February 22, 2013 JN: 25-105388.001

County of San Diego
Planning and Development Services
c/o James Pine, County Fire Marshal
5510 Overland Avenue, Suite 110
San Diego, CA 92123

John Hardcastle, Chief
Borrego Springs Fire Protection District
2324 Stirrup Rd
Borrego Springs, CA 92004-0009

SUBJECT: FIRE PROTECTION PLAN – LETTER REPORT
DESERT GREEN SOLAR FARM
APN: 141-230-26; MUP P09-12W[1]; ER NO. 09-05-001A

Dear Mr. Pine and Mr. Hardcastle:

This Fire Protection Plan (FPP) – Letter Report is being submitted pursuant to Chapter 49 of the County Consolidated Fire Code as an evaluation of the adverse environmental effects that a proposed project may have from wildland fire and as mitigation of those impacts to ensure that the above referenced Project does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires.

PROJECT DESCRIPTION

The Desert Green Solar Farm Project would result in the installation of a concentrated photovoltaic (CPV) solar farm on privately held lands within the community of Borrego, California in northeastern San Diego County. Desert Green Solar Farm, LLC, proposes to develop such a facility for the long-term generation of clean, renewable energy from solar power that would ultimately be sold and distributed for public consumption.

The proposed facilities would have an overall production capacity of 6.5 Megawatts (MW) serving the Borrego Valley Area. The Project would involve the construction of an approximately 45-acre solar energy electrical generation facility to provide electricity for public consumption. The proposed facilities would have an overall capacity of approximately 6.5 megawatts (MW), serving the Borrego Valley area. Of the 288 acres, the proposed development area where the trackers would be installed, the underground portion of the12kV Gen-tie

line/access route, and the temporary construction laydown area would total 50.63 acres. An additional 2.61 acres on the 288-acre parcel would be affected to allow for a 15-foot wide trail easement along the northern and western property boundaries (no improvements proposed at this time); however, the trail easement is not included as part of the Major Use Permit boundary. Additionally, 124.68 (or approximately 125) acres of the 288-acre parcel would be dedicated as undisturbed onsite open space for biological mitigation purposes (to remain unfenced with intermittent small-scale signage installed along the perimeter). The remainder of the parcel (approximately 110 acres) would remain undeveloped and in its current natural state (unfenced).

The project site is bordered by Palm Canyon Drive approximately 0.45 mile to the south, Borrego Valley Road located approximately one mile to the west (refer to Figure 1 Regional/Local Vicinity Map and Figure 2 Aerial Photograph). The Borrego Valley Airport is located approximately 0.30 mile to the south of the southern border of the site. To the north and east is undeveloped land; to the west are a commercial palm nursery and a small-scale commercial sand and gravel yard. A microwave tower is also adjacent to the southwest corner of the parcel. Land uses to the south across Palm Canyon Drive generally include undeveloped lands interspersed with industrial type and residential uses.

The land to be developed with the solar CPV systems is comprised of one main parcel, with additional lands affected to support the transmission of power generated to the existing Borrego Substation and for purposes of access and utility installation (water line). The County Assessor Parcel Number (APN) for the main facilities is APN 141-230-26 (288.29 acres, or approximately 288 acres). Additional parcels potentially affected by Project improvements may include APNs 141-210-04, -05, -06, -25, and -26 [site access, generation-tie (Gen-tie) line, and/or water line easement]; APNs 141-230-33 and -38 (private water line easement); and/or, APN 141-060-08 (12kV Borrego Valley Road Access/Gen-tie Route).

The project includes 308 CPV electric generation systems utilizing dual axis tracking ("CPV Trackers") rotating panels. In order to transfer the power generated from the solar facility to the Borrego Valley Substation, the project would utilize either the 12kV Borrego Valley Road Gen-tie Route or the SDG&E 12kV Line Extension Route; refer to Figures 3A to 3C, Major Use Permit Plot Plan.

Primary access would occur via the proposed Palm Canyon Drive Access Route or the Borrego Valley Road Access Route. Primary access would be provided via construction of a 24' wide all-weather surface primary access road within a 28' wide graded width (in accordance with County of San Diego Fire Standards and capable of supporting 50,000 lbs). A series of north/south interior fire access and perimeter loop roads will be constructed to a width of 24 feet (fire access road widths may be administratively reduced with the approval of the County Fire Marshal and Borrego Springs Fire Protection District) with all-weather surfacing in accordance with County of San Diego Fire Standards. The interior access roads will be designed and maintained to support the imposed loads of fire service apparatus (not less than 50,000 lbs) and will have an approved surface so as to provide all-weather driving capabilities. These interior fire access roads would be constructed between every fourth row of north-south trackers to facilitate a maximum fire hose pull of 160 feet. In addition, the project design includes east/west running fire access roads for connectivity and circulation. The purpose of the interior fire access roads is to allow for access of fire service apparatus throughout the project site and in order to reach the inverter/transformer units. For purposes of dust control, a non-toxic, biodegradable, permeable soil-binding agent or

permeable rock material would be applied to all disturbed or exposed surface areas, including fire and service lanes. See Figures 3A to 3C, Major Use Permit Plot Plan (attached).

In addition, the project will be conditioned to join the new Borrego Springs Community Facilities District (CFD) for fire protection services. Joining the CFD for fire protection services and paying the required fees will ensure that fire protection services will be adequate to serve the project.

It is anticipated that construction would begin in the second quarter of 2013 and be in full operation in the fourth quarter of 2013.

ENVIRONMENTAL SETTING

1. Location: The Project site, located within the community of Borrego Springs, unincorporated San Diego County, California (refer to Figure 1 Regional/Local Vicinity Map and Figure 2 Aerial Photograph). The County APN that comprises the Project area for the main facilities is 141-230-26, owned by Desert Green Solar Farm LLC. The site is bordered by Palm Canyon Drive approximately 0.45 mile to the south, Borrego Valley Road located approximately one mile to the west, running adjacent to the west of the existing Borrego Substation (under the ownership of San Diego Gas & Electric – SDG&E). The Borrego Valley Airport is located approximately 0.30 mile to the south of the southern border of the site.

2. Topography: Although the site is generally flat, the overall topography of the site descends gradually from northwest to southeast. Site topography consists of a series of low dune ridges with hummocky areas with onsite elevations ranging from approximately 529 to 554 feet. There are no slopes, hilltops, or ridgelines.

3. Geology: The site does not contain geological features that would pose any increased danger of wildfire potential or human safety issues. Approximately 46.0% of the site is Indio Silt Loam (InA), 0 to 2 percent slopes; 49.5% Indio Silt Loam, saline (IoA), 0 to 2 percent percent slopes; with the remaining area, 4.5% Rositas fine sand (RoA), 0 to 2 percent slopes.

4. Flammable Vegetation: Vegetation on the 50.63-acre development area and lands affected for the provision of access, and utility improvements largely consists of desert saltbush scrub and stabilized and partially stabilized desert dunes, with sparse groundcover consisting of a mixture of Mediterranean grass and mustard. Soil types found on the affected lands also generally support bur-sage, saltbush, and annual grasses and forbs. Some native wildflower species occur intermittently, with a number of dead mesquite trees also present in various onsite locations on the site.

5. Climate: Borrego Springs, CA climate is hot during summer when average temperatures tend to be in the 100's and cool during winter when average temperatures tend to be in the 40's. The warmest month of the year is July with an average maximum temperature of 107 degrees Fahrenheit, while the coldest months of the year is are January and December with an average minimum temperature of 43 degrees Fahrenheit. Temperature variations between night and day tend to be relatively big during summer with a difference that can reach 35 degrees Fahrenheit, and moderate during winter with an average difference of 28 degrees Fahrenheit. The annual average precipitation at Borrego Springs is 6.91 inches. Rainfall mainly occurs in the winter months, December through March. The wettest month of the year is January with an average rainfall of 1.43 inches.

PROJECT EXPOSURE TO WILDLAND FIRES

1. Water Supply: Water supply would be taken from a new 4-inch water line from Palm Canyon via one of two routes: West Water Line or East Water Line, as shown on the MUP Plot Plan; refer to Figures 3A and 3B. The water line would connect to the proposed on-site water tank(s).

The West Water Line would be located within the proposed Palm Canyon Drive access route. The water line would be extended from its point of connection (POC) with an existing water line that lies within Palm Canyon Drive. The West Water Line would be included as part of the Major Use Permit boundary.

The East Water Line would be located within an existing dirt road traversing the Borrego Valley Airport property. The water line would be extended from its POC with an existing water line that lies within Palm Canyon Drive. The East Water Line would not be included as part of the Major Use Permit boundary and is considered an offsite improvement under the authority of the Federal Aviation Administration (FAA). Water for construction and maintenance would be obtained from the Borrego Water District. In addition, as a fire prevention measure, an approximately 10,000 gallon water storage tank with fire department connection will be installed near the entrance of the facility. Water supply for panel washing will utilize the on-site water storage tank. The 10,000 gallon tank is separated into two 5,000 gallon tanks. The bottom 5,000 gallons would be used for panel washing and the top 5,000 gallons, as well as the bottom, would be available for fire protection services. An additional optional 10,000 gallon water tank is also proposed as a water supply source. A copy of the Fire Service Availability Form is attached to this FPP – Letter Report.

2. Fire Access Roads: Operation, maintenance, and construction activities for the Project would take primary access from either the proposed Palm Canyon Drive access route or the proposed Borrego Valley Road access route, as shown on the MUP Plot Plan; refer to Figures 3A and 3B. Both access routes are included as part of the Major Use Permit boundary.

The Palm Canyon Drive access route would include construction of a 24-foot wide all-weather paved access drive within a 28-foot wide graded width, located within existing 30-foot wide private utility and access easements. This route would connect to the facility at the southwesterly corner of the solar field. The Palm Canyon Drive access route may also include construction of the westerly water line extension.

The Borrego Valley Road access route would include construction of a 24-foot wide all-weather paved access drive within a 28-foot wide graded width, located within a 50-foot wide private utility and access easement. The Borrego Valley Road access route would connect Borrego Valley Road to the northwesterly corner of the solar field. This access route would follow along a portion of an existing dirt road north of the existing 20-foot wide offsite SDG&E utility easement, cross the SDG&E easement near the northwest corner of the site, continue thru the Cocopah nursery, and then head south to the solar facility. The Borrego Valley Road access route would also include the (underground) 12kV Borrego Valley Road Gen-tie Route.

The access road would be improved to a graded width of 28 feet with 24 feet of all-weather surfacing in accordance with County of San Diego Fire Standards. A fire department approved turnaround will be provided at the end of the private road easement at the entrance to the project. The road would be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.).

A series of north/south interior fire access and perimeter loop roads would be constructed to a width of 24 feet (fire access road widths may be administratively reduced with the approval of the County Fire Marshal and Borrego Springs Fire Protection District) in accordance with County of San Diego Fire Standards. The interior access roads would also be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.). These interior fire access roads would be constructed between every fourth row of north-south trackers to facilitate a maximum fire hose pull of 160 feet. Fire access roads have been designed with a 28-foot turning radius. In addition, the project includes east/west running fire access roads for connectivity and circulation. The purpose of the interior fire access roads is to allow for access of fire service apparatus throughout the project site and in order to reach the inverter/transformer units.

