

## **Appendix L**

### **Fire Protection Plan**

# **FIRE PROTECTION PLAN**

## **Starlight Solar Project**

**PDS2022-MUP-22-010 San Diego County Fire Protection District  
Prepared for the County of San Diego  
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## EXECUTIVE SUMMARY

Starlight Solar, LLC, is requesting a major use permit from San Diego County to develop, finance, construct, and operate a renewable energy solar and battery storage project in southeastern San Diego County (County). The Starlight Solar Project (project) encompasses approximately 600 acres within the Mountain Empire Subregional Plan area in unincorporated San Diego County. The project would use photovoltaic (PV) electric generation system technology to produce up to 100 megawatts (MW) of alternating current (AC) of solar energy at the utility-scale and would also include a 217.4-MW battery energy storage system (BESS) and a substation. The project assists in achieving the state's Renewables Portfolio Standard, invests in the region's economy, and uses an area within San Diego County that has excellent solar attributes, among other objectives.

The entire project area is generally a semiarid environment that supports a wide range of habitats and biological communities. Multiple natural plant communities are present and are mainly comprised of the following vegetation types: chamise and manzanita species, coastal live oak, buckwheat scrub and various other desert shrub species (toyon and ceanothus), and predominately native grasses. Topography within the project varies from flat to sloping terrains, with a change of several hundred feet in elevation. Given the arid climate, varied terrain, and fuel types present, fire will always be a part of the landscape. The project and surrounding area have anticipated moderate to high fire behavior. However, fuels are discontinuous across the landscape, aiding firefighting resources and slowing fire progression. Modeling was conducted with moderate and severe parameters to represent possible fire behavior under typical and worst-case scenario conditions. Multiple fire stations are present with response times ranging from 5 to 15 minutes to the project site; these include the San Diego County Fire Protection District, the California Department of Forestry and Fire Protection (CAL FIRE), and Campo Indian Reservation.

## **CHAPTER 1. INTRODUCTION**

This Fire Protection Plan (FPP) has been prepared for the Starlight Solar Project (project). The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more at-risk communities and essential infrastructures. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan.

### **1.1 Project Location, Description and Environmental Setting**

#### **1.1.1 Project Location**

The project site encompasses approximately 588 acres within the Mountain Empire Subregional Plan area in unincorporated San Diego County (County) (Appendix A: Figure A-1). The Mountain Empire Subregional Plan area contains five subregional group areas. The project site is in the Boulevard Subregional Planning Area (Appendix B: Figure B-1). Figure C-1 in Appendix C shows the location of the project in the local context, including roadways. The project site is south of U.S. Route 8 (U.S. 8) and Old Highway 80, and east of Tierra Del Sol Road. Most of the project is within a California Department of Forestry and Fire Protection (CAL FIRE) designated Very High Fire Hazard Severity Zone (FHSZ).

#### **1.1.2 Project Description**

The project is a solar energy generation and storage facility that would produce a total rated capacity of up to 100 megawatts (MW) of alternating current (AC)—generating capacity and 217.4 MW of AC energy storage. The project would be constructed in two separate phases, and operation would begin at different times. Phase I encompasses approximately 125 acres and includes the development of a PV system capable of generating up to 20 MW of solar energy and providing 17.4 MW of battery storage. Phase II encompasses approximately 456 acres and includes the development of a PV system capable of generating up to 80 MW of solar energy and providing 200 MW of battery storage. The power produced by the proposed solar facility would interconnect into the Boulevard Substation via an underground generation-tie (gen-tie) line.

The project would include the following primary components with accompanying utility structures:

- Approximately 235,516 photovoltaic (PV) modules would be mounted on support structures (typically single-axis solar trackers). The final number of modules and support structures will depend on the final design.
- Based on the current design standards, a 1,500-volt direct current (DC) underground collection system would link the modules to the inverters and eight solar array systems.

- Inverter/transformer platforms would be located throughout the solar facility to convert the DC power generated by the modules into AC power. A 34.5-kilovolt (kV) underground AC collection system would link the inverters to the on-site collector substation.
- An on-site collector substation and 20 × 20-foot storage building would be located on the northeastern tip of the project site within an approximately 3-acre substation.
- The gen-tie line would run from the project substation on-site to the Boulevard Substation. It will consist of two lines—a 69-kV line and a 138-kV line—that will be strung overhead to cross Tule Jim Lane and underground the remaining distance.
- 217.4 MW battery energy storage system (BESS) would consist of two battery storage areas on 5.14 acres.
- A Supervisory Control and Data Acquisition (SCADA) system would be used.
- All-weather 20-foot-wide internal access roads graded, maintained, and made of decomposed granite or similar.
- All-weather 24-foot-wide internal perimeter roads graded, maintained, and made of decomposed granite or similar.
- Security fencing, lighting, and signage would be installed.
- 100-foot and 30-foot-wide fuel modification zones (FMZs) would be created and maintained.
- Six 10,000-gallon water tanks would be available for fire protection.

The project area is accessible via Jewel Valley Road and fire access only via Tule Jim Lane (see Appendix B: Figure B-1; Appendix C). Jewel Valley Road is paved in certain segments and is otherwise a flat, well-maintained dirt road. Tule Jim Lane is also a well-maintained dirt road. Both roads are wide enough to accommodate two-way traffic for emergency vehicles and connect to Old Highway 80 in the town of Boulevard. Each site entrance would feature a manual swing gate and a sign with a lighted directory map and contact information. All entrance gates would feature a ‘Knox Box’ to allow ease of access for emergency service providers.

An underground gen-tie line would be located on the east side of Tule Jim Lane and connect into the southeastern corner of the San Diego Gas and Electric (SDG&E) Boulevard Substation. The gen-tie line would have one overhead portion to cross Tule Jim Road and would encompass 7 acres. Once across Tule Jim Lane, the gen-tie line would head north along the east side of Tule Jim Lane for approximately 0.6 mile before interconnecting to the southeast corner of the San Diego Gas and Electric SDG&E Boulevard Substation. The gen-tie line would avoid the residence on the east side of Tule Jim Lane and south of the Boulevard Substation. The gen-tie easement would be about 75 feet wide. The overhead structures would be steel poles and would be approximately 50 feet high.

The project would contain 14 open space easement areas within the project site, totaling 24.4 acres. No development would occur within the open space easement areas. The internal open space areas will have the vegetation maintained to FMZ vegetation height standards. These

areas would be fenced with a 6-foot-high chain-link perimeter fence and 1 foot of three strands of barbed wire along the top. Each open space easement area would include a gated entrance.

In addition, to protect sensitive biological resources, an off-site biological open space easement would be granted over approximately 448 acres of sensitive vegetation communities, special-status plant species, and habitat for special-status species along the border of the United States and Mexico. This easement is for the protection of biological resources and prohibits all of the following on any portion of the land subject to said easement: grading; excavation; placement of soil, sand, rock, gravel, or other material; clearing of vegetation; construction, erection, or placement of any building or structure; vehicular activities; trash dumping; or use for any purpose other than as open space. The biological open space easement would be unfenced.

### **1.1.3 Environmental Setting**

Site visits to survey and document the topography, vegetation types, and fuel loadings occurred on April 19, 2022, and May 10, 2022. Surveyors included Associate Biologists Lauren Strong and Tamara Kramer on April 19, 2022, and Lauren Strong and Lee BenVau, Restoration Ecologist, on May 10, 2022. Interpretation and verification of vegetation and fuel assessments were conducted by Angela Chongpinitchai, Fire Planner/Ecologist.

The project is wholly on private ranch land with an elevation ranging from 3,370 to 3,700 feet above mean sea level. Whereas the surrounding area has diverse topography with many drainages and steeply sloping mountainous terrain, the project area is predominantly flat with limited hilly slopes and drainages. Rattlesnake Mountain is a notable topographic feature to the south of the project. Because the project area and surrounding lands were historically a privately owned ranch, the land has been used for various activities such as livestock grazing, manicured living compounds, and open land. The climate is generally semiarid, with limited precipitation throughout the year and warm temperatures. Beyond the private ranch land of the project site, there is mixed land ownership, including federal land with the U.S. Forest Service (Cleveland National Forest) and Native-American land (Campo Reservation).

Vegetation on-site is mainly grass and shrub species, with small, isolated areas of coastal live oak. Fuel loadings vary from moderate to heavy, depending on the species present, past activities conducted on-site, and recent weather patterns (Photographs D-1 through D-12 in Appendix D and Figures E-1 through E-8 in Appendix E). Approximately 42 acres of the project site are non-burnable (either developed or bare ground). Off-site vegetation surrounding the project is very similar; there are areas of dense shrub and grass loadings, and considerable non-burnable developed acreage (approximately 707 acres within a 1-mile radius).

The project is within a CAL FIRE-designated Very High FHSZ due to the type of fuels, weather and wind patterns, and topographic conditions (Figure F-1 in Appendix F). Fires with grass and shrub as the main fuel types are known for faster rates of spread and are often driven by wind and topography, particularly when they align. Fires in these flashy fuels can have greater flame lengths and fireline intensities that prevent firefighting resources from directly engaging in suppression when there is heavy fuel loading. Spotting is less of a concern compared to fires in timber. Between 2000 and 2022, there were 32 fires within a 10-mile radius of the project (Figure G-1 and Table G-1 in Appendix G).

## CHAPTER 2. GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

Section 15382 of the California Environmental Quality Act (CEQA) Guidelines (Association of Environmental Professionals 2023) states that a significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, and water. The *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Wildland Fire and Fire Protection* (Planning and Development Services 2023) lists three guidelines for determining significance. The following are the guidelines for the determination of significance and how the project complies.

### **The project demonstrates compliance with all applicable fire codes.**

The FPP would ensure the project meets all County and State fire and building codes and ordinances, particularly for new construction in a CAL FIRE-designated Very High FHSZ. The project design and construction plan would meet all building codes for ignition-resistant structures, fire protection systems, placement of structures, and fuel modification zones (FMZs) around structures, including PV modules and equipment. Additionally, the project would include additional measures such as extra water supply and hookups for firefighting resources, adequate emergency response resources in the vicinity, multiple fire access roads that meet fire codes, and FMZs around interior project roads to ensure there is no vertical obstruction of roads. The project would have a completed County of San Diego, Planning and Development Services (PDS) Project Facility Availability – Fire Form (PDS-399F Form) and a Fire and Emergency Services Agreement (Appendix H).

### **There is a comprehensive Fire Protection Plan, and the project is consistent with its recommendations.**

The FPP would provide fire behavior modeling for on-site and off-site fuels, including under worst-case scenario conditions. The results from the modeling would provide guidance for design and mitigation measures to lessen the threat of and hazards from ignitions and wildfires. The FPP would also use fire history of the area and fire specialist's expertise to ensure design and mitigation measures are commensurate with the anticipated and modeled fire behavior.

### **The project meets emergency response objectives identified in the Public Facilities Element of the historic County General Plan.**

The project, within the San Diego County Fire Protection District (SDCFPD) jurisdiction, has one fire station within a 5-minute drive time, two stations within a 10-minute drive time, and an additional station within a 15-minute drive time, providing adequate firefighting resources in compliance with the Safety Element of the *San Diego County General Plan: A plan for growth, conservation, and sustainability* (County of San Diego 2011) (formerly discussed in the historic *San Diego County General Plan: Public Facility Element* [County of San Diego 2009]). The project would have a completed and approved County of San Diego PDS-399F Form showing requested provisions in a Fire Services Agreement that would ensure adequate fire response time, water supply, and FMZs are part of the project.

### CHAPTER 3. ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

Most of the project (487 acres) is within a CAL FIRE-designated Very High FHSZ due to the type of fuels, weather and wind patterns, topographic conditions, and fire history. The remaining acreage (approximately 101 acres) is designated as Moderate FHSZ. Fires with grass and shrub as the main fuel types are known for faster rates of spread and are often driven by wind and topography, particularly when they align. Fires in these flashy fuels can have greater flame lengths and fireline intensities when there is a heavy fuel loading, possibly preventing firefighting resources from directly engaging in suppression. Spotting is less of a concern compared to fires in timber. Fire has always been a part of the landscape in the area, as these are fire-prone ecosystems composed primarily of chaparral and grass. From 2000 to 2022, there were 32 fires in a 10-mile radius from the project; the majority were small (<100 acres) (see Appendix G).

Fuels within the project area were classified using 40 fuel models (Scott and Burgan 2005). In order from highest percentage, the project is mainly composed of the following fuel models: GS2 (moderate to high shrub fuel load, moderate grass load), SH2 (moderate shrub fuel load, low grass load), SH5 (heavy shrub fuel load), NB1 and NB9 (non-burnable developed and bare ground), and GR2 (moderate continuous grass fuel load), and GR1 (short patchy grass). Fuels were analyzed for a 1-mile radius outside the project. In order from highest percentage, the surrounding area is mainly composed of the following fuel models: GS2, SH5, NB1 and NB9, SH2, GS1 (low shrubs), GR2, and GR1 (see Appendix E: Figure E-1).

Fire behavior metrics were run with parameters set at the 97th percentile to represent extreme conditions or the worst-case scenario, and again at the 80th percentile to represent more moderate conditions; analysis was conducted for the project area and the 1-mile radius buffer. Fire behavior (flame length, rate of spread, fireline intensity) at the 97th percentile is more extreme in the project area, generally requiring indirect attack methods and use of heavy equipment by firefighting resources. Fire behavior at the 80<sup>th</sup> percentile is more moderate and generally conducive to direct attack by firefighting resources within the project area.

Overall, fire behavior was more moderate within the project as compared to the surrounding area for both the 97th and 80th percentile, with the 97th percentile having a more pronounced difference between the project and surrounding area. In general, flame lengths, rate of spread, and fireline intensity were lower in the project than in the surrounding area. Road systems help create fuel breaks across the landscape; this aids in slowing fire progression and helps firefighting resources with suppression activities in the project and surrounding area (see Appendix E: Figures E-2 through E-7).

Project mitigation measures include an FMZ around the solar arrays and new facilities, interior roads, and the project perimeter to reduce fuels in critical areas and create defensible space from off-site fuels. The FMZ around the project perimeter would be another fuel break to aid firefighting resources and prevent fire spread. Water tanks with connections for emergency apparatus would be on-site for emergency response resources in the event of a wildfire. All new structures would be built to the requirements in the 2023 *Consolidated Fire Code* (County of San Diego 2023a), and battery storage cabinets would include a built-in heat detection and fire protection system and a fire extinguishing system in accordance with NFPA 855 Standard for the Installation of Stationary Energy Storage Systems.

## CHAPTER 4. ANALYSIS OF PROJECT EFFECTS

### **4.1 Adequate Emergency Services**

The project is in different land use designations according to the Land Use Map appendix of the San Diego County General Plan (County of San Diego 2011). The gen-tie and substation are in semi-rural residential land (SR-10) for some of the northern portion of the project; the remaining project footprint is in rural lands (RL-80). According to Table S-3 of the Safety Element of the San Diego County General Plan, the project is classified as outlying (SR-10) with a travel time of 20 minutes, and as desert/wilderness (RL-80) with a travel time greater than 20 minutes.

Multiple fire stations—CAL FIRE, SDCFPD, and the Bureau of Indian Affairs Campo Reservation—are within the 20-minute travel time standard for SR-10 and thus also meet the requirement for RL-80. SDCFPD Boulevard Station 47 is 1 mile from the project and within a 5-minute drive time. Coverage of the entire project area from Station 47 includes 83 acres under 5-minute response, 287 acres under 10 minutes, 145 acres under 20 minutes, and the remaining 54 acres outside the 20-minute response timeframe.

The CAL FIRE White Star Station and the Campo Reservation Fire Protection District Station are both within 10-minute drive times, at 1.6 and 4.3 miles, respectively, and CAL FIRE Jacumba Station 43 is 5 miles from the project with a drive time of 15 minutes. These stations adequately provide services to the gen-tie line and substation within the 20-minute drive time. Two additional fire stations—CAL FIRE Campo Station 40 and SDCFPD Lake Morena Station 42—are just outside the 15-minute drive time. These stations adequately serve the southern portion of the project with a desert/wilderness designation and a travel time greater than 20 minutes. These stations are staffed for incident response with adequate apparatus and firefighting equipment. Additional SDCFPD, CAL FIRE, and U.S. Forest Service fire stations are in the vicinity beyond the 20-minute drive time and could provide emergency services in case additional firefighting resources are needed, as well as aerial support if needed (Appendix I).

Drive times were calculated using the ArcGIS Pro Generate Service Areas tool in the Network Analysis toolbox (Esri 2022). This tool determines a network service area around a facility (the project) to measure accessibility. Travel times were set at 5-minute intervals since no fire station was under the 5-minute drive time.

