

SOLAR ENERGY PROJECT AT THE SMITH RESIDENCE

CUSTOMER ADDRESS	----

REVISION NUMBER	Ground Mount Example.dwg
SYSTEM SIZE (KW)	19.04
TOTAL NUMBER OF PANELS	56

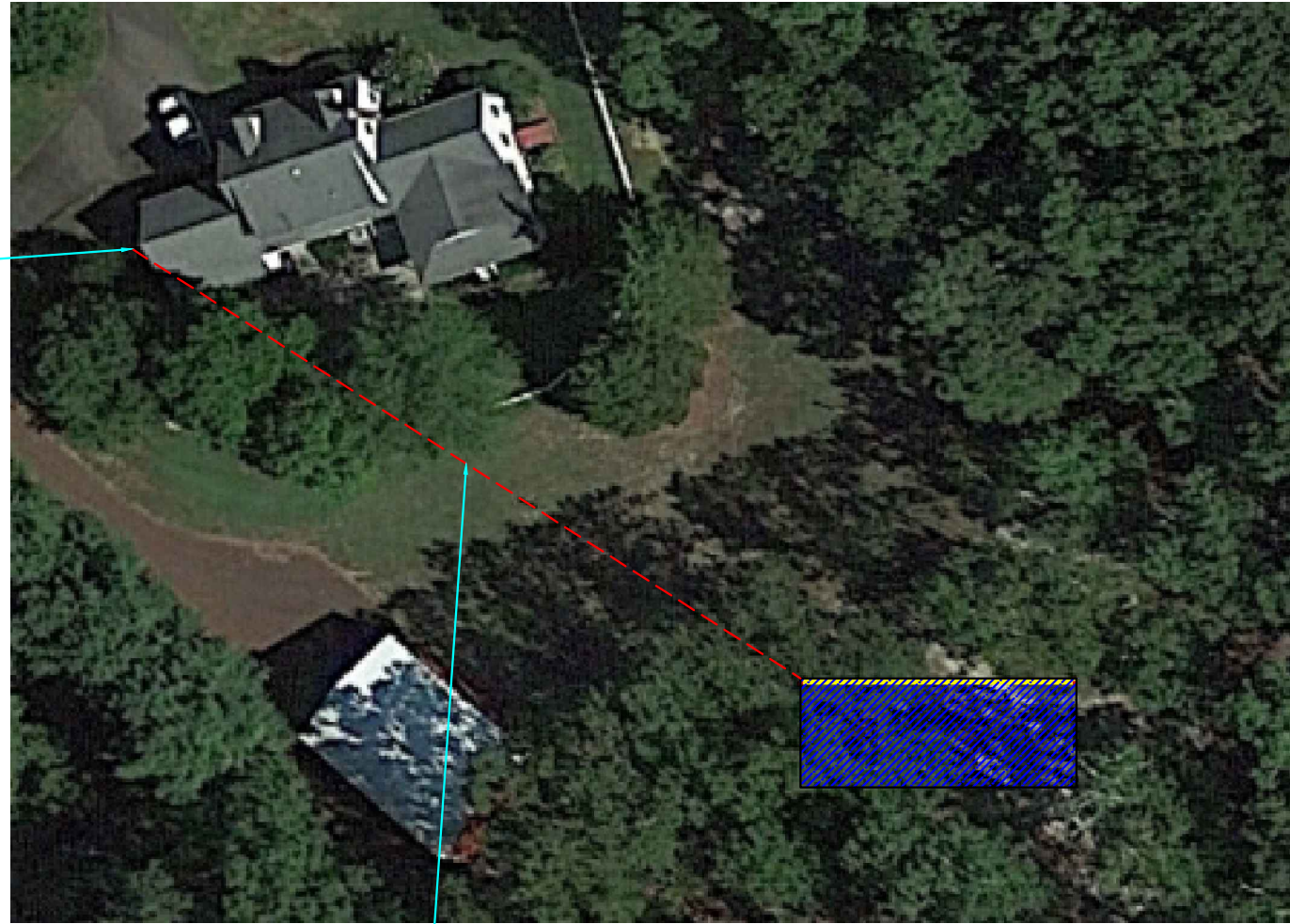
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3	RACKING PLAN VIEW
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10	INVERTER ELECTRICAL DATASHEET
11	CREWS AS-BUILT

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: COVER PAGE	SHEET:
						DRAWN BY: PA	----	----	1
0	2/27/17	ISSUED FOR APPROVAL				DATE: June 6, 2017		DWG. NAME & REV# Ground Mount Example.dwg	

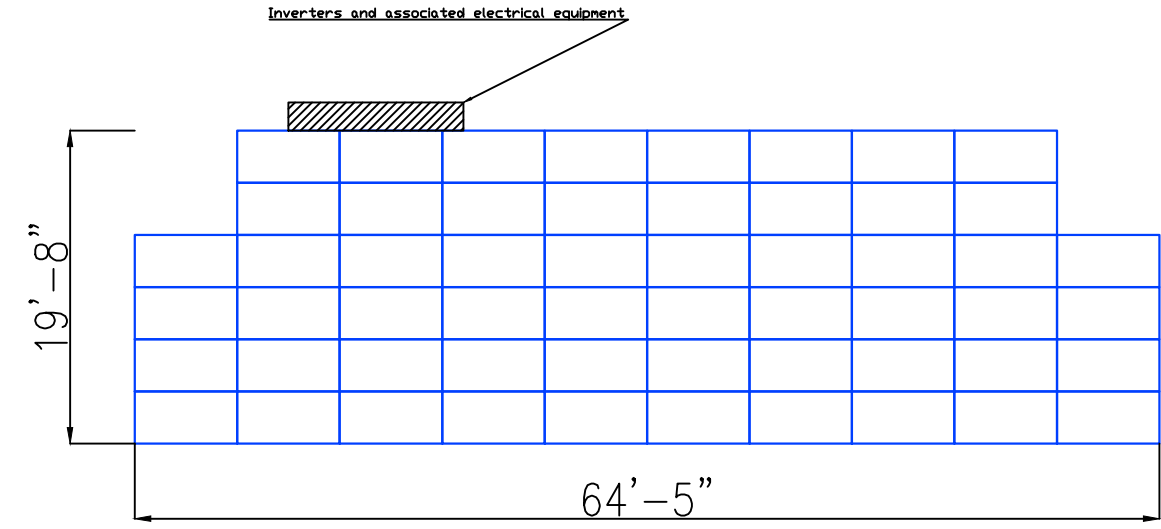
DWELLING INFORMATION	SINGLE FAMILY RESIDENTIAL
GROUND MOUNTED ARRAY	
NUMBER OF PANELS	56
SYSTEM DC KV	19.04
LOAD CENTER AMPERAGE	200
INVERTER #1	SE 3000A-US
INVERTER #2	SE 11400A-US



POI LOCATED NEAR UTILITY METER



WIRE RUN TO POI APPROX. 210'



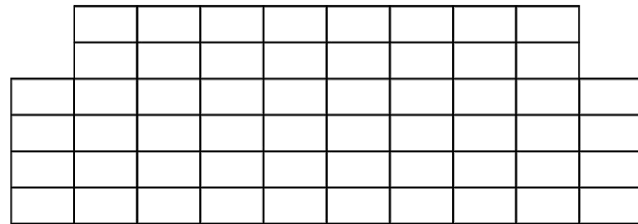
SOLAR ARRAY INFORMATION:

