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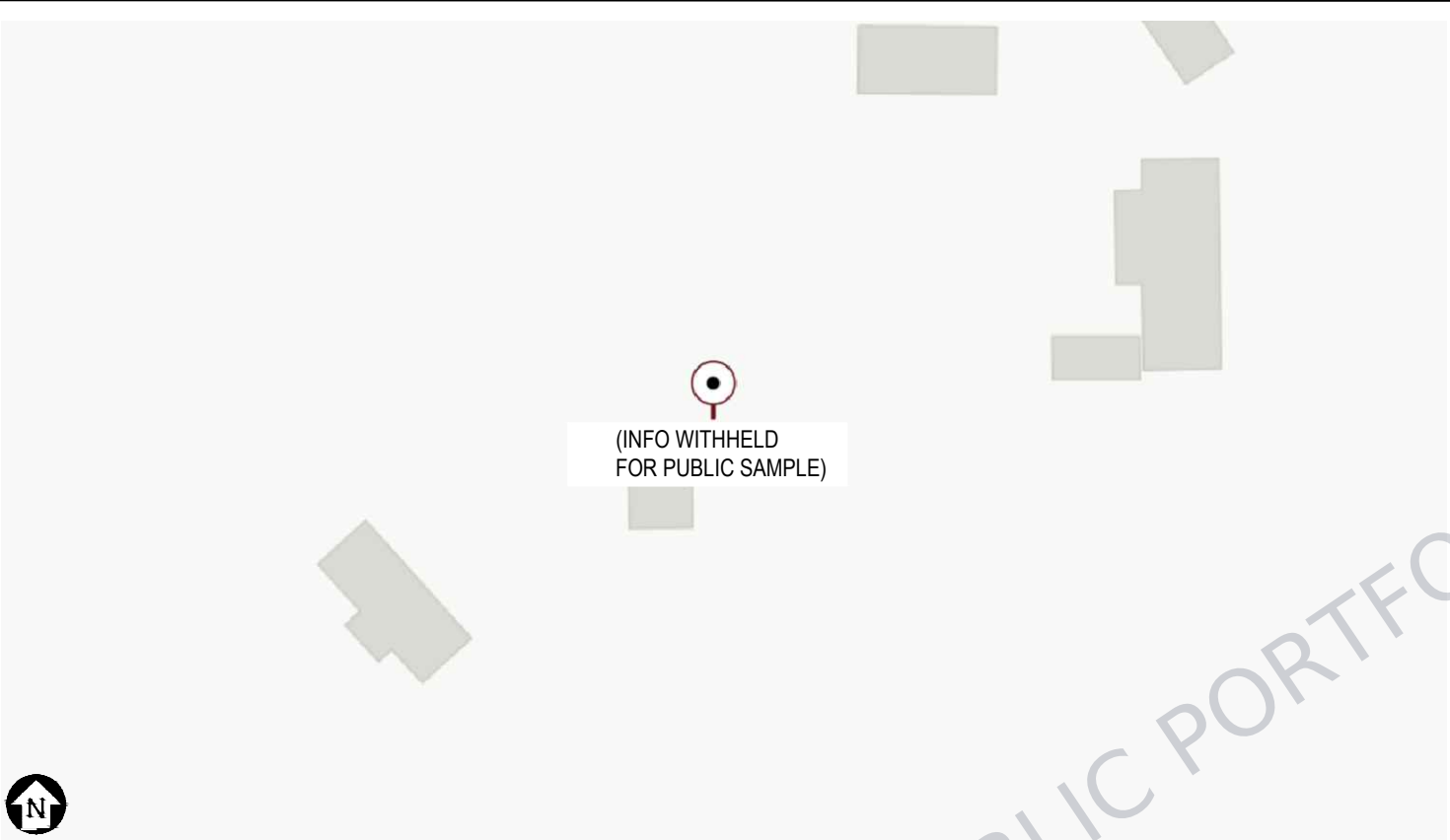
PROJECT DETAILS	
PROPERTY OWNER	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER PHONE	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER EMAIL	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROPERTY ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
APN	(INFO WITHHELD FOR PUBLIC SAMPLE)
ZONING	RESIDENTIAL
MOUNTING TYPE	GROUND-MOUNTED PHOTOVOLTAIC ARRAY
AHJ	FRESNO COUNTY
UTILITY COMPANY	PACIFIC GAS AND ELECTRIC COMPANY (PG&E)
FIRE CODE	2022 CALIFORNIA FIRE CODE
OBSERVED CODES	2022 CALIFORNIA BUILDING CODE, TITLE 24, PART 2, VOL. 1 & 2 2022 CALIFORNIA RESIDENTIAL CODE, TITLE 24, PART 2.5 2022 CALIFORNIA ELECTRICAL CODE, TITLE 24, PART 3 2022 CALIFORNIA MECHANICAL CODE, TITLE 24, PART 4 2022 CALIFORNIA PLUMBING CODE, TITLE 24, PART 5 2022 CALIFORNIA ENERGY CODE, TITLE 24, PART 6 2022 CALIFORNIA FIRE CODE, TITLE 24, PART 9 OSHA 29 CFR 1910.269 UNDERWRITERS LABORATORIES (UL) STANDARDS
STRUCT. METHOD	ASCE7-16

OWNER-BUILDER INFORMATION	
OWNER-BUILDER	(INFO WITHHELD FOR PUBLIC SAMPLE)
ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
PHONE	(INFO WITHHELD FOR PUBLIC SAMPLE)
EMAIL	(INFO WITHHELD FOR PUBLIC SAMPLE)
OWNER-BUILDER SIGNATURE	

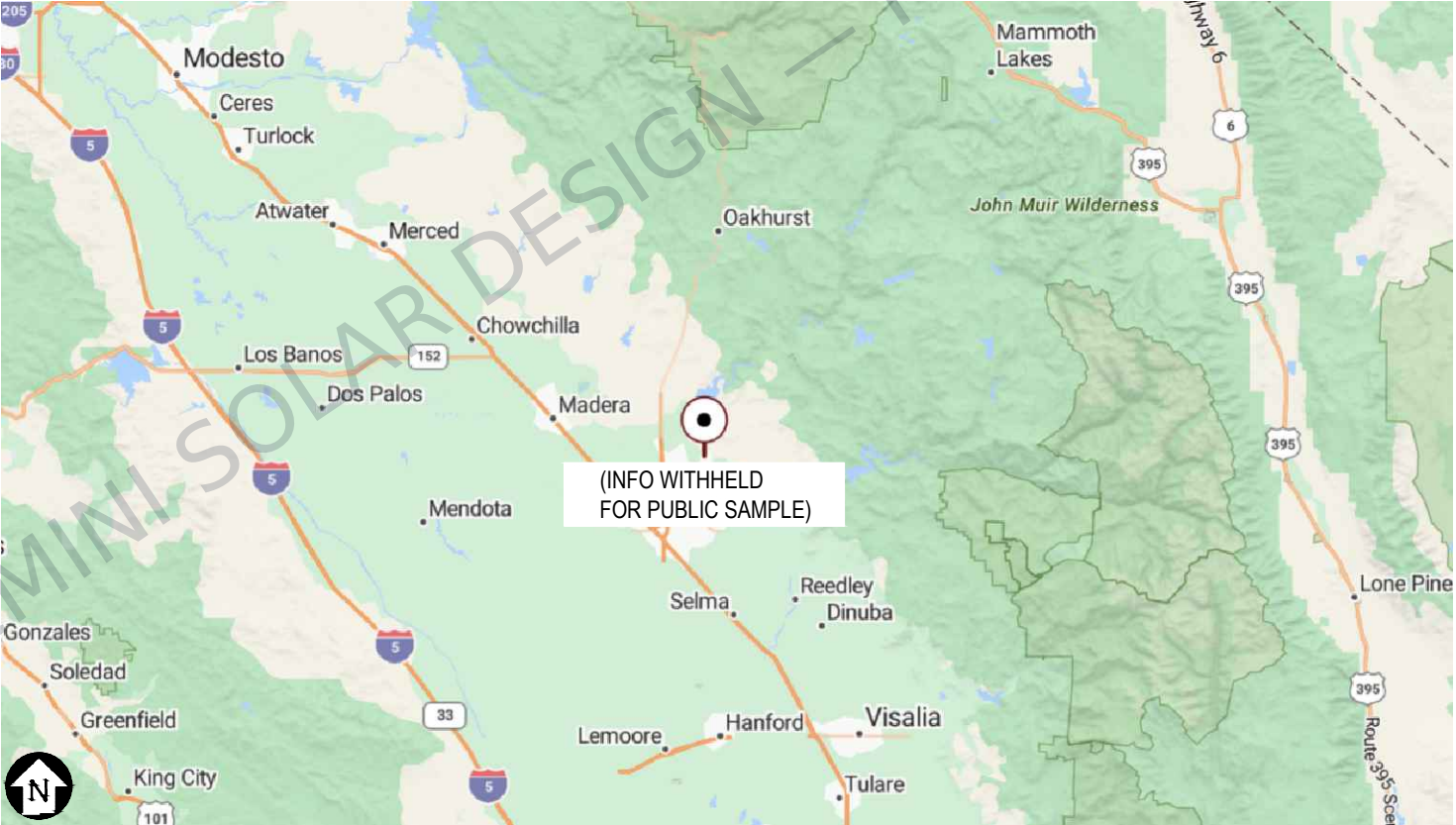
PLAN DESIGNER INFORMATION	
COMPANY	GEMINI SOLAR DESIGN, LLC.
NAME	SANJAY CHRISTOPHER MALLIPUDI
ADDRESS	495 HOWARD HEIGHTS ROAD FRESHWATER, CA 95503
PHONE	(609) 802-5743
PLAN DESIGNER SIGNATURE	Sanjay Mallipudi

SYSTEM DETAILS	
DC RATING OF SYSTEM	11,200W
AC OUTPUT CURRENT	47.5A
MODULE	(28) Q-CELLS Q-PEAK DUO BLK ML-G10+ 400
POWER OPTIMIZER	(28) SOLAR EDGE P401
STRING INVERTER	(1) SOLAR EDGE SE11400H-US
STRING CONFIGURATION	2 STRINGS OF 14 MODULES
INTERCONNECTION	LOAD-SIDE BACKFED CIRCUIT BREAKER

SITE SPECIFICATIONS	
UTILITY SERVICE	120 / 240VAC, 1-Ø, 3-WIRE
METER / MAIN COMBINATION PANEL	225A RATED BUSBAR 200A / 2P MAIN BREAKER
ASHRAE EXTREME ANNUAL MEAN MINIMUM DENSITY DRY BULB TEMP.	-2°C
ASHRAE 2% ANNUAL DRY DENSITY BULB TEMP.	39°C
DESIGN WIND SPEED	95 MPH (3-SECOND GUST)
DESIGN SNOW LOAD	0 PSF (VALLEY FLOOR)
WIND EXPOSURE CATEGORY	C
RISK CATEGORY	II



