CATALINA ISLAND CONSERVANCY SOLAR DC SYSTEM CAPACITY = 167.2 kWp GROUND MOUNTED SOLAR PHOTOVOLTAIC SYSTEM

PROJECT SUMMARY

THE PROJECT CONSISTS OF THE INSTALLATION AND OPERATION OF A GRID-TIED SOLAR PHOTOVOLTAIC ARRAY SYSTEM. PV PANELS ARE INSTALLED ON GROUND MOUNTED. FENCED IN SOLAR SYSTEM AND THE INTERCONNECTION WILL BE WITH SOUTHERN CALIFORNIA EDISON AS A VIRTUAL NET ENERGY METERED SOLAR SYSTEM TO BENEFIT A COMBINATION OF METERS. THE ANTICIPATED PRODUCTION OF THE SOLAR SYSTEM WILL BE CONSUMED BY BUILDING LOADS.

THE SYSTEM WILL INCLUDE STRING INVERTERS. RAPID SHUTDOWN IS NOT REQUIRED FOR THE GROUND STRUCTURES.

THE PROPOSED ARRAYS WILL FOLLOW THE SLOPE:

+/- 15 DEG.

+/- 180 DEG.

COVERAGE AREA: 10,400 SQ.FT

304x 550 W = 167.2 kWpAC SYSTEM SIZE: $2 \times 62.5 \text{ kW} = 125 \text{ kW}$ DC/AC RATIO:

MAXIMUM AC POWER OUTPUT: 125 kW

SYSTEM DESCRIPTION*:

(304) 550W ZNShine ZXM7-SHDB-144 MODULE: INVERTER: (2x) 62.5 kW SMA CORE 1 INVERTERS

DC DISCONNECTS: TBD AC DISCONNECTS: TBD COMBINER BOXES: TBD MONITORING:

PV SYSTEM DISCONNECT

AC DISCONNECT: (1) 400 A 3PH, 240Y/120V

SYSTEM:

BUILDING CODE DATA

OCCUPANCY CLASSIFICATION: **DESCRIPTION OF USE:** TYPE OF CONSTRUCTION: COVERED AREA:

GROUND MOUNTED SOLAR ARRAY 27,000 sq.ft

CODE COMPLIANCE STATEMENT:

ALL ELECTRICAL WORK SHALL BE DESIGNED PER 2023 LOS ANGELES COUNTY ELECTRICAL CODE, 2022 CALIFORNIA ELECTRICAL CODE, AND 2020 NATIONAL **ELECTRICAL CODE**

110.2 APPROVAL: ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

PROJECT INFORMATION

SITE INFO:

4550 U Airport Road Catalina Island Conservancy CONTACT: Reed Woodyard Avalon, CA 90704 708 Crescent Ave. APN: 7480-041-042 Lat: 33.404 deg. Avalon, CA 90704 PH: (360) 306-0472 Long.: -118.414 deg.

LOT SIZE: 598.86 ACRES **ZONING: OS/C** LAND USE DESIGNATION: OPEN SPACE/CONSERVATION

SOLAR PROJECT TEAM

SOLAR CONTRACTOR AND DESIGNER

SATTLER SOLAR AND ELECTRICAL CONTRACTORS SATTLER SOLAR INC. 4770 DEL MAR AVE. SAN DIEGO, CA 92107 ENGINEERING MANAGER: ERIK SATTLER PH: (858) 327-0334

EMAIL: erik@sattlersolar.com

PROJECT MANAGER & CONSULTANT: **GSR ENERGY**

EMAIL: emma@gsr-energy.com



PROJECT MANAGER: PH: (831) 515-9181

EMMA MALLONEE

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED IF NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES:

OSHA – STATE VERSION OF OSHA

ANSI/EIA-222- LIFE SAFETY CODE NFPA-101

CITY/COUNTY ORDINANCES (JURISDICTION)

2022 CALIFORNIA ELECTRIC CODE (CEC) 2022 CALIFORNIA BUILDING CODE (CBC)

2022 CALIFORNIA FIRE CODE (CFC)

2023 LOS ANGELES COUNTY ELECTRICAL CODE

2020 NATIONAL ELECTRICAL CODE

PLANS PREPARED WITH SUPPORT OF:



SATTLER SOLAR INC. - 619.880.0445 www.sattlersolar.com

DISCLAIMER: THE PLANS WERE REVIEWED AND APPROVED BY THE INSTALLER PRIOR TO INSTALLATION, COMPLIANCE WITH ALL APPLICABLE ELECTRICAL, FIRE AND BUILDING CODES IS THE RESPONSIBILITY OF THE INSTALLER.

BY USING THESE PLANS FOR THE INSTALLATION OF THE PV SYSTEM DESCRIBED HEREIN. THE INSTALLER AGREES TO HAVE REVIEWED THE PLANS AND ENSURED THAT ALL APPLICABLE ELECTRICAL, BUILDING AND FIRE CODES ARE FOLLOWED AND THE INSTALLER ACCEPTS RESPONSIBILITY.

VICINITY MAP



UNDERGROUND FACILITIES

COLOR CODE

PROPOSED EXCAVATION

TEMP SURVEY MARKINGS

ELECTRIC

PURPLE - RECLAIMED WATER

ORANGE - COMMUNICATION CATV

GAS-OIL-STEAM



Know what's below. Call before you dig.

EXISTING UNDERGROUND FACILITIES ARE SHOWN ON THESE PLANS FROM RECORD INFORMATION AND ARE FOR INFORMATION ONLY. OTHER UNDERGROUND RESPONSIBLE FOR VERIFYING ALL EXISTING UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY A ONE-CALL SERVICE CENTER. TOLL FREE AT 811, NO LESS THAN TWO DAYS PRIOR TO ANY EXCAVATION.

SHEET INDEX

SHEET:	DESCRIPTION:		
PV-0.0	TITLE PAGE / PROJECT DESCRIPTION		
PV-0.1	GENERAL NOTES / SYMBOLS/GEOTECH MAP		
PV-1.0	PROPERTY & LOCATION PLAN		
PV-1.1	SITE PLAN WITH LAYOUT		
PV-1.2	PV LAYOUT		
PV-1.3	STRINGING PLAN		
PV-1.4	STRUCTURAL ANCHOR LAYOUT		
PV-2.0	SINGLE LINE DIAGRAM (SLD)		
PV-3.0	DETAILS/SECTIONS		
PV-3.1	FAULT CURRENT LETTER & RACKING DATA SHEET		
PV-3.2	BONDING & GROUNDING		
PV-4.0	DATA SHEETS		
PV-5.0	PLAQUES/SIGNAGE		
S0	Structural Print Package		
S-100	APA Racking Overview		
S-200	Foundation Detail		
S-300	Structural Purlins		
S-400	Structural Connections Overview		
S-500	Foundation Post & Bracing Overview		
SSC-1.0	Solar Structural Calculations		
SFL-1.0	Solar Foundation load test		

90% CONSTRUCTION DOCUMENTS 10/23/2023 BIOLOGIST REPORT REVISION FENCE ALIGNMENT REVISED MAX. SPAN BETW. POSTS UPDATE 1511 Drawn By Checked By Scale

CATALINA ISLAND

CONSERVANCY

125 kW (AC)

SOLAR PV

4550 U AIRPORT ROAD

AVALON, CA 90704

PROJECT HOST:

CATALINA

ISLAND

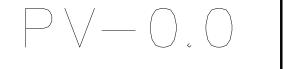
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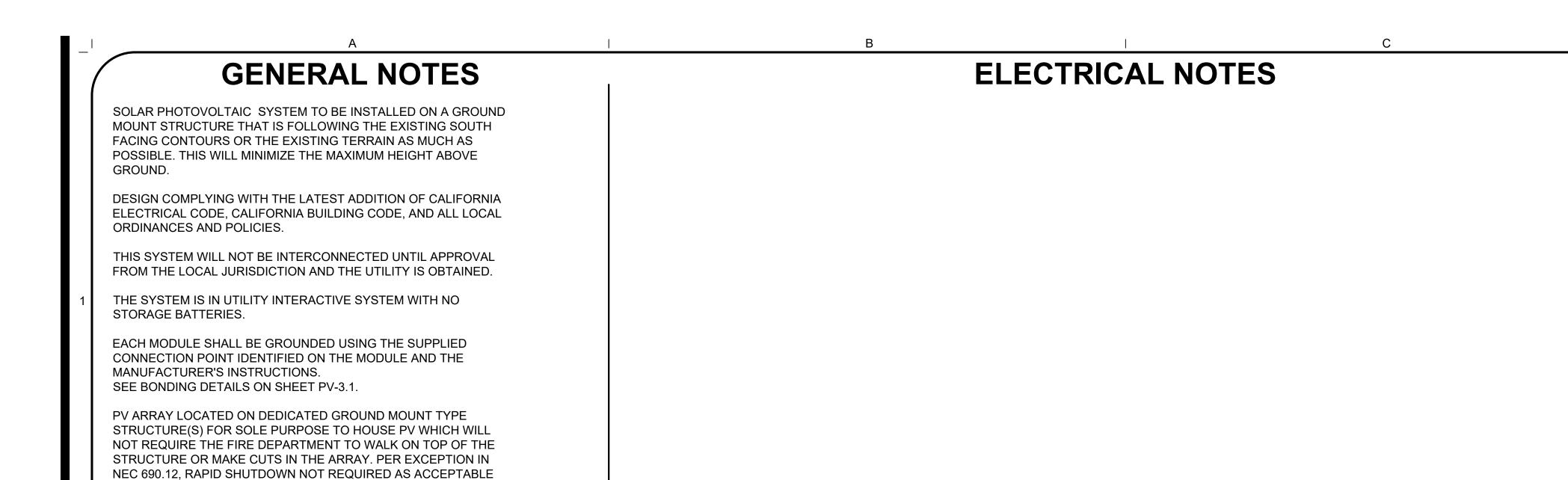
708 Crescent Ave. Avalon, CA 90704

CONSTRUCTION DOCUMENTS

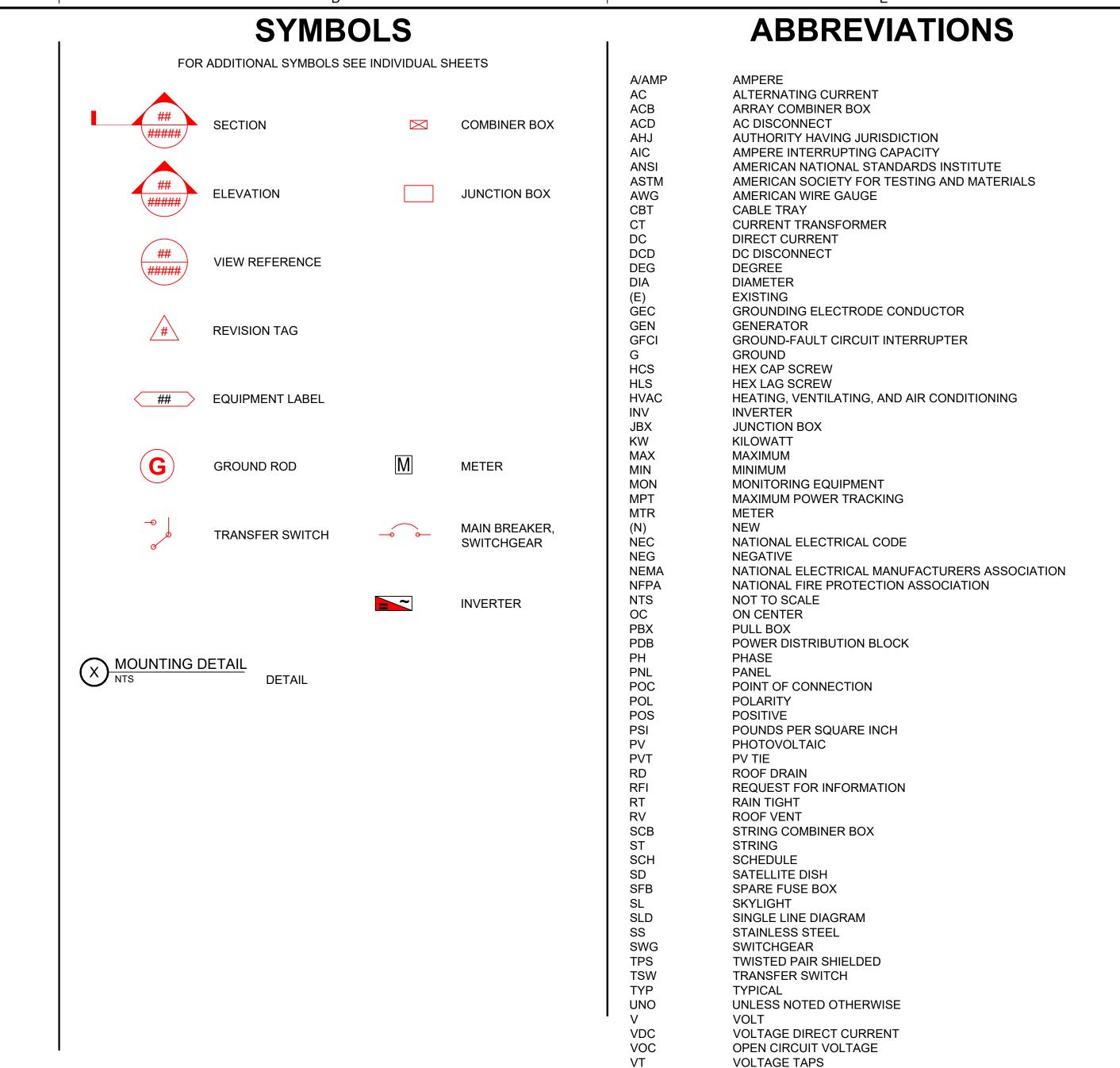
Drawing Title

SOLAR INSTALLATION TITLE SHEET





TO AHJ.



MINIMUM BMP REQUIREMENTS **NOTES**

TRANSFORMER



ATTACHMENT A

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES*

Storm Water Pollution Control Requirements for Construction Activities Minimum Water Quality Protection Requirements for All Development Construction Projects/Certification Statement

The following is intended as minimum notes or as an attachment for building and grading plans and represent the minimum standards of good housekeeping that must be implemented on all construction sites regardless of size. (Applies to all permits)

- Eroded sediments and other pollutants must be retained on site and may not be transported from the site
 via sheetflow, swales, area drains, natural drainage courses or wind. Stockpiles of earth and other construction related materials must be protected from being transported from
- the site by the forces of wind or water. • Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to
- contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the
- Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
- Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other
- Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind

As the project owner or authorized agent of the owner. I have read and understand the requirements listed above, necessary to control storm water pollution from sediments, erosion, and construction materials, and I certify that I will comply with these requirements.

Print Name Erik Sattler, Sattler Solar Inc

(Owner or authorized agent of the owner)

(Owner or authorized agent of the owner)

*The above Best Management Practices are detailed in the California Storm Water Best Management Practices Handbook, January 2003.

Attachment A BMP Notes.doc



CATALINA ISLAND CONSERVANCY

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SATTLER SOLAR AND ELECTRICAL CONTRACTORS 4770 Del Mar Ave. San Diego, CA TEL. +1 619.880.0445 www.sattlersolar.com Lic # 1017484

CHILLO-ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)

PERMITTING AND SOLAR CONSULTANT: GSR **ENERG** HTTPS://WWW.GSR-ENERGY.COM/

CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV**

4550 U AIRPORT ROAD

AVALON, CA 90704

Revision 90% CONSTRUCTION DOCUMENTS 10/23/2023 PLAN CHECK #4 BIOLOGIST REPORT REVISION 3/15/2024 SCE REQUESTED REVISIONS FENCE ALIGNMENT REVISED 07/31/2024 Job No. 1511