GROUND MOUNTED
56 PANELS LANDSCAPED
6 ROWS OF 10 PANELS

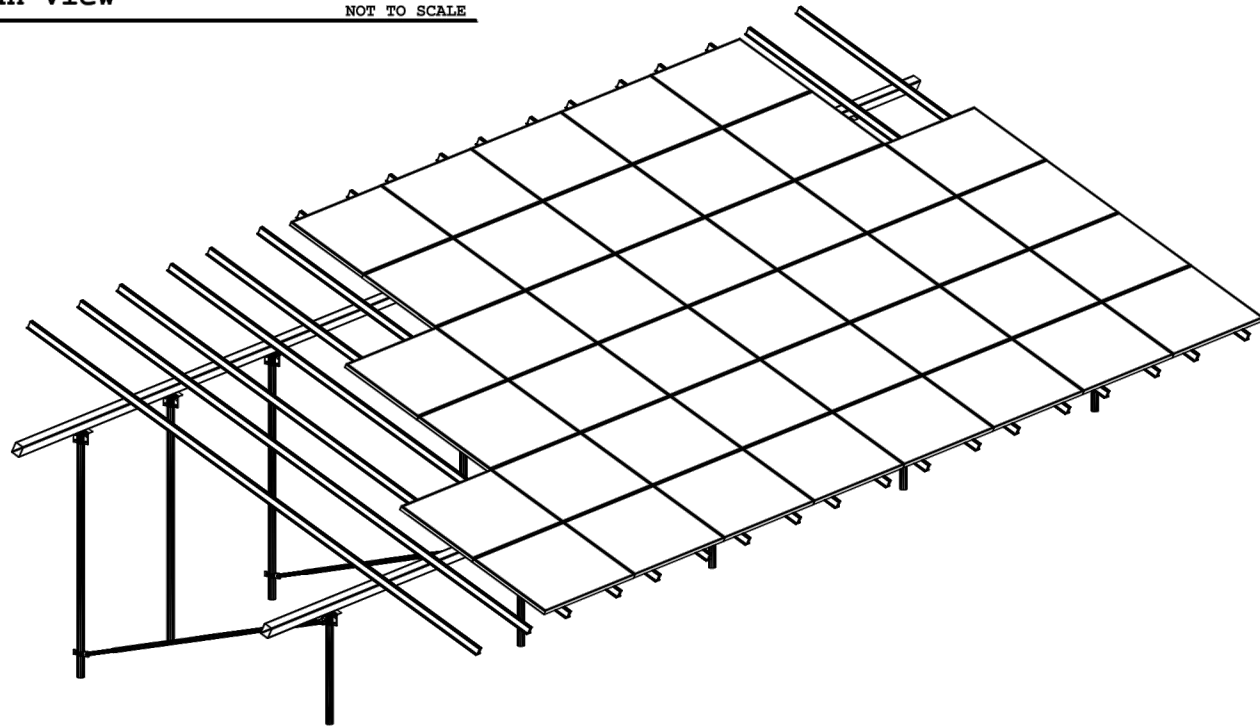
AZIMUTH: 180 TRUE
TILT: 25 DEGREE

APPLICABLE CODES & STANDARDS IRC 2015 - BUILDING NEC 2014 - ELECTRICAL IMC 2009 - MECHANICAL IBC 2015 - WIND & SNOW LOADS ASCE - 7-10 & 7-95	CUSTOMER APPROVAL
	PRINT NAME
	SIGNATURE

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: ROOF LAYOUT	SHEET: 2
0	2/27/17	ISSUED FOR APPROVAL				DRAWN BY: PA		DWG. NAME & REV#: Ground Mount Example.dwg	
						DATE: June 6, 2017			



Plan View NOT TO SCALE



Site Design Conditions

Basic Wind Speed: 115 MPH (Risk Category I)	Max. Leg Axial Bearing: 4,440 lbs.
Ground Snow Load: 20 PSF	Max. Leg Uplift: 3,495 lbs.
Exposure Category: C	Max. Lateral Resistance: 2,280 lbs.
Site Contour: <5 Degree Slope	Top Rail Max. Loading: 110.5 plf
Helical Pile Depth: 60" Min	Lateral Resistance Plate Size: Not Req'd

All design work has been performed in accordance with the New Jersey Uniform Construction Code and associated subchapters including but not limited to the International Building Code/2015 - New Jersey Edition (N.J.A.C. 5:23-3.14)

Net design pressures were calculated in accordance with ASCE 7-10 section 27.4.3, "Open Buildings with Monoslope, Pitched, or Troughed Roofs". All load cases were evaluated in determining the limiting design conditions. The data table above provides the results for the limiting load case. Maximum leg reaction forces represent the highest load condition seen by any leg in the structure. All legs in the structure are designed to meet the maximum load conditions.

6Lx10C Sub-Array Design Conditions

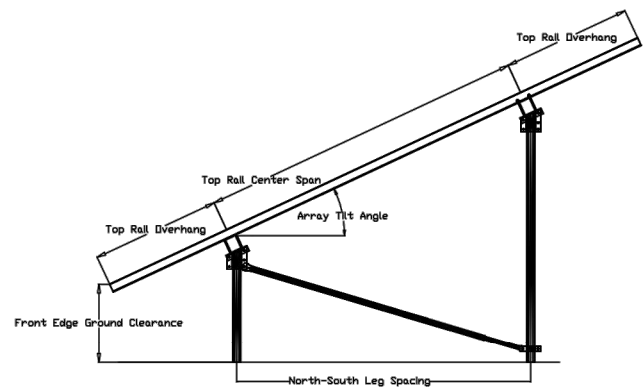
Front Leg Height: 38 1/2"	Array Tilt Angle: 23 Degrees
Rear Leg Height: 90 3/4"	Overall Array East-West Dim: 64'-6"
North-South Leg Spacing: 123 3/4"	Number of Modules/Sub-Array: 56
West Span Leg Spacing: 13'-6"	Number of Sub-Arrays: 1
East Span Leg Spacing: 13'-6"	Module Columns/Sub-Array: 10
Quantity Center Spans: 2	Number of Module Rows: 6
Center Span Leg Spacing: 13'-6"	Module Orientation: Landscape
East & West Overhang: 4'-6"	Module Column Spacing: 3 1/2"
Overall Beam Length: 63'-0"	Module Row Spacing: 1 1/2"
Front Edge Ground Clearance: 28"	Module Model: TSM-DD14A
Horizontal Rail Material: 5"x4"x 3/8" HSS	Module Size: 39.06" x 77.01"
Top Rail Material: SF Rails	Individual Module Rating: 340 watt
Qty Rails per Panel: 2	Sub Array Power Rating: 19.04 kw
Top Rail Length: 242"	Total Power Rating: 19.04 kw
Top Rail Center Span: 134"	
Top Rail Overhangs: 54"	

1 Additional North Column is to be installed per field direction. The Column is to support equipment mounting needs. It is not required for North beam support.