1 PLOT
PV-1 SCALE: NTS

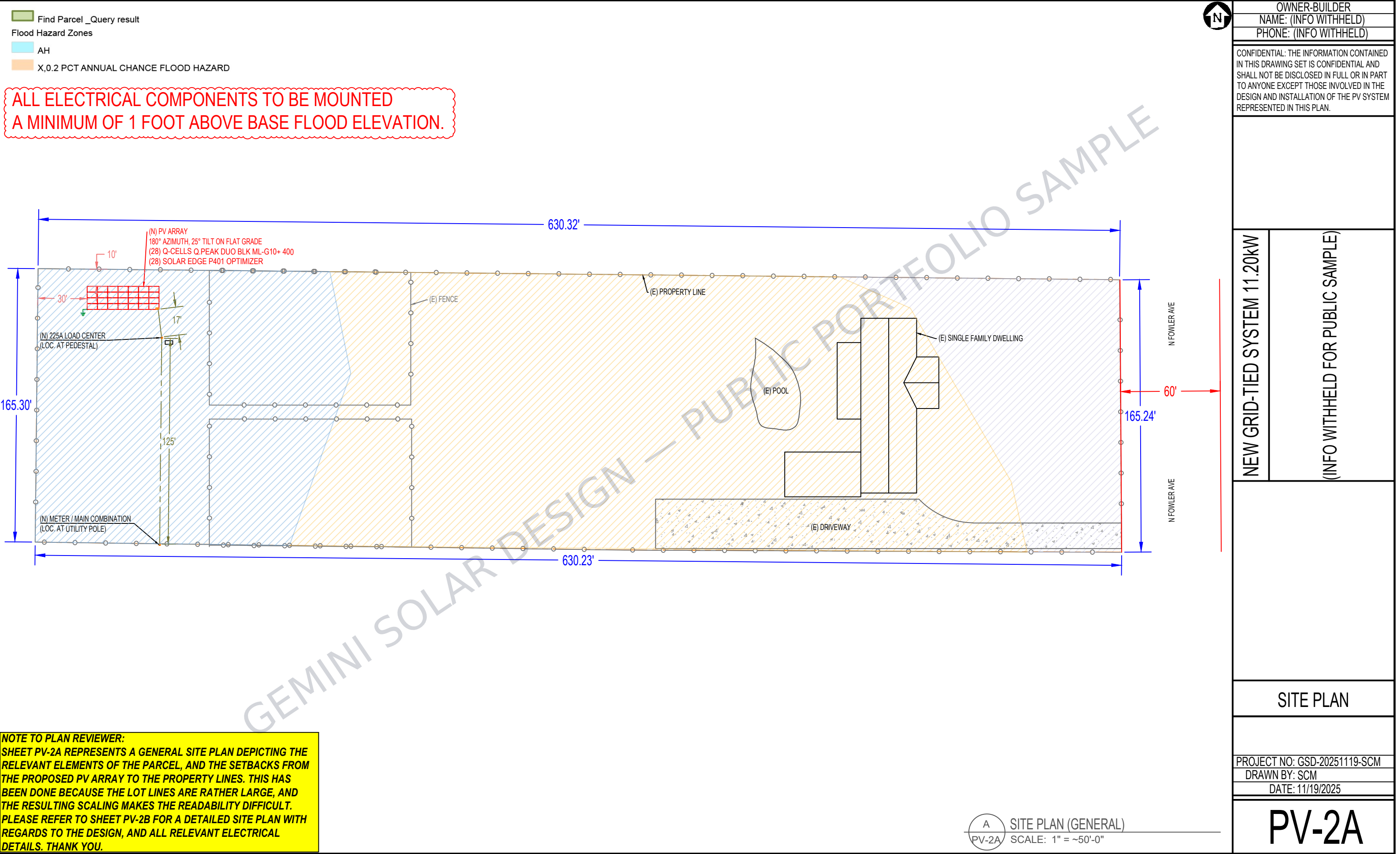


2 LOCALE
PV-1 SCALE: NTS

CONSTRUCTION NOTES	
1	CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO INITIATING CONSTRUCTION.
2	CONTRACTOR SHALL REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
3	ALL EQUIPMENT SHALL BE LISTED BY THE U.L. (OR EQUAL) AND LISTED FOR ITS SPECIFIC APPLICATION.
4	ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
5	ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6	ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
7	ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 VOLTS AND 90°C WET ENVIRONMENT, UNLESS OTHERWISE NOTED.
8	WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
9	PV MODULES FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER G.E.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
10	PV MODULES RACKING RAIL SHALL BE BONDED TO BARE COPPER G.E.C VIA WEEB LUG, ILSCO GBL-4DBT LAY-IN LUG, OR EQUIVALENT LISTED LUG.
11	GROUNDING ELECTRODE CONDUCTOR (G.E.C) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED
12	ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
13	WORKING SPACE AROUND ELECTRICAL EQUIPMENT SHALL COMPLY WITH CEC SECTION 110.26.

SCOPE OF WORK DESCRIPTION
THE PROPOSED SYSTEM IS A GROUND MOUNTED PHOTOVOLTAIC ARRAY. THE PHOTOVOLTAIC (PV) SYSTEM IS TO BE INSTALLED ON THE RESIDENTIAL ZONED PROPERTY IN UNINCORPORATED FRESNO COUNTY, CALIFORNIA. THE ENERGY PRODUCED BY THE PV SYSTEM SHALL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ON-SITE ELECTRICAL EQUIPMENT VIA A LOAD-SIDE POINT OF CONNECTION . THIS PROJECT DOES NOT INCLUDE STORAGE BATTERIES.

OWNER-BUILDER	
NAME: (INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
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NEW GRID-TIED SYSTEM 11.20kW	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROJECT INFO	
PROJECT NO: GSD-20251119-SCM	
DRAWN BY: SCM	
DATE: 11/19/2025	
PV-1	





(N) PV ARRAY
180° AZIMUTH, 25° TILT ON FLAT GRADE
(28) Q-CELLS Q.PEAK DUO BLK ML-G10+ 400
(28) SOLAR EDGE P401 OPTIMIZER

(N) AUXILIARY DC GEC AS
PER CEC SECTION 690.47(D)
(LOC. AT GROUND MOUNT ARRAY)

(N) STRING INVERTER
MODEL: SOLAREEDGE SE11400H-US
(LOC. AT GROUND MOUNT ARRAY)

(N) SOLAR AC DISCONNECT (DS1)
MODEL: SQUARE D DU222RB,
240VAC, 1 ϕ , NEMA 3R RATING
60A RATING, NON-FUSIBLE
(LOC. AT GROUND MOUNT ARRAY)

(N) 0.75" SCH. 40 PVC CONDUIT BURIED UNDERGROUND
CARRYING AC CONDUCTORS FROM SOLAR AC DISCONNECT
TO 225A LOAD CENTER FOR LOAD-SIDE INTERCONNECTION

19" BURIAL DEPTH MINIMUM
APPROX. 17' LENGTH

(QNTY. 3) #6 THWN-2 (L1, L2, N)
(QNTY. 1) #10 THWN-2 (GROUND)

(N) 2.00" SCH. 40 PVC CONDUIT BURIED UNDERGROUND
CARRYING AC CONDUCTORS FROM 225A METER / MAIN
COMBINATION PANEL TO 225A LOAD CENTER LOC. AT PEDESTAL

19" BURIAL DEPTH MINIMUM
APPROX. 125' LENGTH

(QNTY. 3) 3/0 AWG THWN-2 (L1, L2, N)
(QNTY. 1) 6 AWG THWN-2 (GROUND)

(N) NEMA 3R JUNCTION BOX (LOC. ON ROOF)
THIS JUNCTION BOX SHALL TRANSITION THE
DC STRING CIRCUITS INTO A 0.75" EMT CONDUIT
THAT SHALL BE RAN TO THE STRING INVERTER

(N) 225A LOAD CENTER
(N) 200A / 2P MAIN CIRCUIT BREAKER
120 / 240VAC - 1 ϕ - 3W - NEMA 3R
(N) **LOAD-SIDE INTERCONNECTION
TO BE ACHIEVED VIA 60A / 2P BACKFED
SOLAR CIRCUIT BREAKER (CB1)**
(LOC. AT PEDESTAL)

(E) WELL PAD & PRESSURE TANK
(NOT PART OF SCOPE OF WORK)

(N) 225A METER / MAIN SERVICE PANEL
(N) 200A / 2P MAIN CIRCUIT BREAKER
(DISCONNECTION ONLY, NO LOADS)
120 / 240VAC - 1 ϕ - 3W - NEMA 3R
(LOC. AT UTILITY POLE)

SITE PLAN NOTES

1	CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER CEC 319.0(D).
2	CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER CEC 310.8(C).
3	ARRAYS SHALL BE INSTALLED IN A WAY THAT ENSURES THAT PV SOURCE CONDUCTORS SHALL NOT BE READILY ACCESSIBLE.
4	UNDERGROUND PVC CONDUIT SHALL BE BURIED AT 19" MINIMUM DEPTH, WARNING TAPE 12" ABOVE.
5	VERIFY UNDERGROUND UTILITIES PRIOR TO EXCAVATION.

OWNER-BUILDER

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REPRESENTED IN THIS PLAN.

NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

SITE PLAN

PROJECT NO: GSD-20251119-SCM

DRAWN BY: SCM

DATE: 11/19/2025

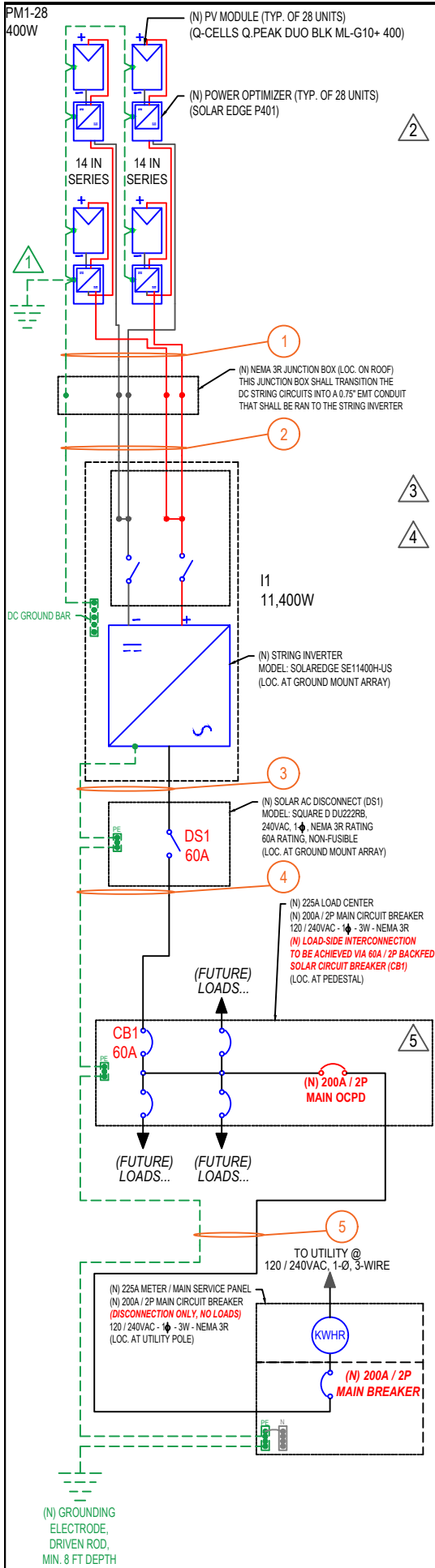
PV-2B

ALL ELECTRICAL COMPONENTS TO BE MOUNTED
A MINIMUM OF 1 FOOT ABOVE BASE FLOOD ELEVATION.

● 1 STRING OF 14 MODULES (Q-CELLS Q.PEAK DUO BLK ML-G10+ 400)

● 1 STRING OF 14 MODULES (Q-CELLS Q.PEAK DUO BLK ML-G10+ 400)

A SITE PLAN (DETAILED)
PV-2B SCALE: 1" = 16'-0"



PHOTOVOLTAIC MODULE									
REF.	TYP.	MODULE	STC POWER	PTC POWER	ISC	IMP	VOC	VMP	FUSE RATING
PM1-28	28	Q-CELLS Q.PEAK DUO BLK ML-G10+ 400	400W	376.55W	11.14A	10.77A	45.3V	37.13V	20A

STRING INVERTER										
REF.	TYP.	INVERTER	TRANSFORMERLESS	AC VOLTAGE	INTEGRATED RAPID SHUTDOWN	MAX OUTPUT POWER	MAX AC CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFF.
I1	1	SOLAR EDGE SE11400H-US	YES	240VAC	YES	11,400W	47.5A	30.5A	480VDC	99%

SYSTEM SUMMARY	
ARRAY STC POWER	11,200W
ARRAY PTC POWER	10,543.4W
ARRAY CIRCUITS	1 X 14, 1 X 14
DC STRING OPERATING CURRENTS	14A, 14A
DC STRING MAX CURRENTS	15A, 15A
DC STRING OPERATING VOLTAGE	400VDC
MAX AC OUTPUT CURRENT	47.5A
DERATED AC POWER OUTPUT	10,313W

POWER OPTIMIZER				
REF.	TYP.	MODEL	MAX OUTPUT CURRENT	NOMINAL STRING VOLTAGE
PO1-28	28	SOLAREEDGE P401	15A	400VDC

OCPD SCHEDULE				
REF.	TYP.	POLES	CURRENT RATING	MAX. VOLTAGE
CB1 (BACKFED SOLAR BREAKER)	1	2	60A	240VAC
MAIN CIRCUIT BREAKER (225A LOAD CENTER)	1	2	200A	240VAC
MAIN CIRCUIT BREAKER (225A METER / MAIN)	1	2	200A	240VAC

AC DISCONNECT SCHEDULE				
REF.	TYP.	POLES	CURRENT RATING	MAX. VOLTAGE
DS1 (SQUARE D DU222RB)	1	2	60A	240VAC

SCHEMATIC NOTES	
⚠	CEC 690.47(D) REQUIRES THAT GROUND ELECTRODES BE INSTALLED AT THE LOCATION OF ALL GROUND-MOUNTED ARRAYS AND SIZED IN ACCORDANCE WITH CEC 250.166. THE SEPARATE GROUND ELECTRODE SHALL BE SIZED AT #6.
⚠	MAXIMUM STRING VOLTAGE OF ARRAY AT DESIGN LOW TEMPERATURE OF -2°C WOULD BE 400VDC.
⚠	INTEGRATED DC DISCONNECT IS PROVIDED WITH INVERTER. DISCONNECT IS LISTED FOR USE WITH SOLAR EDGE UL 1741 LISTED STRING INVERTERS.
⚠	PHOTOVOLTAIC OUTPUT STRINGS ARE COMBINED INSIDE THE INVERTERS' DC INTEGRATED DISCONNECT.
⚠	OUTPUT OF SOLAR AC DISCONNECT (DS1) IS CONNECTED TO UTILITY ON LOAD SIDE OF SERVICE DISCONNECT. OUTPUT SHALL BE BACKFED THROUGH A 60A / 2P CIRCUIT BREAKER IN THE 225A LOAD CENTER LOCATED AT THE PEDESTAL. SOLAR BACKFED BREAKER SHALL BE LOCATED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER DISCONNECT.