On the north/south rows where the interior fire access roads are not proposed, service roads would be constructed to a width of 18 feet and would be constructed and maintained to support imposed loads of not less than 15,000 lbs and support panel washing equipment vehicles. Service roads would run north-south along the west side of the columns of the CPV systems, except where there would be a fire access road that would facilitate access to the CPV systems and inverter/transformer units. Signage will be installed at the end of each fire access road onsite to identify those roadways intended for use by emergency vehicles. The perimeter of the area proposed for development with the CPV systems and associated equipment would be fenced to limit human access (6-foot chain link with 3-foot barb wire). *Access to Multiple Evacuation Routes:* As noted above, interior access would be provided by a series of 24-foot wide emergency all-weather fire access roads every between every fourth row of north-south trackers. The roads would be all weather surfaced with DG (with a non-toxic, biodegradable dust/erosion control agent applied) and would also serve as a fire buffer.

Dead Ends: No dead-end roadways are proposed.

Width: The improved width of the interior fire roads would be 24 feet. Fire access road width may be reduced administratively with approval of the County Fire Marshal and Borrego Springs Fire Protection District.

Vertical Clearance: A minimum vertical clearance of 13 feet 6 inches shall be maintained at the wind stow position.

Grade: A maximum of less than 10% grade would be maintained along all access roads.

Surface: Surface improvements shall consist of a natural and all-weather material and shall be constructed and approved by the County Fire Marshal and Borrego Springs Fire Protection District. All surfacing material shall be installed per County design standards suitable for travel by 50,000-lb. fire apparatus.

Gates: A gate, with County approved Knox box locks, is proposed at either of the primary access entrances to provide secured access to the project site. The gate would meet the County Fire Code Section 96.1.503.6 for automatic operation with battery back-up. The gate would include a Knox-box key-operation switch. Fire District turnarounds shall be provided as noted above. An additional gate will be located near the switch gear pad and will provide access to the project's Gen-tie line, if the Palm Canyon Access Route is selected.

3. Setback from Property Lines: The specific zoning designation for the property is General Rural use (S92). The minimum setbacks as regulated by the County of San Diego Zoning Ordinance Section 4800 would be maintained. Setbacks from the west, south, and north property lines would be 15 feet. Setbacks from the east property line would be 25 feet. In addition, the entire project site perimeter will be covered by a 30-foot wide Fuel Modification

Zone (FMZ) and provide 24-foot fire access roads that will provide an effective fire break and separation of the project from areas adjacent lands surrounding the site.

4. Building Construction: Building construction for on-site structures would be limited to non-combustible construction primarily of concrete, block, or steel. Project structures would consist of 308 CPV Trackers, five covered dual or triple 680kW inverter/transformer platforms on the site to conduct the Direct Current (DC) obtained from the CPV systems into Alternating Current (AC), which would be transferred from the inverters to the 12kV switchgear, then via the Gen-tie line to the existing Borrego Substation. One 100kW emergency generator on a 12-foot by 20-foot pad will also be installed. The operation and maintenance facility will consist of a 300-square-foot storage building located within a 1,000 s.f. fenced and screened storage yard). The facility will be unmanned. The structure will be constructed on piers with the lower edge of the foundation skid being no less than one-foot above the base flood elevation.

5. Fire Protection Systems: No habitable structures are proposed on the site and therefore, no fire protection systems are proposed.

6. Defensible Space: No defensible space is proposed for the Project; however, a 30-foot perimeter buffer defensible space would be constructed around the parcel and classified as a FMZ.

7. Vegetation Management: On-site vegetation within the FMZ would be maintained/weed-whipped to a 6-inch stubble yearly unless otherwise requested by the County of San Diego or the Borrego Springs Fire Protection District. All vegetation within the array will be maintained to a maximum height of six inches. A minimum 30-foot wide FMZ would be maintained around the perimeter of the project site. Areas under the panels will be dirt with an erosion control binding agent. The FMZ shall be maintained year-round by the project proponent, as required by this FPP Letter Report and local fire regulations. Vegetation shall be annually maintained free of dead material.

8. Fire Behavior Computer Modeling: Based on preliminary evaluation by the County Fire Marshal, Computer Fire Behavior Modeling is not required for this FPP – Letter Report.

9. Signage: An illuminated directory sign (activated via motion sensor) will be located at the entrance of the facility off of Palm Canyon Drive and at each inverter station. The signage will depict the overall site plan and the locations of each numbered inverter structure and electrical grid disconnect and circuit breaker. Each inverter structure shall be numbered and signed to be plainly visible to the satisfaction of the Fire Authority.

10. Disconnects: A 10-foot by 10-foot SDG&E concrete equipment pad will house the switching gear and cut off switch. This main switching gear pad would be used to disconnect and disrupt all AC power leaving the inverter structures spaced throughout the site.

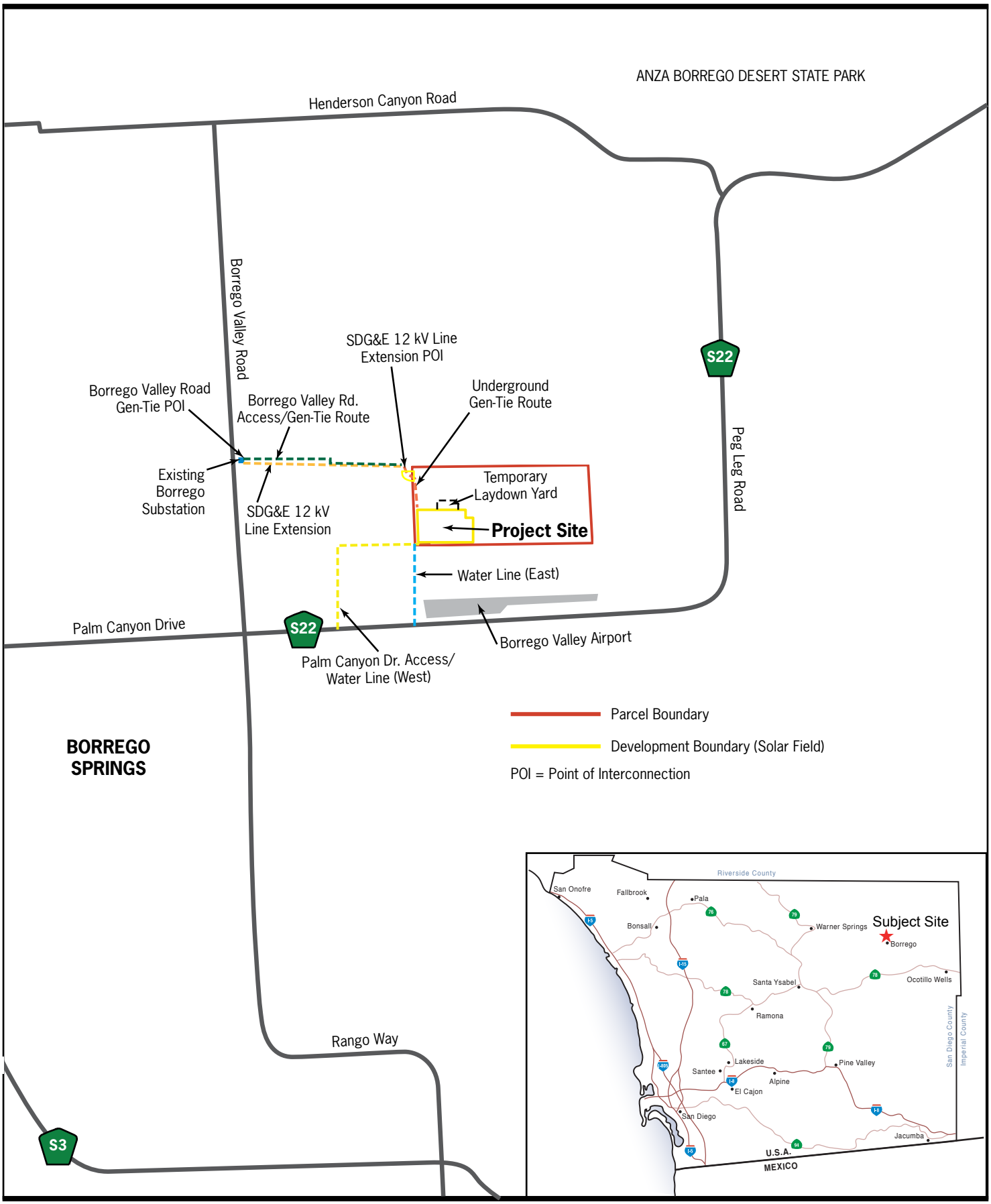
11. Emergency Power: A 100kW emergency generator will be located onsite on a 12-foot by 20-foot concrete pad within the interior of the development area to provide power to place the CPV systems in the stow position in the event that power from the local utility is lost and high winds occur.

12. Wind Stow Switch: A switch will be installed inside of the entrance gate to the site to allow authorized project personnel and emergency service providers to place the CPV systems in the wind stow position. Cut-off switches would be approved by the Fire Authority.

13. Training: Formal training will be provided to the District. Fire Service training and an education program shall be provided to the District for all shifts of the fire emergency responders.

