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Description:	This plan provides a summary of the fire environment at the project site and provides recommendations for managing the risk of wildfire impacting the facility as well as minimizing the risk that equipment at the facility causes a fire that spreads off the property
Filer:	Jennifer Dorgan
Organization:	Allen Matkins Leck Gamble Mallory & Nats
Submitter Role:	Applicant Representative
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Appendix 3.17A
Fire Safety Plan

Fire Safety Plan

Potentia-Viridi Battery Energy Storage Project Alameda County, California

JULY 2024

Prepared for:

LEVY ALAMEDA, LLC
Project Applicant
155 Wellington St W., Suite 2930
Toronto, Ontario M5V 3H1, Canada

CALIFORNIA ENERGY COMMISSION
Lead Agency
715 P Street,
Sacramento, California 95814

DUDEK
605 Third Street
Encinitas, California 92024

Prepared by:

Jeremy Cawn, Fire Protection Planner III
Noah Stamm, *Fire Protection Planner III*

Reviewed by:

Michael Huff, Practice Director,
Urban Forestry + Fire Protection

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AC	Alternating Current
AMSL	Above Mean Sea Level
BESS	Battery Energy Storage System
BMS	Battery Management System
CALFIRE	California Department of Forestry and Fire Protection
CBC	California Building Code (2022)
CFC	California Fire Code (2022)
CFR	Code of Federal Regulations
DC	Direct Current
ESS	Energy Storage System
ESMS	Energy Storage Management System
FAHJ	Fire Authority Having Jurisdiction
FCO	Fire Code Official (AKA Fire Marshal or Fire Marshal Deputy)
FHSZ	Fire Hazard Severity Zone
FRAP	Fire and Resource Assessment Program
Gen-tie line	Generation tie line
I-205	Interstate 205
I-580	Interstate 580
IC	Incident Commander
kV	Kilovolt
MW	Megawatt
MWh	Megawatt hours
NFPA	National Fire Protection Association
NWS	National Weather Service
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric
Project	Potentia-Viridi Battery Energy Storage System (BESS) Project
RFW	Red Flag Warning
SCU	CALFIRE Santa Clara Unit
SSD	Site Safety Director
SSJCFA	South San Joaquin County Fire Authority
U.L.	Underwriter's Laboratory
USGS	United States Geological Survey
WUI	Wildland Urban Interface

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Definitions

- **Activity Risk**: Activity risks include those actions that present a risk of igniting a wildfire.
- **Fire Patrol**: A Potentia-Viridi Battery Energy Storage System (BESS) Project individual will be assigned as "Fire Patrol" specifically to monitor work activities when an Activity Risk exists for fire compliance. The Fire Patrol personnel shall regularly patrol the area on foot and monitor the area for any signs of fire or unsafe practices. They shall have no other duties and shall not be sitting in a vehicle or using a cell phone or computer except for emergency-related calls or for checking for Red Flag Warning or other fire hazard or weather conditions. They will have the ability to stop work until an identified hazard has been mitigated.
- **Fire Season:** Fire season is no longer officially designated by the wildland fire agencies. California, specifically Northern California, is in a fire season on a yearlong basis. CAL FIRE adjusts their staffing patterns as fire conditions moderate or escalate and this can be used as an indicator of potential fire activity.
- **Fire Tools**: Essential firefighting tools to be staged near work activities are a 46-inch round point shovel, Pulaski, McLeod, 5-gallon "Indian" Backpack hand pump water extinguisher, and minimum 10 pound, 4A:80BC Dry Chemical Fire extinguisher.
- **Incident Commander (IC):** The incident commander is the person responsible for all aspects of an emergency response; including quickly developing incident objectives, managing all incident operations, application of resources as well as responsibility for all persons involved. The incident commander sets priorities and defines the organization of the incident response teams and the overall incident action plan.
- **Red Flag Warning (RFW):** A Red Flag Warning is issued for a stated period by the National Weather Service using pre-determined criteria to identify particularly critical wildfire danger in a particular geographic area. All construction and maintenance activities shall temporarily cease during RFWs. The Site Safety Director (SSD) will coordinate with personnel to determine which low fire hazard activities may occur. Should a local fire agency declare a Red Flag Warning affecting the Potentia-Viridi BESS Project site, the same work activity restrictions occurring during National Weather Service RFW periods would apply. RFW days typically occur in the fall, occasionally in the summer, and again during the spring. Typically, Alameda County will experience approximately 8 to 10 RFW days per year, with 2020 experiencing 20 RFW days (Weather Warnings, watches, and advisories - phillyburbs.com, 2024).
- **Site Safety Director (SSD):** The owner shall designate a person to be the site safety director (SSD). The SSD shall be responsible for ensuring compliance with the SSP. The SSD shall have the authority to enforce the provisions of this Section and other provisions as necessary to secure the intent of this Section. Where guard service is provided in accordance with NFPA 241, the SSD shall be responsible for the guard service. The Site Safety Director serves as a liaison to the emergency service agencies and all contractors or inspectors on the jobsite for the utilities on emergency incidents and construction-related activities. The SSD has the authority to stop any project work that appears to pose a particular fire risk or hazard.

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1 Summary

This Fire Safety Plan (FSP) provides a summary of the fire environment at the Potentia-Viridi BESS Project site and recommendations for managing the risk of wildfire impacting the facility as well as minimizing the risk that equipment at the facility causes a fire that spreads off the property. This FSPs do not anticipate every potential fire scenario that may occur at or in the vicinity of a BESS facility but does provide an overview of the very real dangers associated with fire hazards and potential ignitions, methods to reduce the risk of potential ignitions, and the risk of a destructive wildfire. Incipient fires (the first sign of visible flame and smoke), if they involve off-site vegetation under certain weather conditions, can develop into large-scale wildfires that burn many acres and can threaten public and private assets. Therefore, this FSP provides standard protocols and approaches for reducing the potential of ignitions at a BESS facility and for reducing the potential that an ignition can transition into a large, destructive wildfire. When employed, the concepts discussed herein will help minimize and/or avoid potential and accidental ignitions as well as extinguish any incipient fires while they are small and controllable. This FSP shall be considered a living document able to be edited to reflect new or changed requirements as codes and standards are updated.

Note: The National Weather Service may issue Red Flag Warnings (RFW) at any time when humidity and wind conditions meet pre-determined thresholds that would promote fire ignition and spread. Because most of the acreage burned in California occurs during RFW weather conditions, certain construction activities, such as hot work, would be limited to low fire hazard, non-hot work, until the RFW has been lifted. For more details, see Section 7.3, Daily Fire Prevention Measures and Section 8, Fire Safety Infrastructure of this FSP.

1.1 Fire Safety Plan Goals

There are two primary goals of this FSP. First, to identify ignition sources and wildfire risks present on and within the vicinity of the Project site in order to provide a clear understanding of the fire environment the Project is located in. Second, make sure the personnel involved with constructing of the BESS facility and its components have clearly defined protocols and procedures for reducing wildfire risk, maintaining a fire safe worksite, and what to do in the case of an emergency.

Among the fire-related goals developed for the Potentia-Viridi BESS Project site are:

- Prevent/minimize fires during construction activities.
- Provide a safe worksite for all employees, contractors, visitors, and emergency personnel.
- Prevent shock to emergency responders, workers, and unauthorized trespassers.
- Prevent arcing or sparking, which could ignite vegetation on site.
- Prevent or minimize dollar loss to the equipment.
- Prevent or minimize potential for a fire starting on site to spread off site.
- Provide water, appropriate fire extinguishers, and access for firefighters.
- Provide adequate signage and shut off devices to stop power feed into power lines in the event of a line failure, or fire in right of way.

- Provide water trucks equipped with fire extinguishers, hoses, shovels, Pulaski's and McLeods when work involves the use of chainsaws, chippers, vegetation masticators, grading/blading, grinders, drill rigs, tractors, torches, and/or explosives.
- Provide the ability to report a fire or other emergency to emergency dispatch center without delay and to utilize internet websites and contact personnel.
- Report all fire ignitions, regardless of size, to the closest responding fire stations, mainly South San Joaquin County Fire Authority (SSJCFA) Station 94, the Mountain House Fire Station No. 1 (next closest station), or Alameda County Fire Department (ACFD) in Alameda County.

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2 Introduction

Levy Alameda, LLC (Applicant), a wholly owned subsidiary of Obra Maestra Renewables, LLC, proposes to construct, operate, and eventually repower or decommission the 400-megawatt (MW) Potentia-Viridi Battery Energy Storage System (Project) on approximately 85 acres in eastern Alameda County. The primary components of the Project include an up to 3,200 megawatt-hour (MWh) battery energy storage system (BESS) facility, an operations and maintenance (O&M) building, a project substation, a 500 kilovolt (kV) overhead intertie transmission (gen-tie) line, and interconnection facilities within the Pacific Gas and Electric (PG&E) owned and operated Tesla Substation.

The Project would draw electricity from the power grid to charge and store electrical energy and discharge back to the power grid when the stored energy is needed. The Project would provide several benefits to the power grid, including reducing the need to operate natural gas power plants to balance intermittent renewable generation and serving as an additional capacity resource that would enhance grid reliability.

The Project would be remotely operated and monitored year-round and be available to receive or deliver energy 24 hours a day and 365 days a year. During the operational life of the Project, qualified technicians would routinely inspect the Project facilities and conduct necessary maintenance to ensure reliable and safe operational readiness.

2.1 Project Location

The Project would be located in Alameda County, California within a portion of Assessor Parcel Number (APN) 99B-7890-002-04 located at 17257 Patterson Pass Road, southwest of Interstate 580 and Interstate 205 (Figure 1, Regional Map and Figure 2, Project Vicinity Map, and Figure 3, Project Site Aerial Map). Development of the BESS facility would occur on about 70 acres of APN 99B-7890-002-04, which is currently contains of fallowed annual grasslands suitable for grazing. The gen-tie line would extend southeast from the Project substation, crossing Patterson Pass Rd, and then proceed east to the Point of Interconnection (POI) at the Tesla Substation. The Project's gen-tie line would be sited on APNs 99B-7890-2-4, 99B-7890-2-6, and 99B-7885-12. Land uses in the immediate vicinity of the Project include undeveloped rural agricultural lands, multiple high-voltage transmission lines and electrical substations, rural roads, and railroad lines. The nearest municipality to the Project site is the City of Tracy approximately 2.5 miles to the northeast. There are a few single-family residences near the Tesla Substation's southern and eastern boundaries. The nearest residence is about 1,500 feet southeast of the Project site and 560 feet south of the proposed gen-tie line; it is owned by the same landowner leasing the lands for the Project.

The proposed Project site is located within a rural, sparsely developed area with limited existing infrastructure. The area contains California annual grassland vegetation typical of the Diablo Mountain Range around Altamont Pass. Wildland fires in such grassland environments are generally common during the fire season (May to October) because the vegetation readily ignites, and fuel volumes are sufficient and continuous enough to sustain the spread of a wildfire. No recorded wildfires have burned onto the project site; however, the surrounding area has experienced repeated wildfires in the past particularly in the areas along the railroad tracks and along I-680. These fires are typically fast moving due to the constant winds at the Altamont Pass but generally are unable to burn through the night due to increased humidity and lower temperatures. The project is in a State Responsibility Area (SRA) High Fire Hazard Severity Zone (HFHSZ) with small pockets of moderate FHSZ to the east, along I-580 (see Figure 4, CAL FIRE Fire Hazard Severity Zone Map). The project will require onsite personnel during both the construction and operation of the facility. Once constructed and operational, the Project would operate 7 days per week, 365 days per year. The facility would be remotely monitored by the original equipment manufacturer or an

affiliated company. Project operations would be monitored remotely through the SCADA system and by the Project's anticipated three full-time operations staff members. Onsite maintenance would be required, which would include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the project substation, O&M staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

The proposed project would not substantially impair Alameda County's adopted emergency response plan and there is no adopted evacuation plan for the Project area. Construction and operation of the project would pose minor risks of causing or exacerbating the uncontrolled spread of wildfire and adverse post fire conditions. Although the Project site is located in Alameda County, the Project would be served by the closest existing fire station which is the SSJCFA Station #94 for fire protection, medical care and emergency services. SSJCFA Fire Station #94 is located at 1650 W. Schulte Road, Tracy, California and is adjacent to the California Department of Forestry and Fire Protection (CAL FIRE) Santa Clara Unit, Station 26. Furthermore, the Project site would be served by either the Livermore Police Department (located west of the Project site in Alameda County) or the Tracy Police Department (located east of the Project site in San Joaquin County) for law enforcement and public safety services. The Livermore Police Department is located at 1110 S. Livermore Ave., Livermore, California and the Tracy Police Department is located at 1000 Civic Center Drive, Tracy, California.

2.2 Intent

The purpose of this FSP is to analyze the Project's various components and to generate and memorialize the fire safety requirements of the Fire Authorities Having Jurisdiction (FAHJ); i.e., the SSJCFA and CAL FIRE, as well as the safety and construction requirements for Alameda County. Recommendations of this FSP incorporate analysis of the Project and of the cumulative impact on the area's emergency service resources. Recommendations for effectively mitigating identified impacts are based on site-specific characteristics and incorporate input from the project applicant and the County. This FSP incorporates applicable fire safety regulations and requirements and documents a selection of these regulations that are most pertinent to the Project's unique facility and location.

2.3 Applicable Codes and Existing Regulations

This FSP demonstrates that the Project would comply with applicable portions of the 2022 California Fire Code, as adopted and amended by the SSJCFA, including Chapters 12 and 49. The Project will also be consistent with applicable sections of the California Code of Regulations, Title 14, Fire Safe Regulations. Further, the Potentia-Viridi BESS Project is consistent with California Building and Electrical Codes, which have been adopted by the County, and will employ all related California Public Utilities Commission (CPUC) regulations including the General Order 95: Rules for Overhead Electric Line Construction.

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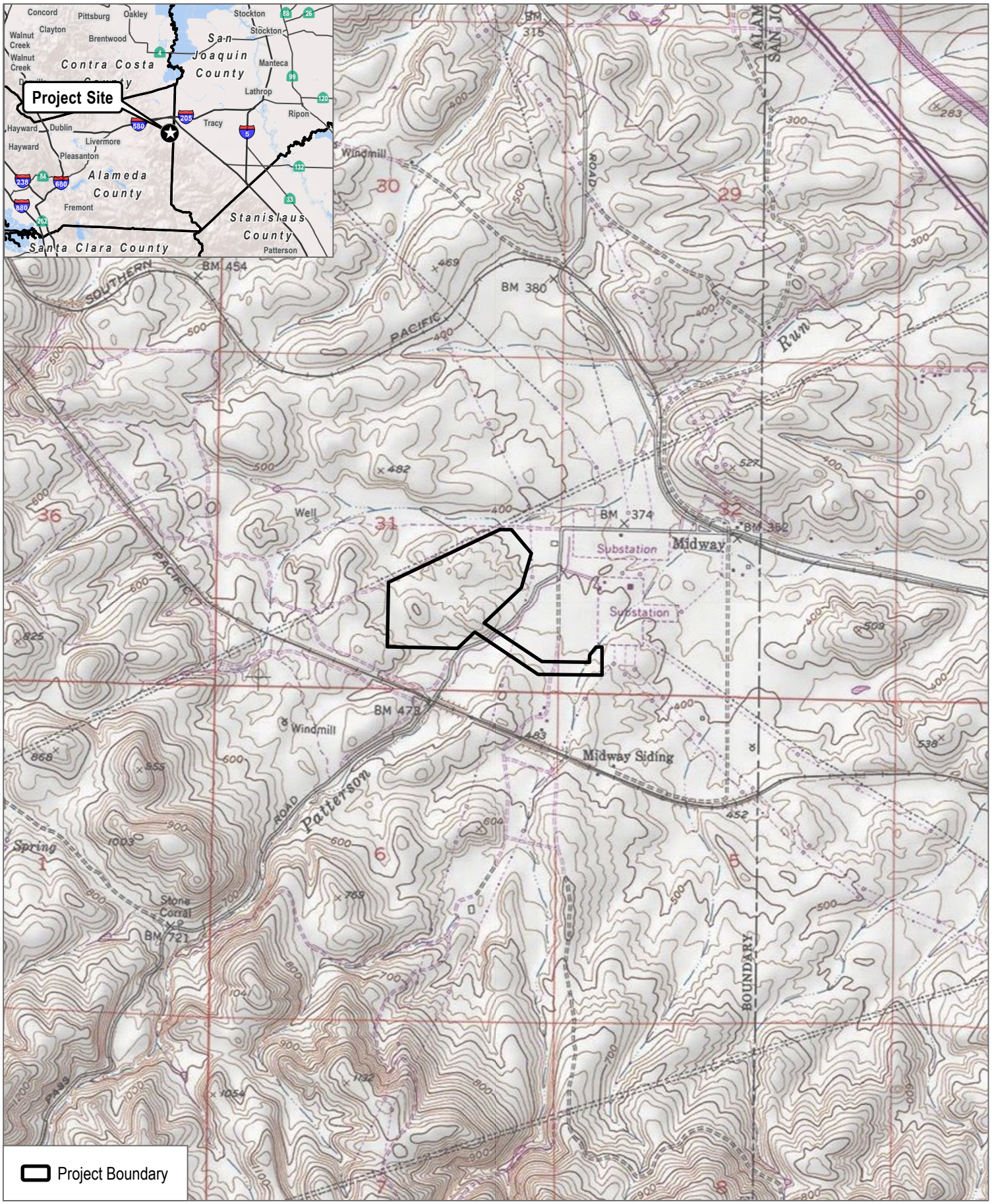

SOURCE: USGS 7.5 Minute Quadrangle Series

FIGURE 1

Project Regional Map

Potenta Viridi BESS Project Fire Safety Plan

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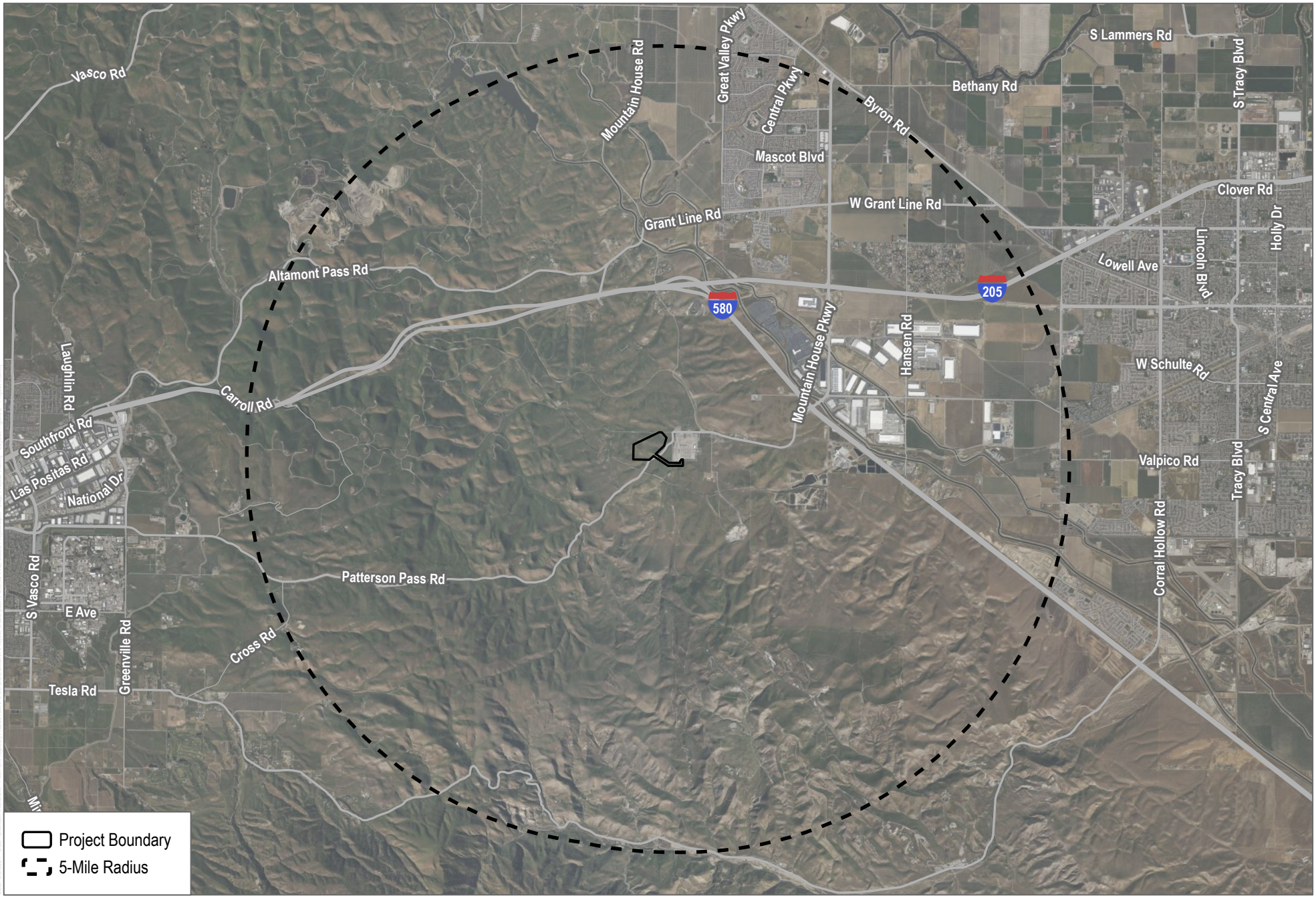