GROUND FAULT PROTECTION NOTES (SOLAREEDGE INVERTER)	
1	THE SOLAREEDGE SYSTEM INCLUDES GROUND FAULT DETECTION AS REFERENCED BY CEC ARTICLE 690.5 AND REQUIRED BY CEC 690.35 (C). BECAUSE THE ARRAY CIRCUIT CONDUCTORS ARE UNGROUNDED, ONLY THE REQUIREMENTS OF CEC ARTICLE 690.35 (C) (1), (2) AND (3) APPLY. EACH POWER OPTIMIZER MONITORS ITS CONNECTED MODULES AND COMMUNICATES ANY DETECTED FAULT TO THE INVERTER. THE INVERTER MONITORS THE CONDUCTORS BETWEEN THE POWER OPTIMIZERS AND THE INVERTER. IN RESPONSE TO A GROUND FAULT THE INVERTER WILL CEASE TO EXPORT POWER, SHUT DOWN THE POWER OPTIMIZERS TO ISOLATE THE FAULTED CIRCUIT, AND INDICATE THE GROUND FAULT ON THE INVERTER'S DISPLAY.

ELECTRICAL NOTES SPECIFICATIONS	
1	INSTALLATION SHALL COMPLY WITH ALL REQUIREMENTS OF CEC 2022 AND ANY APPLICABLE LOCAL AMENDMENTS.
2	MODULE INTERCONNECTION CONNECTORS SHALL BE IN COMPLIANCE WITH CEC 690.33(A) AND SHALL BE POLARIZED AND NON INTERCHANGEABLE WITH RECEPTACLES IN OTHER ELECTRICAL SYSTEMS ON THE PREMISES.
3	MODULE INTERCONNECTION CONNECTORS SHALL BE OF THE LOCKING TYPE REQUIRING A TOOL FOR OPENING IN ACCORDANCE WITH CEC 690.33(C)
4	MODULE INTERCONNECTION CONNECTORS SHALL BE MARKED "DO NOT OPEN UNDER LOAD" IN ACCORDANCE WITH CEC 690.33(E).
5	THE CONNECTION OF ALL MODULES SHALL BE ARRANGED SO THAT THE REMOVAL OF ANY PANEL OR MODULE SHALL NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT IN ACCORDANCE WITH CEC 690.4(C).
6	ALL EQUIPMENT IN PHOTOVOLTAIC SYSTEM SHALL BE LISTED BY AN INDEPENDENT TESTING AGENCY.
7	THE OUTPUT VOLTAGE OF THE POWER OPTIMIZERS ARE REGULATED BY THE INVERTER. THEY ARE NOT IMPACTED BY THE NUMBER OF MODULES IN THE STRING. THE CONTINUOUS CURRENT IS CALCULATED BY DIVIDING THE MAXIMUM POWER BY THE VOLTAGE.

OWNER-BUILDER
NAME: (INFO WITHHELD)
PHONE: (INFO WITHHELD)

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

SINGLE-LINE DIAGRAM

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-3A

PLEASE FIND THE CORRESPONDING WIRE & CONDUCTOR SCHEDULE ON SHEET PV-3B.

SEPARATE SHEETS WERE CREATED DUE TO SPACE LIMITATIONS.

CONDUCTOR SCHEDULE WITH CEC ELECTRICAL CALCULATIONS																
ID	TYP	DESCRIPTION	CONDUCTOR	CONDUIT	NO. OF CURRENT CARRYING CNDRS. IN CNDT.	FILL %	RATED AMPS	OCPD	EGC	TEMP. CORR. FACTOR @ 90°C TEMP. RATING	FILL ADJ. FACTOR	CONT. CURRENT	MAX. CURRENT	TERMINAL RATING CHECK (ASSUME 75°C) SHALL EXCEED 1.25X CONT. CURRENT	BASE AMPACITY @ 90°C TEMP. RATING	CONDITIONS OF USE (COU) @ 90°C TEMP. RATING
1	2	DC CIRCUIT: SERIES STRING OUTPUT TO JUNCTION BOX	12 AWG PV WIRE COPPER	FREE AIR (DIRECT HOMERUN TO J-BOX LOCATED AT GROUND MOUNT ARRAY)	N/A	N/A	15A	N/A	6 AWG BARE COPPER (BOND TO GROUND ROD) 10 AWG THWN-2 COPPER (RAN IN TRENCH)	0.91 (39°C)	1.0	15A	18.75A	25A ≥ 18.75A PASS	40A (IN FREE AIR)	36.4A (IN FREE AIR)
2	1	DC CIRCUIT (TRANSITIONED): JUNCTION BOX TO STRING INVERTER	10 AWG THWN-2 COPPER	0.75" DIA. EMT	4 2 X DC(+) 2 X DC(-)	19.9%	15A	N/A	10 AWG THWN-2 COPPER	0.91 (39°C)	0.8	15A	18.75A	35A ≥ 18.75A PASS	40A (IN CONDUIT)	29.12A (IN CONDUIT)
3	1	STRING INVERTER OUTPUT: STRING INVERTER TO SOLAR AC DISCONNECT (DS1)	6 AWG THWN-2 COPPER	0.75" DIA. EMT	3 (L1, L2, N) X 1	32.6%	47.5A	60A / 2P (DS1)	10 AWG THWN-2 COPPER	0.91 (39°C)	1.0	47.5A	59.38A	65A ≥ 59.38A PASS	75A (IN CONDUIT)	68.25A (IN CONDUIT)
4	1	SOLAR AC DISCONNECT (DS1) OUTPUT: SOLAR AC DISCONNECT (DS1) TO 225A LOAD CENTER (LOAD-SIDE POINT OF INTERCONNECTION VIA BACKFED CIRCUIT BREAKER)	6 AWG THWN-2 COPPER	0.75" DIA. SCH. 40 PVC (BURIED IN UNDERGROUND ~17 FT TRENCH, 19" MIN. BURIAL DEPTH)	3 (L1, L2, N) X 1	34.2%	47.5A	60A / 2P (CB1)	10 AWG THWN-2 COPPER	0.91 (39°C)	1.0	47.5A	59.38A	65A ≥ 59.38A PASS	75A (IN CONDUIT)	68.25A (IN CONDUIT)
5	1	225A METER / MAIN COMBINATION PANEL OUTPUT: 225A METER / MAIN COMBINATION PANEL TO 225A LOAD CENTER	3/0 AWG THWN-2 COPPER	2.00" DIA. SCH. 40 PVC (BURIED IN UNDERGROUND ~125 FT TRENCH, 19" MIN. BURIAL DEPTH)	3 (L1, L2, N) X 1	26.0%	200A MAXIMUM OUTPUT	200A / 2P (MAIN BREAKER)	6 AWG THWN-2 COPPER	0.91 (39°C)	1.0	200A MAXIMUM OUTPUT	200A MAXIMUM OUTPUT	200A ≥ 200A PASS	225A (IN CONDUIT)	204.75A (IN CONDUIT)
ALL CONDUCTORS, OCPD SIZES AND TYPES SPECIFIED ACCORDING TO CEC ARTICLES 690.8(A)(1), CEC ARTICLE 240, AND CEC ARTICLE 690.7.																

1

PV-3B

SINGLE-LINE DIAGRAM
SCALE: N/A

OWNER-BUILDER
NAME: (INFO WITHHELD)
PHONE: (INFO WITHHELD)

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NEW GRID-TIED SYSTEM 11.20kW

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SINGLE-LINE DIAGRAM

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-3B

JUNCTION BOX

1 JUNCTION BOX

WARNING

ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

CEC 690.35(F)

3 JUNCTION BOX

WARNING

PHOTOVOLTAIC POWER SOURCE

CEC 690.35

INVERTER

4 INTEGRATED DC DISCONNECT (INVERTER I1)

PHOTOVOLTAIC SYSTEM DC DISCONNECT

OPERATING VOLTAGE

400 VDC

OPERATING CURRENT

28 A

MAX SYSTEM VOLTAGE

480 VDC

SHORT CIRCUIT CURRENT

30 A

CEC 690.53

6 INVERTER (I1)

WARNING

ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

CEC 690.35(F)

8 INVERTER (I1)

SOLAR INVERTER MAXIMUM RATING

OPERATING CURRENT

47.5 AMPS

OPERATING VOLTAGE

240 VAC

CEC 690.54

2 JUNCTION BOX

DO NOT DISCONNECT UNDER LOAD

CEC 690.16(B)

5 INTEGRATED DC DISCONNECT (INVERTER I1)

SOLAR DC DISCONNECT

CEC 690.13(B)

7 INVERTER (I1)

WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

CEC 690.5(C)

9 INVERTER (I1)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

SOLAR ELECTRIC PV PANELS

RACEWAYS & OTHER

10 RACEWAYS, CABLES PER 10 FT.

WARNING

PHOTOVOLTAIC POWER SOURCE

CEC 690.35(F)

11 PV WIRE CONNECTORS

DO NOT DISCONNECT UNDER LOAD

CEC 690.16(B)

225A LOAD CENTER (LOC. AT PEDESTAL)

12 225A LOAD CENTER (LOC. AT PEDESTAL)

WARNING

DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

CEC 690.56(B)

13 225A LOAD CENTER (LOC. AT PEDESTAL)

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS

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

CEC 690.17.4

14 225A LOAD CENTER (LOC. AT PEDESTAL)

WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

CEC 705.12(D)(7)

15 225A LOAD CENTER (LOC. AT PEDESTAL)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

SOLAR ELECTRIC PV PANELS

16 TOTAL SOLAR BACKFED CURRENT

PHOTOVOLTAIC SYSTEM AC DISCONNECT

OPERATING CURRENT

47.5 AMPS

OPERATING VOLTAGE

240 VOLTS

CEC 690.54

SOLAR AC DISCONNECT (DS1)

17 SOLAR AC DISCONNECT (DS1)

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS

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

CEC 690.17.4

18 SOLAR AC DISCONNECT (DS1)

PHOTOVOLTAIC SYSTEM AC DISCONNECT

OPERATING CURRENT

47.5 AMPS

OPERATING VOLTAGE

240 VOLTS

CEC 690.54

METER / MAIN SERVICE PANEL

19 METER / MAIN SERVICE PANEL

CAUTION

POWER TO THIS SERVICE IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN

STRING INVERTER (LOC. AT ARRAY)

SOLAR AC DISCONNECT (DS1) (LOC. AT ARRAY)

225A LOAD CENTER (LOC. AT PEDESTAL)

225A METER / MAIN COMBO (LOC. AT UTILITY POLE)

PV ARRAY

N

CEC 690.56(B)

SIGNAGE REQUIREMENTS

1	ALL PLACARDS AND SIGNAGE REQUIRED BY THE 2022 CALIFORNIA ELECTRICAL CODE, AND ANY OTHER STATE CODES OR LOCAL ORDINANCES WILL BE INSTALLED AS REQUIRED.
2	RED BACKGROUND
3	WHITE LETTERING
4	MINIMUM 3/8" LETTER HEIGHT
5	ALL CAPITAL LETTERS
6	ARIAL OR SIMILAR FONT
7	WEATHER RESISTANT MATERIAL, PER UL 969