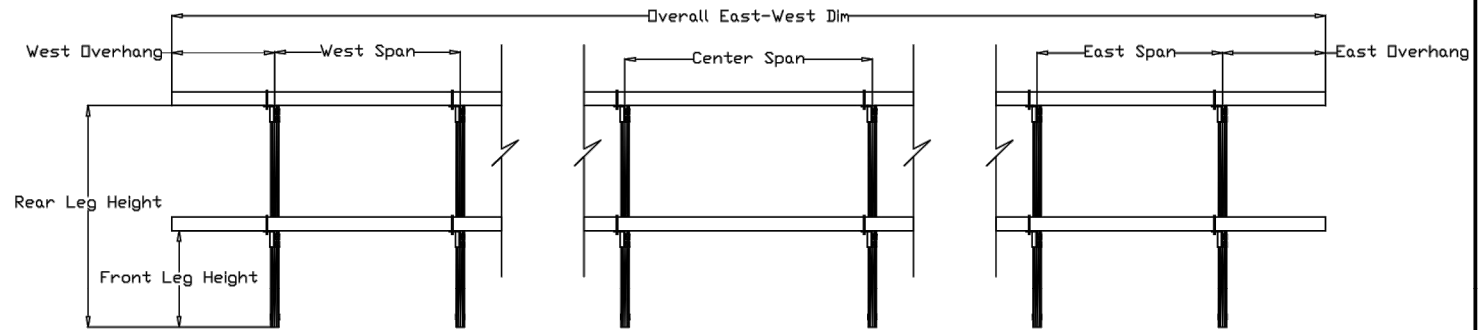
Sheet 1 of 3

Date	Revision	Drawn By:	Review By:
03/07/2017	Original		MZ

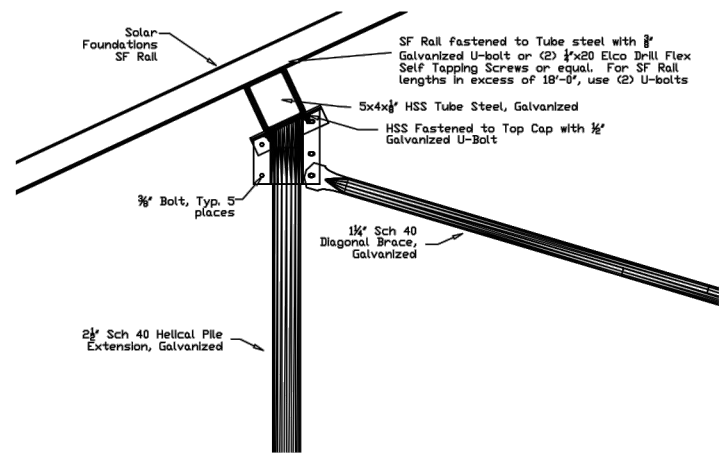
REV	DATE	DESCRIPTION	RPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: PLAN VIEW	SHEET: 3
						DRAWN BY: PA		DWG. NAME & REV# Ground Mount Example.dwg	
						DATE: June 6, 2017			
0	2/27/17	ISSUED FOR APPROVAL							