SOURCE: Bing Maps 2023

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0 4,000 8,000 Feet

FIGURE 2

Project Vicinity Map

Potenta Viridi BESS Project Fire Safety Plan

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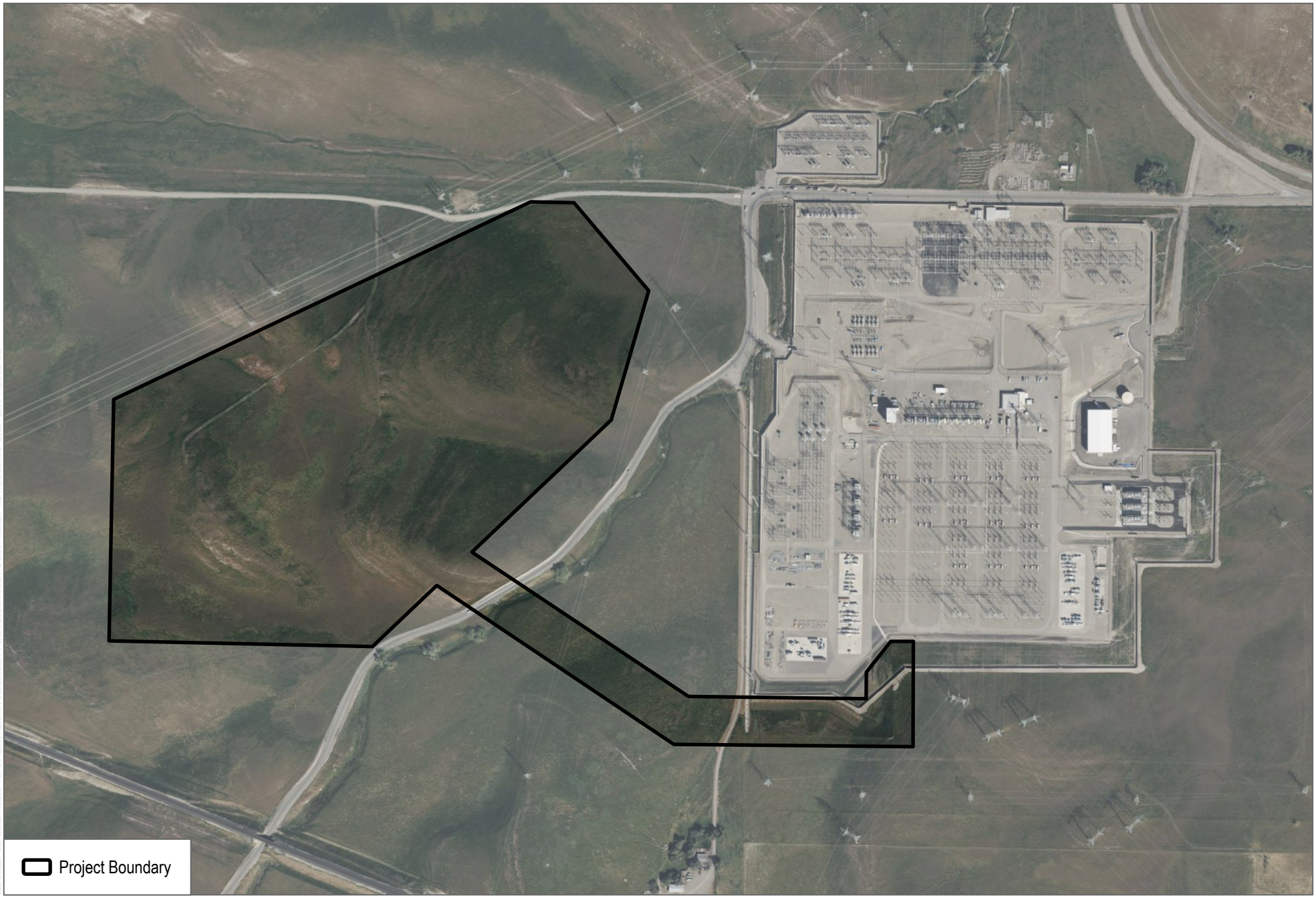

SOURCE: Bing Maps 2023

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FIGURE 3

Project Site Aerial

Potenta Viridi BESS Project Fire Safety Plan

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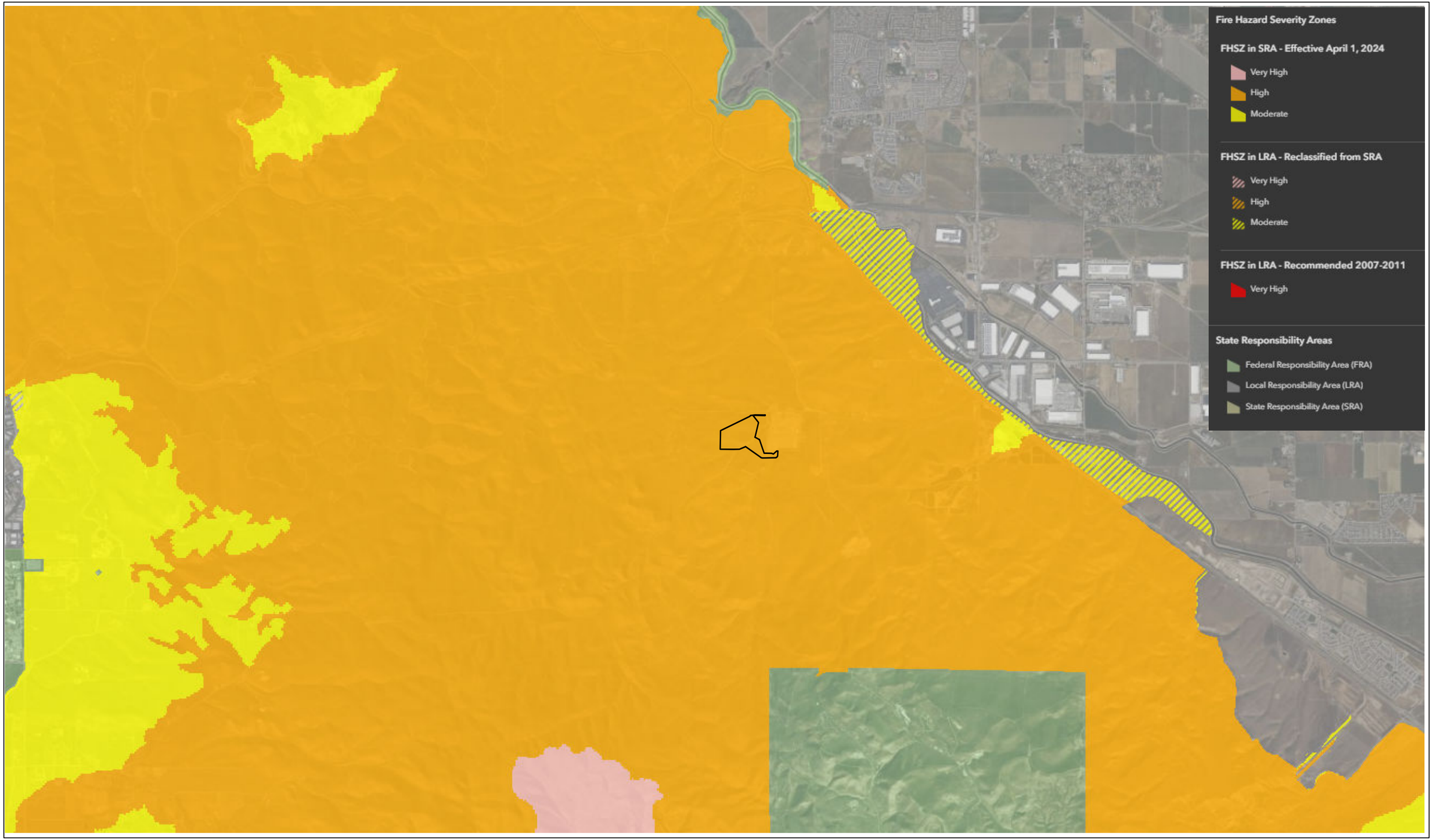

SOURCE: CALIFORNIA OFFICE OF THE STATE FIRE MARSHAL, SRA FIRE HAZARD SEVERITY ZONE MAPS, 2024

DUDEK

0 2,000 4,000 Feet

FIGURE 4
Fire Hazard Severity Zones
Potentia-Viridi BESS Project Fire Safety Plan

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3 Site and Project Description

3.1 Location

The Project would be located in Alameda County, California within a portion of Assessor Parcel Number (APN) 99B-7890-002-04 located at 17257 Patterson Pass Road, southwest of Interstate 580 and Interstate 205. Development of the BESS facility would occur on about 70 acres of APN 99B-7890-002-04, which is currently comprised of fallowed annual grasslands suitable for grazing. The gen-tie line would extend southeast from the Project substation, crossing Patterson Pass Rd, and then proceed east to the Point of Interconnection (POI) at the Tesla Substation. The Project's gen-tie line would be sited on APNs 99B-7890-2-4, 99B-7890-2-6, and 99B-7885-12. Land uses in the immediate vicinity of the Project include undeveloped rural agricultural lands, multiple high-voltage transmission lines and electrical substations, rural roads, and railroad lines. The nearest municipality to the Project site is the City of Tracy approximately 2.5 miles to the northeast. There are a few single-family residences near the Tesla Substation's southern and eastern boundaries. The nearest residence is about 1,500 feet southeast of the Project site and 560 feet south of the proposed gen-tie line; it is owned by the same landowner leasing the lands for the Project.

The project would be accessed from Patterson Pass Road which extends from the city of Livermore to the east through the project area and into the city of Tracy to the west. No improvements to existing off-site roadways would be required to provide access to the site. The proposed project would not substantially impair an adopted emergency response or evacuation plan. Construction and operation of the project would pose minor risks of causing or exacerbating the uncontrolled spread of wildfire and adverse post fire conditions.

The proposed project site is located within a rural, sparsely developed area with limited existing infrastructure. The area contains California annual grassland vegetation typical of the Diablo Mountain Range around Altamont Pass. Wildland fires in such grassland environments are generally common during the fire season (May to October) because the vegetation readily ignites, and fuel volumes are sufficient and continuous enough to sustain the spread of a wildfire. The project is in an SRA High Fire Hazard Severity Zone with small pockets of moderate FHSZ to the east, along I-580. These are the primary indicators for elevated fire risks that require detailed impact analysis[1]. (see Figure 4, CAL FIRE Fire Hazard Severity Zone Map).

3.2 Fire Environment

The project site is situated in eastern Alameda County, California, in an environment where the combination of terrain, vegetation, and weather permit the spread of wildfire when conditions are right. This section describes the fire environment at the Project site and the surrounding area including a summary of the fire history.

3.2.1 Terrain

The Project site is situated in eastern Alameda County, California within the Diablo Mountain Range. The project lies on the east facing slopes of the range that extend from the Altamont Pass area at the ridgeline down to the San Joaquin Valley to the east. Generally, the terrain increases in elevation from east to west climbing from the valley

[1] According to Appendix G of the CEQA Guidelines.

bottom near Tracy, California to the ridgeline near Altamont Pass. Slope also increases from east to west while ascending towards the pass with the steepest slopes generally near the ridgeline or on the upper third of the slope. Topography and terrain influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope in the absence of wind. Flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind. The Project site specifically is located on a low hill or rise that is located on the east side of the parcel the Project is located on. Aspect at the Project site varies with the south side of the BESS facility being located adjacent to a south-southeast aspect, and the north side of the BESS facility being adjacent to a northwest aspect. Elevation ranges from approximately 400 feet above mean sea level (AMSL) at Patterson Pass Road to approximately 470 feet AMSL at the highest point on the hill. The hillside on the north side of the project site is shorter than the south side, descending from the highest point to only 430 feet AMSL. Slopes on the project site range from 2 to 20% with the steepest slopes on the southeast side of the Project site from the BESS facility footprint down to Patterson Pass Road. There are no narrow canyon, box canyons, chimneys, or other terrain features that would exacerbate a wildfire burning near the Project site. The Project site is on a small hilltop and the surrounding hillsides are short (less than 100 feet in elevation change between the bottom and top of the hill), extreme fire behavior driven by long steep hillsides is not anticipated on these short slopes.

3.2.2 Vegetation

The Project area is characterized by only one (1) vegetation community that was mapped in the Project site area: wild oats and annual brome grassland, which is also commonly referred to as California annual grassland. These continuous annual grasslands extend from valley bottom to ridgeline. Scattered trees and brush are present in isolated patches along creeks or wet drainages. The only exception to this is landscaping around developed sites such as homes and ranches which is a mix of shade trees and ornamental vegetation. The grasslands in the area are used pasture for livestock; however, there was no evidence of recent grazing at the Project site or on the adjacent lands.

Vegetation communities on the project site is defined as California Annual Grassland dominated by non-native species. The entire project site contains of this grassland except for roads and the areas immediate alongside roads which are a mix of tumbleweed and non-native thistle. The grassland contains the non-native soft chess (Bromus hordeaceus) and ripgut brome (Bromus diandrus) as dominant species. Shortpod mustard (Hirschfeldia incana) also occurs in varying densities throughout the grassland (Impact Sciences 2008).

California annual grasslands are capable of sustaining the spread of wildfire after the grass has cured which typically occurs around the onset of fire season, April to October, but occur earlier or later in the year based on conditions during the winter and spring. Cured annual grasslands contain a nearly continuous expanses of grass only broken up by roads, waterways, or rocky areas. Since cured grass is a lightweight fuel[2] it comes into equilibrium with the moisture in the atmosphere relatively quickly (within one hour) and is available to burn when the moisture in the air (relative humidity) drops below 15% (Livingston and Varner 2016) which can occur during the hottest and driest periods of the day throughout the fire season. This availability to burn combined with the continuous vegetation can sustain the growth of fast moving, large fires. However, it is important to identify that the growth of these fires can be significantly influenced by the time of day or changes in weather conditions when relative humidity increases. Fire activity can dramatically decrease during the night or during periods when the relatively

[2] Grass has a high surface area to mass ratio.

humidity rises above 15%. Finally, the lack of woody plants in the vegetation community means that there is little residual fire or heat in the portion of a wildfire not at the fires edge.

3.2.3 Vegetation Dynamics

Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading. For example, non-native grass dominated plant communities become seasonally prone to ignition and produce lower intensity, higher spread rate fires. In comparison, chaparral can produce higher heat intensity and higher flame lengths under strong, dry wind patterns, but does not typically ignite or spread as quickly as light, flashy grass fuels.

As described, vegetation plays a significant role in fire behavior. A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes disrupts plant succession, setting plant communities to an earlier state where less fuel is present for a period of time as the plant community begins its succession again. In summary, high frequency fires tend to convert shrublands to grasslands or maintain grasslands, while fire exclusion tends to convert grasslands to shrublands, over time. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (fire, farming, or grading) or fuel reduction efforts are not diligently implemented. It is possible to alter successional pathways for varying plant communities through manual alteration. This concept is a key component in the overall establishment and maintenance of the proposed fuel modification zones around the substation and BESS containers.

The approximately development footprint would be cleared, graded, and covered in a non-combustible, compacted road base. The BESS facility site would be subject to regular “disturbance” in the form of vegetation maintenance in between and around the BESS containers and access roads and would not be allowed to accumulate excessive biomass over time, which results in reduced fire ignition, spread rates, and intensity within the battery facility.

3.2.4 Weather

Climate in the project area is characterized as a hot-summer Mediterranean climate with cool, wet winters and hot, dry summers. Weather data for the Project site comes from the Altamont Remoted Automated Weather Station (RAWS) which is located near the ridgeline of the Diablo Mountain Range west of the Project site. Temperatures in the project area range between average lows of 48°F during the coldest months to average highs of 75°F during the summer months. From May to September maximum temperatures exceed 90°F. Relative humidity at the Project site ranges from an average of 70% during the wettest months to 40% during the driest months. Minimum average relative humidity in the Project area is below 15% from March to October. The majority of the precipitation falls between November and March. After March precipitation quickly decreases to minimal precipitation by May. Winds in the Project area are predominantly out of the west-southwest. Average wind speeds vary between 6 and 19 mph. Average wind speeds above 15 mph occur from May to August. Wind gusts exceeding 50 mph can occur throughout the year. Regarding wind records, the Altamont RAWS is located at a higher elevation (approximately 1000 feet above the site) and closer to the ridgeline then the Project site so is subject to stronger winds then would be expected at the project site (WRCC 2023).

Weather conditions conducive to the ignition and spread of a wildfire occur on average from March to October. During this period, the window when the grass at the project site is available to burn varies. In March there may be

a relatively short window during the day when temperatures are high enough and relative humidities low enough that fire can spread in the grass. This window increases as the year progresses peaking in July and August during the hottest and driest periods of the year. As the year progresses this window will decrease again as the temperature decreases and relatively humidity increases. The steady winds experienced at the project site would sustain fire spread when temperature and humidity condition are conducive to fire ignition.

3.2.5 Fire History

Fire history is an important component of a FSP. Fire history data provides valuable information regarding fire spread, fire frequency, most vulnerable areas, and significant ignition sources, amongst others. In turn, this understanding of why fires occur in an area and how they typically spread can then be used for pre-planning. Fire history represented in this FSP uses the Fire and Resource Assessment Program (FRAP) database. FRAP summarizes fire perimeter data dating to the late 1800s, but is incomplete due to the fact that it only includes fires over 10 acres in size and has incomplete perimeter data, especially before the mid-20th century (Syphard and Keeley 2016). However, the data does provide a summary of recorded fires and can be used to show whether large fires have occurred in the Project area, which indicates whether they may be possible in the future.

According to available data from the CAL FIRE FRAP records there have been 63 fires within five miles of the Project site. Evidence of two additional fires were observed during the site visit, bringing the total to 65 fires within 5 miles of the Project site. These two additional fires likely occurred after the fire perimeter data was released by CAL FIRE in May 2024. Twelve fires have burned within one mile of the Project site. No fires have burned onto the footprint of the BESS facility at the Project site; however, one fire perimeter extended over the proposed tie-in line path and one fire perimeter that extended onto the larger 232 acre that the Project site is located within. The California Public Utilities Commission (CPUC) collects and publishes data on utility caused fires. According to CPUC data only one utility fire has been recorded within 5 miles of the project site since 2014 (CPUC 2023). Utility caused fires that were the result of bulk transmission equipment such as the lines that connect to the Tesla substation are recorded but not published, there may be other utility caused fires in the project area. Figure 5 shows a map of the recorded fire perimeters within five miles of the Project site.

