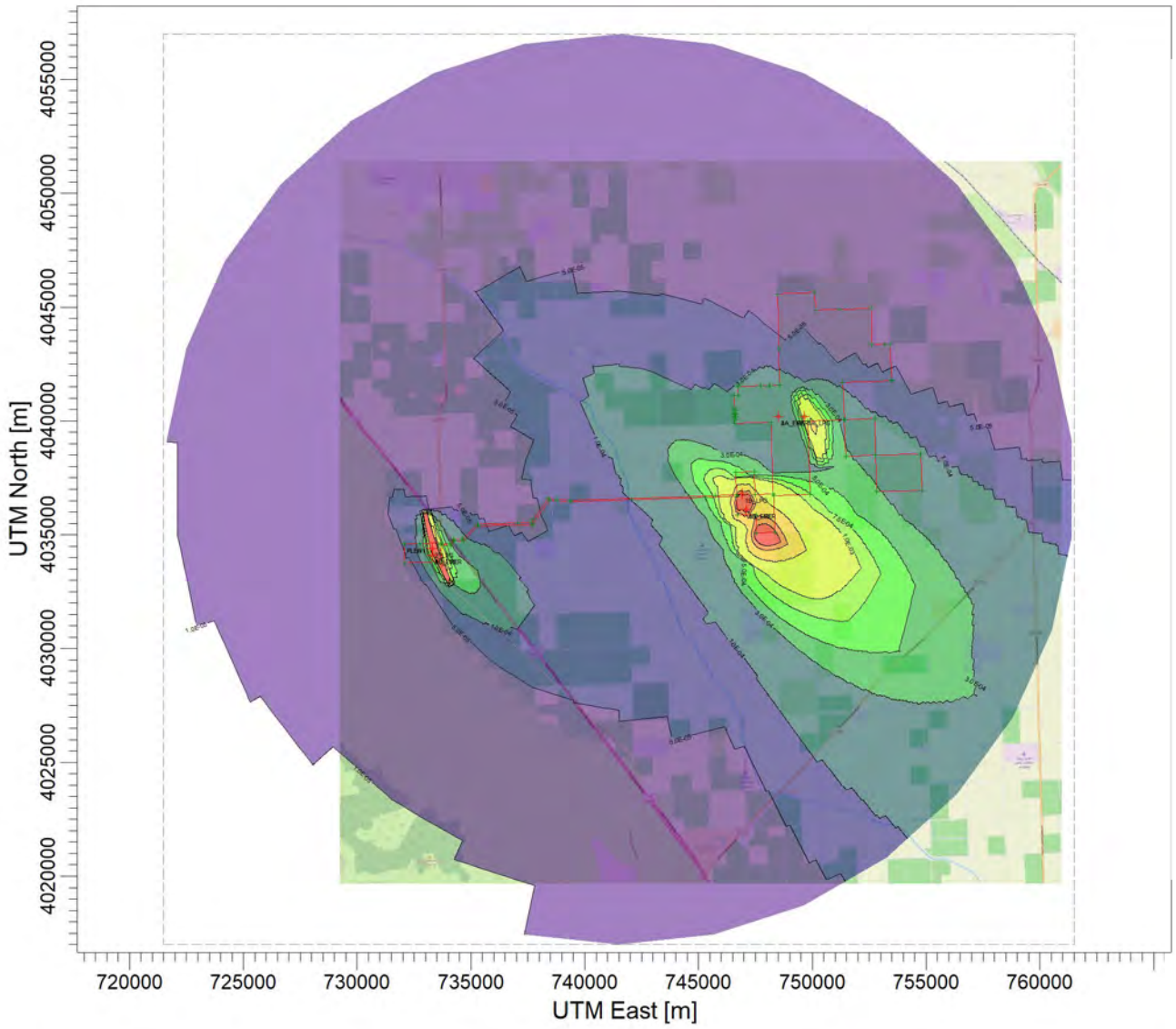
Darden Clean Energy Project Nitrogen Deposition
Project Option 1



COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:251,566 0 5 km	
	MAX: **6.2E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Project Option 2



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: OPTION2 g/m^2

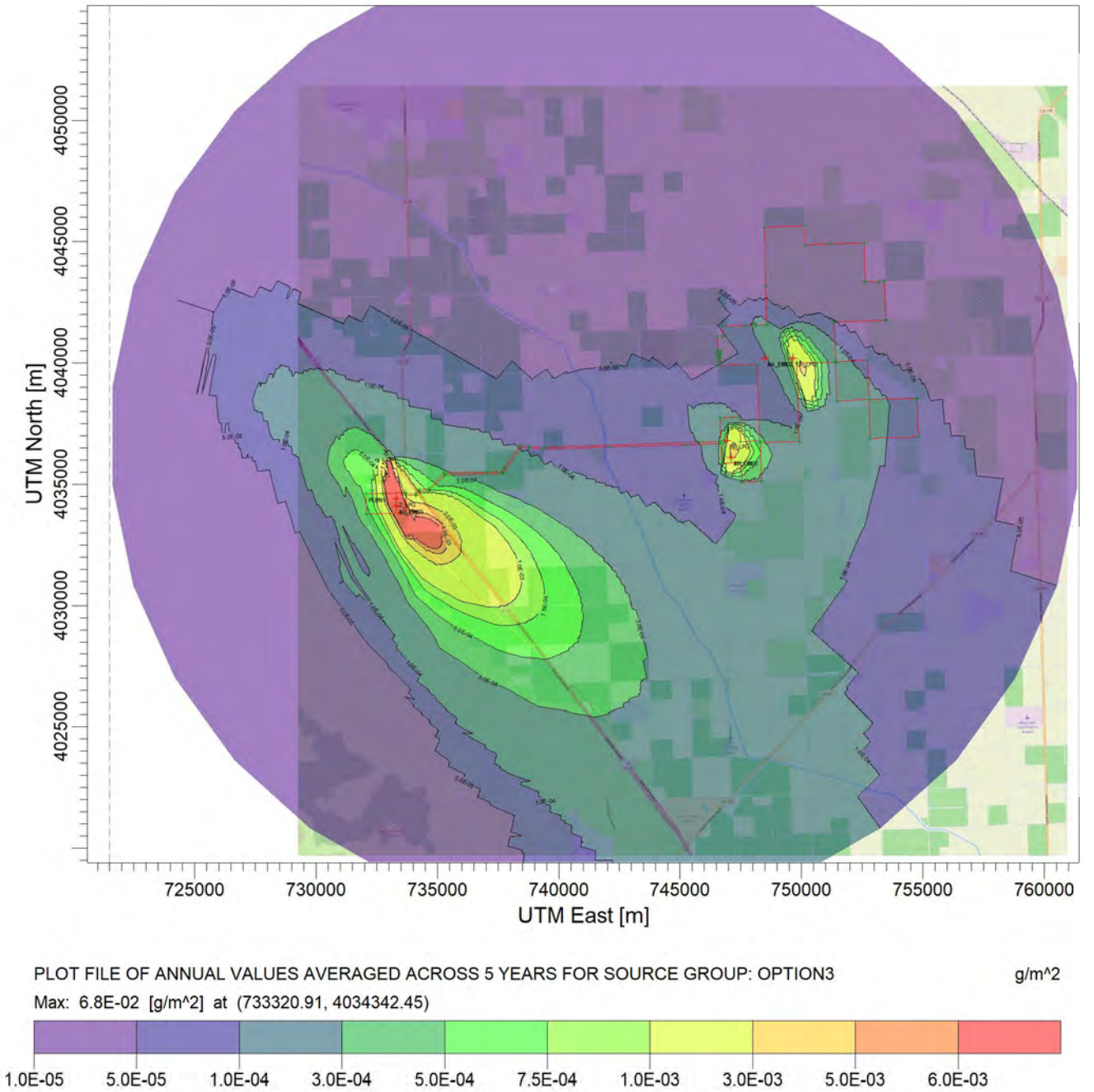
Max: 6.2E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:302,379 0 10 km	
	MAX: **6.2E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Project Option 3



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: OPTION3 g/m^2

Max: 6.8E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:257,025 0 5 km	
	MAX: **6.8E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

Appendix G

DR BIO-23 CNDDB Form Data Tables

Swainson's Hawk Nesting Observations

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	3			2 Adult, 1 Juvenile	Nesting	Incubating, one fledgling in nest, 2nd adult seen in the tree	Seen	0.22 miles north of W Davis Ave and S Sonoma Ave interesection, approx 150 ft east of S Sonoma Ave	-120.248579	36.4757391	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking			Multiple Survey Dates: 4/12/23, 5/4/23, 6/12/23, and 7/12/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	3			2 Adult, 1 Juvenile	Nesting	Incubation, adult on nest; another adult foraging nearby	Seen	800 ft N of S. Napa Ave and Harlan Ave Intersection, on the west side of Napa Ave	-120.2297183	36.44379081	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow land that has become non-native grassland		Fallow land that is regularly disked	Possible disking			Multiple Survey Dates: 6/13/23, 7/12/23	
Morgan Craig	mcraig@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	4			2 Adult, 2 Juvenile	Nesting	Two separate adults seen at edge of nest; two fledglings	Seen	235 ft S of the S Colusa Ave and W Harlan Ave intersection	-120.1938171	36.44312582	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 4/17/23, 5/3/23, 6/13/23, 7/12/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	4			2 Adult, 1 Subadult, 1 Juvenile	Nesting	Fledging in nest, adults guarding. Subadult observed nearby.	Seen	0.22 miles south of the W. Cerini Ave and S El Dorado Ave intersection	-120.212207	36.45549196	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			Multiple Survey Dates: 5/1/23, 6/12/23, and 7/12/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Two adults observed copulating and approaching nest after	Seen	0.28 miles north east from intersection of Cantua Creek and S. Monterey Ave, along the creek bank	-120.3705611	36.42316483	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards and rural development				Multiple Survey Dates: 5/2/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			2 Adult	Nesting	Pair of adults perched in a tree near a nest	Seen	0.19 miles SE of W Manning Ave and S Levee Rd Intersection, along west bank of Fresno Slough	-120.2182758	36.59998218	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards and rural development				Multiple Survey Dates: 5/1/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			2 Adult	Nesting	Female on nest and another adult perched near the nest	Seen	645 ft NW of S Levee Rd and W Dinuba Ave intersection, on the west bank of Fresno Slough	-120.2145155	36.58928223	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting grassland and orchards				Multiple Survey Dates: 5/2/23, 6/14/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Two adults perched in tree around a nest	Seen	0.28 miles E of intersection of W Clarkson Ave and S San Mateo Ave, approx. 160 ft south side of W Clarkson Ave	-120.3111661	36.50090651	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Trees in rural development		Rural development				Multiple Survey Dates: 5/1/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			1 Adult, 1 Juvenile	Nesting	Nestling heard crying; One adult incubating observed	Seen, heard	650 ft E of W Jeffery Ave and S San Mateo Ave, just S of W Jeffery Ave	-120.3178554	36.37042812	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	3			1 Adult, 2 Juvenile	Nesting	Adult sitting in nest; Two fledglings in nest	Seen	0.35 miles SE of the intersection of W Summer Ave and W Adams Ave, on the east side of James Bypass in tree area surrounded by grassland	-120.1484209	36.62184042	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Grassland		renaturalized fallow				Multiple Survey Dates: 5/1/23, 6/12/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	2			2 Adult	Nesting	One adult sitting in nest. One adult perched nearby.	Seen	521 ft NW of intersection of Colorado Rd and W Huntsman Ave, in tree on east side of Colorado Rd	-120.15342	36.58286562	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Larger tree in Orchard		Orchard	Machinery use likely			Multiple Survey Dates: 5/2/23, 6/12/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	1			1 Adult	Nesting	One adult perched near nest	Seen	0.3 miles E ofintersection of Colorado Rd and W Floral Rd, in windbreak trees on south side of Floral Rd	-120.1365615	36.57449352	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded rural development and orchards		Windbreak				Multiple Survey Dates: 5/1/23, 6/12/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Possibly nesting	Nest in sparse eucalyptus. Two adults observed sitting on pole next to nest tree.	Seen	985 ft SW of intersection of W Paige Ave and S Napa Ave, on the west side of an unmarked dirt road	-120.2311269	36.38311683	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked and rural development		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/13/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/03/23	2			2 Adult	Possibly nesting	Adult pair observed, nest unknown	Seen	Approx 150 ft E of the intersection of W Manning Ave and S Madera Ave, north side of W Manning Ave	-120.060866	36.60378919	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Larger tree bordering an orchard		Orchard	Potential nearby disking/ machinery use				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Nest with two adults perched in the tree	Seen	0.36 SE of where S Lassen Ave crosses Stinson Canal	-120.0948516	36.48202922	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting fallow land that is regularly disked	Potential nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/15/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			2 Adult	Nesting	Observed adult fly over twice. Potentially heard chick calls. Cannot see into nest; Earlier date: Copulation observed. Pair taking over GHOW nest	Seen, potentially heard	0.2 miles SW from the intersection of W Paige Ave and S Amador Rd, on west side of canal	-120.2694626	36.38277572	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Grassland		Grassland and fallow land that is regularly disked				Multiple Survey Dates: 5/3/23, 6/13/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Large stick nest with adult perched in tree	Seen	approx. 707 ft W/NW of S Lassen Ave and W Kramm Ave intersection	-120.1001882	36.53218627	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Trees in rural development		Rural development				Multiple Survey Dates: 5/2/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	3			2 Adult, 1 Juvenile	Nesting	Two adults separately observed, one on the nest and one at the edge of the nest; one fledgling. 5/2 Adult sitting on nest	Seen	0.52 miles west of W Mount Whitney Ave and S Sonoma Ave intersection, north side of W Mount Whitney Ave	-120.2568613	36.42933122	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development and fallow land that is regularly disked		Windbreak	Likely disking/ machinery use nearby			Multiple Survey Dates: 5/2/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Nest building; copulation and nest material carry observed	Seen	273 ft SW of W Mount Whitney and S Amador Rd intersection	-120.2661708	36.42830207	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development and fallow land that is regularly disked		Windbreak	Likely disking/ machinery use nearby				
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			1 Adult, 1 Juvenile	Nesting	Adult observed returning to nest. Potential food carry. Adult observed carrying materials to nest; one fledgling	Seen	0.23 miles N/ NE of S Colusa Ave and W Laguna Ave intersection	-120.1931956	36.4182025	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak	Likely disking/ machinery use nearby				
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			1 Adult, 1 Juvenile	Nesting	Adult and fledgling observed in nest	Seen	0.31 miles N/ NE of S Colusa Ave and W Laguna Ave intersection	-120.1931975	36.41933261	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak	Likely disking/ machinery use nearby				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	1			1 Adult	Nesting	Adult SWHA sitting in nest	Seen	0.68 miles SW of where S Dover Ave crosses Murphy Slough, E side of Fresno slough	-119.9981631	36.46768447	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/fallow land that is regularly disked				Multiple Survey Dates: 5/3/23, 6/15/23	

