

Public Review Mitigated Negative Declaration

100 Tower Road 252 MW Battery Energy Storage System

August 15, 2024



Prepared by
EMC Planning Group

PUBLIC REVIEW MITIGATED NEGATIVE DECLARATION

100 TOWER ROAD 252 MW BATTERY ENERGY STORAGE SYSTEM

PREPARED FOR

Merced County Community & Economic Development

2222 M Street

Merced, CA 95340

Tel 209.385.7654 ext. 4407

Planning@countyofmerced.com

PREPARED BY

EMC Planning Group Inc.

601 Abrego Street

Monterey, CA 93940

Tel 831.649.1799

Fax 831.649.8399

Teri Wissler Adam, Senior Principal

wissler@emcplanning.com

www.emcplanning.com

August 15, 2024

This document was produced on recycled paper.



PUBLIC REVIEW MITIGATED NEGATIVE DECLARATION

In Compliance with the California Environmental Quality Act (CEQA)

Project Name	100 Tower Road 252 MW Battery Energy Storage System
Lead Agency	Merced County Community & Economic Development
Project Proponent	Cougar Energy Storage 1, LLC
Project Location	100 North Tower Road, unincorporated Merced County (Battery Storage Container and Substation) and North Tower Road, City of Merced (underground transmission wires)
Project Description	The proposed project involves the construction of a battery energy storage system (BESS) consisting of lithium-ion battery modules with 315 containers (each container comprised of 40 battery modules) and off-site underground transmission wires connecting to the PG&E substation.
Public Review Period	August 16, 2024 to September 16, 2024
Written Comments To	Tiffany Ho, Deputy Director of Planning Merced County Community & Economic Development 2222 M Street Merced, CA 95340 Tiffany.Ho@countyofmerced.com
Proposed Findings	The Merced County Community & Economic Development is the custodian of the documents and other material that constitute the record of proceedings upon which this decision is based. The initial study indicates that the proposed project has the potential to result in significant adverse environmental impacts. However, the mitigation measures identified in the initial study would reduce the impacts to a less than significant level. There is no substantial evidence, in light of the whole record before the lead agency Merced County Community & Economic Development that the project, with mitigation measures incorporated, may have a significant effect on the environment. See the following project-specific mitigation measures:

Mitigation Measures

Agriculture and Forest Resources

AG-1 The applicant shall convey, or arrange for the conveyance of, an agricultural easement to a qualified entity for a total of 10.9 acres. The agricultural easement land shall be of equivalent quality to the land proposed for conversion (i.e., 0.4 acres of Prime Farmland, 9.7 acres of Unique Farmland, and 0.8 acres of Farmland of Local Importance). The agricultural easement is subject to review and approval by the Merced County Community and Economic Development Department prior to issuance of a building permit.

Biological Resources

BIO-1 Prior to the project commencement, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of special-status species potentially occurring in the project vicinity, including, but not limited to, San Joaquin kit fox, Swainson's hawk, and nesting birds and raptors. Their habitats, general measures that are being implemented to conserve species as they relate to the project, and the boundaries within which construction activities will occur will be explained. Informational handouts with photographs clearly illustrating the species' appearances shall be used in the training session. All new construction personnel shall undergo this mandatory environmental awareness training. The project applicant shall document evidence of completion of this training by a letter report prepared by the biologist and submitted to the Merced County Community and Economic Development Department, where it will be kept on file.

BIO-2 The U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the *San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011) shall be implemented prior to initiation of and during any construction activity on the project site to avoid unintended take of individual San Joaquin kit foxes.

Preconstruction/pre-activity surveys for San Joaquin kit fox shall be conducted no less than 30 days prior to the beginning of ground disturbance and/or construction activities that may impact San Joaquin kit fox. The surveys shall include all work areas and a minimum 200-foot buffer of the project site. The preconstruction surveys shall identify kit fox habitat features on the project site, evaluate use by kit fox and, if possible, assess the potential impacts of the proposed activity. The status of all dens shall be determined and mapped.

If a natal/pupping den is discovered within the project area or within 200 feet of the project boundary, the applicant shall consult with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service to establish an appropriate avoidance buffer. The avoidance buffer shall be maintained until such time as the burrow is no longer active and/or an incidental take permit is determined to be required and is obtained.

In addition, the following measures shall be observed:

- a. Project-related vehicles shall observe a 20-mph speed limit in all project areas. Night-time construction shall be prohibited. Off-road traffic outside of the designated project area shall be prohibited.
- b. To prevent inadvertent entrapment of kit foxes or other animals during construction, all excavated, steep-walled holes or trenches more than two feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 11 of the Construction and Operational Requirements in the Standardized Recommendations must be followed.
- c. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the U.S. Fish and Wildlife Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.
- d. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.
- e. No firearms shall be allowed on the project site during construction activities.
- f. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on site during construction activities.
- g. Use of rodenticides and herbicides on the project site during construction or operation shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project related restrictions deemed necessary by the U.S. Fish and Wildlife Service. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.
- h. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape.

- i. Any contractor, employee, or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service.

BIO-3 The following measures shall be implemented to avoid loss of or harm to Swainson's hawk:

- a. Construction of the off-site transmission lines (i.e., trenching) shall be completed during the nonbreeding season for raptors (September 16–January 31).
- b. If construction of the off-site transmission lines cannot be timed outside of the nesting season, to avoid, minimize, and mitigate potential impacts on Swainson's hawk and other raptors nesting on or adjacent to the project site, the applicant shall retain a qualified biologist to conduct preconstruction surveys and identify active nests on and within 0.5 mile of the project site for construction activities conducted during the breeding season (February 1–September 15). The surveys shall be conducted before the approval of grading and/or building plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction. Guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) shall be followed for surveys for Swainson's hawk. If no nests are found, a letter report will be prepared by the biologist and submitted to the California Department of Fish and Wildlife and the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.
- c. If found, impacts to nesting Swainson's hawks shall be avoided by establishing appropriate buffers around active nest sites. No project activity shall commence within the buffer areas until a qualified biologist has determined, in coordination with California Department of Fish and Wildlife, the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. California Department of Fish and Wildlife guidelines recommend implementation of 0.25- or 0.5-mile-wide buffers for Swainson's hawk nests, but the size of the buffer may be decreased if a qualified biologist, in consultation with California Department of Fish and Wildlife, determine that such an adjustment would not be likely to adversely affect the nest.

Monitoring of all active nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist.

- d. If impacts to Swainson's hawk cannot be avoided, consultation with the California Department of Fish and Wildlife will be conducted, and an Incidental Take Permit will be obtained. Compliance with permit conditions shall be required prior to the start of disturbance activities.

BIO-4 To avoid impacts to nesting birds during the nesting season (January 15 through September 15), all construction activities should be conducted between September 16 and January 14, which is outside of the bird nesting season. If construction or project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys.

- a. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available may be surveyed from within the site or from public areas. If no nesting birds are found, a letter report will be prepared by the biologist and submitted to the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.
- b. If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. Once the absence of nesting birds has been confirmed, a letter report will be prepared by the biologist and submitted to the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.

BIO-5 If impacts to the drainage channel north of the orchard or the drainage channel west of North Tower Road cannot be avoided, prior to approval of a building permit, the applicant will retain a qualified biologist to determine the extent of potential wetlands and waterways ("wetland delineation") regulated by the United States Army Corps of Engineers and/or Regional Water Quality Control Board.

- a. If the U.S. Army Corps of Engineers claims jurisdiction, the applicant shall obtain a Clean Water Act Section 404 Nationwide Permit. If the impacts to the drainage does not qualify for a Nationwide Permit, the applicant will proceed in obtaining an Individual Permit. The applicant will then coordinate with the Regional Water Quality Control Board to obtain a Clean Water Act Section 401 Water Quality Certification.
- b. If the U.S. Army Corps of Engineers does not claim jurisdiction and Waters of the State will be impacted, a Waste Discharge Requirement (or waiver) will be obtained from the Regional Water Quality Control Board.

BIO-6 Prior to initiation of ground disturbance or construction activities, the applicant shall protect waterways adjacent to the project site through the use of best management practices for erosion control and vehicle/equipment fueling. This will include the installation of silt fencing between the project site and adjacent waterways. The silt fencing will prevent soil from washing off the project site into waterways and exclude construction activities from the drainage channels.

Potential fuel spills and leaks from construction vehicle/equipment fueling operations shall be prevented from entering waterways. Designated fueling areas should be on a level grade and must be at least 50 feet from any waterway. The fueling area should be protected by a berm to prevent any runoff from leaving the fueling area.

Cultural Resources

CUL-1 The following language shall be incorporated into any plans associated with tree removal, grading, and construction, “In the event that archaeological resources are encountered during ground disturbing activities, contractor shall temporarily halt or divert excavations within a 50 meter (165 feet) of the find until it can be evaluated. All potentially significant archaeological deposits shall be evaluated to demonstrate whether the resource is eligible for inclusion on the California Register of Historic Resources, even if discovered during construction. If archaeological deposits are encountered, they will be evaluated and mitigated simultaneously in the timeliest manner practicable, allowing for recovery of materials and data by standard archaeological procedures. For prehistoric archaeological sites, this data recovery involves the hand-excavated recovery and non-destructive analysis of a small sample of the deposit. Historic resources shall also be sampled through hand excavation, though architectural features may require careful mechanical exposure and hand excavation.

Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation (DPR) forms and evaluated for significance by a qualified Archaeologist. Significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, fossils, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites.”

CUL-2 The following language shall be incorporated into any plans associated with tree removal, grading, and construction, “In the event that human remains (or remains that may be human) are discovered at the project site, Public Resource Code Section 5097.98 must be followed. All grading or earthmoving activities shall immediately stop within 50 meters (165 feet) of the find. The Merced County Coroner will be notified immediately, and the coroner shall be permitted to examine the remains as required by California Health and Safety Code Section 7050.5(b).

Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If human remains are determined as those of Native American origin, the project proponent shall comply with the state relating to the disposition of Native American burials that fall within the jurisdiction of the NAHC (Public Resource Code [PRC] § 5097). The coroner shall contact the Native American Heritage Commission (NAHC) to determine the most likely descendant(s) (MLD). The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD will determine the most appropriate means of treating the human remains and associated grave artifacts, and shall oversee the disposition of the remains. In the event the NAHC is unable to identify an MLD or the MLD fails to make a recommendation within 48 hours after being granted access to the site, the landowner or his/her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity within the project area in a location not subject to further subsurface disturbance if: a) the Native American Heritage Commission is unable to identify the MLD or the MLD failed to make a recommendation within 48 hours after being allowed access to the site; b) the descendant identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.”

Geology and Soils

GEO-1 Prior to issuance of a building permit, the project developer shall prepare an erosion control plan for review and approval by the Merced County Building Department.

GEO-2 The following language shall be included on all building permits: “If paleontological resources are discovered during demolition and earthmoving activities, work shall stop within 100 feet of the find until a qualified paleontologist can assess if the find is unique and, if necessary, develop appropriate treatment measures in consultation with the Merced County Community and Economic Development Department.”

Hazards and Hazardous Materials

HAZ-1 Prior to approval of a building permit, and subject to review and approval by the Merced County Fire Department, the applicant shall prepare and submit a fire protection plan or a fire protection basis of design to include, but not be limited to the following components:

- a. Appropriate setbacks (to be determined by the fire department);
- b. Design ensuring best management of fire control;
- c. Fire department access;
- d. Water and fire suppression/extinguishing systems;
- e. Fire alarm systems;
- f. Signage; and
- g. Other components as may be required by the fire department.

The plan shall be implemented during construction and operations of the proposed project.

Hydrology and Water Quality

HYDRO-1 The project developer shall obtain a determination from the County's Supervising Building Inspector/Floodplain Manager whether the project requires certification by a registered professional engineer or architect demonstrating that the project's encroachment into the floodway would not result in any increase in the base flood elevation during the occurrence of the base flood discharge. If the County's Supervising Building Inspector/Floodplain Manager determines that this is required, the project developer must provide this and submit for approval to the County's Supervising Building Inspector/Floodplain Manager prior to issuance of a building permit. If the County's Supervising Building Inspector/Floodplain Manager determines this is not necessary, no further action is required.

PUBLIC REVIEW INITIAL STUDY

100 TOWER ROAD 252 MW BATTERY ENERGY STORAGE SYSTEM

PREPARED FOR

Merced County Community & Economic Development

2222 M Street

Merced, CA 95340

Tel 209.385.7654 ext. 4407

Planning@countyofmerced.com

PREPARED BY

EMC Planning Group Inc.

601 Abrego Street

Monterey, CA 93940

Tel 831.649.1799

Fax 831.649.8399

Teri Wissler Adam, Senior Principal

wissler@emcplanning.com

www.emcplanning.com

August 15, 2024

This document was produced on recycled paper.



TABLE OF CONTENTS

A.	BACKGROUND.....	1
B.	ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED.....	13
C.	DETERMINATION.....	14
D.	EVALUATION OF ENVIRONMENTAL IMPACTS	15
1.	Aesthetics	17
2.	Agriculture and Forest Resources.....	19
3.	Air Quality.....	24
4.	Biological Resources	28
5.	Cultural Resources	45
6.	Energy.....	48
7.	Geology and Soils	49
8.	Greenhouse Gas Emissions	53
9.	Hazards and Hazardous Materials.....	55
10.	Hydrology and Water Quality	59
11.	Land Use and Planning	64
12.	Mineral Resources.....	66
13.	Noise.....	67
14.	Population and Housing.....	69
15.	Public Services.....	70
16.	Recreation	72
17.	Transportation.....	73
18.	Tribal Cultural Resources	74
19.	Utilities and Service Systems	75
20.	Wildfire	77
21.	Mandatory Findings of Significance.....	78
E.	SOURCES.....	80

Appendices

Appendix A	CalEEMod Results
Appendix B	Special-Status Species in the Project Vicinity
Appendix C	Acoustical Analysis

Figures

Figure 1	Location Map	5
Figure 2	Aerial Map	7
Figure 3	Site Photographs	9
Figure 4	Site Plan.....	11
Figure 5	Important Farmlands	21
Figure 6	Aquatic Features and Habitat Map	31
Figure 7	Special-Status Species with Potential to Occur in the Project Vicinity	35

Tables

Table 3-1	Project Characteristics.....	24
Table 3-2	Construction Criteria Air Pollutant Emissions	26

A. BACKGROUND

Project Title	100 Tower Road 252 MW Battery Energy Storage System
Lead Agency Contact Person and Phone Number	Tiffany Ho, Deputy Director of Planning (209) 385-7654 ext. 4407
Date Prepared	August 2024
Study Prepared by	EMC Planning Group Inc. 601 Abrego Street Monterey, CA 93940
Project Location	100 North Tower Road, unincorporated Merced County (Battery Storage Container and Substation) and North Tower Road, City of Merced (undergrounding transmission wires)
Project Sponsor Name and Address	Cougar Energy Storage 1, LLC C/O New Leaf Energy, Inc. William Peregoy 55 Technology Drive, Suite 102 Lowell, MA 01851
General Plan Designation	County of Merced (Storage Site): Agricultural City of Merced (undergrounding transmission wires): Manufacturing/Industrial
Zoning	County of Merced (Storage Site): General Agricultural (A-1) City of Merced (undergrounding transmission wires): Heavy Industrial (I-H)

Setting

Battery Energy Storage and Substation Project Site

The approximate ten-acre battery energy storage and substation project site (APN 062-063-018) is located at 100 North Tower Road, approximately one-half mile south of State Route 140 in unincorporated Merced County. Surrounding uses include row crops and Universal Service Recycling to the north, an orchard and farmhouse to the south, and a channelized drainage (Fairfield Canal), farmhouse, and an orchard to the east. The PG&E Wilson substation, an agricultural processing plant, and additional PG&E facilities are located west across North Tower Road. Properties to the north and west are within the Merced city limits.

The project site is an active orchard, with an existing farmhouse and accessory structures. The project site is designated Agricultural land use in the *2030 Merced County General Plan* (“County General Plan”) and zoned A-1 (General Agricultural).

115kV Transmission Poles/Overhead Wires and Adjacent PG&E Wilson Substation

There are existing 115kV transmission poles and overhead wiring on the east and west side of North Tower Road from its intersection with East Childs Avenue to the south and its intersection with State Route 140 to the north. The PG&E Wilson Substation and additional PG&E facilities are located west of the site, across North Tower Road. As discussed below under Description of Project, the project will connect to the adjacent PG&E Wilson Substation by both overhead and underground transmission wires. The undergrounding of the transmission wires is considered part of the off-site improvements and is located within the city limits of Merced and is designated as Manufacturing/Industrial land use in the *Merced Vision 2030 General Plan* (“City General Plan”) and zoned I-H (Heavy Industrial).

[Figure 1, Location Map](#), presents the regional location of the project site. [Figure 2, Aerial Map](#), shows the project site and its proximity to surrounding uses and the city limits of Merced, and [Figure 3, Site Photographs](#), provides a visual of the surrounding area.

Description of Project

The applicant is requesting that the County of Merced (“County”) approve an administrative permit to develop and construct a battery energy storage system (BESS) adjacent to the existing PG&E Wilson substation. [Figure 4, Site Plan](#), shows the proposed site plan.

Project Components

Modules

The BESS will consist of lithium-ion based battery modules housed in purpose-built metal enclosures, with integrated power conversion equipment and fire suppression systems. In addition, the BESS will have interconnection equipment including transformers and inverters, and the system will be completely enclosed within a seven-foot-high perimeter fence.

Containers

The project proposes a total of 315 containers for the site; each container is comprised of 40 battery modules (discussed above). Construction will initially involve only 250 containers with the remaining 65 containers installed as part of the augmentation process. As the batteries’ storage capacity degrades over time, additional batteries will be installed to maintain system size. Each container will be installed on concrete pads – all 315 concrete pads will be installed as part of the initial construction phase. The remainder of the site will have crushed gravel or rock in between the concrete pads.

Transmission Poles and Undergrounding

Interconnection to the adjacent PG&E substation will require a combination of both on-site 115kV transmission poles for the overhead wires and off-site undergrounding of the wires. The interconnection of the transmission poles and overhead wires will run from the project's substation to North Tower Road. The wires will then be underground and run west across North Tower Road onto the adjacent PG&E property, and then turn north towards an open bay in the substation on the backside of the property parcel. The transmissions poles and wires would be located within Merced County and considered on-site improvements while the undergrounding of the transmission wires would be located within the city limits of Merced and are considered off-site improvements. The trenching for the underground transmission wires route will be approximately five feet wide and three feet deep and no soil will be removed off-site as trenching will be backfilled and compacted.

Access and Vehicle Parking

Both during the construction and operation of the project, access to the site will be via a proposed 20-foot-wide gravel access road at the northern end of the project site from North Tower Road and extend east along the center of the site and proposed modules. There will be adequate area on the property for vehicle parking and equipment staging during construction and operational phases. No supplies are required to be stored on the site.

Utilities

The BESS will not utilize any water, produce any waste, or require any other public utilities. Minimal amounts of water would only be used during construction for dust control purposes.

The BESS will have minimal lighting for safety at night.

BESS Operation

After completion of construction activities, which are expected to take 6-12 months, the BESS will operate unstaffed. The system will be monitored remotely, and regular operations and maintenance will be conducted quarterly by service personnel estimated to be one to two persons with one vehicle.

The BESS will operate continuously for the expected project operational term of 30 years. Typical operation of the system will include charging from the grid during the day and discharging during peak electric demand (typically during the evening/night). Vehicle trips are estimated to be approximately four yearly trips for maintenance purposes.

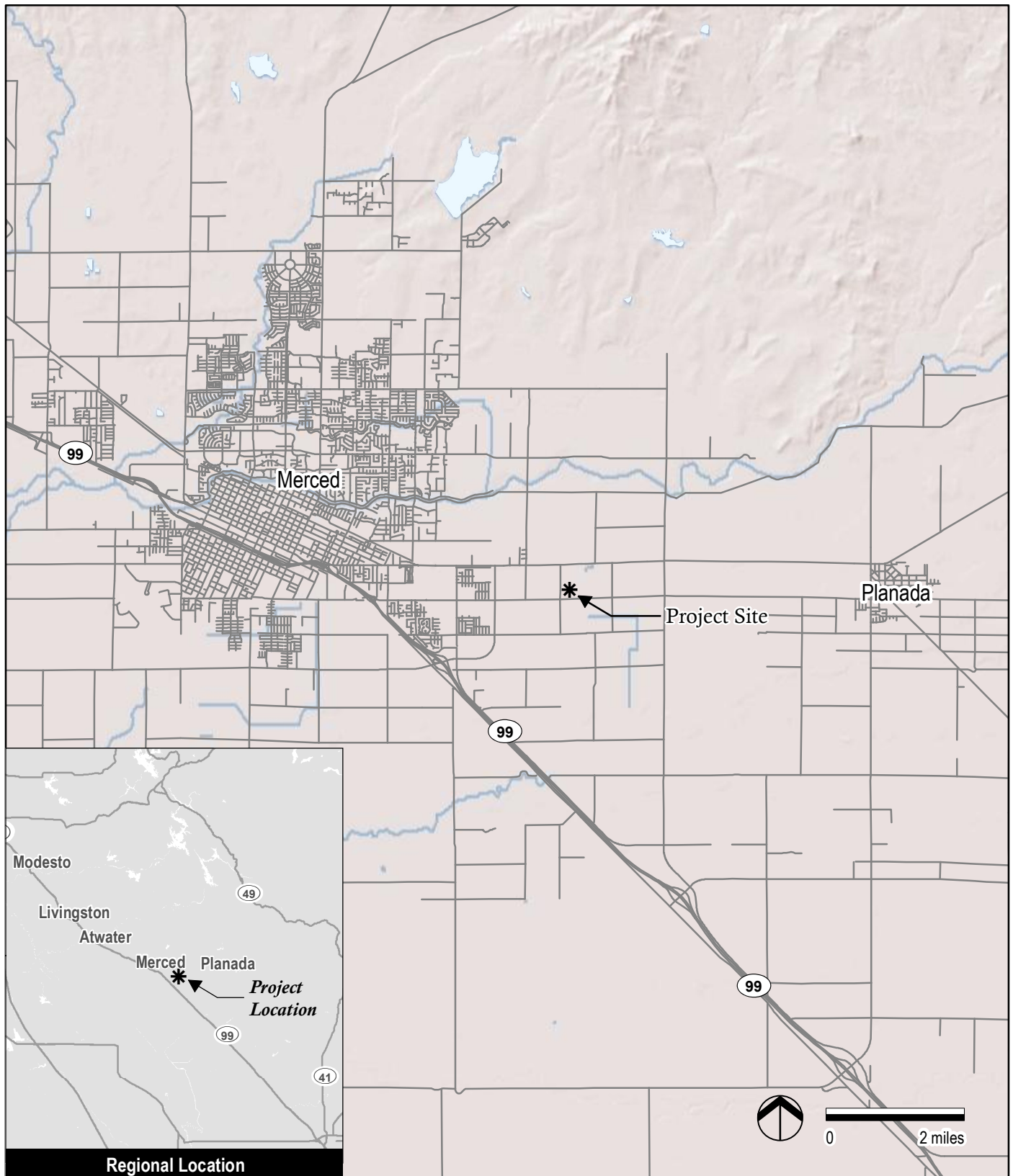
Other Public Agencies Whose Approval May Be Required

- City of Merced (encroachment permits)
- County of Merced (building and encroachment permits)
- U.S. Army Corps of Engineers (Section 404 Wetlands Permit)
- Regional Water Quality Control Board (Section 401 Water Quality Certification)

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1?