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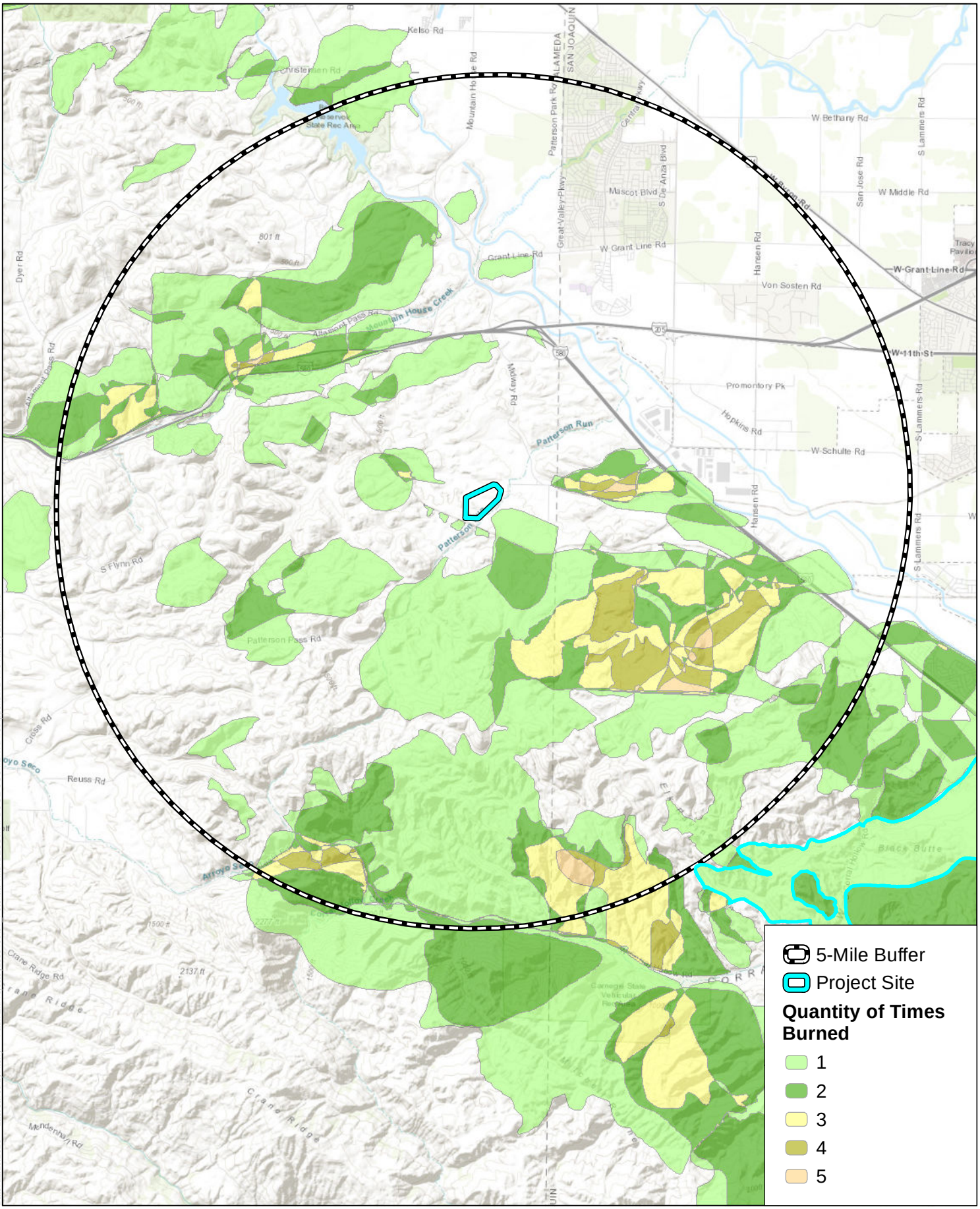

SOURCE: BASE MAP- ESRI MAPPING SERVICE; FIRE DATA-CALFIRE 2022

DUDEK

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FIGURE 5
Fire History Map
Potenta Viridi BESS Project Fire Safety Plan

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3.2.6 Fire Hazard Severity Zones

The Project site and the surrounding area are located on SRA lands where the state has the primary responsibility for fire suppression. According to the State Fire Marshal (SFM) Fire Hazard Severity Zone (FHSZ) Maps the Project site and the surrounding area are located in area currently designated as a High FHSZ. The nearest Moderate Fire Hazard Severity Zone is located two miles to west near the ridgeline of the Diablo Mountain Range. The State adopted FHSZ maps on April 2, 2024. According to the updated maps, the project site is in an area classified as a High Fire Hazard Severity Zone. Figure 4 shows the FHSZ map for the Project area.

The California Public Utilities Commission has published High Fire Threat District (HFTD) maps. The HFTD maps show areas where there is an increased risk (including likelihood and potential impacts on people and property) for utility associated wildfires (CPUC 2023). The Project site and the surrounding area is not located within a Tier 2 (High) or Tier 3 (Extreme) HFTD.

3.2.7 Post-Fire Slope Instability and Drainage Pattern Changes

A wildfire may create a burned landscape that is more susceptible to debris flows. Changes to vegetation and soil due to a wildfire can increase the probability of runoff and erosion in a watershed during a rainfall event, and thus the likelihood of a debris flow triggered by a rainfall event. Debris flows may damage natural resources, property, and infrastructure and may lead to injuries and fatalities. Communities' downslope of burned terrain may be vulnerable to damage from debris flows, such as that which occurred in Montecito, CA, in 2018 (CRS 2023).

The USGS Post Wildfire Debris Flow Hazard Assessment uses geospatial data related to basin morphometry, burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a design storm (USGS 2023). The USGS publishes the results of this assessment online on a map viewer that shows recent burn perimeters, and the hazard and the likelihood of a debris flow within the fire perimeter. No data is available for the project site; however, the 2020 SCU Lightning Complex burned within ten miles of the Project site and onto terrain and vegetation similar to the Project site. Debris flow hazard assessments for nearby portions of the SCU complex rating similar terrain and vegetation as having a low likelihood and low combined hazard for a post fire debris flow (USGS 2023). It is worth noting that the SCU Lightning Complex perimeter burned over steeper slopes than present at the Project site and still was rated a low likelihood and combined hazard.

According to Figure S-4 of the Alameda County General Plan, the Project site is located in area considered to be "least susceptible," to slope failure or in an area where landslides previously occurred. In addition, the drainage pattern on the project site has not been previously altered due to a fire event and generally drains toward Patterson Run, the waterway adjacent to Patterson Pass Road. No wildfires have burned on the site or on the larger parcel that contains the Project site within the last 20 years.

3.3 Project Components

The Project would include construction, O&M, and eventual decommissioning of a 400 MW BESS with an energy storage capacity up to 3,200 MWhs. Charging from or discharging to the electrical grid would be a 500kV gen-tie connecting the project substation to the POI within the existing PG&E Tesla Substation. The BESS Facility would include the following components:

- Battery Energy Storage System (BESS) Enclosures
- Power Conversion Systems (PCS)
- Medium voltage (MV) Collection System
- Project Substation, Control Building, and Telecommunications Facilities
- Access Roads
- Laydown Yards
- Stormwater Facilities and Outfall
- Site Security and Fencing, including fire detection system
- Operations and Maintenance Building

Project components are described in the following subsections. Figure 6, Site Plan, shows the project layout. Table 1 summarizes the preliminary dimensions of major BESS facility components, and Table 2 summarizes the preliminary footprint/disturbance acreage associated with the BESS facility.

Table 1. Preliminary Dimensions of Major BESS Facility Components

Component	Quantity	Approximate Dimensions
BESS Enclosures	1,000*	20 ft x 8 ft x 10 ft (L x W x H)
PCS	140*	22 ft x 7 ft x 8 ft (L x W x H)
MV Collection system	--	Buried in trenches up to 5 ft x 10 ft (W x D)
Project Substation Area	1	500 ft x 450 ft; (5) 120 ft (H) (lightning masts)
Control Building	1	52 ft x 20 ft x 15 ft (L x W x H)
Wireless Communication Tower	1	18 ft x 18 ft x 199 ft (L x W x H)
Access Roads	--	20 ft (W) internal radii 25 ft minimum
Laydown Yards	4	Variable
Stormwater Detention Facilities	5	Variable
Stormwater Outfall	1	500 ft x 5 ft x 10 ft (L x W x D)
Security fencing	1	9 ft (H) 8 ft tall fence topped with 1 ft of barbed/razor wire
Operations and Maintenance Building	1	100 ft x 50 ft x 30 ft (L x W x H)

Notes: * The number of BESS enclosures and PCS units would depend on the manufacturer selected. The total number of BESS enclosures and PCS units may increase or decrease in the final design. It is also possible that the BESS units ultimately procured may incorporate the PCS units within the BESS enclosures.

Table 2. Preliminary Footprint of BESS Facility

Component	Permanent Disturbance
BESS Yards	13.3 acres
Project Substation	5.5 acres

Access Roads	6.6 acres
Laydown Yards	15.2 acres
Stormwater Detention Areas	9.3 acres
Stormwater Outfall	0.6 acres
Other*	7.2 acres
Total+	*57.7 acres*

Notes: * Other areas include maximum grading limits. The analyses assume that all areas used for the BESS facility are permanently disturbed and kept free of vegetation to comply with fire requirements.
+The total permanent disturbance acreage is a conservative estimate, and final designs may require fewer acres. Underground components within the BESS facility would be located within the footprint of above ground disturbance areas.

3.3.1 Battery Energy Storage System

The energy storage facility would utilize a modular and containerized BESS. There are several battery cell technologies commercially available, with one of the most common at present being lithium iron phosphate (LFP) cells (often colloquially referred to as 'lithium-ion'). LFP technology is considered one of the safest, most efficient, and commercially financeable energy storage technologies available on the market. The initial Project concept has been developed assuming an LFP technology. By the time the Project reaches the procurement stage, it is possible for other battery cell technology with proven safety and performance records to be suitable for the Project. Although the number and dimensions of the containers may change (as it does between LFP technology providers), the technology ultimately procured would result in potential environmental impacts substantially similar to, or less than, those analyzed based on this Project Description.

The BESS enclosures would be prefabricated off-site and arrive at the site ready to be installed and commissioned. Each modular BESS enclosure would include battery packs on racks, a battery management system (BMS), fire protection, and ancillary power electronics within a specialized steel-framed, non-occupiable container. The BESS enclosures would not exceed approximately 15 feet in height. The BESS enclosures may also have a heating, ventilation, and air conditioning (HVAC) system for optimal performance and safety. Power for the HVAC system, lighting, and other electrical systems would be provided through separate auxiliary power connection to the on-site project substation with connection lines installed above and/or below ground.

3.3.2 Power Conversion System

A Power Conversion System (PCS) is a packaged and integrated system consisting of a bi-directional inverter, MV transformers, protection equipment, direct current (DC) and alternating current (AC) circuit breakers, harmonic filters, equipment terminals, and a connection cabling system. A PCS functions to both convert between DC/AC and change the voltage level from the MV collection voltage to the voltage output of the BESS enclosures.

The PCS would convert electric energy from AC to DC when the energy is transferred from the grid to the battery, and from DC to AC when the energy is transferred from the battery to the grid. Each PCS would also include transformers that convert the AC side output of the inverter between low and medium AC voltage to increase the overall efficiency of the BESS. Inverters within the PCS units would be unattended systems designed to operate in all conditions. The inverters would be monitored and controlled remotely, and there would be on-site disconnects for use in case of an emergency or a situation requiring unscheduled maintenance.

PCS units would be installed on concrete foundations and connected to multiple BESS enclosures with wiring and cables installed underground. All outside electrical equipment would be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures.

3.3.3 MV Collection System

The MV collection system would include multiple components that connect the PCS units to the project substation including: underground conductor circuits, switchboards, switchgear, and panels at 34.5kV voltage. The conductors for the MV collection system would be installed underground during construction using trenching.

3.3.4 Project Substation

The project substation would include three main power transformers (MPTs) – two active and a live spare. When the BESS facility is charging, power from the regional electric transmission grid would be stepped down from 500kV to 34.5kV and sent from the project substation through the MV collection system and PCS units into the battery packs within the BESS enclosures. When the BESS facility is discharging, power from the battery packs within the BESS enclosures would be sent to the PCS units, stepped up to 34.5kV, and transported to the project substation through the MV collection system before being stepped up to 500kV at the MPTs and delivered back to the regional electric transmission grid. A prefabricated control building would be installed within the project substation area and contain an energy management system, metering and telecommunication equipment for communication with PG&E/CAISO facilities and to support remote Project operations monitoring. The project substation area would also include five static masts for lightning protection and a wireless communication tower mounted with an antenna up to 15 feet in diameter for external telecommunications.

3.3.5 Access Roads

The Project's roadway system would include two new facility access roads and driveways, a perimeter road, and internal access roads. One of the new site access roads and driveways would be constructed from an existing private road near the northeastern portion of the site, and the other would be constructed from Patterson Pass Road near the southwestern portion of the site. A project substation access road would be constructed outside of the perimeter fence, connecting the northeast and southwest driveways, to facilitate substation access by third parties during operations. All new access roads, driveways, internal and perimeter roads would be bladed, compacted, and surfaced with aggregate. All internal roadways and private driveways would be constructed to meet access requirements for construction, O&M, and emergency response requirements.

3.3.6 Laydown Yards

The Project would include up to 4 laydown yards for equipment and material staging and storage during construction. These areas would also be used for worker parking during construction. The primary laydown yard would be located directly adjacent to the project substation area (see Figure 6). The primary laydown yard would be bladed, compacted, and surfaced with aggregate, while additional laydown yards would be cleared of vegetation and surfaced with aggregate or other soil stabilizing materials. Portions of additional laydown yards may also be graded, if necessary. Landscape fabric may also be installed under the surface of all laydown yards to prevent vegetation growth, if required to comply with fire prevention standards. The O&M building, and required number of parking spaces for O&M staff, would be constructed within the primary laydown following construction of the BESS facility components.

If the BESS technology ultimately procured prior to construction requires larger BESS yards to accommodate BESS enclosures with larger dimensions, a greater number of BESS enclosures, or greater spacing requirements to comply with regulations, portions of the additional laydown yards may be used to accommodate larger BESS yards than those currently proposed. The proposed Project's preliminary layout, earthwork volumes, and project component dimensions assumed for environmental analyses in subsequent chapters are conservatively large to allow for design flexibility and Project schedule preservation.

3.3.7 Stormwater Facilities

The proposed BESS facility site currently consists of annual grassland with rolling topography. Regulatory standards require that volumes and flow rates of stormwater discharge after construction not exceed pre-development conditions. Stormwater generated on-site would flow to stormwater detention basins located along the periphery of the BESS facility site (Figure 6). Stormwater treatment and storage sizing would be designed to hold the anticipated runoff from a 100-year, 24-hour storm event in compliance with applicable regulations. In the event stormwater basins reach capacity, stormwater would be discharged from the detention basins via storm drainpipes and sheet flow at rates no greater than pre-development conditions following natural drainage patterns.

A stormwater drainage outfall utilizing a new 36-inch corrugated metal pipe or bioswale/ditch would be constructed from one or more of the detention basins located in the southwest portion of the site to the inlet of a new or existing culvert on the north side of Patterson Pass Road. Approximately 10 cubic yards of clean rip-rap would be placed as an energy dissipator at the outfall to discharge clean stormwater at or below current rates at the elevation of the ordinary high water mark of the existing drainage on the south side of Patterson Pass Road.

3.3.8 Site Security

The BESS facility site would be enclosed with an 8-foot-tall chain link fence topped with 1-foot of three-strand barbed wire or razor wire. The fence would be installed on the outside of the perimeter road. An additional fence with the same specifications would be installed around the project substation area. The fences would be required to prevent unauthorized access and to comply with human health and safety regulations. Gates would be installed at various access points along the fence lines and equipped with lock boxes to allow for authorized personnel (e.g., transmission service provider, O&M staff, emergency response) to access appropriate portions of the BESS facility site.

Lighting would only be in areas where it is required for safety, security, or operations. Low-elevation (less than 14 feet) controlled security lighting would be installed at the project substation and around the BESS yards, in accordance with applicable requirements and regulations. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, compliant with applicable codes and regulations. Security cameras would be placed on site and monitored 24/7.

3.3.9 Fire Protection System

Fire protection would include multiple fire detection systems on-site and within the individual BESS enclosures. An infrared camera system would be installed throughout the BESS facility to achieve 100% of electrical infrastructure and trigger an alarm in case of an onsite fire. Each BESS enclosure would have a fire rating in conformance with

the 2022 Edition of the California Fire Code. In addition, each BESS enclosure would contain an onboard battery management system (BMS) that monitors the appropriate state of individual battery cells and relays information 24-7. In the event of an anomaly, the system is designed to shut down and mitigate the hazard.

The Project's fire protection design would comply with California Fire Code 2022, Section 1207 Electrical Energy Storage Systems, which adopts the National Fire Protection Association's Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). BESS enclosures would be Underwriters Laboratories (UL) listed, tested, and certified to the most rigorous international safety standards. UL independently tests equipment for compliance with the latest fire safety code requirements, and the methods were developed to minimize fire risk and safety concerns about battery storage equipment raised by fire departments and building officials in the United States.

Faults, mechanical damage, or manufacturing defects in lithium-ion batteries can cause thermal runaway, which can lead to fires or other hazards. Should a thermal runaway event occur, the BESS enclosures are designed and constructed in such a way that fire would not propagate from one enclosure to a neighboring enclosure. The Project's BESS enclosures, as part of the testing and listing process, would be subjected to destructive testing including fire testing. The Project's BESS enclosures would include the following UL certifications:

- UL 1642 – Standard for Lithium Batteries (cell level certification).
- UL 1973 – Standard for Batteries for Use in Stationary Applications (module level certification).
- UL 9540 – Standard for Energy Storage Systems and Equipment (system level certification).
- UL 9540A – Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems.
- IEC 62619 – Standard for Battery Safety in Stationary Applications.

The Alameda County Fire District would review and comment on the facility fire protection and suppression plans, however, the closest responding fire station would be from the SSJCFA Station 94.

3.3.10 Operations and Maintenance Building

Following construction of the BESS facility, an O&M building would be constructed within the primary laydown yard for the Project's anticipated three full-time operations staff. The O&M building would include parking, outside equipment and laydown areas, basic offices, meeting rooms, washroom facilities and climate-controlled storage for certain equipment and materials. A potable water storage tank would provide water for washroom and sanitary facilities, and sewage/wastewater would be collected in a separate tank. Potable water would be trucked to the water storage tank periodically during O&M, and sewage/wastewater would be pumped from the storage tank, transported offsite via truck, and disposed of at a sanitary dump station, as needed, during operations. The O&M building would be powered via a distribution line from the project substation.

3.4 Transmission and Interconnection Description, Design, and Operation

The Project would be interconnected to the regional electrical transmission grid via an approximately 2,884-foot long new single-circuit 500kV gen-tie line within a 200-foot-wide corridor between the project substation and the PG&E Tesla Substation. The Applicant would construct and own the portion of the gen-tie line between the project substation and the Point of Change of Ownership (POCO) transmission structure, and PG&E would construct and own the remaining portion of the gen-tie from the POCO to the POI within the Tesla Substation. The Project's transmission and interconnection facilities would include the following components:

- 500kV Gen-Tie Line including Transmission Structures and Conductors
- Fiber Optic Telecommunications Utility Poles and Fiber Optic Lines
- Access Paths
- Temporary Work Areas
- Interconnection Facilities within Existing PG&E Tesla Substation Footprint (PG&E constructed and owned)

The proposed route location was selected to minimize the number of existing utility crossings, cross existing utilities at the optimum locations, minimize the total gen-tie line length and number of transmission structures required, minimize the number of turning structures required, and enter the Telsa Substation as close as possible to the POI. The proposed transmission structures were sited to avoid potential impacts to environmental resources. Project components associated with transmission and interconnection facilities are described in the following subsections. No parks, recreational areas, or scenic areas are located within one mile of the proposed gen-tie route. Table 3 summarizes the preliminary dimensions of major transmission components, and Table 4 summarizes the preliminary new ground disturbance area associated with construction of the transmission and interconnection facilities. Section 4.13, *Visual Resources* of the project's EIR, includes photographic simulations of a representative above ground section of the gen-tie route prior to construction and after construction.