OWNER-BUILDER

NAME: (INFO WITHHELD)

PHONE: (INFO WITHHELD)

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

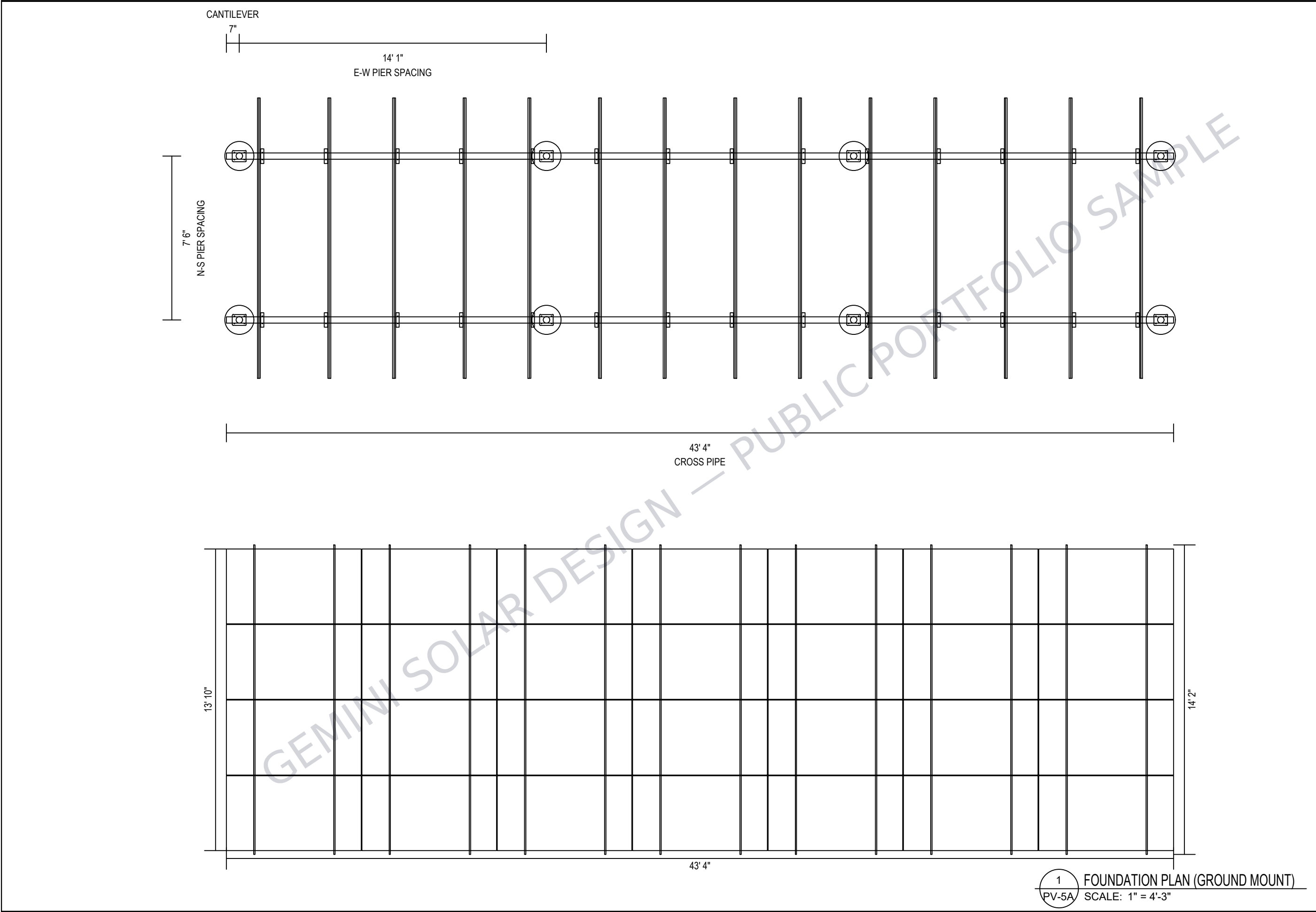
PLACARDS

PROJECT NO: GSD-20251119-SCM

DRAWN BY: SCM

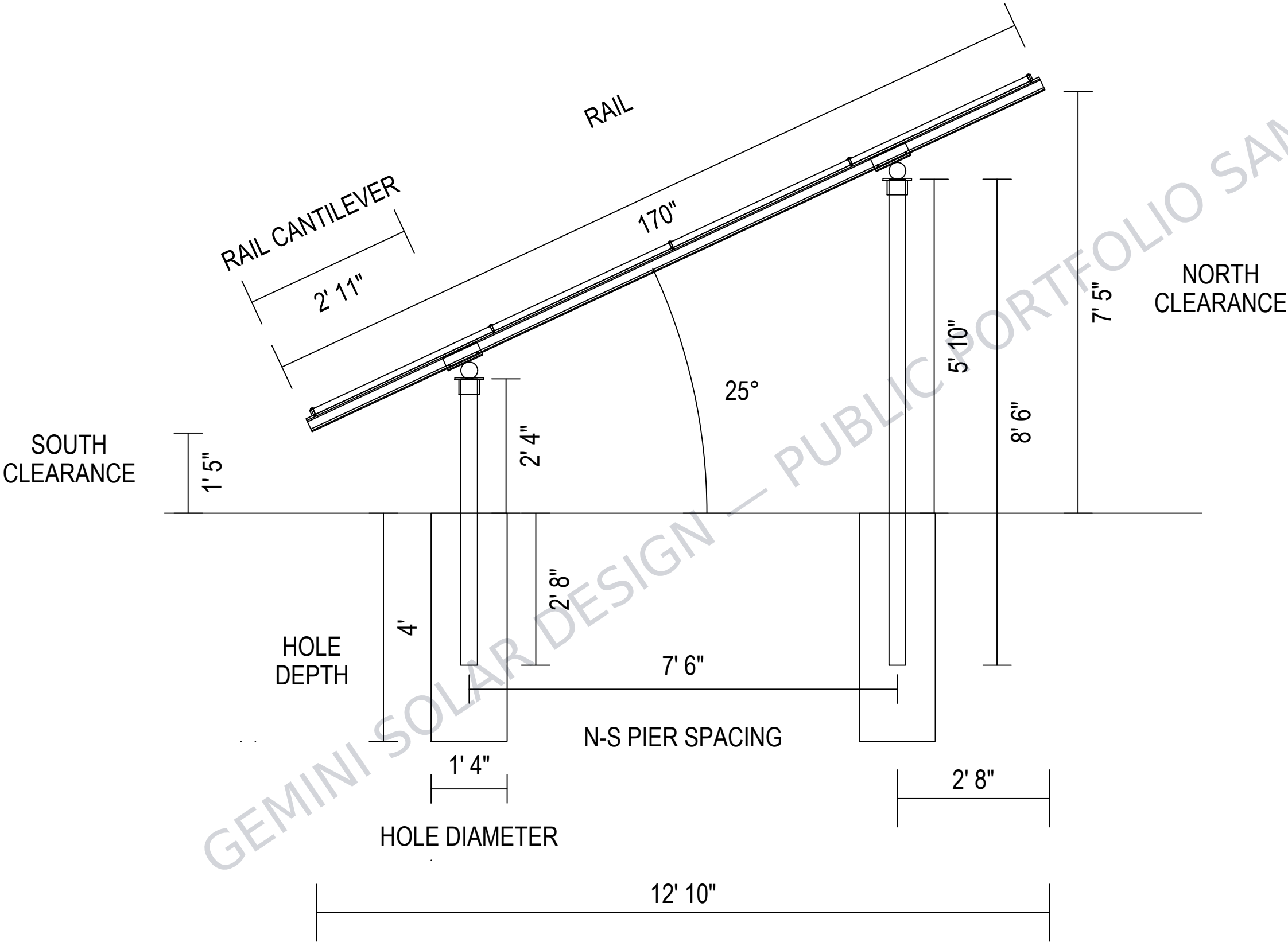
DATE: 11/19/2025

PV-4



OWNER-BUILDER	
NAME: (INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
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NEW GRID-TIED SYSTEM 11.20kW	(INFO WITHHELD FOR PUBLIC SAMPLE)
FOUNDATION PLAN	
PROJECT NO: GSD-20251119-SCM	
DRAWN BY: SCM	
DATE: 11/19/2025	
PV-5A	

ALL ELECTRICAL COMPONENTS TO BE MOUNTED
A MINIMUM OF 1 FOOT ABOVE BASE FLOOD ELEVATION.



1 ELEVATION VIEW (GROUND MOUNT)
PV-5B SCALE: 1" = 2'

OWNER-BUILDER	
NAME: (INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
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NEW GRID-TIED SYSTEM 11.20kW	(INFO WITHHELD FOR PUBLIC SAMPLE)
ELEVATION VIEW	
PROJECT NO: GSD-20251119-SCM	
DRAWN BY: SCM	
DATE: 11/19/2025	
PV-5B	



Project Details			
Name		Date	11/19/2025
Location		ASCE code	7.16
Total modules	28	Wind speed	95 mph
Module	Hanwha Q.Cells: Q.PEAK DUO BLK ML-G10+ 400 (32mm)	Snow load	0 psf
Dimensions	Dimensions: 73.98" x 41.14" x 1.26" (1879.0mm x 1045.0mm x 32.0mm)	Wind exposure	C
Total watts	11,200	Piers	8
		Concrete	1.65 yd³

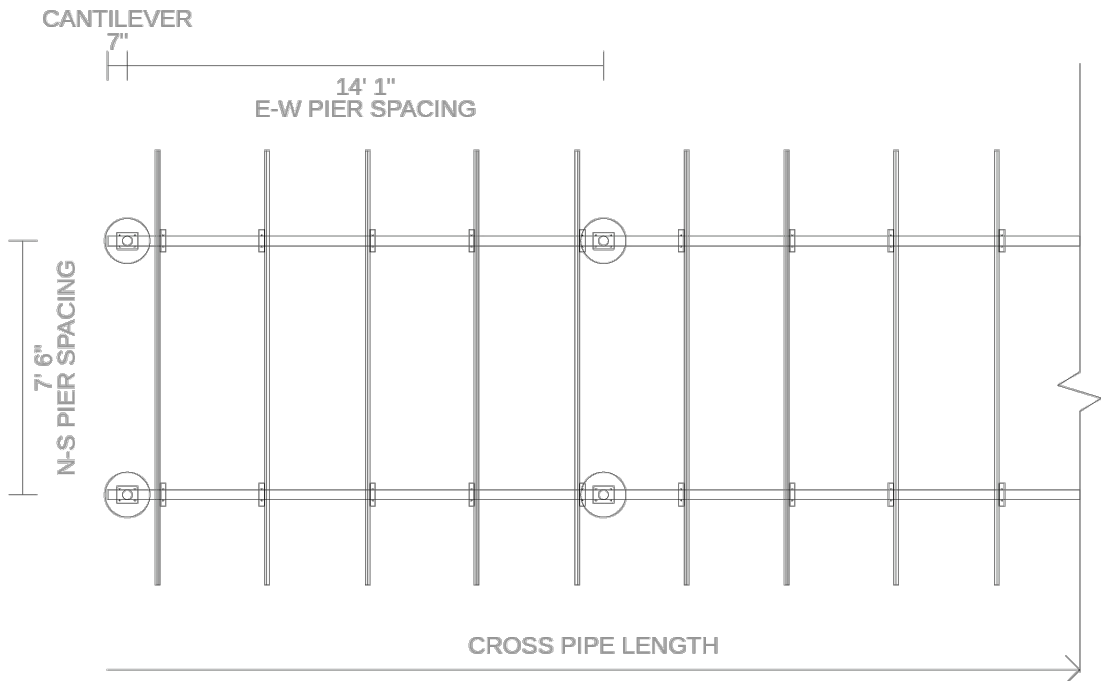
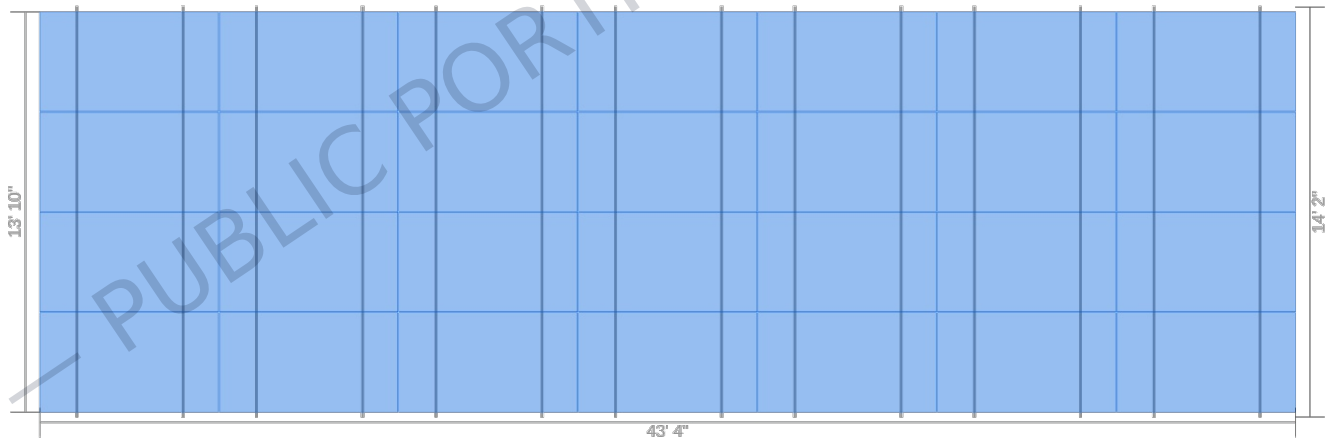
Inter sub-array spacing 175.0"
Calculated using solar azimuth of -41.94° and solar elevation of 16.67° at 9AM (America/Los_Angeles) on the winter solstice.



