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# MICHAEL PRYOR - PHOTOVOLTAIC SYSTEM

## 148.2 KW DC / 120 KW AC



**PROJECT LOCATION:**

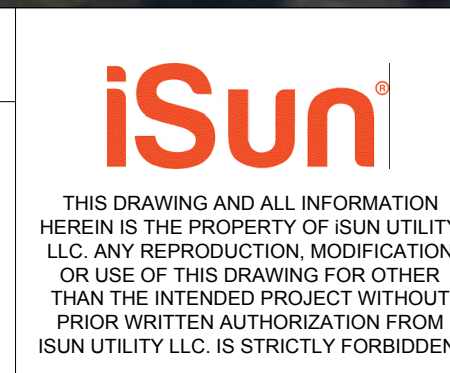
LAT: 41.838649°  
 LONG: -73.727155°

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2
DC/AC RATIO	1.2350	RACKING	APA READY RACK
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°
TOTAL MODULE	272	AZIMUTH	180°

ISSUED FOR CONSTRUCTION

REV	DESCRIPTION	DESIGN	REVIEW	DATE
R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024
R4	100% DRAWING, AS-BUILT	TMM		11/20/2024
R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024
R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024
R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	1:40	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE: COVER SHEET
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: E001

**GENERAL ELECTRICAL NOTES:**

- ALL WIRE AND CONDUIT SIZES ARE MINIMUM REQUIREMENTS. SITE CONDITIONS MAY DICTATE THE USE OF LARGER SIZES.
- ALL CONDUCTORS ARE TO BE COPPER AND RATED THWN-2 UNLESS NOTED OTHERWISE.
- ALL CONDUIT SHALL BE EMT UNLESS NOTED OTHERWISE. CONDUIT ENCASED IN CONCRETE SHALL BE SCHEDULE 20, DIRECT BURIED CONDUIT SHALL BE SCHEDULE 40, ABOVE GROUND CONDUIT SHALL BE SCHEDULE 80. ALL EMT FITTINGS SHALL BE COMPRESSION, UL LISTED RAINTIGHT.
- GROUNDING CONDUCTORS TO BE COLORED WHITE, GRAY OR BLACK WITH WHITE STRIPING. GROUNDING CONDUCTORS TO BE GREEN BARE OR GREEN WITH YELLOW STRIPING.
- GEC ARE TO BE CONTINUOUS EXCEPT FOR IRREVERSIBLE SPLICES OR EXOTHERMIC WELDS.
- PER THE VT UTILITIES ELECTRIC SERVICE REQUIREMENTS MANUAL 707B, IF A METER SOCKET'S NEUTRAL BUS IS BONDED TO THE METER SOCKET'S STEEL CASE, THAT BOND SHALL SATISFY THE REQUIREMENT TO CONNECT THE METER SOCKET'S STEEL CASE TO GROUND. IF THE NEUTRAL BUSS IS NOT CONNECTED TO THE METER SOCKET'S STEEL CASE, THEN A BONDING JUMPER SHALL BE CONNECTED TO THE SOCKET'S STEEL CASE.
- CONDUIT LAYOUTS SHOWN ARE INDICATIVE ONLY AND ARE SHOWN SPACED OUT FOR CLARITY. CONTRACTOR SHALL ROUTE CONDUIT TO SUIT SITE CONDITIONS. ANY CHANGES TO WIRING SHOULD BE COORDINATED WITH THE DESIGNER.
- ON PITCHED ROOF RUNS, CONDUITS SHALL ENTER ENCLOSURES ON THE DOWN-SLOPE SIDE OR SIDE OF THE ENCLOSURES TO PREVENT WATER FROM RUNNING ALONG THE CONDUIT AND ENTERING THE ENCLOSURE.
- STRING WIRING SHALL BE FITTED TIGHT TO THE RAIL & MODULES AND SUPPORTED FREQUENTLY TO PREVENT SAGGING. ANY SAGGING WIRES FOUND DURING COMMISSIONING WILL BE THE RESPONSIBILITY OF THE INSTALLER TO CORRECT.
- SINGLE STRING WIRES UNDER THE MODULES SHALL BE SECURED TO THE FRAMES WITH STAINLESS STEEL WIRE CLIPS. BUNDLES OF STRING WIRING WITHIN THE ARRAY SHALL BE SECURED WITH CUSHIONED METAL WIRE STRAPS OR HELLERMANN TYTON UV-STABILIZED WIRE TIES. UV-RATED WIRE TIES AND PLASTIC FASTENERS ARE NOT ACCEPTABLE.
- ALL PV EQUIPMENT SHALL BE SPACED 5' MINIMUM FROM LP AND NATURAL GAS REGULATORS AND 10FT FROM GAS TANKS
- REFER TO VT UTILITIES ELECTRIC SERVICE REQUIREMENTS MANUAL FOR ACCEPTED CONSTRUCTION METHODS AND EQUIPMENT OF NEW SERVICES.
- THE UTILITY-SIDE CONDUCTORS SHALL BE CONNECTED TO THE "LINE/TOP" SIDE OF THE PV METER AND PV SERVICE DISCONNECT
- SPD TAPS AT DISCONNECTS ARE PER NEC 2017 240.21(B). THE CONDITIONS OF 240.21(B)(1),(2,3&4) ARE MET. NOTE: THE SPD ITSELF CONTAINS INTEGRAL AUTO-RESETTING OVERCURRENT PROTECTION

**GENERAL NOTES:**

- ON HIP AND VALLEY ROOFS, ATTACHMENT POINTS AND OTHER PENETRATIONS ARE NOT TO PLACED WITHIN 3FT OF ANY VALLEY.
- ON ASPHALT SHINGLE ROOFS, ALL ROOFTOP EQUIPMENT SHALL BE SUPPORTED ON FLASHED ATTACHMENTS. DIRECT PENETRATIONS INTO THE SHINGLES WITHOUT FLASHING ARE NOT PERMITTED.

**NFPA-1 11.12 NOTES:**


- ARRAY LAYOUT TO ADHERE TO 2015 NFPA 1 FIRE CODE SECTION 11.12 REQUIREMENTS.

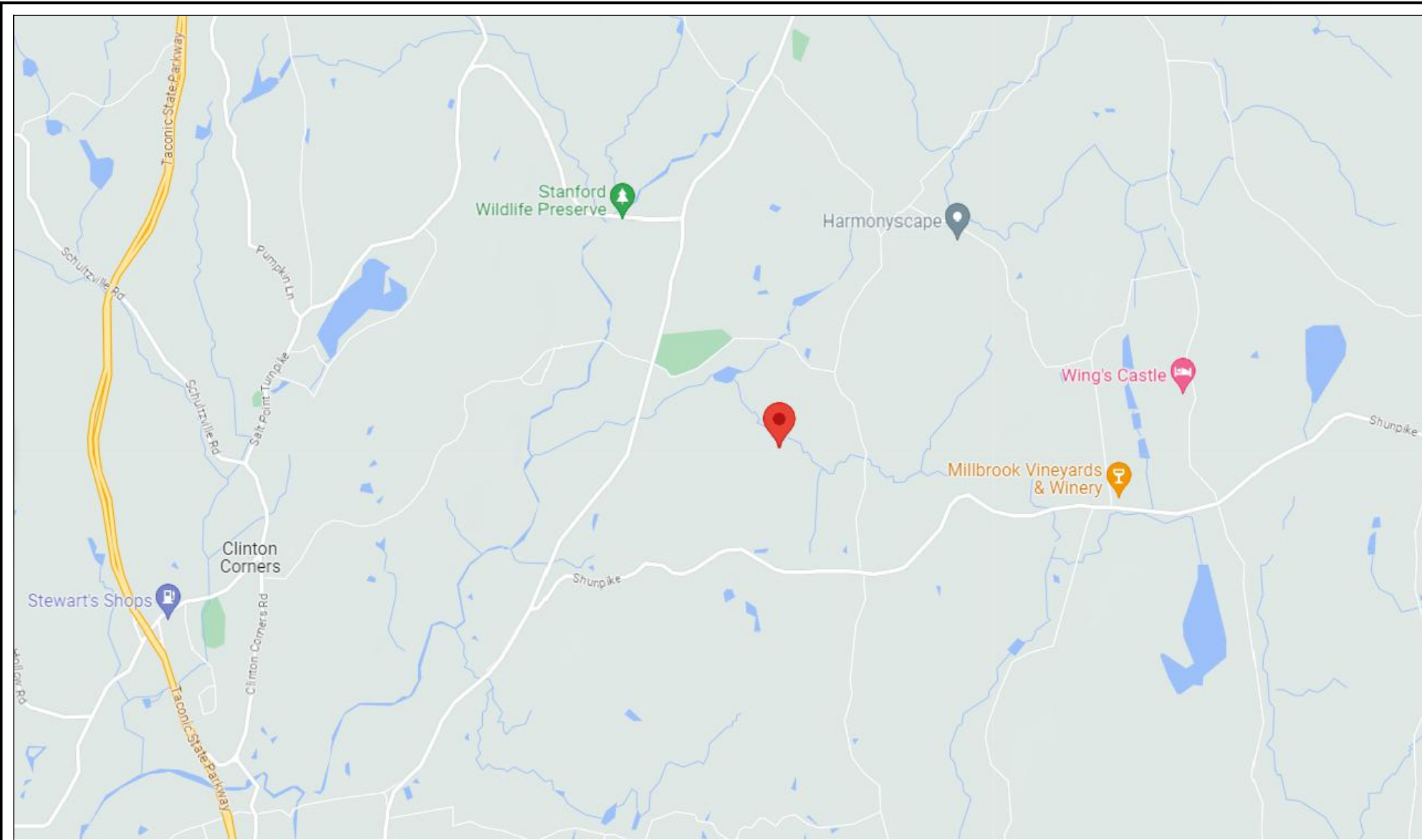
**NFPA 70 NEC 2017:**

- PER NEC 240.24, ANY CIRCUIT BREAKERS OR FUSED SWITCHES ARE REQUIRED TO BE ACCESSIBLE AND HAVE A MAXIMUM HEIGHT ABOVE FLOOR OR GRADE OF 6'-7".
- FEEDER TAPS SHALL ADHERE TO NEC 240.21(B)
- REDUCED NEUTRALS ARE PER 705.95(B)
- CONDUITS ON ROOF SURFACES SHALL BE RAISED 7/8" OR MORE ABOVE THE ROOF SURFACE TO AVOID DERATE PER NEC 310.15(B)(3)(c)
- PER VT DFS, PROJECTS ARE SUBJECT TO THE CODE CYCLE THAT WAS IN EFFECT AT THE TIME THE CONSTRUCTION PERMIT PERMIT WAS GRANTED, DEFINED BY THE DATE ON THE PERMIT. THE PROJECT IS SUBJECT TO THAT CODE CYCLE REGARDLESS OF WHETHER PART OR ALL OF THE PROJECT'S CONSTRUCTION OCCURS AFTER VT DFS HAS ADOPTED A NEWER CODE CYCLE.