Table 3. Preliminary Dimensions of Major Transmission Components

Component	Quantity	Approximate Dimensions
500kV Gen-Tie Line	1	Applicant Owned: 1,557ft long
		PG&E Owned: 1,327ft long
Substation Bay Dead-End Transmission Structure	2	Applicant Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within project substation area footprint
		PG&E Owned: 1 structure; up to 110ft above ground level; two seven-foot diameter foundations, installed up to 30ft deep; constructed within Tesla Substation footprint.
Angled Dead-End Transmission Structure	3	Applicant Owned: 2 structures; Up to 199ft above ground level; three nine-foot diameter foundations, installed up to 40ft deep, per structure

		PG&E Owned: 1 structure; Up to 199ft above ground level; three nine-foot diameter foundations, installed up to 40ft deep.
H-Frame Tangent Transmission Structure	1	Applicant Owned: Up to 199ft above ground level; two six-foot diameter foundations, installed up to 30ft deep.
Conductors	6	Two 2,300 kcmil 61W AAC "Pigweed" per phase. 30ft minimum ground clearance.
Overhead Shield Wire	2	Two 3/8in extra high strength 7-strand steel
Fiber Optic Utility Poles	16	Up to 40ft above ground level; up to 20in diameter wood poles direct embedded up to 8ft deep.
Fiber Optic Cables	2	All dielectric self-supporting fiber optic cable. Two redundant and diverse routes. Installed above ground on utility poles by Applicant from Project Substation to POCO. Installed by PG&E underground in trenches up to 2ft wide and 4ft deep between POCO and Tesla Substation.
Transmission Structure Access Path	1	Applicant Owned: 20ft wide; up to 1,750ft long
		PG&E Owned: 20ft wide; up to 950ft long
Transmission Line Corridor	1	200ft wide

Table 4. Approximate New Ground Disturbance Area Associated with Transmission and Interconnection Facilities

Component	Permanent Disturbance	Temporary Disturbance
Applicant Portion		
Transmission Structure Pads	0.4 acres	-
Transmission Structure Access Path	0.7 acres	-
Fiber Optic Utility Poles	0.1 acres	-
Tension and Pulling Site	-	3.6 acres
Applicant Total	*~1.2 acres*	*~3.6 acres*
PG&E Portion		
Transmission Structure Pad	0.2 acres	-
Transmission Structure Access Path	0.5 acres	-
Tension and Pulling Site	-	3.1 acres
PG&E Total	*~0.7 acres*	*~3.1 acres*

3.4.1 500kV Gen-Tie Line

The 500kv gen-tie line would originate at the project substation within the BESS facility site and extend southeast, crossing Patterson Pass Rd overhead until reaching the POCO structure. After reaching the POCO structure the route would proceed east to an angled dead-end structure outside of the Tesla Substation fence line before extending north to a new substation dead-end structure at the POI bay within the Tesla Substation footprint. The 200-foot-wide transmission corridor would be within the BESS facility lease area on APN 99B-7890-2-4 and within an easement on APN 99B-7890-2-6 until reaching the parcel's eastern boundary about 255 feet east of the POCO structure. Both parcels comprising the BESS facility lease area and transmission corridor easement are private lands owned by the same landowner. After crossing the eastern boundary of APN 99B-7890-2-6, the remaining portion of the gen-tie would

be on the same PG&E-owned parcel that includes the 500kV Tesla Substation and POI. Table 3 includes the approximate number and dimensions of the three different types of transmission structures that would be used. The gen-tie would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006), where feasible.

3.4.2 Transmission Structure Access Path

A transmission structure access path would be located within portions of the transmission corridor outside of the BESS facility and Tesla Substation footprints and generally follow the centerline of the gen-tie. The portion of the transmission structure access path between Patterson Pass Road and the POCO structure would include a dry crossing of Patterson Run and require clean fill material (e.g., large cobbles, clean, native gravel, prefabricated mats) to be placed beneath the ordinary high water mark elevation for stabilization and erosion and sedimentation control.

3.4.3 Telecommunication Facilities

Telecommunications equipment would be installed between the control building at the project substation and the Tesla Substation to facilitate communication with PG&E/CAISO facilities. PG&E interconnection policies require two redundant fiber optic cables to be installed on diverse paths without a single point of failure (i.e., both fiber optic lines cannot be installed on a single set of structures). Between the control building within the project substation area and the POCO structure, the Applicant would install the two fiber optic lines above ground on separate utility structures within the transmission corridor. One route would be installed near the northern boundary of the transmission corridor and the other would be installed near the southern boundary of the transmission corridor. The fiber optic utility poles would be accessed via overland travel from the transmission structure pads or the transmission structure access path. At the POCO structure, each of the fiber optic cables would be brought down to an underground pullbox. PG&E would install the fiber optic cables underground from the pull boxes to the PG&E control building at the Tesla Substation. A microwave antenna installed on a communications tower within the project substation area, an optical ground wire installed on the 500kV structures, or placed underground within the transmission structure access path, between the project substation and POCO may be used in lieu of a second set of utility poles, if feasible.

3.4.4 Interconnection Facilities within Existing PG&E Tesla Substation Footprint

To facilitate interconnection of the BESS facility to the electric transmission grid, PG&E would need to install a substation bay dead-end transmission structure and expand the POI's 500kV breaker-and-a-half bay with a new circuit breaker.

3.4.5 Transmission System Impact Studies

The Applicant filed an Interconnection Request with CAISO in the Cluster 13 Interconnection Request window. CAISO, in cooperation with PG&E, prepared the Phase I Interconnection Study (February 12, 2021), and Phase II Interconnection Study (November 22, 2021). The Applicant entered into a Large Generator Interconnection Agreement (LGIA) with CAISO and PG&E on October 31, 2022. No Affected Systems controlled by CAISO or PG&E were identified during the interconnection study process. Non-CAISO systems potentially affected by the Project and

other Cluster 13 projects are Western Area Power Administration and Modesto Irrigation District. The Applicant is working with both system operators to identify specific impacts and will take all reasonable steps to address potential reliability system impacts prior to the initial synchronization of the Project.

3.5 Construction

The following sections detail the approximate construction schedule and workforce, construction activities, estimated water use, and materials handling proposed by the Project.

3.5.1 Schedule and Workforce

The Project is anticipated to be built over an approximately 18-month period from the onset of site preparation activities through energization. Following energization, testing and commissioning would take place over 6 months. Initial mobilization and site preparation is anticipated to begin no later than Q1 2026 and testing and commissioning is anticipated to conclude no later than Q2 2028. It is anticipated that construction crews would work 8 to 10 hours per day, with work occurring Monday through Friday. Overtime, night work, and weekend work would be used only as necessary to meet the project schedule or complete time-sensitive or safety critical work. All work schedules would comply with applicable California labor laws, county regulations, and the Project Labor Agreement. Estimated durations of construction activities are presented in Table 5. However, the duration of particular construction activities may be affected by weather, unanticipated site conditions, the supply chain, and coordination between the different activities.

The expected average workforce for each construction activity is also included in Table 5.

Table 5. Estimated Construction Activity Duration and Average Workforce Expected

Construction Activity	Estimated Duration	Average Workforce Expected (Number of Employees)
Site Preparation	8 Weeks	25
Civil Work and Grading	24 Weeks	55
Foundations and Underground Equipment	16 Weeks	50
BESS Equipment Installation	20 Weeks	60
Project Substation Installation	32 Weeks	20
Gen-Tie Foundations and Structure Erection	8 Weeks	10
Gen-Tie Line Stringing and Pulling	2 Weeks	10
Testing and Commissioning	22 Weeks	10
PG&E Interconnection Facility Upgrades within Tesla Substation	26 Weeks	10

3.5.2 Sequencing

During construction activities, multiple crews would be working on the site with various equipment and vehicles. The total number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) would range from approximately 5 to 200 workers, depending

on the phase of construction. It is estimated that construction would require the vehicle trips and equipment listed in Table 6.

Table 6: BESS Project - Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total One-Way Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Site Preparation	50	10	600	Graders	2	8
				Rubber Tired Loaders	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Site Grading and Civil Work	110	76	30,240	Graders	4	8
				Rollers	4	8
				Rubber Tired Loaders	4	8
				Skid Steer Loaders	4	8
				Tractors/Loaders/ Backhoes	4	8
				Pavers	2	8
				Paving Equipment	2	8
				Rollers	2	8
				Plate Compactors	1	8
				Cement and Mortar Mixers	1	4
				Rock Crushers	4	8
Foundations and Underground Equipment Installation*	100	10	20	Paving Equipment	2	8
				Rollers	2	8
				Plate Compactors	2	8
				Cement and Mortar Mixers	2	8
				Bore/Drill Rig	3	8
				Tractors/Loaders/ Backhoes	6	8
				Excavators	2	8
				Rubber Tired Dozers	2	8
				Trenchers	4	8
				Skid Steer Loaders	2	8
BESS Installation*	160	20	2,636	Air Compressors	2	8
				Cranes	3	8
				Generator Sets	4	8
				Rough Terrain Forklifts	2	8
				Skid Steer Loaders	2	8
Project Substation Installation	40	20	0	Air Compressors	2	8
				Aerial Lifts	6	8
				Cranes	2	8
				Generator Sets	2	8
				Rough Terrain Forklifts	2	8

Table 6: BESS Project - Construction Equipment and Usage Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total One-Way Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Gen-tie foundation and tower erection	28	2	0	Bore/Drill Rig	1	8
				Cranes	2	8
				Forklifts	2	8
				Boom Truck	1	8
				Flat Bed Truck	1	8
				Cement and Morter Mixer	1	8
				Bucket Lift Truck	1	8
Gen-tie stringing and pulling	24	2	0	Heavy-duty Truck (Puller)	1	8
				Heavy-duty Truck (Tensioner)	1	8
				Forklifts	2	8
				Generator Sets	2	8
				Tractors/Loaders/ Backhoes	2	8
				Boom Truck	1	8
				Trencher	1	8
PG&E Interconnection Facility Upgrades	40	20	0	Air Compressors	4	8
				Cranes	2	8
				Excavators	2	8
				Generator Sets	4	8
				Rough Terrain Forklifts	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
				Trencher	1	8
Testing and Commissioning	52	0	0	Rough Terrain Forklift	1	8
				Off-Highway Trucks	3	8
Decommissioning	40	2	2,640	Concrete/Industrial Saws	2	8
				Cranes	2	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8

Notes: * The project layout depicted in Figure 6 shows the "End of Life" configuration of the BESS, meaning it shows the equipment layout after all augmentation units are implemented. The numbers in this table conservatively assume that foundations and BESS equipment installation related to augmentation occurs during initial construction of the facility. Construction of foundations and BESS equipment installation for augmentation may occur during O&M periodically within the BESS facility footprint.

3.5.3 Site Preparation

Environmental clearance surveys would be performed at the Project site prior to commencement of construction activities. The limits of construction disturbance areas delineated in the final approved engineering design

packages would be surveyed and staked. Initial ground disturbing activities in preparation for construction would include installation of erosion and sediment control measures prior to start of major earthworks activities. Rough grading and grubbing/vegetation removal would be performed where required to accommodate site drainage and allow construction equipment to access the site. Detention basins and stormwater facilities would be created for hydrologic control. The construction contractor would be required to incorporate applicable best management practices (BMPs) including the guidelines provided in the California Stormwater Quality Association's Construction BMP Handbook (CASQA 2019), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Stabilized construction entrances and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with applicable BMPs and the Bay Area Air Quality Management District's Fugitive Dust Rules. Site preparation would involve the removal and proper disposal of existing debris that would unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques would be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. All applicable governmental requirements and BMPs would be incorporated into the construction activities for the Project site.

Vegetation on the site would be removed where necessary to ensure the BESS facility is free from combustible vegetation to allow for fire protection and defensible space. Where feasible, in compliance with fire protection requirements, vegetation root mass within appropriate portions of the BESS facility lease area on the outside of the perimeter and substation access roads would be left in place for soil stabilization. However, the environmental analyses in subsequent sections conservatively assume that all areas within the maximum anticipated grading limits of the BESS facility would be permanently disturbed.

3.5.4 Site Grading and Civil Work

Following site preparation activities, grading and civil work would commence. Construction activities during this phase would include excavation and grading of the Project site. Earthwork on the site is ultimately anticipated to result in nearly balanced cut and fill volumes, but the preliminary designs conservatively assume that grading would include up to approximately 588,018 cubic yards (cy) of cut and up to approximately 344,900 cy of fill, resulting in up to approximately 243,118 cy of export material. As appropriate, all, or a portion of, of the Project's excess material resulting from earthwork may be used beneficially used on-site for the construction of berms or other onsite needs. Where appropriate, excess material would be processed in one or more different types of rock crushing equipment depending on the requirements of the various potential beneficial uses onsite. Blasting may be required if large boulders are encountered during excavation and grading.

Conventional grading would be performed throughout the Project site but minimized to the maximum extent feasible to reduce unnecessary soil movement that may result in dust. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Following major civil work within the BESS facility site, site access roads and driveways, the perimeter and substation access roads, and interior roadways to access the laydown areas and BESS yards would be graded, compacted, and surfaced with gravel or aggregate. Class II road base would be imported to create necessary compaction under the equipment, as determined by geotechnical testing and Project specifications. Once the roadways have been constructed, the project perimeter fence and access gates would be constructed.

3.5.5 Foundations and Underground Equipment Installation

Following completion of major site grading and civil work, equipment foundations and below grade equipment would be installed. A grounding grid and underground conduit would be installed below grade beneath the project substation area and BESS components. Typical ground grids consist of direct-buried copper conductors with copper-clad ground rods arranged in a grid pattern. After installation of the grounding grid, the area would be backfilled, compacted, and leveled followed by application of an aggregate rock base. A containment area within the MPT foundations would be sized to hold the full volume of oil within the MPTs. The MPT foundations within the substation area are anticipated to be concrete slab foundations poured into excavations up to 10 feet deep. Foundations for the control building, static masts, other aboveground substation equipment, O&M building, BESS enclosures, PCS units, DC/DC converters, and BESS auxiliary transformers and panels are anticipated to be pile foundations embedded up to 40 feet below ground level. Depending on soil conditions, the piles may be drilled or driven and set with a slurry. However, some of these project components may be installed on concrete slab foundations depending on the geotechnical conditions at the final locations.

Additional underground work would include trenching for the placement of underground electrical and communications lines, including the MV collection system, AC and DC cables, and fire alarm cable. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

3.5.6 BESS and Project Substation Equipment Installation

Where possible, major equipment would be delivered directly to its permanent location and offloaded directly into place with a crane or heavy equipment. Where staging or sequencing does not allow, equipment would be stored at one of the laydown areas near its permanent location and installed at a later date. Major aboveground equipment would be the MPTs and other project substation components, control building, BESS enclosures, PCS units, DC/DC converters, BESS auxiliary transformers and panels, and O&M building.

Electrical work would include installing cables, terminations, and splices. Electrical wiring would be installed underground, at-grade, and above ground, depending on the application and location. The wires would either be installed in conduit, cable-trays, or direct-buried, depending upon final design and application.

3.5.7 Gen-Tie Structure Erection

Environmental clearance surveys would be performed within the gen-tie corridor prior to commencement of construction activities. The gen-tie corridor boundaries, gen-tie centerline, telecommunications route centerlines, and transmission structure access path would be surveyed and flagged. Initial activities would include the installation of erosion and sediment control measures and materials to facilitate the dry crossing of Patterson Run, and preparation of the transmission structure and fiber optic utility pole work areas. The transmission structure access path may be bladed, compacted, and surfaced with gravel where necessary to facilitate transmission structure deliveries and construction equipment access. The surface of the access path would be at-grade to allow water to sheet flow across the gen-tie corridor, as it currently does. Access to the fiber optic utility pole locations would be via overland travel from the transmission structure pads or access path. Overland travel and temporary construction activities associated with the gen-tie and telecommunications facilities may occur anywhere within the 200-foot-wide transmission corridor and 50 feet on either side of the transmission corridor boundary. Vegetation at the transmission and fiber optic utility pole work areas would be trimmed, mowed, or removed. At locations where

gen-tie line structures and fiber optic utility poles would be installed, minor cuts may be required where the foundation would be installed.

Cast-in-place concrete foundations would be installed by placing reinforcing steel and a structure stub or anchor bolt cage into the foundation hole, positioning the stub, and encasing it in concrete. Each transmission structure foundation would be set on anchor bolts on top of the foundation with cranes. Fiber optic utility poles would be direct embedded in holes up to 8 feet deep. Holes would be excavated using a truck-mounted drill rig or standalone auger rig. Poles would be delivered on a flat-bed trailer and hoisted into place with a crane. The annular space between the poles and holes would be backfilled with concrete or soil. Excavated spoil material not used for backfilling would be spread around the structure work areas.

3.5.8 Gen-Tie Stringing and Pulling

Conductors would be strung between transmission structures with heavy duty trucks and a telescoping boom lift. Cables would be pulled through one segment of the transmission line at a time. To pull cables, truck-mounted cable-pulling equipment is placed alongside the first and last towers or poles in a segment. Power pulling equipment is used at the front end of the segment, while power braking or tensioning equipment is used at the back end. The conductors are then pulled through the segment and attached to the insulators. Equipment is then moved to the next segment; the front end pull site previously used becomes the back end pull site for the next segment. After conductors have been pulled into place in a section, the conductor tension is increased to achieve a ground clearance of at least 30 feet prior to moving to the next section.

Three tension and pulling sites are anticipated to facilitate construction of the gen-tie: one within the BESS facility footprint near the first angled dead-end structure, one at the POCO structure, and another at the PG&E-constructed angled dead-end structure near the Tesla Substation fence line.

3.5.9 PG&E-Owned Gen-Tie Segment and Interconnection Facilities within Tesla Substation Footprint

PG&E would construct the segment of the gen-tie between the POCO and the POI within the Tesla Substation, and the fiber optic routes between the POCO and the PG&E control building within the Tesla Substation footprint. The Applicant would bring the fiber optic cables to underground pull boxes at the POCO structure, and PG&E would install the segment of the fiber optic cables between the POCO and control building in conduit placed in underground trenches. The trenches are anticipated to be up to three feet wide, and the trenches for the redundant routes would need to be at least 10 feet apart to meet PG&E's diverse path requirements. It is anticipated that PG&E would install the trenches within the access road to the angled dead-end structure outside the Tesla Substation fence line. However, PG&E may install the cables within existing roadways or other pre-disturbed areas along the perimeter of the substation fence depending on final design and routing.

PG&E would also construct the interconnection upgrades within the Tesla Substation footprint at the POI. These upgrades would include erection of a new substation bay dead-end transmission structure and expanding the POI's existing 500kV substation bay-and-a-half bay with a new circuit breaker. Other activities within the Tesla Substation footprint and/or property boundary may include relocation or modification of existing PG&E infrastructure.

Additional potential disturbance acreage associated with PG&E's work to facilitate interconnection of the Project to the grid are not anticipated to exceed 5 additional acres of disturbance beyond the estimates in Table 2.

3.5.10 Construction Water Use

During construction, an estimated 16,000,000 million gallons (~49.1 acre-feet) of untreated water would be required for common construction-related purposes, including but not limited to dust suppression, soil compaction, and grading. Dust-control water may be used during ingress and egress of on-site construction vehicle equipment traffic and during the construction of the Project. A sanitary water supply line would not be required during construction because restroom facilities would be portable units, serviced by licensed providers, and water and sewage from the restroom facilities would be stored in onsite tanks and serviced by trucks. Drinking water would be provided via portable water coolers. Construction water is anticipated to be purchased from a local water purveyor and trucked to the site.

3.5.11 Solid and Non-hazardous Waste

The Project would produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation waste. This waste would be segregated, where practical, for recycling. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III (non-hazardous waste) landfill.

3.5.12 Hazardous Materials

The hazardous materials used for construction would be typical of most construction Projects of this type. Materials may include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies. A hazardous materials business plan would be prepared prior to commencement of construction activities. The hazardous materials business plan would include a complete list of all materials used on site and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During Project construction, material safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel.

3.5.13 Hazardous Waste

Small quantities of hazardous waste would most likely be generated over the course of construction. This waste may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment, recycling, or disposal facility in accordance with law. All hazardous waste shipped off site would be transported by a licensed hazardous waste hauler.

3.5.14 Commissioning

As part of Project construction activities, and after installation, equipment will be tested and commissioned. Commissioning work will be completed by qualified personnel, and in accordance with various codes, standards and specifications including IEEE Institute of Electrical and Electronic Engineers, NEC National Electrical Code (NFPA 70), NETA International Electrical Testing Association, specific provisions of NFPA National Fire Protection Association, and the relevant OEM / manufacturers installation and commissioning manuals. Documentation necessary for commissioning will include (but is not limited to) complete sets of electrical plans, itemized equipment descriptions, control narratives, and other procedural requirement such as persons or entities to notify when equipment has become available for acceptance tests.