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats Landowner	Comments	Other
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			2 Adult	Nesting	One adult in nest, one adult perched in tree	Seen	E bank of Fresno Slough, 0.29 miles S of Elkhorn and W Elkhorn merge/cross Fresno Slough	-120.0016765	36.48223975	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/fallo w land that is regularly disked			Multiple Survey Dates: 5/3/23, 6/15/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/03/23	2			2 Adult	Nesting	One adult sitting in nest, one adult perched in tree.	Seen	370 ft S/SE of where W Conejo Ave dead-ends at Fresno Slough, east slough bank	-120.053072	36.5162144	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting fallow land that is regularly disked and orchards			Multiple Survey Dates: 5/3/23, 6/15/23	
Shannon Morris	smorris@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			1 Adult, 1 Juvenile	Nesting	Adult in nest; fledgling seen sitting on nest	Seen	520 ft NE of W Excelsior Ave and S Lassen Ave interesection	-120.1024393	36.40179604	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak			Multiple Survey Dates: 5/3/23, 6/15/23	
Shannon Morris	smorris@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	3			2 Adult, 1 Juvenile	Nesting	Two adults - one in nest and one sitting on tree; Nestling observed in nest	Seen	485 ft NW of W Ford Ave and S Lassen Intersection;	-120.1048032	36.31413501	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by grassland and rural development		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	2			2 Adult	Nesting	Adult pair observed in tree near nest; Earlier date: courting behaviors observed	Seen	0.23 miles SE of W Oakland Ave and S Siskiyou Ave intersection	-120.0817266	36.34115591	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 5/4/23, 6/15/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	2			2 Adult	Nesting	One adult on nest, the other on a pole	Seen	610 ft NE of W Jeffrey Ave and S Lassen Ave interesection	-120.1022417	36.37303786	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 5/4/23, 6/15/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	1			1 Adult	Nesting	Adult observed on top of tree	Seen	0.58 miles E of S Derrick Ave and W Conejo intersection, on north side of W Conejo Ave	-120.3787588	36.51619052	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, orchards, grassland, and fallow land that is regularly disked		Windbreak				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Adult pair sitting in tree near nest	Seen	0.53 miles E of S Contra Costa Ave and W Parlier intersection, on south side of W Parlier Ave	-120.2412576	36.60983302	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Lone stand of trees		Fallow land that is regularly disked, abutting orchards				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	1			1 Adult	Nesting	1 adult on nest	Seen	930 ft N/NE of W Clarkson Ave and S El Dorado Ave intersection	-120.2055993	36.50428563	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Tree abutting small rural development, surrounded by disked fields		Rural development surrounded by fallow land	Disking			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	2			1 Adult, 1 Juvenile	Nesting	1 adult in nest; 1 fledgling on nest 5/1/23: Adult observed at nest 4/17/23: Unoccupied nest observed in tree in northern portion of northernmost Eucalyptus tree line. A pair of Swainson's hawks observed in the vicinity. Previous survey 4/4: Adult observed perched in line of Eucalyptus	Seen	0.5 miles SE of W Davis Ave and S Npapa Ave intersection	-120.2210289	36.47139846	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 4/4/23, 4/17/23. 5/1/23, 6/13/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	1			1 Adult	Nesting	Adult observed flying overhead of nest	Seen	0.25 miles SE of W Lincoln Ave and S Denver Ave	-120.2307692	36.64324097	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Single tree surrounded by rural development and fallow land that is regularly disked		Fallow land that is regularly disked				
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Possibly Nesting	Observed one adult fly out of a eucalyptus, too high to see possible nest	Seen	350 ft S of W Elkhorn Ave and S Howard Ave intersection, on west side of S Howard Ave	-120.0313757	36.48422837	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded orchards and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Nesting	One adult female sitting in nest that previously had a GHOW	Seen	0.8 mile E of W Cerini Ave and S Howard Ave intersection, N side of W Cerini Ave	-120.0458241	36.4589954	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, orchards, and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Nesting	One adult perched in tree near nest	Seen	0.38 mile SW of W Cerini Ave and S Dover Ave intersection, east bank of Fresno Slough	-119.9924082	36.45682295	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked				
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/16/23	2			2 Adult	Nesting	One adult in nest, one perched next to it. In a cottonwood.	Seen	0.52 miles east of W Mount Whitney Ave and S Siskiyou Ave intersection, on north side of W Mount Whitney Ave	-120.0755962	36.43002575	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded rural development, orchards,and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	2			2 Adult	Nesting	Two adults guarding nest	Seen	0.6 mile SE of W Davis Ave and S Napa Ave intersection	-120.2214236	36.46556538	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/05/23	20			Adult	Foraging	Group of ~20 adults observed foraging in recently disked field	Seen	.24 mile E of interesection of W Cerini Ave and S Colusa Ave, on south side of W Cerini Ave	-120.198301	36.458159	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Disked field		Fallow	Disking			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/03/23	2			2 Adult	Courtship behaviors	2 adults observed displaying courtship behaviors and perched in cottonwood tree	Seen	Tree on bank of Cantua Creek, 0.26 mile NW of the intersection of W Mount Whitney Ave and S Stanilaus Ave	-120.343024	36.429429	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/04/23				Adult	Foraging	Group of foraging adults observed in field behind tractor as it was being disked	Seen	0.21 mile NE of intersection of S Sonoma and W Davis Ave	-120.24491	36.474319	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow /disked land		Fallow agriculture	Disking			

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/11/23	2			2 Adult	Flying	Adult pair observed flying overhead	Seen	Above bank of Cantua Creek, 0.43 mile NE of S Oil City Ave and W Mount Whitney Ave intersection	-120.34895	36.430162	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked					
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	5/1/2023	2			2 Adult	Perched	Adult pair observed near beginning of a nest	Seen	Tree on south bank of Cantua Creek, 426 ft NE of the intersection of W Mount Whitney Ave and S Stanilaus Ave	-120.3367667	36.428929	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ regularly disked fallow land					
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	5/12/2023	1			1 Adult	Foraging	One adult observed foraging in field of mustard (Brassica nigra) near Eucalyptus tree line	Seen	0.33 mile SW of W Cerini Ave and S El Dorado Ave intersection	-120.21671	36.455162	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow field		Fallow agriculture	Disking				

Special Status Species Observations

Observer Name*	Observer Contact*	SciName*	ComName	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM_zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	0.4 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1861878	36.48761709	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	flock (unknown)			adult	foraging	foraging	seen	0.4 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1861798	36.48762269	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	13			adult	foraging	foraging	seen	0.23 mile E of intersection of W Clarkson Ave and S Colusa Ave	-120.184515	36.50203251	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	2/22/2023	flock (unknown)			adult	foraging	foraging	seen	0.43 mile SE of intersection of W Conejo Ave and S Colusa Ave	-120.181125	36.51447216	WGS84	10	ArcGIS Field Maps		biological monitoring				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	3			2 adult, 1 juvenile	foraging	foraging	seen	0.5 mile E of intersection of S San Mateo Ave and Harlan Ave	-120.3113122	36.44324478	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	1			adult	foraging	foraging	seen	0.24 mile W of intersection of W Mt. Whitney Ave and S Sonoma Ave	-120.252063	36.42904675	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	8/30/2023	2			adult	roosting	roosting	seen	0.5 mile N of intersection of W Mt. Whitney Ave and S Sonoma Ave	-120.247144	36.436111	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	2			adult	foraging	foraging	seen	NE corner of intersection of W Davis Ave and S Colusa Ave	-120.193962	36.473204	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/4/2023	2			adult	foraging	foraging	seen	In eucalyptus trees 0.51 mile W of intersection of S El Dorado Ave and W Davis Ave	-120.221042	36.471244	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/5/2023	2			adult	foraging	foraging	seen	In eucalyptus trees 0.25 mile S of intersection of S El Dorado Ave and W Cerini Ave	-120.212081	36.454364	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	8/30/2023	1			adult	foraging	foraging	seen	0.87 mile NE of intersection of W Elkhorn Ave and S Yuba Ave	-120.166867	36.495191	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	3/30/2023	2			adult	foraging	foraging	seen	0.5 mile E of intersection of W Elkhorn Ave and S Yuba Ave	-120.168572	36.487511	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/14/2022	1			adult	flyover	flyover	seen	0.41 mile S of intersection of S Sonoma Ave and W Cerini Ave	-120.2478223	36.45212919	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Ardea alba*	great egret	Y	Sibley field guide	Confident	12/14/2022	1			adult	flyover	flyover	seen	0.41 mile S of intersection of S Sonoma Ave and W Cerini Ave	-120.2478223	36.45212919	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Immediately north of intersection of W Davis Ave and S Colusa Ave	-120.194061	36.47309272	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Falco mexicanus*	prairie falcon	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Flying over field approximately 0.39 mile NW of intersection of W Elkhorn Ave and S Colusa Ave	-120.201094	36.488289	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Immediately SW of intersection of El Dorado Ave and W Elkhorn Ave	-120.206214	36.487372	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	flyover	flyover	seen	0.16 mile E of intersection of W Clarkson Ave and S El Dorado Ave	-120.2041309	36.50198459	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	flyover	flyover	seen	0.44 mile W of intersection of W Clarkson Ave and S El Dorado Ave	-120.2148758	36.50194599	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	In tree located 0.43 mile W of intersection of W Conejo Ave and S Colusa Ave	-120.1962165	36.51667981	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo regalis*	ferruginous hawk	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	0.68 mile NW of intersection of W Clarkson Ave and S Yuba Ave	-120.179033	36.509269	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	2/22/2023	1			adult	foraging	foraging	seen	On electrical wires 0.1 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1809977	36.48771049	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	2/23/2023	1			adult	roosting	roosting	seen	In pipe near intersection of W Elkhorn Ave and S El Dorado Ave	-120.2120447	36.48737936	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/5/2023	2			adult	foraging	foraging	seen	0.38 mile S of intersection of W Harlan Ave and S El Dorado Ave	-120.211856	36.438058	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Circus hudsonius*	northern harrier	Y	Sibley field guide	Confident	4/5/2023	1			adult	foraging	foraging	seen	In field approximately 0.44 mile SE of intersection of W Cerini Ave and S Napa Ave	-120.2259	36.4527	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/12/2023	4			adult	foraging	foraging	seen	In field approximately 0.38 mile NW of intersection of W Elkhorn Ave and S Yuba Ave	-120.183903	36.491517	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Falco peregrinus*	peregrine falcon	Y	Sibley field guide	Confident	4/12/2023	1			adult	foraging	foraging	seen	In field approximately 0.46 mile NE of intersection of W Elkhorn Ave and S Yuba Ave	-120.175092	36.493361	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/17/2023	2			adult	mating	courting	seen	In field approximately 0.2 mile NW of intersection of W Davis Ave and S El Dorado Ave	-120.215558	36.473275	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Aquila chrysaetos*	golden eagle	Y	Sibley field guide	Confident	5/11/2023	1			adult	flyover	flyover	seen	Observed flying overhead. Observer was standing approximately 0.07 mile NW of intersection of W Elkhorn Ave and S El Dorado Ave	-120.213136	36.487833	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Elanus leucurus*	white-tailed kite	Y	Sibley field guide	Confident	5/24/2023	1			adult	foraging	foraging	seen	0.48 mile N of intersection of W Elkhorn Ave and S El Dorado Ave	-120.206926	36.494429	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				

Observer Name*	Observer Contact*	SciName*	ComName	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM_zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Shannon Morris	smorris@rinconconsultants.com	*Setophaga petechia*	yellow warbler	Y	Sibley field guide	Confident	8/24/2023	1			adult	foraging	foraging	seen	In cottonwood tree approximately 0.2 mile NE of intersection of W Clarkson Ave and S El Dorado Ave	-120.205445	36.50462	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	flock (unknown)			adult	foraging	foraging	seen	In field approximately 0.32 mile N of intersection of W Conejo Ave and S Yolo Ave	-120.216499	36.520872	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	flock (unknown)			adult	foraging	foraging	seen	In field approximately 0.39 mile SE of intersection of W Clarkson Ave and S El Dorado Ave	-120.202084	36.498	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	1			adult	foraging	foraging	seen	In field approximately 0.69 mile NE of intersection of W Clarkson Ave and S Napa Ave	-120.21606	36.508434	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Michael Hernandez	mhernandez@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	1/8/2024	1			adult	foraging	foraging	seen	On power line approximately 0.03 mile W of intersection of W Cerini Ave and S El Dorado Ave	-120.212575	36.457984	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Pooecetes gramineus affinis*	Oregon vesper sparrow	Y	Sibley field guide	Confident	8/24/2023	1			adult	foraging	singing	heard	Heard singing in field approximately 0.39 mile NE of intersection of W Cerini Ave and S Colusa Ave	-120.192297	36.463754	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	foraging	foraging	seen	Perched outside of open pipe approximately 0.60 mile W of intersection of W Harlan Ave and S Butte Ave	-120.168273	36.444048	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from burrow adjacent to road approximately 0.12 mile S of intersection of W Cerini Ave and S Butte Ave	-120.157038	36.456784	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from pipe adjacent to road approximately 0.24 mile S of intersection of W Cerini Ave and S Butte Ave	-120.157045	36.454989	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from pipe adjacent to road approximately 0.24 mile S of intersection of W Davis Ave and S Yuba Ave	-120.179208	36.469536	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	foraging	foraging	seen	Standing outside of open pipe near the NE corner of intersection of W Elkhorn Ave and S Napa Ave	-120.224811	36.487359	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from canal channel approximately 0.05 mile NW of intersection of W Cerini Ave and S Yuba Ave	-120.179947	36.458539	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
William Lawton	wlawton@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	In pipe adjacent to road approximately 0.23 mile S of intersection of W Davis Ave and S Yuba Ave	-120.179351	36.469634	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/19/2023	1			adult	foraging	foraging	seen	Perched outside burrow adjacent to road approximately 0.5 mile N of intersection of W Mt Whitney Ave and S Sonoma Ave	-120.24659	36.43620	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	2/17/2023	1			adult	foraging	foraging	seen	Perched along bank of canal approximately 0.04 mile S of intersection of W Elkhorn Ave and S Colusa Ave	-120.194121	36.48692	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Jessica Quinn	jquinn@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	6/5/2023	1			adult	foraging	foraging	seen	Standing along road at SE corner of intersection of W Cerini Ave and S Butte Ave	-120.15702	36.45843	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				

Appendix H

DR BIO-24 CDFW Correspondence

Christina Shushnar

From: Daniska, Kari@Wildlife [redacted]
Sent: Thursday, April 13, 2023 10:50 AM
To: Christina Shushnar; Swanberg, Carrie@Wildlife
Cc: Marisa Mitchell; Becky Moores; Logan Nonnez; David Daitch; Stephen Stringer
Subject: RE: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Hi Christina,

While the proposal you have outlined below may be sufficient to inform the CEQA document and impact analysis, CDFW recommends that to meet the minimum level of protection for the species, surveys be conducted for a ½ mile radius around all project activities using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) to identify survey timing and frequency.

Without a completed protocol species survey for at least the two survey periods immediately prior to a projects initiation, CDFW may not accept a determination of species absence on the project site.

I hope that clarifies my previous response. If not please feel free to contact me and we can discuss further.

Kari Kyler Daniska
Senior Environmental Scientist (Specialist)
Central Region Conservation & Renewable Energy Program
California Department of Fish and Wildlife
[redacted]

NEW for Rails, Roads, and Renewables!
[redacted]
(please use this email address for all permit-related submittals and administrative program questions)

California Department of
Fish and Wildlife

Personal Mission: Learn from the past, monitor the present, model the future.

From: Christina Shushnar [redacted]
Sent: Thursday, April 6, 2023 12:30 PM
To: Daniska, Kari@Wildlife [redacted] Swanberg, Carrie@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted] Stephen Stringer [redacted]
Subject: RE: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Hi Kari,

Apologies for not being more clear on the purpose of our earlier communication. We want to be sure we are aligned with CDFW on the approach so that we don't end up with results that CDFW is unable to rely on. Also, apologies for a bit of a lengthy communication here, but I think it is a good idea to have this fully spelled out.

Required Analyses - We have two separate analyses going on here: 1) Standard SWHA presence/absence surveys within ½-mile of the project for the analysis of direct impacts to nesting individuals; and 2) a SWHA nesting analysis within 10 miles of the project site, to inform the analysis of impacts to foraging habitat. Our intent was to develop a survey methodology that will result in data that can be applied to both analyses. Our goal now is to get some indication from you that the survey methodology is acceptable in the absence of clarity in the guidelines.

Survey Guideline Documents - In order to develop a combined survey approach, we have reviewed the two guidance documents pertinent to these analyses: 1) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys In California's Central Valley (SHTAC 2000); and 2) Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California (CDFW 1994).

> **SHTAC (2000)** - Our understanding from reviewing this material is that SHTAC (2000) does not explicitly specify the exact protocol to be followed, rather, the document states "*Surveys should be conducted in a manner that maximizes the potential to observe the adult Swainson's hawks, as well as the nest/chicks second,*" then specifies that "*To meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods **immediately prior** to a project's initiation,*" and then concludes that "*it is always recommended that surveys be completed in Periods II, III and V. Surveys should not be conducted in Period IV.*" It is important to note this protocol appears to specifically address the surveys that should be conducted immediately prior to the project initiation (i.e., too late to inform CEQA), and does not specify the preferred or recommended protocol for presence/absence survey conducted to support CEQA environmental review, well in advance of project implementation.
>
> **Staff Report (1994)** - The staff Report (CDFW 1994) does not specify any protocol, methodology or timing for completing surveys in support of foraging impacts analyses, stating only that "*Project applicants and CEQA Lead Agencies may also need to conduct site specific surveys (conducted by qualified biologists at the appropriate time of the year using approved protocols) to determine the status (location of nest sites, foraging areas, etc.) of listed species as part of the CEQA and 2081 Management Authorization process,*" and noting the various potential sources of existing data on known nest sites (e.g., CNDDB).
>
> **Protocol/Methodology** - So, with that background, we know the guidelines recommend six (6) surveys within ½-mile of the project site during various survey periods (per the SHTAC guidelines) for presence/absence, and we know from our SWHA specialist, Stephen Stringer, that SWHA survey methodology developed by Jim Estep (and accepted by CDFW) to support the foraging impacts analyses is comprised of two (2) surveys of a project site plus a 10-mile radius during specific survey periods, including Period IV. The surveys conducted during Period IV

for the foraging study largely consist of monitoring known prior documented nest sites and sites identified during the nest reconnaissance.