Monica Kling Prepared by	2/22/2013 Date	Monica Kling, Envn. Analyst Printed Name, Title
Property Owner (Signature)	2/22/2013 Date	Desert Green Solar Farm LLC Clark Crawford, Attorney-In-Fact Printed Name, Title
Fire Marshal (Signature)	2/22/2013 Date	James Pine, County Fire Marshal Printed Name, Title
Chief (Signature)	2/22/2013 Date	John Hardcastle, Chief Printed Name, Title

Attachments: Figures 1, 2, and 3A-3C; Fire Service Availability Form;
Appendix A: Wildfire Technical Report



RBF CONSULTING

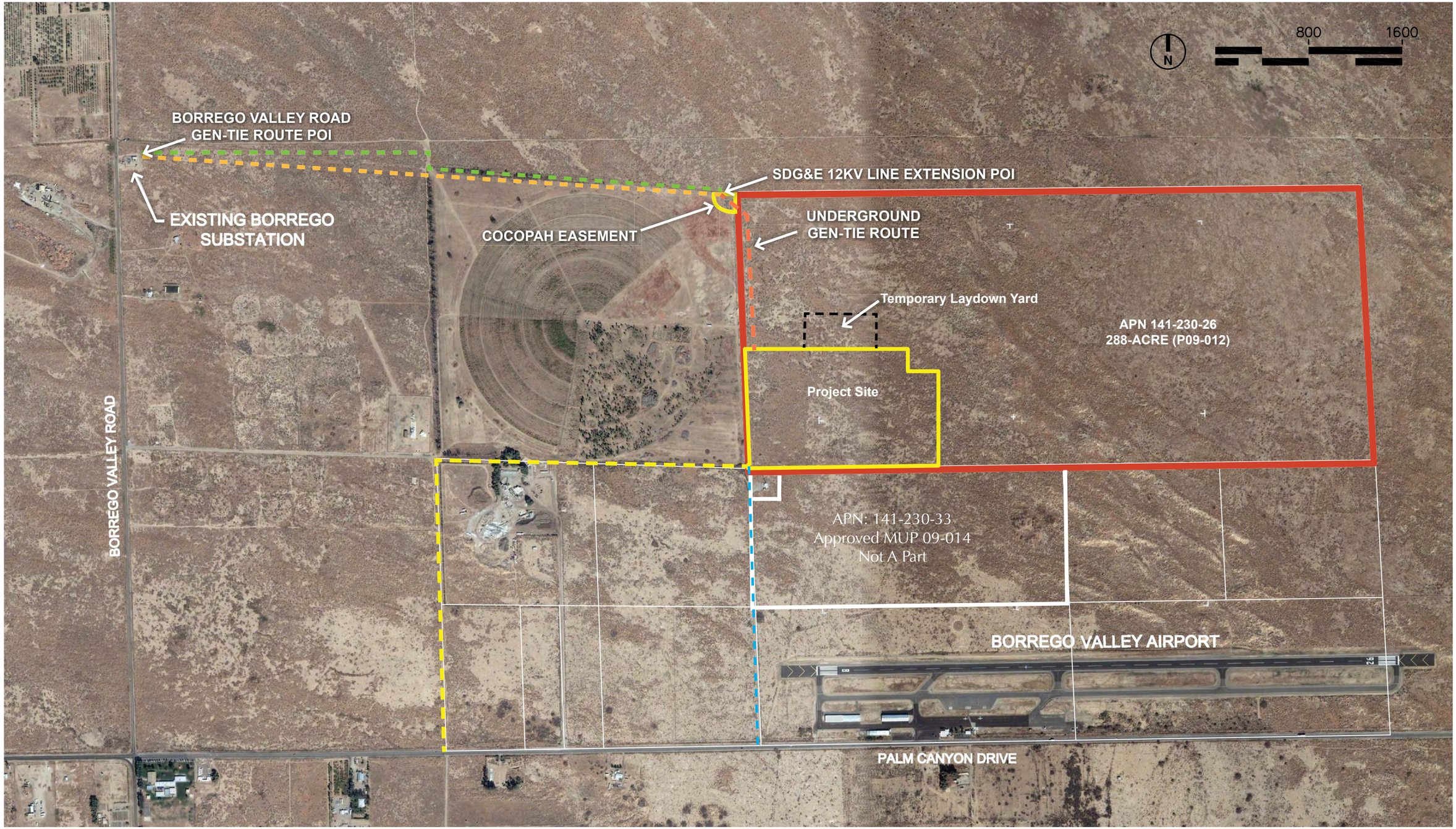
Not to Scale

SDMac:5388fig1.ai

Regional / Local Vicinity Map

Desert Green Solar Farm

Figure 1



Source: Eagle Aerial, 2008.

RBF CONSULTING

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- Parcel Boundary
- Development Boundary (Solar Field)
- Borrego Valley Road Access/Gen-Tie Route
- SDG&E 12kV Line Extension to Existing Borrego Substation
- Underground Gen-Tie Route
- Temporary Laydown Yard
- Palm Canyon Drive Access Route/West Water Line
- East Water Line
- POI = Point of Interconnection

Aerial Photograph

Desert Green Solar Farm

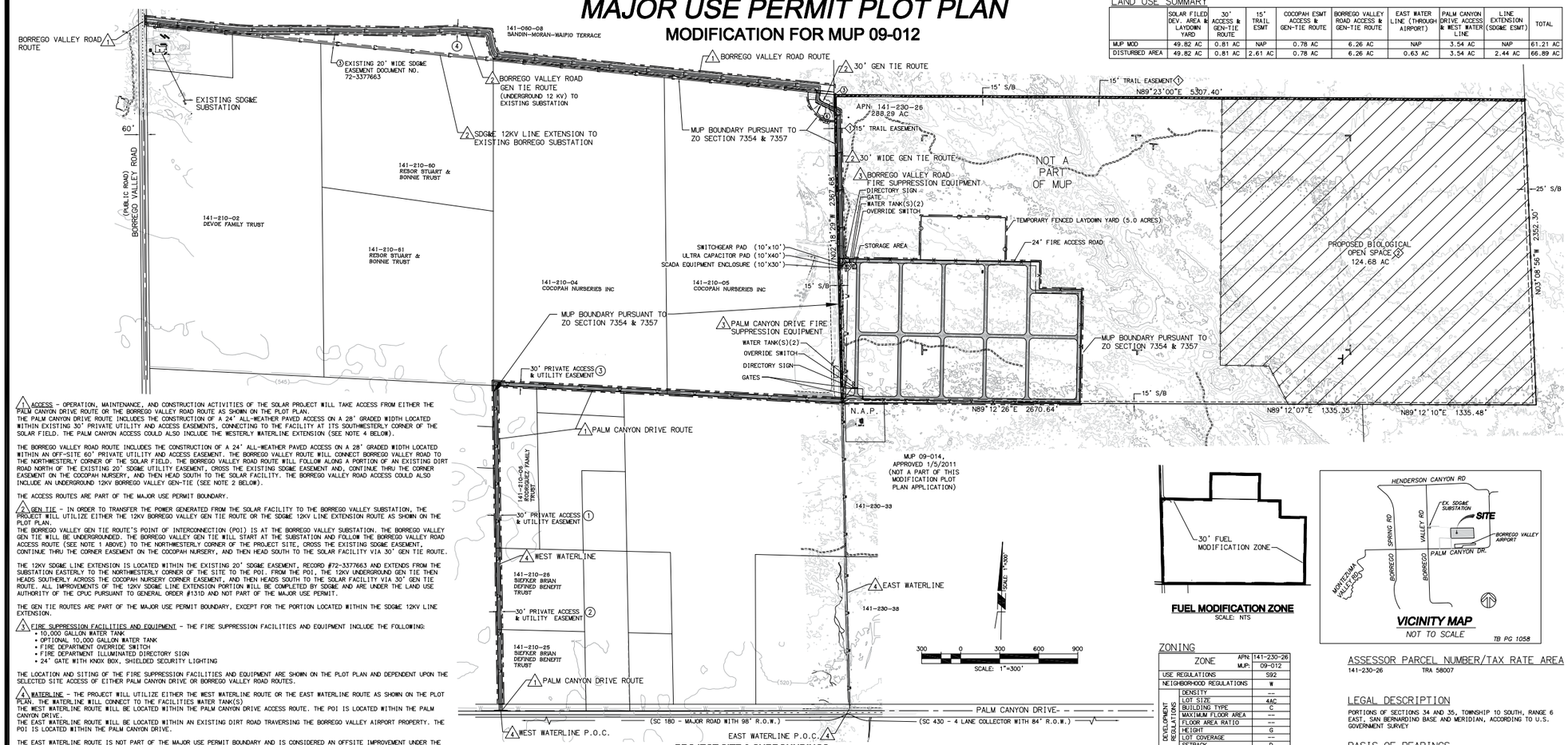
Figure 2

MAJOR USE PERMIT PLOT PLAN

MODIFICATION FOR MUP 09-012

LAND USE SUMMARY

	SOLAR FILED DEV. AREA & LAYDOWN YARD	30' ACCESS & GEN-TIE ROUTE	15' TRAIL ESMT	COCOPAH ESMT ACCESS & GEN-TIE ROUTE	BORREGO VALLEY ROAD ACCESS & GEN-TIE ROUTE	EAST WATER LINE (THROUGH AIRPORT)	PALM CANYON DRIVE ACCESS & WEST WATER LINE	LINE EXTENSION (SDG&E ESMT)	TOTAL
MUP MOD	49.82 AC	0.81 AC	NAP	0.78 AC	6.26 AC	NAP	3.54 AC	NAP	61.21 AC
DISTURBED AREA	49.82 AC	0.81 AC	2.61 AC	0.78 AC	6.26 AC	0.63 AC	3.54 AC	2.44 AC	66.89 AC



PROJECT SITE & SURROUNDINGS
SCALE: 1"=300'

FUEL MODIFICATION ZONE
SCALE: NTS

VICINITY MAP
NOT TO SCALE
TB PG 1058

ZONING

ZONE		APN: MUP:	141-230-26 09-012
USE REGULATIONS			S92
NEIGHBORHOOD REGULATIONS			W
DEVELOPMENT REGULATIONS	DENSITY		---
	LOT SIZE		4AC
	BUILDING TYPE		C
	MAXIMUM FLOOR AREA		---
	FLOOR AREA RATIO		---
	HEIGHT		G
	LOT COVERAGE		---
	SETBACK		D
	OPEN SPACE		---
SPECIAL AREA REGULATIONS			C

ASSESSOR PARCEL NUMBER/TAX RATE AREA
141-230-26 TRA 58007

LEGAL DESCRIPTION
PORTIONS OF SECTIONS 34 AND 35, TOWNSHIP 10 SOUTH, RANGE 6 EAST, SAN BERNARDINO BASE AND MERIDIAN, ACCORDING TO U.S. GOVERNMENT SURVEY

BASIS OF BEARINGS
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM (NAD83) ZONE 6,AS DETERMINED BY THE LINE BETWEEN NATIONAL GEODETIC SURVEY (NGS) STATIONS "13 AAR ECC" AND "BOR 12" WITH A BEARING OF N42°35'10"W.

BENCHMARK
NGS STATION BOR 9, A 4" BRASS DISK IN 6" CONCRETE BASE 4.5' SOUTHEAST OF POWER POLE #319 AND 30' NORTHEAST OF THE EDGE OF BORREGO VALLEY
ROAD. ELEVATION = 521.86 DATUM: NAVD88

APPLICANT
DESERT GREEN SOLAR FARM LLC
c/o CLARK CRAWFORD,
ATTORNEY-IN-FACT
16650 VIA ESPRILLO
SAN DIEGO, CA 92127
CONTACT: PATRICK BROWN
(619) 733-2649

SHEET INDEX
SHEET 1 - TITLE SHEET
SHEET 2 - PLOT PLAN
SHEET 3 - PROPOSED ELEVATIONS/DETAILS

1 ACCESS - OPERATION, MAINTENANCE, AND CONSTRUCTION ACTIVITIES OF THE SOLAR PROJECT WILL TAKE ACCESS FROM EITHER THE PALM CANYON DRIVE ROUTE OR THE BORREGO VALLEY ROAD ROUTE AS SHOWN ON THE PLOT PLAN.
THE PALM CANYON DRIVE ROUTE INCLUDES THE CONSTRUCTION OF A 24' ALL-WEATHER PAVED ACCESS ON A 28' GRADED WIDTH LOCATED WITHIN EXISTING 30' PRIVATE UTILITY AND ACCESS EASEMENTS, CONNECTING TO THE FACILITY AT ITS SOUTHWESTERLY CORNER OF THE SOLAR FIELD. THE PALM CANYON ACCESS COULD ALSO INCLUDE THE WESTERLY WATERLINE EXTENSION (SEE NOTE 4 BELOW).