Commissioning will include testing of mechanical, electrical, fire protection, and other systems at substantial completion. Systems to be commissioned and tested include (but are not limited to) BESS enclosures, PCS units, auxiliar service transformers, MV collection system, DC cables, Supervisory Control and Data Acquisition (SCADA) systems, power backup systems, and fire protection system. Performance testing will also be completed to ensure charge and discharge performance of the systems as designed and in accordance with the utility requirements. Full details of the commissioning activities will be made available in a commissioning plan, prepared by the BESS supplier and construction contractor and reviewed by the Engineer of Record (EOR), as part of the construction documentation package.

3.6 Operations and Maintenance

Once constructed, the Project would operate 7 days per week, 365 days per year. The facility would be remotely monitored by the original equipment manufacturer or an affiliated company. Project operations would be monitored remotely through the SCADA system and by the Project's anticipated three full-time operations staff members.

Onsite maintenance would be required, which would include replacement of inverter power modules, filters, and miscellaneous electrical repairs on an as-needed basis. During operation of the project substation, O&M staff would visit the substation periodically for switching and other operation activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. Typically, one major maintenance inspection would take place annually.

Batteries within utility-scale BESS facilities degrade with use over time, leading to a loss of capacity. To maintain the Project's capacity in compliance with interconnection requirements and commercial contracts, periodic augmentation by installing new batteries and related equipment within the Project site would occur to maintain the capacity over an approximate 35-year life. Augmentation would include constructing new foundations, installing BESS equipment on the foundations, and completing electrical work within the existing Project footprint. The preliminary site layout depicted on Figure 6 shows an "end of life" configuration, meaning it shows the equipment layout after all augmentation units are implemented. The construction sequencing and equipment usage assumptions in Tables 5 and 6 above, and environmental analyses in subsequent Chapters, conservatively assume that all initial BESS equipment and augmentation BESS equipment are constructed at the same time.

3.7 Decommissioning

In general, the BESS would be recycled at the expiration of the Project's life (estimated to be 35 years). Most parts of the proposed system are recyclable. Batteries include lithium-ion, which degrades but can be recycled or repurposed. Steel, wood, and concrete from the decommissioned facilities would be recycled. Metal and scrap equipment and parts that do not have free-flowing oil may be sent for salvage. Materials three feet or more below the ground surface would be left in place.

Fuel, hydraulic fluids, and oils would be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks and vessels would be rinsed and transferred to tanker trucks. Other items that are not feasible to remove at the point of generation, such as smaller container lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, would be kept in a locked utility structure with integral secondary containment that meets Certified Unified Program Agencies and Resource Conservation and Recovery Act requirements for hazardous waste storage until removal for proper disposal and recycling. It is anticipated that all oils and batteries would be recycled at an appropriate facility. Site personnel involved in handling these materials would be trained to properly handle them. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage. Additional procedures would be specified in a Hazardous Materials Business Plan closure plan submitted to the Certified Unified Program Agencies. Transportation of the removed hazardous materials would comply with regulations for transporting hazardous materials, including those set by the Department of Transportation, the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal.

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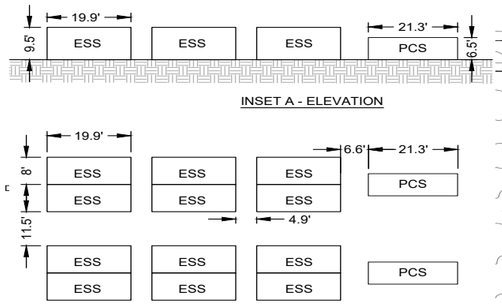

LEGEND

- GRAVEL ACCESS ROAD
- GRAVEL
- STORMWATER/ LID AREA
- LANDSCAPE

EARTHWORK QUANTITIES
CUT = 588,018 CUBIC YARDS
FILL = 344,900 CUBIC YARDS
NET = 243,118 CUBIC YARDS (EXPORT)

TOTAL = 932,918 CUBIC YARDS

NOTE:
1. EARTHWORK QUANTITIES ARE ESTIMATES ONLY AND ARE NOT ADJUSTED FOR SHRINKAGE, CONSOLIDATION, AND CLEARING LOSS FACTORS. THESE QUANTITIES ARE TO BE USED FOR BONDING AND PERMIT PURPOSES ONLY.
2. CUT/FILL SLOPES ARE SHOWN NO STEEPER THAN 3:1.
3. PRELIMINARY EARTHWORK QUANTITIES ASSUME ONSITE MATERIAL IS ADEQUATE FILL. ASSUMPTIONS ARE TO BE CONFIRMED BASED ON GEOTECH RECOMMENDATIONS.
4. EARTHWORK QUANTITIES DO NOT INCLUDE GEN-TIE LINE.

SYSTEM SUMMARY

ESS TYPE	SOLBANK
ESS QUANTITY	1000
PCS UNITS	140
BATTERY CAPACITY	400 MW/3200 MWH
BESS YARD	13.2 ACRES
PROJECT SUBSTATION	8.1 ACRES
ACCESS ROADS	7.2 ACRES
LAYDOWN YARD (INCLUDING O&M BUILDING)	8.0 ACRES
STORMWATER AREAS*	9.3 ACRES
OTHER**	6.2 ACRES
TOTAL PROJECT AREA	52.0 ACRES
TOTAL DISTURBED AREA***	57.0 ACRES

NOTE:
* PRELIMINARY STORMWATER TREAMENT AND STORAGE SIZING BASED ON ALAMEDA COUNTY STANDARDS
** INCLUDES SLOPED AREAS
*** TO GRADING DAYLIGHT

ABBREVIATIONS:

ESS	ENERGY STORAGE SYSTEM
PCS	POWER CONVERSION SYSTEM
POI	POINT OF INTERCONNECTION
XMFR	TRANSFORMER

GENERAL NOTES:
FUTURE STEEL FRAME O&M BUILDING (100'X50') WILL BE LOCATED WITHIN PROPOSED LAYDOWN YARD. EXACT BUILDING SIZE AND LOCATION TBD.

FIRE NOTES:
1) FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET.
2) INTERNAL RADII = 25' MINIMUM.

SOURCE: Coffman Engineers, 2024

DUDEK

100 50 0 100 200
SCALE: 1 INCH = 100 FEET

FIGURE 6
Project Site Plan Map
Potentia-Viridi BESS Project Fire Safety Plan

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3.8 Fire Protection Services

The Project site is located on SRA lands where the State has the primary responsibility for fire suppression and emergency response. CAL FIRE is the primary provider of emergency services to the Project site and will be the first responder to an emergency call at the Project site. While the Project site is located in Alameda County, the nearest fire station is CAL FIRE station 26- Castle Rock located on the west side of Tracy, California in San Joaquin County. South San Joaquin County Fire Authority (SSJCFA) Fire Station 94 is adjacent to CAL FIRE Station 26. While CAL FIRE is the primary response agency, SSJCFA and CAL FIRE have mutual aid agreements and the apparatus at this station are available to respond to the Project site. Table 7 summarizes the location, equipment, staffing levels, maximum travel distance, and estimated travel time for CAL FIRE Station 26-Castle Rock/SSJCFA Station 94 and next nearest fire station, Mountain House fire station 1. Travel distances are derived from Google road data while travel times are calculated using response speeds of 35 mph, consistent with nationally recognized National Fire Protection Association (NFPA) standard 1710 and Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard formula (Time=0.65 + 1.7(Distance)). The ISO response travel time formula discounts speed for intersections, vehicle deceleration, and acceleration and does not include turnout time.

Table 7 Closest Emergency Response Station Summary

Station Name	Location	Apparatus	Staffing	Maximum Travel Distance	Travel Time
CAL FIRE Station 26-Castle Rock	16502 W Schulte Rd, Tracy, CA 95377	1 - Type 1 Pumper ALS unit 1 – Type 3 OES Engine (Engine 4307)	3 – Full-time firefighter	3.4 miles	8 minutes
SSJCFA Tracy Fire Station 94	16502 W Schulte Rd, Tracy, CA 95377	2 Engines	3 – Full-time Firefighters	3.4 miles	8 minutes
Mountain House Fire Station 1	911 Traditions St, Mountain House, CA 95391	1 - Ladder Truck, 2 - Engines, 1 - Rescue Truck, 1 – Chief's Truck	5 – Full-time Firefighters	6.2 miles	14.6 minutes

Travel time to the furthest portion of the Project site for the first responding units from CAL FIRE Station 26 is not expected to exceed 8 minutes. CAL FIRE does not have a have response time performance objectives and the Alameda County General Plan Public Services and Facilities Element does not specifically state a recommended response time. The General Plan does contain a related policy, Policy 246 which states "The County shall limit development to very low densities in areas where police, fire, and emergency medical response times will average more than 15 minutes." (Alameda County 2000). The Project site is within this 15-minute response period and does conform to the General Plan recommendations.

3.9 Regulatory Setting

This project is subject to National, State, and Local regulations regarding new development in Fire Hazard Severity Zone, wildfire risk mitigation, and the construction of electrical infrastructure.

3.9.1 National Codes/Regulations

North American Electric Reliability Corporation

NERC Standard FAC-003, Transmission Vegetation Management

NERC developed vegetation management program standards applicable to all transmission lines operated as 200 kilovolts and higher and to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the region's electric system (NERC 2022). The elements and requirements of these standards apply to LSPG-CA and PG&E's transmission line–related vegetation management activities in the Project area.

Institute of Electrical and Electronics Engineers Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines)

The transmission vegetation management program requires identifying and documenting clearances between vegetation and any overhead supply conductors while considering transmission line voltage, effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain, and elevation, and effects of wind velocities on conductor sway. The clearances identified must be no less than those outlined in this standard.

National Electrical Safety Code Section 23 Clearances

Section 23 of the National Electrical Safety Code describes all clearances, including climbing space involving overhead supply and communication lines.

3.9.2 State Codes/Regulations

California Building Code

The California Building Code (CBC) establishes minimum requirements to safeguard the public health, safety and general welfare. The code aims to ensure the safety, health, accessibility, and sustainability of buildings and their occupants. The code covers various aspects of building design, such as fire protection, structural integrity, energy efficiency, plumbing, electrical, mechanical, and accessibility. The code also incorporates national model codes and standards, as well as California-specific amendments that address the state's unique conditions and needs (CBC 2022).
For the Project the CBC provides minimum standards for building construction, fire and smoke protection features, fire protection and life safety systems, means of egress. The CBC includes specific requirements for materials and construction methods for exterior wildfire exposure (Chapter 7a),

California Energy Code

California Fire Code (CFC)

California Fire Code Chapter 3 Section 322 Storage of Lithium-Ion and Lithium Metal Batteries

CFC Chapter 3 Section 322 describes the construction requirements and the storage requirements for facilities storing lithium batteries. The section also describes the required fire protection features for these facilities.

California Fire Code Chapter 5 Fire Service Features

CFC 5 describes the requirements for fire service features for buildings, structures, and premises. Chapter 5 includes fire apparatus access roads and fire department key box requirements.

California Fire Code Chapter 9 Fire Protection and Life Safety Systems

CFC 9 describes the requirements for active fire protection equipment systems to perform the functions of detecting a fire, alerting the occupants or fire department of a fire emergency, mass notification, gas detection, controlling smoke, and controlling or extinguishing the fire.

California Fire Code Chapter 33 Fire Safety During Construction and Demolition

CFC chapter 33 describes the minimum safeguards for construction, alteration, and demolition operations to provide reasonable safety to life and property from fire.

California Fire Code Chapter 49 Requirements for Wildland Urban Interface Areas

The purpose of this chapter is to provide minimum standards to reduce the likelihood of life and property loss due to a wildfire through the use of performance and prescriptive requirements for construction and development in State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) designated as a Moderate, High or Very High Fire Hazard Severity Zone.

California Public Utilities Commission General Orders and Rules

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. According to CPUC General Order (GO) 131-D, Section XIV.B,

California Public Utilities Commission General Order No. 95

General Order 95 (GO 95) describes the overhead line design, construction, and maintenance requirements. GO 95 applies to all overhead electrical supply and communication facilities outside buildings.

California Public Utilities Commission General Order No. 166

General Order 166 (GO 166) describes the standards to ensure that jurisdictional electric utilities are prepared for emergencies and disasters to minimize damage and inconvenience to the public that may occur due to electric system failures, major outages, or hazards posed by damage to electric facilities. GO 166 applies to all electric utilities subject to the jurisdiction of the CPUC concerning matters relating to electric service reliability and safety.

Rule R.08-11-005

Rule R.08-11-005 describes identifying, evaluating, and adopting fire-safety regulations for the High Fire Threat District (HFTD). R.08-11-005 also adopted the CPUC Fire-Threat Map that describes the High Fire Threat District that consists of three areas: Tier 1 High Hazard Zones, Tier 2 Elevation Risk, and Tier 3 Extreme Risk areas.

Public Utilities Code 8386

Public Utilities Code (PUC) 8386 describes the basic requirements for investor-owned utilities (IOU) towards operating their equipment to minimize the risk of catastrophic wildfire posed by their electrical lines and equipment. PUC 8386 also describes the required elements of a Wildfire Mitigation Plan (WMP) prepared by an IOU, including

the wildfire risks, risk drivers present in their service territory, and the strategies the IOU is performing to mitigate these risk/risk drivers.

Public Resource Code (PRC)

Public Resource Code 4291

PRC 4291 describes the responsibilities of property owners who operate a building or structure on lands covered with flammable vegetation, including maintaining a mandatory 100-foot area of defensible space around the structure.

Public Resource Codes 4292 & 4293

PRC 4292 & 4293 describe the responsibilities of operators of electrical equipment, including distribution and transmission systems, to maintain the flammable vegetation around their equipment and the overhead wires to the following standards:

- Clear a fire break of not less than 10 feet in each direction from the outer circumference of a pole or tower that supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole,
- Maintain a clearance of the respective distances specified in this section in all directions between all vegetation and all conductors that are carrying electric current:
    - For any line that is operating at 2,400 or more volts but less than 72,000 volts, four feet.
    - For any line operating at 72,000 or more volts but less than 110,000 volts, six feet.
    - For any line operating at 110,000 or more volts, 10 feet.

State Minimum Fire Safe Standards

The State Minimum Fire Safe Standards has been prepared and adopted for the purpose of establishing state minimum Wildfire protection standards in conjunction with Building, construction, and Development in the State Responsibility Area (SRA) and, after July 1, 2021, the Very High Fire Hazard Severity Zones, as defined in Government Code § 51177(i) (VHFHSZ).(b) The future design and construction of Structures, subdivisions and Developments in the SRA and, after July 1, 2021, the VHFHSZ shall provide for basic emergency access and perimeter Wildfire protection measures as specified in the following articles. (c) These standards shall provide for emergency access; signing and Building numbering; private water supply reserves for emergency fire use; vegetation modification, Fuel Breaks, Greenbelts, and measures to preserve Undeveloped Ridgelines. Subchapter 2 specifies the minimums for such measures (Board of Forestry 2023).

3.9.3 County Codes/Regulations

Alameda County Local Hazard Mitigation Plan

The Alameda County Local Hazard Mitigation Plan (LHMP) contains goals and objectives that are intended to reduce loss of life and property from natural disasters During the planning process this plan used Federal Emergency Management Agency (FEMA) tools to determine the most likely possible threats would be earthquakes, flooding, landslides, tsunamis, and wildfires in urban interface zones. The LHMP identifies mitigation action items that aim to meet objectives and reduce the impacts of these hazards. The Alameda County is written on behalf of three separate entities Alameda County, Alameda County Fire Department (ACFD), and Alameda County Flood Control and Water Conservation District (ACFCWCD) (Alameda County 2023).

Emergency Operations Plan

The Alameda County Emergency Operations Plan (EOP) The Alameda County Emergency Operations Plan (EOP) provides an overview of the jurisdiction's approach to emergency operations. It identifies emergency response policies, describes the response and recovery organization, and assigns specific roles and responsibilities to County departments, agencies, and community partners. The EOP has the flexibility to be used for all emergencies and will facilitate response and recovery activities in an efficient and effective way. This section of the EOP provides a description of the EOP's intended audience, the method of distribution, the approval process, and its applicability to other plans (Alameda County Sheriff's Office 2012).

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4 Project Specific Risk Summary

4.1 Wildfire Risk

Wildfire risks are assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). The evaluation of fire risks must consider the frequency and severity of fires and other significant incidents.

The Project site includes common risk types as well as heightened sources of risk. Common risks that result in emergency calls include accidental injuries (occupational, vehicle, other), medical related incidents including heart attacks, strokes, and other serious conditions and illnesses, accidental vegetation fires, and occasional structure fires. In regards to fire risk, some of the most common ignition sources are equipment, vehicles, and powerlines (Keeley and Syphard, 2018). Nearby possibilities for a vehicular ignition would be the road adjacent to the Project, Joshua Street, as well as Highway 101 to the north. The Project would also include overhead power lines that will pose a fire risk.

In addition to common causes of fire incidents (cooking, unattended hot equipment, smoking, etc.) Energy (Battery) Storage Systems necessitate additional considerations for fire safety. These hazards include several operations and activities associated with the Caballero BESS facility that could elevate the probability of ignition. These potential sources of fire that are relevant for this Project are:

- Electrical-related
  - Explosion/Arcs, arc flashing, electrical shorts, sparking, motor or other machinery fire, wiring and harnessing fire, overheated junction boxes, rodents chewing on wires and causing arcing, etc.
  - Collapse of supporting structures causing electrical shorts and fire.
  - Fire in an inverter.
  - Short circuit and fire of components in or on a panel.
  - Switchgear and cable fire.
  - Thermal runaway within a BESS enclosure
- Vegetation-related
  - Overgrown vegetative fuel under a poweline, adjacent to other BESS related electrical components, or to Project roadways.

The Project's fire risks are primarily associated with the Project are described below.

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4.2 Impact of Environmental Conditions on Wildfire Likelihood and Potential Impact

As described in Section 3.2, the Project site and the surrounding area has sufficient flammable vegetation to sustain spread of wildfire when the conditions are right. Vegetation in the Project area is comprised of continuous annual grasslands only broken up by roads, train tracks, and waterways. Woody vegetation, like shrubs or trees are generally absent. These annual grasslands need to be cured and the relative humidity needs to be below 15% for a wildfire to burn actively. Annual grasslands in the project area are typically fully cured by May (J.E. Keely 1990) and would be expected to sustain an active spreading wildfire when conditions are right. Weather conditions conducive (relative humidity below 15%) to the spread of an active wildfire occur earlier in the year, beginning in March during average years. As described in section 3.2 relative humidities fluctuate throughout the day being highest in the middle of the night and lowest in the afternoon. While weather conditions conducive to spread of fire may occur in March they only occur during a limited window during the daytime. As the year progresses, days get longer, and the weather gets hotter and drier this window of time when fires can spread gets longer ultimately peaking in the mid-summer (July-August). Most of the large fires recorded in the Project area occurred in the mid-summer (CAL FIRE 2022). Weather conditions conducive to fire spread continue until October during the average year but as the year continues to progress, days get shorter, and the weather gets cooler and moister the window of time during the day when fire spread narrows. From November through April vegetation and weather conditions in the Annual grasslands in the project area are not conducive to the spread of an active fire. None of the recorded fires in the Project area occurred after October (CAL FIRE 2022). The condition of the vegetation and the weather play a dominate role in the risk of a wildfire in the Project area. Terrain plays a minor, particularly at the project site because of the short and moderately steep (< 20%) slopes.

The likelihood of wildfire at the Project site varies throughout the year. January through April during the average year has a low likelihood of wildfire. Wildfire likelihood rises beginning toward the end of April-beginning of May when the grasslands cure. From May to September wildfire likelihood is high. Wildfire likelihood decreases as the year progresses, decreasing to moderate from September to October and down to low from November to January. Because the Project area is covered with a relatively homogenous vegetation type, the intensity of a wildfire in the Project is not expected to vary significantly at the project site. Annual grasslands, when fully cured ignite readily but do not have a high volume of fuel to burn or vegetation that can burn for a long duration. Flame lengths are expected to average approximately five feet in length with an expected maximum flame length of twelve feet. Spread rates are expected to be as high as three miles per hour (IFTDSS 2023). Development near the Project site is sparse, consisting of metal transmission towers, railroad tracks, and paved or gravel roads. To the east is the Tesla Substation. The nearest residential structure is approximately 0.4 miles to the southeast on the Mulqueeney Ranch. With the exception of this residential structure whose composition is not known, the surrounding development is constructed from non-combustible building materials (e.g. metal towers and cross arms, metal transformers and switch gear, etc.) that is unlikely to ignite because of a wildfire spreading across the project area. The land surrounding Tesla substation is mowed or disced further reducing the likelihood that a wildfire can directly contact the structures at the substation. The vegetation around the towers is not maintained however the electrical equipment on the tower is located well above the surface (at least 30 feet). The proposed BESS is composed of similar materials and would incorporate similarly fire protection features as the substation. It is expected that there is a low potential for a wildfire to impact the Project or the adjacent development.