Our Proposed Methodology - We do feel that two of the presence/absence surveys can be completed concurrently with the foraging nest surveys, allowing us to complete a total of six (6) surveys to inform both impacts analyses (i.e., direct and foraging impacts). Of these six surveys, all would cover the project site, four (4) would include the area within ½-mile of the site, and the remaining two (2) surveys would include a 10-mile buffer of the project site (inclusive of full surveys within ½-mile of the project site).

We have selected the below survey windows to meet the intent of the SHTAC (2000) guidelines, and to meet the unpublished historic precedent for the foraging impact analysis surveys. We believe these six (6) surveys would provide good cover of the activity season and maximize the potential of observing both adults and chicks if/where present.

- Period II (March 20 - April 5) – 1 survey
- Period III (April 5 - April 20) – 2 surveys
- Period IV (April 21 - June 10) – 1 survey
- Period V (June 10 - July 30) – 2 surveys

We want to be sure we've been able to work through any potential concerns you may have with the proposed methodology, so that when complete, we can be confident that we're all in agreement that the results are based on sufficiently robust methodology to inform the impacts analyses. Please let us know if you have questions, if this methodology is consistent with your expectations, or if you feel this needs to be discussed further.

Thank you,

Christina Shushnar, Director – Natural Resources
[redacted]

Rincon Consultants, Inc.
Environmental Scientists | Planners | Engineers

Trusted | Fair | Transparent | Accountable | Disciplined | Entrepreneurial
Ranked 2021 "Best Environmental Services Firm to Work For" by Zweig Group
Out of Office Alert: April 28, May 4-5

From: Daniska, Kari@Wildlife [redacted]
Sent: Monday, March 20, 2023 9:15 AM
To: Christina Shushnar [redacted] Swanberg, Carrie@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted]
Subject: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Good morning, Christina-

Thank you for reaching out with the proposed survey schedule for SWHA nesting and foraging.

To meet the minimum level of protection for the species, CDFW recommends surveys be conducted for a ½ mile radius around all project activities using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) to identify survey timing and frequency.

Without a completed protocol species survey, CDFW may not accept a determination of species absence on the project site.

If you have any questions, please let me know.

Kari

From: Christina Shushnar [redacted]
Sent: Thursday, March 16, 2023 5:13 PM
To: Swanberg, Carrie@Wildlife [redacted] Daniska, Kari@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted]
Subject: Darden Clean Energy Project SWHA Survey Approach

Good afternoon,

Following up from our February 21 site walk at the Darden Clean Energy Project site, I wanted to provide an update that we plan to begin SWHA nesting and foraging surveys the first week in April. The primary intent of these surveys will be to determine presence/absence of active nests to inform impacts analyses for both nesting and foraging impacts. Our survey methodology is designed to conduct nesting and foraging surveys concurrently, and includes a total of 6 surveys as outlined below. This methodology was developed using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) and methods developed by Jim Estep and adapted for use on other large scale solar developments in the southern San Joaquin Valley (Fresno and Kings counties).

- Period II (March 20 - April 5) – 1 survey
- Period III (April 5 - April 20) – 2 surveys
- Period IV (April 21 - June 10) – 1 survey
- Period V (June 10 - July 30) – 2 surveys

Please let us know by March 24 if you have any concerns with this approach or if you'd like to set-up a time to discuss. If we do not receive a response by March 24, we will consider this approach approved and move forward with the surveys as outlined above.

Thank you,

Christina Shushnar, Director – Natural Resources
[redacted]

Out of Office Alert: March 22 – April 4, 2023

Appendix I

DR BIO-45 Agency Correspondence

Christina Shushnar

From: Logan Nonnez [redacted]
Sent: Wednesday, February 22, 2023 12:08 PM
To: Christina Shushnar; Brian Boroski; Becky Moores; [redacted] David Daitch; [redacted] Lindsey Sarquilla; Marisa Mitchell; [redacted]
Subject: [EXT] Darden Agency Site Walk Notes - Intersect Power
Attachments: Darden Agency Site Walk Notes_02212023.docx

Hi All,

Thank you so much for attending yesterday's site walk for the Darden Clean Energy Project. Attached are notes from the field. We appreciate getting everyone's eyes and perspectives on the site and we look forward to working with each of you as the project progresses.

Thank you,

Logan Nonnez
Environmental & Permitting Specialist
INTERSECT POWER
[redacted]

Darden Clean Energy Project
Agency Site Walk
02/21/2023

Attendees:

CDFW
Carrie Swanberg
Kari Daniska

Intersect Power
Marisa Mitchell
Becky Moores
Logan Nonnez

HT Harvey & Associates
Brian Boroski

Stringer Biological
Stephen Stringer

Rincon
Christina Shushnar

USFWS
Matthew Nelson

Notes From Each Stop:

Stop 1: SWITCHYARD

- Which tower numbers are we looping between on switchyard parcel? 4 towers transmission towers on/crossing parcel
  - APN: 045-160-24, 135 acres, Switchyard is 20 acres.
- CDFW
  - Need avoidance and minimization measures in place for switchyard parcel, we should "be ready" for kit foxes.
- USFWS
  - Implement standard avoidance and minimization measures.
- Brian
  - Concur with implementation of standard kit fox avoidance and minimization measures

Stop 2: CANTUA CREEK

- No comments from CDFW & USFWS

Stop 3: CENTRAL PV

- Two areas of Eucalyptus trees
  - CDFW: trees with Swainson's hawk nests and some surrounding trees should be left in place; some trees within the rows may still be removed.
  - IP preference is to take down, if we find nests then would have to call CDFW; potential is high for ITP if we want to remove trees containing previously active Swainson's hawk nests.

- 0.5 mile buffer for construction if a nest is found in trees during nesting season. Can build panels close to trees if left in, site specific set back requirements from CDFW.
    - Minimization or avoidance: could take out some trees, based upon a site specific analysis.
    - Compensatory Mitigation: HM lands with known occupied hawks on it. Ratio acreage average dependent on habitat impacted vs mitigation habitat conditions. Better mitigation habitat would lead to less acreage required. Mitigation average ratio would be dependent on acreage of nesting habitat removed.
    - Mitigation measures: 2 sets: one for ITP (fully mitigate) and one for CEQA (reduce impacts to less-than-significant). Applicable to the area we want coverage for.
    - ITP may be needed to remove previously active Swainson's hawk nests.
- IP Comments:
    - Potential need for shading structure analysis for trees, maybe we carve out areas near trees and leave to Westlands
    - Could mitigation banking credits be used in lieu of ITP as the Eucalyptus area is small, IP will look into this

Stop 4: NORTHERN PV

- Need better sense of where property boundaries are, as sensitive features are on borders
- CDFW says to address in CEQA doc that "burrowing owls may need to be excluded"

STOP 5: EAST PV

- No comments from group

Stop 6: AGRICULTURAL POND

- CDFW: 1602 desktop analysis for streams
- No ditches are jurisdictional, CDFW has permitted ag ditches before, but these likely don't meet definition for jurisdictional

OVERALL END OF SITE REVIEW:

- Swainson's hawks biggest concern
- Need to discuss kit fox mitigation measures with HT Harvey
- Most owls won't need to be relocated if no berm impacts - 50 meter buffer in winter typically

Meeting Notes

Darden Project – Swainson's Hawk Conservation Strategy Check-in
September 11, 2023

Attendees

CDFW	Larry Bonner, Julie Vance, Krista Tomlinson
Intersect Power	Marisa Mitchell, Becky Moores
Rincon Consultants	Dave Daitch, Christina Shushnar

- Intersect provided the Draft Darden SWHA Conservation Strategy in advance of the meeting

CDFW Comments on Draft Darden SWHA Conservation Strategy

- Expand the discussion on the status of the Central Valley population with more recent studies, if available
- CDFW has taken a position to not permit any decommissioning activities in ITPs because there are too many unknowns for an activity that may occur 30+ years out
- Cumulative impacts
    - Cumulative results are pending and will be included in the forthcoming Foraging Impacts Analysis Report
    - CDFW may have some specific thoughts that will help frame the cumulative impacts
    - Geographic and temporal limits should be stated
    - Cumulative study area should be focused on the resource being analyzed
- CDFW is looking for more detail regarding the proposed Research Component (Section 6.1), specifically regarding who will conduct the studies, the commitment for funding and funding amounts, and details regarding specific research questions, methods, and monitoring, if available
- The document is inconsistent on how it addresses tree preservation, stating in some places a commitment to preserve all trees, while other areas discuss possible exceptions to the commitment. CDFW is requesting we clarify the commitment and be specific about the situations in which a tree may have to be removed for safety.
- CDFW has requested more information on the work area buffers, IP clarified that we are in the process of developing a full list of construction and O&M activity and proposing specific buffers for all defined work activity
- CDFW requested more specific information on the nest tree planting and establishment. Specifically, CDFW has asked for more details on the following:
    - Proposed species
    - Number of trees proposed for planting
    - Success criteria (tree survivorship and survivorship timeline)
    - Monitoring duration (10 years was mentioned with every other year monitoring) with and without supplemental water

    - Specific information on tree establishment procedures and long-term management
    - Perpetual Success/Planting Plan

- CDFW had some questions regarding foraging habitat
    - Can we create rodent prey base without putting infrastructure at risk (wire chewing)? – this should not be an issue based on buried wires and use of conduit
    - What types of plants are going to be viable given the site conditions and goal of creating foraging habitat – IP is working on a suitable seed mix list
    - How does Crotches bumblebee fit into the habitat, now and in the future – the current habitat is not suitable for the species
    - Krista noted that she had a CV project that conducted experimental plantings and there may be useful information on species list for the site
        - Follow-up question for Krista: Could you please send the name and/or link to the project/study details for reference?
- CDFW expressed interest in the specifics of artificial nests and in studies that might document efficacy of those structures
- CDFW requested we revise the phrasing of “take” in section 3.3.2 and rephrase the last sentence of the first paragraph in section 5.4.1
- CDFW requested additional detail on distance of setbacks from preserved nest trees
- CDFW stated that the conservation strategy (inclusive of incorporating details requested during this call) achieves the fully mitigated standard with on-site mitigation as proposed and offsite compensatory mitigation would not be required for this project

Christina Shushnar

From: Becky Moores [redacted]
Sent: Friday, October 6, 2023 10:33 AM
To: [redacted] Tomlinson, Krista@Wildlife
Cc: Christina Shushnar; David Daitch; Marisa Mitchell; Vance, Julie@Wildlife
Subject: [EXT] RE: Intersect Power - Darden SWHA Conservation Strategy Comments
Attachments: 2023.09.11_Meeting Notes_Darden SWHA.docx

Hi Larry,

Attached are our notes from the call on September 11 that document our discussion and the items we are addressing to update the SWHA conservation strategy for the Darden project. Please let me know if you have any edits to the notes.

We will send you an updated conservation plan early next week for review. We are aiming to submit our CEC application package the week of 10/16.

Thank you,

Becky Moores
INTERSECT POWER
[redacted]

From: Becky Moores
Sent: Friday, September 29, 2023 10:41 AM
To: [redacted] Tomlinson, Krista@Wildlife [redacted]
Cc: [redacted] Dave Daitch [redacted] Marisa Mitchell [redacted] Vance, Julie@Wildlife [redacted]
Subject: Intersect Power - Darden SWHA Conservation Strategy Comments

Larry and Krista,

Could you please send the version of the Darden SWHA plan with your comments? We took notes during our last call but want to ensure we have incorporated all the of details from your requests.

Krista – you had mentioned a project you were involved in the central valley that conducted experimental plantings. Could you provide a name, reference, or report on those studies so we can look into the details of the seed mixes?

Larry – do you have availability next week to discuss the approach for cumulative impacts? Rincon has completed their analysis and we would like to ensure it is inclusive of the necessary details and analysis.

We intend to submit our CEC application on October 16 and would like to work with you to finalize our conservation strategy over the next two weeks. Is it best to reach out to Veronica to coordinate another meeting or two with this group?

Thank you,

Becky Moores
Director, Environmental & Permitting
INTERSECT POWER
[redacted]

Appendix J

DR BIO-47 Updated Section 5.12.5 Laws, Ordinances, Regulations, and Standards

DR BIO-47 Updated Section 5.12.5

5.12.5 Laws, Ordinances, Regulations, and Standards

This section lists and discusses the biological resource LORS that apply to the Project. Consistent with the CEC's Application for Certification requirements, all plans and policies applicable to the study area are summarized below. As discussed above, the Project site is entirely within unincorporated Fresno County. Table 5.12-2 summarizes the LORS relevant to the Project.

Table 5.12-1 LORS Applicable to Biological Resources

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Federal	Federal Endangered Species Act (ESA; 16 USC 1531 *et seq*.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Applicants for projects that could result in adverse impacts to any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS.	Throughout this Opt-In Application	The Project has low potential to impact federally listed species. The Project will include mitigation measures and plans to reduce impacts to those federally listed species with potential to occur to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
Federal	Migratory Bird Treaty Act (MBTA; 16 USC 703 to 711)	Protects all migratory birds, including nests and eggs.	Section 5.12.5.1	The Project would potentially impact migratory bird species. The Project will include mitigation measures and plans to reduce impacts to resident and migratory birds to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

[1] Mitigation Measures referenced here are described in detail in Section 5.12.3, Impact Analysis (*Mitigation Measures*), or in the referenced Plans.

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Federal	Bald and Golden Eagle Protection Act (16 USC 668)	Specifically prohibits the taking of bald and golden eagles, including their parts (feathers), nests, or eggs.	Section 5.12.5.1	The Project would potentially impact golden eagle foraging habitat, though such impacts would be less than significant. The Project's planned implementation of the following would ensure avoidance of impacts to incidental occurrences of golden eagles at or adjacent to the Project site: Mitigation Measures BIO-1, BIO-2, BIO-3; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
Federal	Clean Water Act (Section 404)	Authorizes the USACE to issue permits regulating the discharge of dredged or fill materials into waters of the U.S., defined as navigable waters, perennial and intermittent streams, lakes, rivers, ponds, as well as wetlands, marshes, and wet meadows.	Section 5.12.1	The Project is not anticipated to impact any waters of the U.S.
State	California Endangered Species Act (CESA; Fish and Game Code Section 2050 *et seq.*).	Designates and protects state threatened and endangered plants and animals and their habitats. Applicants for projects that could result in adverse impacts to any state listed species are required to consult with and mitigate potential impacts in consultation with CDFW.	Throughout this Opt-In Application	The Project would potentially impact state listed species. The Project will include mitigation measures and plans to reduce impacts to state listed species to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
State	Fish and Game Code Sections 3511, 4700, 5050, and 5515	Designates 33 species of wildlife as Fully Protected. Fully Protected species may not be taken or possessed, except under highly specific permit requirements.	Throughout this Opt-In Application	The Project is unlikely to impact any Fully Protected species; however, there is a low potential for impacts to blunt-nosed leopard lizard, white-tailed kite and golden eagle. The Project will include mitigation measures, plans, and/or permitting under Senate Bill 147 to reduce impacts to fully protected species to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-7, BIO-8; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
State	Fish and Game Code Sections 3503, 3503.5, 3513, and Senate Bill 147	Provides protection to native birds, specifically preventing the take, possession, or destruction of nests, eggs, birds-of-prey, and migratory non-game birds. Senate Bill 147 authorizes permitted take of Fully Protected species under specified project types, including Solar photovoltaic projects and appurtenant infrastructure improvements, including associated electric transmission projects to the point of grid interconnection.	Throughout this Opt-In Application	The Project would potentially impact native bird nests, eggs, birds-of-prey, or migratory non-game birds. The Project will include mitigation measures and plans to reduce impacts to native bird nests, eggs, birds-of-prey, or migratory non-game birds to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
State	Native Plant Protection Act (Fish and Game Code Section 1900 *et seq.*)	Authorizes the State to designate and protect certain native plants as endangered or rare. Take of endangered or rare native plants is generally prohibited, except under certain highly specific circumstances.	Throughout this Opt-In Application	The Project is not anticipated to impact any endangered or rare native plant species.
State	Fish and Game Code Section 1602 *et seq.*	Prohibits alteration of any lake, river, or stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFW.	Section 5.12.2	The Project is not anticipated to impact any State jurisdictional aquatic resources.
State	California Environmental Quality Act	CEQA requires state and local agencies to identify the environmental impacts of proposed projects and consider alternatives and mitigation measures prior to approving them.	Section 5.12.3	The Project's Opt-In Application analysis and process is CEQA equivalent. All requirements under CEQA are met with the analysis in the Project's Opt-In Application.
State	Warren Alquist State Energy Resources Conservation and Development Act (Public Resources Code Section 25000 *et seq.*)	Establishes the CEC as the primary agency responsible for implementing energy policies, planning and regulations in the state. Outlines requirements for CEQA-equivalent environmental assessment of certain projects.	Throughout this Opt-In Application	The Project's Opt-In Application analysis and process is CEQA equivalent. All requirements under CEQA are met with the analysis in the Project's Opt-In Application.
State	Assembly Bill 205	Amends the Warren Alquist Act, extending an optional state-level permitting process to qualifying renewable energy generation and storage project.	Throughout this Opt-In Application	This Project qualifies for permitting via AB205 and intends to pursue this process.
State	Clean Water Act (Section 401)	Requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide State certification that the proposed activity will not violate State and federal water quality standards	Section 5.12.2	This Project is not anticipated to impact federally jurisdictional navigable waters.
State	Porter-Cologne Water Quality Control Act	Requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB.	Section 5.12.2	This Project is not anticipated to impact waters of the State.