Using the National Fire Protection Association (NFPA) 1142 Table C.11 (b) (NFPA 2023), specific drive times for the closest fire stations would be under a 2.5-minute drive time for Boulevard Station 47, approximately a 3.5-minute drive time for White Star Station, and less than an 8-minute drive time for Campo Reservation Station. NFPA 1142 Table C.11 (b) has built-in parameters, such as a maximum 35-mile per hour (mph) drive speed. All drive times do not include total response time, as explained in the Safety Element of the San Diego County General Plan.

The Fire Services Agreement will ensure adequate preparedness and emergency services during the life of the project.

## **4.2 Fire Access**

The project area is accessible via Jewel Valley Road and with fire access only via Tule Jim Lane (see Appendix C: Figure C-1). Jewel Valley Road is paved in certain segments and is otherwise a flat, well-maintained dirt road. Tule Jim Lane is also a non-mountainous, well-maintained dirt road. Both roads have widths in all areas that can accommodate two-way traffic of emergency vehicles and connect to Old Highway 80 in the town of Boulevard. Each site entrance would feature a manual swing gate and a sign with a lighted directory map and contact information. All entrance gates would feature a 'Knox Box' to allow ease of access for emergency service providers. All access to the site and identification of site structures have been designed per the County Fire Code.

The project would include dual-purpose internal fire response access and service access roads. The perimeter internal access within the fenced solar facility would be constructed to a minimum improved width of 24 feet. The interior on-site vehicle access roads would be constructed to a minimum improved width of 20 feet. All internal access would be designed to provide a minimum inner turning radius of 28 feet, would be graded and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds), and would be designed and maintained to ensure safe driving in all conditions. The internal access would allow for two-way access of fire apparatus throughout the solar facility in order to access all the inverter/transformer pads. There would be a minimum unobstructed vertical clearance of 13 feet, 6 inches per the County Fire Code.

All internal access road surfaces would be all-weather and meet Class II road specifications, would be composed of decomposed granite (DG) or Class II base, and would be permeable to reduce fugitive dust and erosion in accordance with County Code Section 87.428 Dust Control Measures and San Diego Air Pollution Control District Rule 55, which regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions. All internal access roads will be compacted and maintained in good condition.

An extensive network of roads, both well-maintained dirt roads and major paved roads, surround the project area, can support the weight loads of fire apparatus, and allow access from all directions. Main arteries from the nearest communities and fire stations provide direct emergency response services. The network of roads would allow necessary ingress and egress of all emergency response vehicles without interrupting traffic patterns in the event of an evacuation. The project construction, design, and fire prevention measures are compliant with the applicable codes and significance standards listed in Chapter 2.

## **4.3 Water**

The project would have six 10,000-gallon water tanks with a flow of at least 250 gallons per minute (gpm) and fire department connections would be available. Water would be stored in aboveground tanks, complying with the San Diego California Fire Agency requirements and with NFPA 22, Standard for Water Tanks for Private Fire Protection. A procedure for ongoing inspection, maintenance, and filling of tanks would be implemented. The tank and fire engine connections would be located on the side of the access driveways. The width of the driveway at the water tank location would be at least 18 feet (travel width), plus an additional 10 feet. Fifty



feet of the road would have this 28-foot width to allow fire engines to park and connect to the tank while leaving the road open. The tanks would be labeled “Fire Water: 10,000 gallons” using reflective paint. Water tanks are proposed as there are no hydrants on Boulevard. Due to the rural setting of the project, the water district would not be able to provide service (including proper fire flow) if the water line were extended and a hydrant installed.

#### **4.4 Ignition-Resistant Construction and Fire Protection Systems**

Design and construction of new structures within the project would meet all standards for the requirements listed in the *2023 County Consolidated Fire Code*, as provided in Chapter 7A of the California Building Code (International Code Council, Inc. 2022). Part of the project is within a CAL FIRE-designated Very High FHSZ and structures would meet California Building Code requirements as adopted and modified by the County (County of San Diego 2023b).

##### **4.4.1 Battery Energy Storage System (BESS)**

The proposed project includes a BESS that would store up to 217.4 MW of electricity for dispatch into the local SDG&E grid. The battery storage system would consist of individual batteries in cabinets, which are 6 feet wide, 5.5 feet deep, and 8 feet tall. The batteries would be double-loaded along a 70-foot-long concrete skid. In addition, a battery conversion system will be constructed within the BESS, which would be 8 feet wide, 20 feet deep, and 9.5 feet tall. The conversion system would be constructed on a concrete skid measuring 12 × 20 feet. Each storage cabinet will be completely outdoor accessible (with no internal access).

The battery storage cabinets would be constructed on concrete pads, with cabinets bolted to the pads. Each battery storage cabinet would be insulated, air conditioned, and include fire suppression, with separate enclosures for the electronic controls, inverters, and rectifiers. There would be a built-in heat detection and fire protection system and an aerosol fire extinguishing system. The heat and fire detection system would be linked to an automatic inert gas suppression system within each cabinet. The NFPA has developed a new Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). This standard addresses the design, construction, installation, commissioning, operation, maintenance, and decommissioning of stationary energy storage systems. The system would be designed in accordance with applicable NFPA safety standards.

The cabinets would be situated to enable emergency response access. The cabinets would be sited with a setback from off-site areas as a buffer against potential wildfire ignitions. The cabinets would not be walk-in containers; thus, the battery storage cabinets would be non-habitable structures per the state and local fire codes that are in place at the time a building permit application would be submitted to the County.

#### **4.5 Fire Fuel Assessment**

Most of the project (487 acres out of 588 acres) is within a CAL FIRE-designated Very High FHSZ. The remaining acreage is designated as Moderate FHSZ (see Appendix F: Figure F-1). Fuels were classified using the 40 fuel models (see Appendix E: Figure E-1) (Scott and Burgan 2005).

In order from highest percentage, the project is mainly composed of the following fuel models:

- GS2—moderate to high shrub fuel load, moderate grass load
- SH2—moderate shrub fuel load, low grass load
- SH5—heavy shrub fuel load
- NB1 and NB9—non-burnable developed and bare ground
- GR2—moderate continuous grass fuel load
- GS1—short shrubs, patchy grass fuel load
- GR1—short, patchy grass fuel load

Fuels were analyzed for a 1-mile radius outside the project. In order from highest percentage, the surrounding area is mainly composed of the following fuel models:

- GS2—moderate to high shrub fuel load, moderate grass load
- SH5—heavy shrub fuel load
- NB1 and NB9—non-burnable developed and bare ground
- SH2—moderate shrub fuel load, low grass load
- GS1—short, patchy grass fuel load
- GR2—moderate continuous grass fuel load
- GR1—short, patchy grass fuel load

On-site and off-site fuels are very similar, with some heavier shrub fuel loadings off-site with the SH5 fuel model (see Appendix E: Figure E-1). The chaparral and native grasses both on-site and off-site are part of fire-prone ecosystems that will readily burn when conditions are right.

#### **4.6 Fire Behavior Modeling**

Fire behavior modeling was conducted using the Interagency Fuels Treatment Decision Support System (IFTDSS) (U.S. Department of the Interior 2023). IFTDSS is a web-based application that models fire behavior under a variety of weather conditions and possible fuels treatments for an area of interest or a landscape. IFTDSS uses the following data parameters: 1-hour, 10-hour, and 100-hour dead fuel moistures; herbaceous and woody live fuel moistures; and wind speed and direction. Fuel size classes (1-hour, 10-hour, and 100-hour) used for dead fuel moisture are based on the fuel size diameter and how long it takes for approximately 67% of the moisture content of the woody fuel to reach equilibrium with the environment. Live fuel moistures range from approximately 50% to 300%, depending on the stage of vegetative development.

Fire behavior metrics were run with parameters set at the 97th percentile to represent extreme conditions or a worst-case scenario, and again at the 80th percentile to represent more moderate conditions. Fire weather conditions are from the closest Remote Automated Weather Station (RAWS) to the project. Analysis was conducted for the project area and the 1-mile radius buffer.

The 97th and the 80th percentile weather data parameters were as follows:

#### 97th Percentile

1-Hour Fuel Moisture 2%  
 10-Hour Fuel Moisture 3%  
 100-Hour Fuel Moisture 5%  
 Herbaceous Fuel Moisture 48%  
 Woody Fuel Moisture 88%  
 Winds 14 mph at 225 degrees

#### 80th Percentile

1-Hour Fuel Moisture 7%  
 10-Hour Fuel Moisture 9%  
 100-Hour Fuel Moisture 12%  
 Herbaceous Fuel Moisture 90%  
 Woody Fuel Moisture 120%  
 Winds 10 mph at 225 degrees

Fire behavior was measured by looking at three main metrics: flame length, rate of spread, and fireline intensity. Fire behavior was more moderate within the project as compared to the surrounding area for both the 97th and 80th percentiles, though more pronounced in the 97th percentile. In general, flame lengths, rate of spread, and fireline intensity were lower in the project area than in the surrounding area (Tables 1 and 2).

Table 1. Fire Behavior Metrics–97th Percentile

Flame Length (feet)	Project (acres)	1-Mile Radius Buffer (acres)	Rate of Spread (chains/hour)	Project (acres)	1-Mile Radius Buffer (acres)	Fireline Intensity (Btu/feet/second)	Project (acres)	1-Mile Radius Buffer (acres)
0–1	42	709	0–20	123	1,792	0–100	48	1,024
1–4	10	495	20–50	417	4,532	100–500	496	5,454
4–8	492	5,275	50–150	52	1,711	500–1,000	0	16
8–12	0	14	>150	0	16	1,000–2,500	260	573
12–25	48	1,548	–	–	–	>2,500	49	975
>25	0	1	–	–	–	–	–	–

Note: Btu = British thermal units

Table 2. Fire Behavior Metrics–80th Percentile

Flame Length (feet)	Project (acres)	1-Mile Radius Buffer (acres)	Rate of Spread (chains/hour)	Project (acres)	1-Mile Radius Buffer (acres)	Fireline Intensity (Btu/feet/second)	Project (acres)	1-Mile Radius Buffer (acres)
0–1	54	1,178	0–20	543	6,500	0–100	544	6,489
1–4	490	5,312	20–50	31	1,155	100–500	0	8
4–8	0	7	50–150	17	388	500–1,000	0	3
8–12	0	133	>150	0	0	1,000–2,500	0	26
12–25	48	1,411	–	–	–	>2,500	48	1,481
>25	0	0	–	–	–	–	–	–

Note: Btu = British thermal units

The more moderate fire behavior within the project area is due to the lower shrub fuel loading. The project mitigations would further reduce fuel loadings and break up horizontal arrangement of fuels, which would further moderate fire behavior. The project mitigations include an FMZ around the solar arrays, new structures, interior roads, and the project perimeter.

The FMZ would reduce fuels to a vertical height of no more than 6 inches, making shrub fuel models (SH2, SH5, GS1, GS2) behave like grass fuel models, best modeled by GR1. GR1 represents short and patchy grass with a lower fuel load. The FMZ would change fire behavior, reduce fuels in critical areas where new fire starts are likely, and create defensible space from off-site fuels to prevent large spread of a new fire regardless of the rate of spread. Even at the 97th percentile, the anticipated fire behavior with the FMZ measures would reduce the flame length and rate of spread. Modifying the fuels in strategic places helps mitigate fire behavior and allows responding resources to better engage and suppress the new wildfire start. The FMZ around the project perimeter would also serve as another fuel break to aid firefighting resources during initial attack (see Appendix E: Figure E-8). Similar to the other FMZs, vegetation within the internal open space easements would be maintained to no more than 6 inches. However, these areas would be fenced (6-foot-high chain-link perimeter fence and 1 foot of three strands of barbed wire) and would have a gated entrance, which may impact firefighting resources during response and suppression activities. Emergency responders should have access to these internal open space easement gates. Table 3 provides the fire behavior metrics in the 97th percentile using GR1 in place of the shrub fuel models to model FMZ mitigations.

Table 3. Fire Behavior Metrics–97th Percentile Using GR1

Flame Length (feet)	Project (acres)	1-Mile Radius Buffer (acres)	Rate of Spread (chains/hour)	Project (acres)	1-Mile Radius Buffer (acres)	Fireline Intensity (Btu/feet/second)	Project (acres)	1-Mile Radius Buffer (acres)
0–1	42	709	0–20	272	1,947	0–100	564	1,545
1–4	522	1,010	20–50	315	4,427	100–500	28	4,981
4–8	28	4,809	50–150	6	1,662	500–1000	0	17
8–12	0	15	>150	0	6	1000–2500	0	568
12–25	0	1,499				>2500	0	931
>25	0	1						

Note: Btu = British thermal units

Fire behavior, even at the 97th percentile, is generally conducive to direct attack by firefighting resources within the project area. Flame lengths of no more than 4 feet can be directly attacked by firefighters, provided there is a water source when fireline intensity may generate too much heat. Additionally, fuels are discontinuous across the landscape because of the presence of roads and the added FMZs; this aids in slowing fire progression and helps firefighting resources in several ways, such as providing a safe anchor point to engage and an escape route.

#### **4.7 Defensible Space and Vegetation Management**

Per County guidance, the project would have an FMZ before any combustible material is brought on-site for construction and would regularly maintain the FMZ. All FMZs would modify combustible fuels to reduce height to no more than 6 inches in height to meet the *2023 County Consolidated Fire Code* requirements. A 30-foot wide FMZ would be installed along the perimeter of the solar facility between project components, including the PV modules, and off-site wildland fuels in accordance with Section 1205.5.3 of the *2023 County Consolidated Fire Code*. The FMZ would be from the project perimeter fence inward and would be separate from the perimeter fire access road. Vegetation underneath the PV modules would also be maintained

to a height of no more than 6 inches and would be accomplished through regular maintenance, as done with the FMZs. Regular maintenance may include any potential combination of mechanical control such as mowing, manual removal, herbicide application, prescribed herbivory, or installation of weed barriers beneath the PV modules. A 100-foot wide FMZ would be installed around the two proposed BESS areas and a 30-foot wide FMZ would surround the proposed collector substation pad area. Interior access roads would be brushed for a distance of 10 feet on each side of the road to maintain clear ingress and egress with reduced fire behavior in conjunction with the FMZs. This would ensure an unobstructed vertical clearance of not less than 13 feet, 6 inches, in accordance with Section 503.2.1 of the *2023 County Consolidated Fire Code*. Per the guidance in Section 4907.9.5 of the *2023 County Consolidated Fire Code*, maintenance of FMZs will use the most appropriate method for vegetation type and location, and any chipped vegetation may remain on-site provided it is spread to a depth of no more than 6 inches. Because the project is within a CAL FIRE-designated Very High FHSZ, vegetation management would be compliant with California Building Code requirements, as adopted and amended by the County. Buildings will be sited at least 30 feet from the project perimeter for defensible space from off-site fuels, in accordance with Section 4907.4.1 of the *2023 County Consolidated Fire Code*.

Similar to the other FMZs, vegetation within the internal open space easements would be maintained to no more than 6 inches, reducing fire behavior. The tall fence around the open space easements may, however, pose challenges to vegetation maintenance in and around the easements, as well as impact fire resources responding to incidents within the project footprint.

#### **4.8 Cumulative Impact Analysis**

The project is expected to have minimal cumulative impact on the fire environment; there would only be increased human activity in the area during construction and afterwards at intervals needed for equipment maintenance. There would be an increased probability of ignitions during construction due to activities such as driving and parking vehicles near flammable vegetation, using heavy equipment, and installing electrical equipment. The mitigation measures outlined in Chapter 5 and the Construction Fire Prevention Plan (Appendix J) would decrease the likelihood that an ignition, both during construction and with permanent electrical equipment, would lead to a new fire start that spread beyond the project. The creation and maintenance of FMZs and other vegetation maintenance would decrease fire behavior and aid in preventing large fire growth. The project has adequate firefighting resource capacity at minimal drive times. Additionally, the project does not hinder travel routes or road systems in the event of a wildfire or other incident. Even with mitigations in place, it is beneficial to ensure the local communities are both fire-wise and fire-adapted; working with communities for increased awareness and fire education ensures ongoing wildfire mitigation measures.

Other projects in the area include infrequent residential development or are similar in nature—mostly solar and wind development projects—and have approved applicable environmental compliance documentation, such as CEQA and National Environmental Policy Act (NEPA) documents, in place. Being comparable in scope, these other projects also limitedly increase human activity and new structures in the project area. These projects are spread throughout the County, further mitigating any potential cumulative impacts in one area, and are at various stages of development.