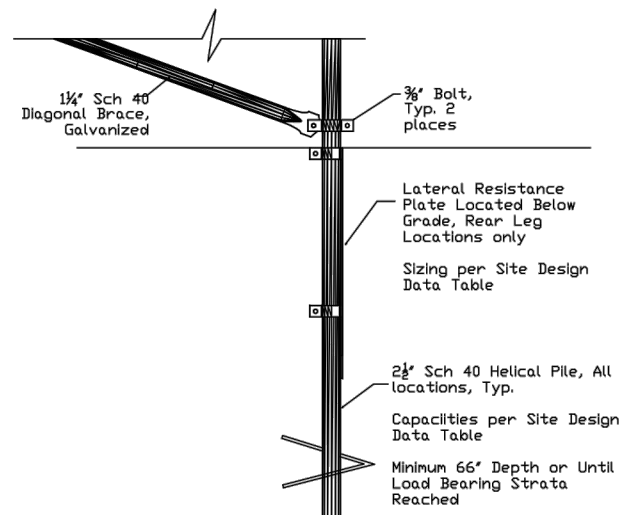
SIDE ELEVATION DETAIL NOT TO SCALE



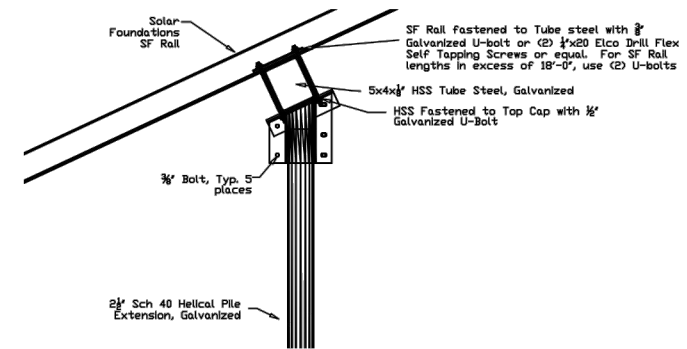
POST SPACING ELEVATION DETAIL NOT TO SCALE



LOWER CAP DETAIL NOT TO SCALE



HELICAL PILE AND LATERAL RESISTANCE PLATE DETAIL NOT TO SCALE



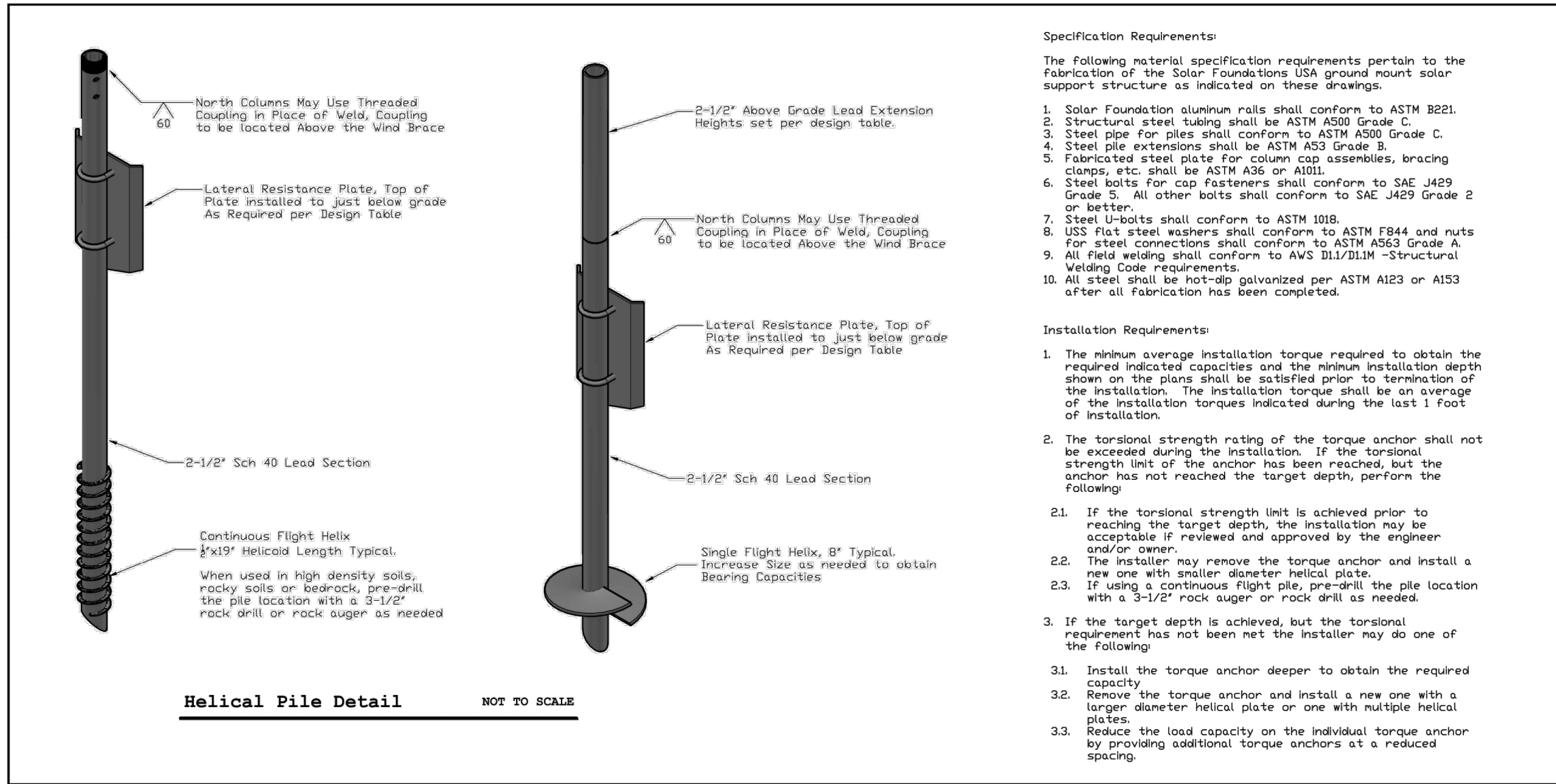
UPPER CAP DETAIL NOT TO SCALE

Sheet 2 of 3

Date	Revision	Drawn By:	Review By:
03/07/2017	Original		MZ

REV	DATE	DESCRIPTION
0	2/27/17	ISSUED FOR APPROVAL

RPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS DRAWN BY: PA DATE: June 6, 2017	PROJECT NAME & ADDRESS: SMITH RESIDENCE ----- -----	DRAWING TITLE: MODULE ATTACHED DETAIL AND LOADS DWG. NAME & REV# Ground Mount Example.dwg	SHEET: 4
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Helical Pile Detail NOT TO SCALE

Specification Requirements:

The following material specification requirements pertain to the fabrication of the Solar Foundations USA ground mount solar support structure as indicated on these drawings.

1. Solar Foundation aluminum rails shall conform to ASTM B221.
2. Structural steel tubing shall be ASTM A500 Grade C.
3. Steel pipe for piles shall conform to ASTM A500 Grade C.
4. Steel pile extensions shall be ASTM A53 Grade B.
5. Fabricated steel plate for column cap assemblies, bracing clamps, etc. shall be ASTM A36 or A1011.
6. Steel bolts for cap fasteners shall conform to SAE J429 Grade 5. All other bolts shall conform to SAE J429 Grade 2 or better.
7. Steel U-bolts shall conform to ASTM 1018.
8. USS flat steel washers shall conform to ASTM F844 and nuts for steel connections shall conform to ASTM A563 Grade A.
9. All field welding shall conform to AWS D1.1/D1.1M -Structural Welding Code requirements.
10. All steel shall be hot-dip galvanized per ASTM A123 or A153 after all fabrication has been completed.

Installation Requirements:

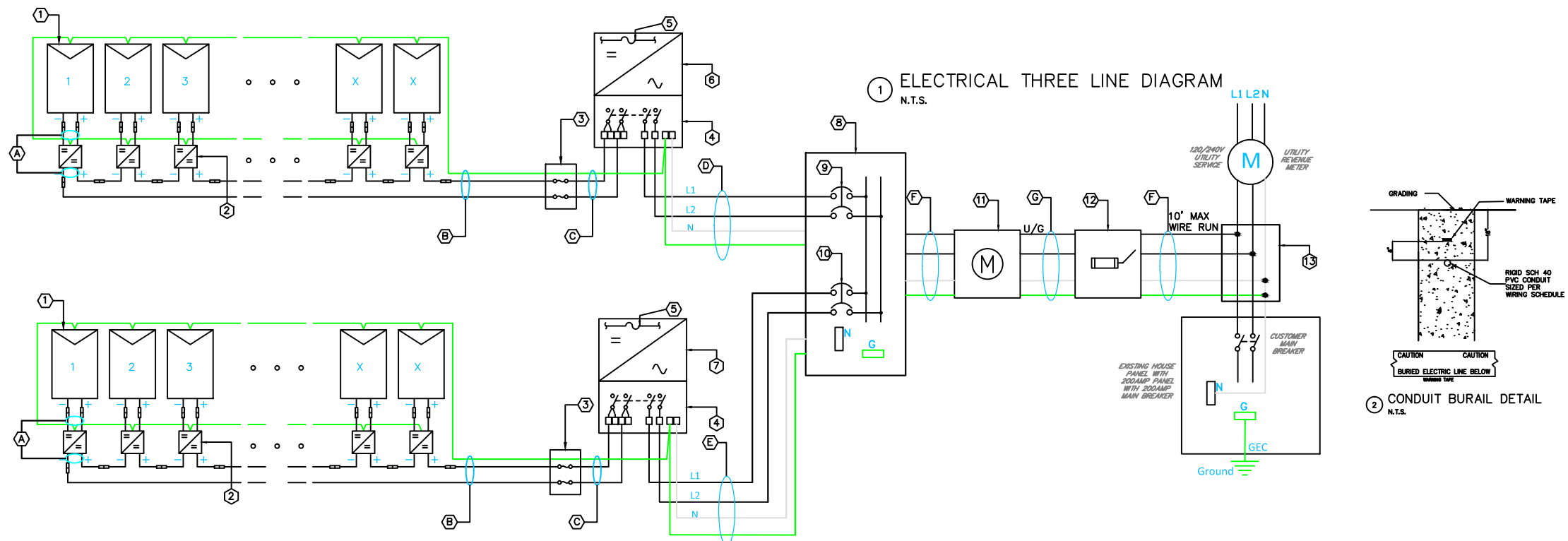
1. The minimum average installation torque required to obtain the required indicated capacities and the minimum installation depth shown on the plans shall be satisfied prior to termination of the installation. The installation torque shall be an average of the installation torques indicated during the last 1 foot of installation.
2. The torsional strength rating of the torque anchor shall not be exceeded during the installation. If the torsional strength limit of the anchor has been reached, but the anchor has not reached the target depth, perform the following:
 - 2.1. If the torsional strength limit is achieved prior to reaching the target depth, the installation may be acceptable if reviewed and approved by the engineer and/or owner.
 - 2.2. The installer may remove the torque anchor and install a new one with smaller diameter helical plate.
 - 2.3. If using a continuous flight pile, pre-drill the pile location with a 3-1/2" rock auger or rock drill as needed.
3. If the target depth is achieved, but the torsional requirement has not been met the installer may do one of the following:
 - 3.1. Install the torque anchor deeper to obtain the required capacity
 - 3.2. Remove the torque anchor and install a new one with a larger diameter helical plate or one with multiple helical plates.
 - 3.3. Reduce the load capacity on the individual torque anchor by providing additional torque anchors at a reduced spacing.

Sheet 3 of 3

Date	Revision	Drawn By:	Review By:
03/07/2017	Original		MZ

REV	DATE	DESCRIPTION
0	2/27/17	ISSUED FOR APPROVAL

RPC Contractor:	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: HELICAL PILE DETAIL	SHEET: 5
			DRAWN BY: PA	DATE: June 6, 2017	DWG. NAME & REV#: Ground Mount Example.dwg	



EQUIPMENT DESIGNATIONS			
ITEM	DESCRIPTION	DETAIL	REMARKS
1	PV MODULE	Trina 340 WATT, TSM-DD14A (II)	WATTAGE 340 TOTAL # 56 TOTAL DC KW 19.04
2	POWER OPTIMIZER	UNGROUND, w/P400 Optimizers	UNDER SOLAR PANELS
3	DC OCP FUSES	DC COMBINER BOX	Fused at 20 Amps for inverters with strings of 3 or more
4	DC DISCONNECT	INVERTER INTEGRATED DC DISCONNECT	INVERTER MANUFACTURE SUPPLIED
5	INTERNAL GFDI FUSE	INSTALLED AND SIZED BY MAUFACTURE (AMP)	1 AMP FUSE
6	INVERTER #1	SE3000A-US UNGROUNDED, w/P400 Optimizers	1 STRING OF 11
7	INVERTER #2	SE11400A-US UNGROUNDED, w/P400 Optimizers	3 STRING OF 15
8	AC COMBINER PANEL	SQD - Q0612L100RB or EQUIV., NEMA 3R	100 AMP PANEL
9	INVERTER #1 BREAKER SIZE (AMPS)	20 AMP	2 Pole, 10 Ka, 240V
10	INVERTER #2 BREAKER SIZE (AMPS)	60 AMP	2 Pole, 10 Ka, 240V
11	METER SOCKET	100AMP, 2P, 240V, NEMA 3R, URS101BCPL OR EQUIV.	REVENUE GRADE METER
12	AC DISCONNECT	SQD - D223NRB or EQUIV., NEMA 3R	100 AMP DISC. FUSED AT 80 AMP
13	TAPBOX	12"X12" BOX - W/TAP CONNECTOR	PER NEC 690.64