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Local	Fresno County General Plan Policy OS-A.2 Policy OS-A.18 Policy OS-A.19 Policy OS-A.24 Policy OS-A.15 Policy OS-A.26 Policy OS-E.1 Policy OS-E.2 Policy OS-E.3 Policy OS-E.6 Policy OS-E.9 Policy OS-E.17 Policy OS-F.5 Policy OS-F.8	Contains goals and policies concerned with protecting and preserving natural resources and open space areas.	Section 5.12.3	This Project would be consistent with applicable policies from the County's General Plan through Project design and implementation of applicable mitigation measures and plans: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).
Local	Fresno County Code of Ordinances Title 15	Describes ordinances applicable within Fresno County, including ordinances related to building and construction.	Throughout this Opt-In Application	This Project is located within Fresno County and therefore would be designed in compliance with the County's Ordinance Code.

Appendix K

DR WATER-3 Water Quality Lab Results

Certificate of Analysis

Sample ID: AHB3818-01
Sampled By: Scott Sakamoto
Sample Description: 24B0941-01 // Well #4

Sample Date - Time: 02/29/2024 - 08:54
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AHC0187	03/05/24	03/08/24	

Certificate of Analysis

Sample ID: AHB3818-02
Sampled By: Scott Sakamoto
Sample Description: 24B0941-02 // Well #5

Sample Date - Time: 02/29/2024 - 08:42
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AHC0187	03/05/24	03/08/24	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Dellavalle Laboratories	**Project:** Analytical Services	**Reported:**
1910 West McKinley #110	**Project Number:** 24B0941	03/14/2024
Fresno CA, 93728	**Project Manager:** Kaitlynn Shaw	

24B0941-01 Well #4

KB29047-01 (Water) Sampled: 02/29/24 08:54

Analyte	Flag	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Turbidity		**1.2**	0.10	NTU	1	B4C0110	03/01/24	03/01/24	EPA 180.1

24B0941-02 Well #5

KB29047-02 (Water) Sampled: 02/29/24 08:42

Analyte	Flag	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Inorganics									
Turbidity		**3.3**	0.10	NTU	1	B4C0110	03/01/24	03/01/24	EPA 180.1

Notes and Definitions

µg/L	micrograms per liter (parts per billion concentration units)
mg/L	milligrams per liter (parts per million concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

Analysis of pH, filtration, and residual chlorine is to take place immediately after sampling in the field. If the test was performed in the laboratory, the hold time was exceeded. **(for aqueous matrices only)**

DELLAVALLE™
LABORATORY INC

West Yost Associates
2020 Research Park Drive Ste 100
Davis, CA 95618

Account# 00-0017201
Account Manager: Scott Sakamoto
Submitted By: Harry Starkey
Ranch:

Received: 02/29/2024 11:31
Reported: 03/26/2024 12:15

Samples in this Report

Lab ID	Sample	Matrix	Sampled By	Crop	Date Sampled
24B0941-01	Well #4	Ag Water	Scott Sakamoto	Almond	02/29/2024 8:54
24B0941-02	Well #5	Ag Water	Scott Sakamoto	Almond	02/29/2024 8:42

Default Cooler Temperature on Receipt °C: -0.6
Containers Intact
COC/Labels Agree
Received On Ice

Notes and Definitions

Item	Definition
H	Hold Time Exceeded
MCL	Drinking Water Maximum Contaminant Level
ND	Analyte NOT DETECTED at or above the reporting limit.
NES	Not Enough Sample
*	Not Taken
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

Laboratory Director/Technical Manager

ELAP Certification #1595
A2LA Certification #6440.02

DELLAVALLE™
LABORATORY INC

West Yost Associates
2020 Research Park Drive Ste 100
Davis, CA 95618

Account# 00-0017201
Account Manager: Scott Sakamoto
Submitted By: Harry Starkey
Ranch:

Received: 02/29/2024 11:31
Reported: 03/26/2024 12:15

Sample Results

Sample: Well #4
24B0941-01 (Water)

Sampled: 2/29/2024 8:54
Sampled By: Scott Sakamoto

Analyte	Result	Units	Reporting Limit	DIL	DW MCL	Date/Time Analyzed	Method	Notes	Batch
Alkalinity as CaCO3	**181**	mg/L	10.0	1		02/29/24 15:43	SM 2320 B		BFB0660
Boron	**1.48**	mg/L	0.05	1		03/14/24 16:57	EPA 200.7		BFC0025
Biochemical Oxygen Demand, Total	ND	mg/L	5.00	1		03/05/24 13:17	SM 5210 B		BFB0643
BOD dil	**13.0**	mg/L	1.00	1		03/05/24 13:17	SM 5210 B		BFB0643
Calcium	**128**	mg/L	0.5	1		03/14/24 16:57	EPA 200.7		BFC0025
Calcium meq	**6.4**	meq/L	0.005	1		03/14/24 16:57	EPA 200.7		BFC0025
Calcium, Total	**127**	mg/L	0.1	1		03/12/24 15:55	EPA 200.7		BFC0206
Chloride	**194**	mg/L	0.2	1	250	03/01/24 00:03	EPA 300.0		BFB0656
Chloride meq	**5.5**	meq/L	0.006	1		03/01/24 00:03	EPA 300.0		BFB0656
Carbonate as CaCO3	ND	mg/L	1	1		02/29/24 15:43	SM 2320 B		BFB0660
Carbonate as CaCO3 meq	ND	meq/L	0.02	1		02/29/24 15:43	SM 2320 B		BFB0660
CO3 + HCO3	**181**	mg/L	5	1		02/29/24 15:43	SM 2320 B		BFB0660
CO3 + HCO3 meq	**4**	meq/L	0.1	1		02/29/24 15:43	SM 2320 B		BFB0660
Electrical Conductivity	**2.20**	mmhos/cm	0.01	1		02/29/24 15:43	SM 2510 B		BFB0660
Electrical Conductivity umhos	**2200**	umhos/cm	10.0	1		02/29/24 15:43	SM 2510 B		BFB0660
Fluoride	**0.308**	mg/L	0.100	1	2	03/01/24 00:03	EPA 300.0		BFB0656
Iron	ND	mg/L	0.10	1		03/14/24 16:57	EPA 200.7		BFC0025
Bicarbonate as CaCO3	**181**	mg/L	5.00	1		02/29/24 15:43	SM 2320 B		BFB0660
Bicarbonate as CaCO3 meq	**3.62**	meq/L	0.100	1		02/29/24 15:43	SM 2320 B		BFB0660
Potassium	**5.41**	mg/L	1.00	1		03/14/24 16:57	EPA 200.7		BFC0025
Potassium meq	**0.14**	meq/L	0.003	1		03/14/24 16:57	EPA 200.7		BFC0025
Langlier Index	**0.5**	none	-100	1		03/21/24 11:16	Calc		BFC0541
Magnesium	**116**	mg/L	0.1	1		03/15/24 13:39	EPA 200.7		BFC0224
Magnesium meq	**9.6**	meq/L	0.008	1		03/15/24 13:39	EPA 200.7		BFC0224
Magnesium Total	**121**	mg/L	0.1	1		03/08/24 16:02	EPA 200.7		BFC0092
Manganese	**0.07**	mg/L	0.02	1		03/15/24 13:39	EPA 200.7		BFC0224
Sodium	**185**	mg/L	1	1		03/15/24 13:39	EPA 200.7		BFC0224
Sodium meq	**8.03**	meq/L	0.04	1		03/15/24 13:39	EPA 200.7		BFC0224
Ammonia (as N)	ND	mg/L	0.500	1		03/01/24 14:04	SM 4500-NH3 H		BFC0002
Nitrite Nitrogen as NO2N	ND	mg/L	0.4	1	1	03/01/24 00:03	EPA 300.0		BFB0656
Nitrate Nitrogen as NO3N	**2.8**	mg/L	0.1	1	10	03/01/24 00:03	EPA 300.0		BFB0656
Hydroxide as CaCO3	ND	mg/L	1.00	1		02/29/24 15:43	SM 2320 B		BFB0660
pH	**7.7**	units	1.0	1		02/29/24 15:43	SM 4500-H+	H	BFB0660
Temperature	**25.0**	units	0.0	1		02/29/24 15:43	SM 4500-H+	H	BFB0660
SAR	**2.75**	none	0.10	1		03/21/24 11:16	EPA 200.7		BFC0541
SARadj	**6.68**	none	0.10	1		03/21/24 11:16	EPA 200.7		BFC0541
Silica (SiO2), Total	**39.1**	mg/L	2.00	1		03/08/24 16:02	EPA 200.7		BFC0092
Sulfate (SO4)	**164**	mg/L	0.5	1	250	03/04/24 22:21	EPA 300.0		BFC0004
Sulfate (SO4) meq	**3.4**	meq/L	0.01	1		03/04/24 22:21	EPA 300.0		BFC0004

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Sample Results
(Continued)

Sample: Well #4 (Continued)
24B0941-01 (Water)

Sampled: 2/29/2024 8:54
Sampled By: Scott Sakamoto

Analyte	Result	Units	Reporting Limit	DIL	DW MCL	Date/Time Analyzed	Method	Notes	Batch
Total Filterable Solids (TDS)	**1710**	mg/L	10.0	1		03/01/24 14:24	SM 2540 C		BFB0645
Kjeldahl Nitrogen (TKN), Total	ND	mg/L	1.00	1		03/04/24 09:00	SM 4500-NH3 C		BFC0003
Total Organic Carbon	ND	mg/L	1.00	1		03/05/24 15:16	SM 5310 B		BFC0060
Total Nonfilterable Solids (TSS)	ND	mg/L	10.0	1		03/01/24 15:37	SM 2540 D		BFC0001
Hardness, Total	**816**	mg/L	0.662	1		03/12/24 15:55	Calc		[CALC]

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Sample Results
(Continued)

Sample: Well #5
24B0941-02 (Water)

Sampled: 2/29/2024 8:42
Sampled By: Scott Sakamoto

Analyte	Result	Units	Reporting Limit	DIL	DW MCL	Date/Time Analyzed	Method	Notes	Batch
Alkalinity as CaCO3	**185**	mg/L	10.0	1		02/29/24 15:49	SM 2320 B		BFB0660
Boron	**1.14**	mg/L	0.05	1		03/14/24 16:57	EPA 200.7		BFC0025
Biochemical Oxygen Demand, Total	ND	mg/L	5.00	1		03/05/24 13:17	SM 5210 B		BFB0643
BOD dil	**13.0**	mg/L	1.00	1		03/05/24 13:17	SM 5210 B		BFB0643
Calcium	**86.8**	mg/L	0.5	1		03/14/24 16:57	EPA 200.7		BFC0025
Calcium meq	**4.3**	meq/L	0.005	1		03/14/24 16:57	EPA 200.7		BFC0025
Calcium, Total	**70.4**	mg/L	0.1	1		03/08/24 16:24	EPA 200.7		BFC0092
Chloride	**92.6**	mg/L	0.2	1	250	03/01/24 00:23	EPA 300.0		BFB0656
Chloride meq	**2.6**	meq/L	0.006	1		03/01/24 00:23	EPA 300.0		BFB0656
Carbonate as CaCO3	ND	mg/L	1	1		02/29/24 15:49	SM 2320 B		BFB0660
Carbonate as CaCO3 meq	ND	meq/L	0.02	1		02/29/24 15:49	SM 2320 B		BFB0660
CO3 + HCO3	**185**	mg/L	5	1		02/29/24 15:49	SM 2320 B		BFB0660
CO3 + HCO3 meq	**4**	meq/L	0.1	1		02/29/24 15:49	SM 2320 B		BFB0660
Electrical Conductivity	**1.62**	mmhos/cm	0.01	1		02/29/24 15:49	SM 2510 B		BFB0660
Electrical Conductivity umhos	**1620**	umhos/cm	10.0	1		02/29/24 15:49	SM 2510 B		BFB0660
Fluoride	ND	mg/L	0.100	1	2	03/01/24 00:23	EPA 300.0		BFB0656
Iron	ND	mg/L	0.10	1		03/14/24 16:57	EPA 200.7		BFC0025
Bicarbonate as CaCO3	**185**	mg/L	5.00	1		02/29/24 15:49	SM 2320 B		BFB0660
Bicarbonate as CaCO3 meq	**3.69**	meq/L	0.100	1		02/29/24 15:49	SM 2320 B		BFB0660
Potassium	**5.50**	mg/L	1.00	1		03/14/24 16:57	EPA 200.7		BFC0025
Potassium meq	**0.14**	meq/L	0.003	1		03/14/24 16:57	EPA 200.7		BFC0025
Langlier Index	**0.2**	none	-100	1		03/21/24 11:16	Calc		BFC0541
Magnesium	**88.0**	mg/L	0.1	1		03/15/24 13:40	EPA 200.7		BFC0224
Magnesium meq	**7.2**	meq/L	0.008	1		03/15/24 13:40	EPA 200.7		BFC0224
Magnesium Total	**90.3**	mg/L	0.1	1		03/08/24 16:24	EPA 200.7		BFC0092
Manganese	ND	mg/L	0.02	1		03/15/24 13:40	EPA 200.7		BFC0224
Sodium	**131**	mg/L	1	1		03/15/24 13:40	EPA 200.7		BFC0224
Sodium meq	**5.70**	meq/L	0.04	1		03/15/24 13:40	EPA 200.7		BFC0224
Ammonia (as N)	ND	mg/L	0.500	1		03/01/24 14:05	SM 4500-NH3 H		BFC0002
Nitrite Nitrogen as NO2N	ND	mg/L	0.4	1	1	03/01/24 00:23	EPA 300.0		BFB0656
Nitrate Nitrogen as NO3N	**2.4**	mg/L	0.1	1	10	03/01/24 00:23	EPA 300.0		BFB0656
Hydroxide as CaCO3	ND	mg/L	1.00	1		02/29/24 15:49	SM 2320 B		BFB0660
pH	**7.7**	units	1.0	1		02/29/24 15:49	SM 4500-H+	H	BFB0660
Temperature	**25.0**	units	0.0	1		02/29/24 15:49	SM 4500-H+	H	BFB0660
SAR	**2.40**	none	0.10	1		03/21/24 11:16	EPA 200.7		BFC0541
SARadj	**5.56**	none	0.10	1		03/21/24 11:16	EPA 200.7		BFC0541
Silica (SiO2), Total	**2.07**	mg/L	2.00	1		03/04/24 16:54	EPA 200.7		BFB0537
Sulfate (SO4)	**531**	mg/L	0.5	1	250	03/01/24 00:23	EPA 300.0		BFB0656
Sulfate (SO4) meq	**11.1**	meq/L	0.01	1		03/01/24 00:23	EPA 300.0		BFB0656

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Sample Results
(Continued)

Sample: Well #5 (Continued)
24B0941-02 (Water)

Sampled: 2/29/2024 8:42
Sampled By: Scott Sakamoto

Analyte	Result	Units	Reporting Limit	DIL	DW MCL	Date/Time Analyzed	Method	Notes	Batch
Total Filterable Solids (TDS)	**1190**	mg/L	10.0	1		03/01/24 14:24	SM 2540 C		BFB0645
Kjeldahl Nitrogen (TKN), Total	ND	mg/L	1.00	1		03/04/24 09:02	SM 4500-NH3 C		BFC0003
Total Organic Carbon	ND	mg/L	1.00	1		03/05/24 15:29	SM 5310 B		BFC0060
Total Nonfilterable Solids (TSS)	ND	mg/L	10.0	1		03/01/24 15:37	SM 2540 D		BFC0001
Hardness, Total	**548**	mg/L	0.662	1		03/08/24 16:24	Calc		[CALC]

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Quality Control

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0537										
Blank (BFB0537-BLK1)					Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	ND		2.00	mg/L						
Blank (BFB0537-BLK2)					Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	ND		2.00	mg/L						
LCS (BFB0537-BS1)					Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	15.3		2.00	mg/L	14.27		107	90-110		
LCS (BFB0537-BS2)					Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	15.2		2.00	mg/L	14.27		107	90-110		
Duplicate (BFB0537-DUP1)		**Source: 24B0439-01**			Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	7.62		2.00	mg/L		7.59			0.281	15
Matrix Spike (BFB0537-MS1)		**Source: 24B0439-01**			Prepared: 2/26/2024 Analyzed: 3/4/2024					
Silica (SiO2), Total	22.6		2.00	mg/L	14.27	7.59	105	90-110		