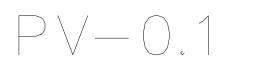
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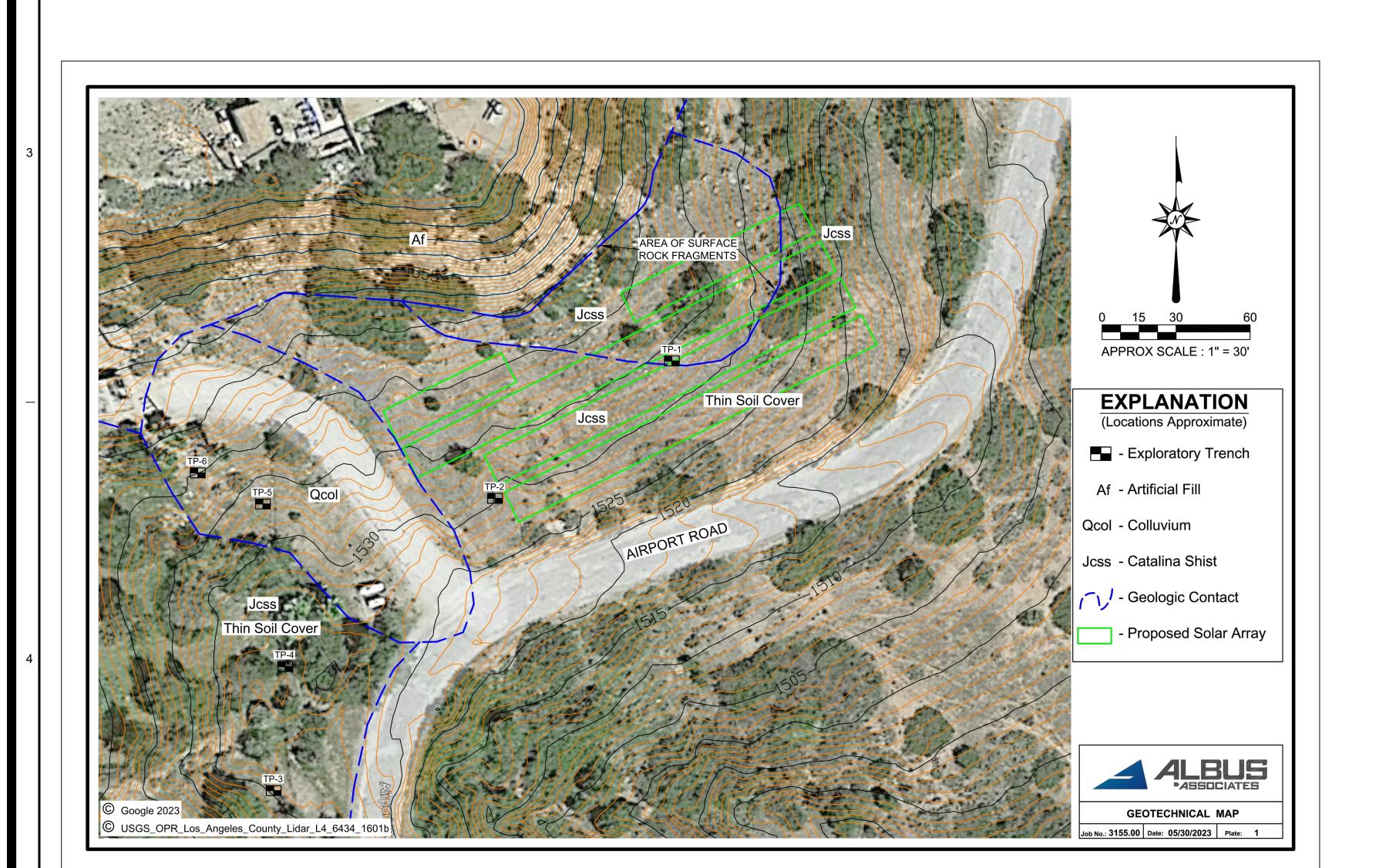
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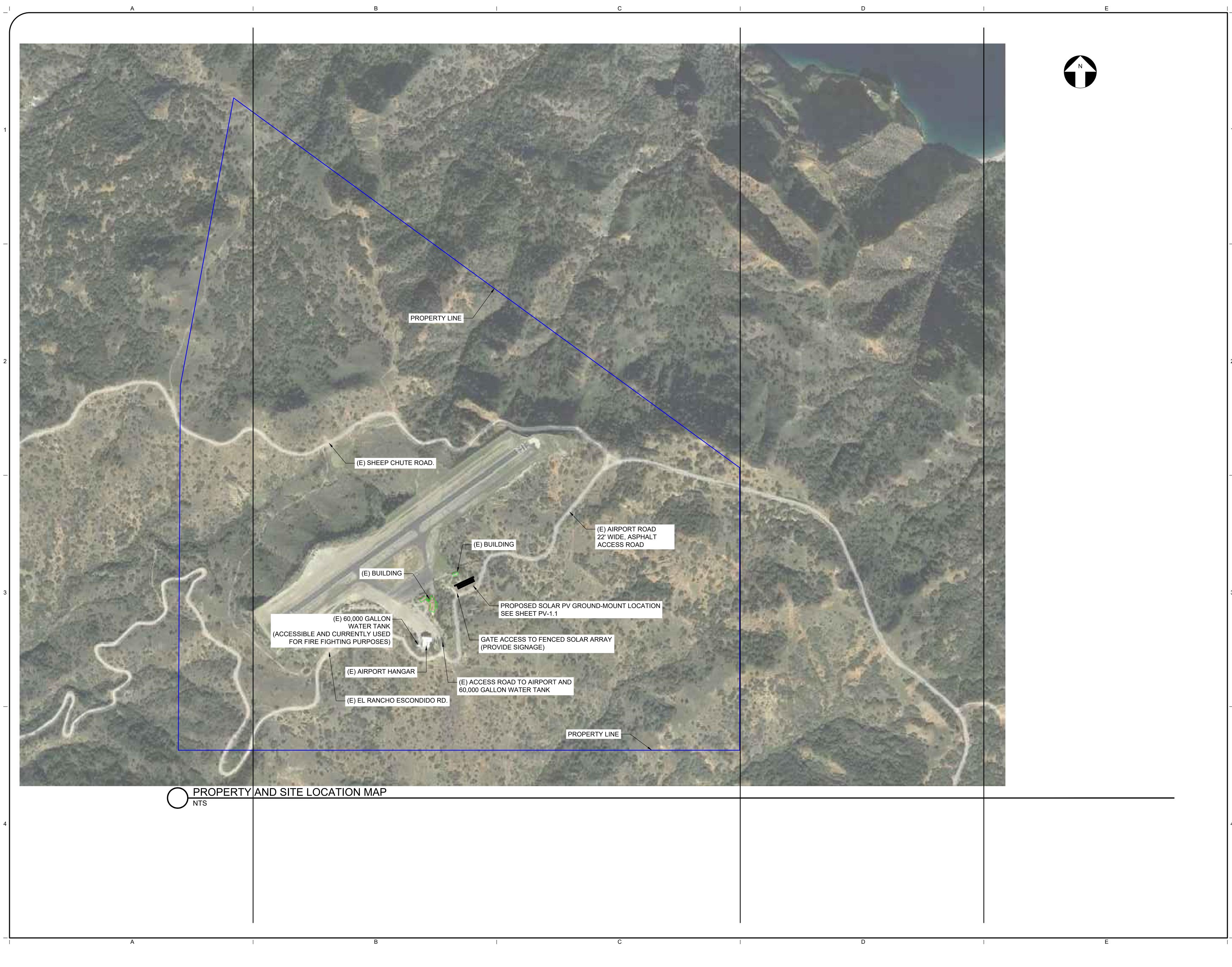
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Checked By

SOLAR INSTALLATION **GENERAL NOTES**







CATALINA
ISLAND
CONSERVANCY

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AND ELECTRICAL CONTRACTORS

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708 Crescent Ave. Avalon, CA 90704

DATED: 01/30/24
ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD
AVALON, CA 90704

Revision

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SCE REQUESTED REVISIONS
7/08/2024

CONSTRUCTION DOCUMENTS

07/08/2024

1511

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Job No.

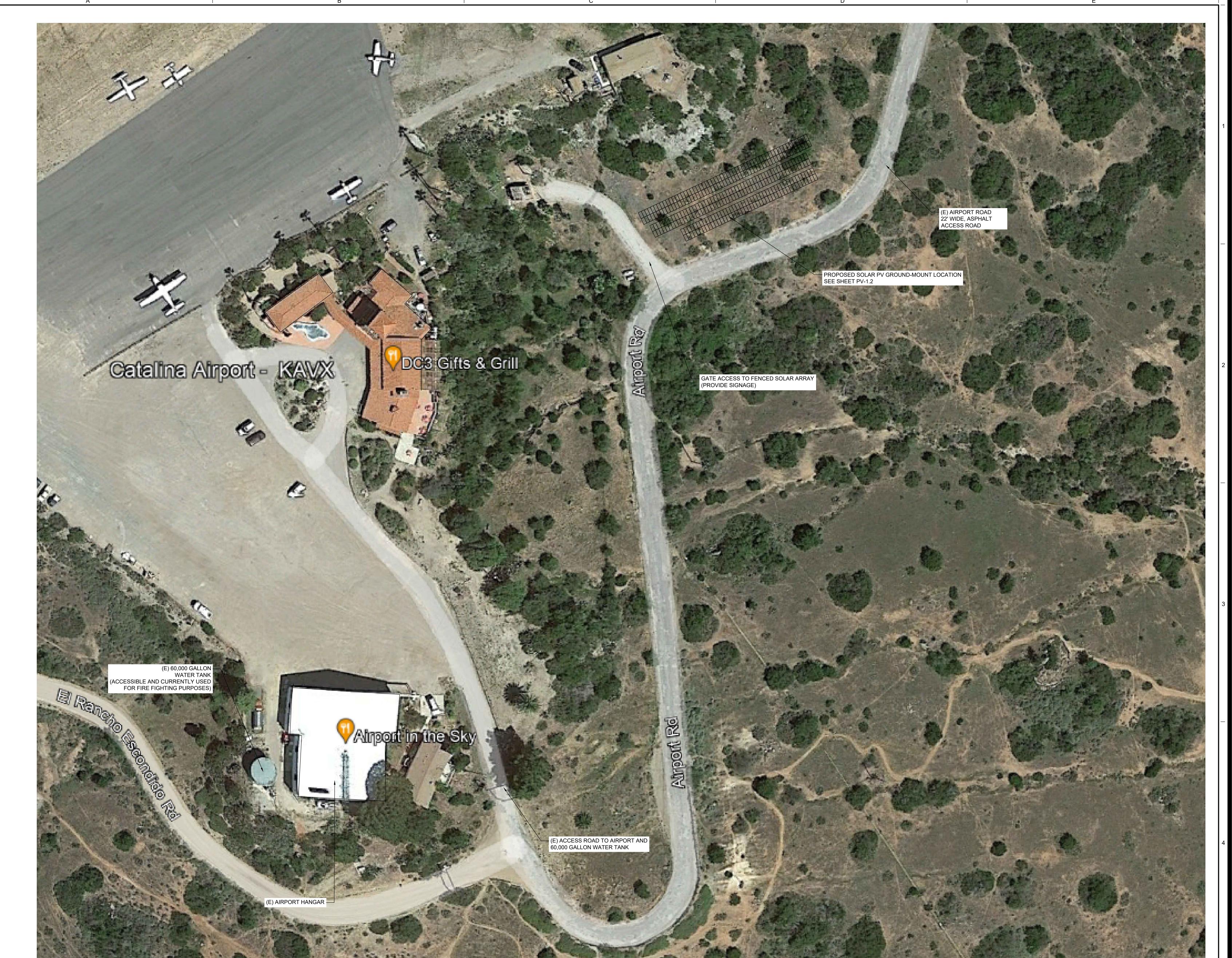
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Checked By

SOLAR INSTALLATION PROPERTY MAP

Drawing No.

PV-1.0



Catalina Island
Conservancy

CATALINA
ISLAND

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PERMITTING AND SOLAR
CONSULTANT:



CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD
AVALON, CA 90704

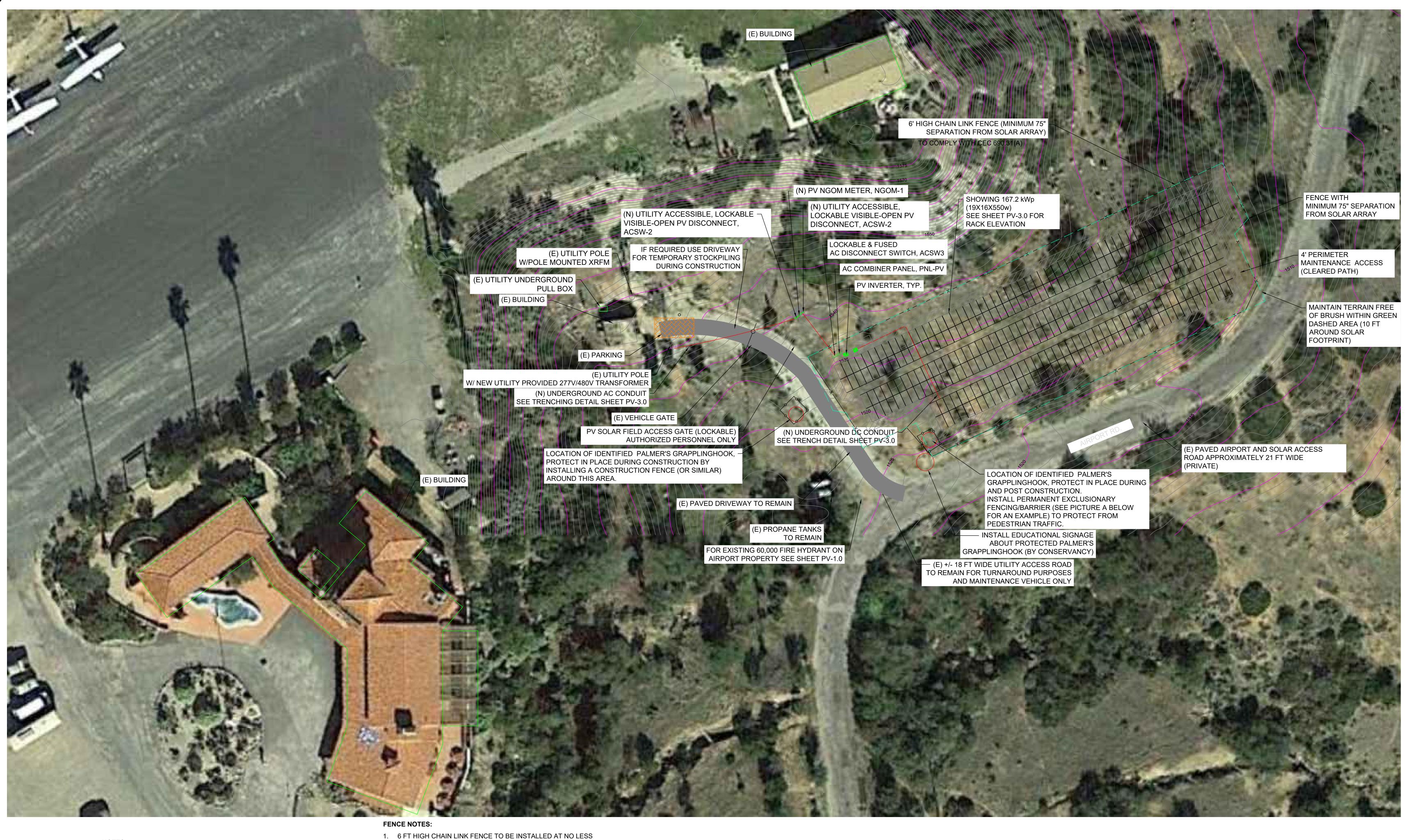
PLAN CHECK #4 1/30/2024
BIOLOGIST REPORT REVISION 3/15/2024
SCE REQUESTED REVISIONS 7/08/2024
FENCE ALIGNMENT REVISED 7/25/2024

Date 07/08/2024
Job No. 1511
Drawn By LS
Checked By ES
Scale

CONSTRUCTION DOCUMENTS

Drawing Title

SOLAR INSTALLATION LAYOUT OVERVIEW



NOTES:

- 1. SEE SHEET PV-1.1 FOR LOCATION OF EXISTING 60,000 GALLON FIRE HYDRANT ON AIRPORT PROPERTY WITHIN 1,000 FT OF SOLAR SITE.
- 2. SEE SHEET PV-3.0 FOR EQUIPMENT MOUNTING DETAILS
- 3. SEE STRUCTURAL SHEETS FOR GROUND MOUNT DETAILS AND FOUNDATION DETAILS
- 4. INSTALL (4) BOLLARDS IF THE NEW ELECTRICAL GEAR IS SUBJECT TO POTENTIAL VEHICLE DAMAGE. THE BOLLARDS SHOULD BE SPACED NOT MORE THAN 4 FT FROM EACH OTHER. IF PHYSICAL DAMAGE IS NOT A CONCERN DUE TO NATURAL BARRIERS SUCH AS GRADE CHANGE OR BOULDERS, BOLLARDS MAY NOT BE REQUIRED.
- THAN 6 FT SEPARATION FROM NEAREST SOLAR PV PANELS PER LAYOUT ABOVE.
- 2. PROVIDE 7" GAPS UNDER THE FENCE WHERE FEASIBLE TO ALLOW FOR MIGRATION OF FOXES
- 3. FENCE IS REQUIRED TO PROTECT UNAUTHORIZED PERSONNEL AND BISON FROM ENTERING THE SITE, DAMAGING THE SITE AND POSSIBLY CAUSING WILD FIRES (California Code CEC 690.31 (A)).
- 4. FENCE ALSO DELINEATES 10 FT BRUSH CLEARANCE DISTANCE FROM SOLAR INSTALLATION.
- 5. TOTAL AREA OF FENCED IN AREA: 15,615 sq.ft, TOTAL LENGTH OF FENCE 591 FT.

STOCK PILE NOTES:

USE EXISTING DRIVEWAY FOR TEMPORARY STOCKPILING OF SOIL OR ROCKS IF REQUIRED.

LEGEND

5' WIDE CLEARED PERIMETER MAINTENANCE **ACCESS**

PERMANENT 6' HIGH CHAIN LINK FENCE (typically also marking 10' brush clearance area)

__ __ _ 10' BRUSH CLEARANCE

EXCLUSIONARY FENCING TO PROTECT PALMER'S GRAPPLINGHOOK

PROJET SITE PLAN

Catalina Island **Conservancy** CATALINA **ISLAND CONSERVANCY**

PROJECT HOST:

Avalon, CA 90704

SATTLER SOLAR

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708 Crescent Ave.

ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV** 4550 U AIRPORT ROAD

AVALON, CA 90704

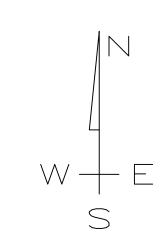
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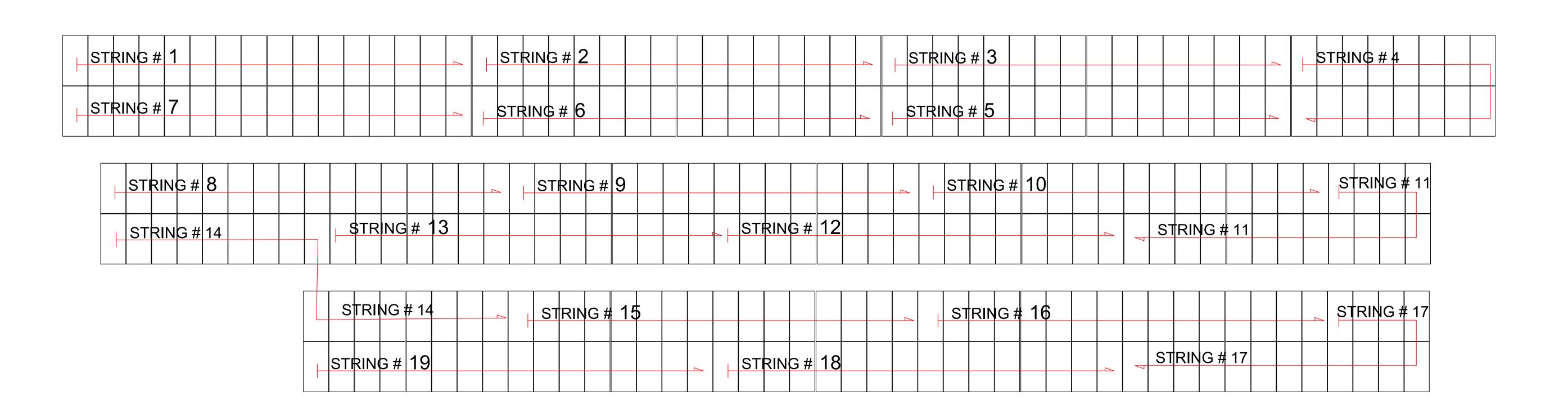
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CONSTRUCTION **DOCUMENTS**

Drawing Title

SOLAR INSTALLATION PROJECT LAYOUT



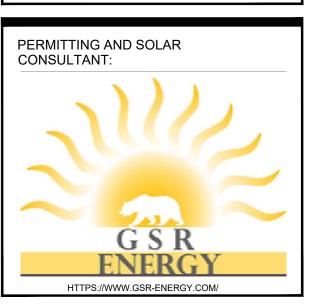


PROJECT HOST: CATALINA **ISLAND** CONSERVANCY

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708 Crescent Ave. Avalon, CA 90704

DATED: 01/30/24 ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV** 4550 U AIRPORT ROAD **AVALON, CA 90704**

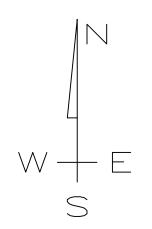
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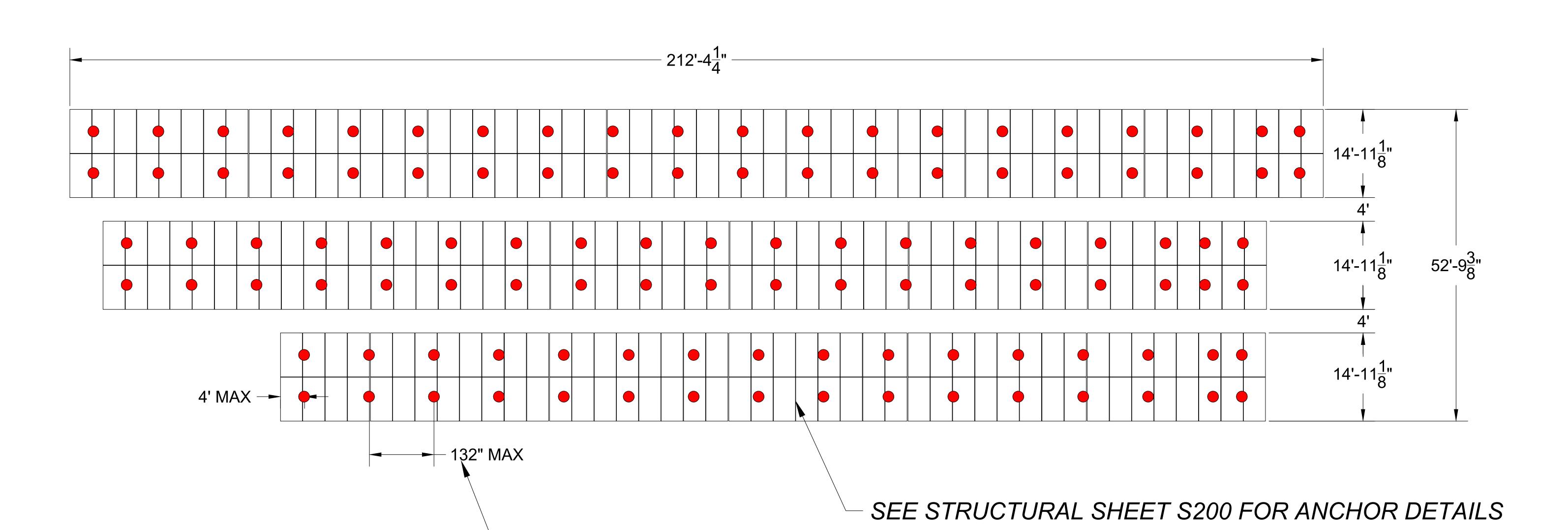
CONSTRUCTION DOCUMENTS

Drawing Title STRINGING PLAN

Drawing No.

STRINGING PLAN
NTS





SEE SHEET S100 FOR MAXIMUM SPANS AND S300 TO S500 FOR STRUCTURAL

PLEASE NOTE THAT THE ACTUAL LOCATION OF THE GROUND SCREW ANCHORS MAY SHIFT IN THE FIELD TO ACCOMMODATE TERRAIN. MAXIMUM SPANS MAY NEVER BE EXCEEDED UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.



CONNECTION DETAILS

Catalina Island
Conservancy

CATALINA
ISLAND
CONSERVANCY

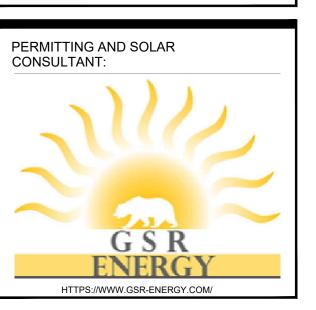
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Avalon, CA 90704



CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD
AVALON, CA 90704

Revision

Date

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PLAN CHECK #4 1/30/2024
BIOLOGIST REPORT REVISION 3/15/2024
SCE REQUESTED REVISIONS 7/08/2024
FENCE ALIGNMENT REVISED 7/25/2024
MAX. SPAN BETW. POSTS UPDATE 11/21/2024

Date 11/21/2024
Job No. 1511
Drawn By LS
Checked By ES
Scale

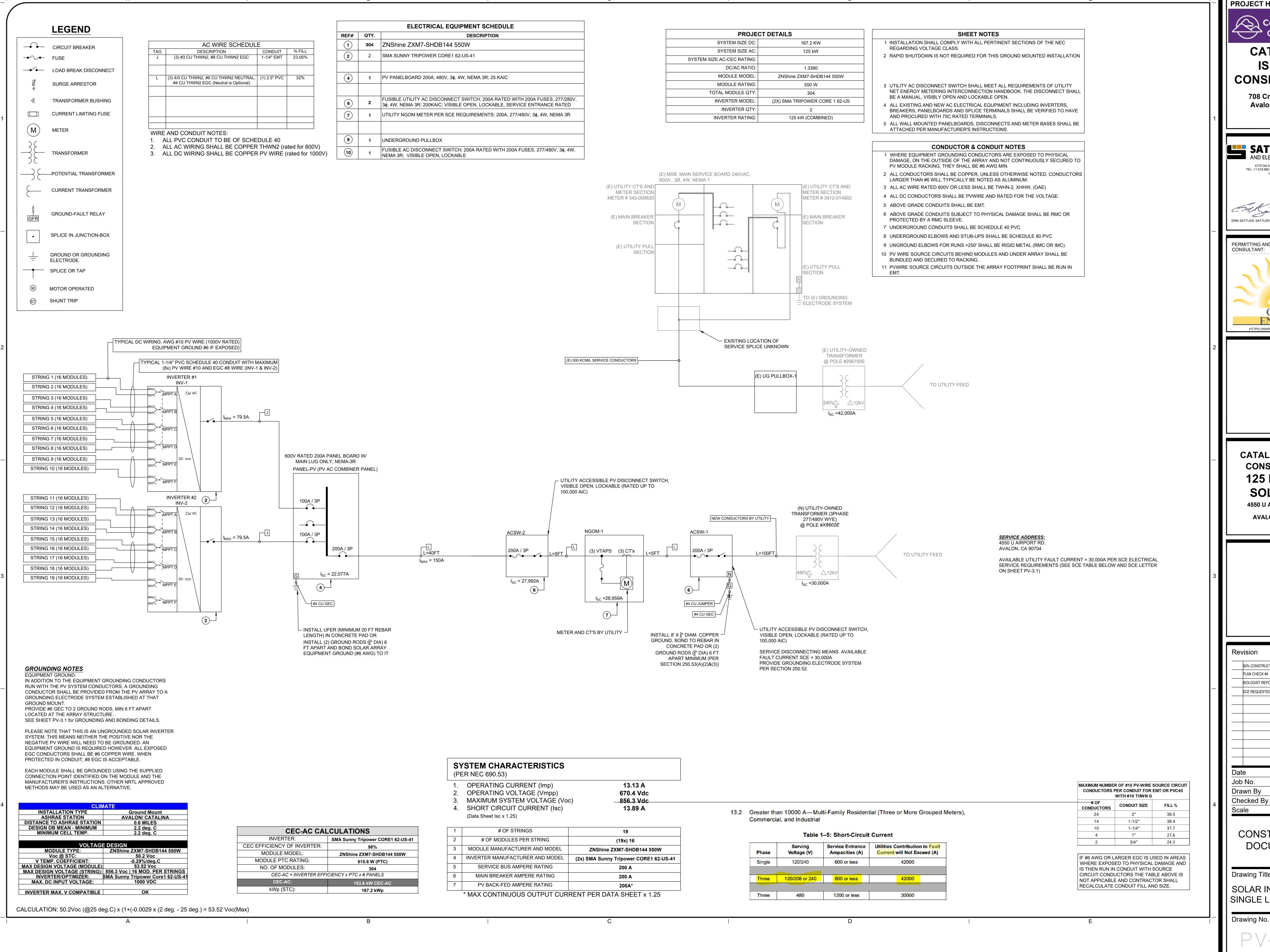
DOCUMENTS

CONSTRUCTION

Drawing Title
FOOTING MAP

Drawing No.

PV-1,4



PROJECT HOST CATALINA

ISLAND CONSERVANCY

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DATED: 01/30/24 ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV 4550 U AIRPORT ROAD AVALON, CA 90704**

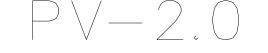
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SCE REQUESTED REVISIONS	7/08/2024

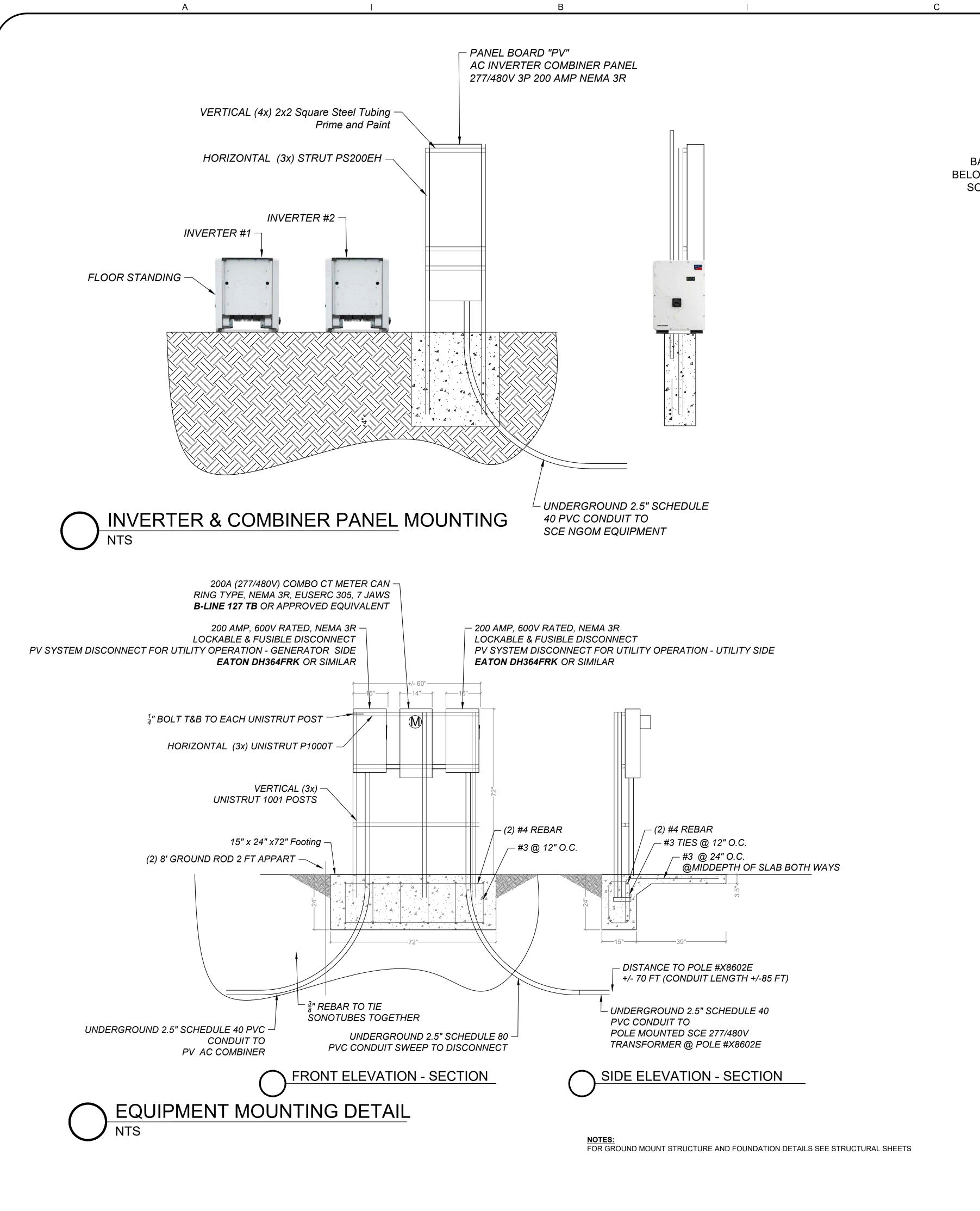
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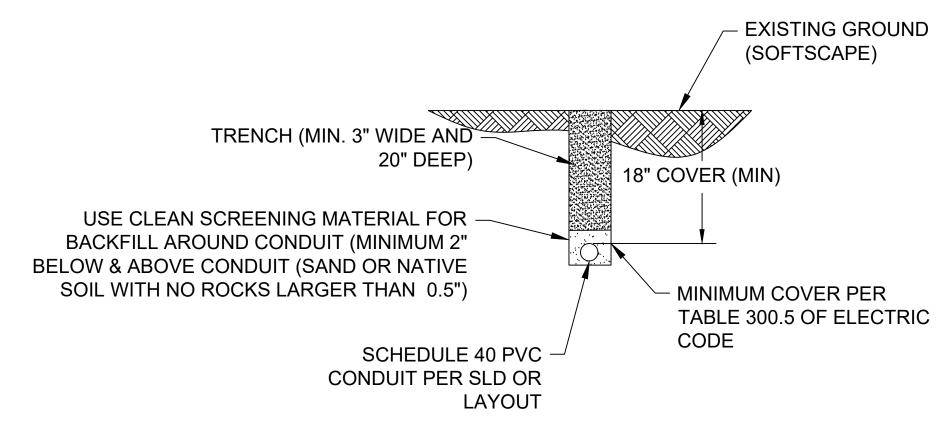
CONSTRUCTION DOCUMENTS

Drawing Title

SOLAR INSTALLATION SINGLE LINE DIAGRAM









		,	, BURIAL IN INCH		
Location of Wiring Method or Circuit	Direct Burial Cables or Conductors	Rigid Metal Conduit or Intermediate Metal Conduit	Nonmetallic Raceways Listed for Direct Burial without Concrete Encasement or Other Approved Raceways	Residential Branch Circuits Rated 120 Volts or Less with GFCI Protection and Maximum Overcurrent Protections of 20 Amperes	Circuits for Control of Irrigation and Landscape Lighting Limited to Not More than 30 Volts and Installed with Type UF or in other Identified Cable or Raceway
All locations not specified below	24	6	18	12	6
In trench below 2-inch thick concrete or equivalent	18	6	12	6	6
Under minimum of 4-inch thick concrete exterior slab with no vehicular traffic and the slab extending not less than 6 inches beyond the underground installation	18	4	4	6 (direct burial) 4 (in raceway)	6
Under streets, highways, roads, alleys, driveways, and parking lots	24	24	24	24	24
One- and two-family dwelling driveways and outdoor parking areas that are used only for dwelling-related purposes	18	18	18	12	18
Raceways approve	ed for the 2008 Coures installed under sas listed in 310.8(see the shortest distant onduit or other race d for burial only who be permitted where	de, 300.5 B of the Cerground as wet loc C) of the Code. in inches measured way and the top surface concrete encases e cables and conduct	between a point on the face of finished grade, a shall require concrete ors rise for termination	initive language det is installed in these r top surface of any of concrete, or similar of e envelope not less that is or splices or where	fining the inside acceways must be direct-buried cover. an 2 inches thick. access is

Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in metal or non-metallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 2 inches of concrete extending down to rock.

depth of burial shall be permitted.

CATALINA
ISLAND
CONSERVANCY

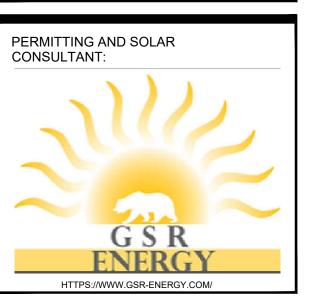
Avalon, CA 90704

SATTLER SOLAR

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DATED: 01/30/24 ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD
AVALON, CA 90704

Revision Date

90% CONSTRUCTION DOCUMENTS 10/23/2023
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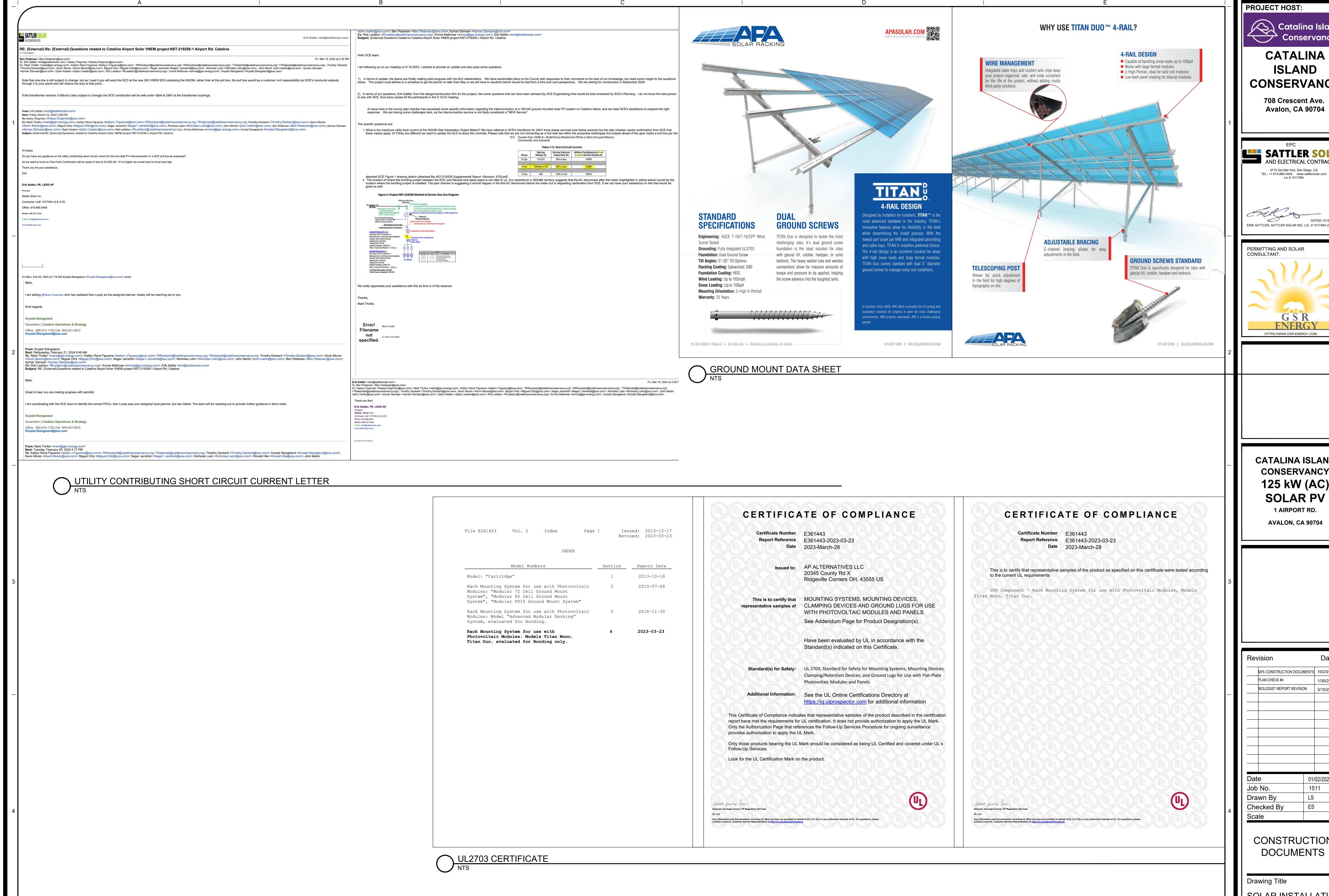
CONSTRUCTION DOCUMENTS

Drawing Title

Drawing No.