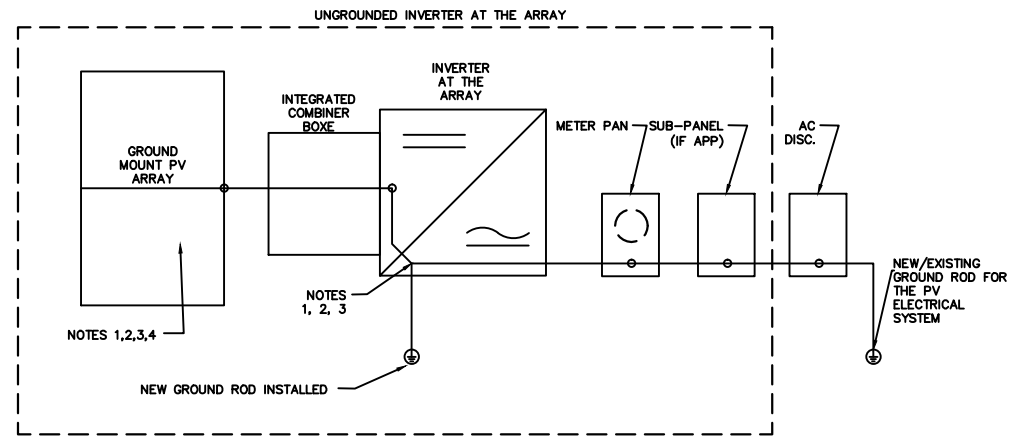
WIRING SCHEDULE									
ITEM	DESCRIPTION	FILL	SIZE	TYPE	CONDUIT	CONDUIT TYPE	V DROP	EGC	NOTES
A	PV SOURCE CIRCUIT	NA	10 AWG	PV WIRE	FREE AIR	NA	<1%	6 AWG	
B	PV SOURCE CIRCUIT HOMERUN	NA	10 AWG	PV WIRE	FREE AIR	NA	<1%	6 AWG	
C	DC COMBINER BOX OUTPUT	3	6 AWG	THHN	3/4"	PVC OR METAL	<1%	6 AWG	
D	INVERTER #1, AC OUTPUT CIRCUIT	3	12 AWG	THHN	1/2"	PVC OR METAL	<1%	6 AWG	
E	INVERTER #2 AC OUTPUT CIRCUIT	3	6 AWG	THHN	3/4"	PVC OR METAL	<1%	6 AWG	
F	AC OUTPUT CIRCUIT	3	4 AWG	THHN	1"	PVC OR METAL	<1%	6 AWG	
G	AC OUTPUT CIRCUIT, VD CONSIDERATION	3	2/0 AWG	THWN-2	2"	PVC	2.55%	1 AWG	Aluminum 240' Max

NEC LABELING	
POINT OF INTERCONNECTION	
RATED AC OUTPUT CURRENT (AMPS)	60
NOMINAL OPERATING VOLTAGE	240 V
INVERTER 1	
OPERATING CURRENT (Imp)	10.69
OPERATING VOLTAGE (Vmp)	350
MAX SYSTEM VOLTAGE (Voc)	500*
SHORT CIRCUIT CURRENT (Isc)	30*
INVERTER 2	
OPERATING CURRENT (Imp)	43.71
OPERATING VOLTAGE (Vmp)	350
MAX SYSTEM VOLTAGE (Voc)	500*
SHORT CIRCUIT CURRENT (Isc)	30*

* SYSTEM IS LIMITED BY THE SOLAR EDGE INVERTER WHICH IS IN DIRECT CONTROL OF THE SOLAR EDGE OPTIMIZER AND WILL NEVER EXCEED 500VDC/30ADC REGARDLESS OF ENVIRONMENTAL CONDITIONS. SEE SOLAR EDGE DOCUMENT FOR MORE DETAILS

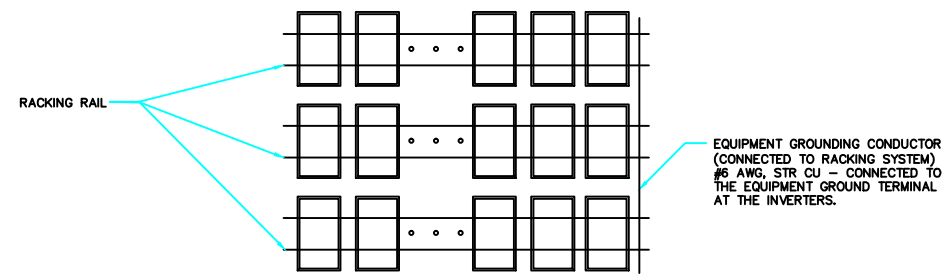
Inverter	PV Panel Characteristics							String Data												
	B	C	D	E	F	G	H	I	J	K	L	M								
	Panel Volts DC Open Ckt	Panel Volts DC MPP	Ambient Temp STC °C	Lowest Ambient Temp °C	Temp Coeff Pmpp %/°C	Temp Coeff Voc %/°C	Temp Coeff Isc %/°C	NEC Multiplier	Panel Max Power Amps (imp)	Panel Short Ckt Amps (isc)	Modules per String	Strings per Inverter	String Wire Gauge	String/Combiner Volts DC Highest Temp Adjusted (cl)	String/Combiner Volts DC Lowest Temp Adjusted (NEC)	String/Combiner Volts DC Lowest Temp Adjusted (calc)				
#	Inverter	Max AC	Input	DC KW																
1	SE3000A-US	12.5	A	3.74	46.5	38.2	25	-16	-0.39	-0.29	0.05	1.2	8.9	9.45	11	1	#10	NA*	NA*	NA*
2	SE11400A-US	47.5	A	15.3											15	3				

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: ELECTRICAL DIAGRAM	SHEET: 6
0	2/27/17	ISSUED FOR APPROVAL				DRAWN BY: PA		DWG. NAME & REV# Ground Mount Example.dwg	
						DATE: June 6, 2017			

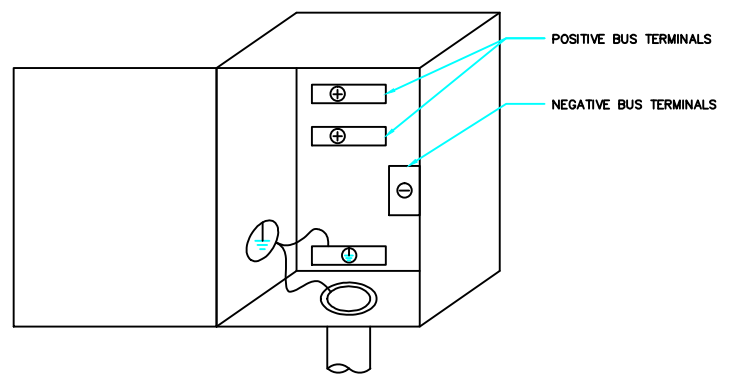


- NOTES:**
- 1.) EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED PER NEC BY THE ELECTRICAL CONTRACTOR
 - 2.) ALL GROUND CONNECTIONS SHALL BE MADE WITH IRREVERSIBLE CRIMP AND ARE UL APPROVED GROUND LUGS.
 - 3.) DO NOT BOND TOGETHER ARRAYS SERVING DIFFERENT COMBINER BOXES.
 - 4.) RACKING SHALL BE BONDED AND SHALL BE SIZED BY THE ELECTRICAL CONTRACTOR.