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0643										
Blank (BFB0643-BLK1)					Prepared: 2/29/2024 Analyzed: 3/5/2024					
Biochemical Oxygen Demand, Total	ND		5.00	mg/L						
BOD dil	1.00		1.00	mg/L						
Duplicate (BFB0643-DUP1)			**Source: 24B0874-01**		Prepared: 2/29/2024 Analyzed: 3/5/2024					
Biochemical Oxygen Demand, Total	5130		5.00	mg/L		5360			4.29	20
BOD dil	2250		1.00	mg/L		2250			0.00	200
Reference (BFB0643-SRM1)					Prepared: 2/29/2024 Analyzed: 3/5/2024					
Biochemical Oxygen Demand, Total	148			mg/L	198.0		74.9	.59596-115.4		
Reference (BFB0643-SRM2)					Prepared: 2/29/2024 Analyzed: 3/5/2024					
Biochemical Oxygen Demand, Total	31.8			mg/L	37.30		85.3	85-115		

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0645										
Blank (BFB0645-BLK1)					Prepared: 2/29/2024 Analyzed: 3/1/2024					
Total Filterable Solids (TDS)	ND		10.0	mg/L						
LCS (BFB0645-BS1)					Prepared: 2/29/2024 Analyzed: 3/1/2024					
Total Filterable Solids (TDS)	28.8		10.0	mg/L	2000		1.44	0-200		
Duplicate (BFB0645-DUP1)		**Source: 24B0872-04**			Prepared: 2/29/2024 Analyzed: 3/1/2024					
Total Filterable Solids (TDS)	265		10.0	mg/L		265			0.00	10
Duplicate (BFB0645-DUP2)		**Source: 24B0917-02**			Prepared: 2/29/2024 Analyzed: 3/1/2024					
Total Filterable Solids (TDS)	1050		10.0	mg/L		1050			0.00	10
Reference (BFB0645-SRM1)					Prepared: 2/29/2024 Analyzed: 3/1/2024					
Total Filterable Solids (TDS)	387			mg/L	390.0		99.1	90-110		

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0656										
Blank (BFB0656-BLK1)					Prepared & Analyzed: 2/29/2024					
Chloride	ND		0.2	mg/L						
Chloride meq	ND		0.006	meq/L						
Sulfate (SO4) meq	ND		0.01	meq/L						
Fluoride	ND		0.100	mg/L						
Nitrate Nitrogen as NO3N	ND		0.1	mg/L						
Nitrite Nitrogen as NO2N	ND		0.4	mg/L						
Sulfate (SO4)	ND		0.5	mg/L						
Blank (BFB0656-BLK2)					Prepared & Analyzed: 2/29/2024					
Chloride	ND		0.2	mg/L						
Fluoride	ND		0.100	mg/L						
Sulfate (SO4) meq	ND		0.01	meq/L						
Chloride meq	ND		0.006	meq/L						
Nitrate Nitrogen as NO3N	ND		0.1	mg/L						
Nitrite Nitrogen as NO2N	ND		0.4	mg/L						
Sulfate (SO4)	ND		0.5	mg/L						
Blank (BFB0656-BLK3)					Prepared & Analyzed: 3/1/2024					
Chloride	ND		0.2	mg/L						
Chloride meq	ND		0.006	meq/L						
Fluoride	ND		0.100	mg/L						
Sulfate (SO4) meq	ND		0.01	meq/L						
Nitrate Nitrogen as NO3N	ND		0.1	mg/L						
Nitrite Nitrogen as NO2N	ND		0.4	mg/L						
Sulfate (SO4)	ND		0.5	mg/L						
Blank (BFB0656-BLK4)					Prepared & Analyzed: 3/1/2024					
Chloride	ND		0.2	mg/L						
Fluoride	ND		0.100	mg/L						
Chloride meq	ND		0.006	meq/L						
Sulfate (SO4) meq	ND		0.01	meq/L						
Nitrate Nitrogen as NO3N	ND		0.1	mg/L						
Nitrite Nitrogen as NO2N	ND		0.4	mg/L						
Sulfate (SO4)	ND		0.5	mg/L						
LCS (BFB0656-BS1)					Prepared & Analyzed: 2/29/2024					
Chloride	4.9		0.2	mg/L	5.000		98.2	90-110		
Fluoride	5.16		0.100	mg/L	5.000		103	90-110		
Nitrate Nitrogen as NO3N	5.0		0.1	mg/L	5.000		101	90-110		
Nitrite Nitrogen as NO2N	5.3		0.4	mg/L	5.000		106	90-110		
Sulfate (SO4)	4.5		0.5	mg/L	5.000		90.9	90-110		
LCS (BFB0656-BS2)					Prepared & Analyzed: 3/1/2024					

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0656 (Continued)										
LCS (BFB0656-BS2)					Prepared & Analyzed: 3/1/2024					
Chloride	5.0		0.2	mg/L	5.000		99.1	90-110		
Fluoride	5.25		0.100	mg/L	5.000		105	90-110		
Nitrate Nitrogen as NO3N	5.1		0.1	mg/L	5.000		102	90-110		
Nitrite Nitrogen as NO2N	5.4		0.4	mg/L	5.000		107	90-110		
Sulfate (SO4)	4.6		0.5	mg/L	5.000		91.9	90-110		
LCS (BFB0656-BS3)					Prepared & Analyzed: 3/1/2024					
Chloride	4.9		0.2	mg/L	5.000		98.0	90-110		
Fluoride	5.23		0.100	mg/L	5.000		105	90-110		
Nitrate Nitrogen as NO3N	5.1		0.1	mg/L	5.000		102	90-110		
Nitrite Nitrogen as NO2N	5.3		0.4	mg/L	5.000		107	90-110		
Sulfate (SO4)	4.6		0.5	mg/L	5.000		91.1	90-110		
Duplicate (BFB0656-DUP1)		**Source: 24B0872-01**			Prepared & Analyzed: 2/29/2024					
Chloride	10.1		0.2	mg/L		10.1			0.317	10
Fluoride	0.0870		0.100	mg/L		0.0920			5.59	10
Nitrate Nitrogen as NO3N	0.4		0.1	mg/L		0.4			1.20	10
Nitrite Nitrogen as NO2N	ND		0.4	mg/L		ND				10
Sulfate (SO4)	21.7		0.5	mg/L		21.6			0.129	10
Duplicate (BFB0656-DUP2)		**Source: 24B0881-01**			Prepared & Analyzed: 3/1/2024					
Chloride	5.3		0.2	mg/L		5.4			0.804	10
Fluoride	0.160		0.100	mg/L		0.160			0.00	10
Nitrate Nitrogen as NO3N	0.2		0.1	mg/L		0.2			1.20	10
Nitrite Nitrogen as NO2N	ND		0.4	mg/L		ND				10
Sulfate (SO4)	28.3		0.5	mg/L		28.5			0.585	10
Duplicate (BFB0656-DUP3)		**Source: 24B0944-01**			Prepared & Analyzed: 3/1/2024					
Chloride	5.3		0.2	mg/L		5.3			0.379	10
Fluoride	0.0510		0.100	mg/L		0.0630			21.1	10
Nitrate Nitrogen as NO3N	0.5		0.1	mg/L		0.5			0.00	10
Nitrite Nitrogen as NO2N	ND		0.4	mg/L		ND				10
Sulfate (SO4)	6.4		0.5	mg/L		6.3			0.440	10
Matrix Spike (BFB0656-MS1)		**Source: 24B0872-01**			Prepared & Analyzed: 2/29/2024					
Chloride	15.0		0.2	mg/L	5.000	10.1	98.5	90-110		
Fluoride	4.94		0.100	mg/L	5.000	0.0920	96.9	90-110		
Nitrate Nitrogen as NO3N	5.6		0.1	mg/L	5.000	0.4	104	90-110		
Nitrite Nitrogen as NO2N	5.0		0.4	mg/L	5.000	ND	99.4	90-110		
Sulfate (SO4)	26.7		0.5	mg/L	5.000	21.6	100	90-110		
Matrix Spike (BFB0656-MS2)		**Source: 24B0881-01**			Prepared & Analyzed: 3/1/2024					
Chloride	10.4		0.2	mg/L	5.000	5.4	101	90-110		

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0656 (Continued)										
Matrix Spike (BFB0656-MS2)			**Source: 24B0881-01**		Prepared & Analyzed: 3/1/2024					
Fluoride	5.15		0.100	mg/L	5.000	0.160	99.8	90-110		
Nitrate Nitrogen as NO3N	5.1		0.1	mg/L	5.000	0.2	97.7	90-110		
Nitrite Nitrogen as NO2N	5.1		0.4	mg/L	5.000	ND	102	90-110		
Sulfate (SO4)	33.4		0.5	mg/L	5.000	28.5	99.4	90-110		
Matrix Spike (BFB0656-MS3)			**Source: 24B0944-01**		Prepared & Analyzed: 3/1/2024					
Chloride	10.5		0.2	mg/L	5.000	5.3	104	90-110		
Fluoride	4.95		0.100	mg/L	5.000	0.0630	97.8	90-110		
Nitrate Nitrogen as NO3N	5.8		0.1	mg/L	5.000	0.5	106	90-110		
Nitrite Nitrogen as NO2N	5.1		0.4	mg/L	5.000	ND	101	90-110		
Sulfate (SO4)	11.5		0.5	mg/L	5.000	6.3	104	90-110		
Reference (BFB0656-SRM1)					Prepared & Analyzed: 2/29/2024					
Chloride	13.2			mg/L	12.50		105	90-110		
Fluoride	1.05			mg/L	1.000		105	90-110		
Nitrate Nitrogen as NO3N	10.4			mg/L	10.00		104	90-110		
Nitrite Nitrogen as NO2N	1.1			mg/L	1.000		107	90-110		
Sulfate (SO4)	10.3			mg/L	10.00		103	90-110		
Reference (BFB0656-SRM2)					Prepared & Analyzed: 2/29/2024					
Chloride	13.2			mg/L	12.50		106	90-110		
Fluoride	1.05			mg/L	1.000		105	90-110		
Nitrate Nitrogen as NO3N	10.5			mg/L	10.00		105	90-110		
Nitrite Nitrogen as NO2N	1.1			mg/L	1.000		106	90-110		
Sulfate (SO4)	10.3			mg/L	10.00		103	90-110		
Reference (BFB0656-SRM3)					Prepared & Analyzed: 3/1/2024					
Chloride	13.1			mg/L	12.50		105	90-110		
Fluoride	1.04			mg/L	1.000		104	90-110		
Nitrate Nitrogen as NO3N	10.4			mg/L	10.00		104	90-110		
Nitrite Nitrogen as NO2N	1.0			mg/L	1.000		105	90-110		
Sulfate (SO4)	10.2			mg/L	10.00		102	90-110		
Reference (BFB0656-SRM4)					Prepared & Analyzed: 3/1/2024					
Chloride	13.1			mg/L	12.50		105	90-110		
Fluoride	1.04			mg/L	1.000		104	90-110		
Nitrate Nitrogen as NO3N	10.4			mg/L	10.00		104	90-110		
Nitrite Nitrogen as NO2N	1.0			mg/L	1.000		105	90-110		
Sulfate (SO4)	10.2			mg/L	10.00		102	90-110		