SOLAR INSTALLATION DETAILS





CONSERVANCY 708 Crescent Ave.

ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)

HTTPS://WWW GSR-ENERGY COM/

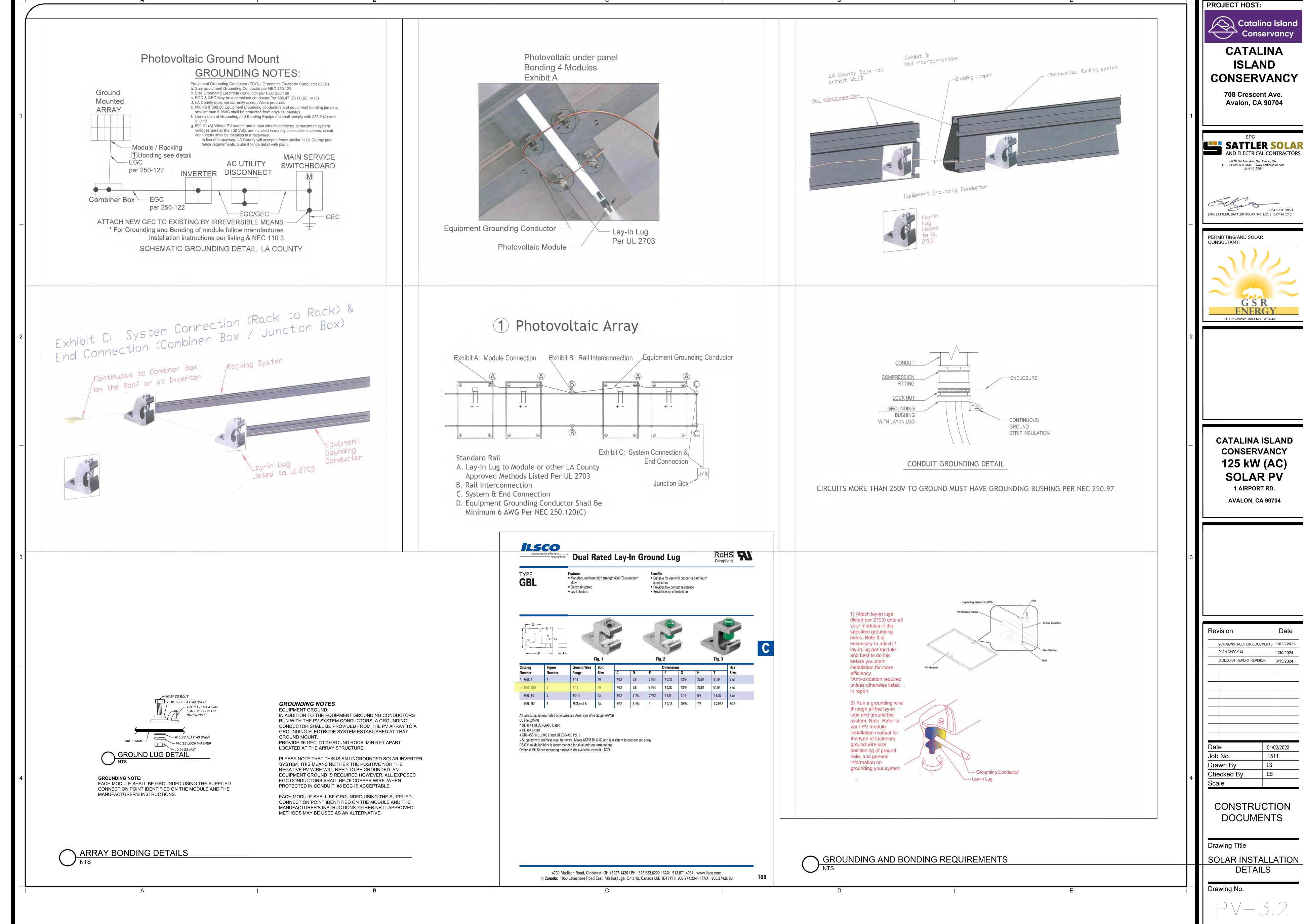
CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV** 1 AIRPORT RD.

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01/02/2023 1511 LS ES

CONSTRUCTION DOCUMENTS

SOLAR INSTALLATION DETAILS



Catalina Island





SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US

and maximum power production

OptiTrac™ Global Peak shade

tolerant MPP tracking

It stands on its own

and overvoltage protection

labor and material costs

12 direct string inputs for reduced

The Sunny Tripower CORE1 is the world's first free-standing PV inverter for commercial rooftops, carports, ground mount and repowering legacy solar projects. Now with expanded features and new power classes, the CORE1 is the most versatile, cost-effective commercial solution available. From distribution to construction to operation, the Sunny Tripower CORE1 enables logistical, material, labor and service cost reductions. Integrated SunSpec PLC for rapid shutdown and enhanced DC AFCI arc-fault protection ensure compliance to the latest safety codes and standards. With Sunny Tripower CORE1 and SMA's ennexOS cross sector energy management platform, system integrators can deliver comprehensive commercial energy solutions for increased ROI.

protection certified to new

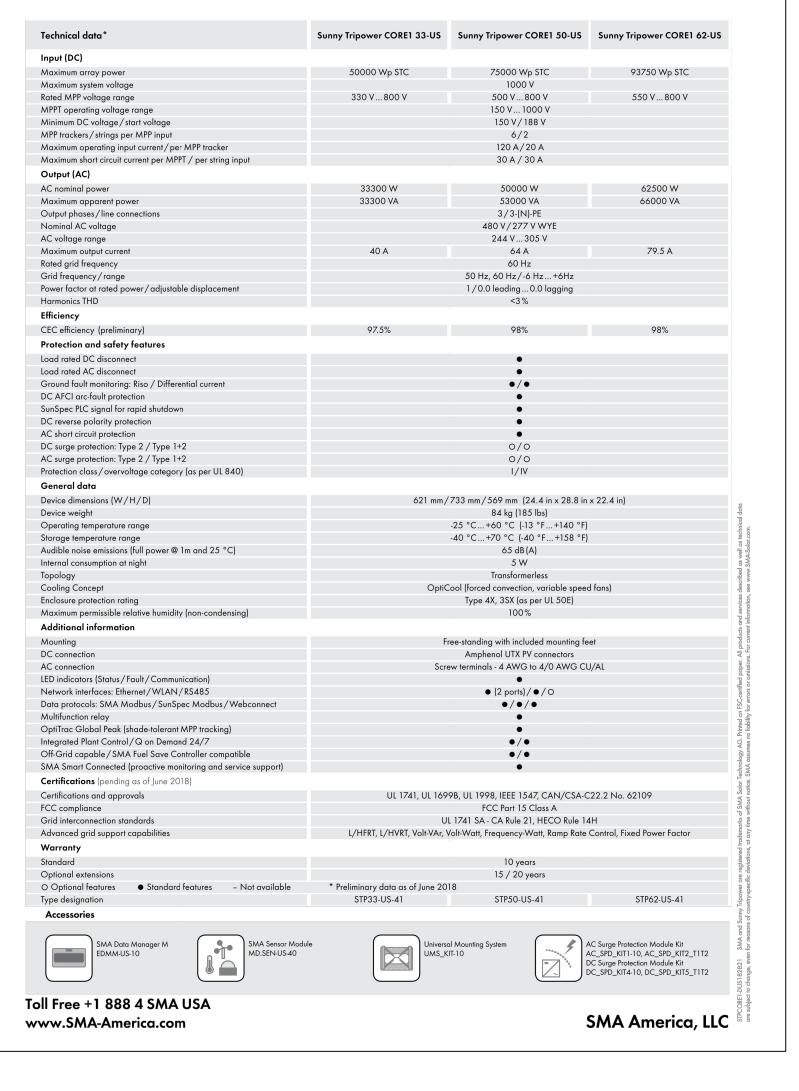
Standard UL 1699B

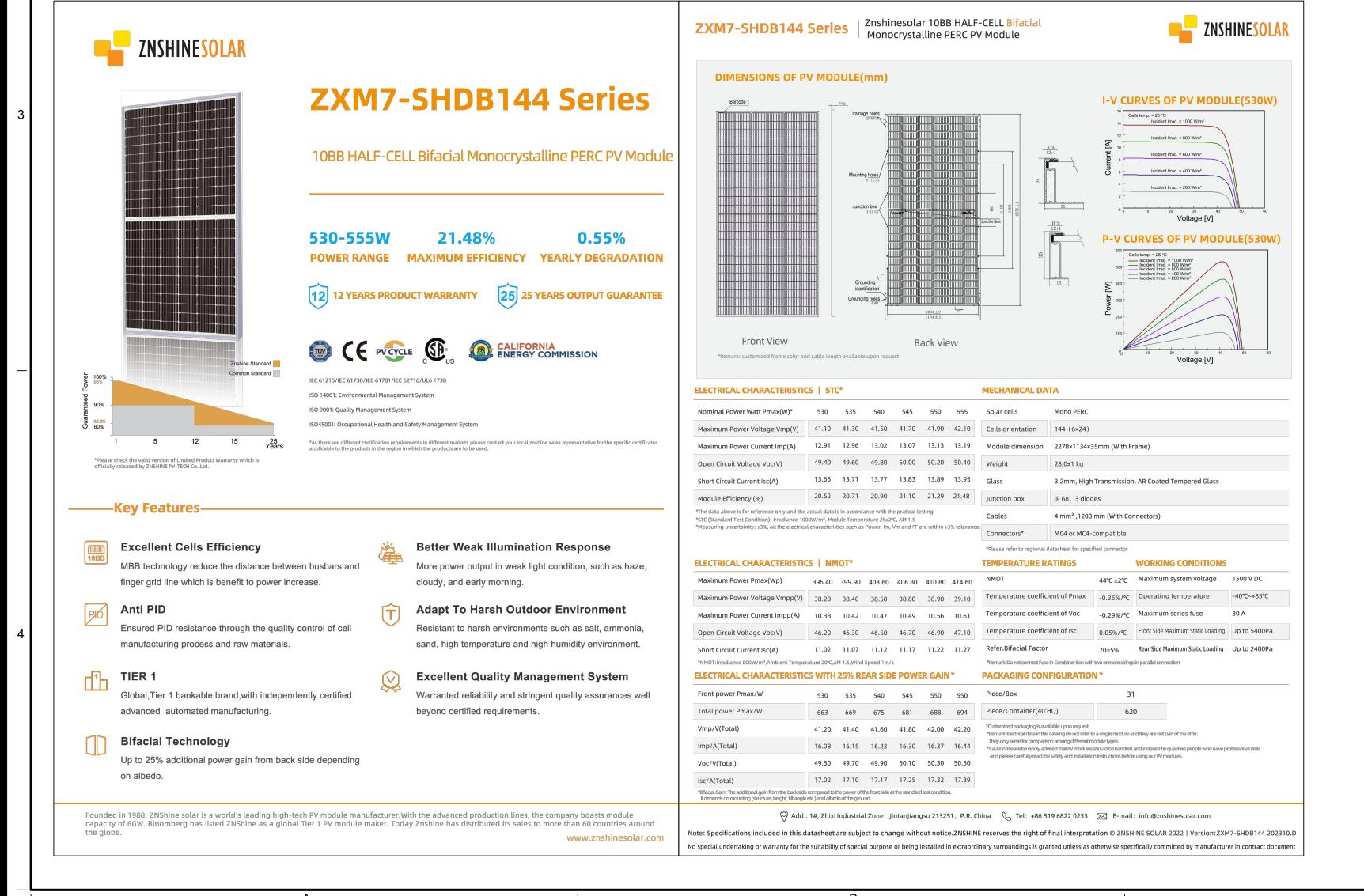
www.SMA-America.com

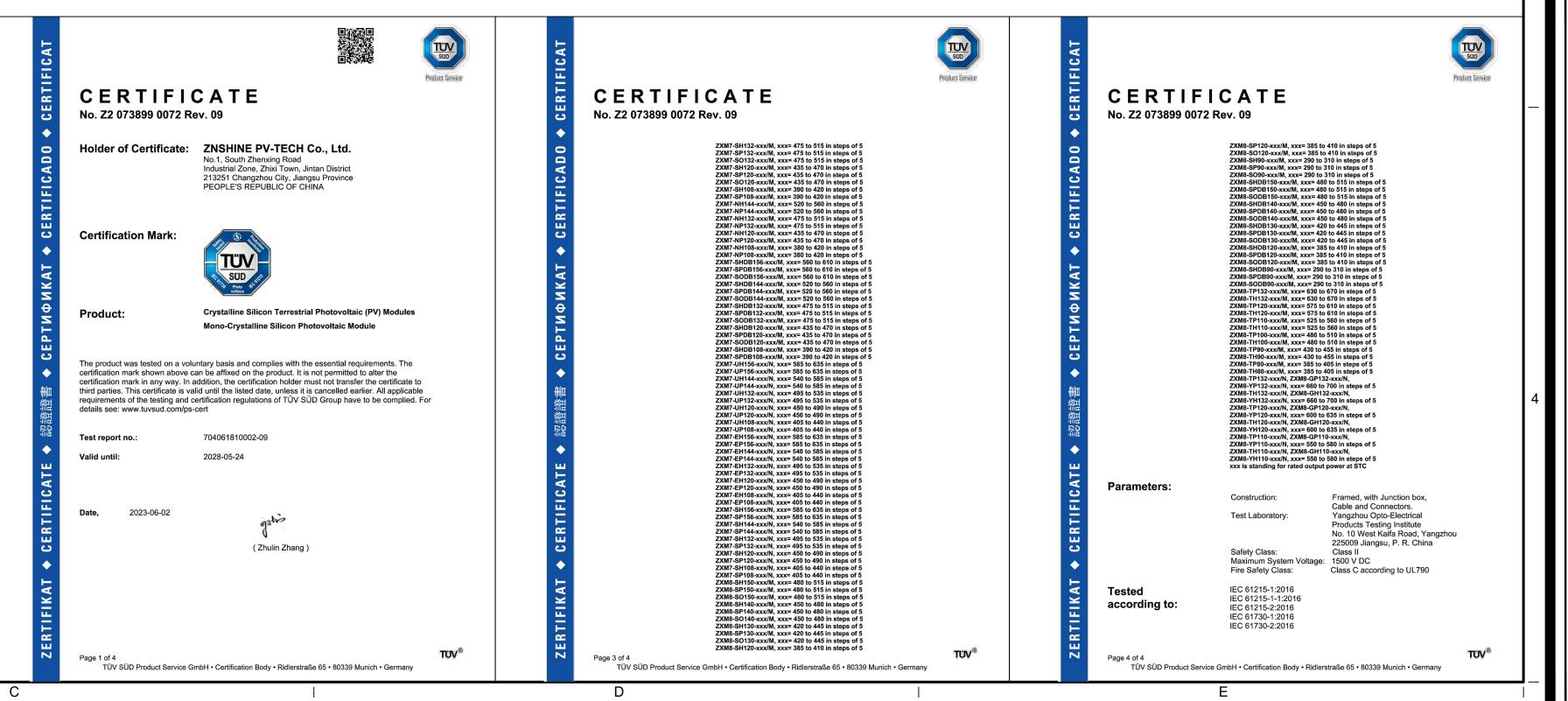
SMA Smart Connected proactive O&M

servicing in the field

solution reduces time spent diagnosing and







Catalina Island
Conservancy

CATALINA
ISLAND
CONSERVANCY

Avalon, CA 90704

EPC

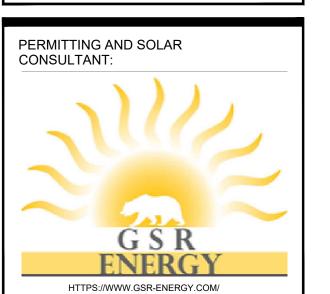
SATTLER SOLA

4770 Del Mar Ave. San Diego, CA

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DATED: 01/30/24
ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD
AVALON, CA 90704

Revision

Date

90% CONSTRUCTION DOCUMENTS 10/23/2023
PLAN CHECK #4 1/30/2024
BIOLOGIST REPORT REVISION 3/15/2024
SCE REQUESTED REVISIONS 7/08/2024

Date 07/08/2024

Job No. 1511

Drawn By LS

CONSTRUCTION DOCUMENTS

ES

Drawing Title

Checked By

Scale

SOLAR INSTALLATION DATA SHEETS



- THIS PROPOSED SOLAR ELECTRIC SYSTEM IS INTENDED TO OPERATE IN PARALLEL WITH POWER RECEIVED FROM THE UTILITY SERVICE PROVIDER.
- THE INVERTER FOR THE PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE IDENTIFIED FOR USE IN SOLAR PHOTOVOLTAIC SYSTEMS. ALL EQUIPMENT SHALL BE UL 1741 APPROVED.
- THIS SYSTEM IS INTENDED TO CONNECT TO THE EXISTING POWER SYSTEM AT A SINGLE POINT REFERRED TO US AS THE POINT OF COMMON COUPLING (POCC). THIS CONNECTION SHALL BE IN COMPLIANCE WITH ARTICLE 690.64 "POINT OF CONNECTION" OF THE NEC.
- 4. ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION FOR TESTING AND ISOLATION. ALL SOLAR COMBINER AND JUNCTION BOXES SHALL HAVE DISCONNECTION MEANS WITHIN PROXIMITY FOR ISOLATION AND TESTING PURPOSES.
- 5. ALL DISCONNECTS, COMBINERS, JUNCTIONS, PULL / SPLICE BOXES AND ENCLOSURES SHALL BE LISTED FOR ITS PURPOSE.
- 6. ALL EQUIPMENT SHALL BE INSTALLED IN SECURE AREA. SOLAR EQUIPMENT PERFORMANCE MAY BE AFFECTED IF INSTALLED IN

GROUNDING:

DIRECT SUNLIGHT.