THE BORREGO VALLEY ROAD ROUTE INCLUDES THE CONSTRUCTION OF A 24' ALL-WEATHER PAVED ACCESS ON A 28' GRADED WIDTH LOCATED WITHIN AN OFF-SITE 60' PRIVATE UTILITY AND ACCESS EASEMENT. THE BORREGO VALLEY ROUTE WILL CONNECT BORREGO VALLEY ROAD TO THE NORTHWESTERLY CORNER OF THE SOLAR FIELD. THE BORREGO VALLEY ROAD ROUTE WILL FOLLOW ALONG A PORTION OF AN EXISTING DIRT ROAD NORTH OF THE EXISTING 20' SDG&E UTILITY EASEMENT, CROSS THE EXISTING SDG&E EASEMENT AND, CONTINUE THRU THE CORNER EASEMENT ON THE COCOPAH NURSERY, AND THEN HEAD SOUTH TO THE SOLAR FACILITY. THE BORREGO VALLEY ROAD ACCESS COULD ALSO INCLUDE AN UNDERGROUND 12KV BORREGO VALLEY GEN-TIE (SEE NOTE 2 BELOW).

THE ACCESS ROUTES ARE PART OF THE MAJOR USE PERMIT BOUNDARY.

2 GEN TIE - IN ORDER TO TRANSFER THE POWER GENERATED FROM THE SOLAR FACILITY TO THE BORREGO VALLEY SUBSTATION, THE PROJECT WILL UTILIZE EITHER THE 12KV BORREGO VALLEY GEN TIE ROUTE OR THE SDG&E 12KV LINE EXTENSION ROUTE AS SHOWN ON THE PLOT PLAN.
THE BORREGO VALLEY GEN TIE ROUTE'S POINT OF INTERCONNECTION (POI) IS AT THE BORREGO VALLEY SUBSTATION. THE BORREGO VALLEY GEN TIE WILL BE UNDERGROUNDED. THE BORREGO VALLEY GEN TIE WILL START AT THE SUBSTATION AND FOLLOW THE BORREGO VALLEY ROAD ACCESS ROUTE (SEE NOTE 1 ABOVE) TO THE NORTHWESTERLY CORNER OF THE PROJECT SITE, CROSS THE EXISTING SDG&E EASEMENT, CONTINUE THRU THE CORNER EASEMENT ON THE COCOPAH NURSERY, AND THEN HEAD SOUTH TO THE SOLAR FACILITY VIA 30' GEN TIE ROUTE.

THE 12KV SDG&E LINE EXTENSION IS LOCATED WITHIN THE EXISTING 20' SDG&E EASEMENT, RECORD #72-3377663 AND EXTENDS FROM THE SUBSTATION EASTERLY TO THE NORTHWESTERLY CORNER OF THE SITE TO THE POI. FROM THE POI, THE 12KV UNDERGROUND GEN TIE THEN HEADS SOUTHERLY ACROSS THE COCOPAH NURSERY CORNER EASEMENT, AND THEN HEADS SOUTH TO THE SOLAR FACILITY VIA 30' GEN TIE ROUTE. ALL IMPROVEMENTS OF THE 12KV SDG&E LINE EXTENSION PORTION WILL BE COMPLETED BY SDG&E AND ARE UNDER THE LAND USE AUTHORITY OF THE CPUC PURSUANT TO GENERAL ORDER #131D AND NOT PART OF THE MAJOR USE PERMIT.

THE GEN TIE ROUTES ARE PART OF THE MAJOR USE PERMIT BOUNDARY, EXCEPT FOR THE PORTION LOCATED WITHIN THE SDG&E 12KV LINE EXTENSION.

3 FIRE SUPPRESSION FACILITIES AND EQUIPMENT - THE FIRE SUPPRESSION FACILITIES AND EQUIPMENT INCLUDE THE FOLLOWING:
- 10,000 GALLON WATER TANK
- OPTIONAL 10,000 GALLON WATER TANK
- FIRE DEPARTMENT OVERRIDE SWITCH
- FIRE DEPARTMENT ILLUMINATED DIRECTORY SIGN
- 24' GATE WITH KNOX BOX, SHIELDED SECURITY LIGHTING

THE LOCATION AND SITING OF THE FIRE SUPPRESSION FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLOT PLAN AND DEPENDENT UPON THE SELECTED SITE ACCESS OF EITHER PALM CANYON DRIVE OR BORREGO VALLEY ROAD ROUTES.

4 WATER LINE - THE PROJECT WILL UTILIZE EITHER THE WEST WATERLINE ROUTE OR THE EAST WATERLINE ROUTE AS SHOWN ON THE PLOT PLAN. THE WATER LINE WILL CONNECT TO THE FACILITIES WATER TANK(S).
THE WEST WATERLINE ROUTE WILL BE LOCATED WITHIN THE PALM CANYON DRIVE ACCESS ROUTE. THE POI IS LOCATED WITHIN THE PALM CANYON DRIVE.
THE EAST WATERLINE ROUTE WILL BE LOCATED WITHIN AN EXISTING DIRT ROAD TRAVERSING THE BORREGO VALLEY AIRPORT PROPERTY. THE POI IS LOCATED WITHIN THE PALM CANYON DRIVE.

THE EAST WATERLINE ROUTE IS NOT PART OF THE MAJOR USE PERMIT BOUNDARY AND IS CONSIDERED AN OFFSITE IMPROVEMENT UNDER THE AUTHORITY OF THE FAA.

NOTES

1. GROSS AREA: 288.29 ACRES (APN 141-230-26)
2. NET AREA: 288.29 ACRES (APN 141-230-26)
3. TOPOGRAPHIC SOURCE: VERTICAL MAPPING, FLOWN 5/8/09 & & INTERMAP FLOWN 2005
4. ASSOCIATED REQUESTS: NONE
5. THE APPROVAL OF THIS MAJOR USE PERMIT MODIFICATION (MUP) AUTHORIZES THE FOLLOWING: CONSTRUCTION, OPERATION, AND MAINTENANCE OF A CPV SOLAR FARM PURSUIT TO SECTION 6952 OF THE SAN DIEGO COUNTY ZONING ORDINANCE.
6. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ADKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
7. ALL STRUCTURES TO BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIALS (CONCRETE, BLOCK, METAL) OR SIMILAR.
8. NO LANDSCAPING PROPOSED.
9. LIGHTING FOR MAINTENANCE AND SECURITY PROPOSES ONLY. SHIELDED LIGHTING LOCATED AT GATES AND SHALL CONFORM TO COUNTY OF SAN DIEGO OUTDOOR LIGHTING REQUIREMENTS. SEE DETAIL ON SHEET 3.
10. PHASING - PROJECT WILL BE IMPLEMENTED IN SEVERAL PHASES WITHOUT REGARD TO SEQUENCE WITHIN DEVELOPMENT AREA.
11. ALL DISTURBED AREAS WOULD BE COVERED WITH GRAVEL OR A BINDING AGENT TO REDUCE DUST.
12. SEE PRELIMINARY GRADING PLAN FOR PROPOSED GRADING.
13. ONLY DIRECTIONAL, LIMITS OF OPEN SPACE AND SAFETY SIGNAGE ARE PROPOSED.
14. NO DEVELOPMENT WILL OCCUR IN THE AREAS IDENTIFIED ON THE PLOT PLAN AS "OPEN SPACE".
15. SEE SHEET 2 FOR LEGEND.
16. THE ENTIRE SITE IS SUBJECT TO INUNDATION BY THE 100-YEAR FLOOD AND IS WITHIN FEMA MAP NO. 06073C0675F THE LIMITS OF THE 100-YEAR FLOOD ALONG THE WATERCOURSE WHICH FLOWS THROUGH THE PROPERTY.
17. SITE ACCESS GATE(S) TO BE EQUIPPED WITH FIRE DEPARTMENT APPROVED KNOX KEY-OPERATED SWITCH.
18. SOLAR RELATED FACILITIES (PANELS, ELECTRICAL CONNECTIONS, TRANSFORMER/ INVERTER PLATFORM, STORAGE BUILDING, EMERGENCY GENERATOR, FENCING, INTERNAL ACCESS AND SWITCHGEAR PLATFORM, ETC.) SHOWN ON THE PLOT PLAN MAY BE RELOCATED, RECONFIGURED, AND/OR RESIZED WITHIN THE SOLAR FACILITY DEVELOPMENT AREA (EXCLUSIVE OF THE OPEN SPACE AREAS) WITH THE ADMINISTRATIVE APPROVAL OF THE DIRECTOR OF PDS WHEN FOUND IN CONFORMANCE WITH THE INTENT AND CONDITIONS OF PERMIT'S APPROVAL. TRANSFORMER/INVERTER/GENERATOR SIZE, LOCATIONS, BRAND, ELECTRICAL SIZE CAN BE RELOCATED, REPLACED OR RECONFIGURED WITHOUT REQUIREMENT OF MINOR DEVIATION. THE TRANSFORMER/INVERTER/GENERATOR MUST COMPLY WITH NOISE ORDINANCE AND MUST BE ELEVATED 1' ABOVE BASE FLOOD ELEVATION. THE 24' WIDE FIRE ACCESS ROAD WIDTHS MAY BE REDUCED ADMINISTRATELY WITH THE APPROVAL OF THE COUNTY FIRE AUTHORITY AND THE BORREGO SPRINGS FIRE PROTECTION DISTRICT.
19. THE ENTIRETY OF THE PARCEL ENCUMBERED BY MUP 09-012 (APN 141-230-26-00) IS SUBJECT TO THE RESTRICTIONS AND TERMS OF A COUNTY AVIATION EASEMENT.
20. TOTAL SOLAR TRACKER HEIGHT WILL NOT EXCEED 30 FEET.
21. WATER DISTRICT: BORREGO WATER DISTRICT.
22. ALL STRUCTURES, TRANSFORMER/INVERTER PLATFORM AND ELECTRICAL PADS TO BE ON PIERS.
23. 10,000 GAL. WATER TANK(S) WITH FIRE DEPARTMENT CONNECTION.
24. NO DEVELOPMENT IS ALLOWED WITHIN THE NOT A PART AREA WITHOUT A SUBSEQUENT PERMIT AND/OR DISCRETIONARY REVIEW.
25. PROVIDE OVERRIDE SWITCH CONTROL NEAR MAIN ENTRY TO ALLOW FIRE DEPARTMENT TO MOVE TRACKERS INTO STOW POSITION.
26. TRAIL EASEMENT TO ALLOW UTILITY LINES UNDERGROUND.