Substructure & Foundation			
Tilt	25°	South facing grade	0°
Pipe/tubing diameter	3"	Soil class	2
Foundation type	Concrete	Hole diameter	16"



Sub array #1					
Rows	4	Columns	7	# Arrays	1
Area	43' 4" (EW) × 14' (NS)	Rail type	XR1000	Diagonal bracing	no
E/W spacing	14' 1"	Rail cantilever	2' 11"	Pipe cantilever	7"
Piers/array	8	Total south piers	4 (5)	Total north piers	4 (8' 6")
Total cross pipes	2 (43' 4")	Total pipe length	140' 10"		
Shear	1,247 lbs	Moment	3,118 ft-lbs	Uplift	-1,567 lbs



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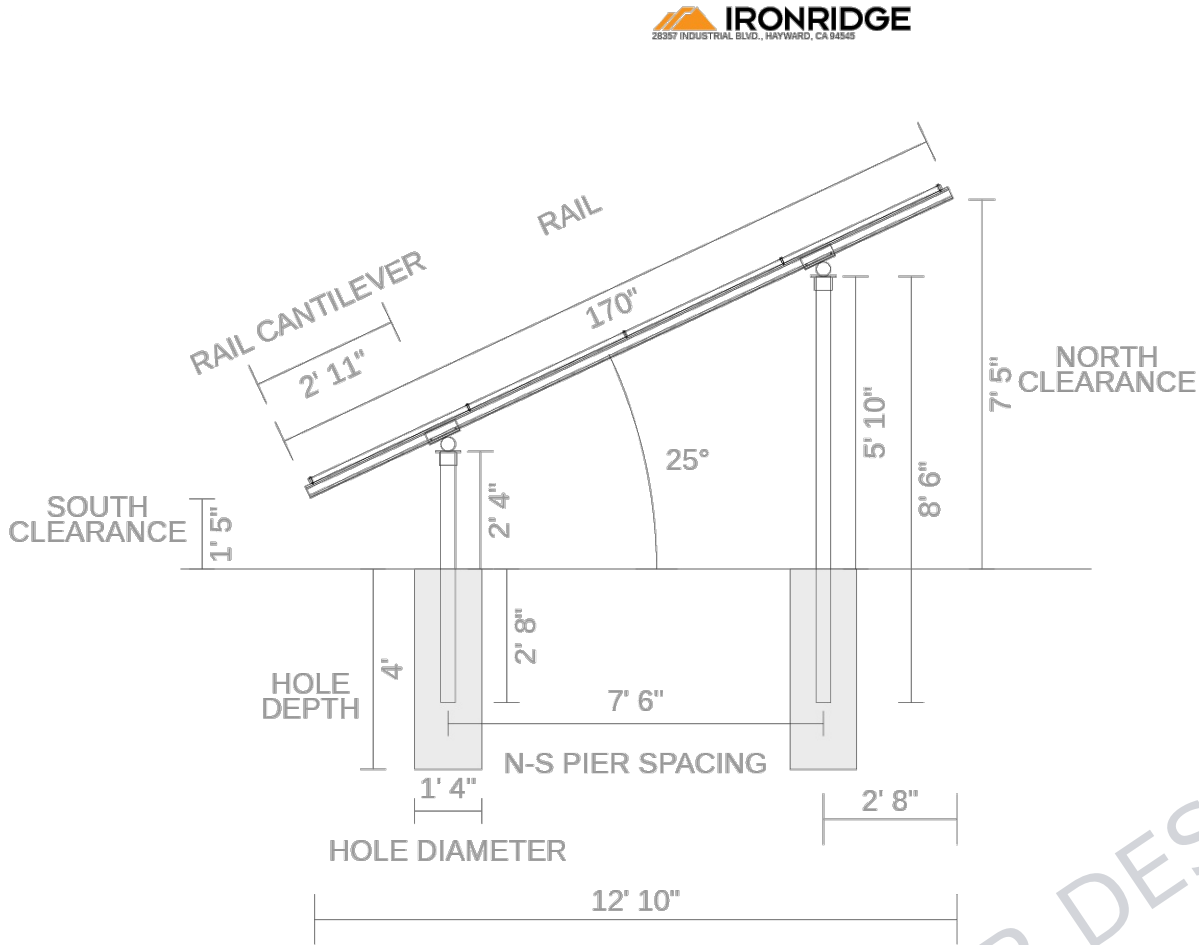
NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

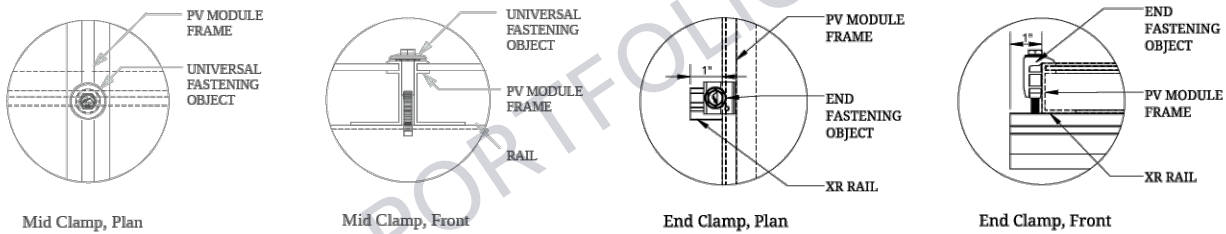
SITE-SPECIFIC REPORT

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-6A

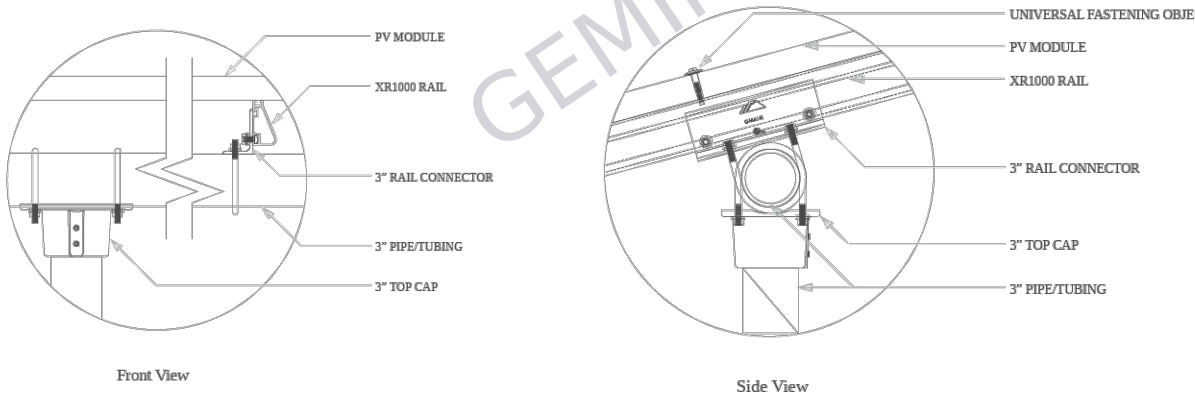


Clamp Detail



Pipe Fitting Detail

XR1000 Rail



OWNER-BUILDER
NAME: (INFO WITHHELD)
PHONE: (INFO WITHHELD)

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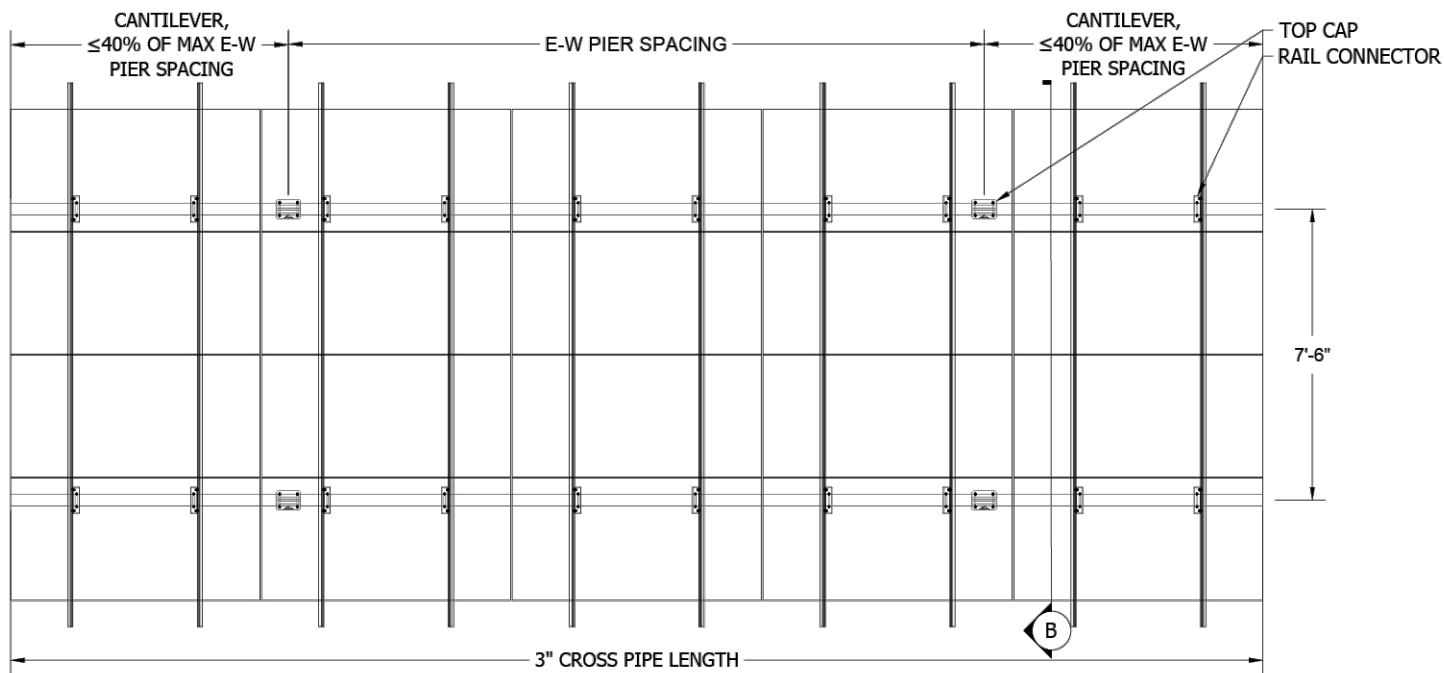
NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