- 1. SEE ELECTRICAL ONE-LINE DIAGRAM AND ELECTRICAL DETAILS FOR MORE GROUNDING INFORMATION.
- 2. ONLY ONE CONNECTION TO THE DC CIRCUITS AND ONE CONNECTION TO THE AC CIRCUITS SHALL BE USED FOR SYSTEM GROUNDING PER NEC 250-21.

AS POSSIBLE WITH A MINIMUM NUMBER TURNS.

- EQUIPMENT GROUNDING AND SYSTEM GROUNDING CONDUCTORS SHALL HAVE AS SHORT A DISTANCE TO GROUND
- NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED FOR PROPER GROUNDING, NOTHING THAN TERMINAL LUGS BOLTED ON AN ENCLOSURE'S FINISHED SURFACE MAY BE INSULATED BECAUSE OF PAINT/FINISH AND THEREFORE SHALL BE PROPERLY REMOVED AT POINT OF INSULATING CONTACT.
- MODULES SHALL BE GROUNDED WITH EQUIPMENT GROUNDING CONDUCTORS BONDED TO A LOCATION APPROVED BY THE MANUFACTURER WITH A MEANS OF BONDING LISTED FOR THIS PURPOSE.
- 6. THE CONNECTION TO THE MODULE OR PANEL OF THIS PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE ARRANGED TO THAT REMOVAL OF A MODULE OR A PANEL FROM THE PHOTOVOLTAIC SOURCE CIRCUIT DOES NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT. SETS OF SOLAR MODULES INTERCONNECTED AS SYSTEM RATED AT 50 VOLTS OR LESS WITH OR WITHOUT BLOCKING DIODES AND HAVING A SINGLE OVER CURRENT PROTECTION DEVICE SHALL BE CONSIDERED A SINGLE SOURCE CIRCUIT
- GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, INCLUDING BUT NOT LIMITED TO GROUND RODS, GROUNDING LUGS, GROUNDING CLAMPS, ETC, GROUNDING DEVICES EXPOSED TO THE ENVIRONMENT SHALL BE RATED FOR DIRECT BURIAL.

DISCONNECTING MEANS:

GROUNDED CONDUCTOR.

- MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS DC SOLAR PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS IN THE BUILDING.
- WHERE A CIRCUIT GROUNDING CONNECTION IS NOT DESIGNED TO BE AUTOMATICALLY INTERRUPTED AS PART OF THE GROUND FAULT PROTECTION SYSTEM REQUIRED BY THE NEC SECTION 690.5 A SWITCH OR CIRCUIT BREAKER USED AS DISCONNECTING MEANS SHALL NOT HAVE A POLE IN THE
- THE GROUNDED CONDUCTOR MAY HAVE A BOLTED OR TERMINAL DISCONNECTING MEANS TO ALLOW MAINTENANCE OR TROUBLESHOOTING BY QUALIFIED PERSONNEL.

AT INVERTER AC COMBINER PANEL RED LABEL WITH WHITE LETTERS

1" x 3"

AC COMBINER PANEL DO NOT ADD ANY LOADS

A LABEL SHALL BE PLACED NEXT TO ALL PV BREAKERS AND SHALL READ AS FOLLOWS:

OVERCURRENT DEVICE

WARNING INVERTER OUTPUT CONNECTION: DO NOT RELOCATE THIS

AT UTILITY PV DISCONNECT SWITCH RED LABEL WITH WHITE LETTERS

AC PHOTOVOLTAIC POWER SOURCE

OPERATING AC CURRENT: OPERATING SYSTEM VOLTAGE: 277/480 V

THIS PHOTOVOLTAIC SYSTEM WILL BE EQUIPPED WITH AN AC

DISCONNECT WARNING LABEL WHICH SHALL BE LABELLED AS

FOLLOWS:

WARNING ELECTRIC SHOCK

HAZARD TERMINALS ON THE LINE AND LOAD SIDES MAY BE **ENERGIZED IN THE OPEN POSITION**

DISCONNECTING MEANS:

IDENTIFIED.

4. THE DISCONNECTION MEANS SHALL NOT BE REQUIRED TO BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED IN ACCORDANCE WITH SECTION 690.17

5. EQUIPMENT SUCH AS SOLAR PHOTOVOLTAIC SOURCE CIRCUITS, OVER-CURRENT DEVICES, AND BLOCKING DIODES SHALL BE PERMITTED ON THE PHOTOVOLTAIC SIDE OF THE MEANS OF DISCONNECT.

- 6. MEANS SHALL BE PROVIDED TO DISCONNECT EQUIPMENT SUCH AS INVERTERS, BATTERIES, CHARGE CONTROLLERS, AND ALL UNDERGROUND CONDUCTORS OF ALL SOURCES, IF THE EQUIPMENT IS ENERGIZED FROM MORE THAN ONE SOURCE, THE DISCONNECTING MEANS SHALL BE GROUPED AND
- 7. A SINGLE DISCONNECTING MEANS SHALL BE PERMITTED FROM THE COMBINED AC OUTPUT OF ONE OR MORE INVERTERS IN AN INTERACTIVE SYSTEM.
- 8. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT A FUSE, IN TOUCH SAFEW HOLDERS FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTIONS AND ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS SUCH A FUSE IN SOLAR PHOTOVOLTAIC SOURCE CIRCUITRY SHALL BE CAPABLE OF BEING DISCONNECTED INDEPENDENTLY OF FUSES IN OTHER SOLAR PHOTOVOLTAIC SOURCE CIRCUITS.
- 9. ALL DISCONNECTS AND COMBINERS SHALL BE SECURED FROM UNAUTHORIZED AND UNQUALIFIED PERSONNEL BY EITHER LOCK OR LOCATION.
- REQUIRED SAFETY SIGNS AND WARNING LABELS:

1. REQUIRED SAFETY SIGNS AND LABELS SHALL BE

- PERMANENTLY ATTACHED BY EITHER ADHESIVE OR OTHER MECHANICAL MEANS.
- 2. LABELS SHALL COMPLY WITH THE NEC ARTICLE 690 AND ALL OTHER APPLICABLE STATE AND LOCAL CODES.
- 3. ANY SWITCH, FUSES, OR CIRCUIT BREAKERS THAT CAN BE ENERGIZED IN EITHER DIRECTION SHALL BE FURNISHED WITH A WARNING LABEL.
- 4. THIS PHOTOVOLTAIC SYSTEM WILL BE EQUIPPED WITH ALL APPLICABLE PLACARDS SIGNS AND WARNING LABEL WHICH SHALL BE LABELED AS FOLLOWS:

THE FOLLOWING PLACARD SHALL BE FURNISHED AT EACH JUNCTION BOX, COMBINER BOX, DISCONNECT AND DEVICE WHERE ENERGIZED, UNGROUNDED CIRCUITS MAY BE EXPOSED DURING SERVICE.

WARNING:

ELECTRICAL SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

THE FOLLOWING PLACARD SHALL BE FURNISHED AT EACH

WARNING: ELECTRICAL SHOCK HAZARD THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND

MAY BE ENERGIZED

INVERTER SIGNAGE

ALL INVERTERS WITH INTEGRATED DC DISCONNECTS SHALL BE LABELED AS FOLLOWS:

INVERTER 1-3

ALL INVERTERS

WARNING

ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS! TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN

THE OPEN POSITION PHOTOVOLTAIC MODULES PRODUCE DC **VOLTAGE WHENEVER THEY ARE EXPOSED**

ALL INVERTERS

DISCONNECT

(NEC 690.53)

REQUIRED CONDUIT MARKINGS TO BE PLACED ON:

INTERIOR AND EXTERIOR DIRECT-CURRENT (DC) CONDUIT, ENCLOSURES, RACE-WAYS, CABLE ASSEMBLIES, JUNCTION BOXES,

LOCATION OF MARKING: MARKING SHALL BE PLACED ON INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDS AND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS.

EQUIPMENT LABELING

EQUIPMENT SUCH AS PANELBOARDS, DISCONNECTS, INVERTERS, AND TRANSFORMERS SHALL BE IDENTIFIED WITH A LABEL AS BLACK LABEL WITH WHITE LETTERING

PANEL-PV PV AC COMBINER PANEL

DIMENSIONS: 2" x 3"

FED FROM ACSW-2 277V/480V 200A 3 PHASE 3 WIRE BROWN, ORANGE, YELLOW

ACSW-2

FED FROM NGOM-1 277V/480V 200A 3 PHASE 3 WIRE

BROWN, ORANGE, YELLOW

PV SYSTEM DISCONNECT

GENERATOR SIDE

NGOM-1 PV SYSTEM OUTPUT GENERATION METER FED FROM ACSW-1

277V/480V 200A 3 PHASE 3 WIRE **BROWN. ORANGE. YELLOW**

ACSW-1

PV SYSTEM DISCONNECT UTILITY SIDE FED FROM UTILITY XRFM 277V/480V 200A 3 PHASE 3 WIRE BROWN, ORANGE, YELLOW

TO THE SUNLIGHT

DC PHOTOVOLTAIC

OPERATING DC CURRENT: 27A (DC) OPERATING SYSTEM VOLTAGE: 601 V (DC) MAXIMUM SYSTEM VOLTAGE: 834 Voc (DC) SHORT CIRCUIT CURRENT (MAX):

COMBINER BOXES AND DISCONNECTS. MARKING SHALL CONTAIN THE

WARNING: PHOTOVOLTAIC POWER SOURCE

DC CIRCUIT MARKING REQUIREMENTS:

MATERIALS: THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. MARKING AS REQUIRED IN SECTIONS 605.11.1.2 THROUGH 605.11.1.4 SHALL HAVE ALL LETTERS CAPITALIZED WITH A MINIMUM HEIGHT OF 3/8 INCH WHITE ON RED BACKGROUND.

THE FOLLOWING LABEL SHALL BE PLACED AT UTILITY NGOM METER AND MAIN SERVICE BOARD

WARNING DUAL POWER SOURCE. FIRST SOURCE: UTILITY GRID

SECOND SOURCE: PHOTOVOLTAIC SYSTEM

THE FOLLOWING LABEL SHALL BE PLACED AT PULL BOXES,

WARNING

MAIN SERVICE BOARD AND COMBINER PANEL

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR WORKING INSIDE PANEL

ON SOLAR SITE ACCESS GATES

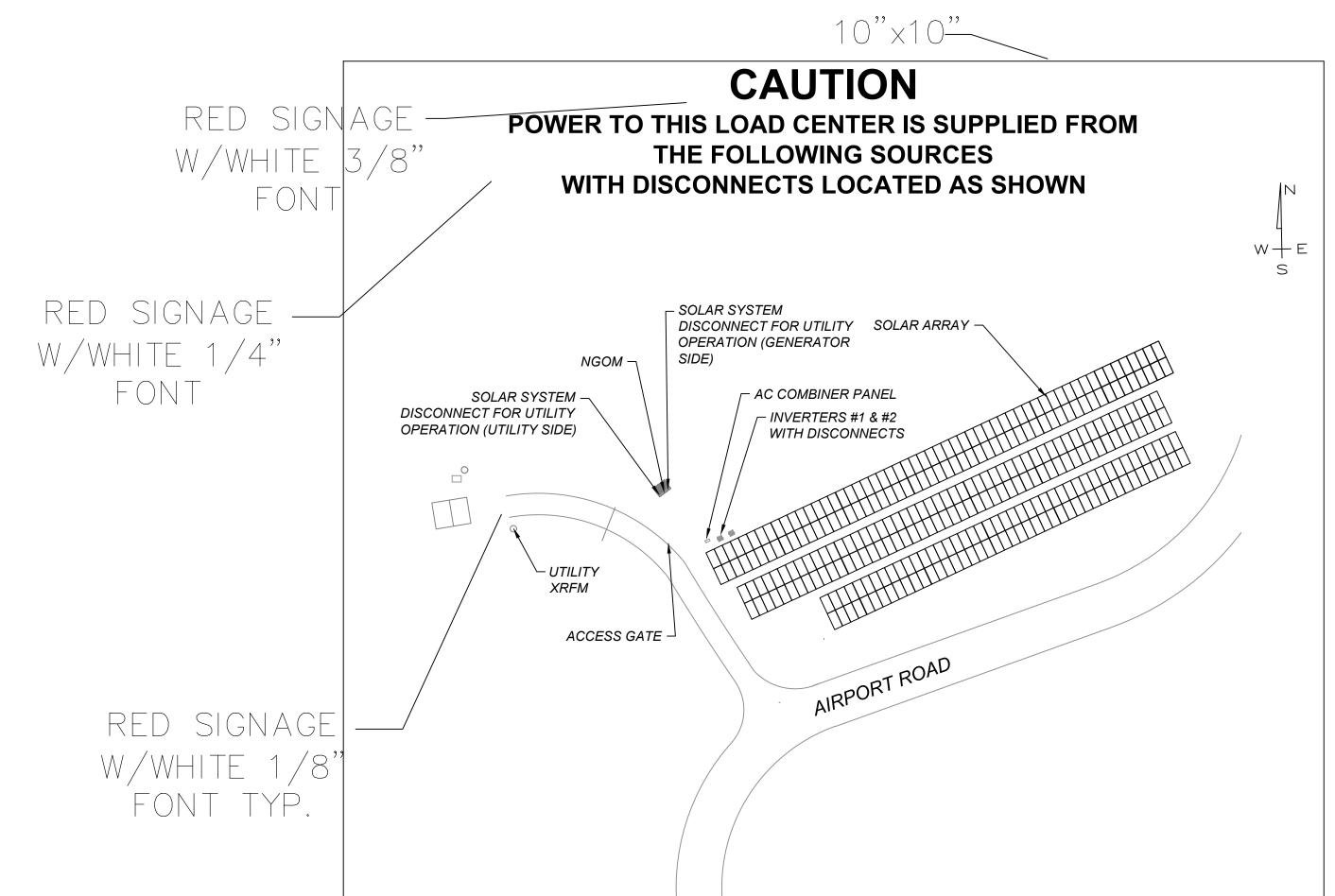
TRAINED AUTHORIZED PERSONNEL ONLY DO NOT ENTER



High voltage



A PLOT MAP LOCATING THE POWER SOURCES WITH DISCONNECTS SHALL BE FURNISHED BY THE SOLAR INSTALLER NEAR THE MAIN SERVICE PANEL IN A VISIBLE LOCATION.



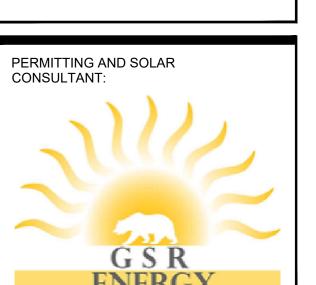
PROJECT HOST: **CATALINA**

ISLAND CONSERVANCY 708 Crescent Ave.

Avalon, CA 90704



ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)



HTTPS://WWW.GSR-ENERGY.COM/

CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV** 4550 U AIRPORT ROAD **AVALON, CA 90704**

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CONSTRUCTION DOCUMENTS

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ES

Drawing Title

Drawn By

Scale

Checked By

SOLAR INSTALLATION SIGNAGE

STRUCTURAL PRINT PACKAGE - 220367

AVALON, CA 90704





REVISION: E

PERMIT SET/

STRUCTURAL PACKET

RACKING PROVIDER



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|F| 419.725.7160

RACKING PRODUCT LINE



USE WITH THE FOLLOWING PRINTS & PACKAGES. INCLUDE WITH SUBMISSION TO PERMIT/INSPECTION AGENCY:

- ✓ CALCULATION PACKAGE:
 220367 CALC SET STAMPED
- FOUNDATION DESIGN REPORT (SITE SPECIFIC, & ONLY WHERE REQUIRED BY EOR OR AHJ)



SITE ADDRESS: 4550 U AIRPORT RD AVALON, CA 90704

SOLAR PHOTOVOLTAIC GROUND MOUNT

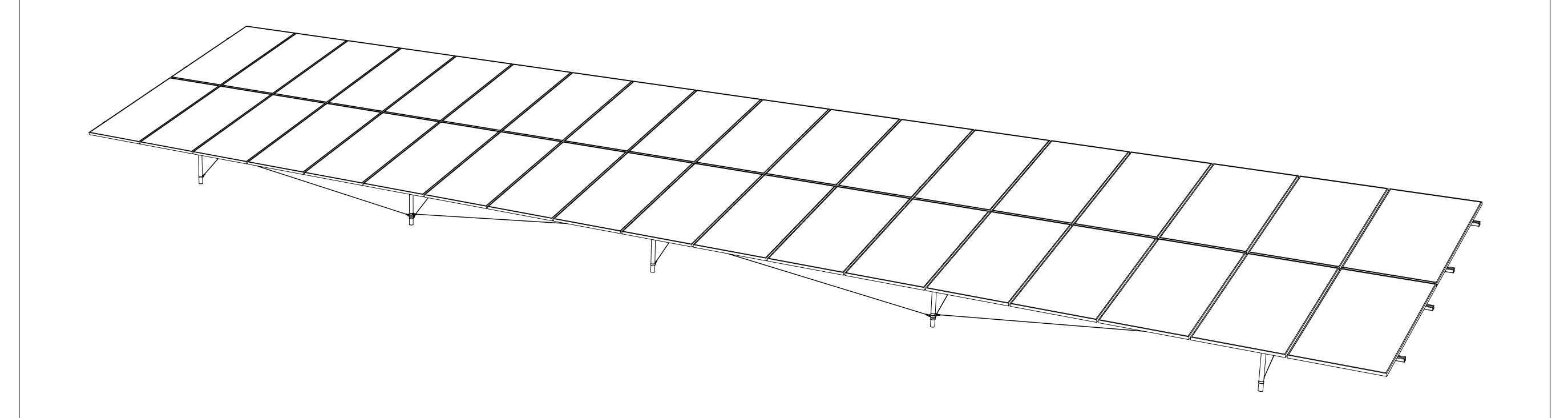


IMAGE FOR REFERENCE ONLY

SHEET INDEX STRUCTURAL E STRUCTURAL COVER B RACKING OVERVIEW A RACKING OVERVIEW ON SLOPE A STRUCTURAL PURLINS B CONNECTIONS OVERVIEW