## **CHAPTER 5. Mitigation Measures and Design Considerations**

The project would include the construction of several primary components with accompanying utility structures. Design and construction of new structures within the project would meet all standards for the requirements listed in the *2023 County Consolidated Fire Code (CFC)*, with special adherence to meet California Building Code requirements. The following are the design features and mitigation measures that will be implemented to meet or exceed all applicable state and county codes. These design features and action measures would mitigate increased human activity and potential for ignitions leading to a wildfire in the project and surrounding area. A summary of the following measures can also be found in Appendix K Mitigation Measures and Design Considerations.

### **CFC Section 503 Fire Apparatus Access Roads**

The three project entrances and both fire access site entrances would feature a manual swing gate, and a sign with a lighted directory map and contact information. All entrance gates would feature a ‘Knox Box’ to allow ease of access for emergency service providers. The perimeter internal access within the fenced solar facility would be constructed to a minimum improved width of 24 feet. The interior on-site vehicle access roads would be constructed to a minimum improved width of 20 feet. All internal access roads would be designed to provide a minimum inner turning radius of 28 feet, graded and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds), and designed and maintained to ensure the roads are passable in all weather conditions. There would be a minimum unobstructed vertical clearance of 13 feet, 6 inches. All internal access road surfaces would be Class II roads, composed of DG, and would be permeable to reduce fugitive dust and erosion in accordance with County Code Section 87.428, Dust Control Measures, and with San Diego Air Pollution Control District Rule 55. Additionally, there are adequate firefighting resources within the San Diego County Fire Protection District jurisdiction with minimal drive time to the project, in compliance with the County General Plan (County of San Diego 2011).

### **CFC Section 507 Type of Water Supply**

The project would have six 10,000-gallon water tanks with a flow of at least 250 gpm, and fire department connections would be available. Water would be stored in aboveground tanks complying with NFPA 22, Standard for Water Tanks for Private Fire Protection. A procedure for ongoing inspection, maintenance, and filling of tanks would be in place. The tank and fire engine connections would be located on the side of the access driveways. The width of the driveway at the water tank location would be at least 18 feet wide (travel width), plus an additional 10 feet; this width would be used for 50 feet of the driveway’s length to allow for fire engines to park and connect to the tank while leaving the road open. The tanks would be labeled “Fire Water: 10,000 gallons” using reflective paint. There is a lack of water infrastructure in the project area. A public hydrant is infeasible in Boulevard as the closest water connection is more than five miles away.

### **CFC Section 903.2 Automatic Sprinkler Systems Where Required**

Each battery storage cabinet would have a metal frame with insulation, air conditioning, and fire suppression, with separate enclosures for the electronic controls, inverters, and rectifiers. There

would be a built-in heat detection and fire protection system and a fire extinguishing system. The heat and fire detection system would be linked to an automatic inert gas suppression system within each cabinet. The containers would also have an interior aerosol fire suppression system. The NFPA has developed a new Standard for the Installation of Stationary Energy Storage Systems (NFPA 855). This standard addresses the design, construction, installation, commissioning, operation, maintenance, and decommissioning of stationary energy storage systems. The system would be designed in accordance with applicable NFPA safety standards. The BESS would be sited with a setback from off-site areas as a buffer against potential wildfire ignitions. The cabinets would not be walk-in containers; thus, the battery storage cabinets would be non-habitable structures per the state and local fire codes that are in place at the time a building permit application is submitted to the County.

### **CFC Section 1205.5 Ground Mounted Photovoltaic Arrays**

The project area would have FMZs before any combustible material is brought on-site for construction, and FMZs would be regularly maintained. All FMZs in and around the PV modules would modify combustible fuels to reduce height to no more than 6 inches in height to meet Section 1205.5.3 of the *2023 County Consolidated Fire Code*. A 30-foot wide FMZ would be installed along the perimeter of the solar facility between project components (including the PV modules) and off-site wildland fuels. The FMZ would be from the project perimeter fence inward and would be separate from the perimeter fire access road. A 100-foot wide FMZ would be installed around the two proposed BESS areas and a 30-foot wide FMZ would surround the proposed collector substation pad area. Similar to the other FMZs, vegetation within the internal open space easements would be maintained to no more than 6 inches. The fence around the open space easements may present a challenge to vegetation maintenance and firefighter response. Regular maintenance of FMZs may include any potential combination of mechanical control such as mowing, manual removal, herbicide application, prescribed herbivory, or installation of weed barriers beneath the PV modules. Interior access roads would be brushed for a distance of 10 feet on each side to maintain clear ingress and egress with reduced fire behavior in conjunction with the FMZs. This would ensure an unobstructed vertical clearance of not less than 13 feet, 6 inches, in accordance with Section 503.2.1 of the *2023 County Consolidated Fire Code*. Each project entrance would feature a lighted directory map identifying all equipment and structures. Additional requirements for fire apparatus roadways and water supply are provided in Sections 503 and 507 of the *2023 County Consolidated Fire Code*.

## **CHAPTER 6. CONCLUSION**

The project is situated in a fire-prone environment, and although the outlined design features and construction plans (see Appendix K) would mitigate fire hazards, they do not eliminate fire from the area. Fire history and fire modeling predict moderate to high fire behavior in the project and surrounding area, which would be reduced with vegetation management through the FMZs.

This FPP addresses the three items discussed in Chapter 2 that determine significant impacts, and the design and mitigation measures effectively reduce the significance level to “less than significant.” All measures would be taken at the appropriate stage of the project, and mitigation measures would be maintained to reduce the probability of new ignitions and fire spread from the project.



## **CHAPTER 7. LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED**

Angela Chongpinitchai – Project Principal Fire Planner/Ecologist, SWCA Environmental Consultants

Elizabeth Hitzfelder – Project GIS Specialist and Fire Modeler, SWCA Environmental Consultants

Jonathan Bontrager – Project Fire Planner, SWCA Environmental Consultants

Victoria Amato – Project Principal Fire Ecologist, SWCA Environmental Consultants

## CHAPTER 8. REFERENCES

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## TECHNICAL APPENDICES

### Appendix A Project Location

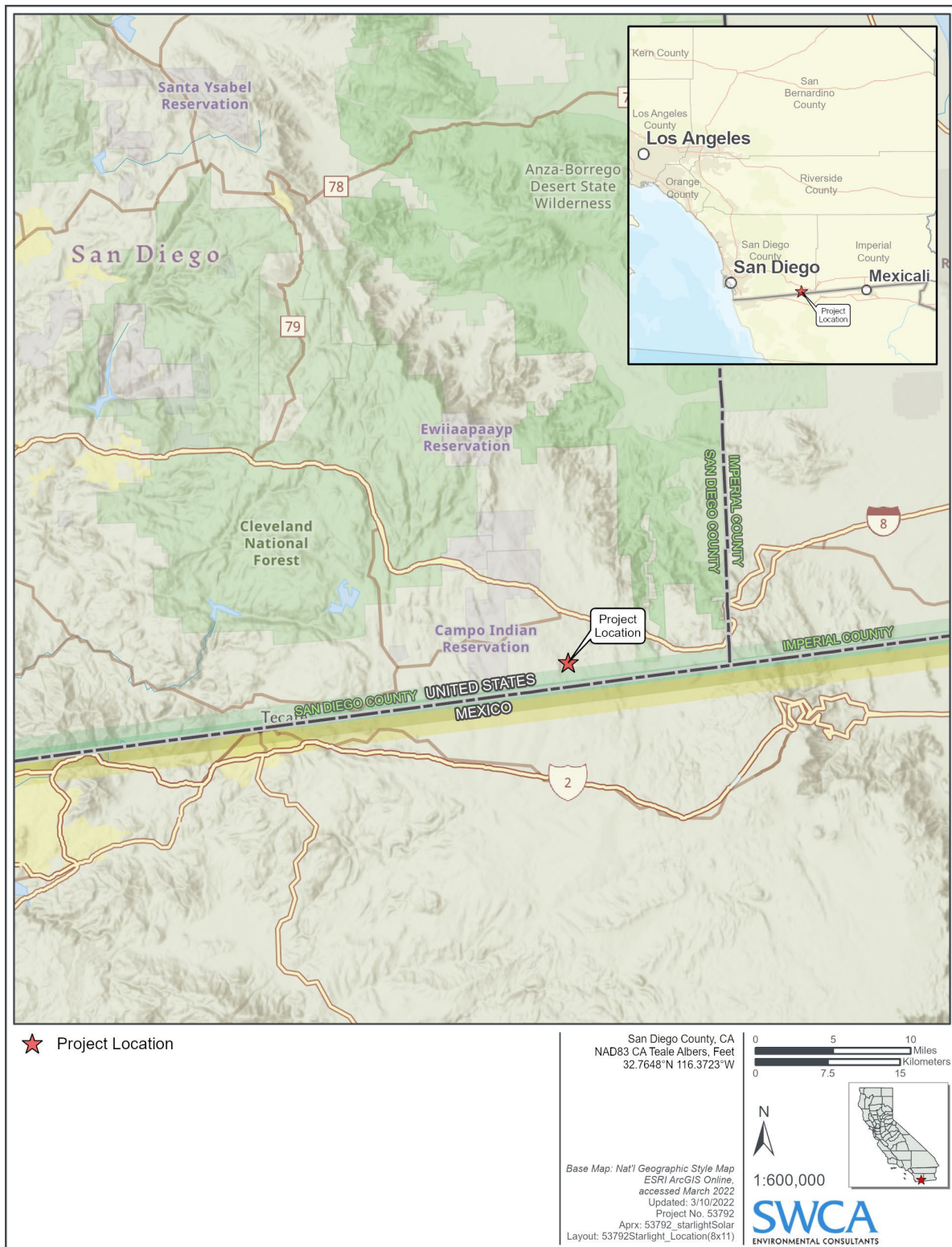


Figure A-1. Starlight Solar location in San Diego County.

# Appendix B Project Planning Area

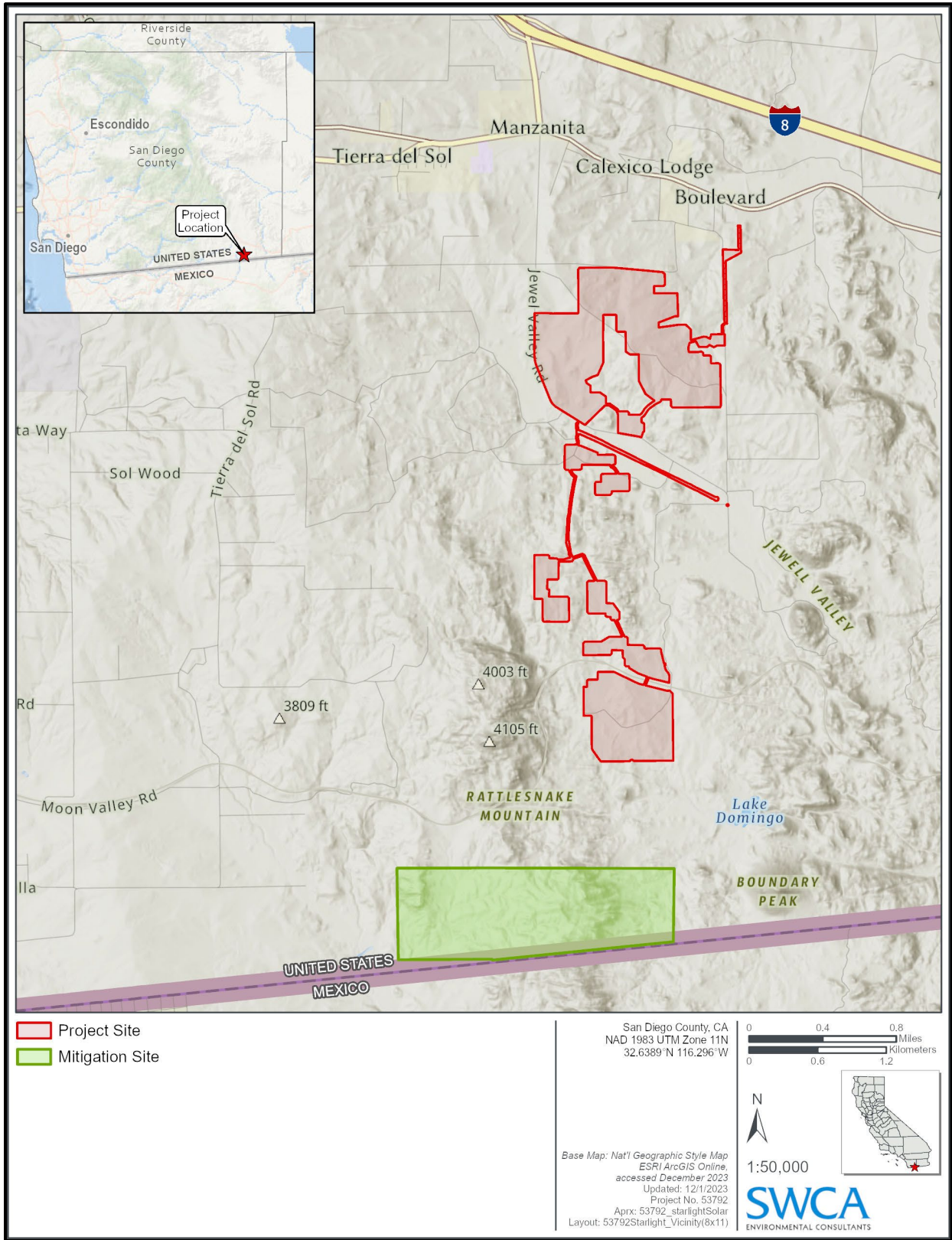


Figure B-1. Planning area.



## Appendix C Project Local Area

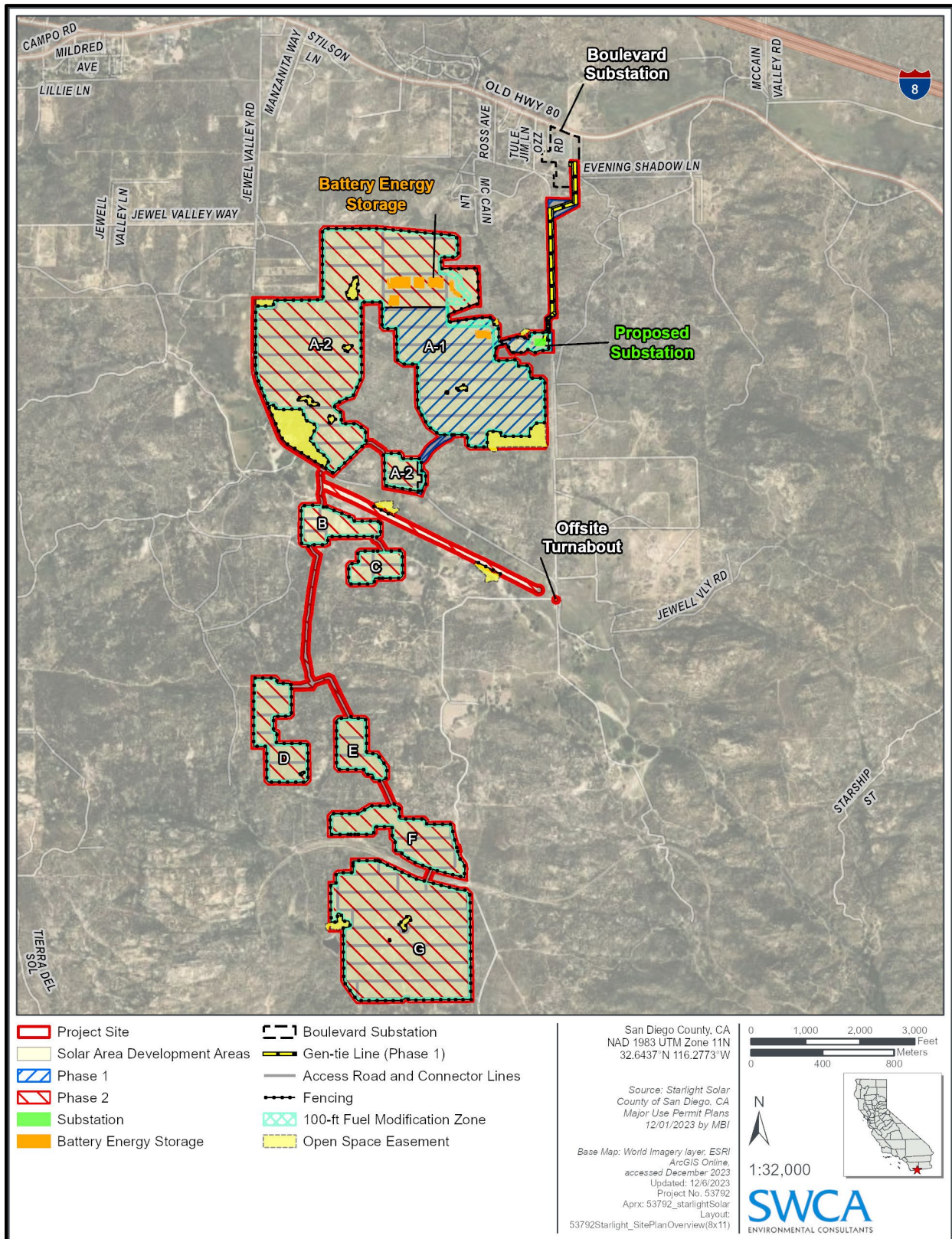


Figure C-1. Project site plan.