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Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0660										
Blank (BFB0660-BLK1)					Prepared & Analyzed: 2/29/2024					
Alkalinity as CaCO3	ND		10.0	mg/L						
pH	5.4		1.0	units						
Electrical Conductivity	ND		0.01	mmhos/cm						
Carbonate as CaCO3	ND		1	mg/L						
Hydroxide as CaCO3	ND		1.00	mg/L						
Bicarbonate as CaCO3	6.76		5.00	mg/L						
Electrical Conductivity umhos	ND		10.0	umhos/cm						
Temperature	25.0		0.0	units						
Bicarbonate as CaCO3 meq	0.135		0.100	meq/L						
Carbonate as CaCO3 meq	ND		0.02	meq/L						
CO3 + HCO3 meq	0.1		0.1	meq/L						
CO3 + HCO3	7		5	mg/L						
Blank (BFB0660-BLK2)					Prepared & Analyzed: 2/29/2024					
pH	5.8		1.0	units						
Electrical Conductivity	ND		0.01	mmhos/cm						
Carbonate as CaCO3	ND		1	mg/L						
Alkalinity as CaCO3	ND		10.0	mg/L						
Hydroxide as CaCO3	ND		1.00	mg/L						
Temperature	25.0		0.0	units						
Electrical Conductivity umhos	ND		10.0	umhos/cm						
Carbonate as CaCO3 meq	ND		0.02	meq/L						
CO3 + HCO3 meq	0.1		0.1	meq/L						
Bicarbonate as CaCO3 meq	0.134		0.100	meq/L						
Bicarbonate as CaCO3	6.71		5.00	mg/L						
CO3 + HCO3	7		5	mg/L						
Duplicate (BFB0660-DUP1)	**Source: 24B0941-02**				Prepared & Analyzed: 2/29/2024					
Alkalinity as CaCO3	184		10.0	mg/L		185			0.543	10
Hydroxide as CaCO3	ND		1.00	mg/L		ND				10
Electrical Conductivity	1.62		0.01	mmhos/cm		1.62			0.118	10
Carbonate as CaCO3	ND		1	mg/L		ND				10
pH	7.7		1.0	units		7.7			0.130	1
Electrical Conductivity umhos	1620		10.0	umhos/cm		1620			0.118	10
Bicarbonate as CaCO3 meq	3.67		0.100	meq/L		3.69			0.543	200
CO3 + HCO3	184		5	mg/L		185			0.543	10
Reference (BFB0660-SRM1)					Prepared & Analyzed: 2/29/2024					
Electrical Conductivity	441			umhos/cm	426.0		104	90-110		
Alkalinity as CaCO3	132			mg/L	128.0		103	90-110		
Reference (BFB0660-SRM2)					Prepared & Analyzed: 2/29/2024					
Electrical Conductivity	446			umhos/cm	426.0		105	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFB0660 (Continued)										
Reference (BFB0660-SRM2)					Prepared & Analyzed: 2/29/2024					
Alkalinity as CaCO3	130			mg/L	128.0		102	90-110		
Reference (BFB0660-SRM4)					Prepared & Analyzed: 2/29/2024					
pH	4.0			units	4.000		101	97.5-102.5		
Reference (BFB0660-SRM5)					Prepared & Analyzed: 2/29/2024					
pH	4.0			units	4.000		100	97.5-102.5		
Reference (BFB0660-SRM7)					Prepared & Analyzed: 2/29/2024					
pH	7.6			units	7.520		100	67021-101.3		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0001										
Blank (BFC0001-BLK1)					Prepared & Analyzed: 3/1/2024					
Total Nonfilterable Solids (TSS)	ND		10.0	mg/L						
LCS (BFC0001-BS1)					Prepared & Analyzed: 3/1/2024					
Total Nonfilterable Solids (TSS)	41.2		10.0	mg/L	4000		1.03	0-200		
Duplicate (BFC0001-DUP1)	**Source: 24B0836-01**				Prepared & Analyzed: 3/1/2024					
Total Nonfilterable Solids (TSS)	770		10.0	mg/L		710			8.11	10
Reference (BFC0001-SRM1)					Prepared & Analyzed: 3/1/2024					
Total Nonfilterable Solids (TSS)	34.0			mg/L	34.00		100	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0002										
Blank (BFC0002-BLK1)					Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	ND		0.500	mg/L						
Blank (BFC0002-BLK2)					Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	ND		0.500	mg/L						
LCS (BFC0002-BS1)					Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	10.5		0.500	mg/L	9.990		105	90-110		
LCS (BFC0002-BS2)					Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	10.2		0.500	mg/L	9.990		102	90-110		
Duplicate (BFC0002-DUP1)		**Source: 24B0872-02**			Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	ND		0.500	mg/L		ND				10
Duplicate (BFC0002-DUP2)		**Source: 24B0917-02**			Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	ND		0.500	mg/L		ND				10
Matrix Spike (BFC0002-MS1)		**Source: 24B0872-02**			Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	10.5		0.500	mg/L	9.990	ND	105	90-110		
Matrix Spike (BFC0002-MS2)		**Source: 24B0917-02**			Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	10.1		0.500	mg/L	9.990	ND	101	90-110		
Reference (BFC0002-SRM1)					Prepared & Analyzed: 3/1/2024					
Ammonia (as N)	5.59			mg/L	5.470		102	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0003										
Blank (BFC0003-BLK1)					Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	ND		1.00	mg/L						
Blank (BFC0003-BLK2)					Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	ND		1.00	mg/L						
LCS (BFC0003-BS1)					Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	5.97		1.00	mg/L	5.709		105	90-110		
LCS (BFC0003-BS2)					Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	5.89		1.00	mg/L	5.709		103	90-110		
Duplicate (BFC0003-DUP1)		**Source: 24B0922-02**			Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	ND		1.40	mg/L		ND				10
Duplicate (BFC0003-DUP2)		**Source: 24B0947-02**			Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	105		7.00	mg/L		109			3.78	10
Matrix Spike (BFC0003-MS1)		**Source: 24B0922-02**			Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	8.43		1.40	mg/L	7.992	ND	105	90-110		
Matrix Spike (BFC0003-MS2)		**Source: 24B0947-02**			Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	129		7.00	mg/L	19.98	109	100	90-110		
Reference (BFC0003-SRM1)					Prepared: 3/1/2024	Analyzed: 3/4/2024				
Kjeldahl Nitrogen (TKN), Total	34.9			mg/L	31.90		109	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0004										
Blank (BFC0004-BLK1)					Prepared & Analyzed: 3/4/2024					
Sulfate (SO4) meq	ND		0.01	meq/L						
Sulfate (SO4)	ND		0.5	mg/L						
Blank (BFC0004-BLK2)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4) meq	ND		0.01	meq/L						
Sulfate (SO4)	ND		0.5	mg/L						
Blank (BFC0004-BLK3)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4) meq	ND		0.01	meq/L						
Sulfate (SO4)	ND		0.5	mg/L						
LCS (BFC0004-BS1)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	4.6		0.5	mg/L	5.000		92.4	90-110		
LCS (BFC0004-BS2)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	4.8		0.5	mg/L	5.000		95.6	90-110		
Duplicate (BFC0004-DUP1)		**Source: 24B0937-01**			Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	0.4		0.5	mg/L		0.4			2.73	10
Duplicate (BFC0004-DUP2)		**Source: 24C0041-01**			Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	0.5		0.5	mg/L					200	10
Matrix Spike (BFC0004-MS1)		**Source: 24B0937-01**			Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	5.1		0.5	mg/L	5.000	0.4	94.5	90-110		
Matrix Spike (BFC0004-MS2)		**Source: 24C0041-01**			Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	5.4		0.5	mg/L	5.000		108	90-110		
Reference (BFC0004-SRM1)					Prepared & Analyzed: 3/4/2024					
Sulfate (SO4)	10.1			mg/L	10.00		101	90-110		
Reference (BFC0004-SRM2)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	10.2			mg/L	10.00		102	90-110		
Reference (BFC0004-SRM3)					Prepared & Analyzed: 3/5/2024					
Sulfate (SO4)	10.1			mg/L	10.00		101	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0025										
Blank (BFC0025-BLK1)					Prepared: 3/4/2024 Analyzed: 3/14/2024					
Potassium	ND		1.00	mg/L						
Calcium	ND		0.5	mg/L						
Iron	ND		0.10	mg/L						
Boron	ND		0.05	mg/L						
Calcium meq	ND		0.005	meq/L						
Potassium meq	0.01		0.003	meq/L						
Blank (BFC0025-BLK2)					Prepared: 3/4/2024 Analyzed: 3/14/2024					
Calcium	ND		0.5	mg/L						
Boron	ND		0.05	mg/L						
Potassium	ND		1.00	mg/L						
Iron	ND		0.10	mg/L						
Potassium meq	0.004		0.003	meq/L						
Calcium meq	ND		0.005	meq/L						
LCS (BFC0025-BS1)					Prepared: 3/4/2024 Analyzed: 3/14/2024					
Potassium	36.6		1.00	mg/L	35.71		103	90-110		
Calcium	37.1		0.5	mg/L	35.71		104	90-110		
Iron	6.60		0.10	mg/L	7.143		92.4	90-110		
Boron	7.23		0.05	mg/L	7.143		101	90-110		
LCS (BFC0025-BS2)					Prepared: 3/4/2024 Analyzed: 3/14/2024					
Boron	7.35		0.05	mg/L	7.143		103	90-110		
Calcium	37.2		0.5	mg/L	35.71		104	90-110		
Potassium	36.4		1.00	mg/L	35.71		102	90-110		
Iron	6.46		0.10	mg/L	7.143		90.4	90-110		
Duplicate (BFC0025-DUP1)		**Source: 24B0863-01**			Prepared: 3/4/2024 Analyzed: 3/14/2024					
Calcium	76.2		0.5	mg/L		75.4			0.976	15
Boron	0.08		0.05	mg/L		0.08			6.70	15
Potassium	7.04		1.00	mg/L		7.87			11.1	15
Iron	ND		0.10	mg/L		0.02				15
Matrix Spike (BFC0025-MS1)		**Source: 24B0863-01**			Prepared: 3/4/2024 Analyzed: 3/14/2024					
Boron	7.48		0.05	mg/L	7.143	0.08	104	90-110		
Iron	6.58		0.10	mg/L	7.143	0.02	91.9	90-110		
Potassium	44.1		1.00	mg/L	35.71	7.87	101	90-110		
Calcium	113		0.5	mg/L	35.71	75.4	104	90-110		
Matrix Spike (BFC0025-MS2)		**Source: 24B0922-02**			Prepared: 3/4/2024 Analyzed: 3/14/2024					
Potassium	41.3		1.00	mg/L	35.71	3.49	106	90-110		
Iron	6.31		0.10	mg/L	7.143	ND	88.4	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0025 (Continued)										
Reference (BFC0025-SRM1)					Prepared: 3/4/2024	Analyzed: 3/14/2024				
Boron	0.88			mg/L	0.8960		98.2	90-110		
Iron	0.37			mg/L	0.4050		92.3	90-110		
Reference (BFC0025-SRM2)					Prepared: 3/4/2024	Analyzed: 3/14/2024				
Potassium	22.5			mg/L	21.00		107	90-110		
Reference (BFC0025-SRM3)					Prepared: 3/4/2024	Analyzed: 3/14/2024				
Calcium	45.9			mg/L	45.90		100	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0060										
Blank (BFC0060-BLK1)					Prepared & Analyzed: 3/5/2024					
Total Organic Carbon	ND		1.00	mg/L						
LCS (BFC0060-BS1)					Prepared & Analyzed: 3/5/2024					
Total Organic Carbon	5.03		1.00	mg/L	5.000		101	90-110		
Duplicate (BFC0060-DUP1)		**Source: 24B0941-02**			Prepared & Analyzed: 3/5/2024					
Total Organic Carbon	ND		1.00	mg/L		ND				10
Matrix Spike (BFC0060-MS1)		**Source: 24B0941-02**			Prepared & Analyzed: 3/5/2024					
Total Organic Carbon	5.21		1.00	mg/L	5.000	ND	104	90-110		
Reference (BFC0060-SRM1)					Prepared & Analyzed: 3/5/2024					
Total Organic Carbon	24.3			mg/L	23.70		102	90-110		

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Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0092										
Blank (BFC0092-BLK1)					Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	ND		0.1	mg/L						
Magnesium Total	ND		0.1	mg/L						
Silica (SiO2), Total	ND		2.00	mg/L						
Blank (BFC0092-BLK2)					Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	ND		0.1	mg/L						
Magnesium Total	ND		0.1	mg/L						
Silica (SiO2), Total	ND		2.00	mg/L						
LCS (BFC0092-BS1)					Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	29.7		0.1	mg/L	33.33		89.1	90-110		
Magnesium Total	32.6		0.1	mg/L	33.33		97.7	90-110		
Silica (SiO2), Total	14.7		2.00	mg/L	14.27		103	90-110		
LCS (BFC0092-BS2)					Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	30.3		0.1	mg/L	33.33		91.0	90-110		
Magnesium Total	33.6		0.1	mg/L	33.33		101	90-110		
Silica (SiO2), Total	15.4		2.00	mg/L	14.27		108	90-110		
Duplicate (BFC0092-DUP1)		**Source: 24B0941-01**			Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	123		0.1	mg/L		127			2.96	15
Magnesium Total	120		0.1	mg/L		121			1.24	15
Silica (SiO2), Total	40.4		2.00	mg/L		39.1			3.39	15
Matrix Spike (BFC0092-MS1)		**Source: 24B0941-01**			Prepared: 3/5/2024 Analyzed: 3/8/2024					
Magnesium Total	149		0.1	mg/L	33.33	121	83.7	90-110		
Calcium, Total	153		0.1	mg/L	33.33	127	79.5	90-110		
Matrix Spike (BFC0092-MS2)		**Source: 24B0941-02**			Prepared: 3/5/2024 Analyzed: 3/8/2024					
Magnesium Total	130		0.1	mg/L	33.33	90.3	120	90-110		
Calcium, Total	106		0.1	mg/L	33.33	70.4	107	90-110		
Silica (SiO2), Total	47.7		2.00	mg/L	14.27	2.07	320	90-110		
Reference (BFC0092-SRM3)					Prepared: 3/5/2024 Analyzed: 3/8/2024					
Calcium, Total	44.0			mg/L	45.90		95.8	90-110		
Magnesium Total	36.0			mg/L	35.60		101	90-110		

DELLAVALLE™
LABORATORY INC

West Yost Associates
2020 Research Park Drive Ste 100
Davis, CA 95618

Account# 00-0017201
Account Manager: Scott Sakamoto
Submitted By: Harry Starkey
Ranch:

Received: 02/29/2024 11:31
Reported: 03/26/2024 12:15

Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0206										
Blank (BFC0206-BLK1)					Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	ND		0.1	mg/L						
Blank (BFC0206-BLK2)					Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	ND		0.1	mg/L						
LCS (BFC0206-BS1)					Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	30.8		0.1	mg/L	33.33		92.5	90-110		
LCS (BFC0206-BS2)					Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	36.0		0.1	mg/L	33.33		108	90-110		
Duplicate (BFC0206-DUP1)		**Source: 24B0721-01**			Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	115		0.1	mg/L		117			2.55	15
Matrix Spike (BFC0206-MS1)		**Source: 24B0721-01**			Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	190		0.3	mg/L	50.00	117	146	90-110		
Matrix Spike (BFC0206-MS2)		**Source: 24B0941-01**			Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	158		0.1	mg/L	33.33	127	94.2	90-110		
Reference (BFC0206-SRM3)					Prepared: 3/11/2024 Analyzed: 3/12/2024					
Calcium, Total	49.4			mg/L	45.90		108	90-110		

West Yost Associates
2020 Research Park Drive Ste 100
Davis, CA 95618

Account# 00-0017201
Account Manager: Scott Sakamoto
Submitted By: Harry Starkey
Ranch:

Received: 02/29/2024 11:31
Reported: 03/26/2024 12:15

Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0224										
Blank (BFC0224-BLK1)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	ND		0.02	mg/L						
Sodium	ND		1	mg/L						
Magnesium meq	ND		0.008	meq/L						
Magnesium	ND		0.1	mg/L						
Sodium meq	ND		0.04	meq/L						
Blank (BFC0224-BLK2)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	ND		0.02	mg/L						
Sodium	ND		1	mg/L						
Magnesium	ND		0.1	mg/L						
Sodium meq	ND		0.04	meq/L						
Magnesium meq	ND		0.008	meq/L						
LCS (BFC0224-BS1)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	6.70		0.02	mg/L	7.143		93.7	90-110		
Sodium	35		1	mg/L	35.71		98.0	90-110		
Magnesium	35.7		0.1	mg/L	35.71		100	90-110		
LCS (BFC0224-BS2)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Sodium	36		1	mg/L	35.71		102	90-110		
Manganese	6.78		0.02	mg/L	7.143		95.0	90-110		
Magnesium	37.2		0.1	mg/L	35.71		104	90-110		
Duplicate (BFC0224-DUP1)		**Source: 24C0124-01**			Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	0.28		0.02	mg/L		0.28			2.24	15
Sodium	19		1	mg/L		19			1.21	15
Magnesium	7.7		0.1	mg/L		7.4			4.93	15
Matrix Spike (BFC0224-MS1)		**Source: 24C0124-01**			Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	7.00		0.02	mg/L	7.143	0.28	94.1	90-110		
Sodium	55		1	mg/L	35.71	19	101	90-110		
Magnesium	44.6		0.1	mg/L	35.71	7.4	104	90-110		
Matrix Spike (BFC0224-MS2)		**Source: 24C0148-06**			Prepared: 3/11/2024 Analyzed: 3/15/2024					
Sodium	145		1	mg/L	35.71	109	101	90-110		
Manganese	6.40		0.02	mg/L	7.143	ND	89.6	90-110		
Magnesium	ND		0.1	mg/L	35.71	213	NR	90-110		
Reference (BFC0224-SRM1)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Manganese	1.57			mg/L	1.540		102	90-110		
Reference (BFC0224-SRM2)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Sodium	84			mg/L	84.10		99.7	90-110		

DELLAVALLE™
LABORATORY INC

West Yost Associates
2020 Research Park Drive Ste 100
Davis, CA 95618

Account# 00-0017201
Account Manager: Scott Sakamoto
Submitted By: Harry Starkey
Ranch:

Received: 02/29/2024 11:31
Reported: 03/26/2024 12:15

Quality Control
(Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BFC0224 (Continued)										
Reference (BFC0224-SRM3)					Prepared: 3/11/2024 Analyzed: 3/15/2024					
Magnesium	36.7			mg/L	35.60		103	90-110		

Appendix L

DR WATER-14 Westlands Water District Option Agreement (Redacted)

OPTION AGREEMENT TO PURCHASE REAL PROPERTY

THIS OPTION AGREEMENT TO PURCHASE REAL PROPERTY ("Agreement") is made effective as of the 2 day of June, 2022 (the "Effective Date"), by and between Westlands Water District, a California water district ("Optionor") and IP Land Holdings, LLC, a Delaware limited liability company, or nominee ("Optionee"), with respect to the following facts and circumstances:

A. Optionor is the owner of certain real property located in Fresno County, California, consisting of forty-two (42) parcels (each, a "Parcel" and collectively, the "Parcels") totaling approximately 9,116 acres. The real property is more particularly described in Exhibit A to this Agreement (collectively, the "Land"), and together with any easements or similar rights appurtenant thereto, is referred to below as the "Property". The term the "Property" shall not include any mineral rights located beneath the surface of the Land, ownership of which shall remain with Optionor subject to the terms and conditions of this Agreement.

B. Optionor desires to grant Optionee an option to purchase the Property, and Optionee desires to procure an option to purchase the Property, on the terms and subject to the conditions of this Agreement.

THEREFORE, for valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. Option.

(a) Grant of Option to Purchase the Property. Optionor hereby grants to Optionee an exclusive and irrevocable right to purchase from Optionor all or a portion of the Property, subject to and upon the terms, covenants and conditions set forth herein (the "Option").