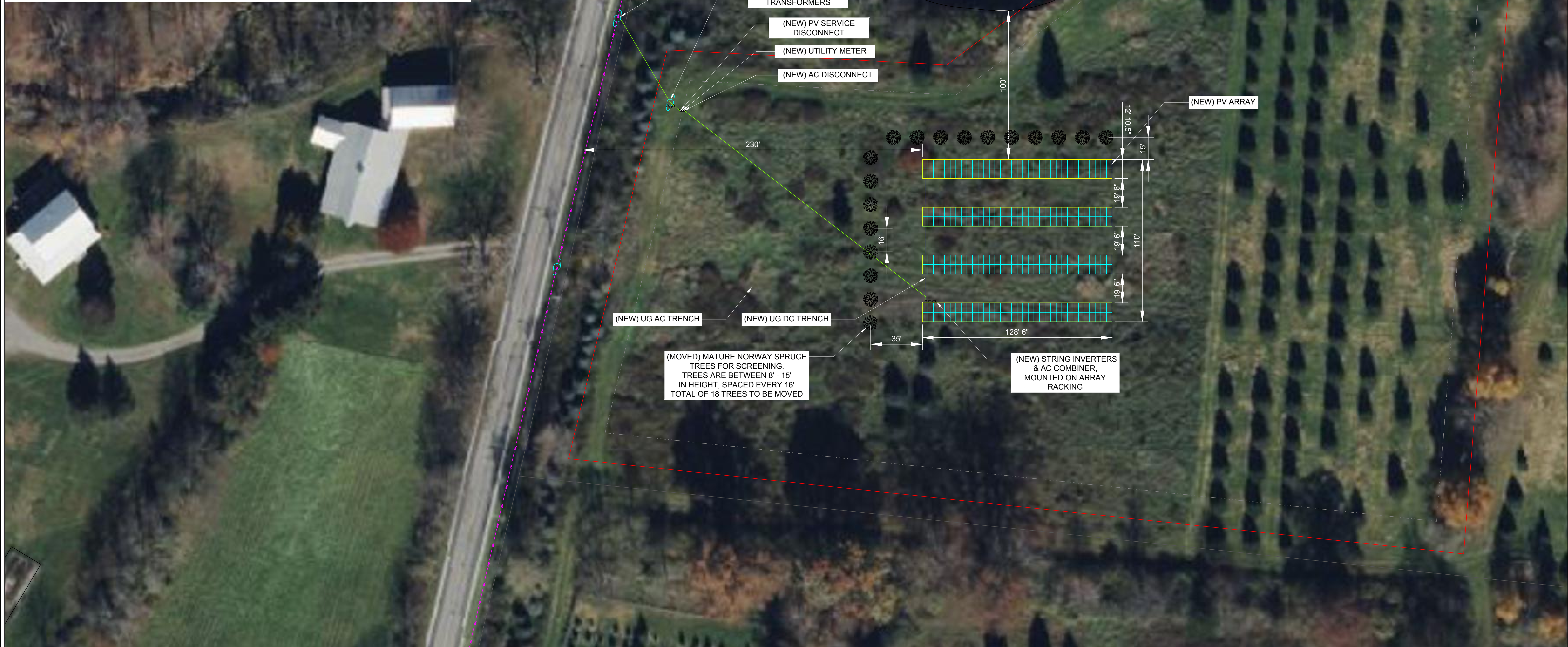
**ARRAY / ROOFTOP WIRING:**

- CONDUIT RUN ALONGSIDE ARRAY PATHWAYS SHALL BE KEPT TIGHT TO THE ARRAYS WHEN POSSIBLE TO KEEP THE PATHWAYS CLEAR. CONDUIT RUN ABOVE AN ARRAY ON PITCHED ROOFS WITH 2:12 PITCH OR GREATER, SHALL BE RUN NEAR THE RIDGE WHEN ON OPEN ROOF SURFACE, UNLESS NOTED OTHERWISE.
- ALL CONDUCTORS ARE TO BE COPPER AND RATED THWN-2 UNLESS NOTED OTHERWISE.
- ALL CONDUIT SHALL BE EMT UNLESS NOTED OTHERWISE. ALL EXTERIOR EMT FITTINGS SHALL BE COMPRESSION, UL LISTED RAINTIGHT.
- GROUNDING CONDUCTORS TO BE GREEN, BARE OR GREEN WITH YELLOW STRIPING. GROUNDING CONDUCTORS, IF PRESENT, TO BE COLORED WHITE, GRAY OR BLACK WITH WHITE STRIPING.
- ARRAY WIRING NOT UNDER THE MODULES MUST BE PROTECTED FROM SUNLIGHT AND PHYSICAL USE SPLIT WIRE LOOM (OR CONDUIT) WHERE PV WIRE JUMPS MODULE ROWS AND IS EXPOSED TO DIRECT SUNLIGHT. USE CONDUIT WHERE PV WIRE JUMPS PATHWAYS.
- ALL WIRE ENTRANCES INTO ENCLOSURES AND CONDUITS MUST BE MADE AT AN ANGLE TO AVOID WATER FLOWING IN, AND/OR WITH A WATER TIGHT FITTING.
- ON PITCHED ROOF RUNS, CONDUITS SHALL ENTER ENCLOSURES ON THE DOWN-SLOPE SIDE OR SIDE OF THE ENCLOSURES TO PREVENT WATER FROM RUNNING ALONG THE CONDUIT AND ENTERING THE ENCLOSURE.
- STRING WIRING SHALL BE FITTED TIGHT TO THE RAIL & MODULES AND SUPPORTED FREQUENTLY TO PREVENT SAGGING. ANY SAGGING WIRES FOUND DURING COMMISSIONING WILL BE THE RESPONSIBILITY OF THE INSTALLER TO CORRECT.
- SINGLE STRING WIRES UNDER THE MODULES SHALL BE SECURED TO THE FRAMES WITH STAINLESS STEEL WIRE CLIPS. BUNDLES OF STRING WIRING WITHIN THE ARRAY SHALL BE SECURED WITH CUSHIONED METAL WIRE STRAPS OR HELLERMANN TYTON UV-STABILIZED WIRE TIES. UV-RATED WIRE TIES AND PLASTIC FASTENERS ARE NOT ACCEPTABLE.
- ALL DC STRING WIRING TO BE WITHIN THE ARRAY WHERE POSSIBLE
- CONDUITS ON ROOF SURFACES SHALL BE RAISED 7/8" OR MORE ABOVE THE ROOF SURFACE.
- CONDUITS RUN ON ROOF SURFACES OF 1:12 PITCH OR LESS SHALL BE SUPPORTED WITH DURABLOK OR EQUIVALENT. CONDUIT ON ROOF SURFACES OF GREATER THAN 1:12 PITCH SHALL BE SUPPORTED BY ROOF ATTACHMENT POINTS THAT ARE APPROPRIATE FOR THE ROOF TYPE.
- STRAIGHT EMT CONDUIT RUNS ON ROOF SURFACES THAT ARE BETWEEN SECURELY MOUNTED ITEMS, SHALL HAVE EXPANSION FITTINGS EVERY 40FT
- PER NEC 334.30, PV WIRE IN FREE AIR SHALL BE SUPPORTED AND SECURED EVERY 4-1/2FT BY APPROPRIATE HARDWARE AND WITHIN 12IN OF ENTRY INTO AN ENCLOSURE. PV WIRE IN WIRE TRAYS
- SHALL BE SUPPORTED EVERY 12IN AND SECURED EVERY 4-1/2FT.

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US	ISSUED FOR CONSTRUCTION	REV	DESCRIPTION	DESIGN	REVIEW	DATE	SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS	 <p>THIS DRAWING AND ALL INFORMATION HEREIN IS THE PROPERTY OF ISUN UTILITY LLC. ANY REPRODUCTION, MODIFICATION OR USE OF THIS DRAWING FOR OTHER THAN THE INTENDED PROJECT WITHOUT PRIOR WRITTEN AUTHORIZATION FROM ISUN UTILITY LLC IS STRICTLY FORBIDDEN.</p>	DRAWING TITLE: ELECTRICAL NOTES,		
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA		R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024								PROJECT TITLE: MICHAEL PRYOR
AC SYSTEM SIZE	120 kW	TOTAL INVERTERS	2		R4	100% DRAWING, AS-BUILT	TMM		11/20/2024								PROJECT NO: IS54-SUNC-NY-ARFD
DC/AC RATIO	1.2350	RACKING	APA READY RACK		R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024								DRAWING NO: E002
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°		R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024								
TOTAL MODULE	272	AZIMUTH	180°		R1	100% DRAWING, REDESIGN	TMM		5/20/2024								
					R0	100% DRAWING, ORIGINAL	JDL		5/7/2024								