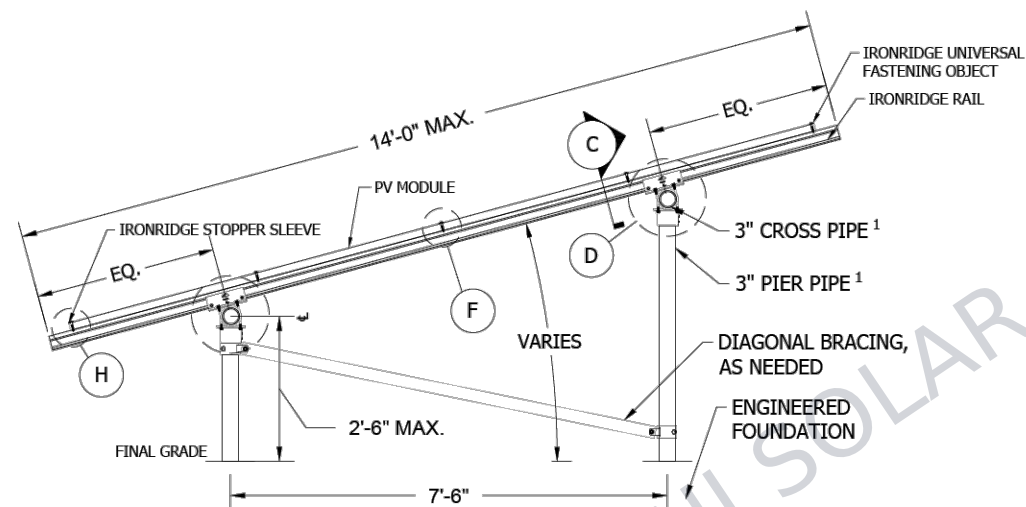
SITE-SPECIFIC REPORT

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-6B

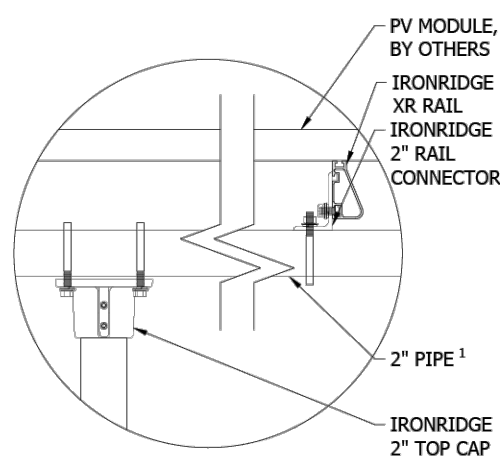


A 4-UP - PV SYSTEM PLAN DETAIL
Scale: 1/2"=1'-0"

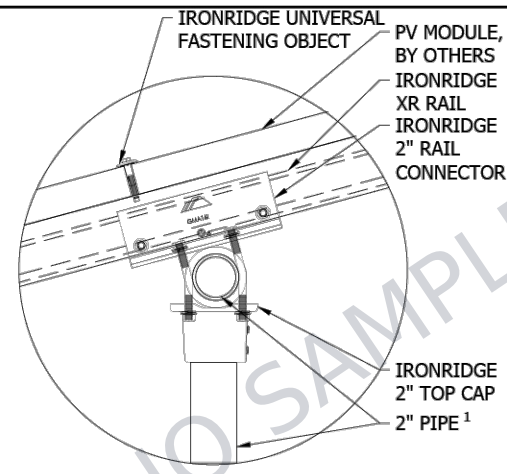


B 4-UP - PV SYSTEM SIDE SECTION
Scale: 3/4"=1'-0"

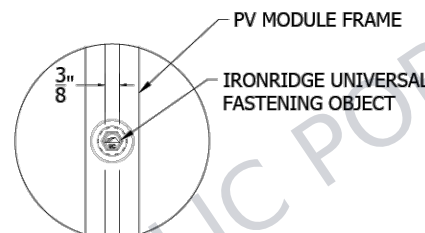
1. SCHEDULE 40 PIPE OR ALLIED MECHANICAL TUBING (8GA WALL THICKNESS)



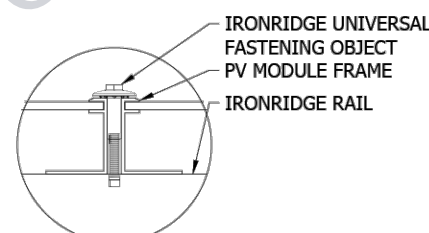
C PIPE FITTINGS DETAIL
3"=1'-0"



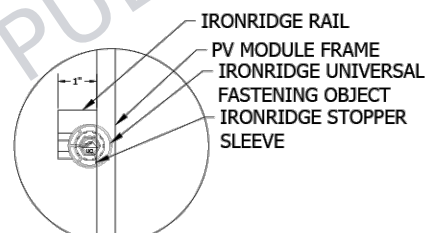
D PIPE FITTINGS DETAIL
3"=1'-0"



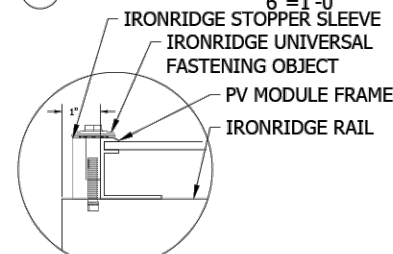
E DETAIL, MID CLAMP PLAN
6"=1'-0"



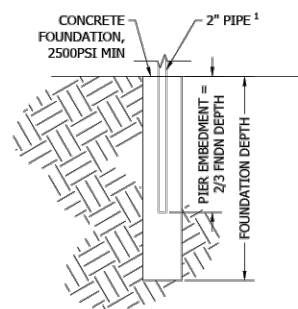
F DETAIL, MID CLAMP FRONT
6"=1'-0"



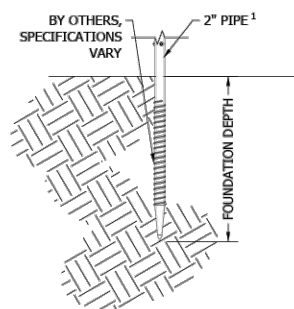
G DETAIL, END CLAMP (UFO) PLAN
6"=1'-0"



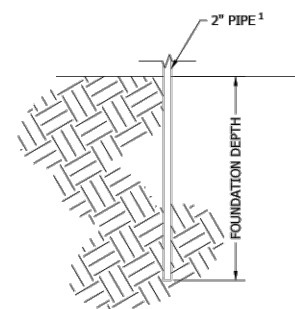
H DETAIL, END CLAMP (UFO) FRONT
6"=1'-0"



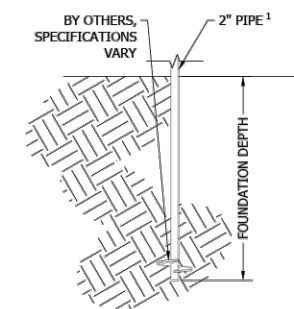
J DRILL/POUR FOUNDATION
Scale: 1/2"=1'-0"



K EARTH SCREW FOUNDATION
Scale: 1/2"=1'-0"



L DRIVEN PIER FOUNDATION
Scale: 1/2"=1'-0"



M HELICAL PILE FOUNDATION
Scale: 1/2"=1'-0"



1485 ZEPHYR AVE. HAYWARD, CA 94544
800.227.9523 IRONRIDGE.COM

IRONRIDGE

CLIENT NAME

GROUND MOUNT SYSTEM

PROJECT NAME

PROJECT ADDRESS

SYSTEM KWDC

WIND SPEED, MPH

SNOW LOAD, PSF

EXPOSURE CAT

RISK CAT

72-CELL, GENERIC

MODULE TYPE

MODULE WDC

MODULE QTY

APPROVAL STATUS

NOT FOR CONSTRUCTION

REVISION HISTORY

REV

DESCRIPTION

DATE

JOB NO.

2.09 GM

ISSUE DATE

JUNE 2018

SHEET NO.

IR 5.0

SHEET SIZE

24X36

PV SYSTEM
DETAILS
4-UP 3" (UFO)

OWNER-BUILDER
NAME: (INFO WITHHELD)
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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

RACKING DETAILS

PROJECT NO: GSD-20251119-SCM

DRAWN BY: SCM

DATE: 11/19/2025

PV-6C

1 IRON RIDGE GROUND MOUNT DETAILS (4-UP, 3" PIPE)
PV-6C SCALE: NTS



Ground Mount System

Datasheet



Mount on all terrains, in no time.

The IronRidge Ground Mount System combines our XR1000 rails with locally-sourced steel pipes, or mechanical tubing, to create a cost-effective structure capable of handling any site or terrain challenge. Installation is simple with only a few structural components and no drilling, welding, or heavy machinery required. In addition, the system works with a variety of foundation options, including concrete piers and driven piles.



Rugged Construction
Engineered steel and aluminum components ensure durability.



PE Certified
Pre-stamped engineering letters available in most states.



Simple Assembly
Just a few simple components and no heavy equipment.



Design Software
Online tool generates engineering values and bill of materials.



Flexible Architecture
Multiple foundation and array configuration options.



20 Year Warranty
Twice the protection offered by competitors.



360° Product Tour
Visit ironridge.com

Substructure

Top Caps



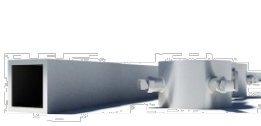
Connect vertical and cross pipes.

Rail Connectors



Attach Rail Assembly to horizontal pipes.

Diagonal Braces



Optional Brace provides additional support.

Cross Pipe & Piers



Steel pipes or mechanical tubing for substructure.

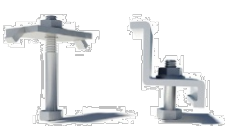
Rail Assembly

XR1000 Rails



Curved rails increase spanning capabilities.

Top-Down Clamps



Secure modules to rails and substructure.

Under Clamps



Alternative clamps for pre-attaching modules to rails.

Accessories



Wire Clips and End Caps provide a finished look.

Resources



Design Assistant
Go from rough layout to fully engineered system. For free.
Go to ironridge.com/gm



NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to ironridge.com/training

© 2014 IronRidge, Inc. All rights reserved. Visit www.ironridge.com or call 1-800-227-9523 for more information. Version 1.12

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

RACKING DATASHEET

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-7



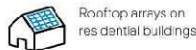
Q.PEAK DUO BLK ML-G10+
385-405
ENDURING HIGH
PERFORMANCE



- BREAKING THE 20% EFFICIENCY BARRIER**
Q. ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.
- THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY**
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry. The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behavior.
- ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**
Inclusive 25-year product warranty and 25-year linear performance warranty².

¹ APT test conditions according to IEC/TS 62804-1:2015, method A (-1500 V, 96 h)
² See data sheet on rear for further information

THE IDEAL SOLUTION FOR:

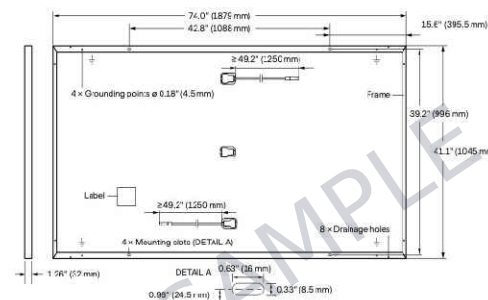


Engineered in Germany



MECHANICAL SPECIFICATION

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q. ANTUM solar half cells
Junction Box	2 09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

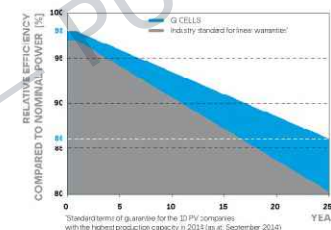


ELECTRICAL CHARACTERISTICS

POWER CLASS	385	390	395	400	405
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W / -0 W)					
Power at MPP ¹	P _{MPP} [W]	385	390	395	400
Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14
Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.30
Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77
Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13
Efficiency ¹	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²					
Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1
Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97
Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72
Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51
Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25

¹ Measurement tolerances: P_{MPP} ± 3%; I_{SC} ± 5%; V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • 800 W/m², NMOT: spectrum AM 1.5

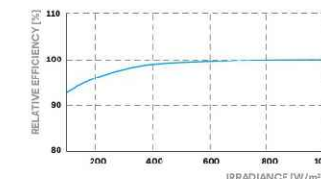
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization or your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α [%/K]	+0.04	Temperature Coefficient of V _{OC}	β [%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.34	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ³	[lbs/ft ²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs/ft ²]	113 (5400 Pa) / 84 (4000 Pa)		

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant,
Quality Controlled PV - TÜV Rheinland,
IEC 61215:2016, IEC 61730:2016,
U.S. Patent No. 9,090,215 (solar cells),



Horizontal packaging	76.4 in 1940 mm	43.3 in 1100 mm	48.0 in 1220 mm	1656 lbs 751 kg	24 pallets	24 pallets	32 modules
----------------------	--------------------	--------------------	--------------------	--------------------	------------	------------	------------

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

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NAME: (INFO WITHHELD)
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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

MODULE DATASHEET

PROJECT NO: GSD-20251119-SCM

DRAWN BY: SCM

DATE: 11/19/2025

PV-8

SolarEdge Home Wave Inverter
For North America

SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per articles 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

SolarEdge Home Wave Inverter
For North America

SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	SEXXXXH-XXXXXBXX4						Units	
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
OUTPUT								
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA	
AC Output Voltage	✓	✓	✓	✓	✓	✓	Vac	
Min.-Nom.-Max. (211 - 240 - 264)								
AC Output Voltage	✓	-	✓	-	-	✓	Vac	
Min.-Nom.-Max. (183 - 208 - 229)								
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾						Hz	
Maximum Continuous Output Current @240V	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	16	-	24	-	-	48.5	A	
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1						A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	5900	7750	9300	11800	15500	17650	W	
Maximum DC Power @208V	5100	-	7750	-	-	15500	W	
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480						Vdc	
Nominal DC Input Voltage	380						Vdc	
Maximum Input Current @240V ⁽²⁾	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V ⁽²⁾	9	-	13.5	-	-	27	Adc	
Max. Input Short Circuit Current	45						Adc	
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Sensitivity							
Maximum Inverter Efficiency	99.2						%	
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5						W	

(1) For other regional settings please contact SolarEdge support.
(2) A higher current source may be used; the inverter will limit its input current to the values stated.