The project site is not within the geographical area of the Table Mountain Rancheria, or any tribes that have requested consultation pursuant to AB 52. Therefore, no consultation is needed (Valeria Renteria, email message, April 4, 2024).

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

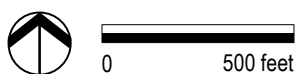
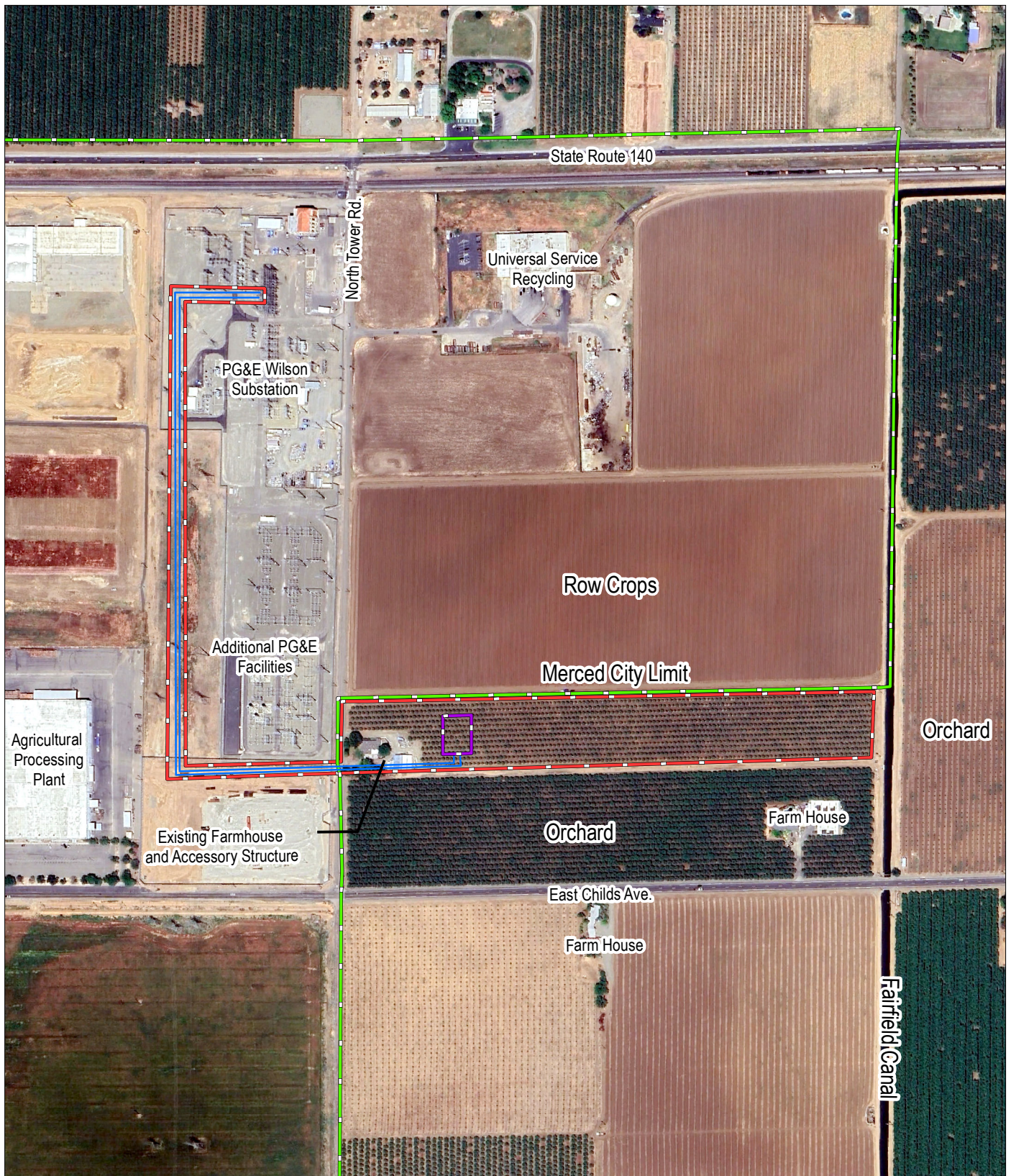


Source: ESRI 2024

Figure 1
Location Map



This side intentionally left blank.



Source: Merced County GIS 2024, Google Earth 2024

- Project Site
- Proposed Substation
- Merced City Limit
- Proposed Transmission Lines



Figure 2
Aerial Map

This side intentionally left blank.



① On North Tower Road facing southeast.



② On North Tower Road facing northeast at the on-site residence.



③ On North Tower Road facing west.



- Project Site
- Proposed Substation
- Proposed Transmission Lines

Source: Google Earth 2024
Photographs: Google Earth 2024

Figure 3
Site Photographs

This side intentionally left blank.



Source: NewLeaf Energy 2024

Figure 4
Site Plan

This side intentionally left blank.

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|---|--|---|
| ☐ Aesthetics | ☐ Greenhouse Gas Emissions | ☐ Public Services |
| ☐ Agriculture and Forestry Resources | ☐ Hazards & Hazardous Materials | ☐ Recreation |
| ☐ Air Quality | ☐ Hydrology/Water Quality | ☐ Transportation |
| ☐ Biological Resources | ☐ Land Use/Planning | ☐ Tribal Cultural Resources |
| ☐ Cultural Resources | ☐ Mineral Resources | ☐ Utilities/Service Systems |
| ☐ Energy | ☐ Noise | ☐ Wildfire |
| ☐ Geology/Soils | ☐ Population/Housing | ☐ Mandatory Findings of Significance |

C. DETERMINATION

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Tiffany Ho, Deputy Director of Planning

Date

D. EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analyses Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance

1. AESTHETICS

Except as provided in Public Resources Code Section 21099 (Modernization of Transportation Analysis for Transit-Oriented Infill Projects), would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Comments:

- a. According to the County General Plan, there are several scenic vistas within the County, including: the Coastal and Sierra Nevada Mountain ranges, and the Los Banos Creek, Merced, San Joaquin, and Bear Creek River corridors (Merced County, 2013, p. NR-8). The approximate 10-acre project site (APN 062-063-018) is located at 100 North Tower Road, approximately one-half mile south of State Route 140 in unincorporated Merced County. Surrounding uses include row crops and Universal Service Recycling to the north, an orchard and farmhouse to the south, a channelized drainage (Fairfield Canal), farmhouse, and an orchard to the east, and the PG&E Wilson substation, an agricultural processing plant, and additional PG&E facilities to the west. Given the project's location, it would not have a substantial adverse effect on any of the scenic vistas in Merced County.

The City of Merced defines scenic vistas as expansive views of highly valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as topography, water courses, rock outcrops, and natural vegetation as well as manmade scenic structures (City of Merced 2010, p. 3.1-4). The project site will involve overhead transmission lines and poles from the proposed on-site substation to North Tower Road and undergrounding of the transmission wires will be proposed across North Tower Road on a route that runs west and then north to the PG&E Wilson Substation.

The on-site transmission poles are approximately 75-90 feet in height. Views from northbound/southbound travelers on North Tower Road looking northeast and southeast, respectively, do not include the scenic vistas identified by the *Merced Vision 2030 General Plan Draft Program Environmental Impact Report*. Therefore, the on-site transmission poles/lines would not have a substantial adverse effect on a scenic vista in the City of Merced.

- b. The project site is located approximately one-half mile south of the nearest state highway, State Route 140 (Central Yosemite Highway), which is not a designated scenic highway. Therefore, the project would not substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.
- c. The project site is on the edge of urban development, and is designated General Agriculture (A-1), and the proposed project is a conditionally permitted use in the zoning code. The Merced city limits are located immediately north and west of the battery energy storage system project site, which is surrounded by agricultural uses, industrial agricultural uses, and energy facilities (PG&E Wilson substation). The proposed project would convert an existing orchard to a utility infrastructure use but would not conflict with existing zoning or substantially degrade the existing visual character or quality of public views of the site and its surroundings. The impact would be less than significant.
- d. As per the client application, typical operation of the system will include charging from the grid during the day and discharging during peak electric demand at night. At the property lines, the BESS will have minimal lighting for safety at night. The new source of lighting that the system will produce is expected to have a less-than-significant impact on nighttime views in the area. The proposed project would not result in substantial glare that would adversely affect day time views in the area.

2. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts on agricultural resources are significant environmental effects and in assessing impacts on agriculture and farmland, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☒	☐	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Comments:

- a. According to the California Department of Conservation, the project site is primarily designated Unique Farmland, with small portions designated as Prime Farmland on the southeast and northwest portions of the battery energy storage site, and the southwest corner designated Urban and Built-Up Land. The off-site underground transmission lines are located within Farmland of Local Importance and Grazing Land (California Department of Conservation 2024). [Figure 5, Important Farmlands](#), presents these designations on the project site.

Unique farmland consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Farmland of Local Importance is land of importance to the local agricultural economy as determined by the County's board of supervisors and a local advisory committee. Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. Therefore, the proposed project would result in the conversion of 0.4 acres of Prime Farmland, 9.7 acres of Unique Farmland, and 0.8 acres of Farmland of Local Importance to nonagricultural use.

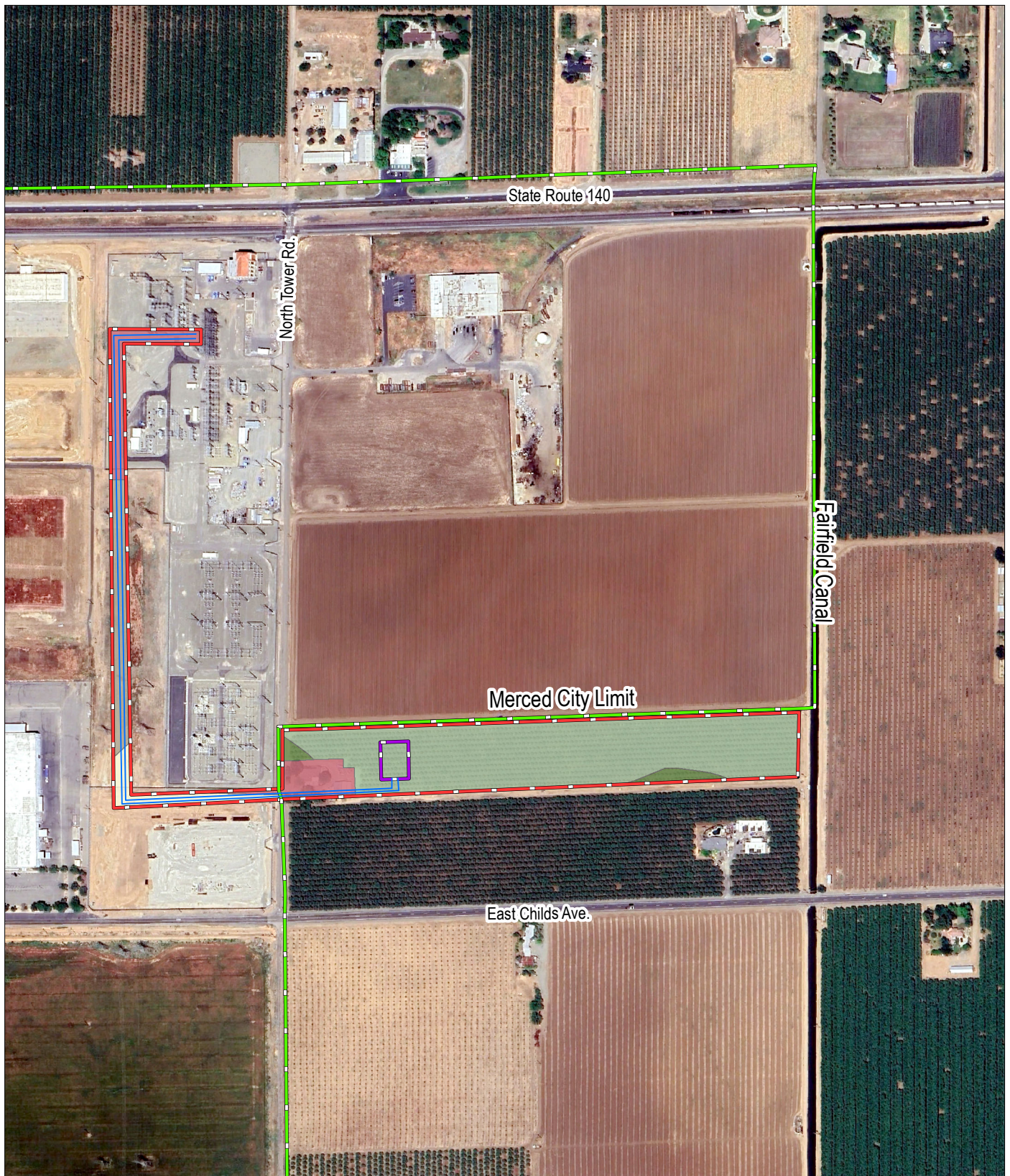
The proposed project may be conditionally permitted within the site's zoning designation of General Agricultural (A-1); however, the County Code Chapter 9.30, Agricultural Mitigation, defines productive agricultural land as land designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Therefore, compliance with County Code Section 9.30.030 is required to reduce impacts associated with conversion of agricultural land to a less-than-significant level. County Code Section 9.30.030.B states that as mitigation for the conversion of productive agricultural land, the applicant shall arrange for the imposition of an agricultural conservation easement on no less than one acre of mitigation land for each acre of land proposed for conversion (i.e., 1:1 ratio).

In compliance with County Code Chapter 9.30 and to reduce impacts to a less-than-significant level, the project is required to implement the following mitigation.

Mitigation Measure

- AG-1 The applicant shall convey, or arrange for the conveyance of, an agricultural easement to a qualified entity for a total of 10.9 acres. The agricultural easement land shall be of equivalent quality to the land proposed for conversion (i.e., 0.4 acres of Prime Farmland, 9.7 acres of Unique Farmland, and 0.8 acres of Farmland of Local Importance). The agricultural easement is subject to review and approval by the Merced County Community and Economic Development Department prior to issuance of a building permit.
- b. According to the *2030 Merced County General Plan Update Draft Program Environmental Impact Report* ("County General Plan EIR"), the battery energy storage project site is not within a Williamson Act contract (Merced County 2012, Figure 6-1). Additionally, the project site is zoned General Agricultural (A-1), which conditionally permits the use of a battery energy storage system (Merced County 2023).

The off-site transmission lines would be located within the City of Merced's Heavy Industrial Zoning District (I-H), which requires a site plan review permit for the proposed transmission lines use, and would not interfere with land under Williamson Act contract (City of Merced 2010, Figure 3.2-2).



Source: Merced County GIS 2024,
Google Earth 2024



- | | | |
|---------------------|-----------------------------|------------------------------|
| Project Site | Proposed Transmission Lines | Farmland of Local Importance |
| Merced City Limit | Prime Farmlands | Grazing Land |
| Proposed Substation | Unique Farmlands | Urban/Built-Up Land |

Figure 5

Important Farmlands



This side intentionally left blank.

The proposed project is an industrial use and therefore, the project would not conflict with existing zoning for agricultural use in the City of Merced. The project would not conflict with lands in a Williamson Act contract.

- c-d. According to the County General Plan EIR, forest land and timberland, or timberland zoned Timberland Production, do not exist within Merced County. Additionally, no forest land and timberland exist within the City of Merced (City of Merced 2010, p. 3.2-7). Therefore, no conflict as a result of the project would occur with existing zoning for forest land, timberland, or timberland production areas nor would the project result in the loss of forest land or conversion of forest land to non-forest use.
- e. As indicated above, there are no forest land within Merced County; therefore, the project would not result in the conversion of forest land to non-forest use.

The project involves the temporary use (30-year operational term) of a BESS and associated facilities. This use would not interfere with the surrounding agricultural operations as the project will operate unstaffed and regular operations and maintenance will be conducted quarterly by service personnel estimated to be one to two persons with one vehicle. Therefore, the temporary nature of the proposed project as well as the project not involving uses that could interfere or otherwise conflict with the surrounding agricultural operations ensure that the project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use.

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions, such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☐	☒

The project is located in the San Joaquin Valley Air Basin, which is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (“air district”). The discussion in this section is based primarily on the air district’s *Guidance for Assessing and Mitigating Air Quality Impacts* (2015) (GAMAQI) the and the results of emissions modeling using the California Emission Estimation Model (CalEEMod) version 2022.1.

The emissions model provides estimates of criteria air pollutant emissions resulting from constructing and operating land use projects. For the proposed project, the model was used to project construction emissions. Operational emissions were not modeled due to nominal sources of operational emissions as described below. The CalEEMod results are included in [Appendix A](#). Data inputs to the model take into account the type and size of proposed uses utilizing CalEEMod default land uses based on the size metrics shown on the project plans. The project land use type and size metrics used are presented in [Table 3-1, Project Characteristics](#).

Table 3-1 Project Characteristics

Land Use Subtype	Unit Size (sq-ft)	Lot Acreage
Industrial Park	435,600	Approx 10.0

SOURCE: CalEEMod version 2022.1, New Leaf Energy 2024

NOTES:

1. CalEEMod default land use subtype. Descriptions of the model default land use categories and subtypes are found in the User’s Guide for CalEEMod Version 2022.1 available online at: <https://caleemod.com/user-guide>.

Comments:

- a. The air district provides guidance on determining potential significant impacts in the GAMAQI. The Air Quality Thresholds of Significance for Criteria Pollutants, Table 2 on page 80 of the GAMAQI, can be used to determine if a project's operational emissions would violate ambient air quality standards. Projects that do not exceed the screening thresholds or criteria pollutant emissions volume thresholds would not conflict with or obstruct implementation of the air quality plan. Projects with emissions that exceed the thresholds have the potential to exceed ambient air quality standards. Such exceedances would be considered a potentially significant impact, as well as a potential conflict with the air quality plan.

The energy storage system collects and stores energy, but itself would be an inconsequential source of operational air pollutant emissions. Although the system will generally operate unstaffed, the facility will need to be periodically inspected and maintained. These routine operation and maintenance activities will be conducted on a quarterly basis. The four annual vehicle trips would be an inconsequential source of mobile-source operational emissions. Electricity demand from facility lighting would also be an inconsequential source of emissions. Consequently, the proposed project would not generate operational criteria air pollutants that would exceed the air district standards and would not conflict with or obstruct implementation of the air quality plan.

- b. **Operational Criteria Air Pollutant Emissions.** As stated above, the proposed project requires little to no energy and would be an inconsequential source of mobile source criteria air pollutant emission during operations. Emissions volumes would be below the thresholds of significance. The proposed project would have less than significant operational criteria air pollutants impacts.

Construction Criteria Air Pollutant Emissions. Construction is expected to take approximately 6-12 months. Grading and site preparation consists of ground disturbance on approximately 10 acres of agricultural land as well as trenching for the underground transmission wire route. This one-time loss of cropland sequestration potential is accounted for in the emissions model. Basic construction activities will include minor grading and trenching; installing concrete foundations for the battery module enclosures, transformers, interconnection equipment, on-site transmission poles, and on- and off-road vehicle use.

Projected construction emissions volumes are shown in [Table 3-2, Construction Criteria Air Pollutant Emissions](#). Volumes would be well below the air district standards. Consequently, construction emissions would have a less than significant impact.

Table 3-2 Construction Criteria Air Pollutant Emissions

	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Sulfur Oxides (SO ₂)	Particulates (PM ₁₀)	Fine Particulates (PM _{2.5})	Carbon Monoxide (CO)
Annual ^{1,2}	1.3	2.0	<0.01	0.4	0.2	3.0
Air District Thresholds ¹	10.0	10.0	27.0	15.0	15.0	100.0
Exceeds Threshold?	No	No	No	No	No	No

SOURCE: CalEEMod version 2022.1, GAMAQI 2015

NOTES:

1. Expressed in tons per year.

2. Values may vary slightly due to rounding.

- c. The nearest sensitive receptor to the project site is a residence located approximately 250 feet south of the southeast corner of the project site boundary. The emissions generated by heavy duty construction equipment could expose the receptor to toxic air contaminants from diesel exhaust. However, receptor exposures would be limited by the short-term duration of construction activity requiring use of diesel-powered construction equipment, the limited need for heavy duty equipment to construct the project, and required use of equipment that conforms to EPA's Tier 4 emissions standards (Environmental Protection Agency 2004). The Tier 4 emission standards, phased-in from 2008 through 2015, achieved substantial reductions in emissions through advanced exhaust gas aftertreatment technologies. As a result of the phase-out of high-emitting Tier 0, 1, and 2 engines, older engines now only account for approximately one-third of the statewide fleet (California Air Resources Board 2023).