REGIONAL MAP: NOT TO SCALE

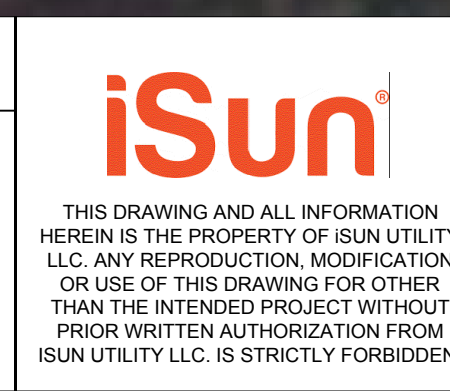


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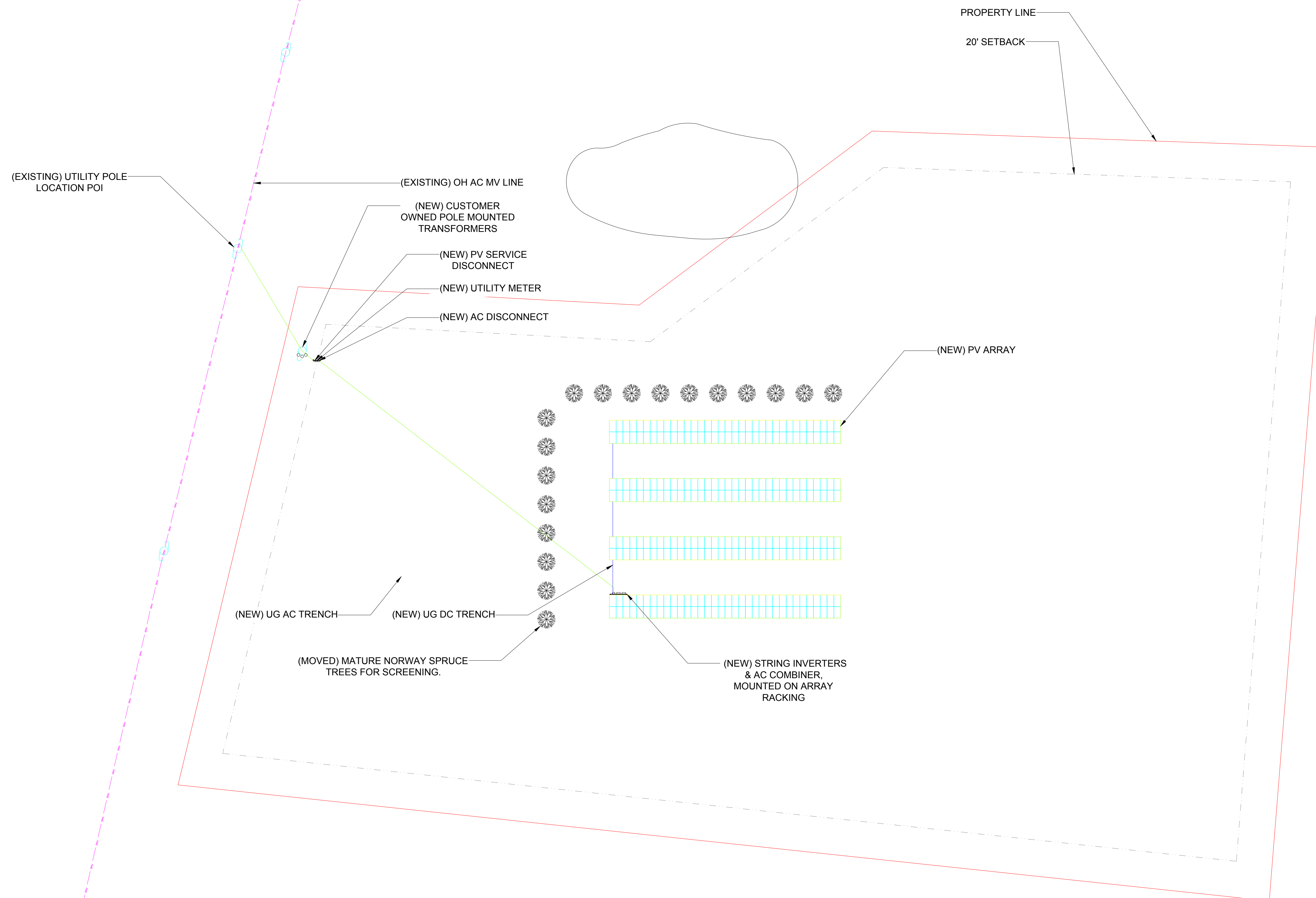
**ISSUED FOR CONSTRUCTION**

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R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	1:30	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE :	OVERALL SITE LAYOUT
PROJECT TITLE:	MICHAEL PRYOR
PROJECT NO:	IS54-SUNC-NY-ARFD
DRAWING NO:	E100



ARRAY LAYOUT TO ADHERE TO NFPA 1 FIRE CODE 2015 SECTION 11.12 REQUIREMENTS

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2
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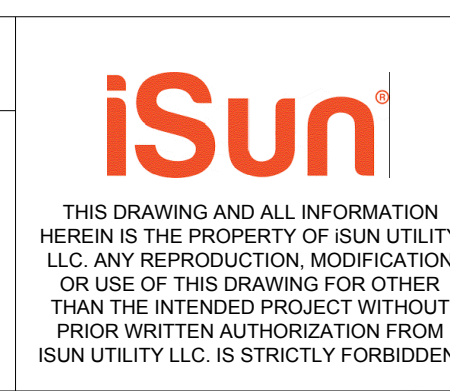
**ISSUED FOR CONSTRUCTION**

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R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE
	1:30

CLIENT & MAILING ADDRESS  
MICHAEL PRYOR  
749 STANFORD ROAD,  
WASHINGTON,  
NY 12514

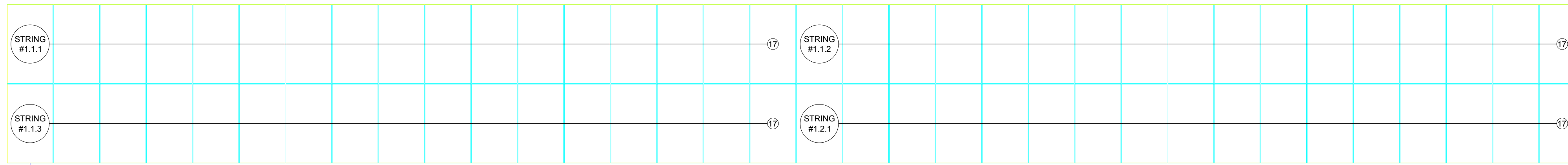
SITE ADDRESS  
5482 ROUTE 82,  
CLINTON CORNERS,  
NY 12514



DRAWING TITLE: ELECTRICAL ARRAY LAYOUT
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: EP001

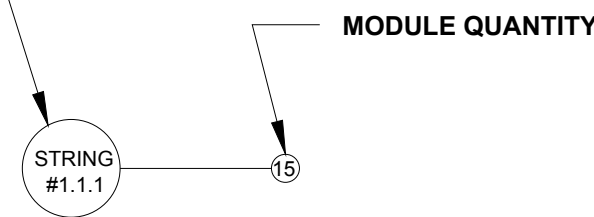


ROW 1:  
(68) 545W MODULES  
(4) STRINGS OF (17)

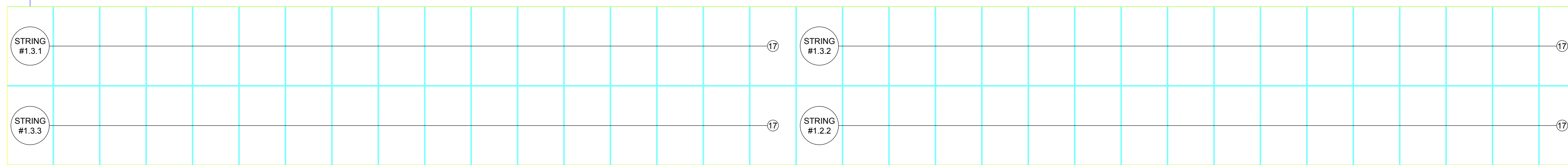


**STRING NUMBERING FORMAT**

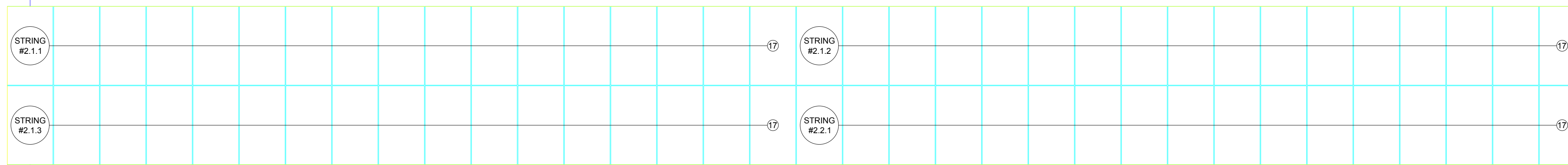
Inverter# . MPPT# . STRING#



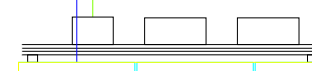
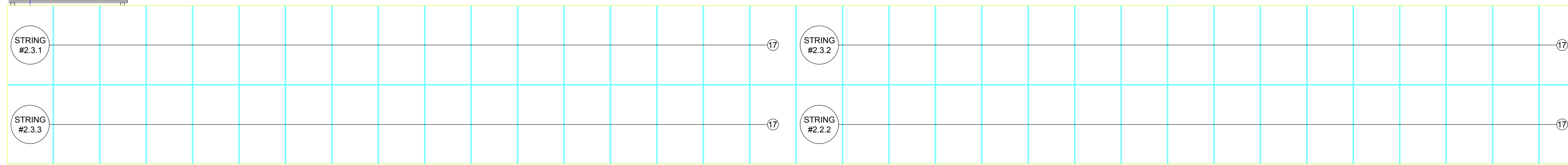
ROW 2:  
(68) 545W MODULES  
(4) STRINGS OF (17)



ROW 3:  
(68) 545W MODULES  
(4) STRINGS OF (17)



ROW 4:  
(68) 545W MODULES  
(4) STRINGS OF (17)



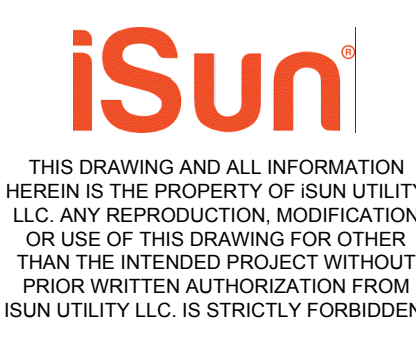
ARRAY LAYOUT TO ADHERE TO NFPA 1 FIRE  
CODE 2015 SECTION 11.12 REQUIREMENTS

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
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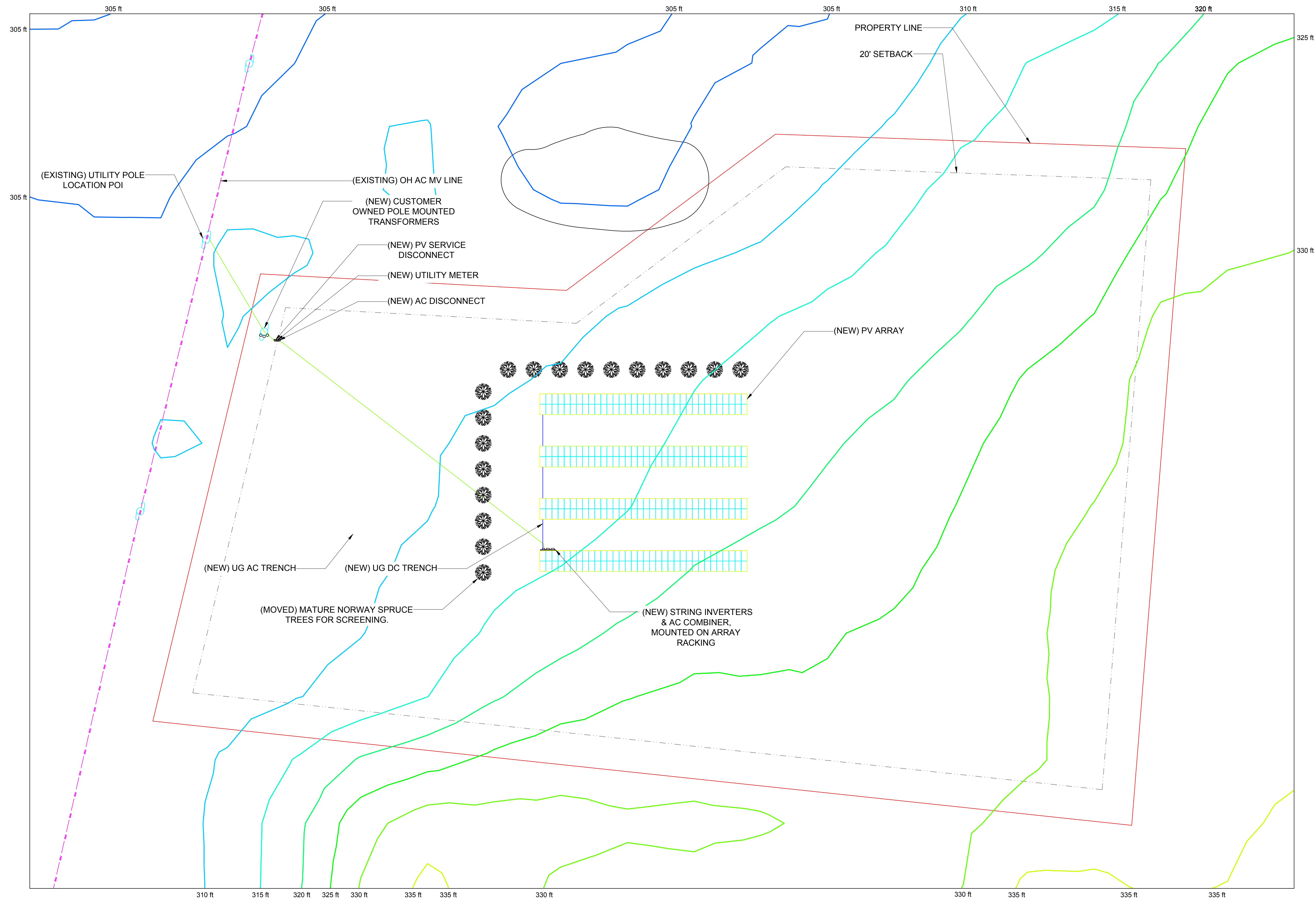
ISSUED FOR CONSTRUCTION