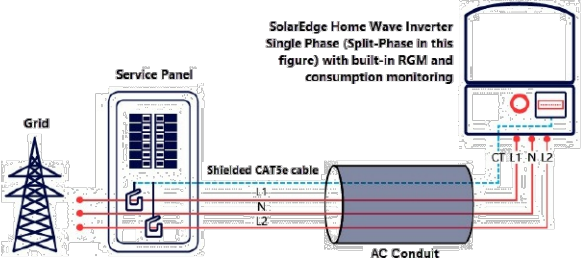
SolarEdge Home Wave Inverter
For North America

SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number		SEXXXXH-XXXXXBXX4					
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), wireless SolarEdge Home Network (optional) ⁽³⁾ , Wi-Fi (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽⁴⁾						
Consumption Metering	Optional ⁽⁴⁾						
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCE according to T.L.L. M-07						
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (H1)						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range	1" Maximum / 14 - 6 AWG			1" Maximum / 14 - 4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 - 2 strings / 14 - 6 AWG			1" Maximum / 1 - 3 strings / 14 - 6 AWG			
Dimensions with Safety Switch (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174			21.3 x 14.6 x 7.3 / 540 x 370 x 185			
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6	in / mm		
Noise	< 25			<50			
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁵⁾						
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

(3) For more information, refer to the SolarEdge Home Network datasheet.
(4) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BN4L. For consumption metering, current transformers should be ordered separately: SEACT10750-200VA-20 or SEACT10750-400VA-20, 20 units per box.
(5) Full power up to at least 50°C / 122°F; for power de-rating information refer to the Temperature De-rating Technical Note for North America

How to Enable Consumption Monitoring



By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills.

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

INVERTER DATASHEET

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-9

Power Optimizer

Frame-Mounted Module Add-On For Commercial Installations

For North America

P320 / P401



25
YEAR
WARRANTY

POWER OPTIMIZER

Fast mount power optimizers with module-level optimization

- Specifically designed to work with SolarEdge inverters
- Quicker installation - Power optimizers can be mounted in advance saving installation time
- Superior efficiency (99.5%)
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module level monitoring
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



Power Optimizer

Frame-Mounted Module Add-On for Commercial Installations

For North America

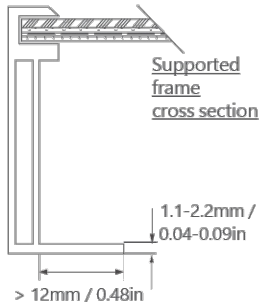
P320 / P401

Optimizer Model (Typical Module Compatibility)	P320 (for high-power 60-cell modules)	P401 (for high-power 60/72-cell modules)	
INPUT			
Rated Input DC Power ⁽¹⁾	320	400	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	Vdc
MPPT Operating Range	8 - 48	8 - 60	Vdc
Maximum Short Circuit Current (Isc)	11	11.75	Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.8		%
Overvoltage Category	II		
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREGE INVERTER)			
Maximum Output Current	15		Adc
Maximum Output Voltage	60		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREGE INVERTER OR SOLAREGE INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1 ± 0.1		Vdc
STANDARD COMPLIANCE			
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3		
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
Compatible Inverters	All SolarEdge Single Phase and Three Phase inverters		
Dimensions (W x L x H)	139 x 165 x 40 / 5.5 x 6.5 x 1.6	129 x 153 x 29.5 / 5.08 x 6.02 x 1.16	mm / in
Weight (including cables)	630 / 1.4	655/1.5	gr / lb
Input Connector	MC4 ⁽²⁾		
Input Wire Length	0.16 / 0.52	1.2 / 3.9	m / ft
Output Wire Type / Connector	Double Insulated / MC4		
Output Wire Length	0.9 / 2.95	1.2 / 3.9	m / ft
Operating Temperature Range ⁽³⁾	-40 to +85 / -40 to +185		°C / °F
Protection Rating	IP68 / Type 6P		
Relative Humidity	0 - 100		%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) For other connector types please contact SolarEdge.
(3) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV SYSTEM DESIGN USING A SOLAREGE INVERTER ⁽⁴⁾		SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	P320, P401	8		10	18	
Maximum String Length (Power Optimizers)		25		25	50 ⁽⁵⁾	
Maximum Power per String		5700	5250	6000 ⁽⁶⁾	12750 ⁽⁷⁾	W
Parallel Strings of Different Lengths or Orientations		Yes				

(4) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf.
(5) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(6) For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W.
(7) For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W.



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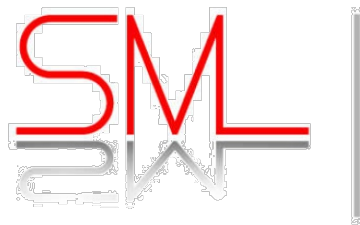
NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

OPTMZR. DATASHEET

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-10



Consulting Structural & Forensic Engineers

3600 E University Dr, Suite 1400, Phoenix, AZ 85034
(602) 438-2500 www.smleng.com

IronRidge
28357 Industrial Boulevard
Hayward, CA 94545

April 21, 2025

Page 1 of 4

Attn: Mr. Sean McDonald, CEO, IronRidge Inc.

Subject: Ground Mounting System – 4 Module (XR1000)
Structural Analysis

SML Job No.: 065-13

Dear Mr. MacDonald:

We have analyzed the subject ground mounted structure and determined that it is in compliance with the applicable sections of the following Reference Documents:

- Codes: ASCE/SEI 7-16 Min. Design Loads for Buildings & Other Structures
California Building Code, 2019 & 2022 Editions
Other: AC428, Acceptance Criteria for Modular Framing Systems Used to Support PV
Modules, dated Effective November 1, 2012 by ICC-ES
Aluminum Design Manual, 2015 & 2020 Editions
IronRidge Exhibit EX-0001

The structure is a simple column (pier) and beam (cross pipe) system. The piers & cross pipes are ASTM A53 Grade B standard weight (schedule 40) steel pipes or Allied Mechanical Tubing. Please refer to Exhibit EX-0001 for approved pipe geometry and material properties. The tops of the piers are connected in the E-W direction by the cross pipes which cantilever over and extend past the end piers. The cross pipes are connected by proprietary IronRidge XR1000 Rails spanning up and down the slope which cantilever over and extend past the top and bottom cross pipes. There are typically two rails per column of modules. The modules are clamped to the rails by the IronRidge Module Mounting Clamps as shown in the attached Exhibit.

Gravity loads are transferred to the piers and foundations by the rails and cross pipes acting as simple beams. For lateral loads the system is either a cantilever structure or, when diagonal braces are provided, a braced frame. The effect of seismic loads (for all design categories A-F) have been determined to be less than the effect due to wind loads in all load conditions and combinations.

The pier spacing in the N-S direction is 7'-6". The pier spacing in the E-W direction is selected from load tables determined by the structural design for the specified slope, wind load, and snow load. The governing criteria for the pier spacing is either the spanning capacity of the cross pipes or the cantilever capacity of the pier. Simplified Load Tables 1A-X & 2A-X are included herein for reference.

More comprehensive information covering all load combinations is available at the IronRidge website, <http://www.IronRidge.com>

This letter and all associated reference tables are not valid and are not authorized for use by SML – Consulting Structural & Forensic Engineers unless it is accompanied by a digitally signed and traditionally sealed, non-expired signature sheet bearing the same publication date indicated above.

IronRidge
Ground Mounting System – Structural Analysis – 4 Module (XR1000)
SML Job No.: 065-13

Mr. Sean McDonald

April 21, 2025

Page 4 of 4

The analysis assumes that the array, including the connections and associated hardware, are installed in a workmanlike manner in accordance with the IronRidge Ground Mount Installation Manual and generally accepted standards of construction practice.

It is the responsibility of the contractor to verify that the strength of the PV module meets the minimum properties used in the tests and can safely support the maximum imposed loads stated within this document.

For the purposes of this document, ‘non-expired signature sheet’ refers to this signature sheet bearing a digital signature and a professional seal that is still within the validity period recognized by the appropriate licensing authority or regulatory body. The signature sheet must remain in good standing and unrevoked for the duration of its intended use.

SML and IronRidge assume no liability beyond what is specifically shown in this letter. Additional information is available at the IronRidge web site, <https://www.IronRidge.com/>.

Please feel free to contact me at your convenience if you have any questions.

Respectfully yours,



Jesse
Light,
SE, PE

Digitally signed by Jesse Light, SE, PE
DN: C=US, OU=DBA: SML - Consulting
Structural & Forensic Engineers, O="Starling
Madison Lofquist, Inc.", CN="Jesse Light, SE,
PE", E=jlight@smleng.com
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changes" is valid—but review any later
changes.
Location: Phoenix, AZ
Date: 2025-04-21 20:02:07
Foxit PhantomPDF Version: 9.7.5

Jesse Light, S.E., P.E.
Principal / President / Sr. Structural Engineer

Andrew Huseman, P.E.
Principal / Professional Engineer

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STATE OF CALIFORNIA ENGINEERING LETTER (IRONRIDGE RACKING)
SCALE: NTS

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REPRESENTED IN THIS PLAN.

NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

ENGINEERING LETTER

PROJECT NO: GSD-20251119-SCM

DRAWN BY: SCM

DATE: 11/19/2025

PV-11



UFO Family of Components

Tech Brief

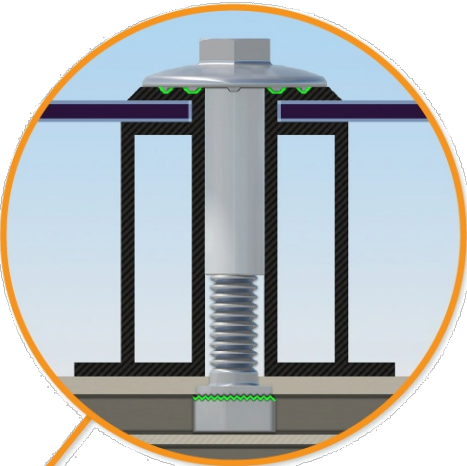
Simplified Grounding for Every Application

The UFO family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge XR Rails. All system types that feature the UFO family—Flush Mount, Tilt Mount and Ground Mount—are fully listed to the UL 2703 standard.

UFO hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.



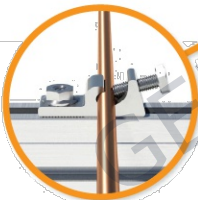
Stopper Sleeve
The Stopper Sleeve snaps onto the UFO, converting it into a bonded end clamp.



Universal Fastening Object (UFO)
The UFO securely bonds solar modules to XR Rails. It comes assembled and lubricated, and can fit a wide range of module heights.



Bonded Splice
Each Bonded Splice uses self-drilling screws to form a secure connection. No bonding strap needed.