1 OVERALL GROUNDING DETAIL
N.T.S.



3 ARRAY GROUNDING SCHEME
N.T.S.



2 TYPICAL EQUIPMENT GROUNDING DETAIL
N.T.S.

UNIRAC *UL9541-1 Compliant Installation Manual* SolarMount

[3.4] Installing SOLARMOUNT with grounding clips and lugs

Clips and lugs should be installed as follows:

UGC-1

Figure 25. Slide UGC-1 grounding clip into top remaining slot of rail. Torque modules in place on top of clip. This will generate rail installation and create grounding path through rail.

WEEB Lug

Figure 26. Insert a hole in the aluminum rail or through the channel hole in the stainless steel flat washer. Place the stainless steel flat washer on the hole, oriented so the dimples will contact the aluminum rail. Place the lug portion on the hole and stainless steel flat washer. Install stainless steel flat washer, lock washer and nut. Tighten the nut until the dimples are completely embedded into the rail and lug. The embedded dimples make a gas-tight mechanical connection and ensure good electrical connection between the aluminum rail and the lug through the WEEB.

Figure 27. UGC-1 layout for even and odd number of modules in row. "X" denotes places to install UGC-1.

Figure 28. Single wire grounding with applied rails.

KEY:
 □ PV module
 ○ Inverter
 X Grounding clip
 --- Copper wire

Even Number of Modules in row
 Odd Number of Modules in row

Single grounding wire for entire array

40

4 UNIRAC MANUFACTURE GROUNDING DETAIL
N.T.S.

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: GROUNDING DETAIL	SHEET:
						DRAWN BY: PA		DWG. NAME & REV# Ground Mount Example.dwg	7
0	2/27/17	ISSUED FOR APPROVAL				DATE: June 6, 2017			

INTERACTIVE SYSTEM POINT OF INTERCONNECTION PLACARDS
 IDENTIFICATION PLACARD PER NEC 230.2(E) TO BE PLACED ON CUSTOMER METER
 REFER TO DRAWING FOR OPERATING CURRENT

WARNING!

IDENTIFICATION OF MULTIPLE SERVICE DISCONNECTS

A SECOND POWER SOURCE IS PRESENT IN THIS EQUIPMENT: PV SYSTEM DISCONNECT LOCATED IN XXXXXXXX

INTERACTIVE SOLAR PV SYSTEM RATINGS	
MAX. OPERATING CURRENT	XX AMP(S)
OPERATING VOLTAGE	240VAC

IDENTIFICATION PLACARD TO BE PLACED ON SOLAR SUBPANEL

THIS PANEL IS ONLY FOR COMBINING SOLAR INVERTER OUTPUTS. DO NOT ADD LOADS

IDENTIFICATION PLACARD TO BE PLACED UTILITY METER

SOLAR AC DISCONNECT LOCATED AT XXXXXXXXXXXXXXXX

IDENTIFICATION PLACARD PER NEC 230.2(E) TO BE PLACED ON CUSTOMER EXISTING PANEL BOX
 REFER TO DRAWING FOR OPERATING CURRENT

WARNING!

THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM. OPEN SOLAR PV DISCONNECT PRIOR TO SERVICING PANEL

INTERACTIVE SOLAR PV SYSTEM RATINGS	
MAX. OPERATING CURRENT	XX AMP(S)
OPERATING VOLTAGE	240VAC

IDENTIFICATION PLACARD TO BE PLACED ON THE SOLAR TAP BOX

SOLAR AC TAP BOX

IDENTIFICATION PLACARD TO BE PLACED ON DC DISCONNECT PER NEC 690.35(F) IF A UNGROUNDED SYSTEM IS PRESENT

WARNING

ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED.

INVERTER & DISCONNECT IDENTIFICATION LABELS

INVERTER #

SOLAR AC DISCONNECT

SOLAR DC DISCONNECT

IDENTIFICATION PLACARD TO BE PLACED UTILITY METER PER NEC 690.12

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

DC STRING COMBINER WARNING LABEL, PLACE ON INVERTER

EACH INTEGRATED DC COMBINER BOX SHALL BE INDIVIDUALLY DESIGNATED AS SHOWN ON DRAWINGS. PROVIDE SHORT CIRCUIT CURRENT AND OPERATING CURRENT PER DRAWINGS

PROVIDE SHORT CIRCUIT CURRENT AND OPERATING CURRENT PER DRAWINGS

PHOTOVOLTAIC DC COMBINER BOX

XX

WARNING:
ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

PHOTOVOLTAIC POWER SOURCE RATINGS	
OPERATING CURRENT	X AMP(S)
MAX OPEN CIRCUIT VOLTAGE	XXX VDC
MAXIMUM SYSTEM VOLTAGE	XXX VDC
SHORT CIRCUIT CURRENT	X AMP(S)

1 LABELS
N.T.S.

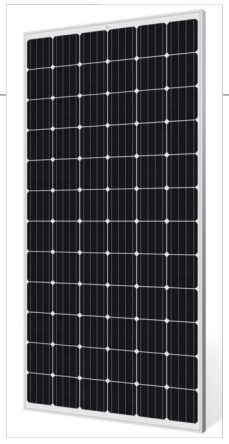
NOTES

1. ALL LABELING SHALL COMPLY WITH REQUIREMENTS OF NEC 690 AND UL.
2. TEXT SIZE SHALL BE CONFIRMED BY THE CONTRACTOR BUT IN NO CASE TEXT SHALL BE SMALLER THAN 3/8" HIGH.
3. ELECTRICAL CONTRACTOR SHALL VERIFY WORDING & DATA LISTED ON ALL SIGNS AND PLACARDS.

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: NEC LABELING	SHEET:
						DRAWN BY: PA			8
0	2/27/17	ISSUED FOR APPROVAL				DATE: June 6, 2017		DWG. NAME & REV# Ground Mount Example.dwg	

Mono Multi Solutions

THE TALLMAX^M PLUS^M MODULE



72 CELL
MONOCRYSTALLINE MODULE

330-355W
POWER OUTPUT RANGE

18.3%
MAXIMUM EFFICIENCY

0~+5W
POSITIVE POWER TOLERANCE

As a leading global manufacturer of next generation photovoltaic products, we believe close cooperation with our partners is critical to success. With local presence around the globe, Trina is able to provide exceptional service to each customer in each market and supplement our innovative, reliable products with the backing of Trina as a strong, bankable partner. We are committed to building strategic, mutually beneficial collaboration with installers, developers, distributors and other partners as the backbone of our shared success in driving Smart Energy Together.