REV	DESCRIPTION	DESIGN	REVIEW	DATE
R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024
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R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	1:6	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE: ARRAY STRINGING
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: EP002



TOPOGRAPHIC MAP PRODUCED USING THE CONTOUR MAP CREATOR AT:  
<https://contourmapcreator.ugr8.ch/>

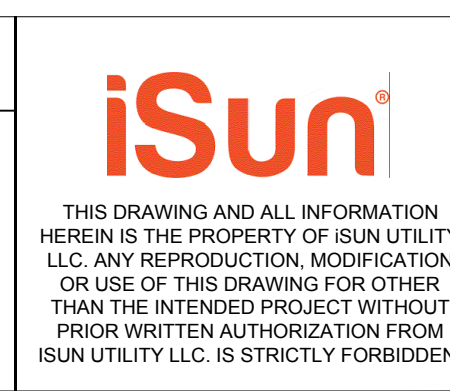
ARRAY LAYOUT TO ADHERE TO NFPA 1 FIRE CODE 2015 SECTION 11.12 REQUIREMENTS

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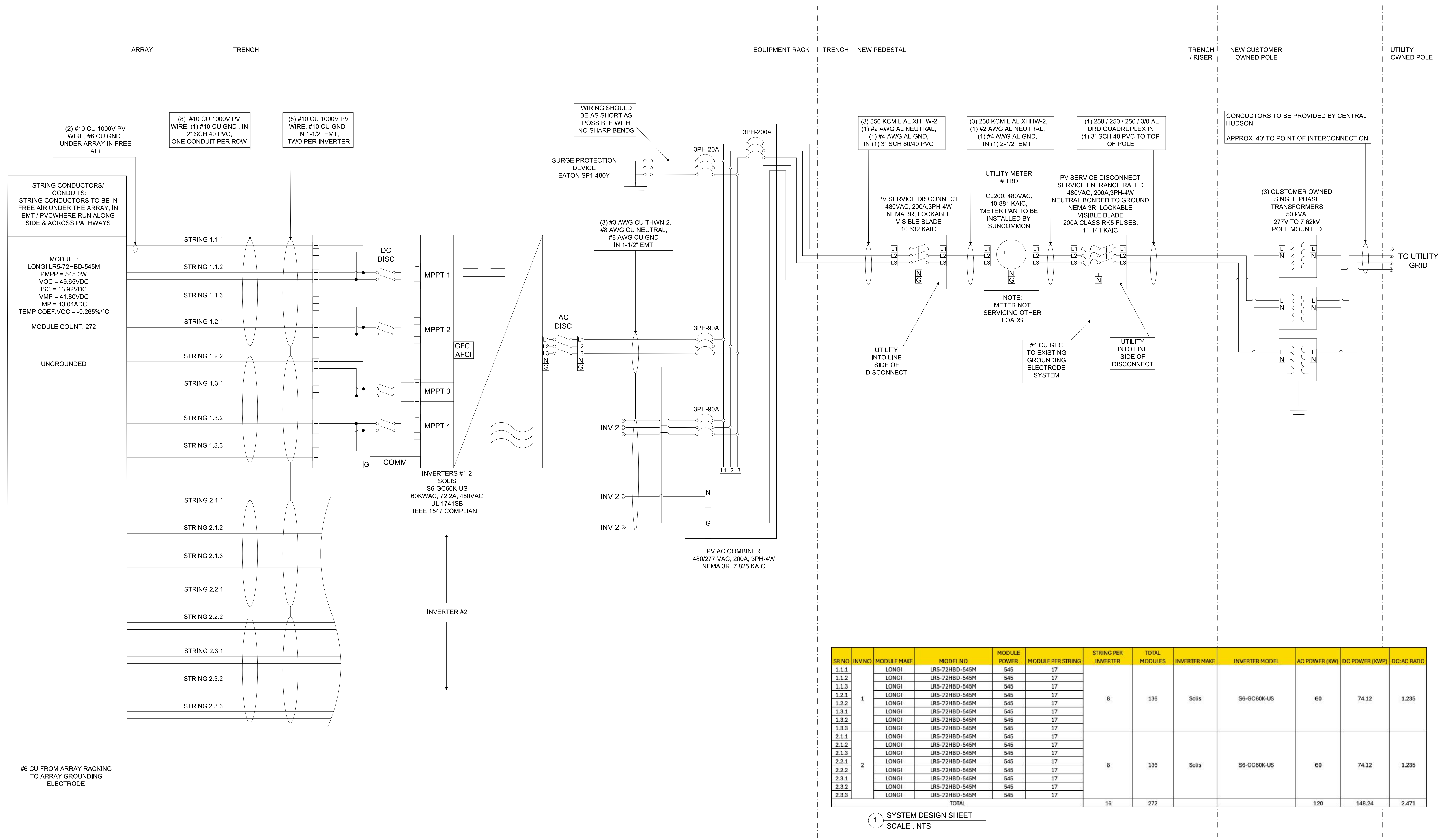
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SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	1:30	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE: TOPOGRAPHIC MAP
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: EP003



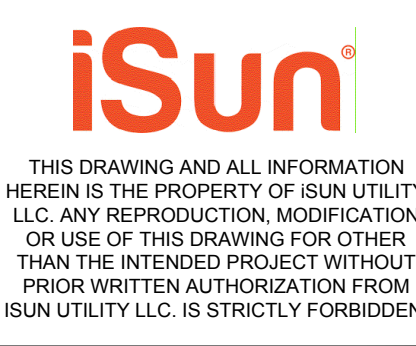
SR NO	INV NO	MODULE MAKE	MODEL NO	MODULE POWER	MODULE PER STRING	STRING PER INVERTER	TOTAL MODULES	INVERTER MAKE	INVERTER MODEL	AC POWER (KW)	DC POWER (KWP)	DC:AC RATIO
1.1.1	1	LONGI	LR5-72HBD-545M	545	17	8	136	Solis	S6-GC60K-US	60	74.12	1.235
1.1.2		LONGI	LR5-72HBD-545M	545	17							
1.1.3		LONGI	LR5-72HBD-545M	545	17							
1.2.1		LONGI	LR5-72HBD-545M	545	17							
1.2.2		LONGI	LR5-72HBD-545M	545	17							
1.3.1		LONGI	LR5-72HBD-545M	545	17							
1.3.2		LONGI	LR5-72HBD-545M	545	17							
1.3.3		LONGI	LR5-72HBD-545M	545	17							
2.1.1		2	LONGI	LR5-72HBD-545M	545							
2.1.2	LONGI		LR5-72HBD-545M	545	17							
2.1.3	LONGI		LR5-72HBD-545M	545	17							
2.2.1	LONGI		LR5-72HBD-545M	545	17							
2.2.2	LONGI		LR5-72HBD-545M	545	17							
2.3.1	LONGI		LR5-72HBD-545M	545	17							
2.3.2	LONGI		LR5-72HBD-545M	545	17							
2.3.3	LONGI		LR5-72HBD-545M	545	17							
TOTAL						16	272			120	148.24	2.471

1 SYSTEM DESIGN SHEET  
SCALE : NTS

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R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024
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R1	100% DRAWING, REDESIGN	TMM		5/20/2024
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SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	NTS	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE :	AC THREE LINE DIAGRAM
PROJECT TITLE:	MICHAEL PRYOR
PROJECT NO:	IS54-SUNC-NY-ARFD
DRAWING NO:	EE001


ISSUED FOR CONSTRUCTION

SR.NO.	INVERTER	MPPT	STRING NO.	STRING LOCATION	MODULE MANU.	MODULE MODEL	MODULE Wp	MODULE IN STRING	MODULE (VOC)	MODULE (ISC)	MODULE (VMP)	MODULE (IMP)	Vmp OF STRING	ISC*1.25	MAX MPPT AMPS	POSITIVE STRING LENGTH WITHOUT MARGIN (FT)	NEGATIVE STRING LENGTH WITHOUT MARGIN (FT)	STRING TWO WAY LENGTH WITHOUT MARGIN (FT)	STRING TWO WAY LENGTH WITH MARGIN (FT)	CABLE SIZE	RESISTANCE@75	CABLE AMP (A)	VD	VD %	VD (WITH MARGIN)	VD (WITH MARGIN)					
1	1	1	1.1.1	ROW 1	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	52.2	110	170	280	308	10 AWG CU, 2KV PV WIRE	1.243	40.00	4.84	0.57%	5.33	0.63%					
2			1.1.2	ROW 1	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		173	234	407	427	10 AWG CU, 2KV PV WIRE	1.243	40.00	7.04	0.83%	7.39	0.88%					
3			1.1.3	ROW 1	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		103	163	266	279	10 AWG CU, 2KV PV WIRE	1.243	40.00	4.60	0.55%	4.83	0.57%					
4		2	1.2.1	ROW 1	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	34.8	167	227	394	414	10 AWG CU, 2KV PV WIRE	1.243	40.00	6.82	0.81%	7.16	0.85%					
5			1.2.2	ROW 2	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		135	195	330	347	10 AWG CU, 2KV PV WIRE	1.243	40.00	5.71	0.68%	5.99	0.71%					
6			1.3.1	ROW 2	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		77	137	214	225	10 AWG CU, 2KV PV WIRE	1.243	40.00	3.70	0.44%	3.89	0.46%					
7		3	1.3.2	ROW 2	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	52.2	141	201	342	359	10 AWG CU, 2KV PV WIRE	1.243	40.00	5.92	0.70%	6.21	0.74%					
8			1.3.3	ROW 2	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		70	131	201	211	10 AWG CU, 2KV PV WIRE	1.243	40.00	3.48	0.41%	3.65	0.43%					
9			2.1.1	ROW 3	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		40	101	141	148	10 AWG CU, 2KV PV WIRE	1.243	40.00	2.44	0.29%	2.56	0.30%					
10		2	1	2.1.2	ROW 3	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	52.2	105	165	270	284	10 AWG CU, 2KV PV WIRE	1.243	40.00	4.67	0.55%	4.90	0.58%				
11				2.1.3	ROW 3	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		34	94	128	134	10 AWG CU, 2KV PV WIRE	1.243	40.00	2.21	0.26%	2.33	0.28%				
12				2.2.1	ROW 3	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		98	159	257	270	10 AWG CU, 2KV PV WIRE	1.243	40.00	4.45	0.53%	4.67	0.55%				
13			2	2.2.2	ROW 4	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	34.8	88	148	236	248	10 AWG CU, 2KV PV WIRE	1.243	40.00	4.08	0.48%	4.29	0.51%				
14				2.3.1	ROW 4	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4		17	78	95	100	10 AWG CU, 2KV PV WIRE	1.243	40.00	1.64	0.19%	1.73	0.20%				
15				3	2.3.2	ROW 4	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05		17.4	52.2	82	142	224	235	10 AWG CU, 2KV PV WIRE	1.243	40.00	3.88	0.46%	4.07	0.48%		
16			2.3.3		ROW 4	LONGI	LR5-72HBD-545M	545	17	49.65	13.92	41.8	13.04	844.05	17.4	24	84	108	113	10 AWG CU, 2KV PV WIRE	1.243	40.00	1.87	0.22%	1.96	0.23%					
<b>TOTAL</b>								<b>272</b>	<b>TOTAL STRING LENGTH</b>								<b>1464</b>	<b>2429</b>	<b>3893</b>	<b>4102</b>	<b>AVERAGE VD</b>								<b>0.50%</b>	<b>0.53%</b>	