The construction of the project would also be required to meet the regulatory standards under District Rule 9510, Indirect Source Rule, and Regulation VIII, Fugitive PM₁₀ Prohibition, as stated in GAMAQI (San Joaquin Valley Air Pollution Control District 2015). District Rule 9510 is intended to reduce the air quality impacts of individual projects, including light industrial development of 20,000 square-feet or greater, through project design elements. Compliance with Rule 9510 will reduce construction exhaust NO_x and PM₁₀ emissions by 20 percent and 45 percent respectively. Regulation VIII requires contractors, developers, and equipment operators to control fugitive dust emissions from specified outdoor fugitive dust sources, such as construction related activities that would disturb equal to or greater than 1-acre of surface area. Fugitive dust measures as specified in in Regulation VIII include:

- Apply water to unpaved surfaces and areas;
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas;
- Limit or reduce vehicle speed on unpaved roads and traffic areas;
- Maintain areas in a stabilized condition by restricting vehicle access;

- During high winds, cease outdoor activities that disturb the soil;
- Keep bulk materials sufficiently wet when handling;
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials;
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions; and
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

For the reasons noted above, the proposed project would have a less-than-significant impact from exposing sensitive receptors to substantial concentrations of toxic air contaminants.

- d. The most common sources of odors identified in complaints received by local air districts are sewage treatment plants, landfills, recycling facilities, waste transfer stations, petroleum refineries, biomass operations, autobody shops, coating operations, fiberglass manufacturing, foundries, rendering plants, and livestock operations. The proposed project would not produce these types or other significant objectionable odors. (SJVUAPCD Guidance for Assessing and Mitigating Air Quality Impacts, page 102-103). Therefore, there would be no impact associated with odor.

4. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Comments:

A reconnaissance-level biological field survey of the project site was conducted by EMC Planning Group biologists Patrick Furtado, M.S., and Rose Ashbach, M.S., on February 27, 2024, to document existing plant communities/wildlife habitats and assess the suitability of the site to support special-status species. A second reconnaissance-level field survey was conducted by Rose Ashbach, M.S., on July 24, 2024. Biological resources were documented in field notes, including plant and wildlife species observed, dominant plant communities, wildlife habitat quality, disturbance levels and aquatic resources.

Prior to conducting the survey, EMC Planning Group biologists reviewed site plans, aerial photographs, natural resource database accounts, and other relevant scientific literature. This included searching the U.S. Fish and Wildlife Service (USFWS) *Endangered Species Database* (USFWS 2024a), California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CDFW 2024a, CDFW 2024b), and California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2024a) to identify special-status plants, wildlife, and habitats known to occur in the vicinity of the project. A review of the USFWS *National Wetlands Inventory* (NWI) database was also conducted to identify jurisdictional aquatic features (wetlands, drainages, and/or riparian areas) on or adjacent to the project site (USFWS 2024b).

Existing Conditions. The approximately ten-acre project parcel (APN 062-063-018) is located at 100 North Tower Road, approximately one-half mile south of State Route 140 in unincorporated Merced County. The project site contains a residential structure, storage barn, and equipment storage on the southwest corner of the parcel with an almond orchard occupying the rest of the site. There are existing 115kV transmission poles and overhead wiring on the east and west side of North Tower Road from its intersection with East Childs Avenue to the south and its intersection with State Route 140 to the north. The PG&E Wilson Substation and additional PG&E facilities are located west of the site, across North Tower Road. The pole locations on the PG&E property were assessed from the road as site access was not permitted.

The proposed transmission lines will be underground as it runs west across North Tower Road onto the adjacent PG&E property, and then turn north towards an open bay in the substation on the backside of the property parcel. The transmission route is located within the City of Merced. The underground transmission line corridor crosses industrial land that was previously disturbed and compacted, with ruderal vegetation, and includes one drainage channel.

The project site is mapped on the Merced U.S Geological Survey (USGS) quadrangle map. The project site and transmission lines are flat at an elevation of approximately 200 feet above sea level (USGS 2024).

Aquatic Features: The NWI identified one aquatic feature adjacent to the project parcel, located outside of the orchard on the eastern boundary. This channel (Fairfield Canal) is described as an excavated intermittent streambed, which was artificially created to move water between two bodies of standing water. The NWI identified an additional “riverine” feature located on the western boundary of the PG&E parcel. However, this feature was not observed during the site visit. There are two drainage channels that serve to collect excess flood irrigation and runoff that were not present in the NWI map. One runs along the north boundary of the project parcel and the second follows the proposed transmission lines west of North Tower Road. [Figure 6, Aquatic Features and Habitat Map](#), illustrates the habitats found within and around the project site.

Plant and Wildlife Habitat. The wildlife habitat within the project parcel and off-site transmission line route consists of the existing cultivated almond orchard, developed areas surrounded with ornamental plants, and compacted soils with ruderal vegetation. Refer to [Figure 6, Aquatic Features and Habitat Map](#).

The cultivated almond orchard is irrigated and devoid of understory vegetation, likely due to herbicide application. Small agricultural weeds within the orchard included: non-native species such as annual poa (*Poa annua*), chickweed (*Stellaria media*), sow thistle (*Sonchus* sp.), wild lettuce

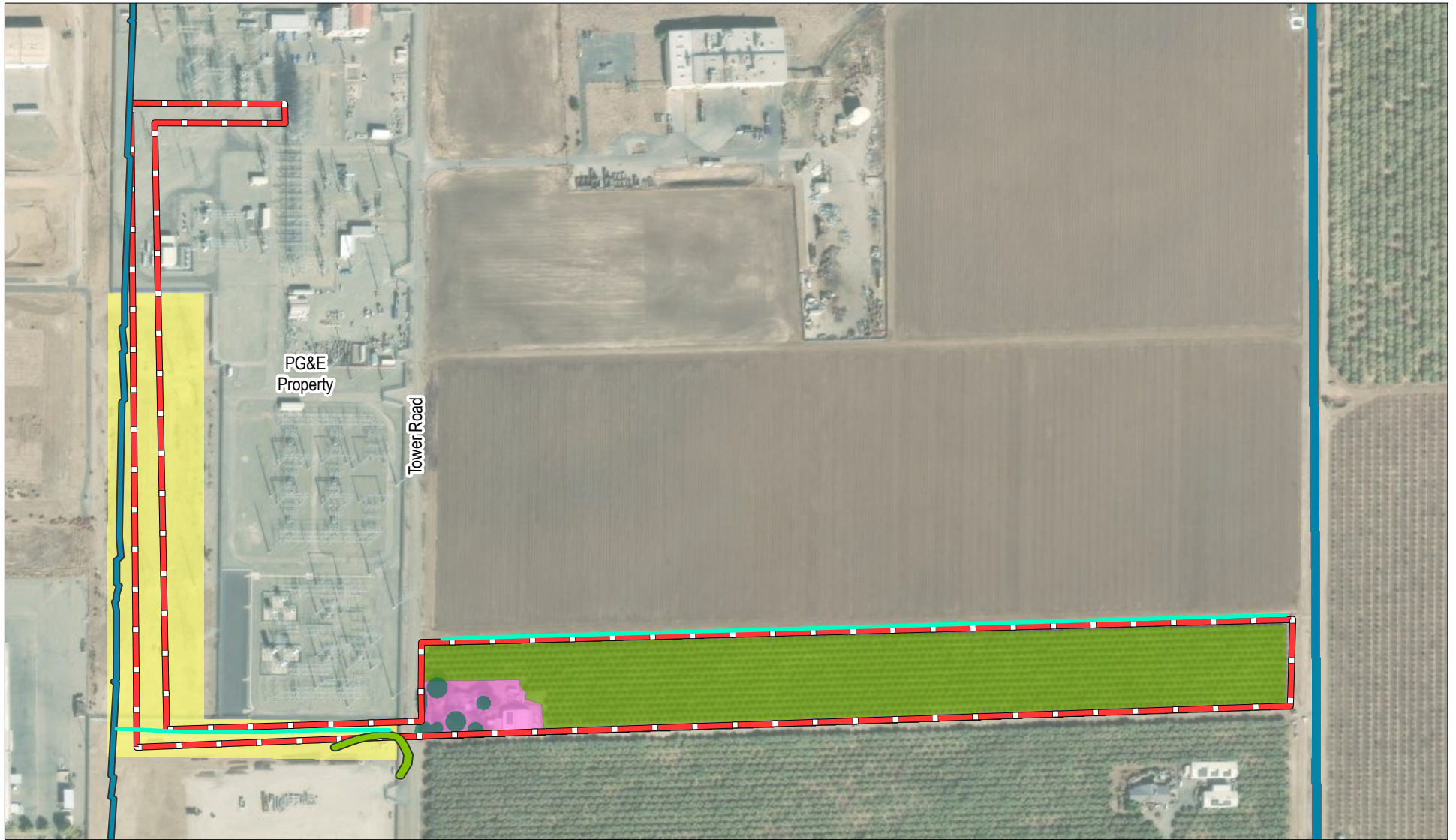
(*Lactuca* sp.), rough cats' ear (*Hypochaeris radicata*), field bindweed (*Convolvulus arvensis*), geranium (*Geranium* sp.), common groundcell (*Senecio vulgare*), crane's bill (*Erodium* sp.), and native red maids (*Calandrinia ciliata*) and willowherb (*Epilobium brachycarpum*). There were many birds within the orchard trees, including western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), brewer's blackbird (*Euphagus cyanocephalus*), and mourning dove (*Zenaida macroura*). No other evidence of wildlife was observed within the orchard.

The developed area outside of the project footprint include a house, barn, and equipment storage. Ornamental vegetation in this area includes three large mature redwood trees (*Sequoia sempervirens*), two ornamental mature hardwood trees (unknown species), a large mature holm oak (*Quercus ilex*), and a nonnative hedgerow of Japanese privet (*Ligustrum japonicum*). Understory species observed included a mix of nonnative herbs including nonnative plants small nettle (*Urtica urens*), nightshade (*Solanum* sp.), annual grasses, milk thistle (*Silybum marianum*) scarlet pimpernel (*Anagallis arvensis*), geranium (*Geranium* sp.), chickweed, and crane's bill. Multiple birds occupied the mature trees, including scrub jays (*Aphelocoma californica*), northern flicker (*Colaptes auratus*), white crowned sparrow (*Zonotrichia leucophrys*), European starlings (*Sturnus vulgaris*), brewer's blackbird, and Eurasian dove (*Streptopelia decaocto*). Three brush rabbits (*Sylvilagus bachmani*) were observed hopping around the stored equipment behind the existing residence. Several large California ground squirrel (*Otospermophilus beecheyi*) burrows were also observed in this area.

Drainage channels were located to the north and east of the project parcel. Both channels supported sparse vegetation and appeared to be regularly maintained and sprayed with herbicide. Some seed leaf stage willowherb and curly dock (*Rumex crispus*) were present within the drainage channel to the north, and some larger mustards (*Brassica* sp.) and annual grasses were present within the drainage channel to the east. Tracks of a small domesticated feline (house cat) were present within the draining channel to the north of the parcel and several small mammal burrows were observed around this drainage.

The proposed off-site transmission lines cross North Tower Road onto the adjacent PG&E property. The first parcel where the transmission lines enter the PG&E property from North Tower Road contains a mix of bare ground and gravel. The remains of dead annual weeds appeared along the fence line and within the drainage channel. A drainage channel is present along the transmission line corridor and ends at the neighboring parcel.

Ruderal vegetation and compacted soils were observed throughout the transmission line corridor along the western boundary of the PG&E property. Bare ground and gravel were observed at the soil surface, along with some moss, likely due to compaction. Vegetation was senescent and included ruderal species including non-native annual grasses wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), Kikuyu grass (*Cenchrus clandestinus*), flax leaved horse weed (*Erigeron bonariensis*), field bindweed (*Convolvulus arvensis*), Russian thistle (*Salsola* sp.), and Johnson grass (*Sorghum halepense*). No birds or other wildlife were observed at the PG&E parcels during the site visit.



Source: ESRI 2024, USFWS NWI 2024

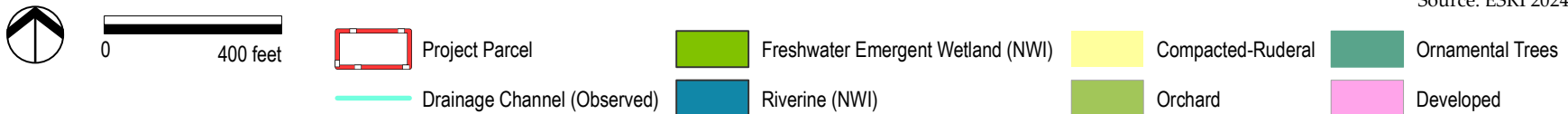


Figure 6

Aquatic Features and Habitat Map

100 Tower Road 252 MW Battery Energy Storage System Initial Study

This side intentionally left blank.

Animal species that could be expected to utilize the project site and off-site transmission line corridor habitats include striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and one or more species of small rodents, including deer mice (*Peromyscus* spp.), harvest mice (*Reithrodontomys* spp.), and California meadow vole (*Microtus californicus*). Common reptiles that could occur on the project site include western fence lizard (*Sceloporus occidentalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), common garter snake (*Thamnophis sirtalis*), and Sierran treefrog (*Pseudacris sierra*) (Jameson and Peeters 2004, Nafis 2023). Larger mammals are not expected within the substation due to the fencing that is present around the parcels.

In addition to the bird species observed during the biological survey, other bird species that may utilize the project parcel include, dark-eyed junco (*Junco hyemalis*), black pheobe (*Sayornis nigricans*), song sparrow (*Melospiza melodia*), California towhee (*Melospiza crissalis*), and yellow-rumped warbler (*Setophaga coronata*) (Cornell Lab of Ornithology 2024).

- a. **Special-Status Species.** Special-status species are those listed as Endangered, Threatened, or Rare, or as candidates for listing by the USFWS and/or CDFW; as Species of Special Concern or Fully Protected species by the CDFW; or as Rare Plant Rank 1B or 2B species by CNPS. [Appendix B, Special-Status Species in the Project Vicinity](#), presents tables with database search results, and lists special-status species documented within the project vicinity, their listing status and suitable habitat description, and their potential to occur on the project site. [Figure 7, Special-Status Species with Potential to Occur in the Project Vicinity](#), presents a map of California Natural Diversity Database results.

Special-Status Plant Species. No special-status plants were observed during the biological survey. Suitable habitat for special-status plant species recorded as occurring in the vicinity of the project site was not found at the project site. Merced phacelia (*Phacelia ciliata* var. *opaca*) was recorded as occurring in the vicinity of the project site, however suitable habitat for this species was not found at the project site.

Special-Status Wildlife Species. Special-status wildlife species with the potential to occur on the project site include San Joaquin kit fox (*Vulpes macrotis*), Swainson's hawk (*Buteo swainsoni*) and tricolored blackbird (*Agelaius tricolor*). However, suitable habitat for tricolored blackbird was not found onsite. Nesting birds and raptors may occur on or in the immediate project vicinity. These species are addressed below.

San Joaquin Kit Fox. The San Joaquin kit fox is a federally-listed endangered species and a state-listed threatened species. The present range of the San Joaquin kit fox extends from the southern end of the San Joaquin Valley, north to Tulare County, and along the interior Coast Range valleys and foothills to central Contra Costa County. San Joaquin kit foxes typically inhabit annual grasslands or grassy open spaces with scattered shrubby vegetation but can also be found in some agricultural habitats and urban areas. This species needs loose-textured sandy soils for burrowing, and they also need areas that provide a suitable prey base, including black-tailed hare, desert cottontails, and California ground squirrels, as well as birds, reptiles, and carrion.

According to the CDFW, San Joaquin kit foxes have become established in urban settings of the Central Valley, such as Bakersfield, Taft, and Coalinga (Harrison et. al 2011). When kit foxes have easy access to trash and pet food, they often lose fear of people and urban environments. There have been multiple individuals reported within 4.1 to 8.6 miles of the project site (Occ. No. 24, 25, 26, 30, CDFW 2024b).

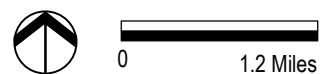
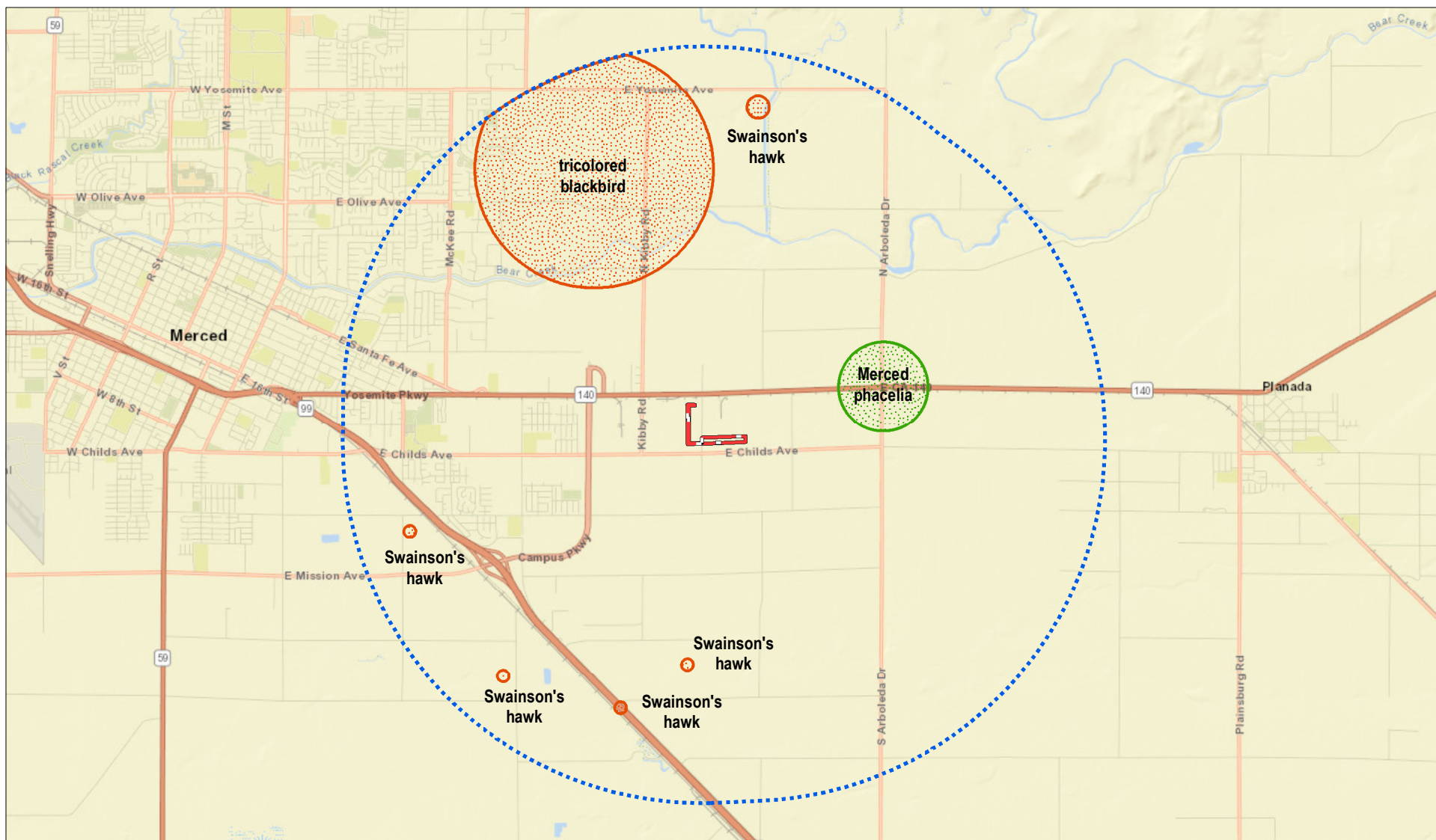
The likelihood of this species occurring on the project site is considered low. However, loss of or harm to individual kit foxes could result if they are present on the site or seek shelter during construction within artificial structures, such as stored pipes or exposed trenches. Loss or harm to San Joaquin kit fox is considered a significant adverse impact. Implementation of the following mitigation measure would reduce the potential, significant impact to San Joaquin kit fox to a less-than-significant level.

Mitigation Measure

BIO-1 Prior to the project commencement, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of special-status species potentially occurring in the project vicinity, including, but not limited to, San Joaquin kit fox, Swainson's hawk, and nesting birds and raptors. Their habitats, general measures that are being implemented to conserve species as they relate to the project, and the boundaries within which construction activities will occur will be explained. Informational handouts with photographs clearly illustrating the species' appearances shall be used in the training session. All new construction personnel shall undergo this mandatory environmental awareness training. The project applicant shall document evidence of completion of this training by a letter report prepared by the biologist and submitted to the Merced County Community and Economic Development Department, where it will be kept on file.

BIO-2 The U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the *San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011) shall be implemented prior to initiation of and during any construction activity on the project site to avoid unintended take of individual San Joaquin kit foxes.

Preconstruction/pre-activity surveys for San Joaquin kit fox shall be conducted no less than 30 days prior to the beginning of ground disturbance and/or construction activities that may impact San Joaquin kit fox. The surveys shall include all work areas and a minimum 200-foot buffer of the project site. The preconstruction surveys shall identify kit fox habitat features on the project site, evaluate use by kit fox and, if possible, assess the potential impacts of the proposed activity. The status of all dens shall be determined and mapped.



Source: CDFW CNDDDB 2024, ESRI 2024



Figure 7
Special-Status Species Map

100 Tower Road 252 MW Battery Energy Storage System Initial Study

This side intentionally left blank.

If a natal/pupping den is discovered within the project area or within 200 feet of the project boundary, the applicant shall consult with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service to establish an appropriate avoidance buffer. The avoidance buffer shall be maintained until such time as the burrow is no longer active and/or an incidental take permit is determined to be required and is obtained.