(b) Project Approvals and Environmental Review. [redacted]

[redacted]

(c) Reimbursement of Expenses. [redacted]

(d) Option Period. [redacted]

(e) Exclusivity. [redacted]

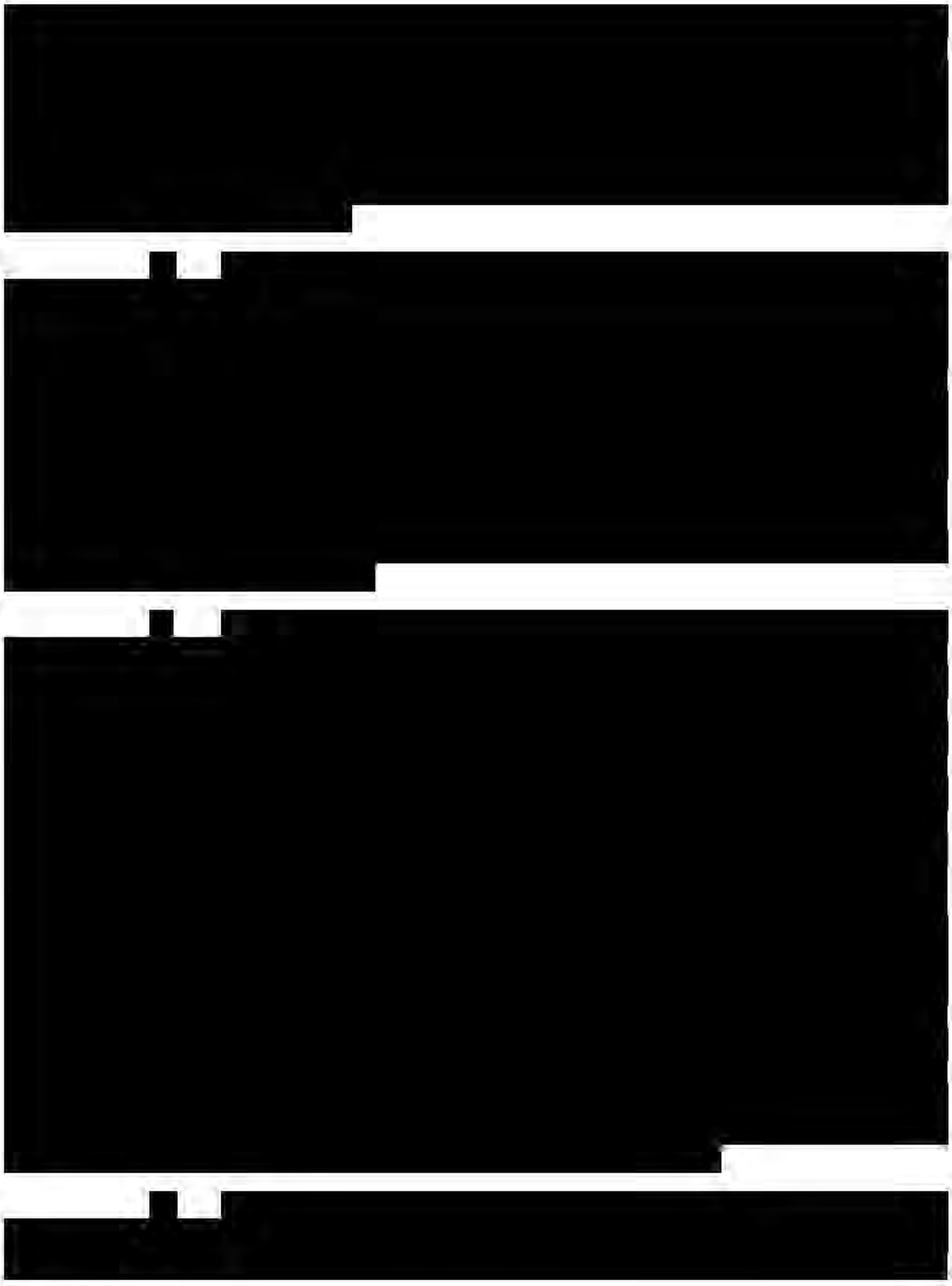
2. Exercise of Option. [redacted]

[redacted]

3. Due Diligence and Option Period.

[redacted]

[redacted]



[redacted]

4. Purchase Price; Option Period Payments. [redacted]

5. Optionor Covenants; Farm Leases.

[redacted]

[redacted]

6. Title; Survey.

(a) [redacted]

[redacted]

7. Intentionally Deleted.

8. Optionor Disclaimer Regarding Physical Condition of Property and Applicable Laws and Regulations.

[redacted]

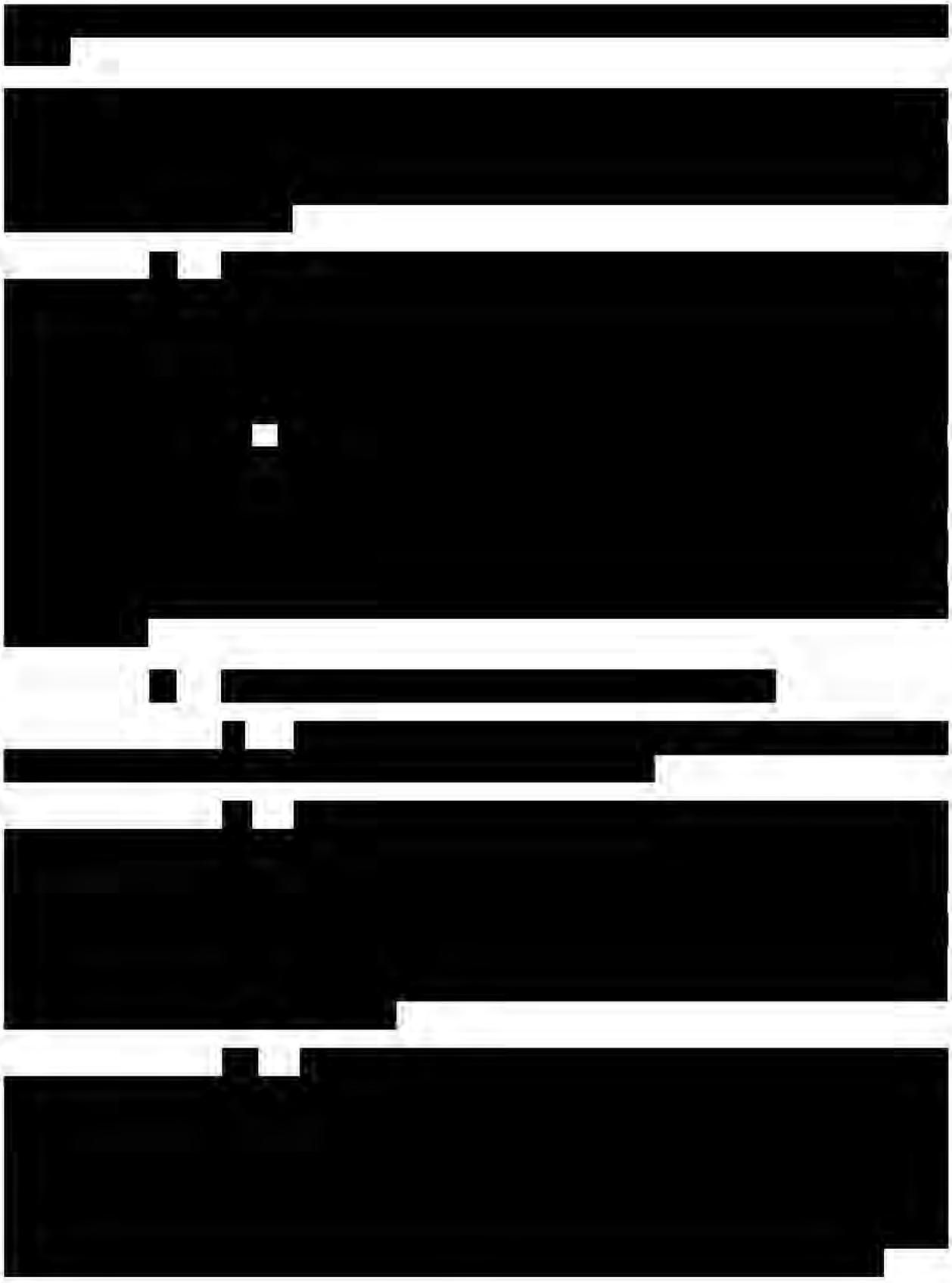
[redacted]

9. [Intentionally Deleted.]

10. Representations, Warranties and Covenants.

[redacted]

(iv) [redacted]



(iv) [redacted]

11. Effect of Headings. [redacted]

12. Entire Agreement. [redacted]

13. Counterparts and Facsimile Signatures. [redacted]

14. Binding Effect. [redacted]

15. Professionals' Fees. [redacted]

16. Governing Law and Venue. [redacted]

[redacted]

17. Parties in Interest. [redacted]

18. Notices. [redacted]

To Optionor:

Westlands Water District
3130 North Fresno Street
Fresno, CA 93703-6056
Attn: Mr. Jose Gutierrez
Email: [redacted]
Fax No.: (559) 241-6277

With a copy (which shall not constitute notice) to:

[redacted]

To Optionee:

IP Land Holdings, LLC
c/o Intersect Power
9450 SW Gemini Drive, PMB #68743
Beaverton, OR 97008-7105
Attention: Legal

[redacted]

19. Survival. [redacted]

20. Severability. [redacted]

21. Cumulative Rights; Waiver. [redacted]

22. Further Action. [redacted]

23. Ambiguities. [redacted]

24. Confidentiality. [redacted]

25. Recording; Termination. [redacted]

[SIGNATURES ON IMMEDIATELY FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the date first above written.

"Optionor"

Westlands Water District,
a California water district

By: _____
Jose Gutierrez
Chief Operating Officer

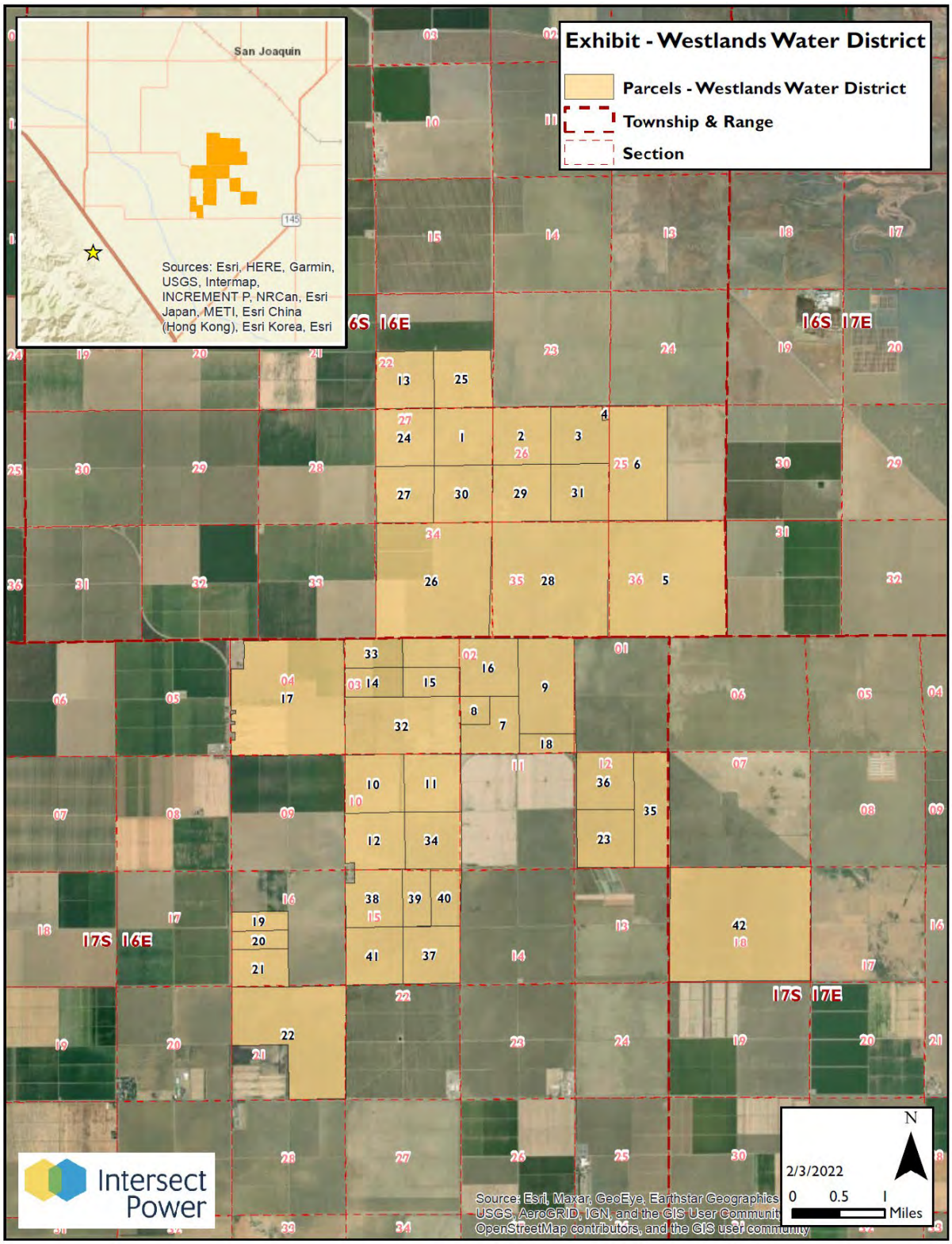
"Optionee"

IP Land Holdings, LLC,
a Delaware limited liability company

By: _____
Name: Lucas Dunnington
Its: President

EXHIBIT A TO THE OPTION AGREEMENT

Depiction of the Property and List of APNs



Parcel # **APN** **Acreage**

1	040-110-27ST	161.83
2	040-110-31ST	163.87
3	040-110-32ST	157.17
4	040-110-23ST	4.64
5	040-110-20ST	672.97
6	040-110-34ST	326.70
7	050-030-05ST	122.58
8	050-030-04ST	40.64
9	050-030-07ST	265.85
10	050-030-29ST	165.92
11	050-030-26ST	161.27
12	050-030-49ST	161.97
13	040-070-32ST	161.35
14	050-030-31ST	81.31
15	050-030-30ST	80.62
16	050-030-32ST	241.39
17	050-020-47ST	614.68
18	050-030-08ST	53.67
19	050-060-46ST	52.26
20	050-060-47ST	52.33
21	050-060-48ST	103.72
22	050-060-45ST	474.57
23	050-030-25ST	160.75
24	040-110-30ST	164.61
25	040-070-31ST	159.11
26	040-110-16ST	647.58
27	040-110-28ST	161.30
28	040-110-15ST	668.37
29	040-110-25ST	163.92
30	040-110-29ST	161.70
31	040-110-21ST	160.23
32	050-030-21ST	327.34
33	050-030-33ST	81.35
34	050-030-27ST	159.54
35	050-030-10ST	203.06
36	050-030-24ST	157.85
37	050-070-02T	161.33
38	050-070-64ST	151.14
39	050-070-41ST	79.37
40	050-070-42ST	83.18
41	050-070-43ST	160.54
42	050-080-01ST	782.85
	Total Acres	**9,116.43**

EXHIBIT B TO THE OPTION AGREEMENT

Form of Purchase Agreement

PURCHASE AND SALE AGREEMENT AND ESCROW INSTRUCTIONS

THIS PURCHASE AND SALE AGREEMENT AND ESCROW INSTRUCTIONS ("Agreement") is made effective as of the __ day of _____, 2022 (the "Effective Date"), by and between Westlands Water District, a California water district ("Seller") and IP Land Holdings, LLC, a Delaware limited liability company, or nominee ("Buyer"), with respect to the following facts and circumstances:

A. Seller is the owner of certain real property located in Fresno County, California, consisting of _____ (__) parcels (each, a "Parcel" and collectively, the "Parcels") totaling approximately _____ acres. The real property is more particularly described in Exhibit A to this Agreement (collectively, the "Land"), and together with any easements or similar rights appurtenant thereto, is referred to below as the "Property". [redacted]

B. Seller and Buyer entered into an Option Agreement for the Purchase of Real Property, dated _____, 2022 (the "Option Agreement"), whereby Seller granted Buyer an Option to purchase the Property, which Option has been exercised by Buyer. Capitalized terms that are not otherwise defined herein shall have the meanings ascribed to them in the Option Agreement.

C. Seller desires to sell the Property (subject to the reservations described in **Section 1(a)** and **Section 1(b)**) to Buyer, and Buyer desires to purchase the Property, on the terms and subject to the conditions of this Agreement.

THEREFORE, for valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. Purchase and Sale.

(a) Upon the terms and subject to the conditions set forth in this Agreement, Seller shall sell the Property to Buyer, and Buyer shall purchase the Property from Seller. The Property shall not include, and Optionor's rights to such shall include the following reserved rights reserved in the Grant Deed attached hereto as Exhibit B, pursuant to the terms of this Agreement: [redacted] (ii) any rights to water deliveries appurtenant to or associated with the Property by virtue of its location within Seller's service area, including without limitation the right to apply for and receive from Seller or its successors a ratable allocation of water under California Water Code Section 35420 or any successor statute; (iii) the right to irrigate the Property from any source for any purpose, and (iv) all groundwater underlying or otherwise appurtenant to the Property; provided, however, that subject to any duly promulgated regulations of general applicability by

any Groundwater Sustainability Agency or similar agency (including Seller acting in such capacity), Buyer or its successors or assigns may extract two (2.0) acre foot of groundwater per year for operation of its solar power generation facilities for each 320 acre portion of land acquired by Buyer (by way of example, if Buyer purchases 640 acres of land, Buyer may extract four (4.0) acre-feet of groundwater per year for operation of its solar power generation facilities located on such 640 acres). Also, during construction of the solar project facilities located on the Property, Buyer or its successors and assigns may extract an additional one hundred and thirty (130) acre-feet of groundwater per year for construction water purposes for each 320 acre portion of land acquired by Buyer (by way of example, if Buyer purchases 640 acres of land, Buyer may extract two hundred sixty (260) acre-feet of groundwater per year for construction water purposes).

(b) [redacted]

(c) [redacted]

(d) [redacted]

(e) [redacted]

2. Purchase Price.

(a) [redacted]

(b) Option Period Payments. [redacted]

[redacted]

3. Vesting. [redacted]

4. Buyer's Investigations. [redacted]

5. Seller Covenants; Possession and Risk of Loss. [redacted]

[redacted]

(b) Possession and Risk of Loss.