Trina Solar Limited
www.trinasolar.com



Maximize limited space with top-end efficiency

- Up to 183 W/m² power density
- Low thermal coefficients for greater energy production at high operating temperatures

Highly reliable due to stringent quality control

- Over 30 In-house tests (UV, TC, HF, and many more)
- In-house testing goes well beyond certification requirements
- 100% EL double inspection

Certified to withstand challenging environmental conditions

- 2400 Pa wind load
- 5400 Pa snow load
- 35 mm hail stones at 97 km/h

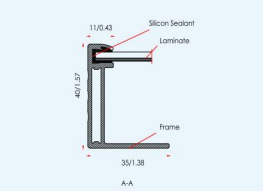
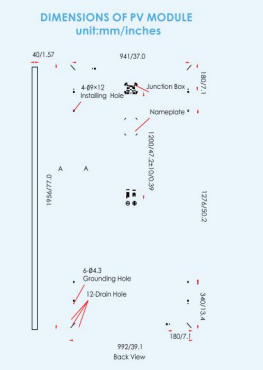
Comprehensive products and system certificates

- IEC 61215/ IEC 61730/ UL 1703/ IEC 61701/ IEC 62716
- ISO 9001: Quality Management System
- ISO 14001: Environmental Management System
- ISO 14064: Greenhouse Gases Emissions Verification
- OHSAS 18001: Occupation Health and Safety Management System

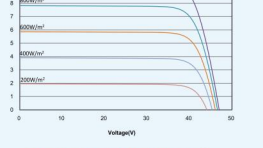


THE TALLMAX^M PLUS^M MODULE

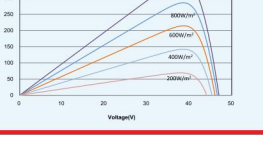
TSM-DD14A(II)



I-V CURVES OF PV MODULE(355W)



P-V CURVES OF PV MODULE(355W)



ELECTRICAL DATA (STC)						
Peak Power Watts-P _{max} (Wp)*	330	335	340	345	350	355
Power Output Tolerance-P _{max} (W)	0~+5					
Maximum Power Voltage-V _{MPP} (V)	37.8	37.9	38.2	38.4	38.5	38.7
Maximum Power Current-I _{MPP} (A)	8.73	8.84	8.90	9.00	9.09	9.17
Open Circuit Voltage-V _{OC} (V)	46.2	46.3	46.5	46.7	46.9	47.0
Short Circuit Current-I _{SC} (A)	9.27	9.36	9.45	9.50	9.60	9.69
Module Efficiency η _m (%)	17.0	17.3	17.5	17.8	18.0	18.3

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5.
*Test tolerance: ±3%.

ELECTRICAL DATA (NOCT)						
Maximum Power-P _{max} (Wp)	246	250	253	257	261	264
Maximum Power Voltage-V _{MPP} (V)	34.9	35.1	35.2	35.5	35.6	35.8
Maximum Power Current-I _{MPP} (A)	7.04	7.12	7.19	7.25	7.33	7.40
Open Circuit Voltage-V _{OC} (V)	43.0	43.1	43.2	43.4	43.5	43.7
Short Circuit Current-I _{SC} (A)	7.49	7.56	7.63	7.67	7.75	7.82

NOCT: Irradiance of 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA	
Solar Cells	Monocrystalline 156 × 156 mm (6 inches)
Cell Orientation	72 cells (6 × 12)
Module Dimensions	1954 × 992 × 40 mm (77.0 × 39.1 × 1.57 inches)
Weight	26.0 kg (57.3 lb)
Glass	4.0 mm (0.15 inches), High Transmission, AR Coated Tempered Glass
Backsheet	White
Frame	Silver Anodized Aluminium Alloy
J-Box	IP 67 or IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²), 1200 mm (47.2 inches)
Connector	MC4 Compatible or Amphenol H4/UTX
Fire Type	Type 1 or Type 2

TEMPERATURE RATINGS	
Nominal Operating Cell Temperature (NOCT)	44°C (± 2°C)
Temperature Coefficient of P _{max}	-0.39%/°C
Temperature Coefficient of V _{OC}	-0.29%/°C
Temperature Coefficient of I _{SC}	0.05%/°C

MAXIMUM RATINGS	
Operational Temperature	-40~+85°C
Maximum System Voltage	1000V DC (IEC) 1000V DC (UL)
Max Series Fuse Rating	15A

WARRANTY
10 year Product Workmanship Warranty
25 year Linear Power Warranty
(Please refer to product warranty for details)

PACKAGING CONFIGURATION
Modules per box: 26 pieces
Modules per 40' container: 572 pieces

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
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① SOLAR MODULE DATASHEET
N.T.S.

REV	DATE	DESCRIPTION	IPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: PANEL DATA SHEET	SHEET: 9
0	2/27/17	ISSUED FOR APPROVAL				DRAWN BY: PA		DWG. NAME & REV: Ground Mount Example.dwg	
						DATE: June 6, 2017			



SolarEdge Single Phase Inverters For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US



- The best choice for SolarEdge enabled systems
- Integrated arc fault protection (Type 1) for NEC 2011 690.11 compliance
 - Superior efficiency (98%)
 - Small, lightweight and easy to install on provided bracket
 - Built-in module-level monitoring
 - Internet connection through Ethernet or Wireless
 - Outdoor and indoor installation
 - Fixed voltage inverter, DC/AC conversion only
 - Pre-assembled Safety Switch for faster installation
 - Optional - revenue grade data, ANSI C12.1

USA - GERMANY - ITALY - FRANCE - JAPAN - CHINA - AUSTRALIA - THE NETHERLANDS - ISRAEL

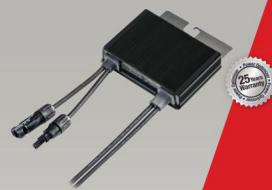
www.solaredge.us

INVERTERS



SolarEdge Power Optimizer Module Add-On For North America

P300 / P320 / P400 / P405



PV power optimization at the module-level

- Up to 20% more energy
- Superior efficiency (98.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety

USA - GERMANY - ITALY - FRANCE - JAPAN - CHINA - AUSTRALIA - THE NETHERLANDS - ISRAEL

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POWER OPTIMIZER



Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US	
OUTPUT								
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @ 240V	11400	VA
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @ 240V	6000	8350	10800 @ 208V 10950 @ 240V	12000	VA
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾	-	-	✓	-	-	✓	-	
183 - 208 - 229 Vac								
AC Output Voltage Min.-Nom.-Max. ⁽²⁾	✓	✓	✓	✓	✓	✓	✓	
211 - 240 - 264 Vac								
AC Frequency Min.-Nom.-Max. ⁽³⁾			59.3 - 60 - 60.5 (with HI country setting 57 - 60 - 60.5)					Hz
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A
GFD ⁽⁴⁾				1				A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds				Yes				Yes
INPUT								
Recommended Max. DC Power ⁽⁵⁾ (STC)	3750	4750	6250	7500	9500	12400	14250	W
Transformer-less, Ungrounded				Yes				
Max. Input Voltage				500				Vdc
Nom. DC Input Voltage			325 @ 208V / 350 @ 240V					Vdc
Max. Input Current ⁽⁶⁾	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc
Max. Input Short Circuit Current			45					Adc
Reverse-Polarity Protection				Yes				
Ground-Fault Isolation Detection				600ka Sensitivity				
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%
CEC Weighted Efficiency	97.5	98	97.5 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%
Nighttime Power Consumption			< 2.5			< 4		W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)							
Revenue Grade Data, ANSI C12.1	Optional ⁽⁴⁾							
Rapid Shutdown - NEC 2014 690.12	Functionality enabled when SolarEdge rapid shutdown kit is installed ⁽⁵⁾							
STANDARD COMPLIANCE								
Safety	UL1741, UL1699B, UL1998, CSA 22.2							
Grid Connection Standards	IEEE1547							
Emissions	FCC part15 class B							
INSTALLATION SPECIFICATIONS								
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG				3/4" minimum / 8-3 AWG			
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG				3/4" minimum / 1-2 strings / 14-6 AWG			
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7 / 775 x 315 x 172		30.5 x 12.5 x 7.5 / 775 x 315 x 191		30.5 x 12.5 x 10.5 / 775 x 315 x 260			in / mm
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7		88.4 / 40.1			lb / kg
Cooling	Natural Convection				Fans (user replaceable)			
Noise	< 25				< 50			
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available ⁽⁶⁾)							
Protection Rating	NEMA 3R							