In addition, the following measures shall be observed:

- a. Project-related vehicles shall observe a 20-mph speed limit in all project areas. Night-time construction shall be prohibited. Off-road traffic outside of the designated project area shall be prohibited.
- b. To prevent inadvertent entrapment of kit foxes or other animals during construction, all excavated, steep-walled holes or trenches more than two feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 11 of the Construction and Operational Requirements in the Standardized Recommendations must be followed.
- c. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the U.S. Fish and Wildlife Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.
- d. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.
- e. No firearms shall be allowed on the project site during construction activities.
- f. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on site during construction activities.
- g. Use of rodenticides and herbicides on the project site during construction or operation shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on

which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project related restrictions deemed necessary by the U.S. Fish and Wildlife Service. If rodent control must be conducted, zinc phosphide shall be used because of proven lower risk to kit fox.

- h. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape.
- i. Any contractor, employee, or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service.

Implementation of this mitigation measure would reduce the potential significant impact to San Joaquin kit fox to a less-than-significant level by requiring pre-construction surveys for kit fox and the implementation of avoidance, minimization, and mitigation measures should they be found on the project site.

Swainson's hawk. Swainson's hawk is listed as a threatened species under the California Endangered Species Act. Swainson's hawk is a long-distance migrator. Nesting grounds occur in northwestern Canada, the western U.S., and Mexico and most populations migrate to wintering grounds in the open pampas and agricultural areas of South America (Argentina, Uruguay, southern Brazil). This round-trip journey may exceed 14,000 miles. The birds return to the nesting grounds and establish nesting territories in early March.

Swainson's hawk nests in the Central Valley of California are generally found in scattered trees or along riparian systems adjacent to agricultural fields or pastures. These open fields and pastures are their primary foraging areas. Swainson's hawk was not observed during the reconnaissance-level biological field survey. However, multiple nest observations of this species have been recorded within ten miles of the project site, the closest within 1.6 miles with one adult nesting with young in a black walnut tree in July 2013 (Occurrence no. 2461, CDFW 2024a).

The California Department of Fish and Game's (now California Department of Fish and Wildlife) *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* provides guidance on how impacts on Swainson's hawk are to be mitigated, including impacts to Swainson's hawk foraging habitat. Although the project site and the off-site transmission line corridor are considered foraging habitat, Swainson's hawk could nest within the project site.

Loss or harm to Swainson's hawk is considered a significant adverse impact. Any potential impacts to Swainson's Implementation of the following mitigation measure by the project applicant, with oversight by the Merced County Community and Economic Development Department, will reduce the potential impact to Swainson's hawk to a less-than-significant level.

Mitigation Measure

BIO-3 The following measures shall be implemented to avoid loss of or harm to Swainson's hawk:

- a. Construction of the off-site transmission lines (i.e., trenching) shall be completed during the nonbreeding season for raptors (September 16–January 31).
- b. If construction of the off-site transmission lines cannot be timed outside of the nesting season, to avoid, minimize, and mitigate potential impacts on Swainson's hawk and other raptors nesting on or adjacent to the project site, the applicant shall retain a qualified biologist to conduct preconstruction surveys and identify active nests on and within 0.5 mile of the project site for construction activities conducted during the breeding season (February 1–September 15). The surveys shall be conducted before the approval of grading and/or building plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction. Guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) shall be followed for surveys for Swainson's hawk. If no nests are found, a letter report will be prepared by the biologist and submitted to the California Department of Fish and Wildlife and the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.
- c. If found, impacts to nesting Swainson's hawks shall be avoided by establishing appropriate buffers around active nest sites. No project activity shall commence within the buffer areas until a qualified biologist has determined, in coordination with California Department of Fish and Wildlife, the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. California Department of Fish and Wildlife guidelines recommend implementation of 0.25- or 0.5-mile-wide buffers for Swainson's hawk nests, but the size of the buffer may be decreased if a qualified biologist, in consultation with California Department of Fish and Wildlife, determine that such an adjustment would not be likely to adversely affect the nest.

Monitoring of all active nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist.

- d. If impacts to Swainson's hawk cannot be avoided, consultation with the California Department of Fish and Wildlife will be conducted, and an Incidental Take Permit will be obtained. Compliance with permit conditions shall be required prior to the start of disturbance activities.

Implementation of this mitigation measure would reduce the potential significant impact to Swainson's hawk to a less-than-significant level by requiring preconstruction surveys for Swainson's hawk nests on or near the project site and the implementation of avoidance, minimization, and mitigation measures should they be found on the project site.

Nesting Birds. Protected raptor species and nesting bird species have the potential to nest in buildings or structures, on open ground, or in any type of vegetation, including ornamental and orchard trees, during the nesting bird season (January 15 through September 15). The project site contains a variety of trees throughout the site and near the existing residence and open agricultural areas suitable for nesting. Construction activities, including ground disturbance, and tree removal can impact nesting birds protected under the federal Migratory Bird Treaty Act and California Fish and Game Code, should nesting birds be present during construction. If protected bird species are nesting on or adjacent to the project site during the bird nesting season, then project development, tree removal, and noise-generating construction activities could result in the loss of fertile eggs, nestlings, or otherwise lead to the abandonment of nests.

Loss or harm to nesting birds and raptors is considered a significant adverse impact. Implementation of the following mitigation measure by the project applicant, with oversight by the Merced County Community and Economic Development Department, will reduce the potential impact to nesting birds and raptors to a less-than-significant level.

Mitigation Measure

BIO-4 To avoid impacts to nesting birds during the nesting season (January 15 through September 15), all construction activities should be conducted between September 16 and January 14, which is outside of the bird nesting season. If construction or project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys.

- a. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available may be surveyed from within the site or from public areas. If no nesting birds are found, a letter report will be prepared by the biologist and

submitted to the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.

- b. If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize “normal” bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. Once the absence of nesting birds has been confirmed, a letter report will be prepared by the biologist and submitted to the Merced County Community and Economic Development Department, where it will be kept on file, and no further measures are required.

Implementation of this mitigation measure would reduce the potential significant impact to nesting birds and raptors to a less-than-significant level by requiring pre-construction surveys for active bird nests and the implementation of avoidance, minimization, and mitigation measures should they be found on the project site.

- b. **Riparian Habitat or Sensitive Natural Communities.** CDFW maintains a regularly updated list of *California Sensitive Natural Communities* based on the best available information on habitat distribution (CDFW 2024c). Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special-status plants or their habitat. No riparian habitat or sensitive natural communities were observed at the project site.
- c. **Wetlands and Waters of the U.S.** A review of the National Wetland Inventory (NWI) online database was conducted to identify potential jurisdictional aquatic features on or adjacent to the project site (USFWS 2024b). The results show the irrigation canal (identified on the NWI as “Riverine” habitat (R4SBCx) located offsite to the east of the project parcel. This aquatic feature is a heavily maintained agricultural drainage canal called the Fairfield Canal. The proposed project will not impact the levees or canal and no further analysis is required.

A “Riverine” feature identified on the NWI (R5UBFz) is shown running along the western boundary of the PG&E property, near the off-site transmission line corridor. This channel was not observed during the site visit and no further analysis is required.

A freshwater emergent wetland (PEM1Ah) is shown on the NWI south of the PG&E property and overlapping Tower Road. This feature was not observed during the site visit and appears to be a remnant or artifact in the NWI. No further analysis is required.

As described above and shown in [Figure 6, Aquatic Features and Habitat Map](#), there were two smaller drainage channels on the project site observed during the site visit. At the time of the reconnaissance-level site survey, the channels showed a defined bed and bank. The channel north of the orchard, just outside of the property line, had moist soil, but was mostly bare ground, with minimal weedy wetland vegetation (willowherb, and curly dock). The channel west of North Tower Road was dry and vegetation was absent from the banks.

Both drainage channels likely have connectivity to the two irrigation canals described above or other drainage features. Due to their highly maintained condition and absence of wetland vegetation, both drainages are not expected to be subject to USACE jurisdiction under the Clean Water Act, or the California Department of Fish and Wildlife. However, both drainages would likely be considered jurisdictional by the Central Valley Regional Water Quality Control Board (RWQCB).

Construction of the proposed project may impact the drainage channel north of the orchard and the proposed off-site transmission lines (i.e., trenching) may impact the drainage channel west of North Tower Road. Impacts to jurisdictional aquatic features are considered significant adverse impacts. Implementation of the following mitigation measure would reduce construction impacts to potentially jurisdictional aquatic features to a less-than-significant level.

Mitigation Measure

BIO-5 If impacts to the drainage channel north of the orchard or the drainage channel west of North Tower Road cannot be avoided, prior to approval of a building permit, the applicant will retain a qualified biologist to determine the extent of potential wetlands and waterways (“wetland delineation”) regulated by the United States Army Corps of Engineers and/or Regional Water Quality Control Board.

- a. If the U.S. Army Corps of Engineers claims jurisdiction, the applicant shall obtain a Clean Water Act Section 404 Nationwide Permit. If the impacts to the drainage does not qualify for a Nationwide Permit, the applicant will proceed in obtaining an Individual Permit. The applicant will then coordinate with the Regional Water Quality Control Board to obtain a Clean Water Act Section 401 Water Quality Certification.

- b. If the U.S. Army Corps of Engineers does not claim jurisdiction and Waters of the State will be impacted, a Waste Discharge Requirement (or waiver) will be obtained from the Regional Water Quality Control Board.

BIO-6 Prior to initiation of ground disturbance or construction activities, the applicant shall protect waterways adjacent to the project site through the use of best management practices for erosion control and vehicle/equipment fueling. This will include the installation of silt fencing between the project site and adjacent waterways. The silt fencing will prevent soil from washing off the project site into waterways and exclude construction activities from the drainage channels.

Potential fuel spills and leaks from construction vehicle/equipment fueling operations shall be prevented from entering waterways. Designated fueling areas should be on a level grade and must be at least 50 feet from any waterway. The fueling area should be protected by a berm to prevent any runoff from leaving the fueling area.

Implementation of this mitigation measure and any permit conditions shall ensure that impacts to potentially jurisdictional wetlands and waterways are mitigated to a less-than-significant level.

- d. **Wildlife Movement.** Wildlife movement corridors provide connectivity between habitat areas, enhancing processes like nutrient flow, gene flow, seasonal migration, pollination, and predator-prey relationships. Increasing connectivity is a critical strategy for addressing habitat loss and fragmentation, a top threat to biodiversity.

The project site is not located within any previously defined essential connectivity areas as mapped by the *California Essential Habitat Connectivity Project* and is also adjacent to developed agricultural lands (CDFW 2024c). The project site is not likely to facilitate major wildlife movement due to current active disturbance from agricultural activities. As such, the proposed project would have a less-than-significant impact on wildlife movement.

- e. **Local Biological Resource Policies/Ordinances –**

Merced County General Plan. The Natural Resources Element of the 2030 Merced County General Plan contains the following policies associated with biological resources that are applicable to the proposed project:

- Policy NR-1.1 - Habitat Protection. Identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, vernal pools, and wildlife movement and migration corridors, and provide information to landowners.
- Policy NR-1.15 - Urban Forest Protection and Expansion. Protect existing trees and encourage the planting of new trees in existing communities. Adopt an Oak Woodland Ordinance that requires trees larger than a specified diameter that are removed to accommodate development be replaced at a set ratio.

- Policy NR-1.21 - Special Status Species Surveys and Mitigation. Incorporate the survey standards and mitigation requirements of state and federal resource management agencies for use in the County's review processes for both private and public projects.

City of Merced General Plan. The Open Space, Conservation, and Recreation Element of the *Merced Vision 2030 General Plan* contains the following policies associated with biological resources that are applicable to the proposed project:

- Policy OS-1.1 – Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.
- Policy OS-1.2 – Preserve and enhance creeks in their natural state throughout the planning area.
- Policy OS-1.4 – Improve and expand the City's urban forest.

Trees. There are no policies in the County or City General Plan, or regulations in the Merced County or City of Merced Municipal Code that pertain to the damage to or loss of trees at the site. Therefore, no further discussion of conflicts with tree protection guidance is necessary.

Mitigation measures contained in this section will mitigate impacts to biological resources to a less-than-significant level. With these considerations, the proposed project would not conflict with local regulations related to biological resources.

- f. There are no critical habitat boundaries, habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans applicable to the proposed project site (CDFW 2024c).

5. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Comments:

- a, b. An archival database search was conducted through the Central California Information Center (CCalC) (12818I), of the California Historical Resources Information System (CHRIS) affiliated with the State of California Office of Historic Preservation in Sacramento. The CCalC was provided with a location map and coordinates of the project area, with a request of the archaeological and non-archaeological resources within one-quarter mile radius of the project site boundary. No known cultural resources were located within the project area or within the quarter mile radius. Also, there were no reports written that were based within the project area or within a quarter mile radius. An archaeological survey was not conducted due to the disturbed nature of the project site.

However, unknown buried significant historic or unique archaeological resources could be present at the project site. Such resources, if present, could be damaged or destroyed by ground disturbing construction activities associated with the project. This would be a significant impact. Implementation of the following mitigation measure would ensure that potential impacts would be less than significant.

Mitigation Measure

CUL-1 The following language shall be incorporated into any plans associated with tree removal, grading, and construction, “In the event that archaeological resources are encountered during ground disturbing activities, contractor shall temporarily halt or divert excavations within a 50 meter (165 feet) of the find until it can be evaluated. All potentially significant archaeological deposits shall be evaluated to demonstrate whether the resource is eligible for inclusion on the California Register of Historic Resources, even if discovered during construction. If archaeological deposits are encountered, they will be evaluated and mitigated simultaneously in the timeliest manner practicable, allowing for recovery of materials and data by standard archaeological procedures. For prehistoric

archaeological sites, this data recovery involves the hand-excavated recovery and non-destructive analysis of a small sample of the deposit. Historic resources shall also be sampled through hand excavation, though architectural features may require careful mechanical exposure and hand excavation.

Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation (DPR) forms and evaluated for significance by a qualified Archaeologist. Significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, fossils, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites.”

- c. With no evidence of prehistoric or historic sites within the immediate project area or in a quarter mile buffer, the likelihood of the project disturbing Native American human remains is low. However, there remains the possibility that ground disturbing activities associated with the proposed project could damage or destroy previously undiscovered Native American human remains. Disturbance of Native American human remains would be a significant impact. The following mitigation would reduce this potential impact to a less-than significant level.

Mitigation Measure

CUL-2 The following language shall be incorporated into any plans associated with tree removal, grading, and construction, “In the event that human remains (or remains that may be human) are discovered at the project site, Public Resource Code Section 5097.98 must be followed. All grading or earthmoving activities shall immediately stop within 50 meters (165 feet) of the find. The Merced County Coroner will be notified immediately, and the coroner shall be permitted to examine the remains as required by California Health and Safety Code Section 7050.5(b).

Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If human remains are determined as those of Native American origin, the project proponent shall comply with the state relating to the disposition of Native American burials that fall within the jurisdiction of the NAHC (Public Resource Code [PRC] § 5097). The coroner shall contact the Native American Heritage Commission (NAHC) to determine the most likely descendant(s) (MLD). The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD will determine the most appropriate means of treating the human remains and associated grave artifacts, and shall oversee the disposition of the remains. In the event the NAHC is unable to identify an MLD or the MLD fails to make a recommendation within 48 hours after being granted access to the site, the landowner or his/her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate

dignity within the project area in a location not subject to further subsurface disturbance if: a) the Native American Heritage Commission is unable to identify the MLD or the MLD failed to make a recommendation within 48 hours after being allowed access to the site; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.”

6. ENERGY

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Comments:

- a. The proposed project would provide a reliable and economic means to receive, store and discharge electric energy from the California Independent System Operator-controlled electric grid, including renewable energy produced by existing solar and wind resources in the region, thereby providing an energy benefit. Further, the proposed project would support the state's energy storage goals, which in turn, support the state's GHG reduction goals.

During operation, the proposed project would collect and store energy. The proposed project will consume only a nominal amount of energy for ancillary functions such as internal building lighting and facility monitoring equipment. During construction, typical sources and quantities of electrical energy and construction equipment/on-road vehicle fuels will be consumed.

Given that the project will consume minimal energy during operations, that construction phase energy use will be consistent with typical practices, and most importantly, the project supports the state's energy storage legislation, the proposed project would not result in inefficient, wasteful, and unnecessary consumption of energy.

- b. At this time, there are no regulations at the state or local level that would mandate that the proposed project include on-site renewable energy sources. The project would have inconsequential energy demand during operations such that on-site renewable energy generation is not needed to off-set demand. The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

7. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
(2) Strong seismic ground shaking?	☐	☐	☐	☒
(3) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
(4) Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Comments:

- a. **Fault Rupture.** According to the California Department of Conservation's Earthquake Zones of Required Investigation mapping, there are no Alquist-Priolo earthquake fault zones within 40 miles of the project site (California Department of Conservation 2023). Therefore, the project would not directly or indirectly cause potential substantial adverse

effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area.

Seismic Ground-shaking. It is not likely that the project site would experience significant seismic ground-shaking, with no earthquake faults within 40 miles of the project site. As concluded in the County General Plan EIR, the risk of seismic hazards is fairly low in Merced County since only one fault system along the foot of the western Coast Range has been identified within Merced County boundaries. The County General Plan EIR also states that all building and structures must be constructed in adherence with the seismic standards and regulations for seismic design categories C, D, and E as set forth in the California Building Code (Merced County 2012, p. 10-14). However, the proposed project does not involve typical structures nor does it involve any employees. The proposed structures are metal enclosures for storing the batteries and the on-site transmission poles; therefore, the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic ground-shaking.

Liquefaction. Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. As previously mentioned, it is unlikely that strong ground shaking would occur at the project site. Therefore, it is similarly unlikely that the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction.

Landslide. The project site and surroundings are relatively flat. Therefore, it is unlikely that the project site would experience landslides during the lifetime of the project. It is for this reason that the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

- b. The project site soil (Honcut silty clay loam, 0 to 1 percent slopes) (Merced County 2023) has a moderately rapid permeability rate and is well drained (Soil Data Explorer 2003). It is unlikely that erosion would occur during operation of the proposed project because any stormwater runoff on the site would drain to the edges of the site, which will remain in its existing condition allowing infiltration on-site and reducing the potential for erosion. Given the type of soil present on the site, the potential risk of soil erosion is low. Construction of the site where the BESS will be located requires minor grading activities and is required to comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges associated with construction and land disturbance activities. The project is also required to comply with County General Plan Policy NR-3.2, which requires that minimal disturbance of vegetation during construction occur to improve soil stability, reduce erosion, and improve stormwater quality.

The construction involved with the on-site transmission poles may require more intense grading activities. Additionally, construction involved with the off-site trenching for the underground transmission wires will require more intense soil disturbance activities. The trenching will be approximately five feet wide and three feet deep and no soil will be removed off-site as trenching will be backfilled and compacted. To ensure that erosion impacts associated with the on-site transmission poles and off-site undergrounding of the transmission wires are less than significant, an erosion control plan shall be required in order to ensure erosion impacts.

Mitigation Measure

GEO-1 Prior to issuance of a building permit, the project developer shall prepare an erosion control plan for review and approval by the Merced County Building Department.

Compliance with the NPDES, County General Plan Policy NR-3.2, and Mitigation Measure GEO-1 would ensure that impacts associated with soil erosion would be reduced to a less-than-significant level.

- c. Based on the discussions above and the nature of the project, it is unlikely that the proposed project is located on unstable soils and, therefore, would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- d. According to the California Soil Data Explorer, Honcut soils have less than 18 percent clay (National Cooperative Soil Survey, 2023). Given the low level of clay in the soil and its ability to drain efficiently, the project site is not anticipated to have an impact that would create direct or indirect to life or property from expansive soil.
- e. The proposed project does not involve residential or commercial uses that require the use of wastewater disposal. Therefore, no impacts would occur associated with soil capability of supporting septic tanks.
- f. The proposed project requires some grading as well as trenching for the off-site underground transmission lines, which may disturb unknown paleontological resources. Additionally, the County General Plan EIR states that there is evidence to suggest that paleontological resources may be encountered virtually anywhere within Merced County (Merced County 2012, p. 9-14).

Therefore, it is possible that paleontological resources could be accidentally discovered during construction activities associated with development of the project site. Directly or indirectly destroying a unique paleontological site is considered a significant, adverse environmental impact. Implementation of the following mitigation measure would ensure this potential impact would be less than significant.

Mitigation Measure

GEO-2 The following language shall be included on all building permits: “If paleontological resources are discovered during demolition and earthmoving activities, work shall stop within 100 feet of the find until a qualified paleontologist can assess if the find is unique and, if necessary, develop appropriate treatment measures in consultation with the Merced County Community and Economic Development Department.”

8. GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Comments:

- a. **Operational GHG Emissions.** The proposed project would be comprised of electrical equipment whose operation will generate a very minor volume of GHG emissions. The GHG emissions generated by the consumption of electricity for ancillary functions such as internal building lighting, cooling, and facility monitoring equipment would be negligible. Mobile source GHG emissions from four facility maintenance trips per year would be negligible. Therefore, the proposed project will have a less than significant operational GHG emissions impact.

Construction GHG Emissions. Neither the air district nor Merced County have adopted thresholds of significance for construction GHG emissions or a climate action plan that could be used to inform analysis of construction emission impacts. In this circumstance, it is common for lead agencies to reference thresholds of significance of other agencies where those thresholds are supported by substantial evidence. In this context, construction GHG impact guidance provided by two nearby air districts is referenced here.

The Bay Area Air Quality Management District released its *Justification Report for CEQA Threshold for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* in 2022. That guidance, which functions as a plan for reducing GHG emissions, suggests that construction GHG emissions represent a very small component of the overall GHG emissions generated by land use projects. Consequently, construction emissions are not considered to be a source of significant GHG emissions impacts. The Sacramento Metropolitan Air Quality Management District released the *Greenhouse Gas Thresholds for Sacramento County* in 2020. That document also functions as a plan for reducing GHG emissions. It includes a construction-related threshold of 1,100 MT CO₂e per year (Sacramento Metropolitan Air Quality Management District 2020). Land use projects whose construction emissions do not exceed this volume are considered to have a less than significant construction-generated GHG emissions impact. To be conservative, this quantified threshold is used for the analysis here.