PROPOSED EASEMENTS

	DESCRIPTION
1	15' TRAIL EASEMENT
2	OPEN BIOLOGICAL SPACE EASEMENT (SHT. 1)

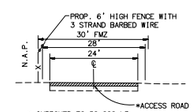
EXISTING EASEMENTS*

	DESCRIPTION	DISPOSITION
3	SDG&E EASEMENT	TO REMAIN
4	ACCESS & UTILITY EASEMENT (200' RADIUS)	TO REMAIN

* BASED ON DATA FROM PRELIMINARY TITLE REPORT BY FIDELITY NATIONAL TITLE COMPANY, ORDER NO. 11-725137943-D-PP, DATED MAY 16, 2012.

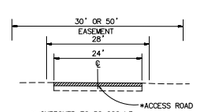
RECORDED EASEMENTS

	DESCRIPTION
1	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-0235574
2	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-235573
3	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-0282029
4	30' PRIVATE ACCESS & UTILITY EASEMENT



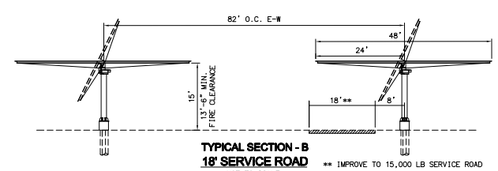
* IMPROVED TO 50,000 LB FIRE APPARATUS BEARING LOAD

TYPICAL SECTION
24' PERIMETER ACCESS ROAD
NOT TO SCALE
TYPICAL LOCATION UNLESS SHOWN OTHERWISE ON SITE PLAN

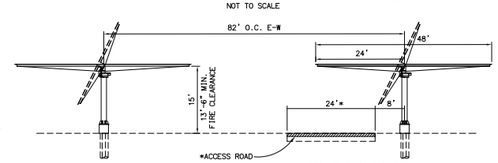


* IMPROVED TO 50,000 LB FIRE APPARATUS BEARING LOAD

TYPICAL SECTION
(PALM CANYON / BORREGO VALLEY ROAD)
PRIMARY ACCESS ROAD / EASEMENT
NOT TO SCALE



TYPICAL SECTION - B
18' SERVICE ROAD
NOT TO SCALE
** IMPROVE TO 15,000 LB SERVICE ROAD



* IMPROVED TO 50,000 LB FIRE APPARATUS BEARING LOAD

TYPICAL SECTION - A
24' INTERIOR ACCESS ROAD (FIRE)
NOT TO SCALE

DESERT GREEN SOLAR FARM
BORREGO SPRINGS, CA
MODIFICATION FOR MUP 09-012
(NO CHANGE TO MUP 09-014)
ER NO. 09-05-001A
TITLE SHEET

FEBRUARY 22, 2013
SHEET 1 OF 3

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PLANNING • DESIGN • CONSTRUCTION
8295 CLAIREMONT MESA BOULEVARD, SUITE 120
SAN DIEGO, CALIFORNIA 92111-1524
858.492.9168 • FAX 858.492.9169 • WWW.RBF.COM

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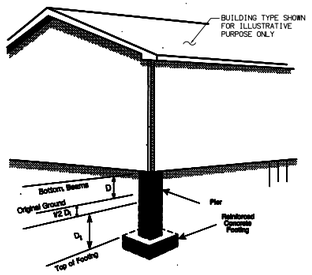
Major Use Permit Plot Plan

Desert Green Solar Farm

Figure 3A

MAJOR USE PERMIT PLOT PLAN

MODIFICATION FOR MUP 09-012



PIER FOUNDATION

Depth of Erosion Protection

Footings for slab foundations must be constructed to a depth below the prevailing ground level as shown in Figure II-1.Sht. 1 The necessary depth of construction for these footings is based on the Borrego Valley Alluvial Fan Map.

The flood depth (D) shown for the particular location is converted to a construction depth (D_1) based on the velocity shown on the map, using the following table:

Velocity (V)	Construction Depth (D_1)
4 Feet/Second	D_1 = D
6 Feet/Second	D_1 = D
8 Feet/Second	D_1 = 1.0 X D
Over 8 Feet/Second	Study Required

Where: D_1 = Depth Below Ground (Feet)
D = Depth Shown on Alluvial Fan Map (Feet)
V = Velocity Shown on Alluvial Fan Map (Feet/Second)

Erosion protection made of rock, gabions, or rip-rap must be installed to the depth D_1.

D_1 Pier Scour Depth of Scour (feet)

Velocity (fps)	Vertical Member Diameter (inches) 4	6	8	10	12
1	.70	1.00	1.25	1.50	1.75
2	1.00	1.25	1.50	1.75	2.00
4	1.50	1.75	2.00	2.25	2.75
6	1.75	2.00	2.50	2.75	3.25
8	2.00	2.25	2.75	3.25	3.50
10	2.25	2.50	3.00	3.50	4.00
15	2.50	3.00	3.50	4.00	4.50

TYPICAL SECTION FOUNDATION FOOTING OPTIONS TRANSFORMER / INVERTER PLATFORM STORAGE, CABINETS, O&M STRUCTURE

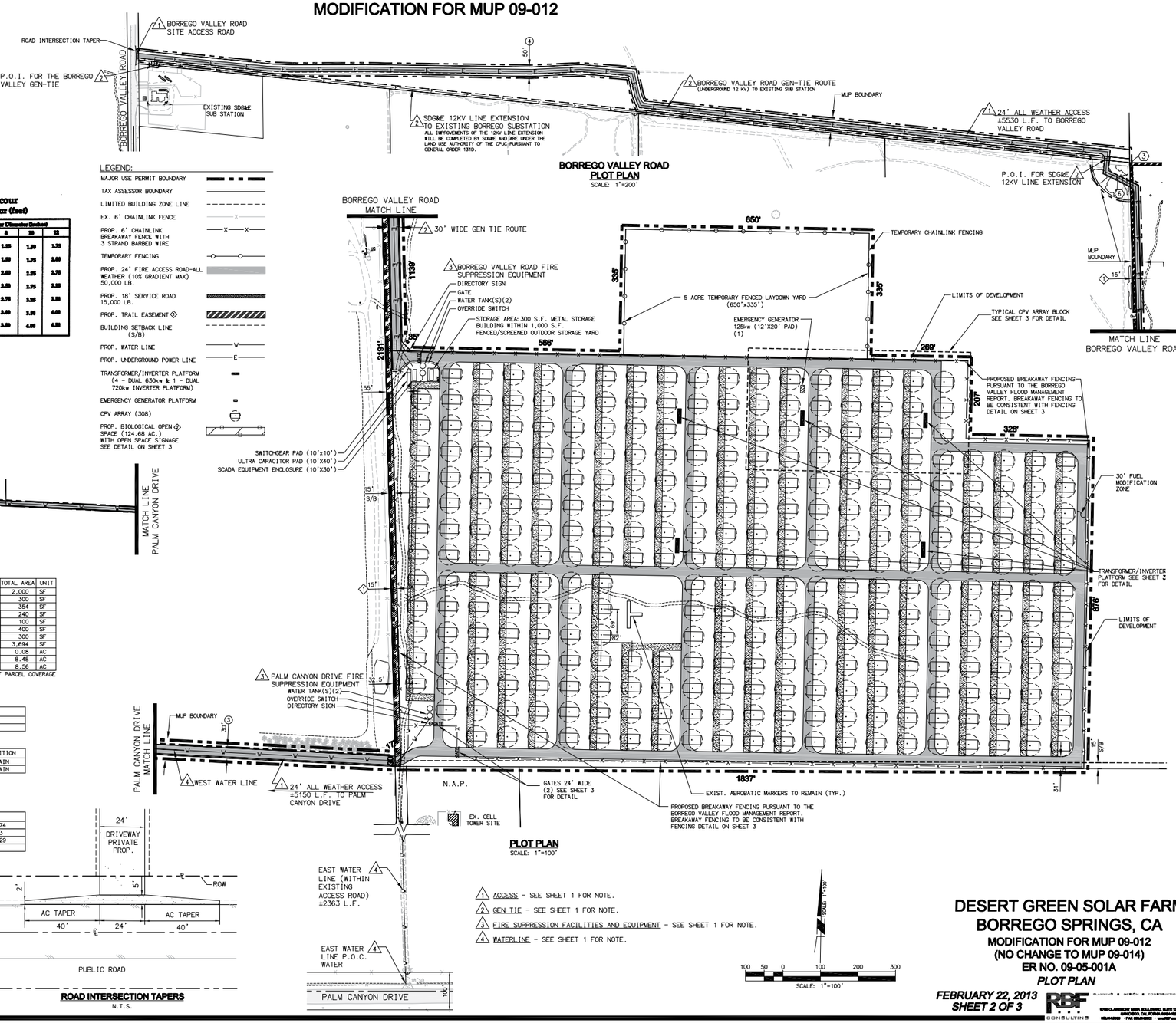
N.T.S.

SOURCE: BORREGO VALLEY FLOOD MANAGEMENT REPORT DATED OCT. 1989

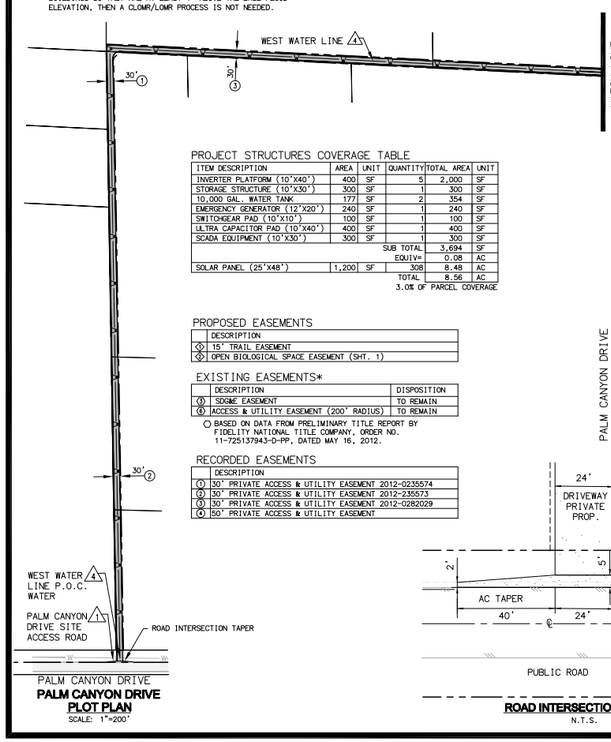
NOTE: A PIER FOUNDATION DESIGN IS SELECTED TO RAISE THE BUILDINGS SO THEY ARE AT LEAST 1' ABOVE THE BASE FLOOD ELEVATION, THEN A CLOMR/LOMR PROCESS IS NOT NEEDED.