⁽¹⁾ For other regional settings please contact SolarEdge support.
⁽²⁾ Limited to 125% for locations where the yearly average high temperature is above 77°F/25°C and to 135% for locations where it is below 77°F/25°C. For detailed information, refer to http://www.solaredge.us/files/pdfs/inverter_dc_oversizing_guide.pdf.
⁽³⁾ A higher current source may be used; the inverter will limit its input current to the values stated.
⁽⁴⁾ Revenue grade inverter P/N: SExxxxA-US000NRR2
⁽⁵⁾ Rapid shutdown kit P/N: SE1000-RSD-S1
⁽⁶⁾ -40 version P/N: SExxxxA-US000NNU4



RoHS

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SolarEdge Power Optimizer

Module Add-On for North America

P300 / P320 / P400 / P405

	P300 (for 60-cell modules)	P320 (for high-power 60-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	
INPUT					
Rated Input DC Power ⁽¹⁾	300	320	400	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		80	125	Vdc
MPPT Operating Range	8 - 48		8 - 80	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	10	11		10.1	Adc
Maximum DC Input Current	12.5	13.75		12.63	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			85	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREGE INVERTER OR SOLAREGE INVERTER OFF)					
Safety Output Voltage per Power Optimizer	1				Vdc
STANDARD COMPLIANCE					
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety), UL1741				
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)	128 x 152 x 27.5 / 5 x 5.97 x 1.08	128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 48 / 5 x 5.97 x 1.89	128 x 152 x 48 / 5 x 5.97 x 1.89	mm / in
Weight (including cables)	760 / 1.7		830 / 1.8	1064 / 2.3	gr / lb
Input Connector	MC4 Compatible				
Output Wire Type / Connector	Double Insulated; MC4 Compatible				
Output Wire Length	0.95 / 3.0			1.2 / 3.9	m / ft
Operating Temperature Range	-40 - +85 / -40 - +185				
Protection Rating	IP68 / NEMA6P				
Relative Humidity	0 - 100				

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed.

PV SYSTEM DESIGN USING A SOLAREGE INVERTER ⁽²⁾	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8	10	18	
Maximum String Length (Power Optimizers)	25	25	50	
Maximum Power per String	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes			

⁽²⁾ It is not allowed to mix P405 with P300/P400/P600/P700 in one string.

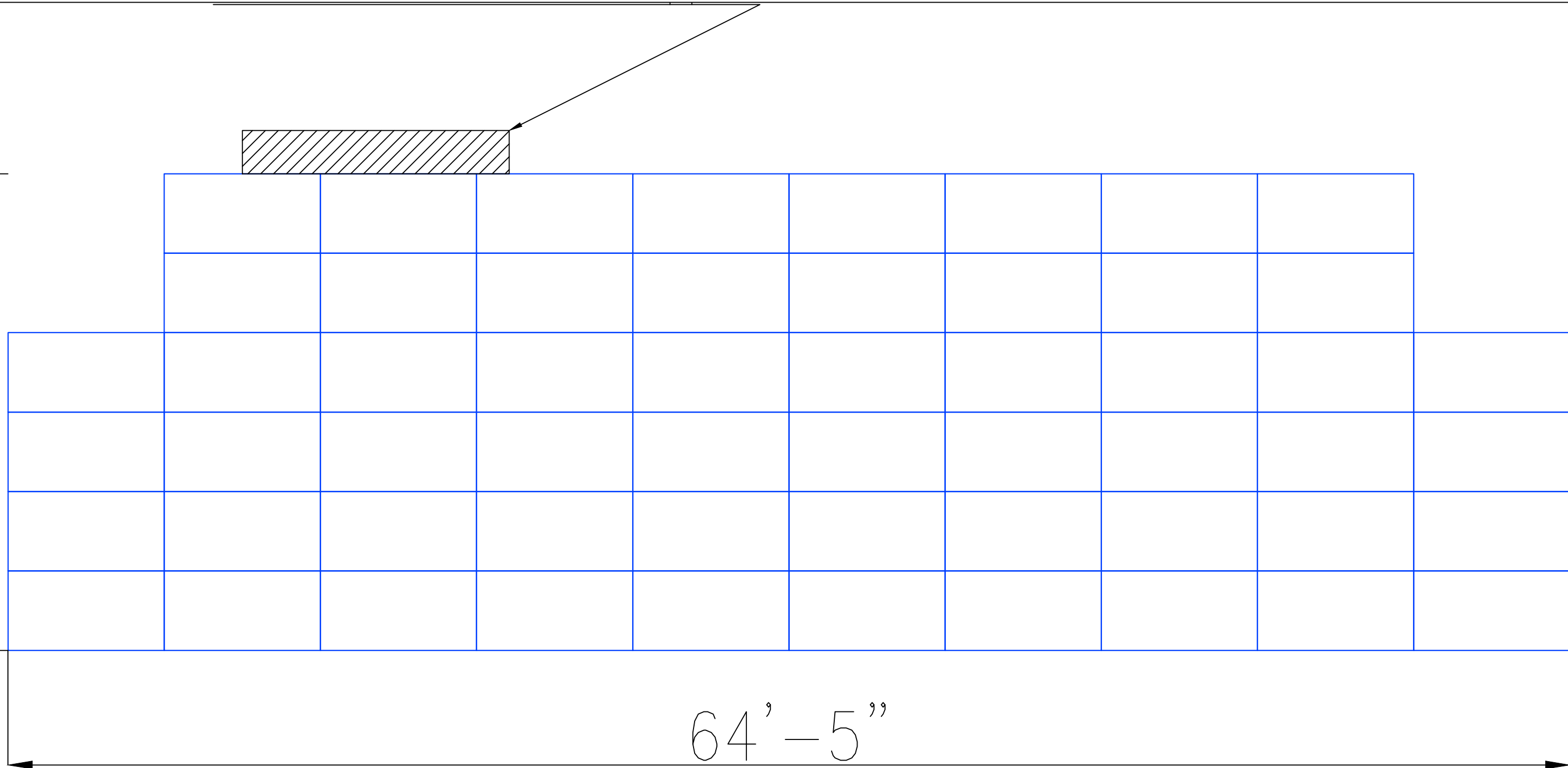


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1 INVERTER DATASHEET

N.T.S.

REV	DATE	DESCRIPTION	EPC Contractor	Electrical Contractor:	Structural Engineer:	SCALE: NTS	PROJECT NAME & ADDRESS: SMITH RESIDENCE	DRAWING TITLE: INV. DATA SHEET	SHEET: 10
0	2/27/17	ISSUED FOR APPROVAL				DATE: June 6, 2017		DWG. NAME & REV: Ground Mount Example.dwg	



REV	DATE	DESCRIPTION
0	2/27/17	ISSUED FOR APPROVAL

EPC Contractor

Electrical Contractor:

Structural Engineer:

SCALE: NTS
 DRAWN BY: PA
 DATE: June 6, 2017

PROJECT NAME & ADDRESS:
 SMITH RESIDENCE

DRAWING TITLE:
 AS-BUILT STRING CONFIGURATION
 DWG. NAME & REV#
 Ground Mount Example.dwg

SHEET:
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