Total construction GHG emissions for the proposed project have been quantified using CalEEMod Version 2022.1. Detailed results are presented in [Appendix A](#). Total emissions are projected at 629 MT CO₂e. It is common for construction emissions to be amortized over a 30-year period to reflect the commonly assumed operational life of a land use project. Amortized annual emissions are estimated at 21 MT CO₂e. This is well below the reference threshold of significance of 1,100 MT CO₂e per year. Therefore, the proposed project would have a less than significant construction emissions GHG impact.

- b. As noted above, neither the air district nor Merced County have adopted a plan for reducing GHG. The *Greenhouse Gas Thresholds for Sacramento County* is considered to be the applicable reference plan. The plan was crafted by the Sacramento Metropolitan Air Quality Management District as a guide to ensure that land use projects developed in its air basin reduce their GHG emissions as a fair share towards meeting state GHG emissions reduction targets and goals. Since annual construction GHG emissions for the project would be far below this threshold, the project would not conflict with an applicable plan for reducing GHG emissions and no impact would occur.

9. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or a public-use airport, result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Comments:

- a. Construction of the proposed project may involve the use and storage of some materials that are considered hazardous such as fuels, oils, mechanical fluids, and other chemicals. Hazardous materials associated with operation of the proposed project will include Mineral Oil or Envirottemp FR3 fluid exceeding 55 gallons and stored in the transformers. According to the Merced County Division of Environmental Health, any hazardous materials stored on-site over the following threshold quantities will require a hazardous materials business plan and submittal to the California Environmental Reporting System: 55 gallons, 200 cubic-feet, and/or 500 pounds (Adriel Ramirez,

comment letter, February 15, 2023). Given that the project exceeds the 55-gallon threshold, as a condition of project approval, the project will be required to prepare and submit a hazardous materials business plan to the California Environmental Reporting System.

The proposed project would also be required to comply with County General Plan Policy HS-5.1, which requires that hazardous materials are used, stored, transported, and disposed of in a safe manner, in compliance with local, state, and federal safety standards.

Compliance with the hazardous materials business plan requirement pursuant to the Merced County Division of Environmental Health, in addition to compliance with County General Plan Policy HS-5.1, would ensure that the project's potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant.

- b. The existing on-site residence is expected to remain with implementation of the proposed project. As such, hazardous materials like asbestos and lead-based paint will not be released into the environment if they are present in the existing structure.

Construction activities associated with the undergrounding of the transmission wires would occur off-site and in industrial land that was previously disturbed and compacted (i.e., North Tower Road and PG&E facilities/property); therefore, no impact associated with the release of hazardous materials into the environment would occur.

Construction activities such as grading on the project site could result in the release of previously used chemicals in the site soils due to its historic agricultural use. However, due to the flat nature of the site, no major grading would be required. Minor site grading for equipment pad excavation, site access road, and any stormwater features may be necessary. Due to the building remaining in place and limited grading operations on the project site, the proposed project would not create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

- c. As stated in the above section, the project will require handling and storage of potentially hazardous materials. However, these operations will not take place within one-quarter mile of an existing or proposed school. The nearest school is 2.2 miles southwest of the project site.
- d. The following lists were reviewed:
 - Hazardous Materials Waste and Substances Sites from the Department of Toxic Substances Control EnviroStor Database (Department of Toxic Substances Control 2024);
 - Leaking Underground Storage Tank Sites from the State Water Board's GeoTracker Database (State Water Resources Board 2024);

- Solid Waste Disposal Sites Identified by Water Board with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit (California Environmental Protection Agency 2024a);
- “Active” Cease and Desist Order and Cleanup and Abatement Orders from Water Board (California Environmental Protection Agency 2024b); and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by the Department of Toxic Substances Control (California Environmental Protection Agency 2024c).

The project site is not located on or adjacent to any of these lists. Therefore, the proposed project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.

- e. The project site is not within an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or a public-use airport. The nearest airport, the Merced Regional Airport, is approximately five miles west of the project site. Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area.
- f. The proposed project involves the undergrounding of the proposed transmission lines, which cross west over North Tower Road in front of the project site. This undergrounding may result in a temporary obstruction of the roadway during construction. Neither the City of Merced nor the County of Merced specifically identify evacuation routes; however, North Tower Road is not a major arterial roadway and would not serve as a main emergency evacuation route. Therefore, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- g. The project site is surrounded by active farmland and PG&E facilities and, therefore, would not result in impacts associated with wildland fires. However, battery energy storage facilities do require a plan in case of a fire at the facility. A fire at the facility could result in significant fire, smoke, and hazardous emissions affecting people in the vicinity. Implementation of the following mitigation measure would ensure this potential impact would be less than significant.

Mitigation Measure

HAZ-1 Prior to approval of a building permit, and subject to review and approval by the Merced County Fire Department, the applicant shall prepare and submit a fire protection plan or a fire protection basis of design to include, but not be limited to the following components:

- a. Appropriate setbacks (to be determined by the fire department);
- b. Design ensuring best management of fire control;
- c. Fire department access;

- d. Water and fire suppression/extinguishing systems;
- e. Fire alarm systems;
- f. Signage; and
- g. Other components as may be required by the fire department.

The plan shall be implemented during construction and operations of the proposed project.

10. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	☒
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(1) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(2) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☐	☒
(3) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
(4) Impede or redirect flood flows?	☐	☒	☐	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☒	☐	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Comments:

- a. **Construction Water Quality Impacts.** Construction activities associated with the project involve grading and trenching. Delivery, handling and storage of construction materials and wastes, equipment refueling, and construction equipment use and maintenance could result in spills of oil, grease, or related pollutants. Improper handling, storage, disposal of fuels and materials or improper cleaning of machinery are also potential sources of water pollution associated with construction activities.

New development is required to meet NPDES requirements. The NPDES permit program for storm water and construction site runoff is designed to reduce discharge of pollutants in storm water to the maximum extent practicable to protect water quality and beneficial uses of surface waters. Pursuant to County Code Section 9.53.A.2, prior to disturbing any soil, operators of a construction activity project shall prepare and submit a Sediment Control Plan to the department of public works for review and approval. This plan will designate the type and location of best management practices to be incorporated into construction of the proposed project.

The project will disturb more than one acre of soil and, therefore, coverage under the Construction General Permit for Discharges of Storm Water Associated with Construction Activity per NPDES requirements must be obtained. The Construction General Permit requires that individual developers prepare and implement a Storm Water Pollution Prevention Plan. A Storm Water Pollution Prevention Plan identifies best management practices (filters, traps, bio-filtration swales, etc.) consistent with the requirements of the NPDES and County Code Chapter 9.53, Regulation of Stormwater, that must be implemented during construction. The practices are intended to reduce potential impacts on surface water by reducing the potential for sediment or other water quality contaminants to be discharged directly or indirectly into a surface water body and to ensure that urban runoff contaminants and sediment are minimized during site preparation and construction periods.

The project's compliance with the NPDES and County Code requirements would ensure that applicable water quality standards are met and that water quality impacts from construction activities will be less than significant.

Post-Construction (Operational) Water Quality Impacts. The proposed project would alter existing storm water drainage conditions by replacing pervious, agricultural land with approximately 3.5 acres of impervious surfaces for the concrete pads that equipment and battery enclosures will sit on. The change in surface conditions would result in an increase in storm water runoff relative to existing conditions, where storm water percolates through exposed soil back to groundwater. Increases in the rate or volume of storm water delivered into receiving waters can cause erosion of downstream drainage courses.

The project developer will be required to show how stormwater would be retained onsite or how the stormwater would be treated using design measures before being discharged from the site, consistent with County Code Chapter 9.53, Regulation of Stormwater. Best management practices will be required in order for the project to meet the post-construction storm water management requirements of the Central Valley Regional Water Quality Control Board, whose primary objective in establishing these requirements is to ensure that land development projects reduce pollutant discharges to the maximum extent practicable and to prevent storm water discharges from causing or contributing to a violation of receiving water quality standards.

Required compliance with post-construction water quality performance standards would ensure that applicable water quality standards would be met. The project impact on water quality would be less than significant.

- b. The proposed project does not require the use of water and, therefore, would not decrease groundwater supplies. The project would replace approximately 3.5 acres of the site with impervious surfaces, which could nominally interfere with groundwater recharge but not to the extent that the project may impede sustainable groundwater management of the San Joaquin Valley Groundwater Basin, Merced Subbasin.

- c. **Erosion.** Refer to the response in Section 7.0, Geology and Soils, checklist question “b.”

Flooding. Although the proposed project introduces impermeable surfaces, the project site will continue to be primarily covered with permeable surfaces. Therefore, the volume of stormwater runoff under post-construction conditions would increase compared to existing conditions, but would not be substantial.

As discussed in checklist question “a,” the project is required to show how these practices are being utilized on the site to prevent or minimize flooding on- and off-site. The project will be required to be designed to accommodate maximum daily rainfall events, which could otherwise cause flooding at the project site.

Compliance with these requirements would ensure that the project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Runoff. The project is required to show how stormwater would be retained onsite or how the stormwater would be treated using design measures before being discharged from the site, consistent with County Code Chapter 9.53, Regulation of Stormwater.

As previously stated, the proposed project will introduce impermeable surfaces to the site, but the project site will continue to be primarily covered with permeable surfaces. Therefore, runoff from the proposed project would be minimal. The project plans will be required to illustrate how the best management practices are used on the site to retain all stormwater runoff or reduce the amount of runoff that discharges from the site.

Because the proposed project will not create a substantial amount of runoff and is required to implement practices to retain or reduce stormwater runoff, it would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Flood Flows. According to the Flood Emergency Management Agency (FEMA), the project site is located within Flood Zone AH, which indicates an area that has a one percent annual chance of shallow flooding (FEMA 2024). When grading occurs within a flood hazard zone, there is a potential for flood flows to be impeded and/or for the elevation of the base flood to increase, thereby exacerbating flood hazard conditions. The base flood elevation is identified by FEMA on flood insurance rate maps that it prepares. Local agencies use this information to support their implementation of flood management programs, which in turn are designed to enable development within the local agency to qualify for flood hazard insurance through the federal government.

To avoid flood hazard impacts, all improvements must be designed consistent with applicable policies in the County General Plan and with Merced County's flood hazard development standards found in County Zoning Code Chapter 18.26, Special Flood Hazard Areas. These latter standards are in part designed to minimize public and private losses due to flood conditions in specific areas. The construction standards listed in Section 18.26.050.A include, among other things, anchoring structures to prevent flotation, collapse, and movement and raising structures above the base flood elevation or otherwise being floodproofed.

Section 18.26.050.F states that encroachments, including fill, new construction, substantial improvement and other new development within floodways (such as the proposed project) is prohibited unless certification by a registered professional engineer or architect is provided demonstrating that the encroachment would not result in any increase in the base flood elevation during the occurrence of the base flood discharge. It is for this reason that the following mitigation measure be required by the project developer to ensure less than significant impacts associated with flood flows.

Mitigation Measure

HYDRO-1 The project developer shall obtain a determination from the County's Supervising Building Inspector/Floodplain Manager whether the project requires certification by a registered professional engineer or architect demonstrating that the project's encroachment into the floodway would not result in any increase in the base flood elevation during the occurrence of the base flood discharge. If the County's Supervising Building Inspector/Floodplain Manager determines that this is required, the project developer must provide this and submit for approval to the County's Supervising Building Inspector/Floodplain Manager prior to issuance of a building permit. If the County's Supervising Building Inspector/Floodplain Manager determines this is not necessary, no further action is required.

Compliance with the abovementioned flood hazard regulations and Mitigation Measure HYDRO-1 would ensure that the project's potential to impede flood flows and increase flood hazards would be less than significant.

- d. The project site is located a significant distance from the coast and any sizeable lakes, thereby eliminating the potential for a tsunami or seiche (Merced County 2012, p. 13-25).

According to the Flood Emergency Management Agency (FEMA), the project site is located within Flood Zone AH, which indicates an area that has a one percent annual chance of shallow flooding (FEMA 2024). Development placed within this flood hazard zone could be subject to inundation during a 100-year flood event if not properly designed.

Pursuant to County Zoning Code Section 18.26.040.A, a development permit shall be obtained before any construction or other development begins within any area of special flood hazard, such as the project site. Further, Section 18.26.040.E requires that the applicable floodplain management fee is paid prior to the issuance of a building permit for any project within any special flood hazard area of Merced County.

Compliance with the above-mentioned flood regulations of the County Zoning Code Chapter 18.26, Special Flood Hazard Areas, and those listed under the checklist question “c, flood flows,” in addition to Mitigation Measure HYDRO-1, would reduce the potential that the project would be inundated during a flood event and release hazardous or other materials off the project site. Therefore, impacts related to releasing hazardous materials during a flood would be less than significant.

- e. The project site is located within the San Joaquin Valley Merced Groundwater Subbasin, specifically within the Merced-Irrigation Urban Groundwater Sustainability Agency jurisdiction, which adopted the *Merced Groundwater Subbasin Groundwater Sustainability Plan* in July 2022.

Because the proposed project has been determined to not substantially deplete groundwater resources or adversely impact groundwater recharge (refer back to checklist question “b”), the proposed project would not conflict with or obstruct implementation of the *Merced Groundwater Subbasin Groundwater Sustainability Plan*.

11. LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause any significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐

Comments:

- a. The project site is within an agricultural/industrial area at the southeastern edge of the City of Merced. The proposed project would not physically divide an established community.
- b. The proposed project is conditionally permitted within the site's zoning designation of General Agricultural (A-1) under Energy Generation Facilities (off-site energy use) (Valeria Renteria, email message, March 8, 2024). The route of the off-site transmission lines is zoned Heavy Industrial (I-H) by the City of Merced, which allows for the use of major and minor utilities with a site plan review permit.

Section 3.0, Air Quality, concluded that the proposed project would not generate operational criteria air pollutants that would exceed the air district standards and would not conflict with or obstruct implementation of the air quality plan.

Section 4.0, Biological Resources, indicates that there are no critical habitat boundaries, habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans applicable to the proposed project site. The project, as mitigated, would reduce the potential adverse impact on the San Joaquin kit fox, Swainson's hawk, and nesting birds during construction of the proposed project.

Section 6.0, Energy, states that the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

As discussed in Section 8.0, Greenhouse Gas Emissions, the project would not conflict with an applicable plan for reducing GHG emissions.

As concluded in Section 10.0, Hydrology and Water Quality, the proposed project would not conflict the adopted groundwater sustainability plan (the *Merced Groundwater Subbasin Groundwater Sustainability Plan*) because the project would not substantially deplete groundwater resources or adversely impact groundwater recharge.

Section 13.0, Noise, states that compliance with best management practices during construction and County Code requirements would ensure less than significant impacts associated with reducing exposures to unacceptable noise due to project construction in the vicinity of the project.

Section 17.0, Transportation, states that no conflict with a County or City program, plan, ordinance or policy addressing the circulation system would occur.

12. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Result in loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated in a local general plan, specific plan, or other land-use plan?	☐	☐	☐	☒

Comments:

- a, b. According to Figure 10-3 of the County General Plan EIR, the project site is not located within an area that has a high likelihood of known significant sand and gravel resources (Merced County 2012, p. 10-6). Therefore, the project's implementation would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state nor would the project result in the loss of availability of a locally important mineral resource recovery site delineated in a local general plan, specific plan, or other land-use plan.

13. NOISE

Would the project result in:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive ground-borne vibration or ground borne noise levels?	☐	☐	☐	☒
c. For a project located within the vicinity of a private airstrip or an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Comments:

WJV Acoustics prepared an *Acoustical Analysis 100 Tower Road Battery Energy Storage System (BESS) Merced County, California* (“acoustical analysis”) in April 2024 for the proposed project to determine if significant noise impacts will be produced by the project. The primary source for this section is the acoustical analysis unless otherwise noted. The full acoustical analysis can be found in [Appendix C](#).

- a. **Temporary.** Construction activities would generate temporary noise in the project site vicinity, exposing nearby sensitive receptors to increased noise levels. The nearest sensitive receptors are the residences located on the project site and surrounding properties to the south and southeast (all within approximately 700 feet of the project site) (Google Earth 2023) (refer back to Figure 2, Aerial Map). Project construction noise would be generated by construction equipment used for site preparation and grading, as well as transferring the modules to their proposed location.

Noise levels associated with construction activities may be effectively reduced by incorporating appropriate best management practices such as limiting construction activities to the hours between 7:00 a.m. and 6:00 p.m. and properly muffling and maintaining construction equipment to minimize noise generation at the source (pursuant to County Code Section 10.60.030.B.5); not operating, running, or idling noise-producing equipment while not in immediate use by a construction contractor; locating and operating all noise-producing construction equipment, to the extent possible, at the

greatest possible distance from any noise-sensitive land uses; and locating construction staging areas, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

Compliance with the abovementioned best management practices and County Code noise regulations for construction would ensure that the project's impact associated with temporary construction activities would be less than significant.

Permanent. Existing noise sources at the project site are dominated by traffic noise along North Tower Road and East Childs Avenue; other existing noise sources include noise associated with agricultural activities and occasional aircraft overflights. The proposed project would result in operational noise calculated to be between approximately 44-45 dB L_{eq} at the closest residential land uses, which does not exceed any Merced County daytime or nighttime noise standards. Additionally, such noise levels do not exceed existing (without project) ambient noise levels measured at these residential land uses (WJV Acoustics 2024). Therefore, the project would not generate a permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the County General Plan or County Code.

- b. There are no existing ground-borne vibration or ground borne noise levels in the project vicinity. Construction of the project may result in minor levels of vibration; however, as determined in the acoustical analysis, typical vibration levels generated during construction would not exceed any significant threshold levels for annoyance or damage as identified by Caltrans; the County doesn't have any vibration level standards. Therefore, the project would have no impacts associated with ground-borne vibration.
- c. The project site is not within the vicinity of a private airstrip or an airport land-use plan and is not within two miles of a public airport or public-use airport. The nearest airport to the project site is the Merced Regional Airport located approximately 5.5 miles to the west. Therefore, the proposed project would not expose people working in the project area to excessive noise levels.

14. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Comments:

- a. The proposed project does not involve residential uses and, therefore, would not induce substantial unplanned population growth in the area, either directly or indirectly.
- b. The project site contains one existing residential house, which will not be removed as a result of the project. Therefore, the project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

15. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

Comments:

- a. The proposed project involves the construction of a BESS and associated facilities, which would not result in adverse environmental impacts associated with the need for construction of new, or alteration of the existing, fire facilities in order to maintain acceptable service ratios, response times, or other performance objectives. However, County General Plan Policy PFS-7.7 requires new development to pay its fair share of public facility fees for new fire station facilities, equipment, and staffing necessary to maintain the County's service standards in that area. The policy also states that new development may also be required to create or join a special assessment district or other funding mechanism, to pay the costs associated with the operation of a fire station. Therefore, the project is required to pay its fair share of the development impact fees for fire facilities, which mitigates the project's contribution to cumulative impacts to fire facilities. As a result, the proposed project would not result in the need to construct fire facilities, the construction of which could cause significant environmental effects.
- b. The proposed project involves the construction of a BESS and associated facilities, which would not result in adverse environmental impacts associated with the need for construction of new, or alteration of the existing, police protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives. However, County General Plan Policy PFS-6.4 requires new development to pay its fair share of the costs for providing law enforcement service facilities and equipment to new residents. Therefore, the project is required to pay its fair share of the development impact fees for police protection facilities, which mitigates the project's contribution to cumulative impacts to police protection facilities. As a result, the proposed project would not result in the need to construct police protection facilities, the construction of which could cause significant environmental effects.

- c. The proposed project does not involve residential uses and would not result in the addition of student-age children. Therefore, the proposed industrial use would not result in adverse environmental impacts associated with the need for construction of new or alteration of the existing school facilities, the construction of which could cause significant environmental effects.
- d, e. The proposed project involves the construction of a BESS and associated facilities, which does not involve residents who would utilize parks and other public facilities. Therefore, the project would not result in adverse environmental impacts associated with the need for construction of new or alteration of the existing parks or other public facilities, the construction of which could cause significant environmental effects.

16. RECREATION

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Comments:

- a, b. The project proposes a BESS and associated facilities, which does not involve residents that could increase the use of neighborhood or regional parks. Therefore, the proposed project would not result in the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Being a BESS project, no recreational facilities are proposed; however, its operation would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.

17. TRANSPORTATION

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b. Conflict or be inconsistent with CEQA guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☐	☒

Comments:

- a. North Tower Road, the road used to access the project site, does not contain pedestrian or bicycle facilities. The nearest transit stop is located at the intersection of Kilby Road and State Route 140 located approximately 0.60 miles northwest of the project site.

The proposed project will operate unstaffed and involve approximately four yearly vehicle trips associated with maintenance of the facilities. Therefore, no conflict with a County or City program, plan, ordinance or policy addressing the circulation system would occur.

- b. The project would generate approximately four yearly trips for maintenance purposes and be otherwise unstaffed (i.e., no other vehicle trips). According to the Merced County Association of Governments' VMT Thresholds and Implementation Guidelines, projects that generate fewer than 1,000 daily trips may be screened out from the need for a VMT analysis. Therefore, a VMT analysis is not required and it can be assumed that the proposed project would not result in significant VMT impacts.
- c. The proposed project involves a BESS and associated facilities. The design of the project site does not involve hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- d. Access to the project site will be via a proposed 20-foot-wide gravel access road off of North Tower Road. The Merced County Fire Department is required to review the project plans and ensure adequate access for emergency vehicles is present prior to issuance of any permit. With application approval from the Merced County Fire Department, the project would not result in inadequate emergency access.

18. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
(1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources code section 5020.1(k), or	☐	☐	☐	☒
(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

Comments:

- a. The project site is not within the geographical area of the Table Mountain Rancheria, or any tribes that have requested consultation pursuant to AB 52. Therefore, no consultation is needed (Valeria Renteria, email message, April 4, 2024).

19. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than- Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, single-dry and multiple- dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Comments:

- a. According to the project application, the proposed project as a BESS would not utilize any water, produce any waste, or require any other public utilities during operation. Therefore, the project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

The project does involve the construction of on-site 115kV transmission poles for the overhead wires as well as undergrounding for the off-site transmission wires. The transmission poles and overhead wires will run directly from the proposed substation to North Tower Road where the wires will then be placed underground and run west across North Tower Road onto the adjacent PG&E property, and then turn north towards an open bay in the substation on the backside of the property parcel. The environmental

impacts of constructing the transmission poles and underground transmission wires are similar to the impacts evaluated for the other environmental topics discussed throughout this initial study. The mitigation measures and requirements of the project identified throughout this initial study would ensure that impacts associated with the construction of the transmission poles and underground transmission wires would be less than significant.

- b. The proposed project will not require the use of water; minimal water is used during construction for dust control purposes, but would not be required for operation of the project. Therefore, the project would have no impact associated with water supply to serve the project and reasonably foreseeable future development during normal, single-dry and multiple- dry years.
- c. The proposed project would not generate any wastewater and, therefore, would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- d, e. Construction of the project is anticipated to result in minimal solid waste. Operations of the proposed project would not generate any solid waste and, therefore, would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or other impair the attainment of solid waste reduction goals. Additionally, the project would have no impact regarding its compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

20. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Comments:

- a-d. According to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Viewer, the project site is not located within or near a state responsibility area or lands classified as very high fire hazard severity zones (CalFire, 2024). The project site is approximately three miles southwest from the nearest fire hazard severity zone (moderate). Therefore, no further discussion on this topic is required.

21. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☒	☐	☐
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Comments:

- a. As discussed in Section 4.0, Biological Resources, Mitigation Measures BIO-1 through BIO-4 would reduce the potential adverse impact on San Joaquin kit fox, Swainson’s hawk, and nesting birds during construction of the proposed project to a less-than-significant level.
- As described in Section 5.0, Cultural Resources, the project site does not consist of historic structures onsite and is not known to contain any historic or prehistoric resources. However, it is possible that these resources could be accidentally uncovered during grading and construction activities. In the event this should occur, implementation of Mitigation Measure CUL-1 would ensure that the potential impacts would not be significant.
- b. The proposed project could result in cumulative environmental impact in the following areas: sensitive biological resources, cultural resources, erosion, fires, and flooding. Section 4.0, Biological Resources, provides mitigation that would reduce the project’s potential to have adverse impacts on the San Joaquin kit fox, Swainson’s hawk, and nesting birds during construction. Additionally, implementation of Mitigation Measure BIO-5 would reduce construction impacts to jurisdictional aquatic features to a less-than-significant level. Section 5.0, Cultural Resources, determines that, as mitigated, the project

would result in less than significant impacts associated with historic and archaeological resources as well as Native American human remains. Erosion impacts associated with construction of the transmission poles and underground transmission wires are discussed in Section 7.0, Geology and Soils, would be mitigated with implementation of Mitigation Measure GEO-1. Section 9.0, Hazards and Hazardous Materials, discusses the potential for a fire at the facility that could result in significant fire, smoke, and hazardous emissions affecting people in the vicinity. Implementation of Mitigation Measure HAZ-1 would reduce this impact to a less-than-significant level. Flooding impacts discussed in Section 10.0, Hydrology and Water Quality, would be mitigated with implementation of Mitigation Measure HYDRO-1, reducing impacts associated with flood flows to a less-than-significant level.

With implementation of the mitigation measures identified throughout this initial study, the project would result in less than cumulatively considerable impacts.

- c. Based on the analysis provided in this initial study, the proposed project could indirectly cause substantial adverse effects to human beings through air quality and greenhouse gas emissions, hazards and hazardous materials (i.e., fire hazards from the batteries), and geology and soils (soil erosion and paleontological resources). However, as discussed throughout this initial study, the impacts would not be significant. Therefore, the proposed project would not result in significant environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

E. SOURCES

Environmental Setting

City of Merced. January 2012. *Merced Vision 2030 General Plan*. Merced, CA.

Google Earth. 2024.

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

Merced County. December 2013. *2030 Merced County General Plan*. Merced, CA.

Renteria, Valeria, Planner I, Merced County Community and Economic Development.
Email message to consultant, 4 April 2024.

Project Description

New Leaf Energy. 2024. 100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project.
February 26, 2024.Aesthetics

Google Earth. 2024

Merced County. December 2013. *2030 Merced County General Plan*. Merced, CA.

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*.
February 26, 2024.

Aesthetics

City of Merced. August 2010. *Merced Vision 2030 General Plan Draft Program Environmental Impact Report*. Merced, CA.

Google Earth. 2024.

Merced County. 2013. *2030 Merced County General Plan*. Merced, CA.

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*.
February 26, 2024.

Agriculture

California Department of Conservation. “California Important Farmland Finder.” Accessed on
July 23, 2024. <https://maps.conservation.ca.gov/DLRP/CIFF/>

City of Merced. August 2010. *Merced Vision 2030 General Plan Draft Program Environmental Impact Report*. Merced, CA.

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

Merced County. “Municipal Code.” Accessed on November 20, 2023.
https://library.qcode.us/lib/merced_county_ca/pub/county_code

Air Quality

California Air Resources Board. 2023. *Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation*. August 29, 2023. <https://ww2.arb.ca.gov/resources/fact-sheets/fact-sheet-added-vehicle-restrictions-and-tier-phase-out-requirements> Accessed April 10, 2024

California Emission Estimator Model Version 2022.1 (CalEEMod). 2022. User Guide. April 2022. https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf

Environmental Protection Agency. 2004. *Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel – Final Rule*. June 29, 2004.
<https://www.govinfo.gov/content/pkg/FR-2004-06-29/pdf/04-11293.pdf>

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

San Joaquin Valley Air Pollution Control District. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. February 19, 2015.
<https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF>

Biological Resources

California Department of Fish and Game (CDFG). 1994. *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California*.

California Department of Fish and Wildlife (CDFW). 2024a. Biogeographic Information and Observation System (BIOS) online database. <http://bios.dfg.ca.gov>

California Department of Fish and Wildlife (CDFW). 2024b. California Natural Diversity Database (CNDDDB) online database. <https://wildlife.ca.gov/data/cnddb>

California Department of Fish and Wildlife (CDFW). 2024c. California Essential Habitat Connectivity Project. Sacramento, California.
<https://wildlife.ca.gov/Conservation/Planning/Connectivity/CEHC>

California Native Plant Society (CNPS). 2024a. Inventory of Rare and Endangered Plants of California online database. <http://www.rareplants.cnps.org>

California Native Plant Society (CNPS). 2024b. Manual of California Vegetation Online.
<https://vegetation.cnps.org/>

- Cornell Lab of Ornithology. 2024. *All About Birds* online database. Cornell Lab of Ornithology, Ithaca, New York. <https://www.allaboutbirds.org>
- County of Merced. 2013. *2030 Merced County General Plan*. Merced, CA.
- Harrison et. al. 2011. *Resource use overlap between urban carnivores: Implications for endangered San Joaquin kit foxes (*Vulpes macrotis mutica*)*. *Urban Ecosystems* (2011) 14:3030-311.
- Jameson, E. W., and Hans J. Peeters. 2004. *Mammals of California*. University of California Press.
- Nafis, G. 2023. *California Herps: A Guide to the Amphibians and Reptiles of California* online database. Accessed May 2023. <http://www.californiaherps.com/>
- Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*.
- U.S. Fish and Wildlife Service (USFWS). 2011. *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*.
- U.S. Fish and Wildlife Service (USFWS). 2024a. Endangered Species Program online database. Species list for Merced County. Washington, D.C. <http://www.fws.gov/endangered/>
- U.S. Fish and Wildlife Service (USFWS). 2024b. National Wetlands Inventory online database. U.S. Department of the Interior. Washington, D.C. <http://www.fws.gov/wetlands/>
- U.S. Fish and Wildlife Service (USFWS). 2024c. Critical Habitat for Threatened and Endangered Species online mapper. <https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>
- U.S. Geological Survey (USGS). 2024. National Map Spot Elevation Data. Online mapper. <https://apps.nationalmap.gov/viewer/>

Cultural Resources

- Office of Historic Preservation. July 2016. *California Historical Resources Information System Information Center Rules of Operation Manual*. Sacramento, CA.

Energy

- New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

Geology and Soils

California Department of Conservation. “Earthquake Zones of Required Investigation.” Accessed on November 22, 2023.

<https://maps.conservaion.ca.gov/cgs/EQZApp/app/>

California Soil Data Explorer. (2003, February). *Soil Data Explorer - HONCUT*. Soil Data Explorer | California Soil Resource Lab.

<https://casoilresource.lawr.ucdavis.edu/sde/?series=HONCUT#osd>

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

National Cooperative Soil Survey. (2023, February). *California Soil Data Explorer*. Soil Data Explorer | California Soil Resource Lab.

<https://casoilresource.lawr.ucdavis.edu/sde/?series=RYER#osd>

United States Department of Agriculture. (2020, April 30). United States department of Agriculture Web Soil Survey.

https://services6.arcgis.com/LYh3hRvKq5ASgAVM/arcgis/rest/services/USDA_Web_Soil_Survey_647/FeatureServer

Greenhouse Gas Emissions

Bay Area Air Quality Management District. 2022. *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects*.

<https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en>

Sacramento Metropolitan Air Quality Management District. 2020. Greenhouse Gas Thresholds for Sacramento County. March 4, 2020.

<https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf>. Accessed March 9, 2024. Hazards and Hazardous Materials

Hazards and Hazardous Materials

California Environmental Protection Agency. “List of solid waste disposal sites identified by Water Board with waste constituents above hazardous waste levels outside the waste management unit (PDF).” Accessed on March 15, 2024a.

<chrome-extension://efaidnbmnnnibpcjpcglefindmkaj/https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf>

California Environmental Protection Agency. “List of “active” CDO and CAO from Water Board (MS Excel, 1,453 KB).” Accessed on March 15, 2024b.

<https://calepa.ca.gov/sitecleanup/corteselist/>

California Environmental Protection Agency. “List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC.” Accessed on March 15, 2024c.
<https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/?emrc=63f01af3d8806>

California Department of Toxic Substances Control. “Envirostor.” Accessed on March 15, 2024.
<https://www.envirostor.dtsc.ca.gov>

Google Earth. 2024.

Ramirez, Adriel, REHS, Merced County Division of Environmental Health. Comment letter to Merced County Community and Economic Development Department, 15 February 2023.

State Water Resources Control Board. “GeoTracker.” Accessed on March 15, 2024.
<https://geotracker.waterboards.ca.gov/map/?myaddress=California&from=header&cqid=9235730826>

Hydrology and Water Quality

Flood Emergency Management Agency (FEMA). “FEMA Flood Map Service Center: Search by Address.” Accessed on April 5, 2024.
<https://msc.fema.gov/portal/search#searchresultsanchor>

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

Merced County. “Municipal Code.” Accessed on November 20, 2023.
https://library.qcode.us/lib/merced_county_ca/pub/county_code

Merced Subbasin Groundwater Management Agency. July 2022. *Merced Groundwater Subbasin Groundwater Sustainability Plan*. chrome- https://mercedsgma.org/assets/pdf/gsp-sections/revised/Merced-Subbasin-GSP_July-2022-Update_without-appendices.pdf

State Water Resources Control Board. “GeoTracker.” Accessed on November 22, 2023.
<https://geotracker.waterboards.ca.gov/map/?myaddress=California&from=header&cqid=7124845206>

Land Use and Planning

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

Renteria, Valeria, Planner I, Merced County Community and Economic Development Department. Email message to consultant, 8 March 2024.

Mineral Resources

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

Noise

Merced County. “Municipal Code.” Accessed on November 20, 2023.
https://library.qcode.us/lib/merced_county_ca/pub/county_code

Merced County. November 2012. *2030 Merced County General Plan Update Draft Program Environmental Impact Report*. Merced, CA.

WJV Acoustics. April 2024. *Acoustical Analysis 100 Tower Road Battery Energy Storage System (BESS) Merced County, California*. Visalia, California.

Population and Housing

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

Public Services

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

Recreation

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

Transportation

Google Earth. 2024.

Merced County Association of Governments. November 2022. *VMT Thresholds and Implementation Guidelines*. Merced, CA. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mcagov.org/DocumentCenter/View/3872/MCAG-SB-743-VMT-Thresholds-and-Implementation-Guidelines_11-10-2022?bidId=

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*. February 26, 2024.

Tribal Cultural Resources

Renteria, Valeria, Planner I, Merced County Community and Economic Development.
Email message to consultant, 4 April 2024.

Utilities and Service Systems

New Leaf Energy. 2024. *100 North Tower Rd-Merced CA RA-200 KWAC -ESS Project*.
February 26, 2024.

Wildfire

California Department of Forestry and Fire Protection (CalFire). “FHSZ Viewer.” Accessed on
November 21, 2023. <https://egis.fire.ca.gov/FHSZ/>

Google Earth. 2024.

CalEEMod Results



Cougar Energy Storage Detailed Report

Table of Contents

- 1. Basic Project Information
 - 1.1. Basic Project Information
 - 1.2. Land Use Types
 - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
 - 2.1. Construction Emissions Compared Against Thresholds
 - 2.2. Construction Emissions by Year, Unmitigated
- 3. Construction Emissions Details
 - 3.1. Site Preparation (2024) - Unmitigated
 - 3.3. Grading (2024) - Unmitigated
 - 3.5. Building Construction (2024) - Unmitigated
 - 3.7. Building Construction (2025) - Unmitigated
 - 3.9. Paving (2025) - Unmitigated
 - 3.11. Architectural Coating (2025) - Unmitigated

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Cougar Energy Storage
Construction Start Date	7/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	28.8
Location	37.28983633429098, -120.40322345517174
County	Merced
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2332
EDFZ	14
Electric Utility	Merced Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Industrial Park	436	1000sqft	10.00	435,600	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.45	101	36.0	34.1	0.05	1.60	19.8	21.4	1.47	10.1	11.6	—	5,877	5,877	0.22	0.35	11.8	6,000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.59	2.25	14.9	23.8	0.04	0.52	1.90	2.42	0.48	0.47	0.95	—	5,706	5,706	0.22	0.36	0.31	5,819
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.99	6.23	6.10	8.72	0.01	0.24	1.45	1.69	0.22	0.59	0.81	—	1,915	1,915	0.07	0.11	1.51	1,949
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	1.14	1.11	1.59	< 0.005	0.04	0.27	0.31	0.04	0.11	0.15	—	317	317	0.01	0.02	0.25	323
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.45	3.75	36.0	34.1	0.05	1.60	19.8	21.4	1.47	10.1	11.6	—	5,877	5,877	0.22	0.35	11.8	6,000
2025	2.54	101	13.6	25.6	0.04	0.46	1.90	2.36	0.42	0.47	0.89	—	5,812	5,812	0.20	0.35	11.3	5,933
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.59	2.25	14.9	23.8	0.04	0.52	1.90	2.42	0.48	0.47	0.95	—	5,706	5,706	0.22	0.36	0.31	5,819
2025	2.43	2.11	13.9	22.8	0.04	0.46	1.90	2.36	0.42	0.47	0.89	—	5,645	5,645	0.22	0.35	0.29	5,756
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.99	0.84	6.10	8.72	0.01	0.24	1.45	1.69	0.22	0.59	0.81	—	1,915	1,915	0.07	0.10	1.44	1,949
2025	0.81	6.23	4.59	7.69	0.01	0.16	0.58	0.74	0.15	0.14	0.29	—	1,815	1,815	0.07	0.11	1.51	1,850
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.18	0.15	1.11	1.59	< 0.005	0.04	0.27	0.31	0.04	0.11	0.15	—	317	317	0.01	0.02	0.24	323
2025	0.15	1.14	0.84	1.40	< 0.005	0.03	0.11	0.13	0.03	0.03	0.05	—	301	301	0.01	0.02	0.25	306

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.07	1.21	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	152	152	0.01	0.01	0.65	155

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.84	3.84	< 0.005	< 0.005	0.01	3.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.00	1.03	< 0.005	0.05	—	0.05	0.04	—	0.04	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.39	0.39	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	1.04	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	131	131	0.01	< 0.005	0.55	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.58	6.58	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	3.12	3.64	0.01	0.14	—	0.14	0.13	—	0.13	—	666	666	0.03	0.01	—	669

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.57	0.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	110	110	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.19	1.09	0.78	12.7	0.00	0.00	1.40	1.40	0.00	0.33	0.33	—	1,593	1,593	0.08	0.06	6.76	1,620
Vendor	0.12	0.08	2.57	1.02	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,887	1,887	0.02	0.27	5.06	1,974
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.04	0.97	0.99	9.64	0.00	0.00	1.40	1.40	0.00	0.33	0.33	—	1,420	1,420	0.10	0.06	0.18	1,442
Vendor	0.11	0.08	2.74	1.04	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,888	1,888	0.02	0.27	0.13	1,971
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.27	0.25	2.78	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	407	407	0.03	0.02	0.81	414
Vendor	0.03	0.02	0.74	0.29	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	524	524	0.01	0.08	0.61	548
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.51	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	67.4	67.4	< 0.005	< 0.005	0.13	68.5
Vendor	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	86.8	86.8	< 0.005	0.01	0.10	90.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.34	3.13	3.90	0.01	0.13	—	0.13	0.12	—	0.12	—	718	718	0.03	0.01	—	720
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.57	0.71	< 0.005	0.02	—	0.02	0.02	—	0.02	—	119	119	< 0.005	< 0.005	—	119
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09	1.03	0.68	11.6	0.00	0.00	1.40	1.40	0.00	0.33	0.33	—	1,560	1,560	0.08	0.06	6.26	1,586
Vendor	0.11	0.08	2.44	0.93	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,854	1,854	0.02	0.27	5.03	1,941
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.99	0.91	0.89	8.82	0.00	0.00	1.40	1.40	0.00	0.33	0.33	—	1,391	1,391	0.10	0.06	0.16	1,412
Vendor	0.10	0.07	2.62	0.96	0.01	0.03	0.50	0.52	0.03	0.14	0.16	—	1,856	1,856	0.02	0.27	0.13	1,939
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.28	0.23	2.75	0.00	0.00	0.41	0.41	0.00	0.10	0.10	—	430	430	0.03	0.02	0.81	436
Vendor	0.03	0.02	0.76	0.28	< 0.005	0.01	0.15	0.15	0.01	0.04	0.05	—	555	555	0.01	0.08	0.65	581
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.50	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	71.1	71.1	< 0.005	< 0.005	0.13	72.3
Vendor	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	92.0	92.0	< 0.005	0.01	0.11	96.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.06	0.95	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	128	128	0.01	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architect ural Coatings	—	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architect ural Coatings	—	5.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architect ural Coatings	—	1.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.21	0.14	2.32	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	312	312	0.02	0.01	1.25	317
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.03	16.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.60	2.60	< 0.005	< 0.005	< 0.005	2.64
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	7/1/2024	7/12/2024	5.00	10.0	—
Grading	Grading	7/13/2024	8/9/2024	5.00	20.0	—
Building Construction	Building Construction	8/12/2024	6/2/2025	5.00	211	—
Paving	Paving	6/3/2025	6/30/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	7/1/2025	7/28/2025	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37

Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT

Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	183	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	71.4	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	36.6	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	653,400	217,800	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Industrial Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	453	0.03	< 0.005
2025	0.00	453	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

Cropland	>70% Sand	10.0	0.00
----------	-----------	------	------

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	29.4	annual days of extreme heat
Extreme Precipitation	1.70	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2
-------------------------	---	---	---	---

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	72.5
AQ-PM	84.7
AQ-DPM	31.3
Drinking Water	78.6
Lead Risk Housing	30.7
Pesticides	86.6
Toxic Releases	21.1
Traffic	5.33
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	85.2
Haz Waste Facilities/Generators	50.1
Impaired Water Bodies	33.2
Solid Waste	22.1

Sensitive Population	—
Asthma	96.8
Cardio-vascular	99.6
Low Birth Weights	42.2
Socioeconomic Factor Indicators	—
Education	49.6
Housing	8.86
Linguistic	37.7
Poverty	61.1
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	46.9652252
Employed	35.99384063
Median HI	51.17413063
Education	—
Bachelor's or higher	62.20967535
High school enrollment	10.76607212
Preschool enrollment	34.98011036
Transportation	—
Auto Access	54.54895419
Active commuting	35.99384063
Social	—
2-parent households	38.53458232

Voting	51.84139612
Neighborhood	—
Alcohol availability	86.79584242
Park access	18.73476197
Retail density	8.122674195
Supermarket access	2.399589375
Tree canopy	29.74464263
Housing	—
Homeownership	60.27203901
Housing habitability	92.73707173
Low-inc homeowner severe housing cost burden	96.98447325
Low-inc renter severe housing cost burden	88.5281663
Uncrowded housing	58.74502759
Health Outcomes	—
Insured adults	59.36096497
Arthritis	73.2
Asthma ER Admissions	2.3
High Blood Pressure	50.4
Cancer (excluding skin)	60.5
Asthma	46.1
Coronary Heart Disease	77.0
Chronic Obstructive Pulmonary Disease	62.6
Diagnosed Diabetes	75.2
Life Expectancy at Birth	72.4
Cognitively Disabled	28.0
Physically Disabled	30.9
Heart Attack ER Admissions	2.2

Mental Health Not Good	49.5
Chronic Kidney Disease	79.8
Obesity	41.1
Pedestrian Injuries	54.8
Physical Health Not Good	58.2
Stroke	75.8
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	48.5
No Leisure Time for Physical Activity	54.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	49.5
English Speaking	72.8
Foreign-born	29.4
Outdoor Workers	80.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	87.7
Traffic Density	0.8
Traffic Access	0.0
Other Indices	—
Hardship	58.9
Other Decision Support	—
2016 Voting	63.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	68.0
Healthy Places Index Score for Project Location (b)	43.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	—
Construction: Construction Phases	Construction schedule adjusted to match anticipated 12-month timeframe.