## Appendix D Site Photographs



**Photograph D-1. Overview of the project site, facing north.**



**Photograph D-2. Overview of the project site, facing north.**





**Photograph D-3. Southwest section of the project site; view facing north.**



**Photograph D-4. Overview of the project site, facing north.**



**Photograph D-5. Overview of the project site, facing east.**



**Photograph D-6. Overview of the project site, facing east.**





**Photograph D-7. Southern section of the project site; view facing east.**



**Photograph D-8. Southern section of the project site; view facing east.**



**Photograph D-9. Overview of the project site, facing east.**



**Photograph D-10. Overview of the project site, facing northwest.**





**Photograph D-11. Southern section of the project site; view facing southwest.**



**Photograph D-12. Overview of the project site, facing southeast.**

## Appendix E Fuel Models, Fire Behavior, and Fuel Modification Zones

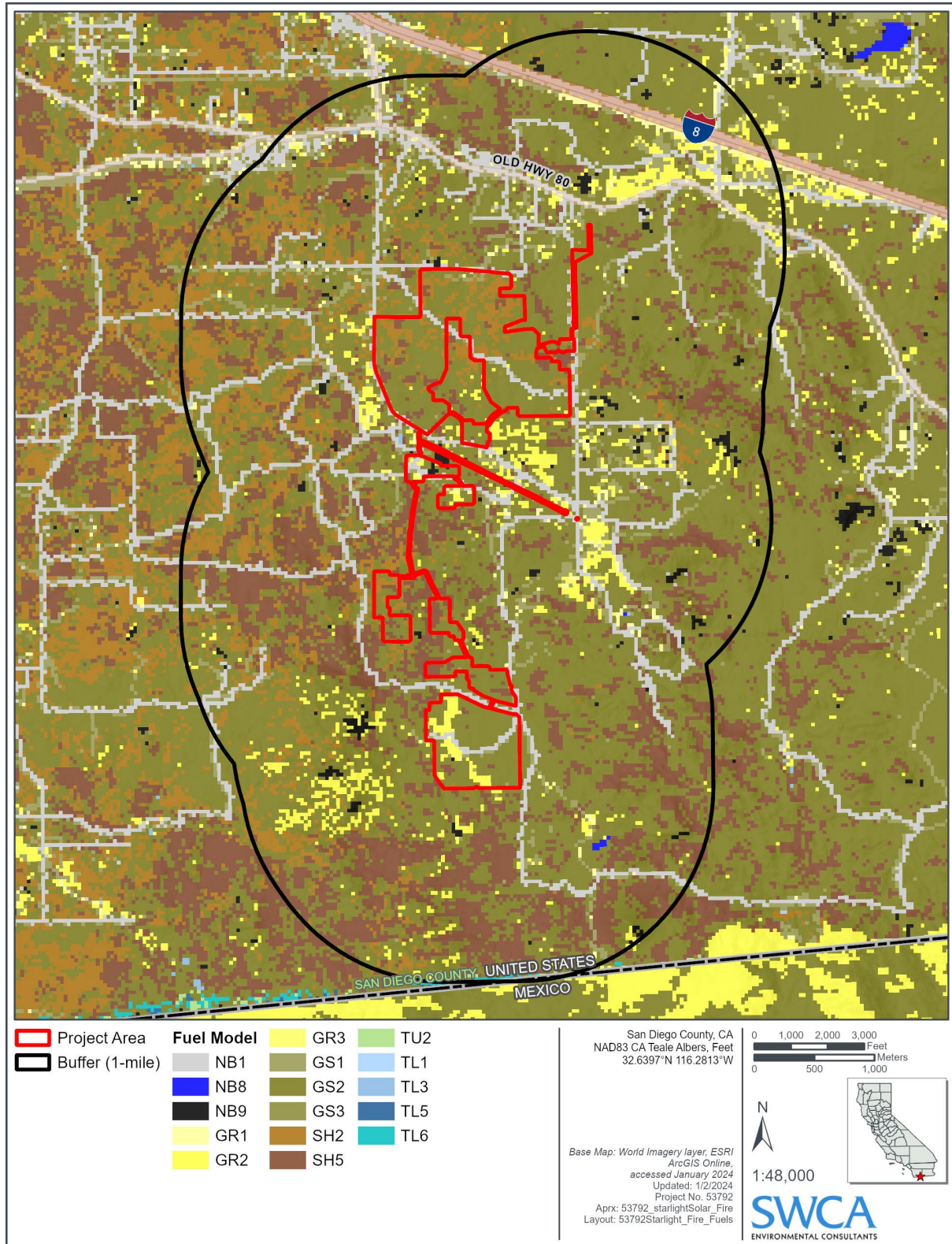
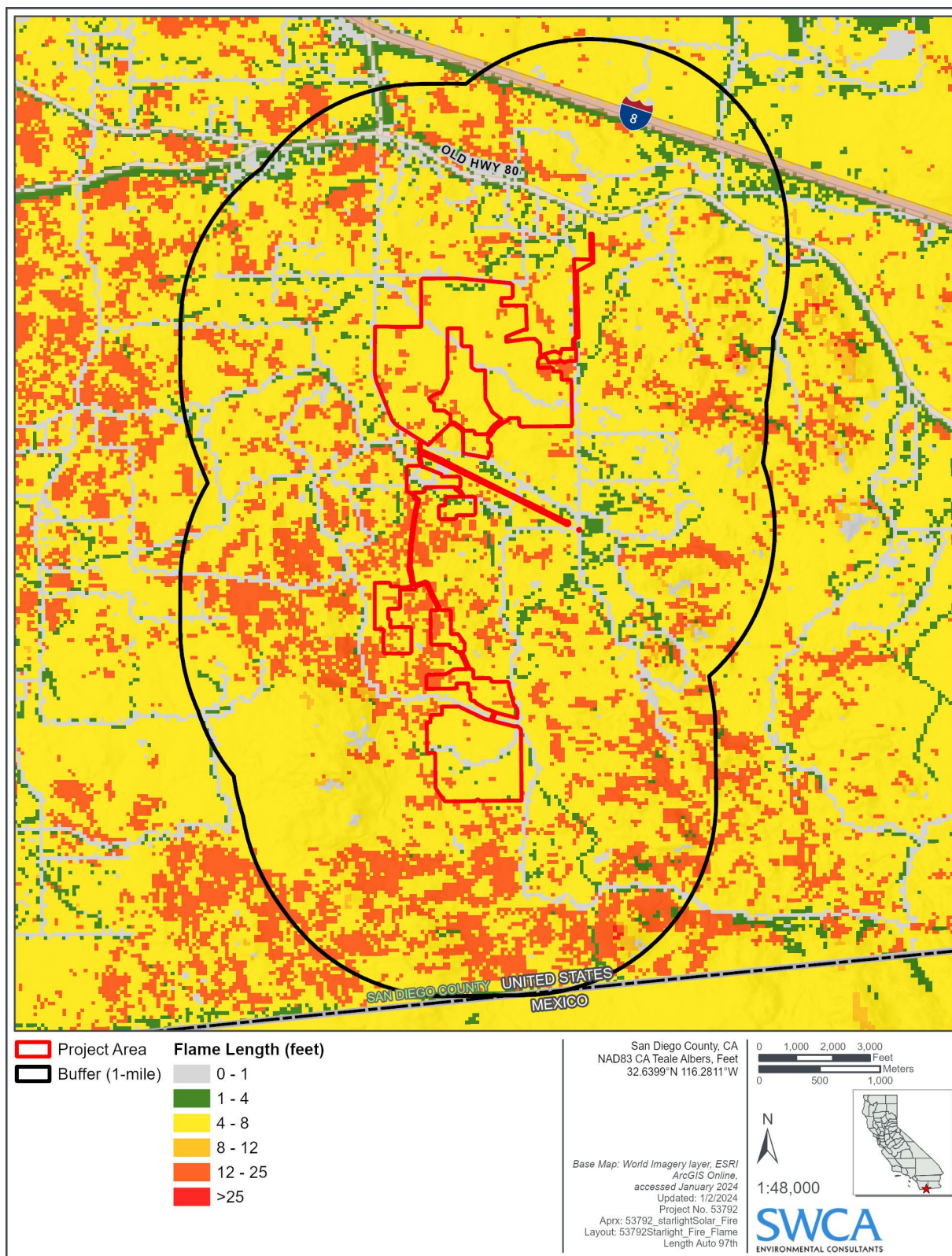


Figure E-1. Fuel models.





**Figure E-2. Flame length at 97th percentile.**



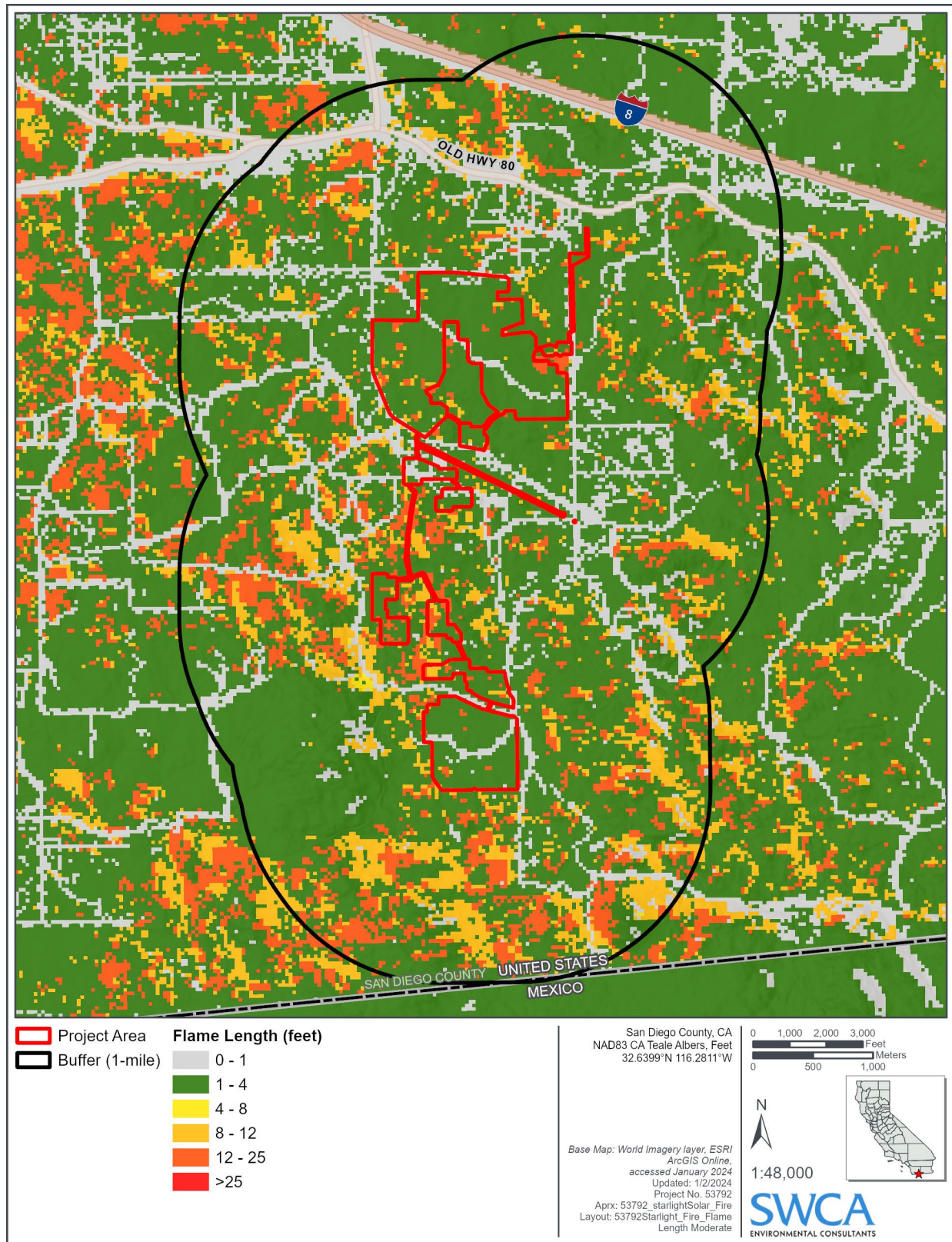
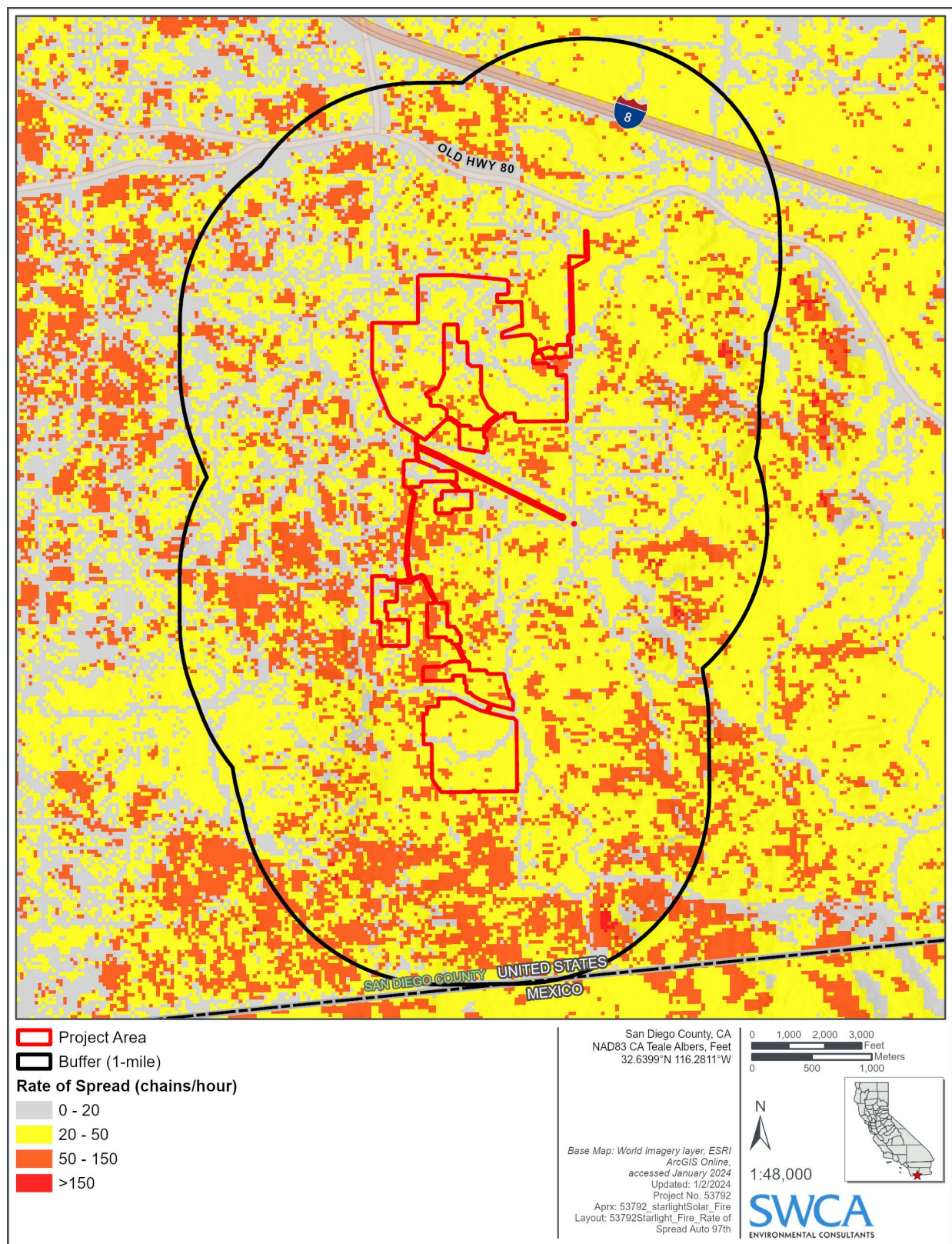


Figure E-3. Flame length at 80th percentile.