LEGEND:

- MAJOR USE PERMIT BOUNDARY
- TAX ASSESSOR BOUNDARY
- LIMITED BUILDING ZONE LINE
- EX. 6' CHAINLINK FENCE
- PROP. 6' CHAINLINK BREAKAWAY FENCE WITH 3 STRAND BARBED WIRE
- TEMPORARY FENCING
- PROP. 24' FIRE ACCESS ROAD-ALL WEATHER (10% GRADIENT MAX) 50,000 LB.
- PROP. 18' SERVICE ROAD 15,000 LB.
- PROP. TRAIL EASEMENT
- BUILDING SETBACK LINE (S/B)
- PROP. WATER LINE
- PROP. UNDERGROUND POWER LINE
- TRANSFORMER/INVERTER PLATFORM (4 – DUAL 630kw & 1 – DUAL 720kw INVERTER PLATFORM)
- EMERGENCY GENERATOR PLATFORM
- CPV ARRAY (308)
- PROP. BIOLOGICAL OPEN SPACE (124.68 AC.) WITH OPEN SPACE SIGNAGE SEE DETAIL ON SHEET 3



1. ACCESS – SEE SHEET 1 FOR NOTE.
2. GEN TIE – SEE SHEET 1 FOR NOTE.
3. FIRE SUPPRESSION FACILITIES AND EQUIPMENT – SEE SHEET 1 FOR NOTE.
4. WATERLINE – SEE SHEET 1 FOR NOTE.



PROJECT STRUCTURES COVERAGE TABLE

ITEM DESCRIPTION	AREA	UNIT	QUANTITY	TOTAL AREA	UNIT
INVERTER PLATFORM (10'X40')	400	SF	5	2,000	SF
STORAGE STRUCTURE (10'X30')	300	SF	1	300	SF
10,000 GAL. WATER TANK	177	SF	2	354	SF
EMERGENCY GENERATOR (12'X20')	240	SF	1	240	SF
SWITCHGEAR PAD (10'X10')	100	SF	1	100	SF
ULTRA CAPACITOR PAD (10'X40')	400	SF	1	400	SF
SCADA EQUIPMENT (10'X30')	300	SF	1	300	SF
			SUB TOTAL	3,694	SF
			EQUIV=	0.08	AC
SOLAR PANEL (25'X48')	1,200	SF	308	8.48	AC
			TOTAL	8.56	AC

3.0% OF PARCEL COVERAGE

PROPOSED EASEMENTS

	DESCRIPTION
1	15' TRAIL EASEMENT
2	OPEN BIOLOGICAL SPACE EASEMENT (SHT. 1)

EXISTING EASEMENTS*

	DESCRIPTION	DISPOSITION
3	SDG&E EASEMENT	TO REMAIN
4	ACCESS & UTILITY EASEMENT (200' RADIUS)	TO REMAIN

* BASED ON DATA FROM PRELIMINARY TITLE REPORT BY FIDELITY NATIONAL TITLE COMPANY, ORDER NO. 11-72513794 3-D-PP, DATED MAY 16, 2012.

RECORDED EASEMENTS

	DESCRIPTION
1	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-0235574
2	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-235573
3	30' PRIVATE ACCESS & UTILITY EASEMENT 2012-0282029
4	50' PRIVATE ACCESS & UTILITY EASEMENT

DESERT GREEN SOLAR FARM
BORREGO SPRINGS, CA
MODIFICATION FOR MUP 09-012
(NO CHANGE TO MUP 09-014)
ER NO. 09-05-001A
PLOT PLAN

FEBRUARY 22, 2013
SHEET 2 OF 3

RBF CONSULTING

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RBF CONSULTING

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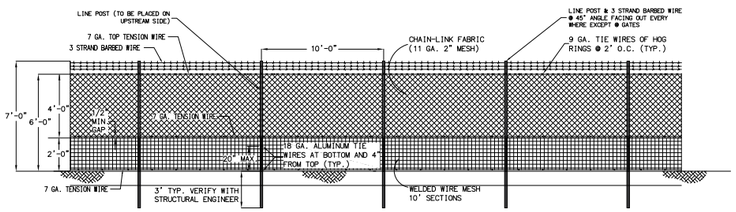
Major Use Permit Plot Plan

Desert Green Solar Farm

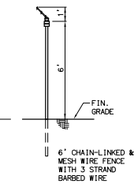
Figure 3B

MAJOR USE PERMIT PLOT PLAN

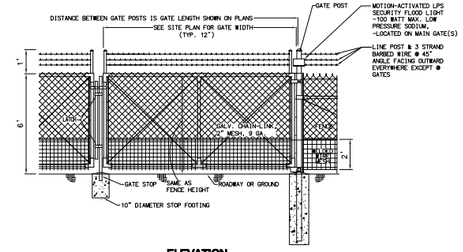
MODIFICATION FOR MUP 09-012



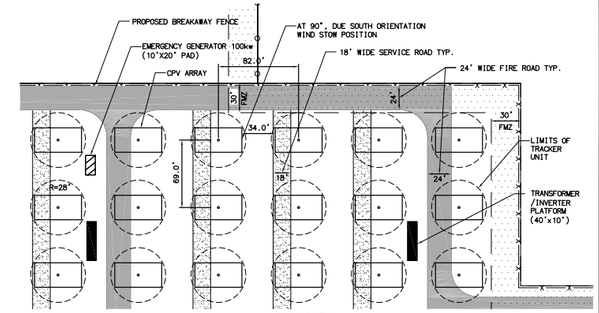
ELEVATION
BREAKAWAY FENCING DETAIL
N.T.S.



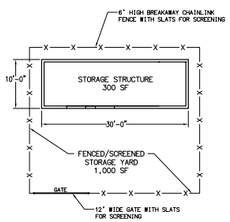
SECTION
TYPICAL FENCE
N.T.S.



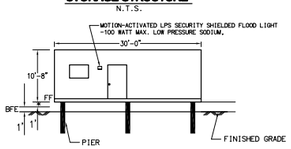
ELEVATION
HALF / DOUBLE DRIVE GATE
N.T.S.



PLAN VIEW
TYPICAL CPV ARRAY BLOCK LAYOUT
N.T.S.

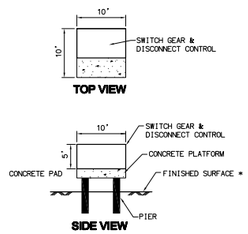


FLOOR PLAN
STORAGE STRUCTURE
N.T.S.



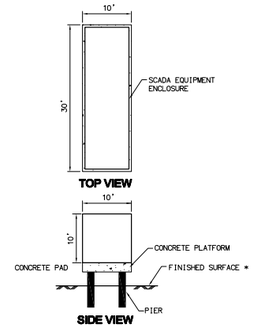
ELEVATION
STORAGE STRUCTURE
N.T.S.

- * FINISH FLOOR SHALL BE ELEVATED AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.



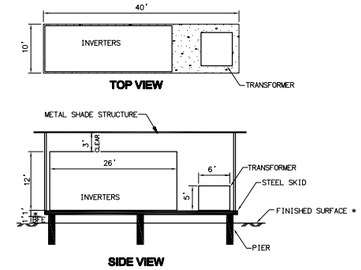
SWITCHGEAR PLATFORM
N.T.S.

- ALL ACCESSORY STRUCTURES SHALL BE PAINTED OR VISUALLY TREATED TO BLEND WITH THE SURROUNDINGS
- * PLATFORM SHALL BE ELEVATED SO THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.



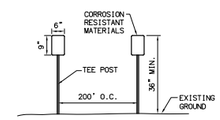
SCADA EQUIPMENT ENCLOSURE
N.T.S.

- ALL ACCESSORY STRUCTURES SHALL BE PAINTED OR VISUALLY TREATED TO BLEND WITH THE SURROUNDINGS
- * PLATFORM SHALL BE ELEVATED SO THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.



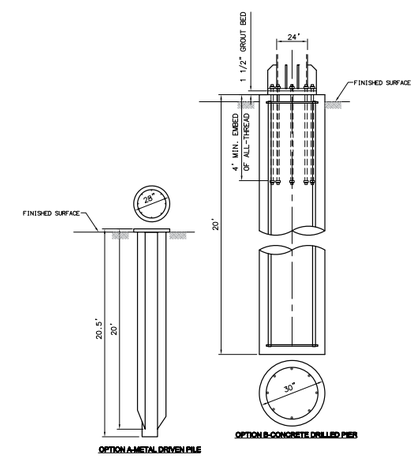
TRANSFORMER / INVERTER PLATFORM
N.T.S.

- ALL ACCESSORY STRUCTURES SHALL BE PAINTED OR VISUALLY TREATED TO BLEND WITH THE SURROUNDINGS
- * ALL TRANSFORMER / INVERTER PLATFORM SHALL BE ELEVATED SO THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.
- NUMBER OF PLATFORMS: 4 - DUAL 630kw & 1 - DUAL 720kv INVERTER PLATFORM
- THE TRANSFORMER / INVERTERS WILL BE PLACED WITHIN A METAL ENCLOSURE OR COVERED BY A METAL SHADE STRUCTURE TO PROTECT THE EQUIPMENT FROM THE ELEMENTS.



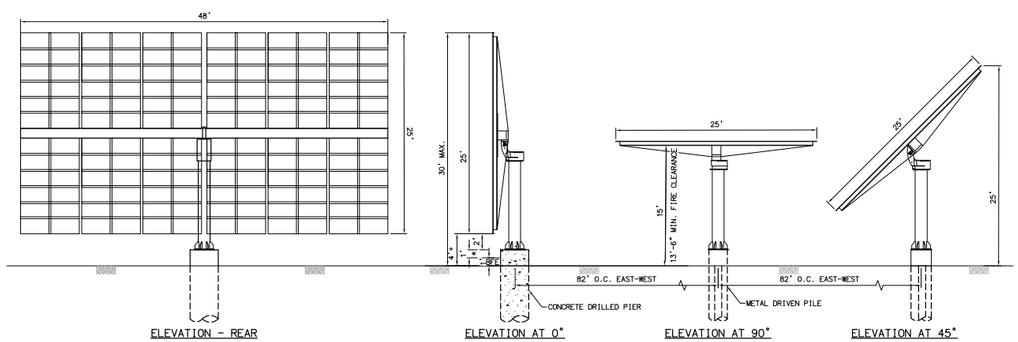
NOTE:
PLACE SIGN ON 200' INTERVALS TO DENOTE OPEN SPACE. SIGNS CAN ALSO BE ATTACHED TO PROPOSED FENCE OR ON TEE POST

TYPICAL
OPEN SPACE SIGNAGE
N.T.S.



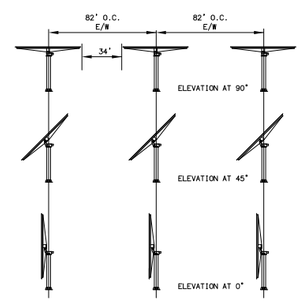
PRELIMINARY FOUNDATION DETAILS
N.T.S.

- DEPTH / TYPE OF FOOTING TO BE DETERMINED BY STRUCTURAL ENGINEER
- ALL SOLAR PANELS (AT MAXIMUM TILT) AND TRANSFORMER/INVERTER PLATFORM, SWITCH GEAR PAD, GENERATOR AND WATER TANK SHALL BE ELEVATED SO THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.

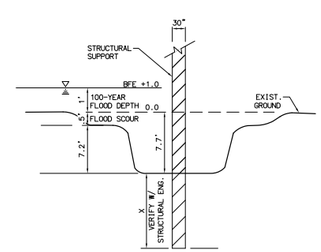


ELEVATIONS
ARRAY TRACKER
N.T.S.