APPROVED

GOVERNING STRUCTURAL CODE/S

A FOUNDATION POST & BRACING OVERVIEW

2021 INTERNATIONAL BUILDING CODE 2022 CALIFORNIA BUILDING CODE

PACKAGE COVERAGE - LOADING AND SETUP RANGES & CONSTANTS

TILT ANGLES:	15°
MAX GROUND SNOW LOAD (PSF):	0
MAX WIND LOADS (MPH):	101
WIND EXPOSURE CATEGORY:	С
MAX SEISMIC Ss:	3.730 c
MAX SEISMIC S1:	1.390 g

PV MODULE: CANADIAN SOLAR/CS6W-XXX-MB/AG OR SIMILAR

O				
MAX.	PANEL	WIDTH:	44.65	,
MAX.	PANEL	LENGTH:	89.21"	1
MAX.	PANEL	HEIGHT:	2.00"	
MAX.	PANEL	WEIGHT:	71.00	LE

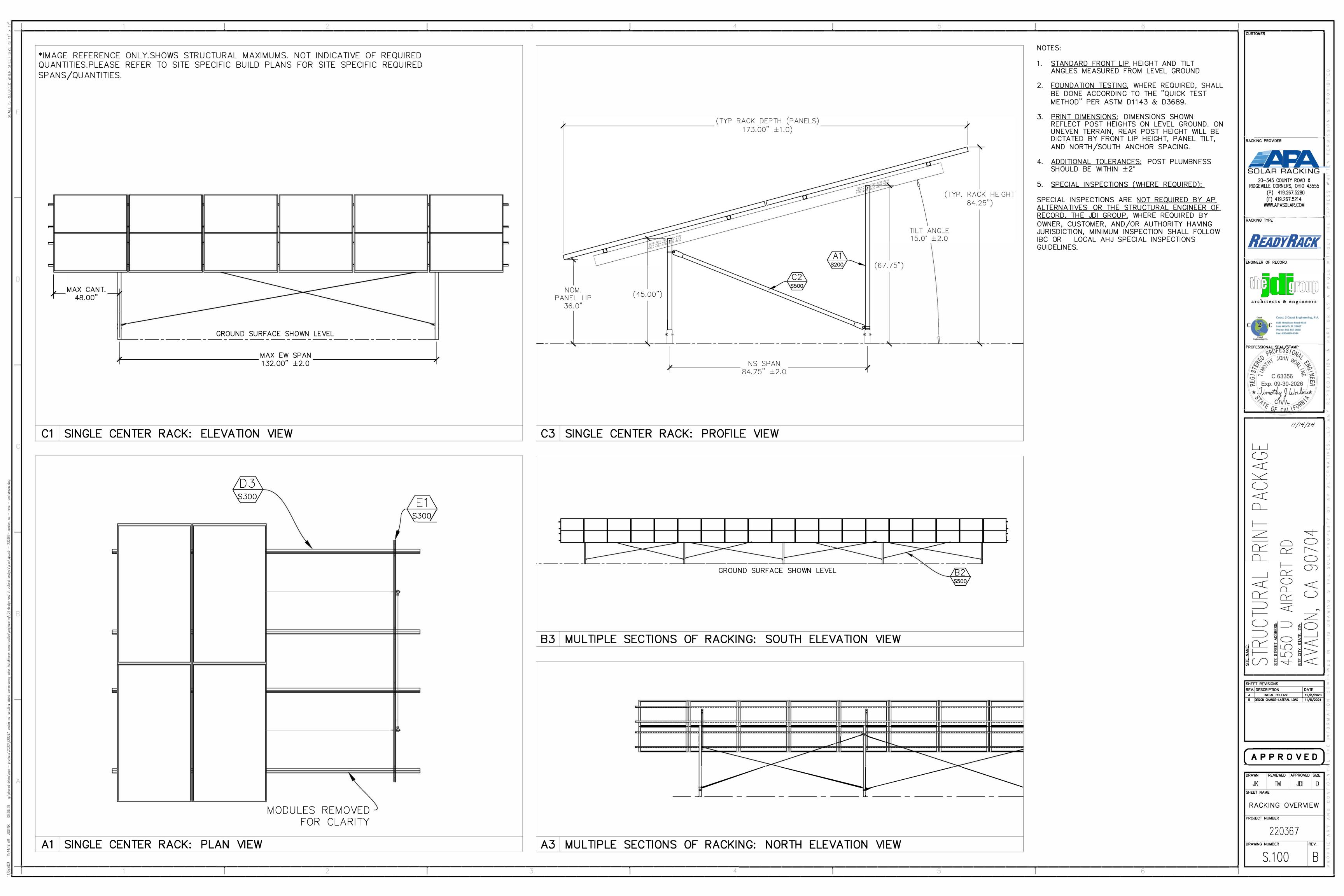
RISK CATEGORY: MAX FRONT LIP CLEARANCE:

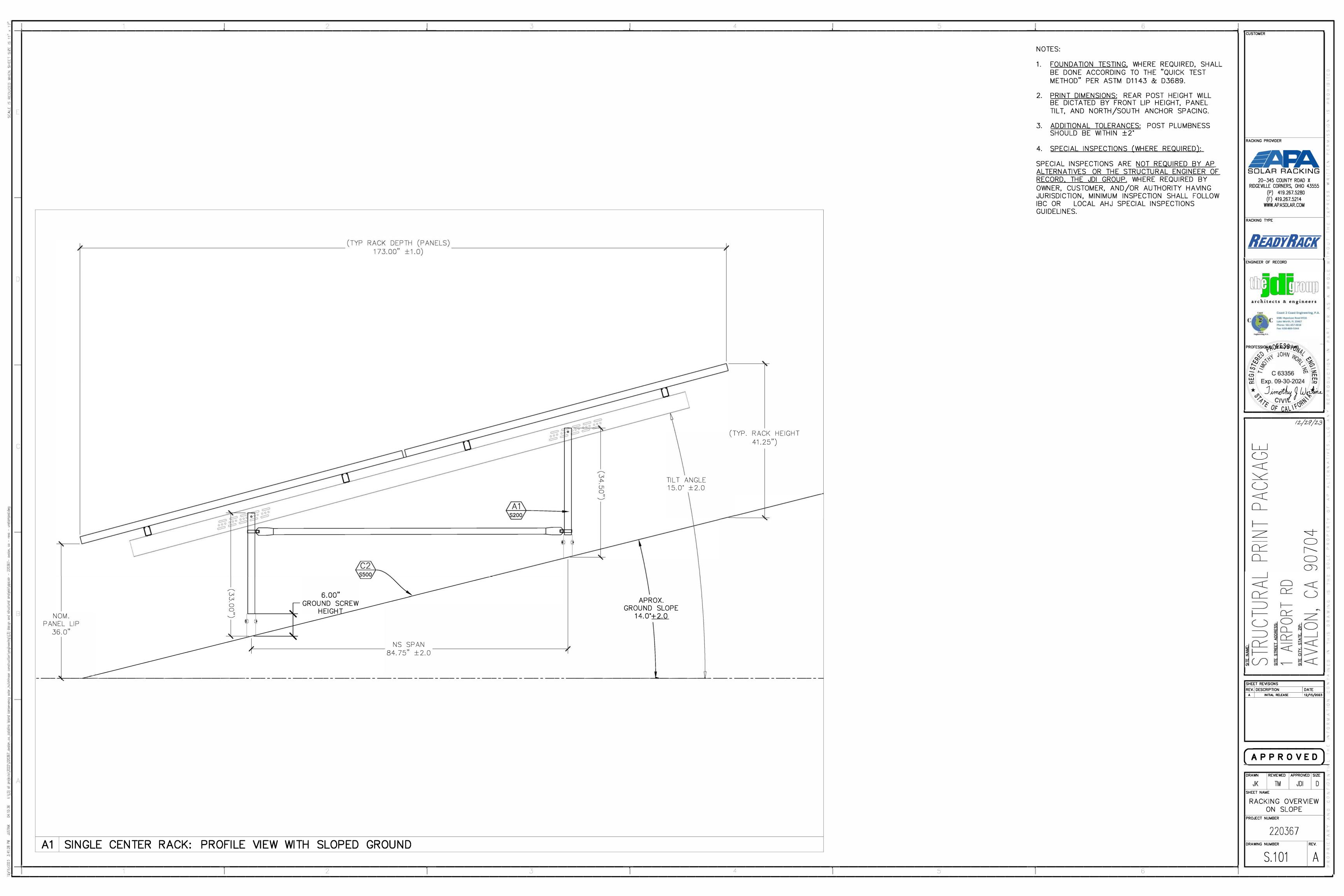
*PER USGS MIN/MAX DESIGN VALUES FOR REGIONS, VALUES BASED ON MAX VALUES IN UNITED STATES. SEISMIC DOES NOT LIMIT DESIGN. REFERENCES:

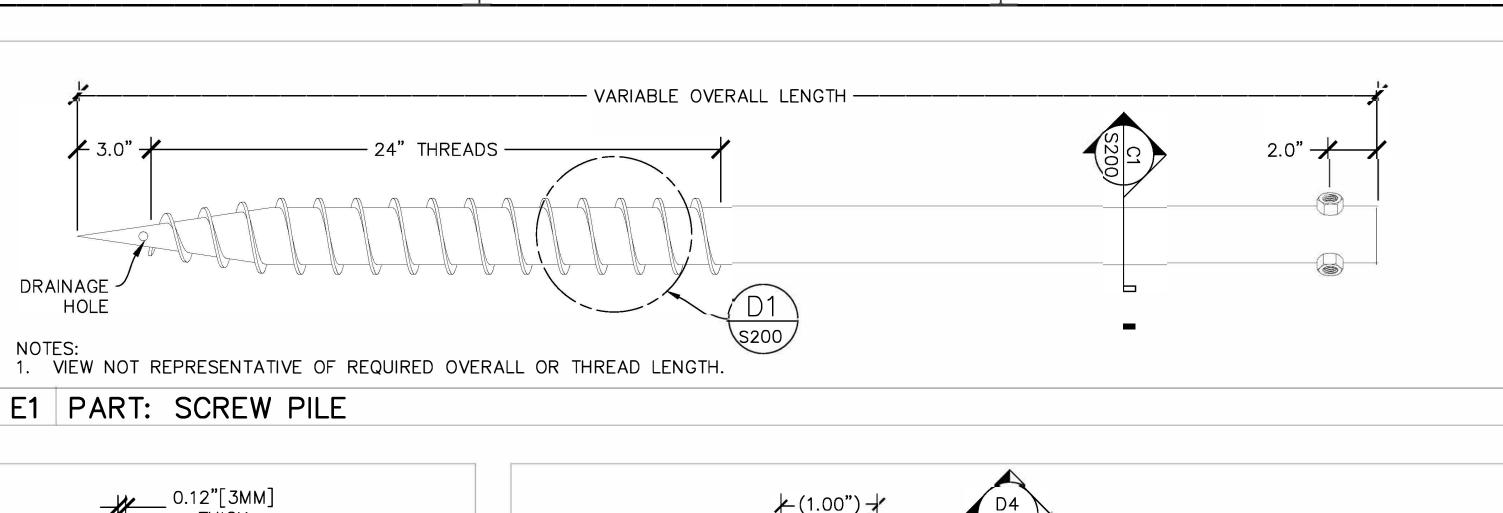
-Albus, 2024a, Supplemental Geotechnical Recommendation, Foundation Plan, Proposed Solar Panel Array Development, 1 Airport Road, Avalon, California, prepared by Albus and Associates, dated October 21, 2024, JN: 3155.01

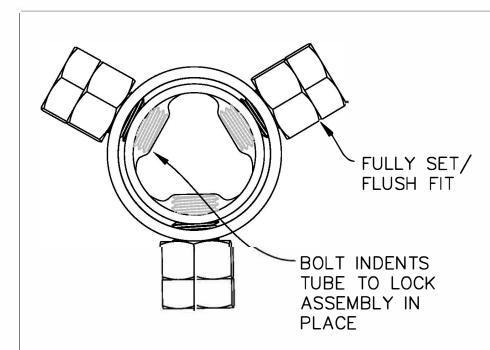
-Albus, 2024b, Geotechnical Review of the Structural/Foundation Plan, Proposed Solar Panel Array Development, 1 Airport Road, Avalon, California, prepared by Albus and Associates, dated October 8, 2024, JN 3155.01

-Albus, 2023, Geotechnical Design Report, Proposed Solar Panel Array Development, 1 Airport Road, Avalon, California, prepared by Albus and Associates, dated May 30, 2023, JN 3155.00

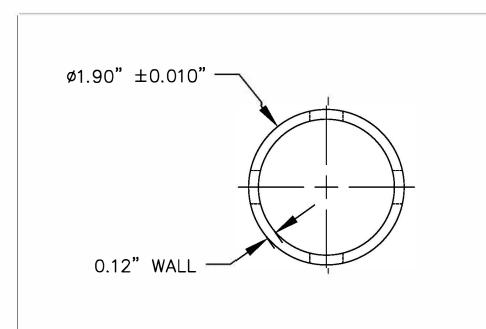




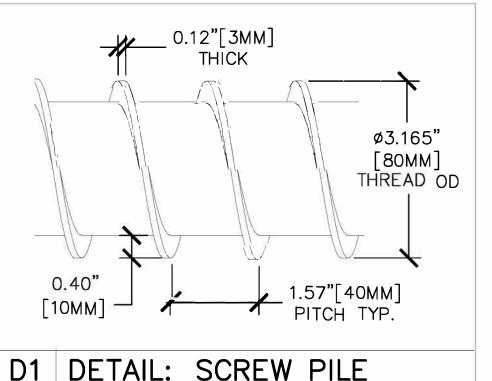




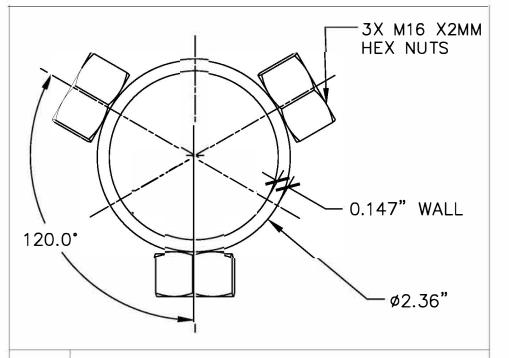
E4 DETAIL: PILE ASSEMBLY



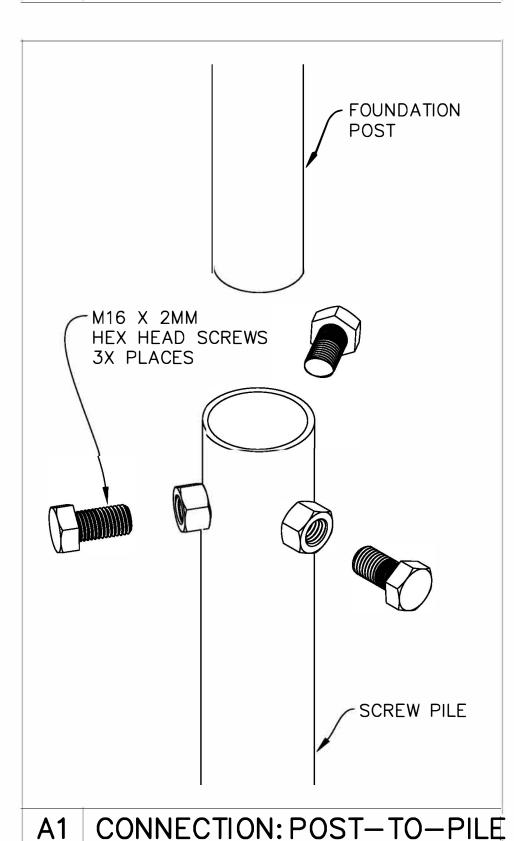
D4 SECTION: FOUNDATION POST

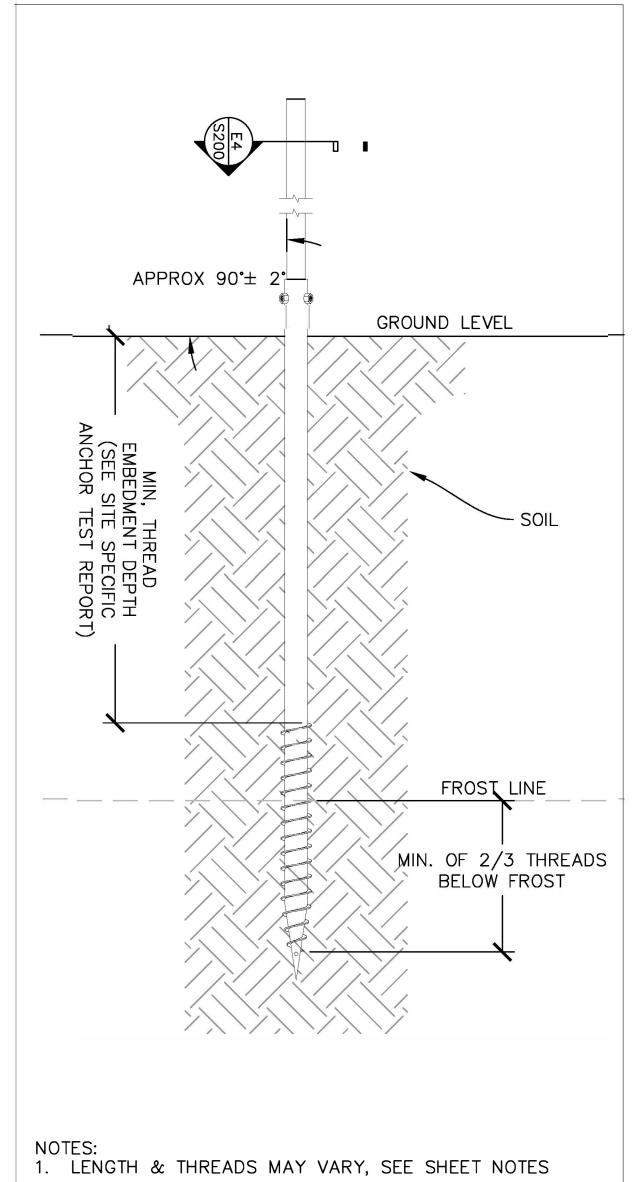


/- (1.00") → Ø0.406" THRU BOTH WALLS (1) PLACE RADIAL ORIENTATION NOT CRITICAL TOTAL LENGTH VARIES (SEE NOTES) 1. LENGTHS VARY, SEE SHEET NOTES D2 PART: FOUNDATION POST