**Figure E-4. Rate of spread at 97th percentile.**



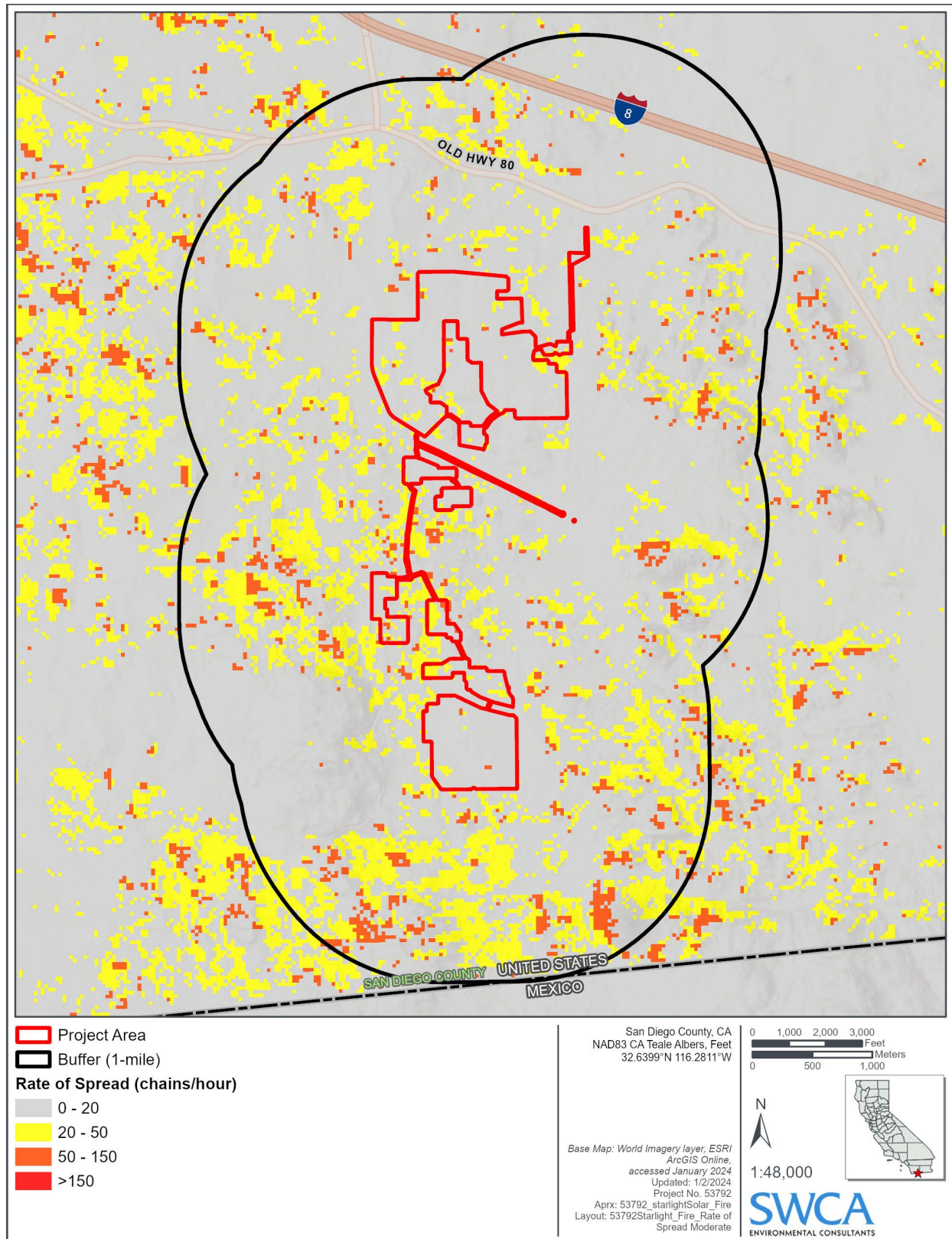
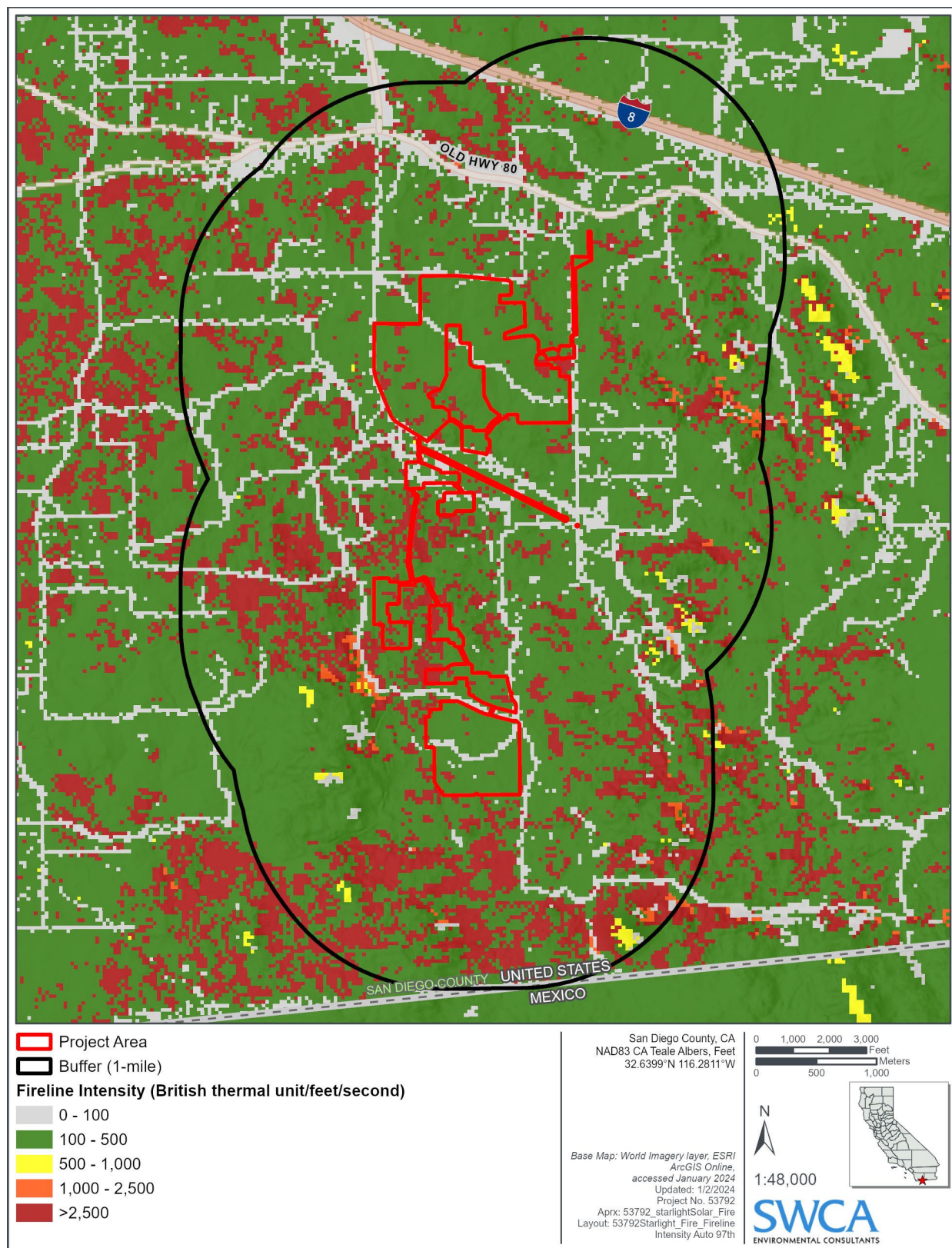


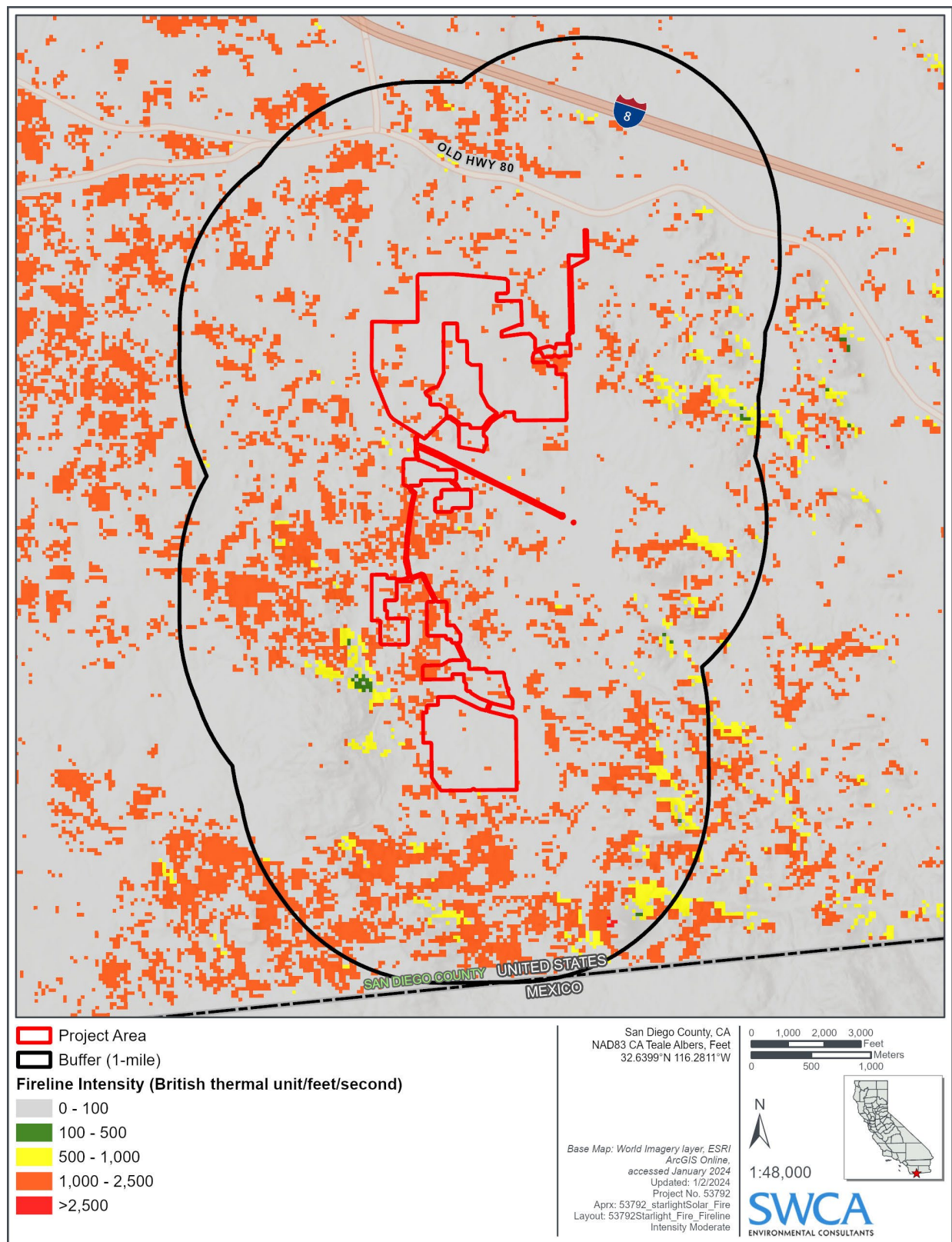
Figure E-5. Rate of spread at 80th percentile.





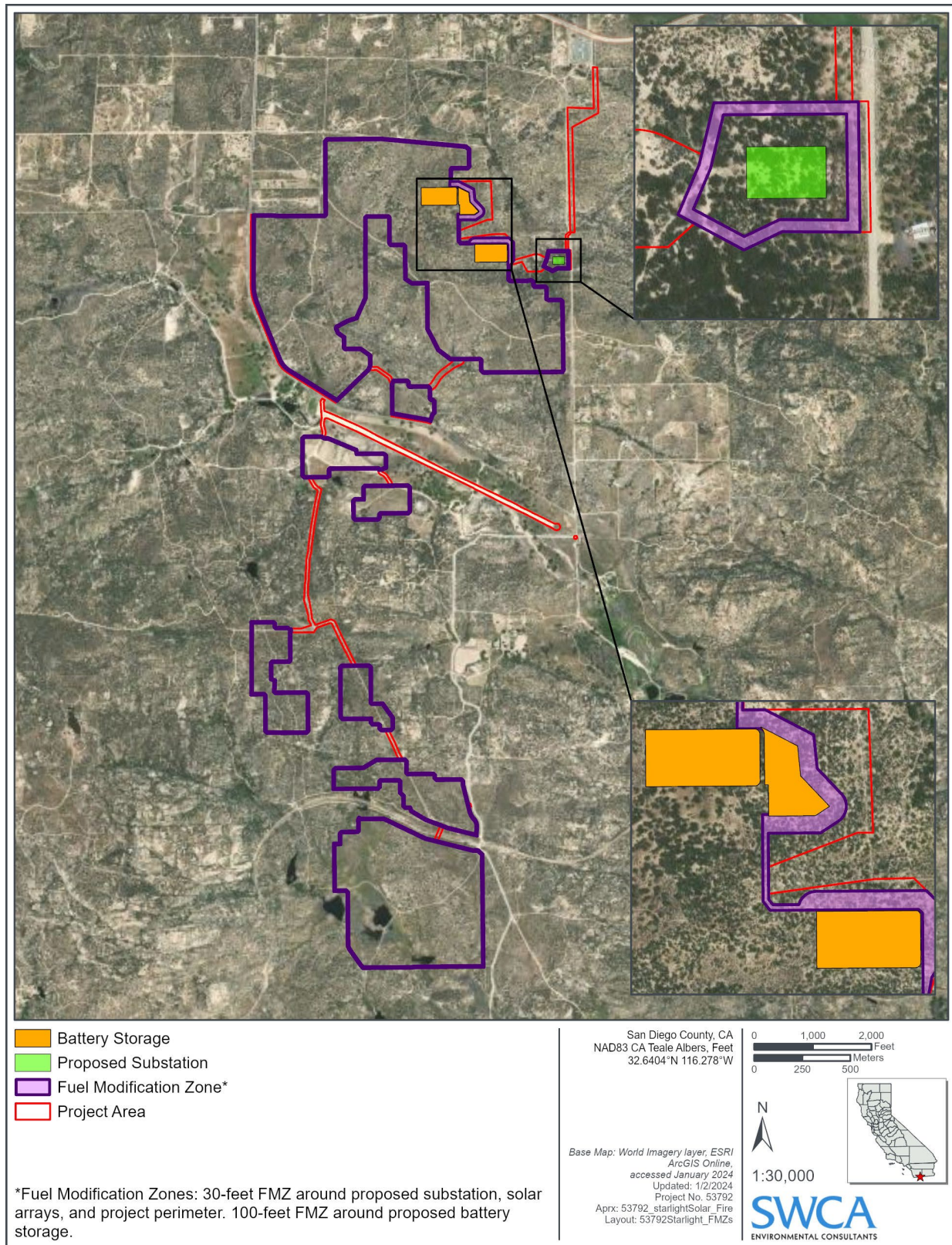
**Figure E-6. Fireline intensity at 97th percentile.**





**Figure E-7. Fireline intensity at 80th percentile.**





**Figure E-8. Fuel modification zones.**

## Appendix F Fire Hazard Severity Zones

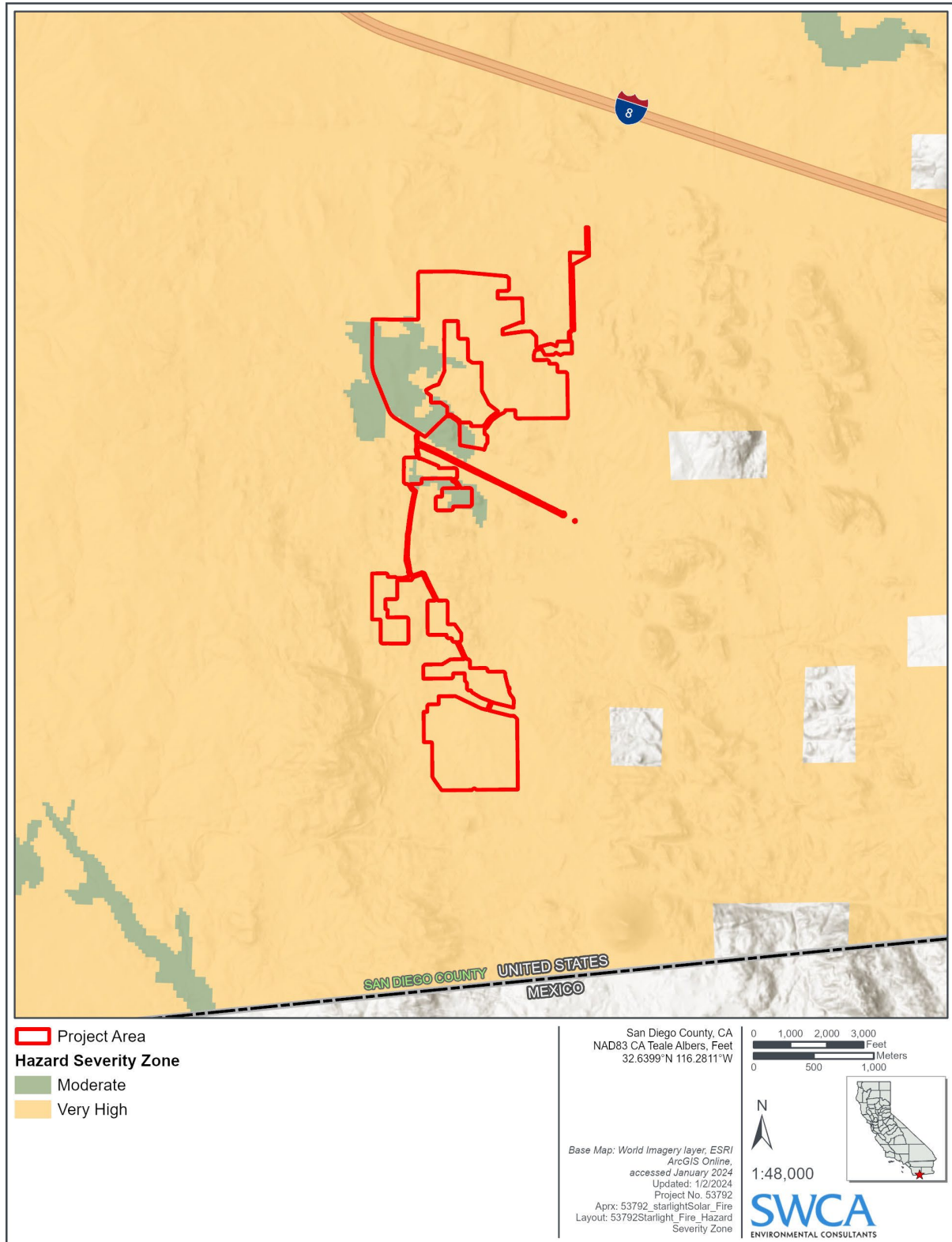


Figure F-1. CAL FIRE-designated fire hazard severity zones.