- DEPTH / TYPE OF FOOTING TO BE DETERMINED BY STRUCTURAL ENGINEER
- * ALL SOLAR PANELS (AT MAXIMUM TILT) AND TRANSFORMER / INVERTER PLATFORM SHALL BE ELEVATED SO THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ONE FOOT ABOVE THE ANTICIPATED INUNDATION DEPTH ESTABLISHED WITHIN THE HYDROLOGY AND HYDRAULIC BASIS OF DESIGN STUDY.



CPV ARRAY
SPACING DETAIL
N.T.S.



TYPICAL
SECTION
SCOURING DETAIL
N.T.S.

SOURCE: BORREGO VALLEY FLOOD MANAGEMENT REPORT DATED OCT. 1989

DESERT GREEN SOLAR FARM
BORREGO SPRINGS, CA
MODIFICATION FOR MUP 09-012
(NO CHANGE TO MUP 09-014)
ER NO. 09-05-001A

PROPOSED ELEVATIONS/DETAILS

FEBRUARY 22, 2013
SHEET 3 OF 3

RBF CONSULTING
PLANNING • DESIGN • CONSTRUCTION
9755 CLAIREMONT MESA BOULEVARD, SUITE 100
SAN DIEGO, CALIFORNIA 92124-1324
858.279.3200 FAX 858.279.3203 www.rbf.com

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RBF CONSULTING

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Major Use Permit Plot Plan - Elevations / Details

Desert Green Solar Farm

Figure 3C

COUNTY OF SAN DIEGO
DEPARTMENT OF PLANNING AND LAND USE: Zoning
PROJECT FACILITY AVAILABILITY FORM, Fire

Please type or use pen

Desert Green Solar Farm LLC — 619-733-2649
Owner's Name — Phone

4250 Executive Square Drive Suite 770
Owner's Mailing Address — Street

San Diego — CA — 92037
City — State — Zip

ORG_____ **F**
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____
DISTRICT CASHIER'S USE ONLY

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

A.
- ☐ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Rezone (Reclassification) from_____ to_____ zone.
- ☒ Major Use Permit (MUP), purpose: Solar Farm
- ☐ Time Extension...Case No._____
- ☐ Expired Map...Case No._____
- ☐ Other_____
- ☐ Specific Plan or Specific Plan Amendment
- ☐ Certificate of Compliance:_____

B.
- ☐ Residential ..... Total number of dwelling units_____
- ☐ Commercial ..... Gross floor area_____
- ☐ Industrial ..... Gross floor area_____
- ☐ Other ..... Gross floor area_____

C. Total Project acreage 96 Total lots 0 Smallest proposed lot_____

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

141-230-26-00	

Thomas Bros. Page _____ Grid _____

Project address — Street

Borrego — 92004
Community Planning Area/Subregion — Zip

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

Applicant's Signature: [signature] Date: 6-1-2012

Address: 4250 Executive Square Suite 770 San Diego CA 92037 Phone: 619-733-2649

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

SECTION 2: FACILITY AVAILABILITY — **TO BE COMPLETED BY DISTRICT**

District name BORREGO SPRINGS FAD

Indicate the location and distance of the primary fire station that will serve the proposed project: 2324 STIRRUP RD, 2.5 MILES

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 _____ minutes.
- ☐ Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C.
- ☐ 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 the Department of Planning and Land Use.

- ☐ Within the proposed project _____ 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] — [signature] FIRE CHIEF — _____ — 8/2/12
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:
Zoning Counter, Department of Planning and Land Use, 5201 Ruffin Road, Suite B, San Diego, CA 92123

DPLU-399F (12/09)

SDC DPLU RCVD 07-26-12
P09-012W1

APPENDIX A:

WILDFIRE TECHNICAL REPORT

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1 INTRODUCTION

This FPP identifies and prioritizes the measures necessary to adequately mitigate potential fire hazards associated with photovoltaic farms. It considers the property location, topography, geology, flammable vegetation (fuel types), and climatic conditions. It also considers the water supply, fire access roads, setbacks from the property lines, structure ignitability and fire resistive building materials, fire protection systems, defensible space, and vegetation management.

The FPP - Technical Report is prepared to identify pre-suppression actions that would reduce risk directly associated with the solar farm, actions that would protect and enhance the safety of fire suppression resources, and actions that could protect the solar farm from ignition caused by other sources.

In addition to the historical challenges firefighters are faced with when arriving onto a fire scene, Concentrated Photovoltaic (CPV) systems introduce new hazards including electrical shock both during and post fire incident, as well as, concerns associated with the inhalation of unusual materials. These new hazards have resulted in firefighters having to adapt to new firefighting procedures, strategies, and tactics.

This report outlines the potential hazards associated with the CPV Systems, strategies and tactics, and an overall incident plan for use by emergency responders. In addition, as recommended by the California Department of Forestry and Fire Protection (CAL FIRE), this report provides basic framework advancing the knowledge and understanding for the emergency responders of the hazards and related implementation measures for solar farm fire.

A. SOLAR FARM'S EFFECT ON FIRE RISK

The installation, operation and maintenance of a CPV Solar Farm may include activities that could elevate the probability of ignition. Typical fire risk associated with electricity generating projects and solar farms include the following:

1. Transmission lines contacting vegetation that could cause an ignition.

2. Maintenance equipment and activities, associated with the CPV System or vegetation clearing along the lines that could cause an ignition.

3. Vehicles used by the solar farm operations that could cause an ignition (catalytic converter, faulty brakes, etc.).

4. Components of the CPV System malfunctioning which could create an ignition.

B. HAZARDS TO EMERGENCY RESPONDERS

This report has been prepared to identify the specific hazards to emergency responders and firefighters as related to the installation, operation and maintenance of a Concentrated Photovoltaic Solar Farm. These hazards include the following:

1. Contact with CPV system components (including any conduit or components between the modules and disconnect/isolation switches).

2. During daylight hours, the panels in a CPV system are always producing energy, or energized.

3. Incidences involving CPV solar farms are unique in that components may remain energized within the system components even after all power has been de-energized.

4. Depending on the level of damage to the system, the connection to "ground" may have been lost.

5. Electrical conductive tools create a hazard of electrical shock as the system may still be energized.

6. Burning CPV modules produce toxic vapors.

7. The inverters and DC combiner boxes will be located within the inverter structures and present hazardous conditions for emergency responders. The inverters convert the Direct Current (DC) produced by the CPV units into Alternating Current (AC), which would then be transferred from the inverters to the SDG&E equipment pad that will house the switching gear. The power will then be transferred via an on-site underground Gen-tie line, extending from the project trackers to the northwestern corner of the parcel. The power will then be transferred from the Project site to the existing Borrego Valley Substation via either the proposed the 12kV Borrego Valley Road Gen-tie Route or the SDG&E 12kV Line Extension Route, as shown on the MUP Plot Plan; refer to Figures 3A and 3B.

8. Inadequate signage for locating the inverters or other controls.

C. PROTECTION OF THE PROJECT SITE FROM OFF-SITE WILDLAND FIRE EXPOSURE

If a CPV solar farm is in a very high fire hazard severity zone. The project will need to be designed with fuel modification zones (FMZs), fire breaks, and/or separation from vegetation. Implementation of these design measures will reduce the risk of exposure from wildland fires. In addition, vegetation within the array area should be maintained at a

height of six inches or less. Lastly, setbacks should be designed to further reduce the potential from off-site wildland fire exposure.

2. FIRE OPERATIONS AND TACTICS FOR CONCENTRATED PHOTOVOLTAIC SYSTEMS

Following a size-up (visual assessment of site conditions) of a fire incident, the choice of a strategic mode should be made by the Incident Commander (IC) following normal fire department standard operating procedures (SOPs). The tactics used to implement the strategy should also be based upon normal SOPs procedures for responding to an emergency incident for a CPV solar farm.

A. STRATEGY

When a fire incident occurs in the vicinity or within a CPV solar farm, CAL FIRE requires the following items to be considered when developing a strategy:

1. Fire conditions found on arrival;
2. Whether the CPV solar farm itself is burning or fire is confined to the surrounding vegetation;
3. Threatened exposures including wildland areas; and,
4. Water and additional resources available.

Once the IC has completed a size-up, he/she should determine the strategy and assign tasks to the fire suppression resources assigned to the incident. Due to the hazards associated with CPV solar farms, the IC must adjust the strategy and potentially rearrange the order of the tactics to deal specifically with the CPV solar farm technology. If the IC chooses an offensive strategy, it needs to be supported (as any other fire operation) with an emphasis on disabling all power sources to and from the CPV solar farm.[1]

B. TACTICS

With the increase in fire emergency responders to CPV system emergencies, firefighters need to understand the hazards and related factors necessary for fire operations involving solar photovoltaic sites. CAL FIRE encourages that all emergency responders be trained for the following:

- Ability to recognize CPV systems;

[1] Fire Operations for Photovoltaic Emergencies. CAL FIRE - Office of the State Fire Marshal. November 2010.

- Ability to identify system locations;
- Ability to identify hazards with CPV systems;
- Ability to perform size up; and,
- Have knowledge of strategies and tactics.

Operating at incidents where CPV systems are present may require firefighters to adjust their actions somewhat; however, these adjustments should be similar to those that are necessary with many other types of electrical equipment or power generating sources.

The primary danger to firefighters working around a CPV system is electrical shock. Following are the hazards and recommendations for firefighting tactics for a fire incident at a CPV solar facility.

FIREFIGHTER ELECTRICAL SAFETY –INCIDENT PLAN

"Components are always hot!"

The single most critical message of emergency response personnel is to always consider photovoltaic solar farms and all their components as electrically energized. The inability to power-down photovoltaic panels exposed to sunlight makes this an obvious hazard during the daytime.[2]

All hazards should be appropriately marked or barricaded.

Ingress and Egress

Operation, maintenance, and construction activities for the Project would take access from either the proposed Palm Canyon Drive access route or the proposed Borrego Valley Road access route, as shown on the MUP Plot Plan; refer to Figures 3A and 3B. Both access routes are included as part of the Major Use Permit boundary.

The Palm Canyon Drive access route would include construction of a 24-foot wide all-weather paved access drive within a 28-foot wide graded width, located within existing 30-foot wide private utility and access easements. This route would connect to the facility at the southwesterly corner of the solar field. The Palm Canyon Drive access route may also include construction of the westerly water line extension, as described under Section 1.4.2.3, below.

[2] Fire Fighter Safety and Emergency Response for Solar Power Solar farms. A DHS/Assistance to Firefighter Grants (AFG) Funded Study. Prepared by: Casey C. Grant, P.E. Fire Protection Research Foundation. The Fire Protection Research Foundation One Batterymarch Park Quincy, MA, USA 02169-7471. May 2010.