4.2.1 Impact of Project Equipment, Maintenance, and Operations on Wildfire Likelihood and Potential Impact

The storage and transmission of high voltage electricity has the potential to create an ignition event that can transition into an active wildfire. For the purpose of this FSP, the description of wildfire likelihood and potential impact for the Project is separated into two categories. First, the wildfire likelihood and potential impact associated with the transmission equipment (e.g. conductors, transformers, switch gear, etc.) and second, the wildfire likelihood and potential impact associated with energy storage equipment (e.g. the batteries). This section describes wildfire likelihood and potential impacts associated with transmission equipment. Then describes wildfire likelihood and potential impacts associated with energy storage equipment.

Transmission Equipment

The CPUC collects and publishes ignition event information from Independently Owned Utilities (IOU). Ignition event data from PG&E for the type of transmission equipment that will be at the Project describes the following ignition events sources.

- Contact from Foreign Object
- Equipment Failure
- Wire to Wire Contact
- Contamination
- Lightning
- Dig-in
- Vandalism/Theft

Of the ignition event sources listed above, contact with foreign objects, specifically contact between overhead conductors and a foreign object including birds, vegetation, and mylar ballons was the most commonly suspected source of the ignition (55% of ignition events) followed by equipment failure including conductor, splice/clamp, and transformer failure (38% of ignition events). Wire to wire contact, vandalism, and contamination make up the majority of the remaining ignition events. Lightning and dig-in are rarely attributed to an ignition event (less than 1% of ignition events). It is worth noting that 90% of the ignition events recorded by PG&E occurred on distribution systems (less than 34 kV) and not on transmission or storage systems like the equipment proposed for the project (CPUC 2023). Based on the CPUC data, the most likely source of an ignition event associated with the Project's transmission equipment would be contact between one of the lines within the facility or the tie-in line and a foreign object or failure of a piece of Project transmission equipment, e.g.,, a conductor, insulator, or transformer.

Energy Storage Equipment

There are two sources of ignition concern for the energy storage equipment proposed for the Project; fire and explosion. A key factor in both of these ignition concerns is the thermal runaway process, which occurs when there

is an ongoing internal reaction that results in the cell(s) generating more heat than can be explained by any external factors (such as a nearby heat source). This reaction breaks down internal cell resistance, thereby accelerating the buildup of heat further (hence the "runaway" term). (ICC 2022). Failure of a piece of equipment in the battery energy storage system for the Project could trigger a thermal runaway that results in an equipment fire that spreads to the adjacent vegetation or an explosion that throws burning or hot debris onto adjacent vegetation and ignites a wildfire. Battery fire and explosion incidents at utility-scale facilities are uncommon, accounting for less than 2% of the recorded battery and fire explosion incidents (University of Texas, 2023). No data was found that indicated fire or explosion at a BESS facility resulted in a wildfire.

4.2.2 Impact of Project Construction on Wildfire Likelihood and Potential Impact

Construction of the Project will include activities that have the potential to ignite a wildfire at the Project site. Sources of an ignition event include:

- Earth-moving equipment – create sparks, heat sources, fuel or hydraulic leaks, etc.
- Cooking equipment- open flames and heat sources can ignite nearby vegetation.
- Vehicles – heated exhausts/catalytic converters in contact with vegetation may result in ignition.
- Welders – open heat source may result in slag igniting nearby vegetation.
- Grinders – sparks from grinding metal components may land on a receptive fuel bed.
- Torches – heat source, open flame, and resulting slag igniting nearby vegetation.
- Dynamite/blasting – if necessary, blasting may cause vegetation ignition from open flame, excessive heat or contact of heated material on dry vegetation. The blasting plan will address mitigation for blasting procedures to minimize fire ignition potential if necessary.
- Electrical installations – arcs, shorts, or explosions occurring when installing either medium or high voltage project components.
- Heating equipment-heat source, open flame, and arcs or shorts occurring on malfunctioning equipment can ignite nearby vegetation.
- Intentional Ignitions-arson or vandalism that results in equipment failure.
- Other human-caused accidental ignitions – ignitions related to discarded cigarettes, matches, temporary electrical connections, refueling-related incidents, inappropriately placed generators, poor maintenance of equipment, and other.

The majority of fires that have been recorded at construction sites are ignited by cooking equipment (19% of fires), electrical distribution equipment (15% of fires) and heating equipment (14% of fires). The remainder of the fires at construction sites were attributed to hot work, smoking, and intentionally set fires (NFPA 2023).

4.3 Potentia-Viridi BESS Project Wildfire Likelihood and Impact Analysis

The estimated risk associated with the Potentia-Viridi BESS Project solar site is considered to be low to moderate during construction and low during operation, based on the successful application of the Alameda County Fire Department (ACFD) requirements and the requirements set forth in this FSP.

The risk of fires associated with the latest battery technology that meet UL 9540A testing requirements is also low. Newer technology battery modules and processes result in even lower risk of ignitions due to safer battery chemistries and the redundancy of fire safety measures. The Project will be equipped with monitoring and control systems that will prevent and/or control battery cell malfunctions. However, to determine an unlikely, but reasonable worst-case public health impacts for this analysis, it is assumed that these control systems fail and do not control the battery cell malfunction. For this unlikely scenario, it is assumed that the battery cell malfunction continues until third-party or municipal fire suppression services arrive at the project site. While there have been more 40 incidents since 2010 attributed to battery fires or explosions including a fire at a BESS in Moss Landing, CA in 2022 there have been no battery energy storage facility-fires or explosions that have resulted in a wildfire ignition in California. Newer technology solar panels and processes result in even lower risk of ignitions.

The active construction phase results in higher potential for fires. Hot work, vegetation clearing, and other activities that may result in flame or heat sources, which could ignite vegetation, especially if non-native grasses have established and cured. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in existing solar energy facilities.

4.4 Pontentia-Viridi BESS Project Risk Rating

The estimated risk associated with the Pontentia-Viridi BESS Project site is considered to be low to moderate during construction and low during operation, based on the successful application of the SSJCFA/CAL FIRE and Alameda County requirements and the requirements set forth in this FSP. There have been very few BESS fire ignitions in California. Newer technology batteries, management systems, monitoring, enclosures, and suppression systems result in even lower risk of ignitions.

The risk of fires associated with the latest battery technology that meet UL 9540A testing requirements is low. Newer technology battery modules and processes result in even lower risk of ignitions due to safer battery chemistries and the redundancy of fire safety measures. The Project will be equipped with monitoring and control systems that will prevent and/or control battery cell malfunctions. However, to determine an unlikely, but reasonable worst-case public health impacts for this analysis, it is assumed that these control systems fail and do not control the battery cell malfunction. For this unlikely scenario, it is assumed that the battery cell malfunction continues until third-party or municipal fire suppression services arrive at the project site.

The active construction phase results in higher potential for fires. Hot work, vegetation clearing, and other activities that may result in flame or heat sources, which could ignite vegetation. However, the current agriculture use of the Project and adjacent areas make any activities that could cause an ignition are less likely to do so than they would in vegetated wildland areas. While the area surrounding the substation north of the Project does have vegetation, it is regularly managed and thus unlikely to support substantial fire intensity or spread. Although there will be a

potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in existing battery energy storage systems.

4.5 Risk Reduction Measures

The following measures will be employed, as appropriate, during the construction phase of the project to reduce the risk of ignitions. These measures will be enforced by the SSD and ongoing workplace safety training.

- All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. (See 0, bullet one)
- Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition.
- Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.
- Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- The protect proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.
- During construction, the Project will be equipped with two water trucks, each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of 0.25-inch fast response hose with fog nozzles. Any hose size greater than 1.5 inches shall use National Hose (NH) couplings.
- A cache of shovels, McLeods, and Pulaskis shall be available at staging sites. The amount of equipment will be determined by consultation between SSD and the SSJCFA/CAL FIRE and/or ACFD. Additionally, on-site pickup trucks will be equipped with first aid kits, fire extinguishers, and shovels. Contractor vehicles will be required to include the same basic equipment.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials and provided with a gravel surface.
- A fire watch (i.e., person responsible for monitoring for ignitions) shall be provided during hot work and shall occur for up to one hour following completion of the hot work activities.
- Smoking will not be permitted on the site.
- Each Project construction site, if construction occurs simultaneously at various locations on the site, shall be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- The on-site contractor or Project staff shall coordinate with the SSJCFA/CAL FIRE and/or ACFD to create a training component for emergency first responders to prepare for specialized emergency incidents that may occur at the Project site.
- All on-site employees shall participate in fire prevention and response training exercises with the SSJCFA/CAL FIRE and/or ACFD.

- The Project shall implement ongoing fire patrols during the fire season as defined by local and state agencies. The SSD will be assigned as fire patrol to monitor work activities when an activity risk exists for fire compliance. The SSD shall verify proper tools and equipment are on site, assess any fire agency work restrictions, and serve as a lookout for fire starts, including staying behind (e.g., a fire watch) to make certain no residual fire exists. Fire watch may be performed by any site personnel. An SSD shall perform routine patrols of the Project site during the fire season equipped with a portable fire extinguisher and communications equipment. The Project staff shall notify the SSJCFA/CAL FIRE and/or ACFD of the name and contact information of the current SSD in the event of any change.
- Fires ignited on site shall be immediately reported SSJCFA/CAL FIRE and/or ACFD via calling 9-1-1 for Emergency Dispatch.
- The engineering, procurement, and construction contracts for the Project shall clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this FSP.

Fire Prevention Measures for all Construction Activities:

- Minimize combustible and flammable materials storage on site.
- Store any combustible or flammable materials that need to be on site away from ignition sources.
- Clear parking areas and fuel or oil storage areas of all grass and brush by a distance of at least 30 feet.
- Keep evacuation routes free of obstructions.
- Label all containers as to their contents and store in the same location as flammable or combustible liquids.
- Perform hot work according to fire safety practices in a controlled environment and with fire suppression equipment at the job site. Dispose of combustible waste promptly and according to applicable laws and regulations.
- Report and repair fuel leaks without delay.
- Do not overload circuits or rely on extension cords where other upgrades would be safer.
- Turn off and unplug electrical equipment when not in use.
- Direct contractors on the site to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to low-fire risk conditions, which would include higher humidity (15% and higher) and low winds (less than 10 mph). Dry windy days should be avoided for these types of activities. When the above tools are used, water trucks equipped fire extinguishers, hoses, shovels, Pulaskis, and McLeods shall easily be accessible to personnel.
- All construction-related vehicles shall be equipped with a 10 pound, 4A:80BC Dry Chemical Fire Extinguisher, a 5-gallon backpack pump fire extinguisher, a 46-inch round point hardwood shovel, and a first aid kit.
- During significant emergency situations, an evacuation notice may be issued by the site manager/ supervisor or SSD. When an evacuation has been called, all site employees will gather at the designated assembly area and the SSD, or a designated supervisor, will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off site away from the threat.

4.5.1 Contractor On-site Risk

Contractors should know how to prevent and respond to fires and are responsible for adhering to the Proposed Project's policies regarding fire emergencies. These general fire prevention measures should help in the efforts to prevent a fire from occurring while on site.

Fire Prevention Measures for Contractors:

Contractors shall be trained on fire prevention measures and educated as outlined below:

- Vehicles shall be equipped with the following fire prevention equipment:
  - 10-pound, 4A:80BC Dry Chemical Fire Extinguisher
  - 46-inch round point hardwood shovel
  - 5-gallons water or water backpack
  - First-aid kit
- No driving or parking of vehicles (cars, trucks, ATVs or similar) over unmaintained and dry vegetation.
- Site activities shall be restricted during Red Flag Warning Weather periods; stay alert to fire and weather conditions and evacuate employees, if safe to do so.
- Contractors will conduct operations safely to limit the risk of fire.
- Hot work shall adhere to the guidelines provided below in Section 7.3
- During significant emergency situations, an evacuation notice may be issued by the site manager/ supervisor or SSD. When an evacuation has been called, all consultant or contractor employees will gather at the designated assembly area and the SSD, or a designated supervisor, will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off the site away from the threat.

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5 Project Roles and Responsibilities

Anyone accessing the facility plays an essential role in fire safety at the BESS facility. They will likely be the first to detect and respond to an ignition on the property. Anyone accessing the site should know how to prevent and respond to fires and are responsible for adhering to policies regarding fire emergencies. The following sections detail general responsibilities, by position.

5.1 Situational Awareness

The risk of wildfire changes throughout the year, increasing with the onset of hot and dry conditions during the summer and fall. Wildfire risk also increases when there are active wildfires in the area, as there is the risk that the fire can spread to the property. State and local emergency agencies monitor weather and fire conditions during the fire season and notify the public when the wildfire risk is high. These weather and emergency notifications are easy to sign up for, and the notifications can be readily sent to a phone, tablet, or computer. These notifications include explanatory information about the reason for the notification and steps the public can take to stay safe and informed. The property owner/manager shall be signed up for these notifications to stay abreast of wildfire risk conditions in the area.

5.2 Project Owner/Management

This site-specific Fire Safety Plan (FSP) was prepared for the Project to determine overall fire risk. The Project is required to implement necessary measures to reduce the risk of fire and comply with federal, state, and local fire safety/protection policies. Additionally, Project owner/manager is responsible for ensuring that all contractors on the site have contractual obligations in place to abide by this FSP.

5.3 Site Safety Director (SSD)

The SSD in addition to previously identified duties will also manage the Project's FSP and shall maintain all records pertaining to the plan. Among the other responsibilities of the SSD are:

- Understanding the FSP and its mandates for training, fire prevention, fire suppression, and evacuation.
- Understanding the fire risk associated with the site and with activities that will occur on site.
- Understanding the requirements of sections 7.4 and 7.5 of this FSP as they relate to hot works operations and BESS construction procedures respectively.
- Developing and administering the fire prevention and safety training program.
- Ensuring that fire control equipment and systems are properly maintained and in good working condition.
- Monitoring combustibles on the site and managing where they are stored.
- Conducting fire safety surveys and making recommendations.
- Posting fire rules on the project bulletin board at the contractor's field office and areas visible to employees.
- Stopping project work activities that pose a fire hazard or are not in compliance with this FSP.
- Reporting all fires ignited on the site, whether structural, vegetation, electrical, or other, to the ACFD and/or the SSJCFA/CAL Fire.

5.4 Supervisors

Supervisors are responsible for the following:

- Ensuring that all employees receive appropriate fire safety training.
- Notifying the SSD when changes in operation increase the risk of fire.
- Enforcing fire prevention and protection policies.
- Accounting for all employees/contractors in the case of an evacuation.
- Performing site sweeps to round up staff.
- Facilitating fire agency access to the Project site.
- Cooperating with the fire agencies/incident command during and following fires.
- Identifying unsafe work practices that may lead to fire ignitions.
- Placing red flags at entrance on days when a Red Flag Warning is in effect to warn personnel of hazardous conditions and resulting limitations in what work can be safely performed.

5.5 Employees/Contractors/All On-site Personnel

All those who access the site including all employees and contractors would perform the following tasks:

- Complete all required training before working on-site.
- Conduct operations safely to limit the risk of fire.
- Report potential fire hazards to their supervisors.
- Follow fire emergency procedures.
- Understand the emergency evacuation protocols.

5.6 Fire Mitigation Personnel

Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on site to respond to possible ignition or re-ignition of a damaged BESS, the system owner, agent or lessee shall immediately dispatch one or more fire mitigation personnel to the premises, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premises until the damaged BESS equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated (CFC 1206.1.6.1).

On-duty fire mitigation personnel shall have the following responsibilities (CFC 1206.1.6.2):

1. Keep diligent watch for fires, obstructions to means of egress and other hazards.
2. Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.
3. Take prompt measures for remediation of hazards in accordance with the decommissioning plan in Section 1206.2.3.
4. Take prompt measures to assist the evacuation of the public from the structures.

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6 Emergency Notification Procedures

Any fire event at or near the Project site will trigger the emergency notification procedures identified in this section. Fire reporting is critical for tracking where, when, why, and how fire ignitions occur and will help fire agencies develop protocols for reducing their occurrence.

6.1 First, Call: 9-1-1

Reporting fires and other emergencies: The first call should be to 9-1-1 so that appropriate apparatus can be dispatched.

The personnel in Table 8 are the primary site contacts to be notified during a fire emergency.

Table 8. Emergency Notification Primary Contacts

Name*	Position	Telephone Number*
TBD	Site Safety Officer	TBD
TBD	Site Manager	TBD
TBD	Project Manager	TBD
TBD	Project Engineer	TBD
TBD	Construction Supervisor	TBD

Note:
* Upon designation of each of the positions listed, the names and contact numbers and emails shall be inserted into this table. Position names may be changed, but responsibilities remain the same.

Technical Staff Contact: Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this FSP will be submitted to the responding fire agencies.

The first call should be to 911 so that emergency responders can be dispatched. Travel times to the site require notification of 911 as early as possible after the fire or other emergency has been observed.

Emergency related contacts near the Project site include:

- **Fire/Emergency Medical –** Alameda County Regional Communications Center (Dispatch Center) (Sherriff's and Fire) – (Emergency: 9-1-1 or 925.447.6880 or 510.881.8181 and Business: 925.447.4257)
- **Alameda County Fire Department Fire Station 20 –** 7000 East Ave., Building 323, Livermore, California 94550 (Emergency: 9-1-1 and Business: 925.833.3473)
- **Alameda County Fire Department Administration Office –** 6363 Clark Avenue, Dublin, California 94568 (Emergency: 9-1-1 and Business: 925.833.3473 or 510.632.3473)
- **South San Joaquin County Fire Authority Station 94 –** 16502 W. Schulte Road, Tracy, California 95377 (Emergency: 9-1-1 and Business: 209.831.6700)
- **South San Joaquin County Fire Authority Administration Office –** 835 N. Central Ave., Tracy, California 95376 (Emergency: 9-1-1 and Business: 209.831.6700)
- **Mountain House Fire Station 1 –** 911 Traditions Street, Mountain House, California 95391 (Emergency: 9-1-1 and Business: 209.407.2990)

- Alameda County Sheriff Department – 6289 Madigan Road, Dublin, California 94568 (Emergency: (9-1-1 and Business: 925.551.6970)
- Livermore Police Department – 1110 S. Livermore Ave., Livermore, California 94550 (Emergency: (9-1-1 and Business: 925.371.4900)
- Tracy Police Department – 1000 Civic Center Drive, Tracy, California 95376 (Emergency: (9-1-1 and Business: 209.831.6550)
- California Highway Patrol, Dublin Office – 4999 Gleason Drive, Dublin, California 94568 (Emergency: 9-1-1 and Business: 925.828.0466)
- Hospital – Sutter Tracy Community Hospital – 1420 N. Tracy Blvd., Tracy, California 95376 (Emergency: 9-1-1 and Business: 209.835.1500)
- Hospital – Stanford Health Care – ValleyCare Memorial Center – 1111 E. Stanley Blvd., Livermore, California 94550 (Emergency: 9-1-1 and Business: 925.447.7000)

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with the SSJCFA/CAL FIRE and/or ACFD. The Site Safety Director (SSD), or designee if other SSD tasks have not been completed, will meet the emergency response team at the meeting point (location to be determined, but likely to be at the Project's primary entrance driveway (refer to Figure 5, Fire Safety Plan) to lead them into the site. The meeting point will be selected with fire agency input.