## Appendix G Fire History

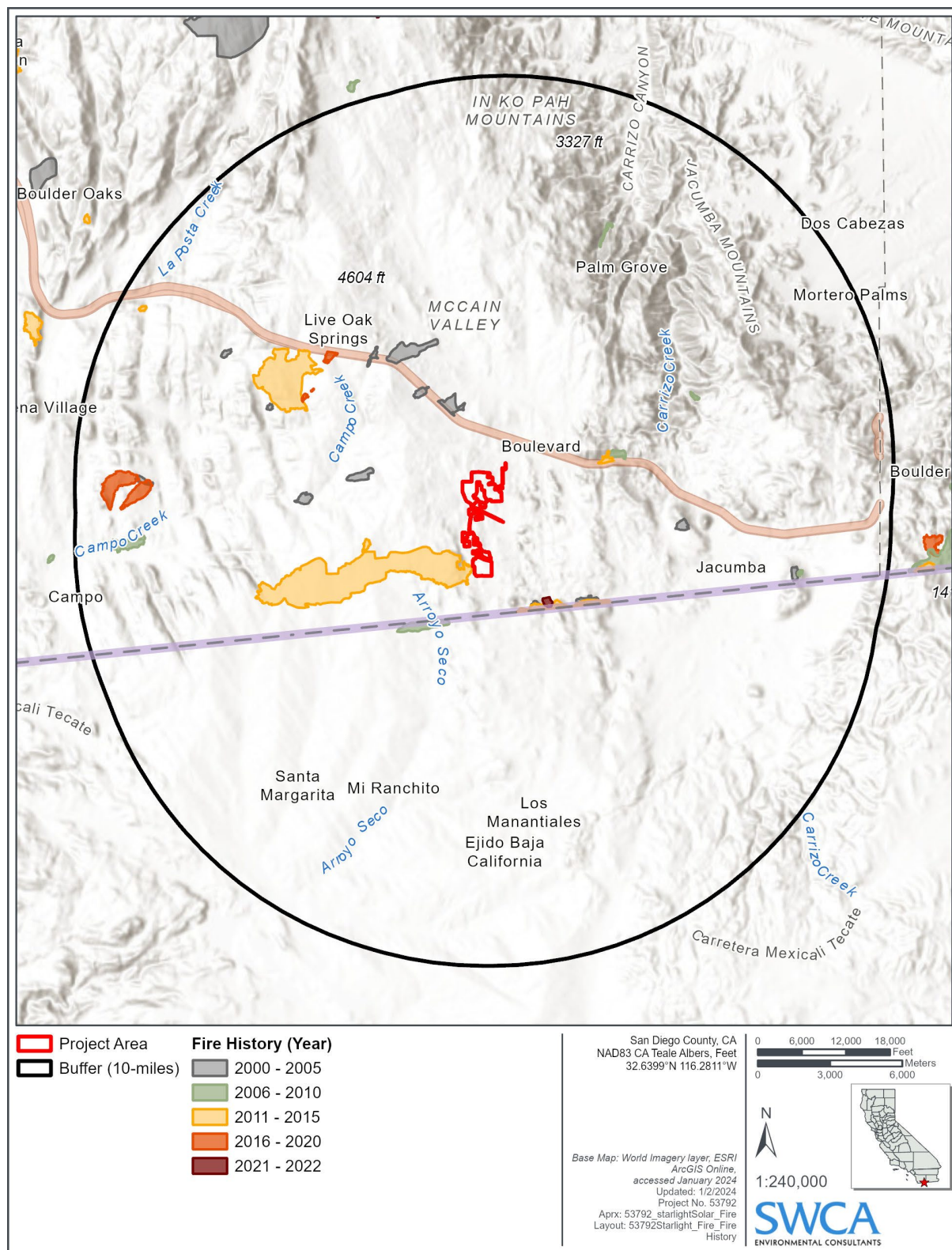


Figure G-1. Fire history within 10 miles of project.

**Table G-1. Fire History from 2000 to 2022 for the Project and 10-Mile Radius Area**

<b>Year</b>	<b>Acres</b>
2000	<1
2002	210
2003	35
2003	40
2004	30
2004	22
2004	92
2004	30
2005	38
2005	37
2005	19
2005	50
2005	11
2006	12
2008	45
2008	20
2008	138
2008	10
2010	120
2011	22
2012	25
2012	11
2012	150
2012	995
2012	2,851
2013	<1
2014	29.9
2017	143.3
2018	250
2018	10
2019	32
2022	29.1

# Appendix H PDS 399F Form



## County of San Diego, Planning & Development Services PROJECT FACILITY AVAILABILITY - FIRE ZONING DIVISION

Please type or use pen

Empire II, LLC	310-820-1200	ORG _____	<b>F</b>
Owner's Name	Phone	ACCT _____	
12302	Exposition Blvd	ACT _____	
Owner's Mailing Address	Street	TASK _____	
Los Angeles	CA 90068	DATE _____	
City	State	Zip	AMT \$ _____

DISTRICT CASHIER'S USE ONLY

---

**SECTION 1. PROJECT DESCRIPTION** **TO BE COMPLETED BY APPLICANT**

A. ☐ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment  
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance: \_\_\_\_\_  
☐ Boundary Adjustment  
☒ Rezone (Reclassification) from \_\_\_\_\_ to \_\_\_\_\_ zone.  
☐ Major Use Permit (MUP), purpose: Solar renewable energy project  
☐ Time Extension...Case No. \_\_\_\_\_  
☐ Expired Map...Case No. \_\_\_\_\_  
☐ Other \_\_\_\_\_

B. ☐ Residential . . . . . Total number of dwelling units \_\_\_\_\_  
☐ Commercial . . . . . Gross floor area \_\_\_\_\_  
☐ Industrial . . . . . Gross floor area \_\_\_\_\_  
☐ Other . . . . . Gross floor area \_\_\_\_\_

C. Total Project acreage 570 Total lots \_\_\_\_\_ Smallest proposed lot \_\_\_\_\_

Assessor's Parcel Number(s)  
(Add extra if necessary)


Thomas Guide. Page 1300 Grid 1302  
 South of Interstate 8 (I-8) and Old Hwy 80, and east of Thomas Old Rd Road  
 Project address \_\_\_\_\_ Street \_\_\_\_\_  
 Mountain Empire/Boulevard \_\_\_\_\_ 91905  
 Community Planning Area/Subregion \_\_\_\_\_ Zip \_\_\_\_\_

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [Signature] Date: 6/17/22  
 Address: 2851 CAMINO DEL RIO SOUTH 91905 Phone: 619-683-5544  
 (On completion of above, present to the district for fire protection to complete Section 2 and 3 below.)

---

**SECTION 2. FACILITY AVAILABILITY** **TO BE COMPLETED BY DISTRICT**

District Name: SAN DIEGO COUNTY FIRE PROTECTION DISTRICT

Indicate the location and distance of the primary fire station that will serve the proposed project:  
Station 47, 40040 Ribbonwood Road, Boulevard, CA 91905

A. ☒ Project is in the District and eligible for service.  
☐ Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.  
☐ Project is not in the District and not within its Sphere of Influence boundary.  
☐ Project is not located entirely within the District and a potential boundary issue exists with the \_\_\_\_\_ District.

B. ☒ Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is 7.5 minutes. A Fire Services Agreement is required.

C. ☐ Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.  
☐ District conditions are attached. Number of sheets attached: \_\_\_\_\_  
☒ District will submit conditions at a later date.

---

**SECTION 3. FUELBREAK REQUIREMENTS**

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by Planning & Development Services.

☒ Within the proposed project 100 feet of clearing will be required around all structures.  
☐ The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

[Signature] DAVID SIBBET, DEPUTY FIRE MARSHAL 619-672-7112 6/22/22  
 Authorized Signature Print Name and Title Phone Date  
 On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:  
 Planning & Development Services - Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399F (Rev. 2/26/2021)





FS  
X 47 40060 Ribbonwood Road  
Boulevard, CA 91905

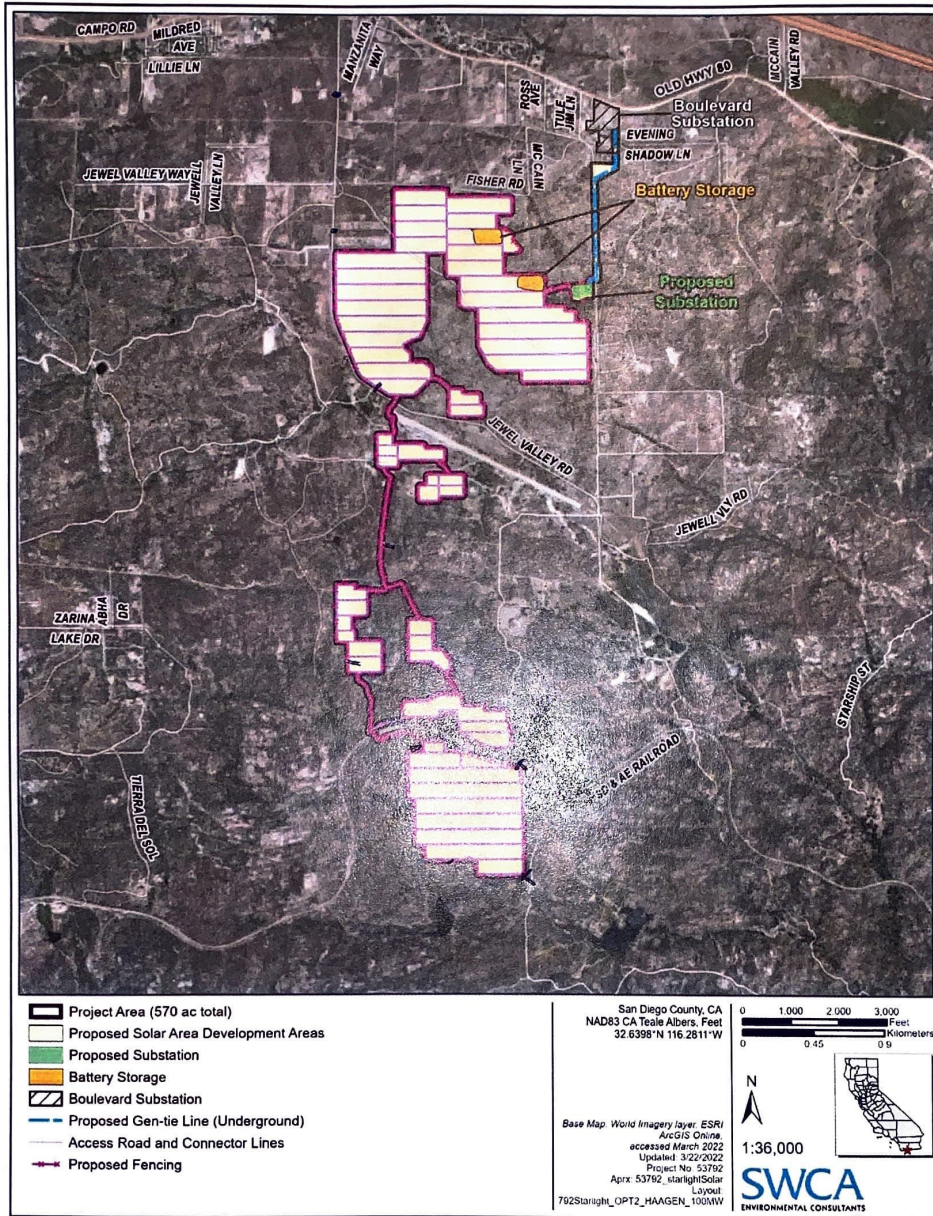


Figure 3. Starlight Solar Site Plan.



# Appendix I Emergency Services Response

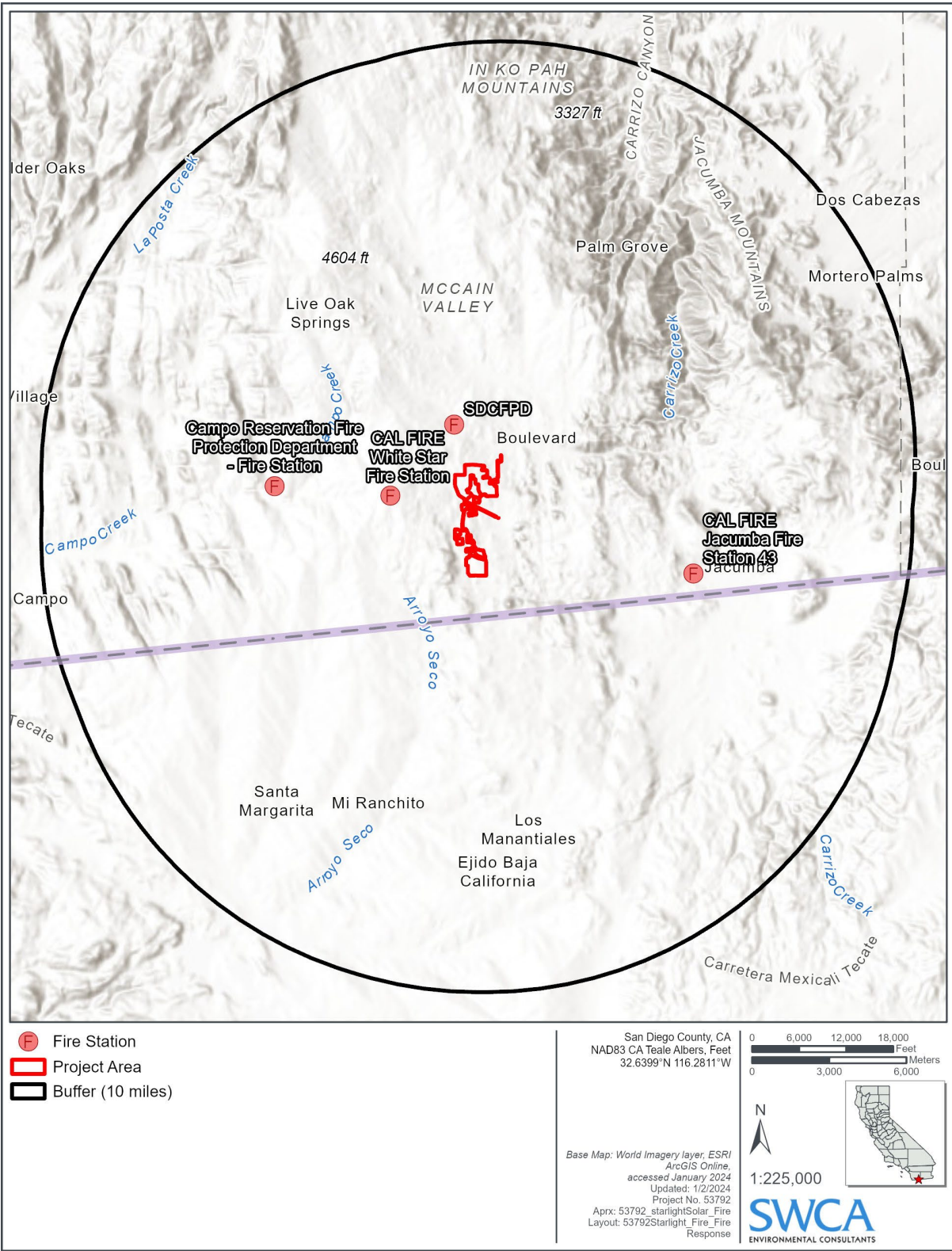


Figure I-1. Fire stations in the project vicinity.