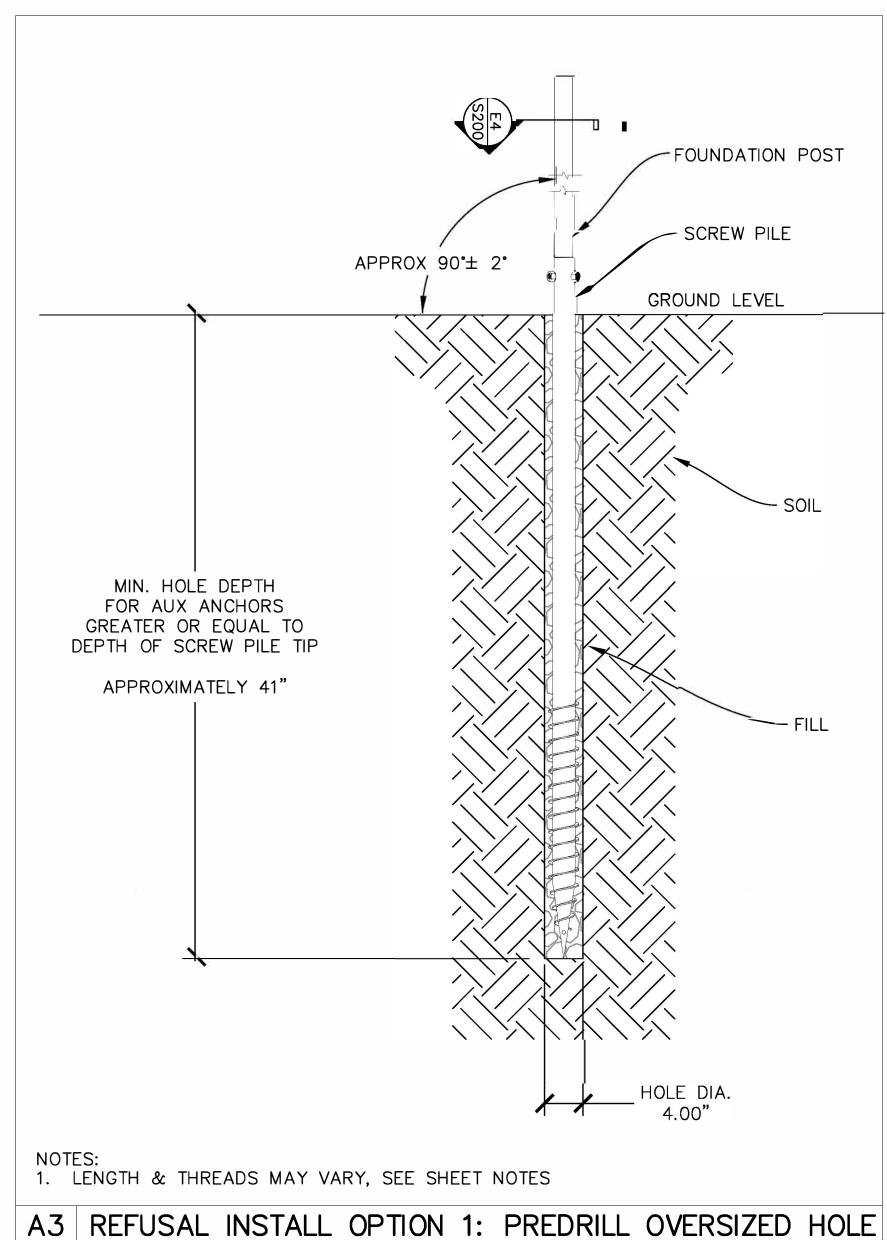


C1 SECTION: SCREW PILE





A2 VIEW: POST EMBEDMENT-DIRECT DRIVE/PILOT HOLE



SCREW PILE SHALL PENETRATE THE SOIL TO A DEPTH PAST THE FROST LINE, SUCH WHICH LESS THAN 1/3 OF

THE TOTAL LENGTH OF THREADS ARE ABOVE THE FROST LINE, OR TO THE DEPTH INDICATED AS MINIMUM PER

10. FOUNDATION POST SHALL EXTEND ABOVE GROUND LEVEL AT MINIMUM OF INDICATED FRONT LIP CLEARANCE, PLUS THE ADDITIONAL LENGTH REQUIRED TO ACHIEVE THE INDICATED TILT ANGLE.

11. MINIMUM ENGAGEMENT BETWEEN SCREW PILE AND FOUNDATION POST SHALL BE 4".

12. INSTALLERS SHALL REFER TO STRUT AND POST SETUP SHEETS FOR LENGTH AND PLACEMENT DETAILS.

2. POST TUBE TO BE HOT DIPPED GALVANIZED TO ASTM A123 OR INLINE GALVANIZED TO ASTM A1057.

5. SCREW PILE TO BE HOT DIPPED GALVANIZED TO ASTM A123 OR INLINE GALVANIZED TO ASTM A1057.

6. ALL HARDWARE IS 300 SERIES STAINLESS STEEL, A574 ALLOY STEEL, OR MINIMUM 8.8 CLASS METRIC.

FOUNDATION POST INSTALLATION

1. POST TUBE MATERIAL: 50 KSI MIN YIELD STRENGTH.

7. BOLTS MUST BE FULLY SET INTO WELDED NUTS.

8. BOLTS SHALL BE 25 TO 30 MM LONG.

3. SCREW PILE TUBE MATERIAL: 30 KSI MIN YIELD STRENGTH STEEL.

4. SCREW PILE THREAD MATERIAL: 28 KSI MIN YIELD STRENGTH STEEL

13. ACCURATELY LOCATE AND INSTALL SCREW PILES BY SUCH METHODS AND EQUIPMENT SO AS NOT TO IMPAIR THE PILE STRENGTH OR DAMAGE POSTS OR ADJACENT CONSTRUCTION

14. INSTALLATION CONTRACTOR RESPONSIBLE FOR ALL CONSTRUCTION EQUIPMENT, METHODS, AND SEQUENCES.

15. DISTURBED GALVANIZED SURFACES SHALL BE TOUCHED UP WITH AN APPROVED COLD GALVANIZING COMPOUND.

16. INSTALL SCREW PILES TO MINIMUM DEPTH AS INDICATED THIS SHEET OR AS REQUIRED PER THE STAMPED FOUNDATION DESIGN REPORT.

AUXILLIARY FOUNDATION NOTES:

EMBEDMENT DEPTH CONTINGENT UPON SITE SPECIFIC DATA, INCLUDING BUT NOT LIMITED TO: FROST DEPTH, SOIL PROPERTIES, AND LOCAL BUILDING CODE REQUIREMENTS.

2. AUGERED HOLE SHOULD EXTEND BELOW THE LOCAL FROST LINE, INTO THE STABLE SOIL ZONE.

3. HOLDING PROPERTIES OF THE SCREW PILE IN AGGREGATE DETERMINED BY TESTING CONDUCTED BY APA, PER ASTM D1143

4. STRUCTURAL PROPERTIES OF SCREW PILE TESTED ONLY. CORROSIVITY, AND OTHER GEOTECHNICAL PROPERTIES NOT TESTED.

INSTALLATION PROCEDURE

5.1. AUGER HOLE TO REQUIRED DEPTH. HOLE SHOULD BE APPROXIMATELY PLUMB AND A MINIMUM DIAMETER AS INDICATED IN DRAWING.

5.2. REMOVE THE SPOILS AS BEST AS POSSIBLE. THERE SHOULD BE NO LARGE CLUMPS OR ROCKS AT THE BOTTOM OF THE HOLE.

5.3. POUR IN AGGREGATE.

5.4. AGGREGATE SHOULD BE "CLEAN" & SIZED BETWEEN: 3/8" - 3/4".

5.5. KNOWN ACCEPTABLE AGGREGATES (NAMING PER ASTM C33-03):

#6 (3/8" - 3/4") EQUIVALENT SIZE OF #6.

5.6. DEVIATIONS IN AGGREGATE SIZE, FROM THE ABOVE SPECIFICATIONS, MUST BE APPROVED BY APA SOLAR ENGINEERING BEFORE USING/PURCHASING.

5.7. DRIVE SCREW PILE AS NORMALLY INTO HOLE. ENSURE IT IS PLUMB. ENSURE THE NORTH-SOUTH DIMENSIONS AND EAST-WEST DIMENSIONS ARE CORRECT. ALSO ENSURE BOLT HOLE IN THE ANCHOR IS FACING THE CORRECT DIRECTION.

IF NEEDED, RETAMP THE AGGREGATE AT SOIL LEVEL AROUND THE SCREW PILE.

6. QUALITY CONTROL NOTES

1.1. POST HEIGHTS SHOULD BE MEASURED FROM THE GROUND LEVEL, NOT THE TOP OF THE AGGREGATE. IF AGGREGATE IS BELOW GROUND LEVEL, ADDITIONAL GRAVEL SHOULD BE ADDED AND TAMPED TO BRING IT UP TO AT LEAST GROUND LEVEL.

1.2. FOUNDATION POSTS SHOULD NOT BE VERIFIED BY PULLING LATERALLY AT THE TOP OF THE POST. THIS CREATES A LARGE AND ARTIFICIAL MOMENT IN THE POST. FOUNDATION POSTS SHOULD ALSO NOT BE ROCKED BACK AND FORTH UNTIL IT "FAILS"; THE POSTS ARE INTENDED TO WORK AS A SYSTEM WITH ALL PARTS INTACT (ADJOINING FOUNDATIONS, SMALL AND LARGE ZEES, HARD AND CABLE BRACES, AND ALL ADDITIONAL PARTS AND HARDWARE INSTALLED AND TIGHTENED) AND DO NOT REACH FULL CAPACITY UNTIL THAT POINT.

Albus and Associates, Inc. has reviewed this plan from a geologic and geotechnical standpoints only. No other disciplines were reviewed. This plan is found to be in substantial conformance with the recommendations provided in the geotechnical report(s). This review did not include checking the accuracy of any dimensions, measurements, civil or structural design and calculations, or compliance with building code requirements.

Job No.(s): 3155.00, 3155.01 Report Date(s): 5/30/23, 10/08/24, 10/21/24 RACKING PROVIDER 20-345 COUNTY ROAD X RIDGEVILLE CORNERS, OHIO 43555 (P) 419.267.5280 (F) 419.267.5214 WWW.APASOLAR.COM READYRACK

ENGINEER OF RECORD

architects & engineers



PROFESSIONAL SEAL/STAMP JOHN NA C 63356 Exp. 09-30-2026 * Timothy & Worline* OF CALLEDR