6.2 Evacuation Procedures

During significant emergency situations at or near the Project site, the site manager and/or SSD, in consultation with law or fire authorities, as possible, may issue an evacuation notice. When an evacuation has been called, all site employees will gather at the designated assembly area which would be the site's primary access driveway, but may be elsewhere, depending on the emergency and as designated by the SSD. The SSD will account for all personnel, as time allows. Once all employees are accounted for, or sooner if dictated by the emergency, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat, including greater Alameda County urban areas. Should there still be persons within the site after the evacuation has been called, the SSD will send convened personnel off-site to safe zones and the SSD and designated construction supervisors will perform a sweep of the facility, if it is safe to do so, to locate persons and reconvene at the assembly area. Once all personnel are accounted for, they will exit the site. The Primary Designated Assembly Area is located at the laydown/parking area of the Project site and as illustrated on Figure 7 – Fire Safety Plan, should a structure or wildland fire (or other emergency) occur that threatens the primary assembly area; other locations may be designated as secondary assembly areas by the SSD or site supervisors, as dictated by the situation. The SSD and/or site supervisors should be prepared to be available to the IC throughout the incident to facilitate information exchange.

6.2.1 Evacuation Routes

Depending on the type and severity of the emergency, along with weather and/or localized site conditions, roadways, will be used for evacuating the area. The primary evacuation route is via a new private driveway to the north of the site, off of Patterson Pass Road and via a new private driveway to the southeast of the site, off of Patterson Pass Road. Regional access to the site would be provided from I-580 to Patterson Pass Road – County

Road 2063 to the east of the project. Characteristics of the primary roadways within the study area are described below.

- Interstate 580 (I-580) is an east-west, divided, six to eight-lane freeway that provides regional access to the project site. I-580 is an auxiliary highway of Interstate 80 (I-80) that begins in San Francisco and extends east to Teaneck, New Jersey, and serves as a critical connection for many other regional roadways, freeways, and highways. Caltrans classifies I-580 as a designated truck route, except for a portion of the route through Oakland between Grand Avenue and the San Leandro border where trucks over 4.5 short tons are prohibited. The nearest interchange to the site is provided at I-580 and Patterson Pass Road, approximately 1.5 miles east of the site. The posted speed limit is 65 miles per hour (MPH).
- Patterson Pass Road – County Road 2063 is a two-lane, undivided, east-west roadway that provides local access to the project site via the interchange with I-580 east of the project site, and will be the main roadway to access the project. Patterson Pass Road connects the project site to the City of Livermore in the west at its intersection with Vasco Way. There are no specific pedestrian or bicycle facilities present. The posted speed limit is 55 MPH.
- Midway Road is a two-lane, north-south, undivided roadway which provides local connection to the project site via its intersection with Patterson Road. There are no specific pedestrian or bicycle facilities present. The posted speed limit is 40 MPH.

The SSD and site supervisors are primarily responsible for evacuations. They will employ situation awareness procedures to determine the emergency, talk with all site personnel and fire officials, as possible, and declare the emergency status. Foreman level supervisors shall assist the SSD in accounting for personnel. The SSD or designee shall be assigned to meet and guide firefighting resources to the scene.

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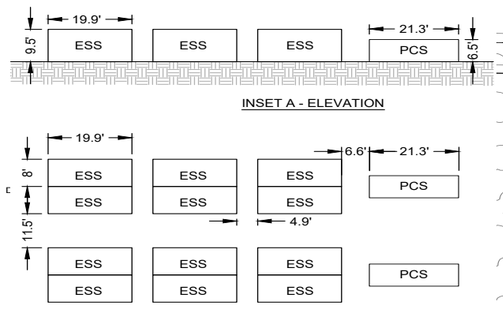

LEGEND

- GRAVEL ACCESS ROAD
- GRAVEL
- STORMWATER/ LID AREA
- PROPOSED LANDSCAPE AND LAYDOWN AREAS - FMZ EQUIVALENT AREA
- PROPOSED BESS EQUIPMENT AREA - FMZ EQUIVALENT AREA
- PROPOSED SECURITY FENCE
- PERIMETER ROAD FOR SUBSTATION ACCESS
- MANUFACTURED SLOPES
- PROPOSED BATTERY UNITS
- PROPOSED PCS UNITS

SYSTEM SUMMARY

ESS TYPE	SOLBANK
ESS QUANTITY	1000
PCS UNITS	140
BATTERY CAPACITY	400 MW/3200 MWH
BESS YARD	13.2 ACRES
PROJECT SUBSTATION	8.1 ACRES
ACCESS ROADS	7.2 ACRES
LAYDOWN YARD (INCLUDING O&M BUILDING)	8.0 ACRES
STORMWATER AREAS*	9.3 ACRES
OTHER**	6.2 ACRES
TOTAL PROJECT AREA	52.0 ACRES
TOTAL DISTURBED AREA***	57.0 ACRES

NOTE:
- * PRELIMINARY STORMWATER TREAMENT AND STORAGE SIZING BASED ON ALAMEDA COUNTY STANDARDS
- ** INCLUDES SLOPED AREAS
- *** TO GRADING DAYLIGHT

FIRE NOTES AND RECOMMENDATIONS:
1) FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET.
2) INTERNAL RADII = 25' MINIMUM.
3) BESS UNITS AND CABINETS SET BACK A MINIMUM 100 FEET WITH A MINIMUM 100 FEET OF FUEL MODIFICATION - ENTIRE DEVELOPMENT PAD AREA VOID OF VEGETATIVE FUELS - GRAVEL OR SIMILAR SURFACE.
4) LANDSCAPED AREAS TO INCLUDE FIRE-RESISTIVE LANDSCAPING CONSISTENT WITH FUEL MODIFICATION ZONE REQUIREMENTS.

ABBREVIATIONS:

ESS	ENERGY STORAGE SYSTEM
PCS	POWER CONVERSION SYSTEM
POI	POINT OF INTERCONNECTION
XMFR	TRANSFORMER

GENERAL NOTES:
FUTURE STEEL FRAME O&M BUILDING (100'X50') WILL BE LOCATED WITHIN PROPOSED LAYDOWN YARD. EXACT BUILDING SIZE AND LOCATION TBD.

SOURCE: Coffman Engineers, 2024

DUDEK

100 50 0 100 200
SCALE: 1 INCH = 100 FEET

FIGURE 7
Project Fire Safety Plan Map

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7 Fire Safety

7.1 Briefings and Inspections

The SSD will conduct routine, unannounced inspections. These inspections shall be conducted at least once every week. The SSD will develop an inspection check list to document these inspections. Completed checklists will be retained electronically and hard copies stored on site in the SSD's office/trailer. Checklists will be reviewed by the SSD and if an issue is found, it will be shared with site supervisors for correction. If corrections are not provided within 36 hours, the SSD will stop work and report to the Project Owner, who will be responsible for corrections.

Prior to Project initiation, all Project personnel will receive a ½ hour presentation on the contents of this FSP along with additional fire safety and fire prevention information provided by Dudek. If possible, SSJCFA/CAL FIRE and/or ACFD personnel from the local fire stations would attend these meetings and provide input which will have a dual benefit of informing site personnel and providing project familiarity for the SSJCFA/CAL FIRE and/or ACFD.

Supervisors/foremen will be responsible for sharing FSP content with transient Project personnel throughout the duration of the Project. A review of the content of this FSP will take place at a formal safety briefing; a minimum of one, each month.

Each daily, safety tailgate session should include an assessment of the day's fire related risks or hazards, the mitigation for each and review of any anticipated red flag weather warnings.

Violations of any of the requirements of this FSP will be addressed immediately. Appropriate consequences for repeated or serious negligence in respect to this FSP will be dealt with accordingly.

7.2 Training Requirements

7.2.1 Basic Fire Safety Training

The SSD and/or Site Supervisors/Foremen shall present basic fire prevention training to all employees upon employment, and shall maintain documentation of the training, which includes:

- This FSP, including how it can be accessed.
- Review of OSHA Fire Protection and Prevention: 29 CFR 1926.24, including how it can be accessed.
- Fire Management: Wildfire Prevention (43 C.F.R. 9212.0 et seq.).
- Proper response and notification in the event of a fire.
- Instruction on the use of portable fire extinguishers, hand tools such as shovels, and recognition of potential fire hazards and risks.

The SSD shall train all persons entering the site about the fire hazards associated with the specific materials and processes to which they are exposed and will maintain documentation of said training. Employees will receive this training:

- Upon first entering the facility
- Annually during a pre-planned meeting
- When changes in work processes necessitate additional training

7.2.2 Supervisor/Foreman Fire Safety Training

Prior to Project initiation and each spring prior to high fire season; all Project supervisors will receive a minimum of one-hour training on Wildland Fire Prevention and Safety. This training, created by the SSD or their designee, using this FSP as their source, will be provided and made available to all Project personnel. This training will then be reviewed with all construction personnel either by the Project supervisors or the SSD and verified by the Project's Compliance Monitor.

Each supervisor/foreman shall be trained to understand:

- Fire reporting
- Extinguishing small fires in order to prevent them from growing into more serious threats.
- Fire prevention
- Initial Attack Firefighting
- Identifying work activities that may result in a fire hazard or risk.

7.2.3 Communication Plan

The ability to communicate quickly with all personnel working on the site is mandatory. The SSD and construction crews will be required to have a cell phone, satellite phone, and/or radios that are operational within the area of work to report an emergency. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities. All fires and medical emergencies will be immediately reported to the SSJCFA/CAL FIRE and/or ACFD.

Each on-site worker will always carry a laminated, FSP card listing 24-hour contact information, including telephone numbers for reporting an emergency and immediate action to take if an incident occurs. Information on the FSP card will be updated as needed and redistributed to all workers before the initiation of any construction activities. The Project's Compliance Monitor, who is responsible for ensuring the project complies with all conditions and required measures, will provide the FSP cards to the site's SSD prior to construction kick-off so that all Project personnel can be provided training and receive their cards.

7.2.4 Project Personnel Fire Fighting Limitations

Responding to fires at the Project Site, whether structural, wildland, or other, is the responsibility of the SSJCFA/CAL FIRE and/or ACFD. Because their response to the site may require several minutes or more, Potentia-Viridi BESS Project employees or contractors should provide only initial firefighting efforts, and only if they have had appropriate training.

The following fire suppression guidelines are recommended:

- No employee shall fight a fire beyond the incipient stage (the very beginning) and the arrival of professional fire suppression personnel. Involvement in firefighting is voluntary and should only be attempted by trained, qualified individuals.

7.3 Daily Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors shall take the following precautions:

- Fire safety shall be a component of daily tailgate meetings. Foremen will remind employees of fire safety, prevention, and emergency protocols daily.
- Smoking will not be permitted in the project site. Combustible materials shall be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSD shall be informed of the situation.
- Evacuation routes shall be maintained and free of obstructions. Unavoidable evacuation route blockages shall be coordinated such that a secondary route is identified and available.
- Disposal of combustible waste in accordance with all applicable laws and regulations shall be required.
- Use and storage of flammable materials in areas away from ignition sources shall be required.
- Proper storage of chemicals such that incompatible (i.e., chemically reactive) substances would be separated appropriately shall be required.
- Performance of hot work (i.e., welding or working with an open flame or other ignition sources) in controlled areas under the supervision of a fire watch shall be required. Fire watch may be any site personnel who would watch for accidental ignitions. Hot work permits are required and shall be reviewed and granted by the SSD for all hot work.
- Equipment shall be kept in good working order by inspecting electrical wiring and appliances regularly and maintaining motors and tools free of excessive dust and grease.
- Ensuring that heating units are safeguarded shall be required.
- Immediate reporting of fuel or petroleum leaks. The site mechanic shall ensure that leaks are repaired immediately upon notification.
- Immediate repair and cleanup of flammable liquid leaks shall be required.
- Construction work areas shall be kept free of combustible materials.
- Extension cords shall not be relied on if wiring improvements are needed, and overloading of circuits with multiple pieces of equipment shall be prohibited.
- Electrical equipment shall be turned off and unplugged when not in use.

7.3.1 Fire Prevention/Protection System Maintenance

The site maintenance personnel will ensure that fire suppression and related equipment is maintained according to manufacturers' specifications. National Fire Protection Association (NFPA) guidelines shall be implemented for specific equipment.

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- Portable fire extinguishers
- Skid-mounted units on pick-up trucks during construction
- Fire alarm and alternative suppression systems inside of the BESS structures
- Water trucks and associated equipment
- Infrared camera fire detection/security system
- Battery and system monitoring systems
- Transformers
- Emergency backup generators/systems and the equipment they support

7.4 Hot Work

These requirements are primarily from the 2022 edition of the California Fire Code (CFC) Chapter 35 - Welding and Other Hot Work, the 2022 edition of the National Fire Protection association (NFPA) 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, and the Standards and American society of Mechanical engineers (ASME) Schemes when referenced. *Note: where two conflicting requirements occur, the more restrictive has been chosen.*

Hot Work is defined in the CFC as operations involving cutting, welding, thermite welding, brazing, soldering, grinding, thermal spraying, thawing pipe, or any other similar activity.

Hot Work Areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

The SSJCFA/CAL FIRE and/or ACFD does not currently issue Hot Work operational permits. In this case, a Hot Work Permit shall be obtained from the SSD, following guidelines from the SSJCFA/CAL FIRE and/or ACFD if required. The SSD would require all hot work to be done in compliance with the requirements of the CFC, Chapter 35 and NFPA 51B.

This will require the SSD to develop a formal process for contractors to initiate hot work operations. Documentation will be developed to keep track of who, when, where, and for how long a contract may perform hot work. This paperwork must be made available if requested by the SSJCFA/CAL FIRE and/or ACFD to determine fire origin and cause if necessary.

7.4.1 CFC Requirements:

7.4.1.1 General Requirements:

- Hot Work Program Permit: Hot work permits, issued by an approved responsible person (SSD) under a hot work program, shall be available for review by the fire code official (SSJCFA/CAL FIRE and/or ACFD) at the time the work is conducted and for 48 hours after work is complete. (CFC §3503.3)
- Qualification of Operators: A permit for hot work operations shall not be issue unless the individuals in charge of performing such operations are capable of performing such operations safely. Demonstration of

working knowledge of the provisions of this chapter shall constitute acceptable evidence of compliance with this requirement. (CFC §3503.4)

- **Records:** The individual responsible for the hot work area shall maintain "prework check" reports in accordance with Section 3504.3.1. Such reports shall be maintained on the premises for not less than 48 hours after work is complete. (CFC §3503.5)
- **Signage:** Visible hazard identification signs shall be provided where required by Chapter 50. Where the hot work area is open to persons other than the operator of the hot work equipment, conspicuous signs shall be posted to warn others before they enter the hot work area. Such signs shall display the following warning (CFC §3503.6):
  - "CAUTION - HOT WORK IN PROGRESS - STAY CLEAR"

7.4.1.2 Fire Safety Requirements – Protection of Combustibles

- **Combustibles:** Hot work areas shall not contain combustibles or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles. (CFC §3504.1.1)
- **Openings:** Openings or cracks in walls, floors, ducts or shafts within the hot work area shall be tightly covered to prevent the passage of sparks to adjacent combustible areas, or shielded by metal fire-resistant guards, or curtains shall be provided to prevent passage of sparks or slag. (CFC C3504.1.2)
- **Housekeeping:** Floors shall be kept clean with the hot work area. (CFC §3504.1.3)
- **Conveyor Systems:** Conveyor systems that can carry sparks to distant combustibles shall be shielded or shut down. (CFC §3504.1.4)
- **Partitions:** Partitions segregating hot work areas from other areas of the building shall be noncombustible. In fixed hot work areas, the partitions shall be securely connected to the floor such that gaps do not exist between the floor and the partition. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area. (CFC §3504.1.5)
- **Floors:** Fixed hot work areas shall have floors with noncombustible surfaces. (CFC §3504.1.6)
- **Precautions in Hot Work**: Hot work shall not be performed on containers or equipment that contain or have contained flammable liquids, gases or solids until the containers and equipment have been thoroughly cleaned, inserted or purged; except that "hot tapping" shall be allowed on tanks and pipelines where such work is to be conducted by approved personnel. Hot work on flammable and combustible liquid storage tanks shall be conducted in accordance with Section 3510. (CFC §3504.1.7)
- **Sprinkler Protection:** Where applicable, automatic sprinkler protection shall not be shut off while hot work is performed. Where hot work is performed close to automatic sprinklers, noncombustible barriers or damp cloth guards shall shield the individual sprinkler heads and shall be removed when the work is completed. If the work extends over several days, the shields shall be removed at the end of each workday. The fire code official (SSJCFA/CAL FIRE and/or ACFD) shall approve hot work where sprinkler protection is impaired. (CFC §3504.1.8)
- **Fire Detection Systems:** Approved special precautions shall be taken to avoid accidental operation of automatic fire detection systems. (CFC §3504.1.9)

7.4.1.3 Fire Watch

- **When Required:** A fire watch shall be provided during hot work activities and shall continue for not less than 30 minutes after the conclusion of the work. The fire code official (SSJCFA/CAL FIRE and/or ACFD), or the

responsible manager (SSD) under a hot work program, is authorized to extend the fire watch based on the hazards or work being performed. (CFC §3504.2.1)

- **Exception:** Where the hot work area has no fire hazards or combustible exposures.

- **Location:** The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored. (CFC §3504.2.2)
- **Duties:** Individual s designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for extinguishing spot fires and communicating an alarm. (CFC §3504.2.3)
- **Fire Training:** The individuals responsible for performing the hot work and individuals responsible for providing the fire watch shall be trained in the use of portable fire extinguishers. (CFC §3504.2.4)
- **Fire Hoses:** Where hoselines are required, they shall be connected, charged and ready for operation. (CFC §3504.2.5)
- **Fire Extinguisher:** Not less than one portable fire extinguisher complying with Section 906 and with a minimum 2-A:20-B:C rating shall be provided with ready access within 30 feet of the location where the hot work is performed. (CFC §3504.2.6)

7.4.1.4 Area Reviews

- Before hot work is permitted and not less than once per day while the permit is in effect, the area shall be inspected by the individuals responsible for authorizing hot work operations (SSD) [with the Pre-hot work check provided below] to ensure that it is a fire safe area. [3]Information shown on the permit shall be verified prior to signing the permit in accordance with Section 105.6. (CFC §3504.3)

7.4.1.4.1 Pre-Hot Work Check

- A pre-hot work check shall be conducted prior to work to ensure that all equipment is safe, and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and available upon request. The pre-hot work check shall determine all the following (CFC §3504.3.1):
  1. Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
  2. Hot work site is clear of combustibles or combustibles are protected.
  3. Exposed construction is of noncombustible materials or, if combustible, then protected.
  4. Openings are protected.
  5. Floors are kept clean.
  6. Exposed combustibles are not located on the opposite side of partitions, walls, ceilings or floors.
  7. Fire watches, where required, are assigned.
  8. Approved actions have been taken to prevent accidental activation of suppression and detection equipment in accordance with Sections 3504.1.8 and 3504.1.9.
  9. Fire extinguishers and fire hoses (where provided) are operable and available.

[3] In this case, because the SSJCFA/CAL FIRE and/or ACFD does not require hot work permits in Section 105.6, the SSO will verify the information shown on the permit prior to signing the permit.

7.4.1.5 Gas Welding and Cutting

- **General:** Devices or attachments mixing air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blow pipe, shall not be allowed unless approved. (CFC §3505.1)

7.4.1.5.1 Cylinder and Container Storage, Handling and Use

- **Cylinders Connected for Use:** The storage or use of a single cylinder of oxygen and a single cylinder of fuel gas located on a cart shall be allowed without requiring the cylinders to be separated in accordance with Section 5003.9.8 or 5003.10.6.3 when the cylinders are connected to regulators, ready for service, equipped with apparatus designed for cutting or welding and all the following (CFC §3505.2.1):
  1. Carts shall be kept away from the cutting or welding operation in accordance with Section 3505.5 or fire-resistant shields shall be protected.
  2. Cylinders shall be secured to the cart to resist movement.
  3. Carts shall be in accordance with Section 5003.10.3.
  4. Cylinder valves not having fixed hand wheels shall have keys, handles or nonadjustable wrenches on valve stems while the cylinders are in service.
  5. Cylinder valve outlet connections shall conform to the requirements of CGA V-1.
  6. Cylinder valves shall be closed when work is finished.
  7. Cylinder valves shall be closed before moving the cart.
- **Individual Cart Separation:** Individual carts shall be separated from each other in accordance with Section 5003.9.8.[4] (CFC §3505.2.1.1)
- **Precautions:** Cylinders, valves, regulators, hose and other apparatus and fittings for oxygen shall be kept free from oil or grease. Oxygen cylinders, apparatus and fittings shall not be handled with oily hands, oily gloves, or greasy tools or equipment. (CFC §3505.3)
- **Acetylene Gas:** Acetylene gas shall not be piped except in approved cylinder manifolds and cylinder manifold connections or utilized at a pressure exceeding 15 psig unless dissolved in a suitable solvent in cylinders manufactured in accordance with DOTn 49 CFR Part 178. Acetylene gas shall not be brought in contact with unalloyed copper, except in a blowpipe or torch. (CFC §3505.4)
- **Remote Locations:** Oxygen and fuel-gas cylinders and acetylene generators shall be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks or slag, or misdirection of the torch flame. (CFC §3505.5)
- **Cylinders Shutoff:** The torch valve shall be closed and the gas supply to the torch completely shut off when gas welding or cutting operations are discontinued for a period of 1 hour or more. (CFC §3505.6)
- **Prohibited Operation:** Welding or cutting work shall not be held or supported on compressed gas cylinders or containers. (CFC §3505.7)
- **Tests:** Test for leaks in piping systems and equipment shall be made with soapy water. The use of flames shall be prohibited for leak testing. (CFC §3505.8)

[4] By either separating the carts by at least 20ft. or having a noncombustible partition extending not less than 18in. above and to the sides of the stored material.