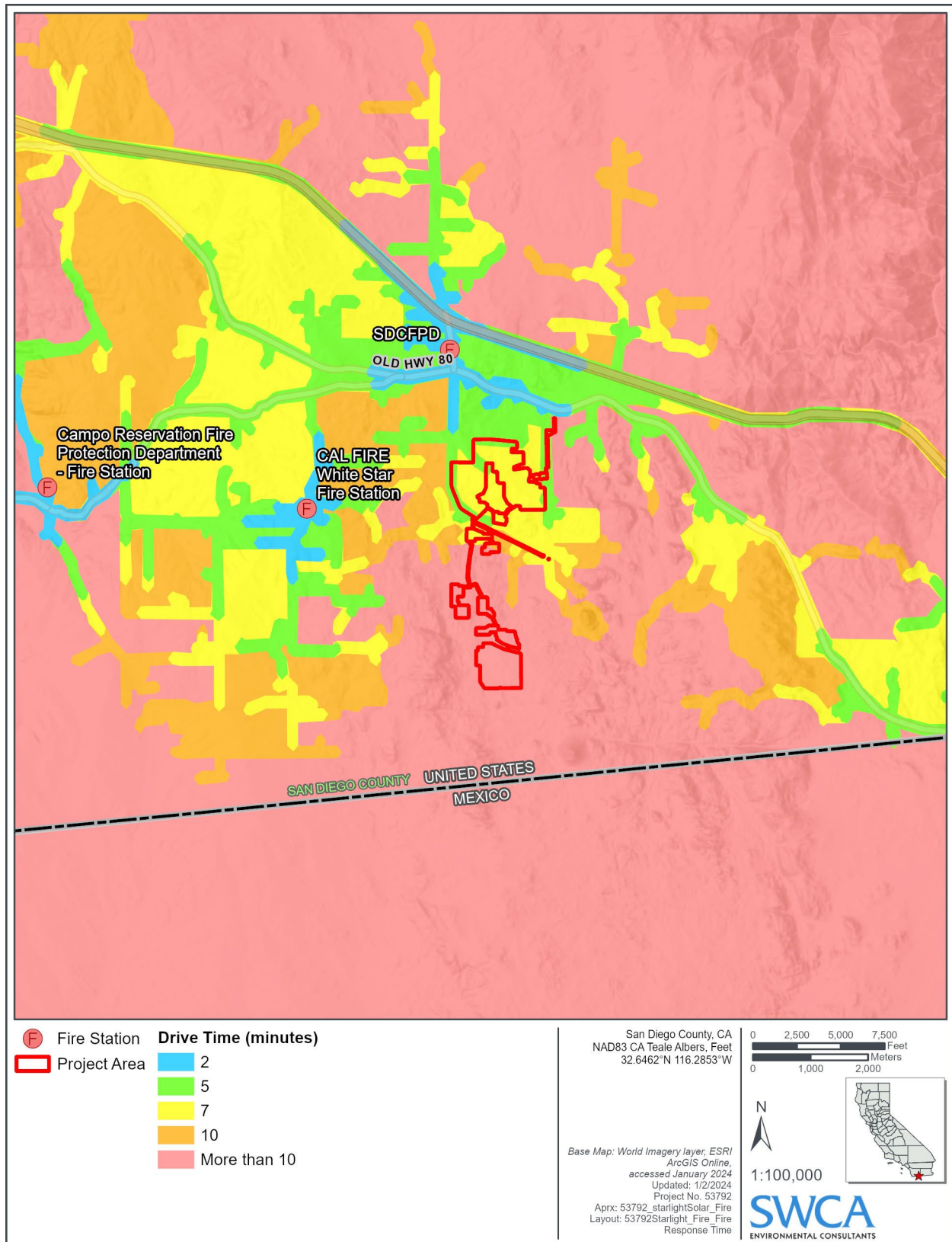


Figure I-2. Fire stations within a 10-minute drive time to the project area.

## Appendix J Construction Fire Prevention Plan

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## Glossary

**Hand Tools:** Essential manual firefighting tools (such as a point shovel, Pulaski, McLeod, combi, etc.), and 5-gallon backpack water pump.

**Hot work:** Any construction activity that involves welding, cutting, brazing, or similar flame- or spark-producing operation.

**Incident Commander (IC):** Person responsible for managing all aspects of incident response, including wildfire response. This response can range from assessing the situation to developing a plan of action, to reaching a successful outcome.

**Red Flag Warnings:** Issued by the National Weather Service as an alert that dry and/or windy conditions may lead to large fire growth.

**Site Safety Officer (SSO):** The SSO is responsible for adherence to all laws, codes, and regulations as they pertain to hazards, including fire and fire prevention. The SSO is also responsible for enforcing this FPP. In a wildfire situation the SSO may act as a liaison between jobsite personnel and emergency responders.

**Water Tender:** A specialized fire apparatus designed to store and deliver water from a source and then fill a fire engine or water truck.

**Water Truck:** A specialized fire apparatus capable of traversing rough terrain and pumping water from a tank through a hose directly to a wildfire.

**Wildland Fire Potential Index:** Predictive index produced by the U.S. Geological Survey that describes the ratio of live to dead fuel and includes variables for wind speed, temperature, and rainfall. The index is a unitless number that ranges from 0 to 150 and relates to vegetation flammability.

## List of Acronyms

AC	alternating current
BESS	battery energy storage system
CAL FIRE	California Department of Forestry and Fire Protection
CFPP	Construction Fire Prevention Plan
CFR	Code of Federal Regulations
DC	direct current
FHSZ	Fire Hazard Severity Zone
FMZ	fuel modification zone
FPP	Fire Protection Plan
gen-tie	generation-tie
gpm	gallons per minute
IC	Incident Commander
kV	kilovolt
MW	megawatts
NFPA	National Fire Protection Association
project	Starlight Solar Project
SDG&E	San Diego Gas and Electric
SSO	Site Safety Officer

# 1 SUMMARY

The purpose of this Starlight Solar Project (project) Construction Fire Prevention Plan (CFPP) is to provide awareness to and ensure the safety of employees and contractors associated with the project. The CFPP identifies the risks that are associated with the construction activities and influenced by the project location, flammable fuels that may carry a wildfire, and available emergency services. The CFPP identifies risk reduction mitigations, including establishing standard operating procedures. Through these standard protocols and recommendations, the CFPP's goals are achieved, while planning for foreseeable situations and developments that may occur as the project progresses.

## 2 INTRODUCTION

This CFPP has been prepared for the project. As part of the assessment, the plan has considered the project location, combustible vegetation (fuel types) on- and off-site, defensible space, vegetation management, water supply, and emergency services. The CFPP identifies and prioritizes areas for hazardous fuel reduction treatments, wildfire risk associated with multiple phases and methods of construction, and mitigations that will reduce starting a wildfire. It also establishes standard operating procedures, including procedures to be followed in the event of a wildfire or a necessitated evacuation.

## 3 CONSTRUCTION FIRE PREVENTION PLAN GOALS

This CFPP will identify wildfire risks and mitigation measures and will provide procedures that all personnel can follow in an emergency. The following are the fire-related construction goals:

Prevention:

- Prevent ignitions that may lead to on-site fires during construction; this includes wildland, electrical, and chemical fires.
- Minimize the threat of any off-site ignition to the project and on-site personnel.

Control:

- Prevent any fire starting on-site from spreading beyond the project footprint.
- Call 911 to report a fire of any kind.
- Provide adequate access, water, and fire extinguishers to first responders, employees, and contractors.
- Minimize any damage and loss of equipment and time due to wildfire.

## 4 ROLES AND RESPONSIBILITIES

All personnel present on-site during the construction phase should be made aware of fire emergency and evacuation procedures. Additional specific responsibilities for certain positions are listed below.

## **4.1 Project Manager**

- Adhere to the site-specific Fire Protection Plan (FPP) that has been concurrently developed to reduce the risk of fire and comply with federal, state, and local laws.
- Ensure all employees and contractors are aware of this CFPP, and ensure it is readily available to them.

## **4.2 Site Safety Officer**

- Understand the CFPP, including its requirements for training, prevention, and evacuation procedures.
- Understand changing fire risks that may occur during construction based on the types of equipment and chemicals being used and local weather conditions.
- Communicate the daily fire risk level to on-site personnel.
- Regularly test and maintain fire suppression systems and controls once they are installed.
- Ensure minimum firefighting equipment/tools are readily available on-site and properly maintained.
- Make CFPP available to all on-site personnel.
- Conduct spot checks to ensure compliance to CFPP, recommend changes, and if necessary, stop work that is out of compliance.
- Call 911 in the event of wildfire.

## **4.3 Construction Supervisors**

- Ensure employees receive adequate training and are familiar with the CFPP.
- Alert the Site Safety Officer (SSO) to any changes in work that may impact the wildfire risk.
- Enforce the CFPP guidance/measures, as well as state and local fire prevention policies.
- Gather and account for all employees during an evacuation.
- Establish a meeting area in the event of wildfire and/or evacuation; know all planned evacuation routes.

## **4.4 Employees and Contractors**

- Complete required fire trainings before arriving on-site.
- Report to the supervisor any activities that increase the risk of fire.
- Understand and follow emergency and evacuation procedures.

# **5 EMERGENCY NOTIFICATION PROCEDURES**

Any fire event at or near the project site that has the potential to threaten the project will trigger the emergency response procedures identified in this section. Wildfire reporting is critical for



tracking where, when, how, and why fire ignitions occur and will help fire agencies and project personnel develop additional protocols for reducing fire occurrence.

## 5.1 Emergency Response

When reporting wildfires and any other emergency, first call 911 to ensure proper resources are dispatched to the project construction site. The personnel in Table 1 are the secondary contacts to be notified in the event of a wildfire.

**Table 1. On-Site Emergency 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

Multiple fire stations from the California Department of Forestry and Fire Protection (CAL FIRE), the San Diego County Fire Protection District (SDCFPD), and the Bureau of Indian Affairs Campo Reservation are within 15-minute drive times of the project (Appendix I). The stations are staffed for incident response with adequate apparatus and firefighting equipment. The following fire stations are within the 20-minute travel time standard for outlying classification and the greater than 20-minute travel time standard for desert/wilderness classification, as listed in the San Diego County General Plan (County of San Diego 2011):

- SDCFPD Boulevard Station 47 is 1 mile from the project site, with an approximate 5-minute drive time.
- CAL FIRE White Star Station is 1.6 miles from the project site, with an approximate 10-minute (or less) drive time.
- Campo Reservation Fire Protection Department Station is 4.3 miles from the project site, with an approximate 10-minute (or less) drive time.
- CAL FIRE Jacumba Station 43 is 5 miles from the project site, with an approximate 15-minute drive time.

Two additional fire stations—CAL FIRE Campo Station 40 and SDCFPD Lake Morena Station 42—just exceed 15-minute drive times but are within the 20-minute standard for rural settings in the outlying classification. Additional SDCFPD, CAL FIRE, and U.S. Forest Service fire stations are in the vicinity, with longer drive times, in the event additional firefighting resources are needed. Aerial support may be available as needed.

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with the appropriate project, County, and CAL FIRE officials. The SSO, or designee if the SSO is committed to other tasks, will meet emergency responders at the



meeting point, allowing the SSO or designee to safely lead personnel and equipment into the site. The established meeting point will, by default, be the project's primary entrance driveway unless otherwise communicated due to the current situation. When emergency responders arrive at the scene of the meeting point, an Incident Commander (IC) will be appointed and communicated with if the incident has exceeded the training, experience, or comfort level of the local Safety and Security Officer (SSO) or another designated person.

## **5.2 Evacuation Procedure**

In some emergencies it may be necessary for all personnel to evacuate the project site for safety reasons. The identified IC (who could be the SSO, site manager, or other delegated emergency responder) will make the decision to evacuate, with input from appropriate responding fire officials if time allows. A designated evacuation meeting point will be established and communicated to all employees and contractors before construction begins; employees and contractors will be required to sign a copy of the CFPP acknowledging the location of the meeting point. If the IC decides to evacuate the project site, all employees and contractors will meet at the designated evacuation meeting point. Current emergency situations may require the IC to establish a different evacuation meeting point for safety reasons; this will be communicated at the time of the incident. The construction supervisor will ensure all employees and contractors are accounted for at the evacuation meeting point.

### **5.2.1 *Evacuation Routes***

Depending on the extent and location of the wildfire or other emergency, any one of multiple evacuation routes will be elected to ensure personnel safely reach the evacuation meeting point. This decision will be made by the IC, with input from appropriate responding fire officials if time allows, and communicated to personnel on-site.

Jewel Valley Road and Tule Jim Lane are the main routes to the town of Boulevard (Appendices B and C). Jewel Valley Road is paved in certain segments and is otherwise a flat, well-maintained dirt road. Tule Jim Lane is also a non-mountainous, well-maintained dirt road. Both roads are wide enough to accommodate two-way traffic of emergency vehicles and evacuees and connect to Old Highway 80 in the town of Boulevard.

## **6 SITE AND PROJECT DESCRIPTION**

### **6.1 Location**

The project site encompasses approximately 588 acres within the Mountain Empire Subregional Plan area in unincorporated San Diego County (County) (Appendix A). The Mountain Empire Subregional Plan area contains five subregional group areas. The project site is in the Boulevard Subregional Planning Area (Appendix B). Appendix C shows the location of the project in the

local context, including roadways. The project site is south of U.S. Route 8 (U.S. 8) and Old Highway 80, and east of Tierra Del Sol Road.

## 6.2 Topography and Vegetation

The project is entirely on private ranch land with elevation ranging from 3,370 feet to 3,700 feet. The project is predominantly flat with limited hilly slopes and drainages; Rattlesnake Mountain is a notable topographic feature to the south of the project. The climate is generally semiarid, with limited precipitation throughout the year and warm temperatures. Beyond the private ranch land of the project site, there is mixed land ownership, including federal land with the U.S. Forest Service (Cleveland National Forest) and Native-American land (Campo Reservation). Vegetation on-site is mainly grass and shrub species, with small, isolated areas of coastal live oak. Fuel loadings vary from moderate to heavy, depending on the species present, past activities conducted on-site, and recent weather patterns (Appendix D and Appendix E, Figure E-1). Approximately 42 acres of the project site are non-burnable (either developed or bare ground). Off-site vegetation surrounding the project is very similar; there are areas of dense shrub, grass loadings, and considerable non-burnable developed acreage (approximately 706 acres within a 1-mile radius).

Most of the project (487 acres) is in a CAL FIRE-designated Very High Fire Hazard Severity Zone (FHSZ) due to the type of fuels, weather and wind patterns, and topographic conditions. Fires with grass and shrub as the main fuel types are known for faster rates of spread and are often driven by wind and topography, particularly when they align. Fires in these flashy fuels can have greater flame lengths and fireline intensities that prevent firefighting resources from directly engaging in suppression when there is heavy fuel loading. Spotting is less of a concern compared to fires in timber. Between 2000 and 2022, there were 32 fires within a 10-mile radius of the project (Appendix G).

## 6.3 Project Description

The project is a solar energy generation and storage facility which would produce a total rated capacity of up to 100 megawatts (MW) of alternating current (AC)-generating capacity and 217.4 MW of AC energy storage. The power produced by the proposed solar facility would interconnect into the Boulevard Substation via an underground generation-tie (gen-tie) line. The project would include the following primary components with accompanying utility structures:

- Approximately 235,516 photovoltaic (PV) modules would be mounted on support structures (typically single-axis solar trackers). The final number of modules and support structures will depend on the final design.
- Based on the current design standards, a 1,500-volt direct current (DC) underground collection system would link the modules to the inverters and eight solar array systems.
- Inverter/transformer platforms would be located throughout the solar facility to convert the DC power generated by the modules into AC power.
- A 34.5-kilovolt (kV) underground AC collection system would link the inverters to the on-site collector substation.