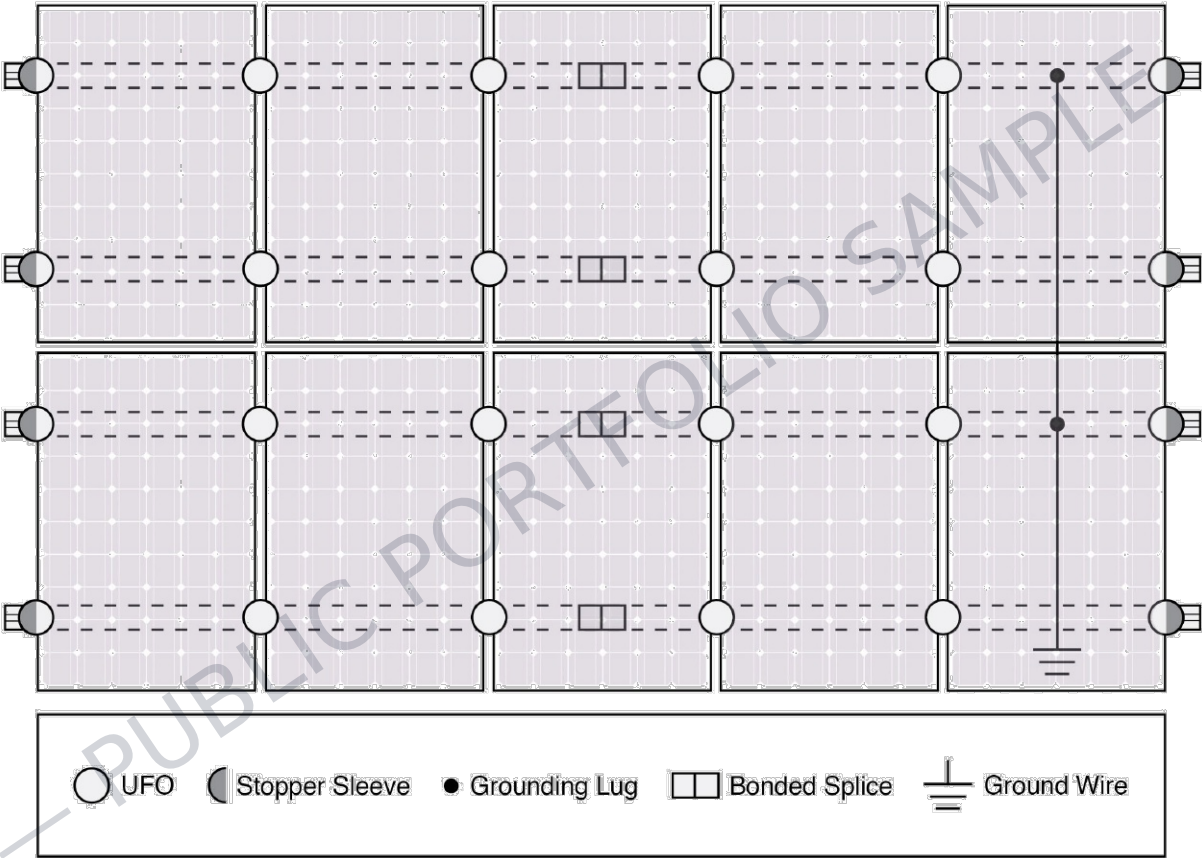


Grounding Lug
A single Grounding Lug connects an entire row of PV modules to the grounding conductor.



Bonded Attachments
The bonding bolt attaches and bonds the L-foot to the rail. It is installed with the same socket as the rest of the system.

System Diagram



Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

UL Certification

The IronRidge Flush Mount, Tilt Mount, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to [IronRidge.com/UFO](https://www.ironridge.com/UFO)

Cross-System Compatibility			
Feature	Flush Mount	Tilt Mount	Ground Mount
XR Rails	✓	✓	XR1000 Only
UFO/Stopper	✓	✓	✓
Bonded Splice	✓	✓	N/A
Grounding Lugs	1 per Row	1 per Row	1 per Array
Microinverters & Power Optimizers	Enphase - M250-72, M250-60, M215-60, C250-72 Darfon - MIG240, MIG300, G320, G640 SolarEdge - P300, P320, P400, P405, P600, P700, P730		
Fire Rating	Class A	Class A	N/A
Modules	Tested or Evaluated with over 400 Framed Modules Refer to installation manuals for a detailed list.		

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

GROUNDING DETAILS

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-12



Intertek
3933 US Route 11
Cortland, NY 13045
Telephone: 607-753-7311
www.intertek.com



Intertek
3933 US Route 11
Cortland, NY 13045
Telephone: 607-753-7311
www.intertek.com

Subject: ETL Evaluation of SolarEdge Products to Rapid Shutdown Requirements

To, whom it may concern

This letter represents the testing results of the below listed products to the requirements contained in the following standards:

The evaluation was done on the PV Rapid Shutdown System (PVRSS), and covers installations consisting of optimizers and inverters with part numbers listed below.

The testing done has verified that controlled conductors are limited to:

- Not more than 30 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation outside the array.
- Not more than 80 volts and 240 voltamperes within 30 seconds of rapid shutdown initiation inside the array.

The rapid shutdown initiation is performed by either disconnecting the AC feed to the inverter, or – if the inverter DC Safety switch is readily accessible – by turning off the DC Safety switch.

Applicable products:

(1) Power optimizers:

PB followed by 001 to 350; followed by -AOB or -TFI.
OP followed by 001 to 500; followed by -LV, -MV, -IV or -EV.
P followed by 001 to 1100.
SP followed by 001 to 350.
When optimizers are connected to 2 or more modules in series, the max input voltage may exceed 80V. Following the implementation of the NEC 2017 rapid shutdown value of 80V max inside of the array at the beginning of 2019, modules exceeding this combined input max voltage will be required to use optimizers with parallel inputs. Also meeting NEC 2020 rapid shutdown requirement.

(2) 1 -PH Inverters

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US / SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US when the following label is labeled on the side of the inverter:

Inverter part number may be followed by a suffix.

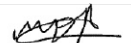
(3) 3 -PH Inverters

SE9KUS / SE10KUS / SE14.4KUS/ SE16.7kUS / SE17.3kUS / SE20KUS/ SE24KUS / SE30KUS / SE33.3KUS / SE40KUS / SE43.2KUS / SE50KUS / SE66.6KUS / SE80KUS / SE85KUS / SE100KUS / SE120KUS; when the following label is labeled on the side of the inverter:

Please note, this Letter Report does not represent authorization for the use of any Intertek certification marks.

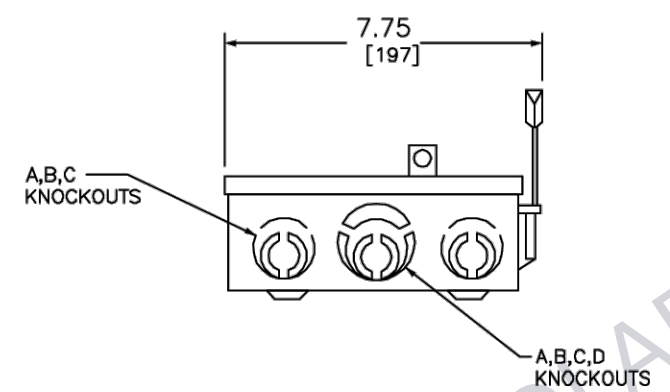
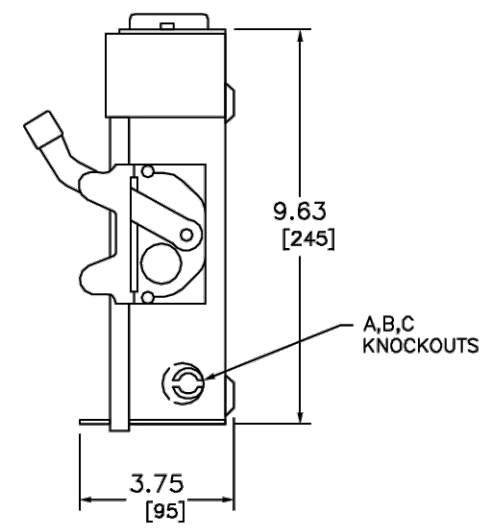
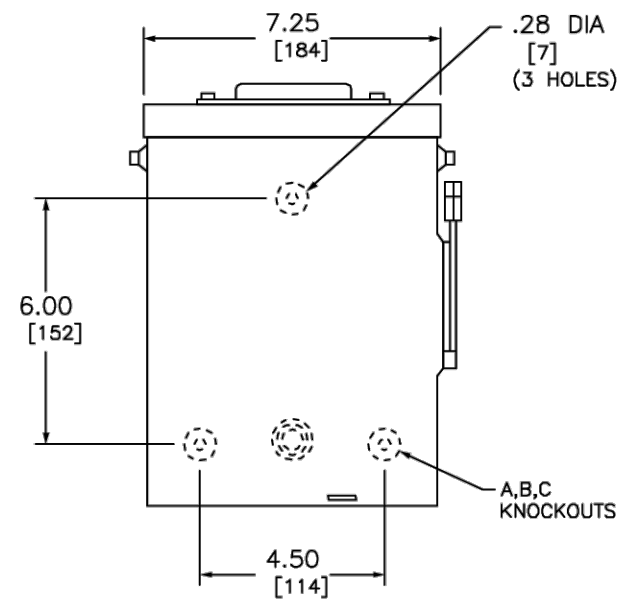
Brand Name(s)	SolarEdge
Relevant Standard(s)	UL 1741, UL 1741 CRD for rapid shutdown National Electric Code, 2020, Section 690.12 requirement for rapid shutdown
Verification Issuing Office	3933 US Route 11, Cortland, NY 13045

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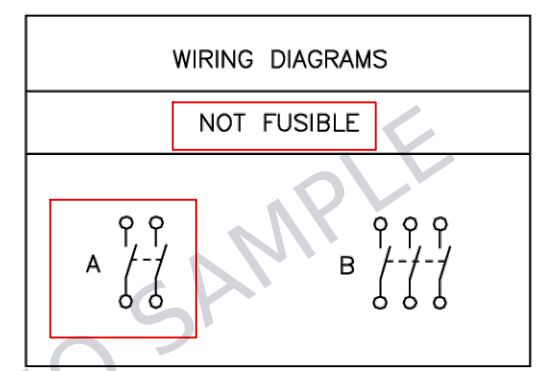
Signature: 

Name: Mukund Rana
Position: Staff Engineer
Date:5/17/2021

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NEW GRID-TIED SYSTEM 11.20kW	(INFO WITHHELD FOR PUBLIC SAMPLE)
RAPID SHUTDOWN	
PROJECT NO: GSD-20251119-SCM	
DRAWN BY: SCM	
DATE: 11/19/2025	
PV-13	



NEMA TYPE 3R



TERMINAL LUGS ‡			
AMPERES	MAX. WIRE	MIN. WIRE	TYPE
60	# 2 AWG # 2 AWG	# 10 AWG # 14 AWG	AL CU

KNOCKOUTS				
SYMBOL	A	B	C	D
CONDUIT SIZE	.50	.75	1	1.25

CATALOG NUMBER	VOLTAGE RATINGS	WIRING DIAG.	HORSEPOWER RATINGS	
			240VAC	
			MAX.	
			1 Ø	3 Ø
DU222RB	240VAC	A	10	—
DU322RB	240VAC	B	10	15

NOTES:
FINISH — GRAY BAKED ENAMEL
UL LISTED — FILE E-2875
SUITABLE FOR USE AS SERVICE EQUIPMENT
TOP OF NEMA TYPE 3R SWITCHES HAVE PROVISIONS FOR MAXIMUM 2 1/2" BOLT-ON HUB.
SHORT CIRCUIT CURRENT RATINGS:
10,000 AMPERES WHEN USED WITH OR PROTECTED BY CLASS H OR K FUSES
100,000 AMPERES WHEN USED WITH OR PROTECTED BY CLASS R FUSES.
‡ LUGS SUITABLE FOR 60°C OR 75°C COPPER OR ALUMINUM CONDUCTORS.

GENERAL DUTY SAFETY SWITCHES
VISIBLE BLADE TYPE
60 AMPERE
ENCLOSURE — NEMA TYPE 3R RAINPROOF



DWG# 1861
NO.

REF DWG #1861

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NEW GRID-TIED SYSTEM 11.20kW

(INFO WITHHELD FOR PUBLIC SAMPLE)

AC DISCONNECT

PROJECT NO: GSD-20251119-SCM
DRAWN BY: SCM
DATE: 11/19/2025

PV-14