Special-Status Species in the Project Vicinity

B
APPENDIX

Appendix B Special-Status Plant Species with Potential to Occur in the Project Vicinity

Species	Status (Federal/State/ CNPS)	Suitable Habitat Description	Potential to Occur on Project Site
Alkali-sink goldfields (<i>Lasthenia chrysantha</i>)	--/--/1B.1	Alkaline sinks, valley grassland, vernal pools, elevation 0-200 m. Blooming Period: February - June	Not expected to occur due to regular disturbance of vernal pool habitat.
Beaked clarkia (<i>Clarkia rostrata</i>)	--/--/1B.3	Cismontane woodland, and valley and foothill grassland. North-facing slopes, sometimes on sandstone; elevation 60-460m. Blooming Period: April - May	Not expected to occur. No north facing slope habitat present.
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	--/SE/1B.2	Marshes and swamps (freshwater), vernal pools. Clay soils, usually in vernal pools, sometimes along lake margins; elevation 5-2400m. Blooming Period: April - August	Not expected to occur due to regular disturbance of vernal pool habitat.
California alkali grass (<i>Puccinellia simplex</i>)	--/--/1B.2	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Alkaline, vernal mesic. Sinks, flats, and lake margins; elevation 1-915m. Blooming Period: March - May	Not expected to occur due to regular disturbance of vernal pool habitat.
Colusa grass (<i>Neostapfia colusana</i>)	FT/SE/1B.1	Vernal pools, usually in large or deep vernal pool bottoms, adobe soils; elevation 5-110m. Blooming Period: May - August	Not expected to occur due to regular disturbance of vernal pool habitat.
Delta button-celery (<i>Eryngium racemosum</i>)	--/SE/1B.1	Riparian scrub; prefers seasonally inundated floodplain on clay soils; elevation 3-75m. Blooming Period: June - August	Not expected to occur. No riparian scrub habitat present.
Dwarf downingia (<i>Downingia pusilla</i>)	--/--/2B.2	Valley and foothill grassland (mesic sites), and vernal pools; elevation 1-485m. Blooming Period: March - May	Not expected to occur due to regular disturbance of vernal pool habitat.
Fleshy owl's-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)		Occurs usually in vernal pools and wetlands. Moist places, often in acidic soils. 20-705 m. Blooming Period: April - May	Not expected to occur due to regular disturbance of vernal pool habitat.
Forked hare-leaf (<i>Lagophylla dichotoma</i>)	--/--/1B.1	Cismontane woodland, and valley and foothill grassland; sometimes on clay substrates; elevation 45-335m. Blooming Period: April - June	Not expected to occur. No suitable grassland or woodland habitat present.
Greene's tuctoria (<i>Tuctoria greenei</i>)	FE/SR/1B.1	Vernal pools, valley and foothill grassland. Dry bottoms of vernal pools in open grasslands, 30-1065m. Blooming Period: May - September	Not expected to occur due to regular disturbance of vernal pool habitat.
Hairy orcutt grass (<i>Orcuttia pilosa</i>)	FE/SE/1B.1	Vernal pools; elevation 25-125m. Blooming Period: May - September	Not expected to occur due to regular disturbance of vernal pool habitat.
Hartweg's golden sunburst (<i>Pseudobahia bahiifolia</i>)	FE/SE/1B.1	Valley and foothill grassland, cismontane woodland. Clay soils, often acidic. Predominantly on the northern slopes of knolls, but also along shady creeks or near vernal pools. 60-170 m. Blooming Period: March to April	Not expected to occur. No suitable grassland or woodland habitat present.
Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>)	--/--/1B.2	Chenopod scrub, valley and foothill grassland, and meadows. Prefers alkaline flats and scalds in the Central Valley, on sandy soils; elevation 1-150m. Blooming Period: April - October	Not expected to occur. No suitable chenopod scrub, grassland or meadow habitat present.

Appendix B

Species	Status (Federal/State/ CNPS)	Suitable Habitat Description	Potential to Occur on Project Site
Hoover's calycadenia (<i>Calycadenia hooveri</i>)	--/--/1B.3	Cismontane woodland, valley and foothill grassland. On exposed, rocky, barren soil; elevation 65-260m. Blooming Period: July - September	Not expected to occur. No suitable woodland or grassland habitat present.
Hoover's spurge (<i>Chamaesyce hooveri</i>)	FT/--/1B.2	Vernal pools, and valley and foothill grassland; pools on volcanic mudflow or clay substrates; elevation 25-140m. Blooming Period: July - August	Not expected to occur due to regular disturbance of vernal pool habitat.
Keck's checkerbloom (<i>Sidalcea keckii</i>)	FE/--/1B.1	Cismontane woodland, and valley and foothill grassland. Prefers grassy slopes in blue oak woodland; elevation 180-425m. Blooming Period: April - May	Not expected to occur. No suitable woodland or grassland habitat present.
Lesser saltscale (<i>Atriplex minuscula</i>)	--/--/1B.1	Chenopod scrub, playas, and valley and foothill grassland. In alkali sinks in sandy, alkaline soils; elevation 20-100m. Blooming Period: May - October	Not expected to occur. No suitable chenopod scrub or grassland habitat present.
Merced phacelia (<i>Phacelia cillata</i> var. <i>opaca</i>)	--/--/1B	Valley and foothill grassland. Adobe or clay soils of valley floors, open hills, or alkaline flats; elevation 60-150m. Blooming Period: February - May	Not expected to occur. No suitable grassland habitat present.
Pincushion navarretia (<i>Navarretia myersii</i> ssp. <i>myersii</i>)	--/--/1B.1	Vernal pools, valley and foothill grassland. Clay soils within non-native grassland; elevation 20-330m. Blooming Period: May	Not expected to occur due to regular disturbance of vernal pool habitat.
Recurved larkspur (<i>Delphinium recurvatum</i>)	--/--/1B.2	Alkaline sites in chenopod scrub, cismontane woodland, and valley and foothill grassland; elevation 3-750m. Blooming Period: March - May	Not expected to occur. No suitable chenopod scrub, woodland, or grassland habitat present.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT/SE/1B.1	Vernal pools, endemic to the San Joaquin Valley; elevation 30-755m. Blooming Period: April - September	Not expected to occur. No suitable vernal pools present.
Sanford's arrowhead (<i>Sagittaria sanfordii</i>)	--/--/1B.2	Marshes and swamps. Found in standing or slow-moving freshwater ponds, marshes, and ditches; elevation 0-610m. Blooming Period: May - October	Not expected to occur. No suitable marsh or swamps present.
Shining navarretia (<i>Navarretia nigelliformis</i> ssp. <i>radians</i>)	--/--/1B.2	Cismontane woodland, valley and foothill grassland, and vernal pools; elevation 200-1000m. Blooming Period: May - July	Not expected to occur. No suitable open woodland and grassland present.
Spiny-sepaled button-celery (<i>Eryngium spinosepalum</i>)	--/--/1B.2	Vernal pools within valley and foothill grassland. Some sites on clay soils of granitic origin; elevation 100-420m. Blooming Period: April - May	Not expected to occur due to regular disturbance of vernal pool habitat.
Subtle orache (<i>Atriplex subtilis</i>)	--/--/1B.2	Alkaline sites in valley and foothill grassland; elevation 40-100m. Blooming Period: August - October	Not expected to occur. No suitable grassland habitat present.
Succulent owl's-clover (<i>Castilleja campestris</i> var. <i>succulenta</i>)	FT/SE/1B.2	Vernal pools, and valley and foothill grassland. Moist places, often in acidic soils; elevation 25-750m. Blooming Period: April - May	Not expected to occur due to regular disturbance of vernal pool habitat. No suitable grassland habitat present.
Vernal pool smallscale (<i>Atriplex persistens</i>)	--/--/1B.2	Vernal pools on alkaline soils; elevation 10-115m. Blooming Period: July - October	Not expected to occur due to regular disturbance of vernal pool habitat.

Species	Status (Federal/State/ CNPS)	Suitable Habitat Description	Potential to Occur on Project Site
watershield (<i>Brasenia schreberi</i>)	--/--/2B.3	Freshwater marshes and swamp from both natural and artificial sources; elevation 1-2180 m. Blooming Period: June - September	Not expected to occur. No suitable marshes or swamps present.

SOURCE: CDFW CNDDDB 2023, CNPS 2023

NOTE: Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: A Candidate for listing as Threatened or Endangered under the Federal Endangered Species Act.

FSC: Species of Special Concern.

FD: Delisted under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SR: Listed as Rare under the California Endangered Species Act.

SC: A Candidate for listing as Threatened or Endangered under the California Endangered Species Act.

SSC: Species of Special Concern.

SFP: Fully Protected species under the California Fish and Game Code.

SD: Delisted under the California Endangered Species Act.

CNPS Rare Plant Ranks and Threat Code Extensions

1B: Plants that are considered Rare, Threatened, or Endangered in California and elsewhere.

2B: Plants that are considered Rare, Threatened, or Endangered in California, but more common elsewhere.

.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat).

.2: Fairly endangered in California (20-80% occurrences threatened).

.3: Not very endangered in California (<20% of occurrences threatened or no current threats known).

Appendix B Special-Status Wildlife Species with Potential to Occur in the Project Vicinity

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
American badger (<i>Taxidea taxus</i>)	--/SSC	Most abundant in drier, open stages of most shrub, forest, and herbaceous habitats. Need sufficient food and open, uncultivated ground with friable soils to dig burrows. Prey on burrowing rodents.	Not expected to occur. Suitable open stage habitat not present. Few burrowing rodents.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	FD/SE	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within one mile of water. Nests in large, old-growth, or dominant live tree with open branches.	Not expected to occur onsite. No suitable wetlands, lakes, rivers, etc., present. Possible flyover sightings.
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	FE/SE	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts.	Not expected to occur. No alkali and desert scrub habitat present.
Burrowing owl (<i>Athene cunicularia</i>)	--/SSC	Open, dry, annual or perennial grasslands, desert, or scrubland, with available small mammal burrows.	Not expected to occur. Few small mammal burrows present.
California condor (<i>Gymnogyps californianus</i>)	FE/SE	Requires vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	Not expected to occur. Suitable canyons or rocky walls not present.
California linderiella (<i>Linderiella occidentalis</i>)	FSC/--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools typically has very low alkalinity, conductivity, and total dissolved solids.	Not expected to occur. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops.
California red-legged frog (<i>Rana draytonii</i>)	FT/SSC	Rivers, creeks, and stock ponds with pools and overhanging vegetation. Requires dense, shrubby or emergent riparian vegetation, and prefers short riffles and pools with slow-moving, well-oxygenated water. Needs upland habitat to aestivate (remain dormant during dry months) in small mammal burrows, cracks in the soil, or moist leaf litter.	Not expected to occur. Suitable riverine, habitat with upland burrows not present. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops and likely dry quickly after rain events.
California tiger salamander (<i>Ambystoma californiense</i>)	FT/ST	Grasslands and oak woodlands near seasonal pools and stock ponds in central and coastal California. Needs upland habitat to aestivate (remain dormant during dry months) in small mammal burrows, cracks in the soil, or moist leaf litter. Requires seasonal water sources that persist into late March for breeding habitat.	Not expected to occur. No grasslands with small mammal burrows present. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops and likely dry quickly after rain events.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE/--	Endemic to the grasslands of the northern two-thirds of the central valley; found in large, turbid pools. Also occurs in swales formed by old, braided alluvium filled by winter/spring rains.	Not expected to occur. No suitable habitat present. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops.
Crotch bumble bee (<i>Bombus crotchii</i>)	--/SCE	Open grassland and scrub habitats. Require flowering plants and suitable nesting sites. Documented food plants include <i>Asclepias</i> sp., <i>Chaenactis</i> sp., <i>Lupinus</i> sp., <i>Medicago</i> sp., <i>Phacelia</i> sp., and <i>Salvia</i> sp.	Not expected to occur. Lacks documented food plants.

Appendix B

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
Ferruginous hawk (<i>Buteo regalis</i>)	--/SSC	(Wintering) Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Mostly consumes flat lagomorphs, ground squirrels, and mice.	Not expected to occur. No open grassland, sagebrush flats, desert scrub, or juniper habitats present
Fisher (<i>Pekania pennanti</i>)	FE/SSC	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest. Intermediate to large stages of coniferous and deciduous riparian forest with high canopy closure.	Not expected to occur. No mature dense forest present.
Foothill yellow-legged frog (<i>Rana boylei</i>)	--/SSC	Partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. Requires at least some cobble-sized substrate for egg-laying and 15 weeks of available water to attain metamorphosis.	Not expected to occur. No shallow streams present.
Fresno kangaroo rat (<i>Dipodomys nitratoides exilis</i>)	FE/--	Bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses. Alkali sink-open grassland habitats in western Fresno County.	Not expected to occur. No alkali sink-open grassland habitat present.
Giant garter snake (<i>Thamnophis gigas</i>)	FT/ ST	Prefers freshwater marsh and low gradient streams. Adapted to drainage canals and irrigation ditches. The most aquatic garter snake in California.	Not expected to occur. No freshwater marsh or low gradient streams present.
Giant kangaroo rat (<i>Dipodomys ingens</i>)	FE/SE	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	Not expected to occur. Suitable grassland not present.
Golden eagle (<i>Aquila chrysaetos</i>)	--/SFP	Rolling foothill mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range. Also uses large trees in open areas.	Not expected to occur. Suitable foothill mountain areas, sage-juniper flats, and desert not present.
Hardhead (<i>Mylopharodon conocephalus</i>)	--/SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity.	Not expected to occur. No suitable streams present.
Hoary bat (<i>Lasiurus cinereus</i>)	--/SSC	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Not expected to occur. Suitable roosts available in trees. Not perennial water source present.
Merced kangaroo rat (<i>Dipodomys heermanni dixonii</i>)	FSC/--	Grassland and savannah communities in eastern Merced and Stanislaus Counties. Needs fine, deep, well-drained soil for burrowing. Granivorous, but also eats forbs and green grasses.	Not expected to occur. No suitable grassland or savannah habitats present.
Monarch butterfly (<i>Danaus plexippus</i>)	FC/--	Winter roost sites. Wind protected tree groves (Eucalyptus, Monterey pine, cypress) with nectar and water sources nearby.	Not expected to occur. Suitable Eucalyptus, pine or cypress not present.
Mountain plover (<i>Charadrius montanus</i>)	--/SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Prefers short vegetation, bare ground, and flat topography, such as grazed areas and areas with burrowing rodents.	Not expected to occur. No suitable short vegetation or grazed areas. Absence of rodent burrows.
Northern harrier (<i>Circus cyaneus</i>)	--/SSC	Found near coastal salt and freshwater marshes. Nests and forages in grasslands. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Not expected to occur. Suitable marsh, grasslands, or shrub vegetation not present.

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
Pallid bat (<i>Antrozous pallidus</i>)	--/SSC	Deserts, grasslands, scrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures.	Not expected to occur. Suitable grasslands with rocky areas not present.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE/ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing, and suitable prey base.	Low probability to occur. Suitable burrows and burrowing habitat not present, however species could move through project area.
Steelhead (<i>Oncorhynchus mykiss irideus</i>)	FT/--	Coastal stream with clean spawning gravel. Requires cool water and pools. Needs migratory access between natal stream and ocean.	Not expected to occur. Suitable riverine habitat not present.
Swainson's hawk (<i>Buteo swainsoni</i>)	--/ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas, such as grasslands or agricultural fields supporting rodent populations.	Low probability to occur. Foraging habitat present. Nesting possible within onsite or neighboring parcel trees.
Tricolored blackbird (<i>Agelaius tricolor</i>)	--/SE	Areas adjacent to open water with protected nesting substrate, which typically consists of dense, emergent freshwater marsh vegetation.	Not expected to occur. Suitable open water habitat with emergent vegetation not present.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT/--	Elderberry shrubs, usually in Central Valley riparian habitats.	Not expected to occur. Suitable elderberry shrubs not present.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT/--	Endemic to the grasslands of the Central Valley, Central Coast Mtns., and South Coast Mtns. in astatic rain-filled pools. Inhabits small, clear-water sandstone depression pools and grass swale, earth slump, or basalt-flow depression pools.	Not expected to occur. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE/--	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in swales of unplowed grasslands.	Not expected to occur. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops.
Western mastiff bat (<i>Eumops perotis californicus</i>)	--/SSC	Many open, semi-arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Not expected to occur. Suitable habitat areas not present.
Western pond turtle (<i>Emys marmorata</i>)	FTC-/SSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites (such as rocks or partially submerged logs) and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Not expected to occur. Suitable aquatic habitat not present.
Western spadefoot (<i>Spea hammondi</i>)	--/SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands, breeds in winter and spring (January - May) in quiet streams and temporary pools.	Not expected to occur. Suitable grassland habitat with quiet streams not present. Seasonal pools found within transmission line corridor frequently plowed and planted with agricultural crops.

SOURCE: CDFW 2024

Appendix B

NOTE: Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: A Candidate for listing as Threatened or Endangered under the Federal Endangered Species Act.

FSC: Species of Special Concern.

FD: Delisted under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SR: Listed as Rare under the California Endangered Species Act.

SC: A Candidate for listing as Threatened or Endangered under the California Endangered Species Act.

SSC: Species of Special Concern.

SFP: Fully Protected species under the California Fish and Game Code.

SD: Delisted under the California Endangered Species Act.

Acoustical Analysis

C
APPENDIX

ACOUSTICAL ANALYSIS

**100 TOWER ROAD BATTERY ENERGY STORAGE SYSTEM (BESS)
MERCED COUNTY, CALIFORNIA**

WJVA Report No. 24-06

PREPARED FOR

**EMC PLANNING GROUP, INC.
601 ABREGO STREET
MONTEREY, CA 93940**

PREPARED BY

**WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA**



APRIL 10, 2024

1. INTRODUCTION

Project Description:

Cougar Energy Storage 1, LLC C/O New Leaf Energy, Inc. is proposing to develop and construct a battery energy storage system (BESS) adjacent to the PG&E Wilson substation at 100 North Tower Road. The project is being developed to add reliability to the California electric grid and help meet the June 2021 California Public Utility Commission's (CPUC) decision requiring 11,500 megawatts of new capacity additions to the California Independent System Operator (CAISO) system.

The BESS will consist of lithium-ion based battery modules housed in purpose-built metal enclosures, with integrated power conversion equipment and fire suppression systems. In addition, the BESS will have interconnection equipment including transformers and the system will be completely enclosed within a 7-foot high perimeter fence. Interconnection to the PG&E substation will also require 115kV transmission poles for the overhead wires. The total project area is estimated to be no more than 10 acres.

The BESS will operate continuously for the expected project operational term of 30 years. Typical operation of the system will include charging from the grid during the day and discharging during peak electric demand at night. At the property lines, the BESS will produce negligible sound and the system will have minimal lighting for safety at night.

After completion of construction activities which are expected to take 6-12 months, the BESS will operate unstaffed. The system will be monitored remotely, and regular operations and maintenance will be conducted approximately quarterly by service personnel estimated to be 1-2 persons with 1 vehicle. Both during the construction and operation terms, access to the site will be via a proposed 14' wide gravel access road onto the property from North Tower Road. There will be adequate area on the property for vehicle parking and equipment staging during construction and operational phases. No supplies are required to be stored on site. Once built, the BESS will not utilize any water, produce any waste or require any other public utilities.

The BESS appearance is in keeping with the character of the adjacent PG&E electrical substation and will not cause an unsightly appearance. No advertising will be present other than the required placards on the system as required by the National Electric Code and markings identifying the equipment manufacturer and system owner.

Environmental Noise Assessment:

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon the project site plan provided by the applicant (dated 2/26/24), noise level data provided by the project applicant, and findings of ambient noise level measurements conducted in the project vicinity on February 22 and 23, 2024. Revisions to the

site plan or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report. The project site plan is provided as Figure 1.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides examples of sound levels for reference.

In terms of human perception, a 5 dB increase or decrease is considered to be a noticeable change in noise levels. Additionally, a 10 dB increase or decrease is perceived by the human ear as half as loud or twice as loud. In terms of perception, generally speaking the human ear cannot perceive an increase (or decrease) in noise levels less than 3 dB.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

- a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

a. Noise Level Standards

Merced County

General Plan

The Merced County Health and Safety Element of the General Plan (adopted December 10, 2013) establishes noise level criteria for both transportation and non-transportation (stationary) noise sources. For transportation noise sources, the General Plan establishes noise level criteria in terms of the Day-Night Average Level (L_{dn} /DNL) metric. The L_{dn} is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.).

Table HS-1 (provided below as Table I) of the Merced County General Plan provides the maximum allowable exterior and interior noise exposure levels for various land use types. For residential land uses, the noise level standards typically apply to outdoor activity areas. Outdoor activity areas generally include backyards of single-family residences and individual patios or decks and outdoor common use areas of multi-family residential developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

Table I also provides interior noise level standards. For residential land uses, and interior noise level standard 45 dB L_{dn} is applied. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

TABLE I MERCED COUNTY GENERAL PLAN NOISE LEVEL STANDARDS TRANSPORTATION NOISE SOURCES			
New Land Use	Sensitive Outdoor Area¹ -L_{dn}	Sensitive Interior Area² - L_{dn}	Notes
All Residential	65	45	3
Transient Lodging	65	45	3,4
Hospitals & Nursing Homes	65	45	3,4,5
Theaters & Auditoriums	--	35	4
Churches, Meeting Halls	65	40	4
Schools, Libraries, etc.	65	40	4
Office Buildings	65	45	4
Commercial Buildings	--	50	4
Playgrounds, Parks, etc.	70	--	--
Industry	65	50	4

1. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

2. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

3. Railroad warning horn usage shall not be included in the computation of L_{dn}.

4. Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.

5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

Source: Merced County General Plan

Table HS-2 (provided below as Table II) of the Merced County General Plan provides the maximum allowable exterior and interior noise level standards for non-transportation (stationary) noise sources. Daytime is considered 7:00 a.m. to 10:00 p.m., and nighttime is considered 10:00 p.m. to 7:00 a.m.