1 DC VOLTAGE DROP CALCULATION  
SCALE : NTS

SR.NO.	CABLE ID	LOCATION	GENERAL		SYSTEM DETAILS			CONDUCTOR & RACEWAY					RACEWAY			OCPD SIZING			AMPCITY				VOLTAGE DROP																	
			OPERATING EQUIPMENT	TERMINATING EQUIPMENT	INVERTER	SYSTEM POWER (KW)	VOLTAGE (V)	SYSTEM MAX CURRENT (I)	SIZE (AWG/KMIL)	TYPE	CABLE PH.	TOTAL CABLES	QTY	CABLE AREA (INCH <sup>2</sup> )	NEUTRAL CABLE SIZE	NEUTRAL AREA	AC EGC SIZE	EGC AREA	TOTAL CABLE AREA (IN <sup>2</sup> )	CONDUITE MATERIAL	AREA	FILL FACTOR	MAX CURRENT (I)	NEC 690.9(B)	OCPD RATING (I)	90°C AMPACITY (A)	TEMP DERATE NEC 310.15 (B)	GROUPING FACTOR NEC 310.15 (C)	ADJUSTED AMPACITY FOR SINGLE RUN (A)	R @90 C	XL VALUE	NO OF RUNS	CAD LENGTH	CAD LENGTH WITH 20%	%VD	AC %VD	TOTAL AC %VD	DC %VD	TOTAL %VD	
1	AC-1	WEST END ROW 4	INV 1	AC PANEL BOARD	Solis 60K-US	60	480	72.2	3 AWG CU	CU	3PH	3	1	0.10	8 AWG CU	0.04	8 AWG CU	0.044	0.379	EMT 1.5"	2.0	19%	72.20	90.25	90.00	110	0.96	1	105.6	0.257	0.047	1	11	13.2	0.09%	0.08%	1.19%	0.53%	1.66%	
2	AC-2	WEST END ROW 4	INV 2	AC PANEL BOARD	Solis 60K-US	60	480	72.2	3 AWG CU	CU	3PH	3	1	0.10	8 AWG CU	0.04	8 AWG CU	0.044	0.379	EMT 1.5"	2.0	19%	72.20	90.25	90.00	110	0.96	1	105.6	0.257	0.047	1	8	9.6	0.06%					
3	AC-3	WEST END ROW 4	AC PANEL BOARD	AC PV DISCONNECT (NON-FUSED)	-	120	480	144.5	350 KCMIL AL	AL	3PH	3	1	0.52	2 AWG AL	0.11	4 AWG AL	0.082	1.746	SCH40 - 3"	7.3	24%	144.51	180.64	200.00	280	0.96	1	268.8	0.064	0.040	1	210	252	0.83%					0.83%
4	AC-4	NEW METER STANCHION	AC PV DISCONNECT (NON-FUSED)	UTILITY METER	-	120	480	144.5	250 KCMIL AL	AL	3PH	3	1	0.45	2 AWG AL	0.11	4 AWG AL	0.082	1.557	EMT 2.5"	5.9	27%	144.51	180.64	200.00	230	0.96	1	220.8	0.089	0.041	1	10	12	0.06%					0.06%
5	AC-5	NEW METER STANCHION	UTILITY METER	AC PV DISCONNECT (FUSED)	-	120	480	144.5	250 KCMIL AL	AL	3PH	3	1	0.45	2 AWG AL	0.11	4 AWG AL	0.082	1.557	EMT 2.5"	5.9	27%	144.51	180.64	200.00	230	0.96	1	220.8	0.089	0.041	1	10	12	0.06%					0.06%
6	AC-6	NEW METER STANCHION	AC PV DISCONNECT (FUSED)	CUSTOMER TRANSFORMER	-	120	480	144.5	250 KCMIL AL	AL	3PH	3	1	0.45	3/0 AWG AL	0.26		1.624	SCH40 - 3"	7.3	22%	144.51	180.64	200.00	230	0.96	1	220.8	0.089	0.041	1	30	36	0.17%	0.17%					

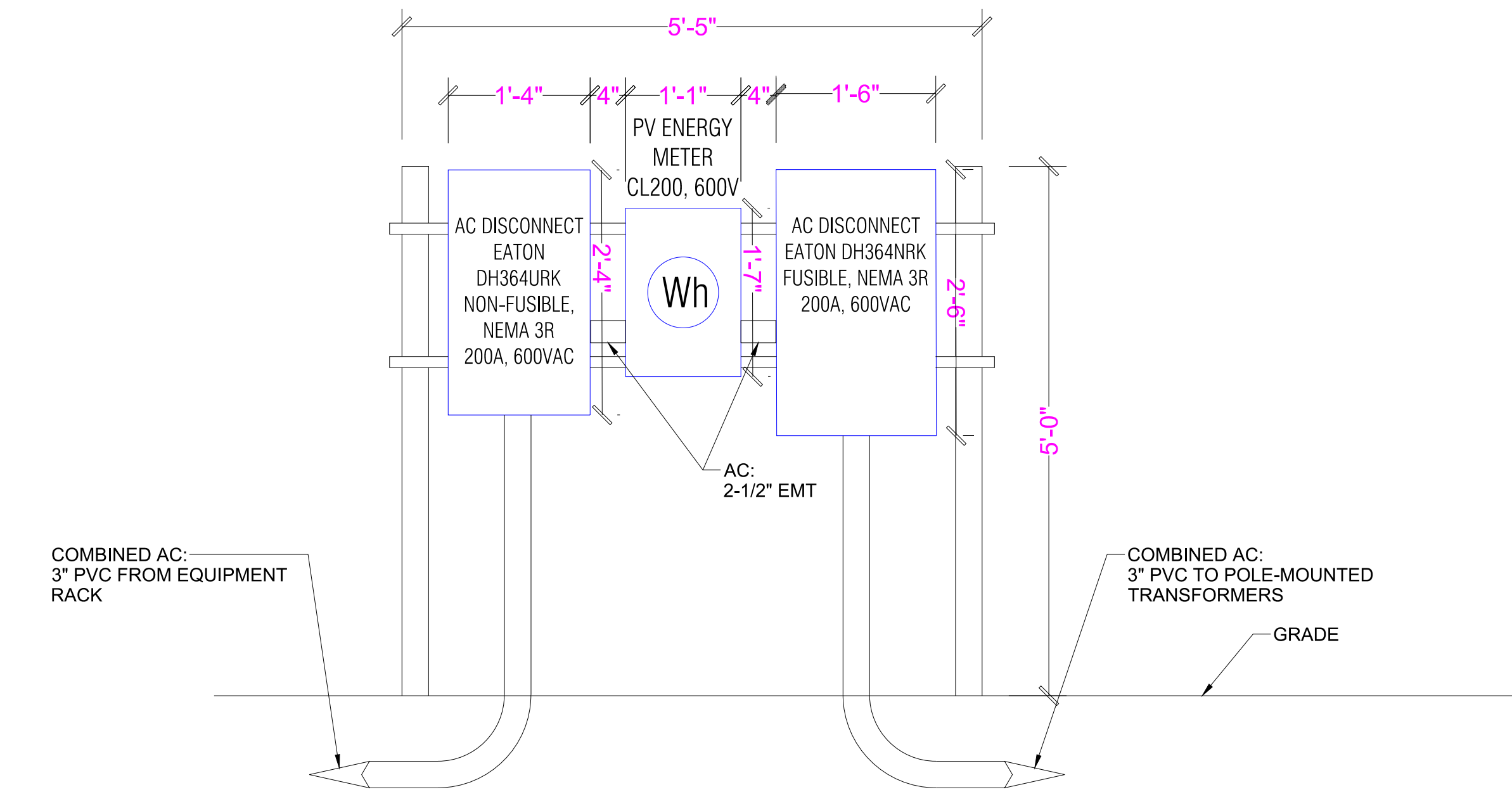
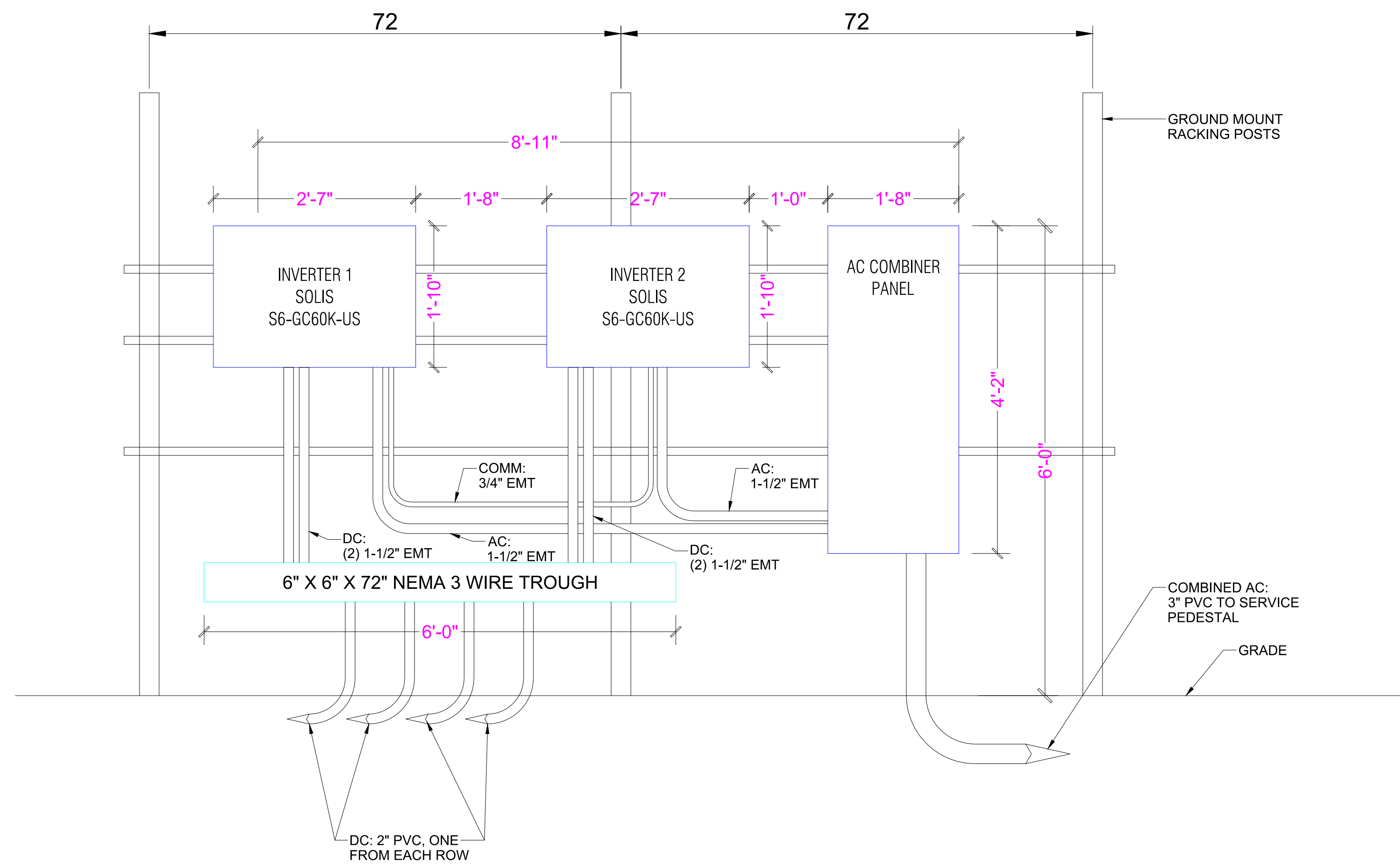
2 AC VOLTAGE DROP CALCULATION  
SCALE : NTS