(i) [redacted]

[redacted]

6. Condition of Title to Property.

[redacted]

[redacted]

7. Title Insurance. [redacted]

8. Closing.

(a) [redacted]

9. Conditions Precedent to Buyer's Obligation to Perform. [redacted]

[redacted]

10. Deposits into Escrow. [redacted]

[redacted]

11. Prorations. [redacted]

[redacted]

12. Costs and Expenses. [redacted]

13. Procedure for Closing. [redacted]

14. Failure to Close.

(a) [redacted]

[redacted]

[redacted]

15. Remedies.

[redacted]

[redacted]

[redacted]

[redacted]

_____/_____

16. Seller Disclaimer Regarding Physical Condition of Property and Applicable Laws and Regulations.

[redacted]

[redacted]

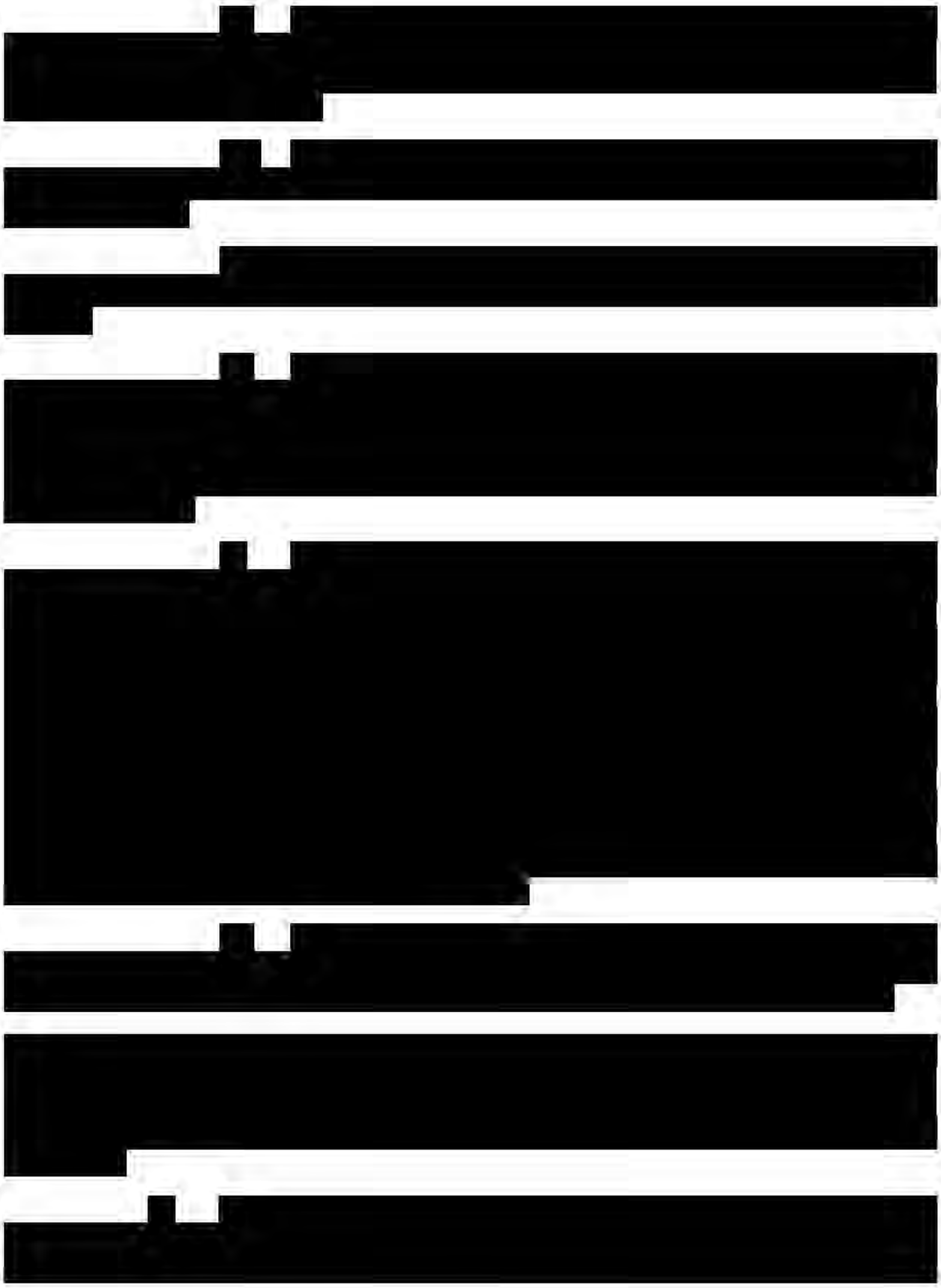
17. Release and Indemnity.

[redacted]

(b) Indemnification By Buyer. [redacted]

(c) Indemnification By Seller. [redacted]

18. Representations, Warranties and Covenants. [redacted]



[redacted]

19. Broker's Commission. [redacted]

20. Time and Computation of Time. [redacted]

21. Effect of Headings. [redacted]

22. Entire Agreement. [redacted]

23. Counterparts and Facsimile Signatures. [redacted]

24. Binding Effect. [redacted]

25. Professionals' Fees. [redacted]

26. Governing Law and Venue. [redacted]

[redacted]

27. Parties in Interest. [redacted]

28. Notices. [redacted]

To Seller:

Westlands Water District
3130 North Fresno Street
Fresno, CA 93703-6056
Attn: Mr. Jose Gutierrez
Fax No.: (559) 241-6277
Email: [redacted]

With a copy (which shall not constitute notice) to:

[redacted]

To Buyer:

IP Land Holdings, LLC
c/o Intersect Power
9450 SW Gemini Drive, PMB #68743
Beaverton, OR 97008-7105
Attention: Legal

[redacted]

29. Survival. [redacted]

30. Severability. [redacted]

31. Cumulative Rights; Waiver. [redacted]

32. Further Action. [redacted]

33. Tax Deferred Exchange. [redacted]

34. Ambiguities. [redacted]

35. Confidentiality. [redacted]

[SIGNATURES ON IMMEDIATELY FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the date first above written.

"Seller"	"Buyer"
Westlands Water District, a California water district	IP Land Holdings, LLC, a Delaware limited liability company
By:_____ Jose Gutierrez Chief Operating Officer	By: _____ Name: Lucas Dunnington Its: President _____

EXHIBIT A TO THE PURCHASE AGREEMENT

Depiction of the Property and List of APNs

[to be included]

EXHIBIT B TO THE PURCHASE AGREEMENT

Form of Grant Deed

RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:

_____
_____
_____
Attention:_____

MAIL TAX STATEMENTS TO:

_____
_____
_____
Attention:_____

_____

(Above Space For Recorder's Use Only)

APN: [_____]

THE UNDERSIGNED GRANTOR(s) DECLARE(s)
DOCUMENTARY TRANSFER TAX is $ _____ CITY TAX $ _____
__computed on full value of property conveyed; or
__computed on full value less value of liens or encumbrances remaining at time of sale.
__ Unincorporated area: __City of _____,

GRANT DEED

FOR GOOD AND VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Westlands Water District, a California water district ("Grantor"), hereby grants to [_____] ("Grantee"), that certain real property (the "Property") located in the County of Fresno, State of California, more particularly described in **Exhibit A** attached hereto and incorporated herein by reference, together with (a) all rights, privileges and easements appurtenant to the Property, as well as all development rights, air rights, and any rights-of-way or other appurtenances used in connection with the beneficial use and enjoyment of the Property and (b) all improvements and fixtures located on the Property (but excluding pipelines and other items owned by Grantor in the nature of public utility facilities).

EXCEPTING THEREFROM AND RESERVING UNTO GRANTOR all minerals, oil, gas and other hydrocarbon substances below a depth of 500' from the surface; provided however, such reservation shall not include any right of surface entry to the Property or the upper 500' from the surface of the Property or any right to otherwise interfere with Grantee's use of the surface of the Property, except through the Drill Site Easement Areas (as defined below).

ALSO RESERVING UNTO THE GRANTOR a non-exclusive easement (the "Drill Site Easement") for exploration, development, production, operation, or maintenance of any wells or facilities for oil and gas operations, or for the drilling, operation, maintenance, repair and replacement of water wells and the location of Grantor's water pipelines, with respect to the portion of the Property described and depicted on **Exhibit B** attached hereto and incorporated herein (collectively, the "Drill Site Easement Area"), together with a non-exclusive easement for ingress and egress (the "Drill Site Access Easement"). The Grantor's use of the Drill Site Access Easement shall be limited to ingress and egress to and from the Drill Site Easement and Grantor's pipelines and other utilities, and Grantor's use of the Drill Site Easement shall be limited to uses related to the Grantor's exploration, development, production, operation, or maintenance of any wells or facilities for oil and gas operations or water well and pipeline operations.

ALSO RESERVING UNTO GRANTOR, the exclusive, permanent right to all surface water allocations and similar entitlements appurtenant to or associated with the Property, including without limitation the right to apply for and receive from Grantor or its successors a ratable allocation of water under California Water Code Section 35420 or any successor statute, but without any surface access rights to the Property except through Drill Site Easement Areas.

ALSO RESERVING UNTO THE GRANTOR the exclusive, permanent right to any groundwater underlying or otherwise appurtenant to or associated with the Property, provided, additionally, that: (i) Grantor shall have the right to use, access or enter the Drill Site Easement Area to remove, exploit, or otherwise benefit from such groundwater; (ii) subject to any duly promulgated regulations of general applicability by any Groundwater Sustainability Agency or similar agency (including Grantor acting in such capacity), Grantee may extract _____ acre-feet of groundwater per year for operation of its solar power generation facilities located on the Property, and (iii) an additional _____ acre-feet of groundwater per year for construction water purposes.

FURTHER RESERVING UNTO TO GRANTOR the exclusive, permanent right to maintain, cause, permit, create, or allow the presence of subsurface water underlying the Property, and the permanent right, in Grantor's sole discretion, to provide drainage or not provide drainage of the subsurface water underlying the Property, but without any surface access rights to the Property, except from the Drill Site Easement Area.

The Property is conveyed subject to the following covenant and restriction, which is hereby reserved by Grantor and imposed on Grantee and all future owners of the Property for the benefit of Grantor and its landowners and water users: Grantee shall not irrigate or apply water to the Property for agricultural purposes.

All covenants and restrictions contained in this Grant Deed shall survive the recordation of this Grant Deed in perpetuity.

IN WITNESS WHEREOF, Grantor has caused its duly authorized representative to execute this instrument as of the date hereinafter written.

DATED: _____

WESTLANDS WATER DISTRICT,
a California water district

By: _____
Name:
Title:

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)

) §

COUNTY OF _____)

On _____, before me, _____ a Notary Public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct

WITNESS my hand and official seal.

(Affix seal here)

_____

Signature of Notary

EXHIBIT A to FORM OF GRANT DEED

Legal Description

EXHIBIT B to FORM OF GRANT DEED

Drill Site Easement Areas

EXHIBIT C TO THE OPTION AGREEMENT

MEMORANDUM OF OPTION AGREEMENT TO PURCHASE REAL PROPERTY

Recording requested by

And when recorded mail to:

IP Land Holdings, LLC
c/o Intersect Power
9450 SW Gemini Drive, PMB #68743
Beaverton, OR 97008-7105
Attention: Legal

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

MEMORANDUM OF OPTION AGREEMENT TO PURCHASE REAL PROPERTY

THIS MEMORANDUM OF OPTION AGREEMENT TO PURCHASE REAL PROPERTY ("Memorandum"), dated as of _____, 2022 (the "Effective Date"), is entered into by and between Westlands Water District, a California water district ("Seller"), and IP LAND HOLDINGS, LLC, a Delaware limited liability company ("Buyer"). All capitalized terms used but not otherwise defined herein shall have the meanings ascribed to them in the Purchase Agreement (defined below).

Seller and Buyer have entered into an unrecorded Option Agreement to Purchase Real Property dated as of the _____, 2022 (the "Option Agreement"), whereby Seller has granted Buyer an option to purchase, and Buyer has accepted an option to purchase, all or a portion of that certain real property located in Fresno County, California, and which is more particularly described in **Exhibit A** attached hereto and made a part hereof (the "Property"), upon and subject to the terms and conditions set forth therein.

The Option Agreement has a term beginning on the Effective Date and ending on the date that is six (6) years thereafter, although the Option Agreement is subject to earlier termination on the happening of various events.

The purpose of this Memorandum is to give notice of the existence of the Option Agreement, which itself constitutes the agreement of the parties. This Memorandum may be executed in counterparts.

[Signature Page to Memorandum of Option Agreement to Purchase Real Property]

SELLER:

Westlands Water District,
a California water district

By:_____
Jose Gutierrez
Chief Operating Officer

BUYER:

IP LAND HOLDINGS, LLC,
a Delaware limited liability company

By: _____
Name: Lucas Dunnington
Its: President

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)

) §

COUNTY OF _____)

On _____, before me, _____ a Notary Public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct

WITNESS my hand and official seal.

(Affix seal here)

_____

Signature of Notary

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF _____)

) §

COUNTY OF _____)

On _____, before me, _____ a Notary Public, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct

WITNESS my hand and official seal.

(Affix seal here)

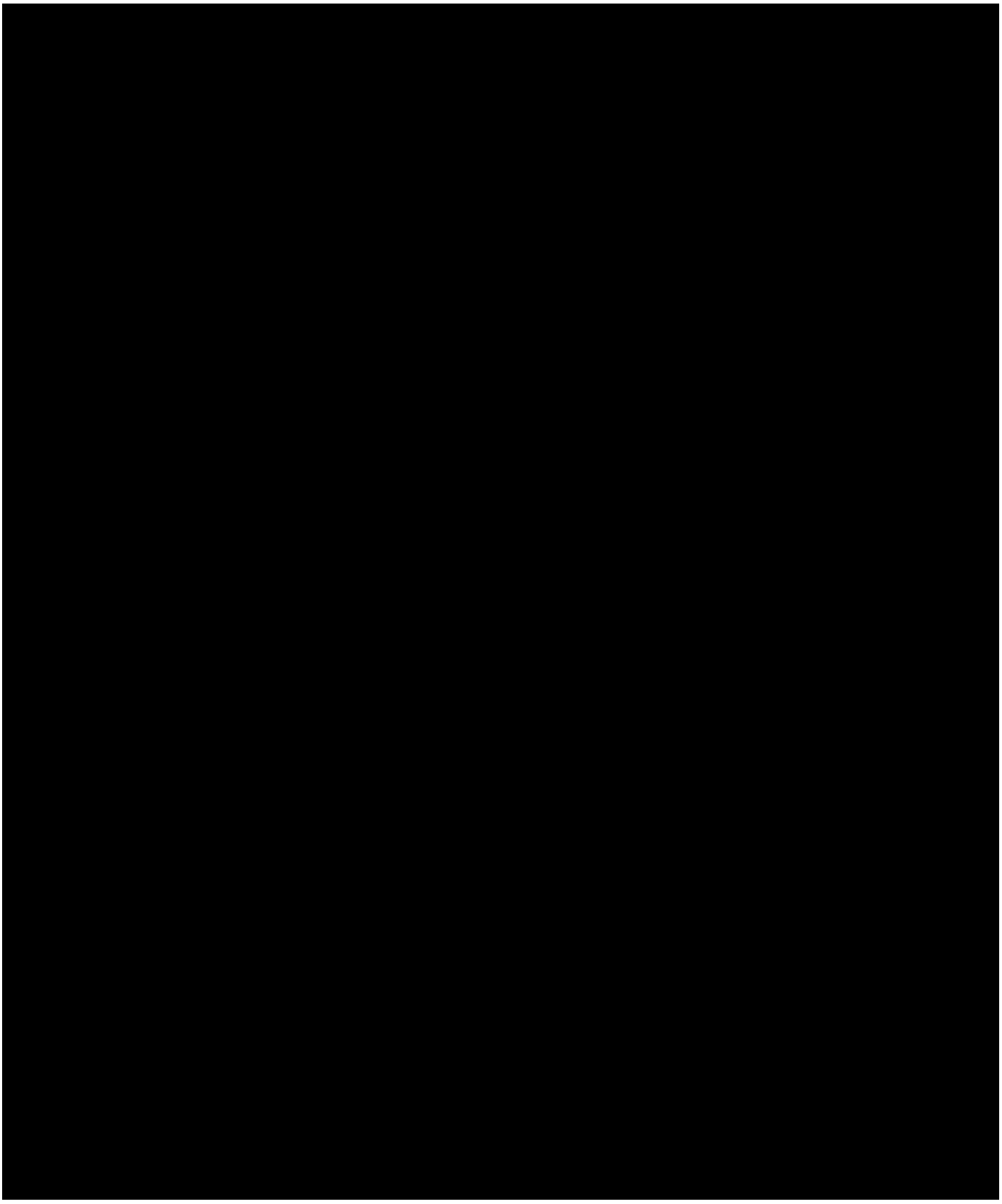
_____

Signature of Notary

Exhibit A
to Memorandum of Option Agreement

Legal Description

EXHIBIT D TO THE OPTION AGREEMENT



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STATE OF _____)

) §

COUNTY OF _____)

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WITNESS my hand and official seal.

(Affix seal here)

_____

Signature of Notary

EXHIBIT A
To Termination of Memorandum of Purchase and Sale Agreement and Escrow Instructions

Legal Description

[Insert legal description of Property or portion thereof affected by Termination Agreement]

EXHIBIT E TO THE OPTION AGREEMENT

SCHEDULE OF OPTION PERIOD PAYMENTS