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AIRPOF

INITIAL RELEASE

APPROVED

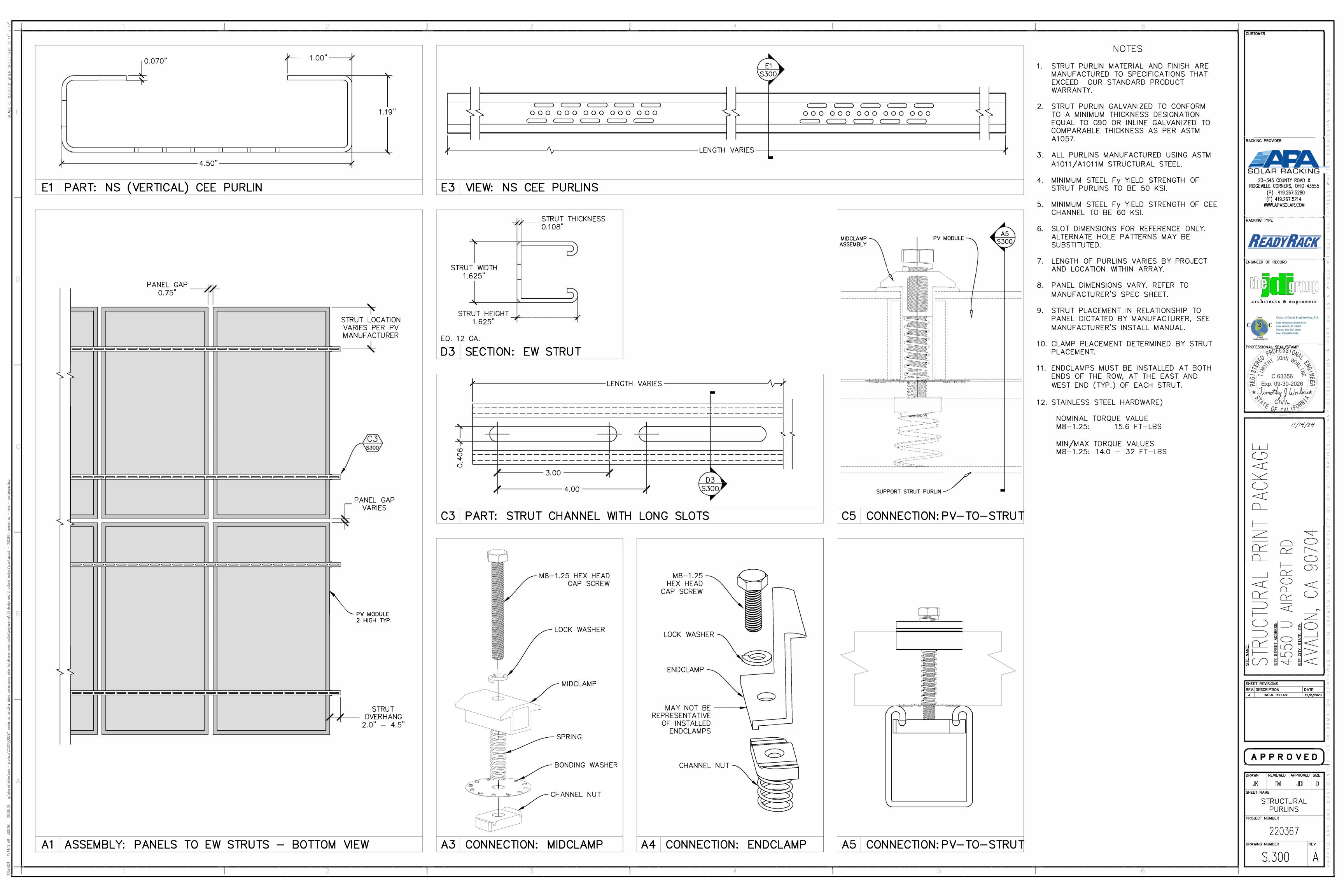
DRAWN REVIEWED APPROVED SIZE JK | TM | JDI | FOUNDATIONS PROJECT NUMBER

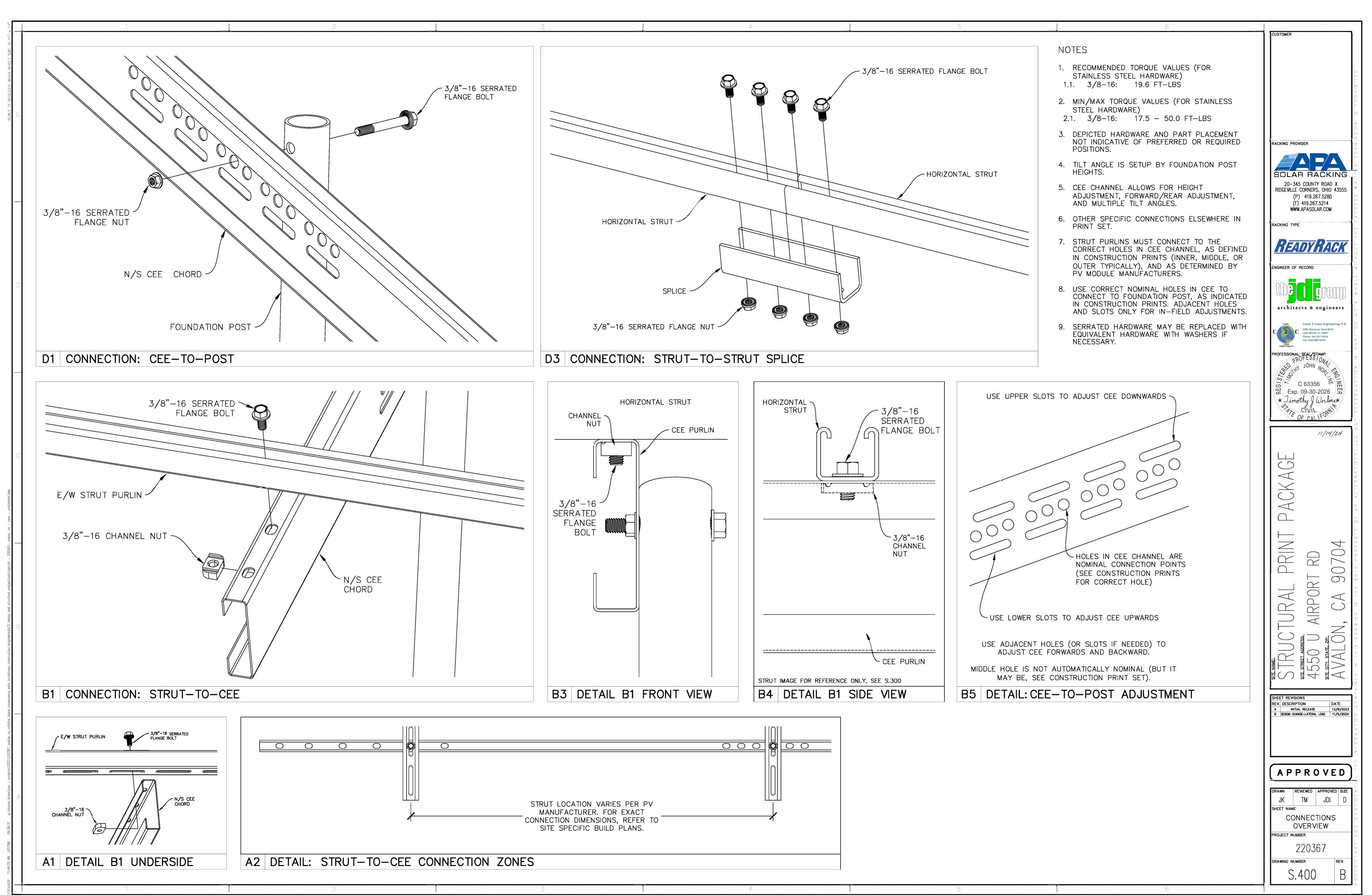
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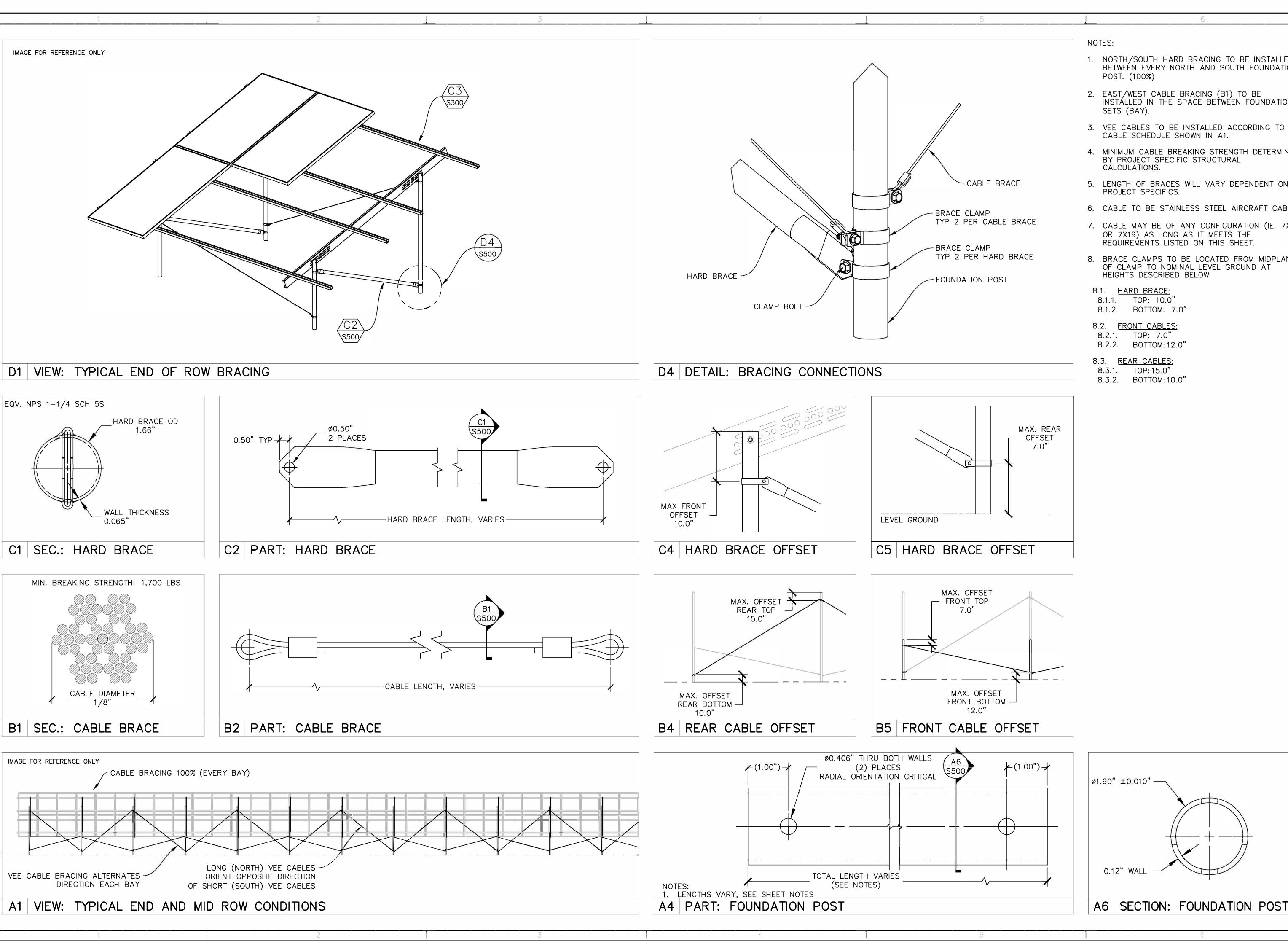
GE2937

220367 RAWING NUMBER

S.200







1. NORTH/SOUTH HARD BRACING TO BE INSTALLED

BETWEEN EVERY NORTH AND SOUTH FOUNDATION POST. (100%)

2. EAST/WEST CABLE BRACING (B1) TO BE INSTÁLLED IN THE SPACE BETWEEN FOUNDATION

3. VEE CABLES TO BE INSTALLED ACCORDING TO CABLE SCHEDULE SHOWN IN A1.

4. MINIMUM CABLE BREAKING STRENGTH DETERMINED BY PROJECT SPECIFIC STRUCTURAL

5. LENGTH OF BRACES WILL VARY DEPENDENT ON PROJECT SPECIFICS.

6. CABLE TO BE STAINLESS STEEL AIRCRAFT CABLE.

7. CABLE MAY BE OF ANY CONFIGURATION (IE. 7X7 OR 7X19) AS LONG AS IT MEETS THE REQUIREMENTS LISTED ON THIS SHEET.

8. BRACE CLAMPS TO BE LOCATED FROM MIDPLANE OF CLAMP TO NOMINAL LEVEL GROUND AT HEIGHTS DESCRIBED BELOW:

8.1. <u>HARD BRACE:</u> 8.1.1. TOP: 10.0" 8.1.2. BOTTOM: 7.0"

8.2.1. TOP: 7.0" 8.2.2. BOTTOM: 12.0"

8.3.1. TOP: 15.0" 8.3.2. BOTTOM: 10.0"

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PROFES C 63356 Exp. 09-30-2026

RACKING PROVIDER

OF CIVIL OF CALIFOR 11/14/24

* Timothy & Worline*

 \subseteq 0 AIRPOR-SITE NAME.

SITE STREET ADD

4550

SITE CITY, STATE.

REV. DESCRIPTION

A INITIAL RELEASE

APPROVED

JK TM JDI FOUNDATION POST & BRACING OVERVIEW PROJECT NUMBER

220367

RAWING NUMBER S.500

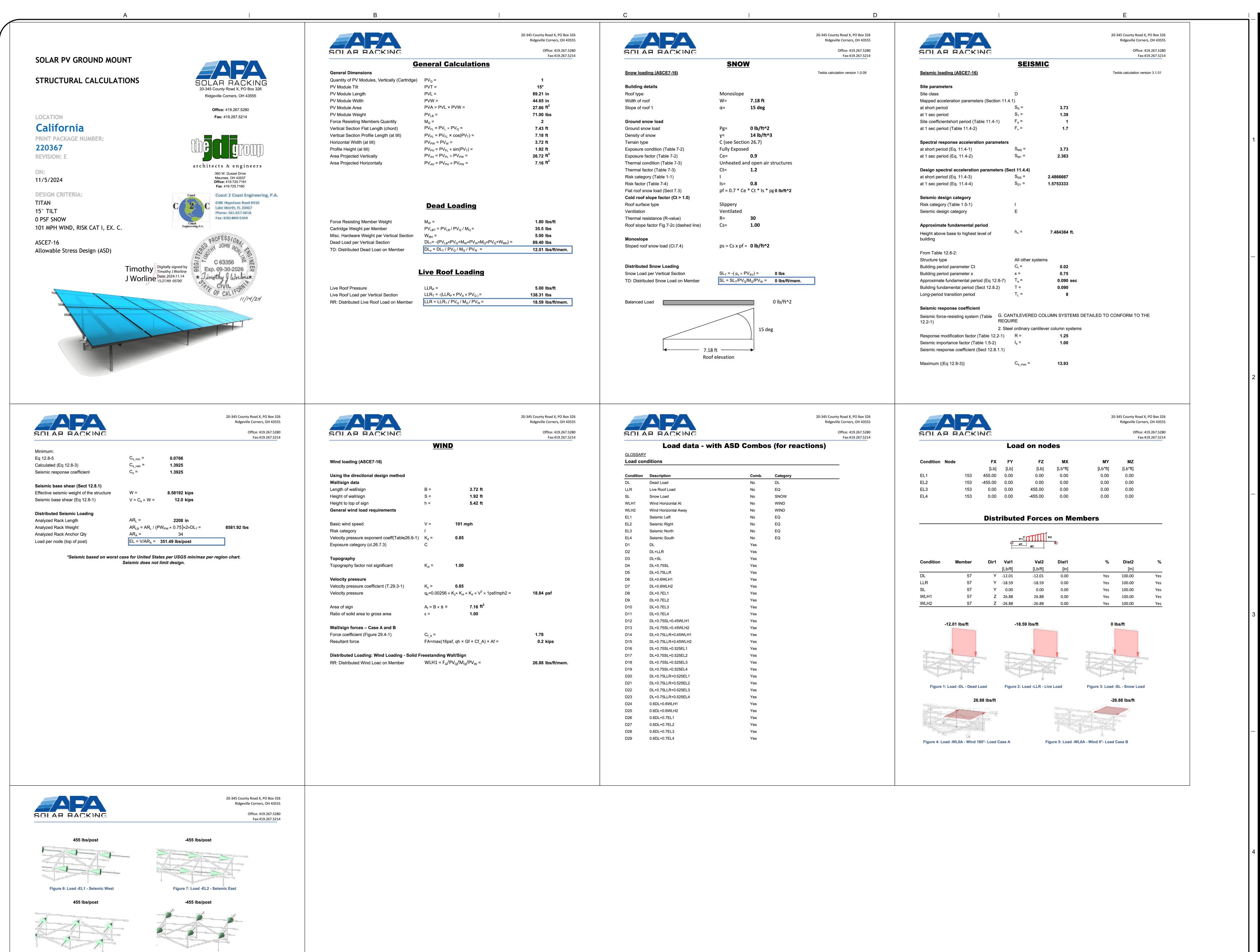


Figure 8: Load -EL3 - Seismic North

Figure 9: Load -EL4 - Seismic South

Catalina Island
Conservancy

CATALINA
ISLAND

CATALINA ISLAND CONSERVANCY

Avalon, CA 90704

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Lic # 1017484

DATED: 01/30/24 ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)

PERMITTING AND SOLAR CONSULTANT:

GSR
ENERGY

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CATALINA ISLAND
CONSERVANCY
125 kW (AC)
SOLAR PV
4550 U AIRPORT ROAD

AVALON, CA 90704

Revision Date

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PLAN CHECK #4 1/30/2024

BIOLOGIST REPORT REVISION 3/15/2024

SCE REQUESTED REVISIONS 7/08/2024

FENCE ALIGNMENT REVISED 7/25/2024

MAX. SPAN BETW. POSTS UPDATE 11/21/2024

Date 07/31/2024
Job No. 1511
Drawn By LS
Checked By ES

CONSTRUCTION DOCUMENTS

Drawing Title

Scale

SOLAR STRUCTURAL CALCULATIONS

Drawing No.

SSC-1.0

4550 U Airport Rd

Avalon, CA 90704

Foundation Load Testing

11/5/2024

To Whom it May Concern,

Fax: 419.267.5214

Fax: 419.267.5214

at this site is equal to or greater than 2500 lbs.

Q_{uplift} = soil capacity to resist uplift loads

Q_{bearing} = soil capacity to resist bearing loads

q_{friction} = friction component of soil capacity

A3 & auxiliary foundation notes.

q_{end bearing} = end bearing component of soil capacity

recommended by APA or the Engineer of Record.

Based on data gathered during site testing, APA has found that the ultimate uplift capacity for APA 2.3" x 47" ground

APA has found that the ultimate bearing capacity for APA 2.3" x 47" ground screw when embedded at least 41" in soils

= $q_{friction} + q_{end bearing}$

End bearing capacity was not tested at the time of this report, but will only add to the bearing capacity of the

Through experience & prior testing comparisons, APA finds that a pre drilled hole, back filled with gravel allows the

Based on the site testing results, on-site observations, and previous experience, APA recommends the foundation

Option 1: Drill oversized hole (4"-6") & backfill with gravel. Details & specifications found in Appendix A, S.200, detail

Option 2: Drill slightly undersized hole (<3") as a pilot, drive ground screw to depth. This option shall only be used

when soils are too hard/dense to penetrate by direct drive. Where soils are soft/loose, this option is not

setup to be the APA 2.3" x 47" screw at 41" embedment. Due to the occurences of underground obstacles, APA

native soil tension/bearing capacity to be either maintained or more commonly improved upon.

recommends 100% pre-drill & fill using either of the following two methods:

screw when embedded at least 41" in soils at this site is equal to or greater than 2500 lbs.

 Q_{uplift} = $q_{friction}$

5. Results

foundation.

708 Crescent Ave. Avalon, CA 90704

CATALINA

ISLAND

CONSERVANCY

PROJECT HOST:

SATTLER SOLA 4770 Del Mar Ave. San Diego, CA TEL. +1 619.880.0445 www.sattlersolar.com

ERIK SATTLER, SATTLER SOLAR INC. LIC. # 1017484 (C10)

PERMITTING AND SOLAR CONSULTANT: HTTPS://WWW.GSR-ENERGY.COM/

CATALINA ISLAND CONSERVANCY 125 kW (AC) **SOLAR PV** 4550 U AIRPORT ROAD

AVALON, CA 90704

90% CONSTRUCTION DOCUMENTS 10/23/2023 BIOLOGIST REPORT REVISION SCE REQUESTED REVISIONS FENCE ALIGNMENT REVISED MAX. SPAN BETW. POSTS UPDATE | 11/21/2024

07/31/2024 1511 Job No. LS Drawn By Checked By Scale

CONSTRUCTION DOCUMENTS

Drawing Title

SOLAR FOUNDATION LOAD TEST

Drawing No.

11/5/2024

APA PN: 220367 Hutchinson Construction-Catalina Island Conservancy Solar 4550 U Airport Rd

Avalon, CA 90704

Subject: Foundation Design Report

2. Site Location:

3. Construction:

APA submits the following report to document the site foundation testing & results thereof at the project site located at the above stated address. Information discussed in this report is specific & exclusive to the following parameters:

> **APA Ground Screw** 4550 U Airport Rd Avalon, CA

> > 90704 APA Solar Racking

Recommendations found in this report are based on empirical data gathered by APA's extensive experience in testing foundations designed for solar racking. Test procedures used to gather data in this report have been guided by ASTM standards D1143_07 & D3989-07. The methods and calculations in this report are further approved by a state licensed

Site Characterization

Professional Engineer.

Geotechnical reports, site images, & topographic documents are useful items for pre site visit characterization when provided by the customer. Information from these items are considered as supplemental information, but APA maintain that site testing data & observations will take precedence in the foundation design considerations.

The test site was located just north of Airport Rd. The site is located at approximately, 33.403642, -118.413754. The proposed site is currently on undeveloped land. Tree lines and other interfering vegetation is not documented in any tested areas meant for solar at this time.

A Websoil survey has classified the major soil types at the proposed site to be:

Bedrock GC-GM

2. Onsite Observations

shall be provided. Screws were able to be installed to the desired embedment depth by method of direct drive.

The site had some areas of concerning slopes that may require additional provisions for adjustment of the rack design or

design loads. Some underground obstacles were experienced during installation of the test screws so a refusal method

3. Site Testing

Two screw piles were installed at select locations throughout the proposed site. The area and quantity of locations were selected to reflect an acceptable sample set given the size and soil variability of the site.

Standard tension tests were performed at each location:

1. **Tension Capacity Test**: Load is applied in the uplift direction in 500 lbs. increments and held for 1 minute each. Pile deflection is recorded simultaneously. Load is increased until ultimate capacity is reached, 1.5X Design Load is reached, or up to the safe working load of the test equipment, whichever occurs first. Ultimate capacity is defined as the load at which the pile deflection is greater than 1".

See test data, maps, and foundation specifications in Appendix A.

Based on the customer provided information, APA finds the values below to be within good reason for foundation design consideration for frost heave. These values shall be confirmed by authorities for this site's location or however necessary it may be for permit approvals.

Frost Depth: Adfreeze Bond:

The Engineer of Record has calculated the Design loads per the structural report (ASD values) to be:

Axial Compression Load Value: Axial Tension Load Value: 358 lbs. Frost Heave Load Value: 748 lbs.

The Engineer of Record has required testing to be conducted to a minimum of the following values, 1.5X Design Loads & 1X Frost Loads:

Axial Tension Load Value:

Axial Load is derived from tension or compression, whichever is maximum, but is tested only in tension.

Timothy Digitally signed by Timothy J Worline

J Worline Date: 2024.11.14 15:35:18 -05'00'

Hutchinson Construction-Catalina Island Conservancy Solar

Coast 2 Coast Engineering, P.A.

6586 Hypoluxo Road #316

Lake Worth, FL 33467

Phone: 561-657-0018

Fax: 630-869-5344

This letter is written to certify that APA Solar reportedly tested the foundations for this project at 1 Airport RdAvalon,

CA 90704 guided by the "Quick Test Method" per ASTM D1143 and D3689. The results of that test are documented in

their attached report. The test results provided by APA Solar are within the parameters as set forth by our design.

C 63356

Thomas R. Worline, P.E.

Ridgeville Corners, OH 43555

Office: 419.267.5280 Fax: 419.267.5214

1. This report does not address Soil Corrosivity. All soils are assumed non-corrosive. Therefore, APA provides standard

galvanized coatings unless otherwise requested by the customer.

2. Foundation design recommendations found in this report are entirely established on the compatibility of the proposed solar racking designed by APA and the foundation testing data gathered by APA. Therefore if racking design or site location(s) change, information from this report must be re-evaluated by APA to be approved as still valid.

3. In the event that sections of the site are not accurately represented in the data found in this report because of soil variability between tested areas, ground water level, construction disturbance, or other reasons, the installer or APA should consult with APA engineering team to determine the most appropriate foundation design alternative.

4. Due to the quantity of test locations in comparison to the quantity of proposed ground screw installations for the final product, refusal frequency cannot be predetermined on the basis of this report.

7. References

1. Albus, 2024a, Supplemental Geotechnical Recommendation, Foundation Plan, Proposed Solar Panel Array

Development, 1 Airport Road, Avalon, California, prepared by Albus and Associates, dated October 21, 2024, JN: 3155.01

2. Albus, 2024b, Geotechnical Review of the Structural/Foundation Plan, Proposed Solar Panel Array Development, 1

3. Albus, 2023, Geotechnical Design Report, Proposed Solar Panel Array Development, 1 Airport Road, Avalon,

Airport Road, Avalon, California, prepared by Albus and Associates, dated October 8, 2024, JN 3155.01