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US	ISSUED FOR CONSTRUCTION	REV	DESCRIPTION	DESIGN	REVIEW	DATE	SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS	 <p>THIS DRAWING AND ALL INFORMATION HEREIN IS THE PROPERTY OF ISUN UTILITY LLC. ANY REPRODUCTION, MODIFICATION OR USE OF THIS DRAWING FOR OTHER THAN THE INTENDED PROJECT WITHOUT PRIOR WRITTEN AUTHORIZATION FROM ISUN UTILITY LLC IS STRICTLY FORBIDDEN.</p>	DRAWING TITLE : VOLTAGE DROP TABLES
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA		R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024			MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514		PROJECT TITLE: MICHAEL PRYOR
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2		R4	100% DRAWING, AS-BUILT	TMM		11/20/2024						PROJECT NO: IS54-SUNC-NY-ARFD
DC/AC RATIO	1.2350	RACKING	APA READY RACK		R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024						DRAWING NO: EP200
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°		R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024						
TOTAL MODULE	272	AZIMUTH	180°		R1	100% DRAWING, REDESIGN	TMM		5/20/2024						
				R0	100% DRAWING, ORIGINAL	JDL		5/7/2024							



## EQUIPMENT RACK

## SERVICE PEDESTAL



PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2
DC/AC RATIO	1.2350	RACKING	APA READY RACK
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°
TOTAL MODULE	272	AZIMUTH	180°

ISSUED FOR CONSTRUCTION

REV	DESCRIPTION	DESIGN	REVIEW	DATE
R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024
R4	100% DRAWING, AS-BUILT	TMM		11/20/2024
R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024
R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024
R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL

SCALE

CLIENT & MAILING ADDRESS

SITE ADDRESS

MICHAEL PRYOR  
749 STANFORD ROAD,  
WASHINGTON,  
NY 12514

5482 ROUTE 82,  
CLINTON CORNERS,  
NY 12514

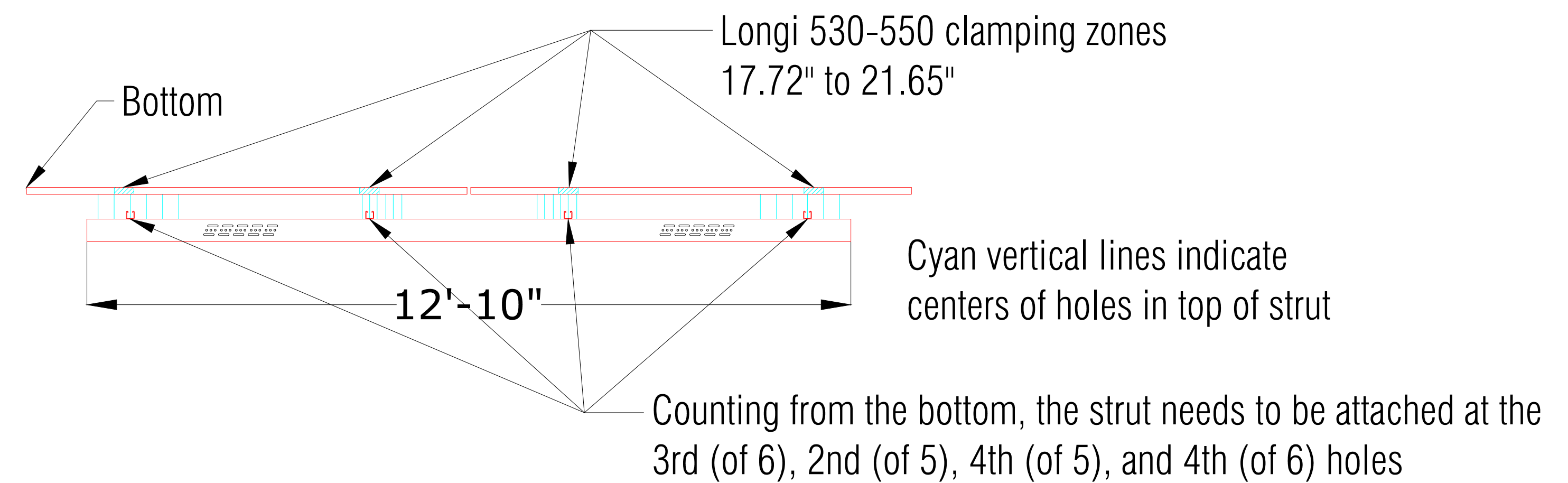
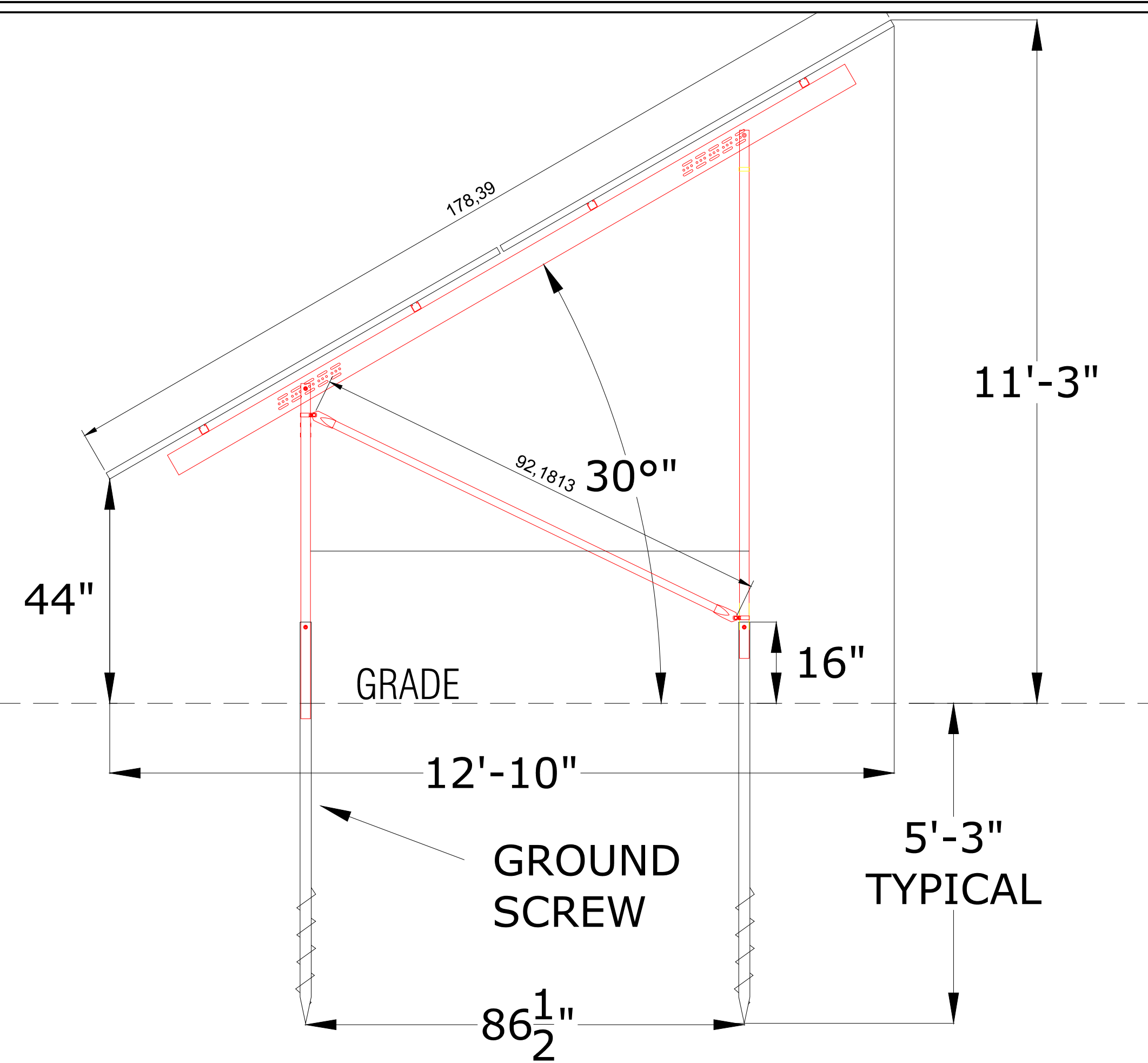
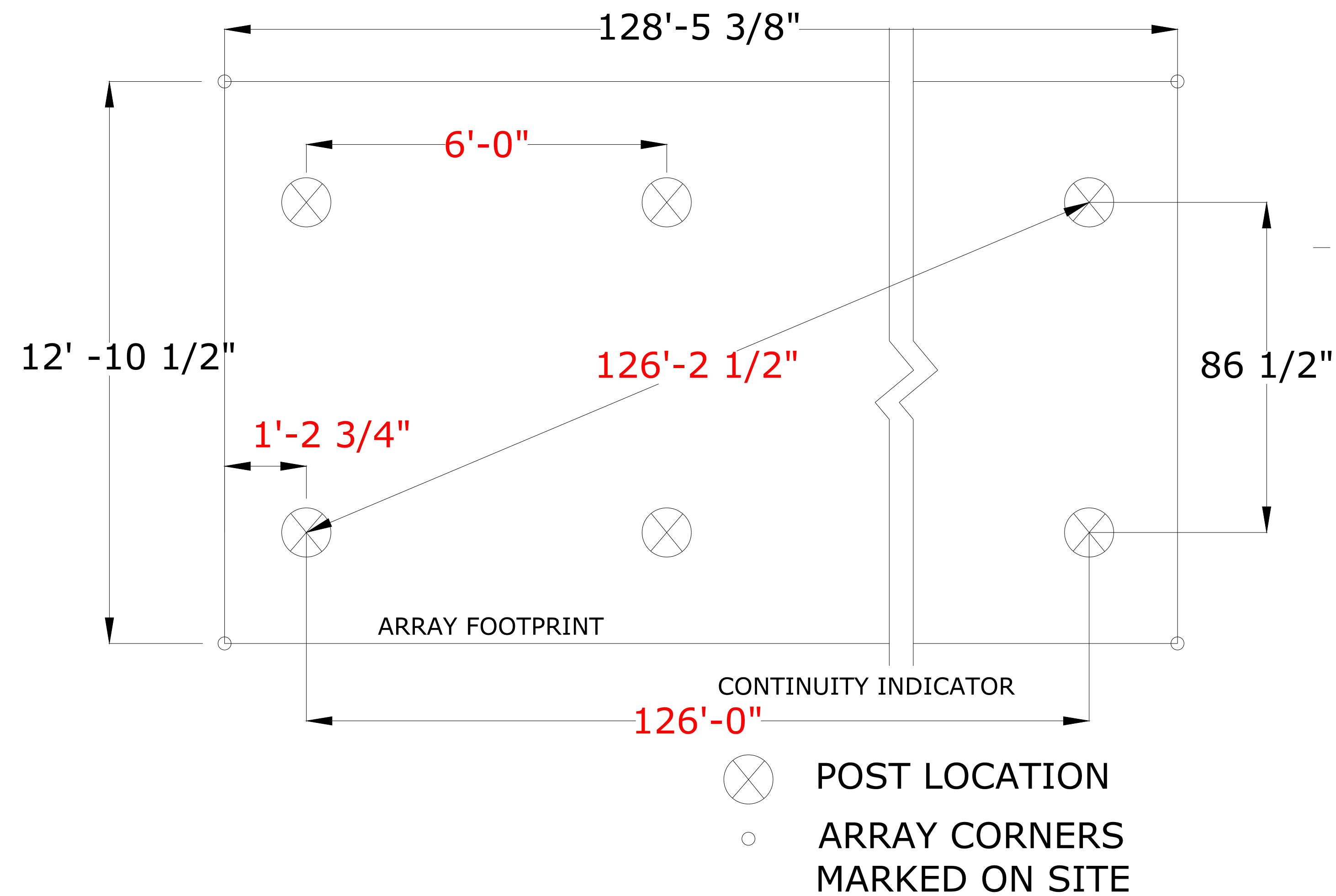
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DRAWING TITLE: EQUIPMENT ELEVATION