TABLE II

MERCED COUNTY GENERAL PLAN NOISE LEVEL STANDARDS
NON-TRANSPORTATION NOISE SOURCES
MEDIAN (L₅₀) / MAXIMUM (L_{MAX})¹

Receiving Land Use	Outdoor Area ²		Interior ³	Notes
	Daytime	Nighttime	Day or Night	
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5,6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls	55 / 75	---	35 / 60	6
Schools, Libraries, etc.	60 / 75	---	35 / 60	6
Office Buildings	55 / 75	---	45 / 65	6
Commercial Buildings	55 / 75	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

1. These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

2. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

3. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

6. The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.

7. Where median (L₅₀) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

Source: Merced County General Plan

Code of Ordinances

The Merced County Code of Ordinances provides additional noise level standards applicable to the project. Section 10.30.060 (sound level limitations) of the Merced County Code of Ordinances states the following:

No person shall cause, suffer, allow, or permit the operation of any sound source on private property in such a manner as to create a sound level that results in any of the following, when measured at or within the real property line of the receiving property:

1. Exceeds the background sound level by at least ten (10) dBA during daytime hours (seven a.m. to ten p.m.) and by at least five dBA during nighttime hours (ten p.m. to seven a.m.).
2. Exceeds sixty-five (65) dBA L_{dn} on residential real property or seventy (70) dBA L_{dn} on nonresidential real property; or

3. Exceeds seventy-five (75) dBA Lmax on residential real property or eighty (80) dBA Lmax on nonresidential real property.

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

b. Construction Noise and Vibration

Section 10.60.030 (B5) of the Merced County Ordinance Code (Noise Source Exemptions) states that noise associated with construction activities would be exempt from the noise standards provided above, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between 7:00 a.m. and 6:00 p.m., and all construction equipment shall be properly muffled and maintained.

There are no Merced County Vibration level standards. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table III and Table IV, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE III		
GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA		
Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE IV		
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA		
Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Caltrans		

3. SETTING

The project site is located in Merced County east of the City of Merced, California. The project site is located adjacent to the PG&E Wilson substation at 100 North Tower Road and approximately 500 feet north of E. Childs Avenue. The project site is currently in agricultural production.

The closest sensitive receptors (residential land uses) to the proposed project site are the residence located at 100 N. Tower Road and 4814 E. Childs Avenue, both owned by the current project site landowner. Additionally, there is a residence located at 4619 E. Childs Avenue.

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by traffic noise along N. Tower Road and E. Childs Avenue. Other existing noise sources identified during the project site visit include noise associated with agricultural activities and occasional aircraft overflights.

Measurements of existing ambient noise levels in the project vicinity were conducted between February 22-23, 2024. Long-term (24-hour) ambient noise level measurements were conducted at two (2) locations (sites LT-1 and LT-2). Site LT-1 was located adjacent the project site, to the west, near the closest residential land uses to the project site, at 100 N. Tower Road. Site LT-1 was exposed to traffic noise associated with vehicles traveling along N. Tower Road and E. Childs Avenue, as well as noise associated with nearby agricultural and industrial activities. Site LT-2 was located approximately 175 south of the project site at an existing residential land use (project site property owner residence), approximately 300 feet north of E. Childs Avenue. Site LT-2 was exposed to traffic noise associated with vehicles on E. Childs Avenue as well as noise associated with nearby agricultural and industrial activities. Both sites were also exposed to occasional aircraft overflights. The locations of the noise monitoring sites are shown on Figure 2.

Short-term (15-minute) ambient noise level measurements were conducted at two (2) additional locations (Sites ST-1 and ST-2). Two (2) individual measurements were taken at each short-term site to quantify ambient noise levels in the morning and afternoon hours. The project vicinity and locations of the noise monitoring sites are shown on Figure 2.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with B&K Type 4176 1/2" microphones. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

Measured hourly energy average noise levels (L_{eq}) at site LT-1 ranged from a low of 46.4 dB between 11:00 p.m. and midnight and between 2:00 a.m. and 3:00 a.m. to a high of 60.9 dBA between 3:00 p.m. and 4:00 p.m. Hourly maximum (L_{max}) noise levels at site LT-1 ranged from 60.3 to 83.5 dBA. Residual noise levels at the monitoring site, as defined by the L_{90} , ranged from

38.1 to 48.5 dBA. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft, and other local noise sources. The measured L_{dn} value at Site LT-1 over the 24-hour monitoring period was 58.3 dB L_{dn} . Figure 3 graphically depicts hourly variations in ambient noise levels at site LT-1 over the 24-hour monitoring period. Figure 4 provides a photograph of site LT-1.

Measured hourly energy average noise levels (L_{eq}) at site LT-2 ranged from a low of 47.0 dB between 1:00 a.m. and 2:00 a.m. to a high of 58.0 dBA between 3:00 p.m. and 4:00 p.m. Hourly maximum (L_{max}) noise levels at site LT-2 ranged from 61.9 to 82.8 dBA. Residual noise levels at the monitoring site, as defined by the L_{90} , ranged from 34.6 to 47.9 dBA. The measured L_{dn} value at Site LT-2 over the 24-hour monitoring period was 58.4 dB L_{dn} . Figure 5 graphically depicts hourly variations in ambient noise levels at site LT-2 over the 24-hour monitoring period. Figure 6 provides a photograph of site LT-2.

The short-term site noise measurement data included energy average (L_{eq}) maximum (L_{max}) as well as five (5) individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. Table V summarizes short-term noise measurement results.

Short-term noise measurements were conducted for 15-minute periods. Both ST-1 and ST-2 were located in the vicinity of nearby sensitive receptors (residential land uses) located along E. Childs Avenue. The predominant source of noise at both short-term ambient noise measurement sites was vehicle traffic along E. Childs Avenue.

TABLE V SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA 100 N. TOWER ROAD BESS, MERCED COUNTY, CALIFORNIA FEBRUARY 22 & 23, 2024									
Site	Time	A-Weighted Decibels, dBA							Sources
		L_{eq}	L_{max}	L_2	L_5	L_{25}	L_{50}	L_{90}	
ST-1	8:05 a.m.	70.4	82.7	80.8	77.1	66.5	47.1		TR
ST-1	4:15 p.m.	69.4	80.1	79.2	76.0	62.4	47.8		TR
ST-2	8:30 a.m.	71.1	83.9	79.9	77.0	64.8	50.1		TR
ST-2	4:40 p.m.	71.4	82.6	77.7	75.8	65.2	49.5		TR

TR: Traffic AC: Aircraft V: Voices D: Dogs Barking B: Birds C: Construction Activities L: Landscaping Activities
Source: WJV Acoustics, Inc.

4. PROJECT RELATED NOISE LEVELS

a. Project Noise Impacts from Operational On-Site Sources

According to the project applicant, operational noise associated with the implementation of the 100 Tower Road Battery Energy Storage System (BESS) would consist of noise associated with the individual battery containers (256 total), inverters (64 total) and transformers (64 total). A total of 64 concrete pads are anticipated, each including four (4) battery containers and one (1) inverter and one (1) transformer unit. Additionally, the project would include one (1) main transformer unit.

Battery Container:

According to manufacturer data provided by the project applicant, each battery container would be expected to produce noise levels of approximately 76 dB at a distance of one (1) meter from the source. As described above, a total of 256 battery containers are anticipated, dispersed over the project footprint.

Inverter:

According to manufacturer data provided by the project applicant, each inverter would be expected to produce noise levels of approximately 65 dB at a distance of ten (10) feet from the source. As described above, a total of 64 inverter units are anticipated, dispersed over the project footprint.

Transformer:

According to manufacturer data provided by the project applicant, each inverter would be expected to produce noise levels of approximately 65 dB at a distance of one (1) meter from the source. As described above, a total of 64 transformer units are anticipated, dispersed over the project footprint. For the purpose of this analysis, the same noise levels are assumed for the main transformer (location provided on Figure 1).

Combined Noise Levels:

The noise-producing equipment associated with the project operational phase is described above. WJVA calculated anticipated project-related combined noise levels (256 battery containers, 64 inverters and 64 transformers) as well as the main transformer unit. Noise levels were calculated at the three closest sensitive receptors to the project site, residential land uses in the vicinity of ambient noise measurement sites LT-1, LT-2 and ST-1.

While each battery enclosure is anticipated to produce a noise level of approximately 76 dB at a distance of one meter, these noise levels are typically associated with the vented cooling fan area located on one individual side of the unit. Figure 7 provides a schematic of the batter enclosure and the vented area. The battery enclosures would be positioned in close groupings of four (4) units together. The enclosure units would provide acoustic shielding from adjacent units.

The combined noise levels from all sources (256 battery containers, 64 inverters and 64 transformers, as well as the main transformer unit) was calculated for the closest residential land

uses to the project site. The residences in the vicinity of LT-1 and ST-1 are both located at setback distance of approximately 750 feet from the project area, and the residence in the vicinity of LT-2 is located at a setback distance of approximately 700 feet from the project area (as measured from center point of equipment grouping). Taking into account all of the above-described noise sources, and assuming a worst-case scenario of all equipment in constant and simultaneous operation, with no acoustical shielding considered, calculated combined noise levels at these residences is approximately 54-55 dB L_{eq} .

As described above, the layout and locations of the battery enclosures would provide acoustical shielding of noise levels generated by adjacent battery enclosures. A proprietary software program based on the FHWA Traffic Noise Model was used to determine the noise level reduction that would be provided by adjacent battery enclosures. The model calculates insertion loss (noise reduction) based upon the distance from the source to the barrier, the distance from barrier to the receptor, and the relative heights of the sources and receptors. The calculations assumed a battery enclosure height of 10 feet (as indicated on Figure 7), a receiver height of 5 feet and an effective source height of 5 feet was assumed for the for the battery enclosure units. Using the noise attenuation calculations, it was determined that the battery enclosure units would provide acoustical shielding and reduce overall battery enclosure noise levels at nearby receptors by approximately 10 dB.

Applying this calculated noise level reduction, project operational noise levels were calculated to be approximately 44-45 dB L_{eq} at the closest residential land uses (vicinity of ambient sites LT-1, LT-2 and ST-1). Such levels do not exceed any Merced County daytime or nighttime noise standards. Additionally, such levels do not exceed existing (without project) ambient noise levels measured at these residential land uses. Mitigation measures are therefore not required for project noise compliance.

b. Noise from Construction

Construction noise could occur at various locations within the project site through the build-out period and would generally occur at distances of greater than 300 feet from nearby noise-sensitive land uses (residences). Table VI provides typical construction-related noise levels at reference distances of 250 feet, 500 feet, and 1,000 feet.

Construction noise is typically not considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The County Code of Ordinances typically restricts hours of construction activity to occur between the hours of 7:00 a.m. to 6:00 p.m.

TABLE VI TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA			
Type of Equipment	250 Ft.	500 Ft.	1,000 Ft.
Backhoe	64	58	52
Concrete Saw	76	70	64
Crane	67	61	55
Excavator	67	61	55
Front End Loader	65	59	53
Jackhammer	75	69	63
Paver	63	57	51
Pneumatic Tools	71	65	59
Dozer	68	62	56
Rollers	66	60	54
Trucks	72	66	60
Pumps	66	60	54
Scrapers	73	67	61
Portable Generators	66	60	54
Grader	72	66	60
Pile Driver	96	90	84

Source: FHWA

Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Best Management Practices:

Noise levels associated with construction activities may be effectively reduced by incorporating appropriate best management practices. The following best management practices should be applied during periods of project construction.

The following best management practices should be implemented during project construction:

- Per the County of Merced Code, construction activities should not occur outside the hours of 7:00 a.m. to 6:00 p.m.
- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.
- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.
- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

c. Vibration Impacts (Less Than Significant)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. Typical vibration levels at distance of 300 feet are summarized by Table VII. These levels would not exceed any significant threshold levels for annoyance or damage, as provided above in Table III and Table IV.

TABLE VII TYPICAL VIBRATION LEVELS DURING CONSTRUCTION	
Equipment	PPV (in/sec) @ 300'
Bulldozer (Large)	0.006
Bulldozer (Small)	0.00019
Loaded Truck	0.005
Jackhammer	0.002
Vibratory Roller	0.013
Caisson Drilling	0.006
Vibratory Pile Driver	0.042
Source: Caltrans	

The vibration levels provided in Table VII were derived from data provided in the Caltrans Transportation and Construction Vibration Guidance Manual. The Manual provides vibration levels for various pieces of construction equipment, normalized to a setback distance of 25 feet from the equipment source. Using these source levels provided at 25 feet, the Caltrans Manual also states that vibration from this equipment can be estimated for various setback distances by the following formula:

$$PPV_{Equipment} = PPV_{Ref} (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{Ref} = reference PPV at 25 ft.

D = distance from equipment to the receiver in ft.

$n = 1.1$ (the value related to the attenuation rate through ground)

d. Noise Impacts from Nearby Airports or Airstrips (No Impact)

The Project site is not located within two miles of a public airport or private airstrip. The Merced Regional Airport is located approximately 5.5 miles west of the project site.

5. IMPACT SUMMARY

- Project-related operational noise levels resulting from the proposed project, 100 Tower Road BESS, are not expected to exceed any applicable County of Merced daytime or nighttime noise level standards or produce noise levels that would exceed existing ambient noise levels at all off-site noise-sensitive locations. Mitigation measures are not required for project noise compliance.

The following best management practices should be implemented during project construction activities:

- Per the County of Merced Code, construction activities should not occur outside the hours of 7:00 a.m. to 6:00 p.m.
- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.
- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.
- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.
- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

24-06 (Tower Road BESS, Merced County) 4-10-24



FIGURE 2: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES



FIGURE 3: HOURLY NOISE LEVELS AT SITE LT-1

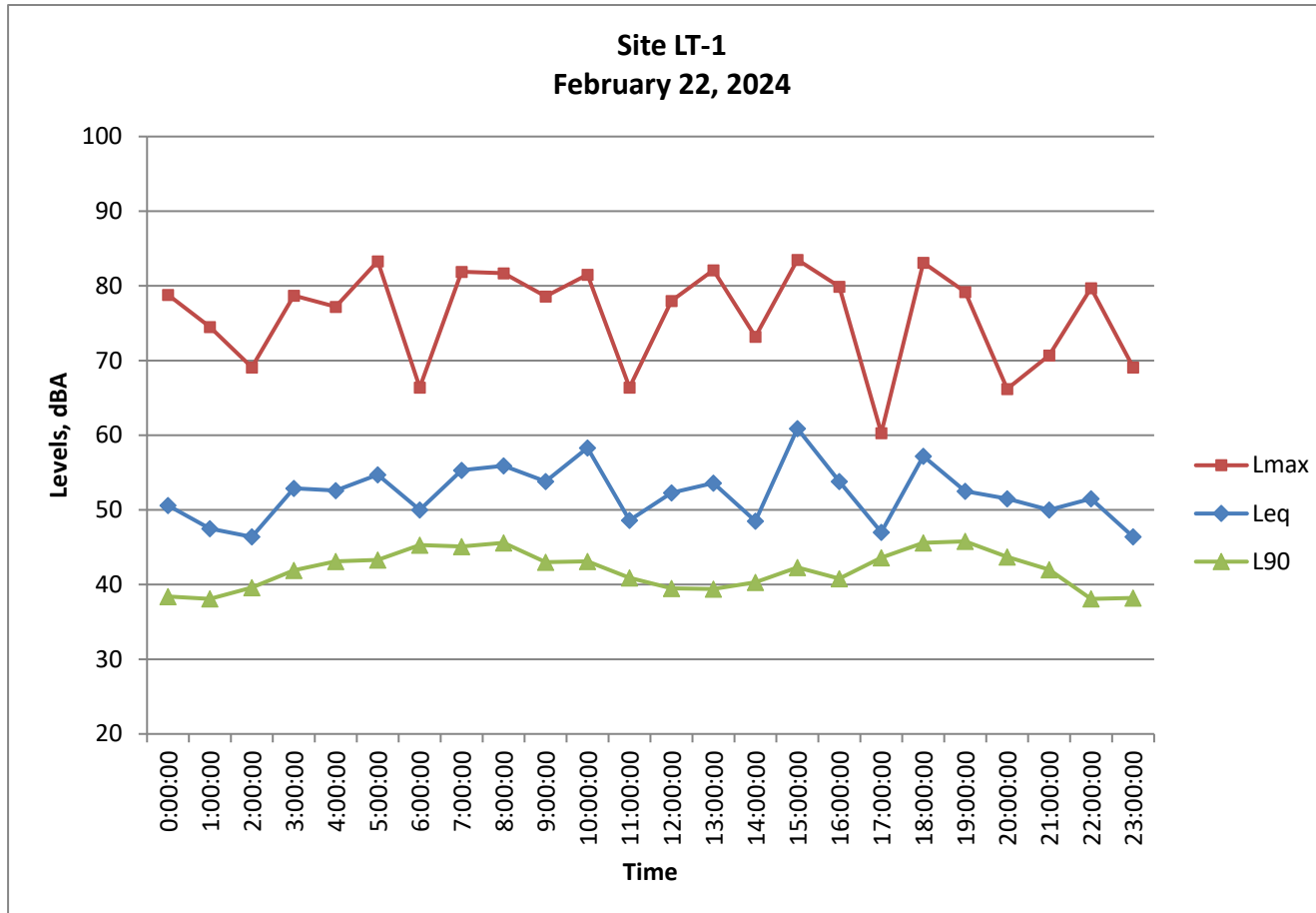


FIGURE 4: SITE LT-1



FIGURE 5: HOURLY NOISE LEVELS AT SITE LT-2

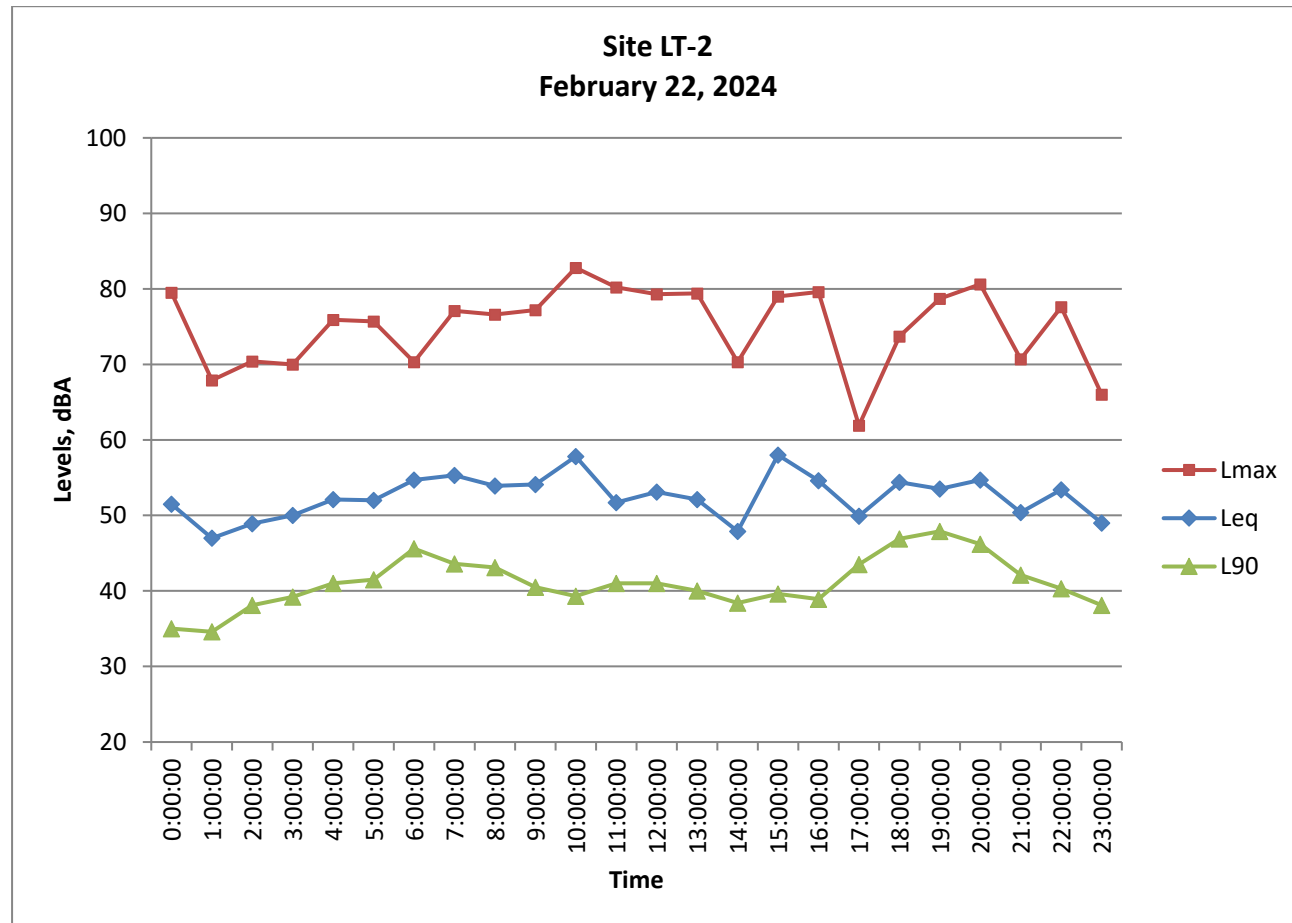


FIGURE 6: SITE LT-2



TOP FITTING

1' 1"

GRAVITY CENTRE

CATL

CATL

CATL

CATL

BATTERY WAREHOUSE

INLET VENTILATION DEVICE

THE UPPER SURFACES OF THE SIX FOUNDATIONS ARE COPLANAR

GROUND

FOUNDATION

BOTTOM FITTING

12' 0"

1' 0"

0.4'

5' 0"

UN 3536
LITHIUM BATTERIES INSTALLED
IN CARGO TRANSPORT UNIT

APPENDIX A-1

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
CNEL:	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
DNL/L_{dn}:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
L_{eq}:	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
NOTE:	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.
L_{max}:	The maximum noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval (L_{90} , L_{50} , L_{10} , etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS:

Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR):

The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL:

Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL:

The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC):

The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B
EXAMPLES OF SOUND LEVELS