- An on-site collector substation and 20 × 20-foot storage building would be located on the northeastern tip of the project site within an approximately 3-acre substation.
- The gen-tie line would run from the project substation on-site to the Boulevard Substation. It will consist of two lines—a 69-kV line and a 138-kV line—that will be strung overhead to cross Tule Jim Lane and will be located underground the rest of the way.
- The 217.4-MW battery energy storage system (BESS) would consist of two battery storage areas located on approximately 5.14 acres of land.
- Biological resource mitigation land would be conserved and managed south and west of the project area.
- A Supervisory Control and Data Acquisition (SCADA) system would be used.
- 20-foot-wide internal access roads would be graded, maintained, and made of decomposed granite.
- A 24-foot-wide internal perimeter road would be graded and maintained.
- Security fencing, lighting, and signage would be installed.
- 100-foot and 30-foot fuel modification zones would be implemented.
- Six 10,000-gallon water tanks would be available for fire protection.
- 14 open space easement areas totaling 24.4 acres

The project area is accessible via Jewel Valley Road and Tule Jim Lane (Appendix C). Jewel Valley Road is paved in certain segments and is otherwise a flat, well-maintained dirt road. Tule Jim Lane is also a non-mountainous, well-maintained dirt road. Both roads are wide enough to accommodate two-way traffic for emergency vehicles and connect to Old Highway 80 in the town of Boulevard. Each site entrance (3 main entrances and 2 fire access only entrances) would feature a manual swing gate, and a sign with a lighted directory map and contact information. All entrance gates would feature a ‘Knox Box’ to allow ease of access for emergency service providers.

An underground gen-tie line would be located on the east side of Tule Jim Lane and connect into the southeastern corner of the San Diego Gas and Electric (SDG&E) Boulevard Substation. The gen-tie line would have one overhead portion in order to cross Tule Jim Road and would encompass 7 acres. Once across Tule Jim Lane, the gen-tie line would head north along the east side of Tule Jim Lane for approximately 0.6 mile before interconnecting to the southeast corner of the San Diego Gas and Electric SDG&E Boulevard Substation. The gen-tie line would avoid the residence on the east side of Tule Jim Lane and south of the Boulevard Substation. The gen-tie easement would be about 75 feet wide. The overhead structures would be steel poles and would be approximately 50 feet high.

## **7 PROJECT CONSTRUCTION SPECIFIC FIRE RISK SUMMARY**

### **7.1 Fire Risk**

The project would include construction of several primary components with accompanying utility structures. Natural and human-caused fires are of concern, as well as fires caused by construction machinery and tools, and certain electrical components.

#### **7.1.1 Construction Phase and Personnel On-Site Risk**

Employees and contractors on-site during the construction phase would be trained in fire prevention and have a thorough briefing on this CFPP. The first risk associated with the construction phase includes all the risks of the FPP along with the following:

- Implementation of a fuel modification zone (FMZ): During construction of the FMZ, sparks from chainsaws, chippers, and other machinery could cause an ignition before completion, resulting in increased difficulty in containment.
- Road construction: The road network within the project is an integral part of wildfire risk mitigation. Heavy machinery, such as graders, dump trucks, and possible blasting work, add potential for sparks and exhaust ignitions before construction is complete or during maintenance.
- Hot work: There will be numerous activities with welding, torching, or using open flame to cut metal.
- The installation of solar panels, BESS, and other electrical systems that can cause thermal runaway leading to an electrical fire.
- Additional flammable and combustible materials, such as fuel, are present on-site during construction.
- Handheld machinery: There will be increased risk of sparks from grinders, torches and saws.
- Increased human sources: Workers will potentially drive on vegetation before roads are built, increasing opportunity for sparks from exhaust and chains. Workers will potentially use cigarettes and other combustible items.

#### **7.1.2 Fire Prevention Measures During Construction**

Complete the following steps to prevent fires during construction:

- Prior to and during construction, establish parking/staging areas that are free of vegetation.
- Store combustible and flammable materials in areas that are free of vegetation.
- Keep ingress/egress routes clear.

- Perform hot work in areas that are cleared of all vegetation of at least 30 feet and ensure fire extinguisher and other required firefighting equipment and tools are on-site.
- Properly clean and repair any leaking flammable or combustible material.
- Unplug electrical equipment when not in use.

## 7.2 Project Construction Risk Rating

The construction of the project is estimated to present a higher risk of wildfire than the daily operation of the project. The additional construction risks consist of hot work, increased numbers of personnel and vehicles on-site, the use of heavy machinery and power tools, work that produces sparks, and the installation of solar panel, BESS, and other electrical systems. The existing vegetation in the area is inherently flammable and modeling shows high flame lengths and fast rates of spread are present in extreme weather conditions (Appendix E). Due to these factors, there is a moderate to high risk of wildfire caused by construction before mitigation measures are implemented.

## 7.3 Risk Reduction Measures

The following risk reduction measures should be implemented during phases of construction. Some are already in place (existing internal and external roads that make a fuel break system and facilitate emergency response), whereas others will be implemented as construction allows (installation of water tanks, sprinkler systems, recurring vegetation maintenance).

- *Defensible Space and Vegetation Management:* There will be a 30-foot wide FMZ around the project perimeter that is regularly maintained before any combustible material is brought on-site. This FMZ is in addition to the improved 24-foot-wide perimeter access road, and completely surrounds the project, as well as the solar arrays. There will be a 30-foot FMZ around the proposed substation and a 100-foot FMZ around the two proposed BESSs. Vegetation management below the PV modules will be consistent with FMZ specifications. All structures will be sited at least 30 feet from the project perimeter for defensible space from off-site fuels.
- *Access:* All roads will be wide enough for two-way traffic of fire apparatus, allowing fire apparatus to turn around, and a “Knox Box” will be installed at every entrance once the manual swing gate is installed.
- *Water Supply and Fire Resources:* Until the construction is far enough along to install the six water supply tanks, two water tenders should be located on-site. During construction there will be two water tank trucks within 0.25 mile of any active construction area. If only hand tools with low-spark risk are being used, one on-site 5-gallon backpack pump may be substituted. Water tenders and water tank trucks, like all construction vehicles on-site, will be equipped with fire extinguishers and any combination of at least four firefighting hand tools (shovel, Pulaski, McLeod, etc.). It will be the responsibility of the SSO to acquire more water trucks or fire engines as conditions require.

The water tank trucks will meet the following specifications:

- 300+ gallon tank
- Combination spray/fog nozzle with a discharge of at least 6 gallons per minute (gpm) and withstand 200 pounds per square inch (psi)
- 100 feet of 1-inch fire hose
- Pump capable of 23+ gpm at 175 psi, with 1.5-inch National Standard Fire Hose tread coupling
- 2-hour runtime while being moved across project area
- Drafting capability

The water tenders will meet the following specifications:

- 3,000+ gallon tank
- Pump capable of 150+ gpm at 150 psi, with National Standard Fire Hose thread coupling and adapter(s) as needed for 1.5-inch hose.
- Capable of filling water tank trucks

## **7.4 Daily Fire Prevention Measures**

The following are smaller-scale preventative measures that should be verified daily:

- Daily fire risk briefings will be held for on-site project personnel.
- Designated smoking areas will be approved by the SSO.
- Evacuation routes will be maintained and cleared, and never used as parking spaces.
- Any hot work (welding, open flame) will be performed under the supervision of the SSO or a delegate and in an approved area.
- Spills of combustible, hazardous, or potentially dangerous materials will be cleaned up immediately.
- Electrical equipment will be unplugged when not in use, and there will be no “jerry rigging” of extension cords.
- All electric sources and extension cords will be rated appropriately for the work and properly grounded.
- All motors will be equipped with a spark arrestor by the manufacturer.
- All equipment and vehicles will be properly maintained.
- A cache of firefighting tools and water will be available at the main staging area, or other location approved by the SSO.

### **7.4.1 Fire Protection System Maintenance**

As the construction site evolves, so will the scope and scale of the fire protection system maintenance. The SSO will ensure the following are in working condition once installed: fire extinguishers, water trucks and tanks, fire alarms, generators that support sprinkler systems, and other equipment added as the project progresses.

## 7.5 Hot Work

Any work that involves heated cutting, welding, soldering, grinding, brazing, or similar work will follow National Fire Protection Association (NFPA) Code 51B (NFPA 2023). This work will only be done with permission from the SSO and in areas that have been preapproved and have no combustible materials. When weather conditions create a high risk for fire, the SSO may suspend hot work until a more appropriate time.

## 8 RED FLAG WARNING PROTOCOL

The SSO will keep up to date on the status of any red flag warnings. During a National Weather Service issued red flag warning, actual red flags will be prominently displayed at the main entrance gate and main construction office. Hot work will not be permitted during a red flag warning and can only be performed once the warning has been lifted. Activities with a high risk for fire will only be conducted in areas that have been cleared of vegetation and approved by the SSO. Vehicles will only be permitted to drive on existing roads that are clear of all vegetation. During a fuel advisory, wind advisory, or when the daily Wildland Fire Potential Index value is above 100 (or other value specified by the SSO), the SSO can enforce red flag working restrictions.

## 9 FIRE SAFETY BRIEFINGS, INSPECTIONS, AND TRAININGS

### 9.1 Briefings and Inspections

The SSO will conduct routine and unannounced inspections to ensure that all aspects of existing fire codes and the CFPP are being followed. The SSO will develop a checklist and inform work leaders of any violations that need to be corrected before work can proceed. Compliance with the CFPP is mandatory.

Prior to work being done, *all employees and contractors* will be briefed on the details of the CFPP and ways to limit fire risk. If possible, representatives from the local fire department will be involved with some of these briefings.

**Any level of project management has the authority to shut down an operation they feel is too great of a fire hazard for the conditions.**

### 9.2 Training Requirements

#### 9.2.1 *Basic Fire Safety Training*

The SSO or delegate will provide fire prevention training to all employees and contractors working on-site. The training will include the following:



- CFPP
- Project FPP
- Occupational Safety and Health Administration 29 Code of Federal Regulations (CFR) 1926.24
- Fire Management, Wildfire Prevention (43 CFR 9212.0 and all pertaining information)
- Instruction in the use of fire extinguishers and basic firefighting equipment (hand tools and backpack pump)
- Fire hazards that any employee, contractor, or subcontractor may be exposed to during work

## **9.2.2      *Supervisor Fire Safety Training***

Project supervisors and contractor leads will receive additional training on the details of the CFPP, fire prevention, initial attack, communication protocols, and identifying hazards.

## **9.2.3      *Communications Plan***

Within each work group, communication with the SSO and construction supervisor will be mandatory at all times. This can be achieved via cell phone, satellite phone, or two-way radio as needed. If a fire is reported and two-way radios are used, it will be the responsibility of the supervisor or SSO to immediately call 911.

# **10 PROJECT PERSONNEL FIREFIGHTING LIMITATIONS**

County and State resources are responsible for responding to wildland and structure fires for the project. The first employee or contractor to notice a wildfire should immediately call 911 then report it to their supervisor. At an employee or contractor's discretion, they may provide initial attack efforts until other resources arrive. This will be done only if they have received training in wildfire suppression and remain within their scope of training. This is completely voluntary, and no disciplinary action will be taken if such action is outside the scope of the job they are being paid to perform.

# **11 REVIEW AND APPROVAL**

This plan will be, at a minimum, reviewed and approved by the appropriate officials annually. Any updates made will be approved at the annual review. All personnel associated with construction phases of the project are required to know, understand, and abide by the approved CFPP, including the specific roles and responsibilities outlined in the plan.

## 12 REFERENCES

- County of San Diego. 2011. *San Diego County General Plan: A plan for growth, conservation, and sustainability*. San Diego, California.
- National Fire Protection Association (NFPA). 2023. Code 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work. Available at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=51B>. Accessed August 2023.

## Appendix K Mitigation Measures and Design Considerations

### Federal, State, and Local Codes

The following codes and regulations must be followed for project compliance:

- *2023 County Consolidated Fire Code* (County of San Diego 2023a)
- California Building Code, as adopted and amended by the County (County of San Diego 2023b; International Code Council, Inc. 2022)
- NFPA 855, Standard for the Installation of Energy Storage Systems
- NFPA 22, Standard for Water Tanks for Private Fire Protection
- NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work (National Fire Protection Association 2023)

### Fire Protection Plan

The following items ensure adequate fire mitigation, access, and safety.

- Six 10,000-gallon water tanks will be available on-site: one tank will be at each of the two entrances and one tank will be located by each BESS, the other two spread strategically across the project. Each tank will be labeled “Fire Water: 10,000 gallons” with reflective paint. All tanks will have fire department connections available and a minimum 250-gallon per minute (gpm) flow.
- Increased road width near water storage tanks will accommodate filling without blocking the road.
- Knox Box will be placed at every gated project entrance to allow emergency service resources to access the site.
- A lighted map identifying equipment and structures will be available at every project entrance.
- The project has adequate emergency response according to land use designation, ensured with a Fire Services Agreement.
- There would be a built-in heat detection and fire protection system and a fire extinguishing system for each BESS in compliance with NFPA 855 Standard for the Installation of Stationary Energy Storage Systems. The heat and fire detection system would be linked to an automatic inert gas suppression system within each cabinet. The cabinets would also have an interior aerosol fire suppression system.
- A perimeter road with an improved width of 24 feet, and internal roads improved to 20 feet and the capability to handle a weight of 75,000 pounds are designed to accommodate fire apparatuses with an inner turning radius of 28 feet, will provide essential access infrastructure.
- Buildings will be sited no less than 30 feet from perimeter for defensible space from off-site fuels.

### Fuel Modification Zones

FMZs will implemented and maintained as follows:

- An FMZ will be in place before any combustible material is brought on-site.
- Designated areas will be mowed, brushed, chipped, or otherwise reduced to a vegetation height of less than 6 inches. Material may remain on-site, as long as it is spread out to a depth of no more than 6 inches. Alternative methods of vegetation control include manual removal, herbicide application, prescribed herbivory, or installation of weed barriers in certain areas, such as beneath the PV modules.
- A 30-foot FMZ around the perimeter between the fence line and internal perimeter road will reduce vegetation to less than 6 inches and be regularly maintained.
- 10-feet of vegetation maintenance will be conducted on either side of every interior access road, ensuring minimum unobstructed vertical clearance of 13 feet and 6 inches.
- A 100-foot FMZ around each BESS will reduce vegetation to less than 6 inches in height and be regularly maintained.
- A 30-foot FMZ around the collector substation pad will reduce vegetation to less than 6 inches in height and be regularly maintained.
- Vegetation under PV modules will be maintained to no more than a vertical height of 6 inches.
- Vegetation within the 14 internal open space easements will be maintained to no more than a vertical height of 6 inches.

### **Battery Energy Storage System (BESS) Mitigations**

The following measures will be incorporated to reduce wildfire risk to the BESS, and to reduce spread potential from a fire starting in the BESS.

- Both BESSs will be constructed on concrete pads and enclosed.
- Each unit will be separated by a drive aisle for easy access.
- Automatic internal heat detecting system will be linked to an inert gas system.
- Each BESS will have internal an aerosol suppression system that is regularly tested and maintained.
- A 100-foot FMZ will surround each BESS to further reduce risk of fire spread.

### **Construction Fire Protection Plan**

The following will be implemented based on the Construction Fire Protection Plan guidance (Appendix J).

- An FMZ will be in place before any combustible material is brought on-site.
- Continual training in fire prevention, communication, and fire reporting will be provided to all on-site personnel.
- Smoking will be limited to designated areas that are free of vegetation and combustible materials for a minimum 30-foot distance.
- Two water tenders (at least 3,000 gallons each) will remain on-site until project water supply tanks are installed.
- Two water tank trucks (at least 300 gallons each) will remain on-site during construction and will be within 0.25 mile of active construction areas.

- Daily fire risk briefings will be held with all on-site personnel.
- Hot work will be done under supervision in an approved area.
- All motors on-site will be equipped with a spark arrestor by the manufacturer.
- Evacuation routes will be maintained and cleared; these routes will never be used as parking spaces.
- Spills of combustible, hazardous, or potentially dangerous materials will be cleaned up immediately.
- Electrical equipment will be unplugged when not in use, and there will be no “jerry rigging” of extension cords.
- All extension cords will be rated appropriately for the work and properly grounded.
- All vehicles will carry, at a minimum, an approved fire extinguisher and shovel.
- All equipment and vehicles will be properly maintained.
- A cache of firefighting tools and water will be at the main staging area, or other location approved by the Site Safety Officer.

### **Red Flag Warning Measures**

During Red Flag Warnings the following precautions will be taken:

- No hot work will be conducted during Red Flag warnings.
- No vehicle will be permitted to drive over vegetation; vehicles must remain on roads or areas that are devoid of flammable vegetation.
- “Red Flag” signage will be displayed at the project main gate and construction office on days when the warning is issued.

**The Site Safety Office must approve any high risk fire activity that is required for the project.**