PROJECT TITLE: MICHAEL PRYOR

PROJECT NO: IS54-SUNC-NY-ARFD

DRAWING NO: EP201



### ARRAY DIMENSIONS

\*ARRAY DIMENSIONS ASSUME PLUM MEASUREMENTS\*

(A) TOTAL ARRAY WIDTH	128'-5 3/8"
(B) E-W POST SPANS	6'-0"
(C) ARRAY CANTILEVER	1'-2 3/4"
(D) PERIMETER E-W POST SPAN	126'-0"
(E) HYPOTENUSE	126'-2 1/2"
(P) POST SETS	22

### MODULE DIMENSIONS REFERENCE

\*AS LISTED ON MODULE DATASHEET\*

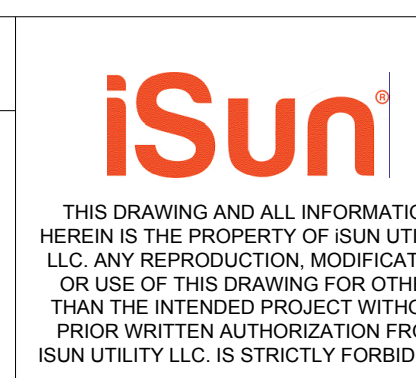
LONGI LR5-72HBD-545M 545W	88.82" X 44.61" X 1.38"
MID CLAMP WIDTH	0.75"
ARRAY TILT	30°
N-S POST SPACING	7'-2 1/2"

PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2
DC/AC RATIO	1.2350	RACKING	APA READY RACK
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°
TOTAL MODULE	272	AZIMUTH	180°

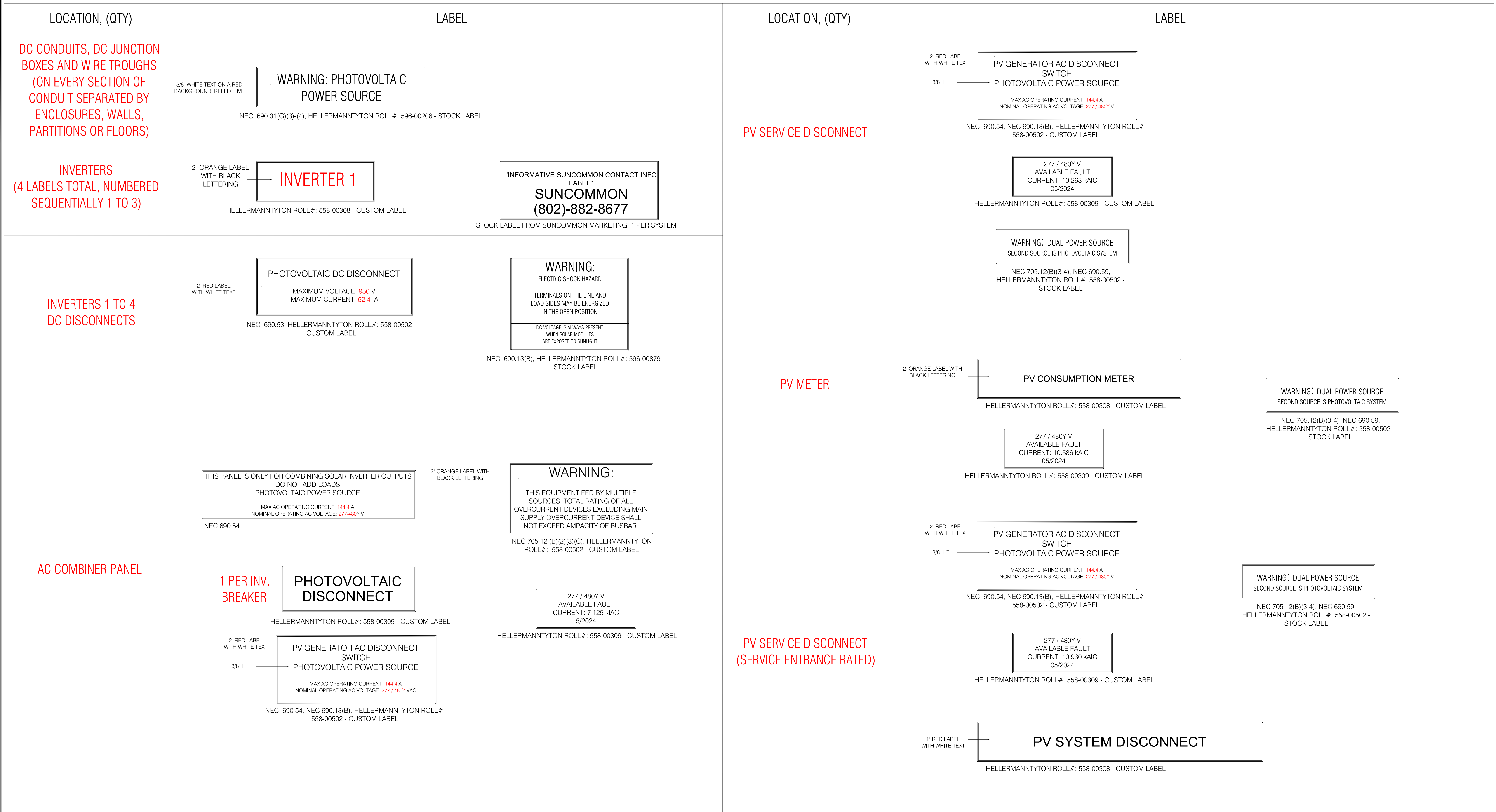
ISSUED FOR CONSTRUCTION

REV	DESCRIPTION	DESIGN	REVIEW	DATE
R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024
R4	100% DRAWING, AS-BUILT	TMM		11/20/2024
R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024
R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024
R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	NTS	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE: RACKING DETAILS
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: EP202

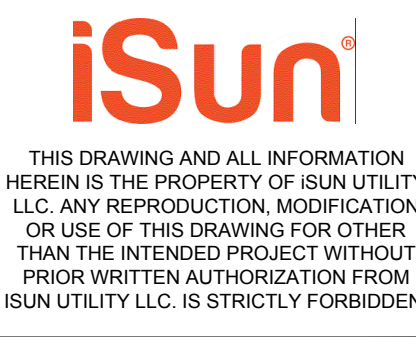


PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA
AC SYSTEM SIZE	120 kW	TOTAL INVERTERS	2
DC/AC RATIO	1.2350	RACKING	APA READY RACK
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°
TOTAL MODULE	272	AZIMUTH	180°

ISSUED FOR CONSTRUCTION

REV	DESCRIPTION	DESIGN	REVIEW	DATE
R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024
R4	100% DRAWING, AS-BUILT	TMM		11/20/2024
R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024
R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024
R1	100% DRAWING, REDESIGN	TMM		5/20/2024
R0	100% DRAWING, ORIGINAL	JDL		5/7/2024

SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS
	NTS	MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514



DRAWING TITLE: ELECTRICAL LABELS
PROJECT TITLE: MICHAEL PRYOR
PROJECT NO: IS54-SUNC-NY-ARFD
DRAWING NO: EP500

**Hi-MO (V6&G1)**

**LR5-72HBD 530~550M**

- Suitable for distributed projects
- Advanced module technology delivers superior module efficiency
- Globally validated bifacial energy yield
- High module quality ensures long-term reliability