7.4.1.6 Electric Arc Hot Work

- **General:** The frame or case of electric hot work machines, except internal-combustion-engine-driven machines, shall be grounded. Ground connections shall be mechanically strong and electrically adequate for the required current. (CFC §3506.1)
- **Return Circuits:** Welding current return circuits from the work to the machine shall have proper electrical contact at joints. The electrical contact shall be periodically inspected. (CFC §3506.2)
- **Disconnecting:** Electrodes shall be removed from the holders when electric arc welding or cutting is discontinued for any period of 1 hour or more. The holders shall be located to prevent accidental contact and the machines shall be disconnected from the power source. (CFC §3506.3)
- **Emergency Disconnect:** A switch or circuit breaker shall be provided so that fixed electric welders and control equipment can be disconnected from the supply circuit. The disconnect shall be installed in accordance with the *California Electrical Code.* (CFC §3506.4)
- **Damaged Cable:** Damaged cable shall be removed from service until properly repaired or replaced. (CFC §3506.5)

7.4.1.7 Calcium Carbide Systems

- **Calcium Carbide Storage:** Storage and handling of calcium carbide shall comply with Chapter 50 of this code and Chapter 9 of NFPA 51. (CFC §3507.1)

7.4.1.8 Acetylene Generators

- **Use of Acetylene Generators:** The use of acetylene generators[5] shall comply with this section and Chapter 15 of NFPA 55.[6] (CFC §3508.1)
- **Portable Generators:** The minimum volume of rooms containing portable generators shall be 35 times the total gas-generating capacity per charge of all generators in the room. The gas-generating capacity in cubic feet per charge shall be assumed to be 4.5 times the weight of carbide per charge in pounds. The minimum ceiling height of rooms containing generators shall be 10 feet. An acetylene generator shall not be moved by derrick, crane or hoist while charged. (CFC §3508.2)
- **Protection Against Freezing:** Generators shall be located where water will not freeze. Common salt such as sodium chloride or other corrosive chemicals shall not be utilized for protection against freezing. (CFC §3508.3)

7.4.1.9 Piping Manifolds and Hose Systems for Fuel Gases and Oxygen

- **General:** The use of piping manifolds and hose systems shall be in accordance with this Section and Chapter 53 (Compressed Gases), and Chapter 5 of NFPA 51.[7] (CFC §3509.1)
- **Protection:** Piping shall be protected against physical damage. (CFC §3509.2)

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5 For storage outside buildings, Calcium carbide in unopened containers in good condition (watertight and airtight) shall be permitted to be stored outdoors. Containers shall be stored horizontally in single or double rows. The bottom tier of each row shall be placed on wooden planking or equivalent so that the containers will not come in contact with the ground or ground water. Storage areas shall be at least 10 ft. from lines of adjoining property that can be built upon.

6 NFPA 55 is the Compressed Gases and Cryogenic Fluids Code

7 NFPA 51 is the Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes

- **Signage:** Signage shall be provided for piping and hose systems as follows (CFC §3509.3):
  - Above-ground piping systems shall be marked in accordance with ASME A13.1.[8]
  - Station outlets shall be marked to indicate their intended usage.
  - Signs shall be posted, indicating clearly the location and identity of section shutoff valves.
- **Manifolding of Cylinders:** Oxygen manifolds shall not be located in an acetylene generator room. Oxygen manifolds shall be located not less than 20 feet away from combustible material such as oil or grease, and gas cylinders containing flammable gases, unless the gas cylinders are separated by a fire partition. (CFC §3509.4)
- **Identification of Manifolds:** Signs shall be posted for oxygen manifolds with service pressures not exceeding 200 psig. Such signs shall include the words (CFC §3509.5):
  - "LOW-PRESSURE MANIFOLD - DO NOT CONNECT HIGH-PRESSURE CYLINDERS - MAXIMUM PRESSURE 250 PSIG."
- **Clamps:** Hose connections shall be clamped or otherwise securely fastened. (CFC §3509.6)
- **Inspection:** Hoses shall be inspected frequently for leaks, burns, wear, loose connections or other defects rendering the hose unfit for service. (CFC §3509.7)

7.4.1.10 Hot Work on Flammable and Combustible Liquid Storage Tanks

- **General:** Hot work performed on the interior or exterior of tanks that hold or have held flammable or combustible liquids shall be in accordance with this Section and Chapters 4, 5, 6, 7 and 10 of NFPA 326.[9] (CFC §3510.1)
- **Prevention**: The following steps shall be taken to minimize hazards where hot work must be performed on a flammable or combustible liquid storage container (CFC §3510.2):
  1. Use alternative methods to avoid hot work where possible.
  2. Analyze the hazards prior to performing hot work, identify the potential hazards and the methods of hazard control.
  3. Hot work shall conform to the requirements of the code or standard to which the container was originally fabricated.
  4. Test the immediate and surrounding work area with a combustible gas detector and provide a means of continuing monitoring while conducting the hot work.
  5. Qualified employees and contractors performing hot work shall use an industry-approved hot work permit system to control the work.
  6. Personnel shall be properly trained on hot work policies and procedures regarding equipment, safety, hazard controls and job-specific requirements.
  7. On-site safety supervision shall be present where hot work is in progress to protect the personnel conducting the hot work and provide additional overview of site-specific hazards.

[8] ASME A13.1 is the Scheme for The Identification Of Piping Systems
[9] NFPA 326 is the Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair.

7.4.2 Additional, Project Specific, Hot Work Requirements:

Hot Work shall only be done in fire safe areas designated by the SSD and will comply with the 2022 edition of the CFC Chapter 35 - Welding and Other Hot Work, the 2022 edition of the National Fire Protection association (NFPA) 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, and the Standards and American society of Mechanical engineers (ASME) Schemes when referenced, inclusive of the following notable points:

- All personnel involved in hot work shall be trained in safe operation of the equipment by the SSD. This will include providing training at "tailgate safety meetings." Personnel would also be made aware of the risks involved and emergency procedures, such as how to transmit an alarm and who is responsible to call 9-1-1.
- A fire extinguisher with a minimum rating of 4A:80BC, a 5-gallon backpack pump fire extinguisher, and a 46-round point hardwood shovel, shall be readily accessible within 25 feet of hot work area.
- Personal protective clothing will be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- Any ignitions will be immediately extinguished (if possible and safely) by site personnel, and SSJCFA/CAL FIRE and/or ACFD will be notified immediately by calling 9-1-1.

Note: *The SSD shall have the responsibility to assure safe hot work operations and will have the authority to modify hot work activities associated with construction and/or maintenance and to exceed the requirements of this FSP to the degree necessary to prevent accidental or unintended fire ignition.*

7.5 BESS Construction Safety

The following requirements are from the 2022 edition of the California Fire Code (CFC) Chapter 12, Section 1207 – Electrical Energy Storage Systems.

7.5.1 CFC Requirements:

7.5.1.1 General Requirements:

- **Ground-mounted photovoltaic Panel Systems:** Ground-mounted photovoltaic panel systems shall comply with the California Electrical and Building Codes and a clear, brush-free area of 10 feet shall be required for ground-mounted photovoltaic arrays. (CFC §1205.5)
- **Fire remediation:** Where a fire or other event has damaged the ESS and ignition or re-ignition of the ESS is possible, the system owner or agent (SSD) shall take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location. (CFC 1207.1.6)
- **Working clearances:** Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70 and the manufacturer's instructions. (CFC 1207.4.2)
- **Vehicle impact protection:** Where ESS are subject to impact by a motor vehicle, including forklifts, vehicle impact protection shall be provided in accordance with Section 312.[10] (CFC 1207.4.5)

[10] CFC 312 has several requirements related to vehicle impact protection (i.e. bollards) including depth of burial, filling material, and height.

- **Combustible storage:** Combustible storage shall not be stored in ESS rooms, areas, or walk-in units. Combustible storage in occupied work centers covered by Section 1206.4.10 shall be stored at least 3 feet from ESS cabinets. (1207.4.6)
- **Signage:** Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors. Signs designed to meet both eh requirements of this section and NFPA 70 shall be permitted. The Signage shall include the following or equivalent: (CFC 1207.4.8)
  - "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or equivalent.
  - The identification of the electrochemical ESS technology present.
  - "Energized electrical circuits"
  - If water-reactive electrochemical ESS are present the signage shall include "APPLY NO WATER".
  - Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1207.1.6.1.
- **Security of installations:** Rooms, areas and walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components.
- **Occupied work centers:** Electrochemical ESS located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following: (CFC 1207.4.10)
  - Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.
  - Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located with 10 feet of the equipment that they support.
  - Cabinets shall include signage complying with Section 1207.4.8.
- **Walk-in units:** Walk-in units shall only be entered for inspection, maintenance and repair of ESS units and ancillary equipment, and shall not be occupied for other purposes.
- **Vegetation Control:** Areas within 10 feet on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt, provided that they do not form a means of readily transmitting fire.
- **Indoor installations:** Indoor ESS installations shall be in accordance with Sections 1207.7.1 through 1207.7.4 (CFC 1207.7)
- **Outdoor installations:** Outdoor installations shall be in accordance with Section 1207.8.1 through 1207.8.3. (CFC 1207.8)

7.5.1.2 Equipment Requirements:

- **ESS listings:** Ess shall be listed and labeled in accordance with UL 9540.
- **Equipment listing:** Chargers, inverters and energy storage management systems shall be covered as part of the UL 9540 listing or shall be listed separately.

- **Utility interactive systems:** Inverters shall be listed and labeled in accordance with UL 1741. Only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads. (1207.3.3)
- **Energy storage management system:** Where required by the ESS listing an approved energy storage management system (ESMS) shall be provided for that which monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected. (CFC 1207.3.4)
- **Enclosures:** Enclosures of ESS shall be of noncombustible construction. (CFC 1207.3.5)
- **Electrical Disconnects:** Where the ESS disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicated the location of stationary storage battery system disconnecting means in accordance with NFPA 70.[11] (CFC 1207.4.1)

7.5.1.3 Commissioning:

- **Commissioning:** Commissioning of newly installed ESS, and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating the commissioning. (CFC 1207.2.1)
- **Initial acceptance testing:** During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval. (CFC 1207.1.1)
- **Commissioning report:** A report describing the results of the system commissioning and including the results of the initial acceptance testing required in Section 1207.2.1.1 shall be provided to the code official prior to final inspection and approval and maintained at an approved on-site location. (CFC 1207.2.1.2)
- **Reused and repurposed equipment:** Equipment and materials shall only be reused or reinstalled as permitted in Section 104.7.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be reused in applications regulated by Chapter 12, unless (1) approved by the fire code official and (2) the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974.

7.5.1.4 Prior to Operation:

Fire Protection Systems will be reviewed, approved, and inspected by the SSJCFA/CAL FIRE and/or ACFD prior to ESS operation. (CFC 1207.5)

- **Fire Protection Systems:** BESS units and electrical equipment will incorporate fire and explosion protection systems as necessary to meet CFC requirements for outdoor installations of energy storage systems (CFC 1207.8) and to meet industry standards (e.g. NFPA 855 and UL 9540) for energy storage systems. Fire protection systems and measures may include but are not limited to:
  - **Clearance to exposures**

[11] NFPA 70 – National Fire Protection Association 70: Standard for Electrical Safety in the Workplace

- Smoke and automatic fire detection.
- Fire suppression systems.
- Explosion control.
- Thermal runaway protection.
- Vegetation Control.

The specific fire protection systems installed within the BESS modules and at the project site will conform to the requirements of the fire code adopted at the time of project approval.

- **Operation and maintenance:** An operating and maintenance manual shall be provided to both the ESS owner or the authorized agent and the ESS operator before the ESS is put into operation. The ESS shall be operated and maintained in accordance with the manual, and a copy of the manual shall be retained at an approved on-site location. (CFC 1207.2.2)

7.5.1.5 During Operation:

- **Ongoing Inspection and Testing:** Systems that monitor and protect the ESS installation shall be inspected and tested in accordance with the manufacturer's instructions and the operating and maintenance manual. Inspection and testing records shall be maintained in the operation and maintenance manual. (CFC 1207.2.2.1)
- **Repairs:** Repairs of ESS shall only be done by qualified personnel. Repairs with other than identical parts shall be considered retrofitting and comply with Section 1207.3.7.[12] Repairs shall be documented in the service records log.
- **Replacements:** Replacements of ESS shall be considered new ESS installations and shall comply with the provisions of Section 1207 as applicable to new ESS. The ESS being replaced shall be decommissioned in accordance with Section 1207.2.3 (see below). (CFC 1207.3.8)

7.5.1.6 Decommissioning:

- **Decommissioning:** The fire code official shall be notified prior to the decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan.

[12] 1207.3.7 Retrofits for ESS require a construction permit, new components to listed, installation in accordance with all manufacturer's instructions, comply with UL 9540 when applicable, commissioned in accordance with Section 1207.2.1, and all retrofitting actions documented in the service record logs.

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8 Fire Safety Infrastructure

8.1 Fire Access/Roads

Access to the site is via a new private driveway to the north of the site, off of Patterson Pass Road and via a new private driveway to the southeast of the site, off of Patterson Pass Road. Regional access to the site would be provided from I-580 to Patterson Pass Road – County Road 2063 to the east of the project. All BESS enclosures and Project components are within 150 feet of fire apparatus access roads as required by CFC 503.1.1.

8.1.1 Fire Access Roads/Driveway Dimensions for BESS Facility

Fire apparatus access roads for the Project are compliant with California Fire Code and any applicable local amendments made in the Alameda County Code including:

- Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm). (503.2.1)
- Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus weighing at least 75,00 pounds and shall be surfaced so as to provide all-weather driving capabilities. (503.2.3)
- The angles of approach and departure for fire apparatus access roads shall be within the limits established by the fire code official based on the fire department's apparatus. (503.2.8)
- Gravel Access Roads within the site are compliant with State Fire code.
- The required turning radius of a fire apparatus access road shall be determined by the fire code official. (503.2.4)
- Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Sections 503.2.1 and 503.2.2 shall be maintained at all times. (CFC 503.4)
- There are no dead-end roads in excess of 150 feet associated with the Project, and thus there is no need for fire apparatus turnarounds.

8.1.2 Gates

There are multiple gates across fire apparatus access road throughout the Project. Gates on private roads are permitted, but subject to Fire Code requirements and standards, including:

- Where a single gate is provided, the gate width shall be not less than 20 feet. Where a fire apparatus road consists of a divided roadway, the gate width shall be not less than 12 feet. (D103.5).

- Clear width with gate fully open must be no less than the width of the access road or driveway plus two feet on each side. (Fire Protection Standard 5).
- Gates must be set back a minimum of 30 feet from the nearest intersecting road. (Fire Protection Standard 5).
- Gates shall be of the horizontal swing, horizontal slide, vertical lift or vertical pivot type. (D103.5).
- Construction of gates shall be of materials that allow manual operation by one person. (D103.5).
- Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective. (D103.5).
- Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official. (D103.5).
- All locked gates must be equipped with a CAL FIRE approved Knox Box product. (D103.5, Fire Protection Standard 5).
- The operator of the building shall immediately notify the fire code official and provide the new key where a lock is changed or rekeyed. The key to such lock shall be secured in the key box. (506.2).
- All electric gates shall have an approved means of emergency operation at all times, either using solar power, battery back-up or fail to the open position upon a power outage. (Fire Protection Standard 5).
- Security gates and their emergency operation shall be maintained operational at all times. (Fire Protection Standard 5).
- Electric gate operators, where provided, shall be listed in accordance with UL 325. (D103.5)
- Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F2200. (D103.5).

8.2 Signage

The Project shall have all signage required by the California Fire Code, amendments made by the County Code, California Electrical and Building Codes with amendments, and any other applicable code or standard. This is including the following.

- Approved signs shall be provided on all BESS enclosures installed for the Project in clear view. Signs designed to meet both the requirements of this section and the California Electrical Code shall be permitted. The signage shall include the following or equivalent (CFC 1207.4.8):

  1. "ENERGY STORAGE SYSTEM," "BATTERY STORAGE SYSTEM," "CAPACITOR ENERGY STORAGE SYSTEM" or the equivalent.
  2. The identification of the electrochemical ESS technology present.
  3. "ENERGIZED ELECTRICAL CIRCUITS."
  4. Where water-reactive electrochemical ESS are present, the signage shall include "APPLY NO WATER."
  5. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1207.1.6.1.

  - Exception: Existing electrochemical ESS shall be permitted to include the signage required at the time they were installed. However, signage shall be updated if the ESS is retrofitted or if existing signs need to be replaced.

- A permanent plaque or directory denoting the location of the disconnecting means for all ESS on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all ESS capable of being interconnected (2023 NFPA 855, 4.7.4.3).

- Facilities or areas within facilities that have been designated as totally "no smoking" shall have "No Smoking" signs placed at all entrances to the facility or area and in rooms or areas where flammable or combustible hazardous materials are stored, dispensed or used (CFC 5003.7.1).

- Where the hot work area is open to persons other than the operator of the hot work equipment, conspicuous signs shall be posted to warn others before they enter the hot work area. Such signs shall display the following warning (CFC 3503.6):

CAUTION

HOT WORK IN PROGRESS

STAY CLEAR

8.3 Security

The Project will be secured by a galvanized chain link fence with three strands of barbed wire. Access will be provided by galvanized chain link gates that are compliant with the codes mentioned in Section 9.1.2. The gates will remain locked at all times with emergency access available through a Knox Box product. Entry by unauthorized personnel will not be permitted and will be protected against. Access to the site will only be by approved personnel with few operational/maintenance visits required after commissioning. Security of installations will not inhibit required air flow or exhaust from the BESS enclosures or their associated components (CFC 1207.4.9).

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9 Red Flag Warning Protocol

Red Flag Warnings (RFWs) are issued by the National Weather Service and indicate that conditions are such (low humidity, high winds) that wildfire ignitions and spread may be facilitated. To ensure compliance with Red Flag Warnings restrictions, the National Weather Service website would be monitored at the site:

- Red Flag Warning (weather.gov)

During RFWs, construction activities would be limited, and precautions may be taken on site during periods of a RFW, when conditions such as low humidity and high winds are present. Upon announcement of a RFW, red flags will be prominently displayed at the entrance gate and main office, indicating to employees and contractors that restrictions are in place. Additionally, any hot work, grading, or other work that could result in heat, flame, sparks, or may cause an ignition to vegetation would be limited to low fire hazard, non-hot work, unless within an ignition resistant structure until the RFW has been lifted Areas may be evacuated where personnel may be exposed to higher risks. If vehicles are required to be used during RFW conditions, vehicles shall remain only on designated access roads on the site that are clear of vegetation.

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10 Review and Approval

The signatory reviewing officials are acknowledging that Levy Alameda LLC has established a FSP so that when properly implemented, maintained, and enforced, fire hazard and risk will be reduced and mitigated for the Project's construction phase. Reviewing agencies do not accept any responsibility for Levy Alameda LLC's interpretation or implementation of this plan prior to, during, or following the construction of the Project or for any resulting actions associated with these activities.

Reviewed by:

_____ _____

Levy Alameda, LLC Representative Date

Approved by:

_____ _____

SSJCFA/CAL FIRE and/or ACFD Date

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