The Borrego Valley Road access route would include construction of a 24-foot wide all-weather paved access drive within a 28-foot wide graded width, located within a 60-foot wide private utility and access easement. The Borrego Valley Road access route would connect Borrego Valley Road to the northwesterly corner of the solar field. This access route would follow along a portion of an existing dirt road north of the existing 20-foot wide offsite SDG&E utility easement, cross the SDG&E easement near the northwest corner of the site, continue thru the Cocopah nursery, and then head south to the solar facility. The Borrego Valley Road access route would also include the (underground) 12kV Borrego Valley Road Gen-tie Route, as described under Section 1.4.1.6, above.

The primary access road would be improved to a graded width of 28 feet with 24 feet of all-weather surface in accordance with County of San Diego Fire Standards. The purpose of the primary access road is to allow for two-way access of fire apparatus and to provide access from Palm Canyon Drive to the Project site. A fire department turnaround would be provided at the end of the primary access road at the entrance to the Project. The road would be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.) and would have an approved surface so as to provide all-weather driving capabilities.

Interior Access Roads (Fire): A series of north/south interior fire access and perimeter loop roads would be constructed to a width of 24 feet (fire access road widths may be administratively reduced with the approval of the County Fire Marshal and Borrego Springs Fire Protection District) in accordance with County of San Diego Fire Standards. The interior access roads would be designed and maintained to support the imposed loads of fire service apparatus (not less than 50,000 lbs) and would have an approved surface so as to provide all-weather driving capabilities. These interior fire access roads would be constructed between every fourth row of north-south trackers to facilitate a maximum fire hose pull of 160 feet. In addition, the Project includes east/west running fire access roads for connectivity and circulation. The purpose of the interior fire access roads is to allow for access of fire service apparatus throughout the Project site and in order to reach the inverter/transformer units.

Service Roads: On the north/south rows where the interior fire access roads are not proposed, service roads would be constructed to a width of 18 feet and would be constructed and maintained to support the imposed loads of not less than 15,000 lbs and support panel washing equipment vehicles. Service roads would run in a north-south direction along the west side of the columns of the CPV systems, except where there would be a fire access road that would facilitate access to the CPV systems and inverter stations.

Two gates, located off of the Fire District-approved turnaround at the primary access road would be provided to allow for secured fire service access to the solar facilities. A combination of all-weather 24-foot fire access and perimeter loop roads and 18-foot

service lanes would be provided within the development footprint on the 288-acre parcel to meet design requirements of the Borrego Springs Fire Protection District (BSFPD) for emergency access and to support routine maintenance. No dead-end roadways are proposed. Signage will be installed at the end of each interior fire access road to identify those roads intended for use by emergency/fire service vehicles. The gates will include a Knox-box key-operation.

Avoid Hazards

During the overall fire suppression and mop-up phases of an on-site fire, firefighters should avoid all potential electrical hazards until there is confirmation that the solar farm no longer poses an electric shock hazard. Firefighters must avoid inadvertently damaging CPV components with their tools.[3]

Provide Ability for Electrical Solar Farm Isolation for Emergency Responders

A key task by emergency response personnel is the isolation or shutdown of electrical power. This is especially important for this commercial solar farm which generates high levels of electricity and poses significant fire-fighting challenges. The inverters and DC combiner boxes are contained within the inverter structures. The CPV arrays will be arranged in blocks with the main disconnect located at the SDG&E switch gear pad. The disconnect will disrupt all AC power leaving the inverter structure. It is important to have a disconnect to quickly de-energize the entire CPV solar farm in the event that a fire or emergency action involves multiply panels/arrays within the solar farm site. Additionally, a switch will be installed inside of the entrance gate to the site to allow authorized project and emergency service personnel to place the CPV systems in a wind stow position in the event that power is lost from the local utility and high winds occur.

Damaged solar panels/arrays should never be touched without verifying whether or not the solar panels/arrays are energized. Firefighters should never cut the wiring in a CPV solar farm. Specialized tools may be required for disconnecting the module wiring. Firefighters should consider controlling fires within CPV solar farms rather than removal due to the inherent electrical hazard. Solar modules, support structures, tracking assemblies, and conduit should not be disassembled, damaged or removed by firefighters until all of the CPV solar farm's components are isolated or de-energized by a qualified CPV technician or electrician. The phone number of a responsible entity who can dispatch a local CPV technician in a timely manner should be displayed on the lighted directory at the entrance and on each inverter structure. Firefighters should limit their activities to containment of the fire until it can be confirmed that the solar farm is isolated or de-energized.

[3] Fire Operations for Photovoltaic Emergencies. CAL FIRE - Office of the State Fire Marshal. November 2010.

In extraordinary circumstances, where all other tactics or options have been exhausted, CPV panels must be removed. Care should be taken to use non-conductive tools since the modules and frames may still be energized. Damaged solar farms should not be touched without verifying whether or not the solar farm is energized. Specialized tools may be required to disconnect wiring. Firefighters should consider containing fires within CPV solar farms rather than removal due to the inherent hazard and limited electrical safety training afforded to firefighters.

Isolation of Inverters

Isolation of the inverters and disconnecting the solar farm from the main electrical panel will be an important task. It is recommended that assistance from a local CPV technician be utilized to disable and confirm that all the hazards have been mitigated.

At any incident where CPV is present, the IC should designate a "Utilities Group" early to aid in locating and disabling inverter structures and CPV solar farm components. This can greatly decrease the electric shock hazard to all crews operating on the fire ground. Firefighters must remember that all CPV components must be considered "HOT" during day light. Additionally, in this commercial solar farm, there are likely to be several arrays. Firefighters must be aware that if only a single array is isolated, all of the others will most likely remain energized. Care must be exercised when operating the other energized arrays.

An emergency response plan identifying all tasks and the parties responsible for providing the electrical isolation for emergency responders is recommended.

Isolating the Fire

Another priority will be preventing further extension of a fire and isolating it to its area of origin. If the CPV solar farm itself is on fire, it must be assumed to be "hot" during daylight. Fire suppression crews should avoid physical contact with CPV solar farm components until it can be confirmed by a qualified CPV technician or electrician that all power sources have been isolated. It may take time for the technician to respond and locate all of the solar farm controls.

Extinguishing Fires

CAL FIRE recommends that dry chemical extinguishers should be used to contain or extinguish electrical fires. Water should be used to extinguish any ordinary combustibles under or near the CPV solar farm, or if the volume of fire requires its use. If water is used, a 30º fog pattern from at least a 30 foot distance, at 100 pounds per square inch (psi) is recommended. Full PPE must be used due to the potential toxic inhalation hazard if panels

are burning. Fire crews should position themselves upwind and out of any toxic atmosphere.[4]

Incident Termination

CAL FIRE also recommends that the IC request the assistance from local CPV technician to assist with disabling the CPV solar farm and confirmation that all of the hazards have been mitigated before incident is terminated and the scene is turned over to the owner or responsible party.

TRIP, SLIP OR FALL HAZARDS

CPV systems are comprised of metal, glass, conduit and cable, all of which are slippery when wet. As previously noted, firefighters should avoid contact with CPV system components. In addition, firefighters should use caution if using narrow maintenance access ways for a fire incident onsite.

FIREFIGHTER INHALATION HAZARDS

The inhalation hazards from the chemicals inherent in CPV modules engulfed in a fire or explosion can be mitigated through the use of firefighters wearing their Self Contained Breathing Apparatus (SCBA's) and personal protective equipment during a firefighting and overhaul operations. It is the decision of the Incident Commander whether or not the emergency constitutes sheltering the population "in-place" downwind of the emergency. Fire or explosion emergencies involving large number of CPV arrays, as in this commercial application, may necessitate evacuating downwind of the emergency.[5]

BATTERY HAZARDS

In some CPV systems, batteries are used to store solar-generated electricity. Batteries are used most frequently in off-grid CPV systems, although batteries are also used in grid-tied applications to have electricity available in the event of a power failure.[6]

The Desert Green Solar Farm will utilize an onsite 100kW emergency generator as a source of energy to rotate the arrays in a wind stow position. The emergency generator would be placed on a 12-foot by 20-foot concrete pad within the interior of the development area.

CPV modules themselves have no storage capacity. Inverters have capacitors which do store energy; however, the energy within the capacitors is discharged soon after power to the inverters is disconnected.[7]

[4] Fire Operations for Photovoltaic Emergencies. CAL FIRE - Office of the State Fire Marshal. November 2010.
[5] Fire Operations for Photovoltaic Emergencies. CAL FIRE - Office of the State Fire Marshal. November 2010.
[6] Ibid

3. SUMMARY

CAL FIRE recommends that the first line at attack in a fire incident, in which a CPV System is involved, is ensuring that the firefighters on scene are trained in identifying CPV systems and the methods to control them. In addition, CAL FIRE stresses that they must know how to adjust their assessment of the incident involving CPV to ensure appropriate actions are applied to the incident. In any incident, the desired outcome is to always mitigate and/or control the situation in a safe and efficient manner.[8]

The strategy and tactics firefighters choose are critical to both the outcome and the safety of all members working on the scene. CAL FIRE indicates that the basics for ensuring a safe, control, and mitigated incidents involving CPV sites are as follows:

- Always wear protective clothing and SCBA
- Avoid wearing jewelry
- Use hand tools with insulated handles
- Locate battery storage area (if applicable)
- Be aware that biting and stinging insects could inhabit the module frame and electrical junction boxes
- Lock out/tag out system disconnects should be located and disconnected.
- It is recommended that minimally, the fire emergency responders for all shifts attend training entitled, "Fire Operations for Photovoltaic Emergencies," CAL FIRE-Office of the State Fire Marshal, November 2010. The Fire Service Training and Education Program (FSTEP), provides this specific training need to local fire agencies in California.
- The project site must be signed to accurately identify and locate locations and hazards on the project site. Recommended signage requirements are as follows:
    - Signs to be placed at each disconnecting point and what equipment it de-energizes.

[7] Ibid
[8] Fire Operations for Photovoltaic Emergencies. CAL FIRE - Office of the State Fire Marshal. November 2010.

- Each inverter structure will be numbered with a sign that is plainly visible with numbers that contrast with their background and is to the satisfaction of the Fire Authority.

- A lighted directory located at the entrance to the site depicting the overall site plan and the locations of each numbered inverter structure (also must be shown on the plot plan) for the site.

The tactical approach to a fire incident near or within a solar farm site must be stressed with all fire suppression personnel (i.e., stay clear). Serious injury can occur with photovoltaic on a sunny day, and the danger to fire service personnel is real.[9]

At the conclusion of an incident, emergency personnel should leave the property in the safest condition possible. A post-incident focused size-up and safety analysis should be conducted.

REFERENCES

Fire Operations for Photovoltaic Emergencies. CAL FIRE–Office of the State Fire Marshal. November 2010.

Fire Fighter Safety and Emergency Response for Solar Power Solar farms. A DHS/Assistance to Firefighter Grants (AFG) Funded Study. Prepared by: Casey C. Grant, P.E. Fire Protection Research Foundation. The Fire Protection Research Foundation One Batterymarch Park Quincy, MA, USA 02169-7471. May 2010.

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