12-year Warranty for Materials and Processing

30-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730  
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018  
IEC 62941:2018

12-year Warranty for Materials and Processing

30-year Warranty for Extra Linear Power Output

LONGi

**Hi-MO LR5-72HBD 530~550M**

21.5% MODULE EFFICIENCY | 0~3% TYPICAL POWER TOLERANCE | <2% TYPICAL POWER DEGRADATION | 0.45% TYPICAL POWER DEGRADATION | HALF-CELL OPERATING TEMPERATURE

**Additional Value**

30-Year Power Warranty

**Mechanical Parameters**

Cell Orientation: 144 (6x24)  
Junction Box: 6000  
Output Cable: 4mm<sup>2</sup> x 1200mm length can be customized  
Glass: Dual glass, 2.0x2.0mm Semi-tempered glass  
Frame: Anodized aluminum alloy frame  
Weight: 32.3kg  
Dimension: 2256x1133x35mm  
Packaging: 31pcs per pallet / 115pcs per 20'GP / 620pcs per 40'HC

**Electrical Characteristics**

Module Type	LR5-72HBD-530M	LR5-72HBD-535M	LR5-72HBD-540M	LR5-72HBD-545M	LR5-72HBD-550M
Testing Condition	STC	NOCT	STC	NOCT	STC
Maximum Power (Pmax/W)	530	535	540	545	550
Open Circuit Voltage (Voc/V)	49.20	49.26	49.35	49.50	49.68
Short Circuit Current (Isc/A)	13.71	13.78	13.85	13.92	13.99
Voltage at Maximum Power (Vmp/V)	41.35	41.50	41.65	41.80	41.95
Current at Maximum Power (Imp/A)	12.82	12.90	12.97	13.04	13.12
Module Efficiency(%)	20.7	20.9	21.1	21.3	21.5

**Operating Parameters**

Operational Temperature: -40 ~ +45  
Power Output Tolerance: 0 ~ 3%  
Maximum System Voltage: DC1500V (IEC/CUL)  
Maximum Series Fuse Rating: 30A  
Nominal Operating Cell Temperature: 45±2  
Protection Class: Class II  
Bi-Directionality: 70±5%  
Fire Rating: UL type 29 IEC Class A or C

**Mechanical Loading**

Front Side Maximum Static Loading: 5400Pa  
Rear Side Maximum Static Loading: 2400Pa  
Hailstone Test: 25mm Hailstone at the speed of 23m/s

**Temperature Ratings (STC)**

Temperature Coefficient of Voc: +0.05%/V  
Temperature Coefficient of Isc: -0.26%/V  
Temperature Coefficient of Pmax: -0.34%/V

LONGi

**S6-GC(25-60)K-US**

**Solis Three Phase Grid-Tied Inverters**

**Efficient**

- Max. efficiency 98.8% (CEC efficiency 98.3%)
- String current up to 20A
- 3/4 MPPT design, supports multiple orientation system design
- Night time PID recovery function, increases overall system yield (optional)
- Wide voltage range and low startup voltage

**Safe**

- Type 4X, C5 Anti-Corrosion Level
- AFCI protection, proactively reduces fire risk
- Intelligent redundant fan-cooling
- Integrated module level rapid shutdown transmitter
- High quality components from globally recognized suppliers
- Integrated DC and AC disconnects

**Smart**

- Equipped with external power control interface, supporting zero output power control
- Intelligent string monitoring, smart I-V curve scan
- Supports RS485, Ethernet, WiFi, Cellular
- Scan to register on SolisCloud, supports remote upgrade and control

**Economic**

- > 1.5 DC/AC ratio
- Supports high power modules for lower installation costs
- Separable AC wiring box

**Models:**

- S6-GC25K-US / S6-GC33K-US
- S6-GC36K-US / S6-GC40K-US
- S6-GC50K-US / S6-GC60K-US

**Ordering:** S6-GC(25-60)K-US

- APST (APS MLRSD Transmitter)
- RSS (Tigo MLRSD Transmitter)
- NEPT (NEP MLRSD Transmitter)

**DATASHEET S6-GC(25-60)K-US**

Models	25K	33K	36K	40K	50K	60K
<b>Input DC</b>						
Max. input voltage			1000 V			
Rated voltage			720 V			
Start-up voltage			180 V			
MPPT voltage range			180-1000 V			
Max. input current		3740 A			4740 A	
Max. short circuit current		3765 A			4765 A	
MPPT number/Max. input strings number		3/6			4/8	
<b>Output AC</b>						
Rated output power	25 kW	33 kW	36 kW	40 kW	50 kW	60 kW
Max. apparent output power	25 kVA	33 kVA	36 kVA	40 kVA	50 kVA	60 kVA
Max. output power	25 kW	33 kW	36 kW	40 kW	50 kW	60 kW
Rated grid voltage			3φ/PE, 480 V			
Rated grid frequency			60 Hz			
Max. output current	30.1 A	39.7 A	43.3 A	48.1 A	60.1 A	72.2 A
Power factor			>0.99 (0.8 leading - 0.8 lagging)			
<b>THD</b>			<3%			
<b>Efficiency</b>			98.8%			98.3%
CEC efficiency			98.8%			98.3%
<b>Protection</b>			Yes			Yes
DC reverse polarity protection			Yes			Yes
Short circuit protection			Yes			Yes
Output over current protection			Yes			Yes
Surge protection			DC Type II / AC Type II			
Grid monitoring			Yes			Yes
Anti-islanding protection			Yes			Yes
Temperature protection			Yes			Yes
Strings monitoring			Yes			Yes
I-V Curve scanning			Yes			Yes
Integrated AFCI			Yes			Yes
Integrated PID recovery			Optional			Optional
Integrated DC switch			Yes			Yes
Integrated AC switch			Yes			Yes
<b>General Data</b>						
Dimensions (W*H*D)		96.3 in (43.7 kg)	30.9"21.6"12.2 in (7M*54P*20 mm)	105.4 in (47.8 kg)	108.7 in (49.3 kg)110.5 in (50.1 kg)	
Weight						
Topology			Transformerless			
Self-consumption (night)			<1 W			
Relative humidity			0-100%			
Operating ambient temperature range			-13°F to 147°F (-23°C to 60°C)			
Ingress protection			IP65, 4X			
Noise emission (typical)			<55 dB(A)			
Cooling concept			Natural convection			
Max. operation altitude			13,120 ft (4000 m)			
Compliance			UL 1741UR, IEEE 1547-2018, UL 1998, UL 1988, FCC Part 15 Class B, California Rule 21, Haco Rule 14H, NEC 690.12-2020, CAN/CSA C22.2 107.1-1			
<b>Features</b>						
DC connection			MC4 connector			
AC connection			OT terminal (4 AWG to 3/0 AWG)			
Display			LCD			
Communication			Modbus RTU (Sunspec compliant), RS485, Optional: Cellular, Wi-Fi			

**APA SOLAR RACKING**

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**STANDARD SPECIFICATIONS**

Engineering: APA Drawings can be PE stamped for all 50 States and territories  
Grounding: Materials included  
Foundation: Helical, Ground Screw or Ballast  
Tilt Angles: 5°-33° Tilt Options  
Racking Coating: Galvanized, G90  
Foundation Coating: HDG  
Wind Loading: Up to 150mph  
Snow Loading: Up to 100psf  
Mounting Orientation: 2-High in Portrait  
Warranty: 25 Years

**DUAL POST DESIGN**

Ready Rack is a dual post design, making it an ideal choice for challenging sites with heavy wind or snow loads, and high topography. It comes standard with shallow micro helicals for soft or saturated soils, deep foot lines, shallow bedrock or high water tables. Ground screw or ballast foundation options are also available for sites with rock or non-penetrative soils.

**READY RACK**

The Ready Rack™ system is one of our original designs, updated and optimized over the years with innovative features to bring down hardware cost and install time. It is one of the most versatile systems on the market, and is designed to easily accommodate changes with modules, layouts and terrain. The simplistic hardware allows contractors to streamline the install process with adjustable features built in. Helical foundations and quick-install bracing, along with carefully engineered, strong, and lightweight core channels, are highly configurable and allow infinite solutions to common adjustment issues.

In business since 2008, APA offers a versatile line of racking and foundation solutions for projects in even the most challenging environments. With projects nationwide, APA is a trusted racking partner.

20-346 COUNTY ROAD X, W. FOX RUN 204, HIDEVILLE CORNERS, OH 43035 | 419.267.5280 | SALES@APASOLAR.COM

**WHY USE READY RACK™?**

**CUSTOMIZABLE ROW LENGTHS**  
How do you fit more content in an area while increasing production and reducing costs? Fill up every inch of space by creating rows as long or as short as you need.

**VERSATILE DESIGN**  
Design your rack to fit any panel and in any space, all thanks to highly adaptable components.

**HIGH TERRAIN CAPACITY**  
By easily accommodating slopes over 20%, difficult terrain is no longer a problem.

**INCREASED SPACING**  
Longer spans means less parts, faster installation, and more money in your pocket.

**HIGH GROUND CLEARANCE**  
Whether your project needs clearance for snow or room for maintenance, our highly adjustable foundations have got you covered.

**HIGH STRENGTH PARTS**  
Engineered for the toughest Northern winters and the fiercest Southern hurricanes, Ready Rack has stood the test of time.

**INSTALLER FRIENDLY**  
Sleek and strong, our core channel accommodates varying post heights, spans, tilts, and allows for adjustments in the field.

APA SOLAR RACKING

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PV GROUND MOUNT SYSTEM		INVERTER MODEL	SOLIS S6-GC60K-US	REV	DESCRIPTION	DESIGN	REVIEW	DATE	SEAL	SCALE	CLIENT & MAILING ADDRESS	SITE ADDRESS	DRAWING TITLE: PRODUCT DATASHEET
DC SYSTEM SIZE	148.2 KWp	AC POWER RATING	60 kVA	R5	100% DRAWING, ADDED TOPO MAP	TMM		12/18/2024			MICHAEL PRYOR 749 STANFORD ROAD, WASHINGTON, NY 12514	5482 ROUTE 82, CLINTON CORNERS, NY 12514	PROJECT TITLE: MICHAEL PRYOR
AC SYSTEM SIZE	120 KW	TOTAL INVERTERS	2	R4	100% DRAWING, AS-BUILT	TMM		11/20/2024		PROJECT NO: IS54-SUNC-NY-ARFD			
DC/AC RATIO	1.2350	RACKING	APA READY RACK	R3	100% DRAWING, CHANGED INVERTERS	TMM		10/16/2024		DRAWING NO: EP600			
PV MODULE MODEL	LONGI LR5-72HBD-545M 545W	TILT	30°	R2	100% DRAWING, INCREASE MODULE W	TMM		7/1/2024	NTS				
TOTAL MODULE	272	AZIMUTH	180°	R1	100% DRAWING, REDESIGN	TMM		5/20/2024					
				R0	100% DRAWING, ORIGINAL	JDL		5/7/2024					

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