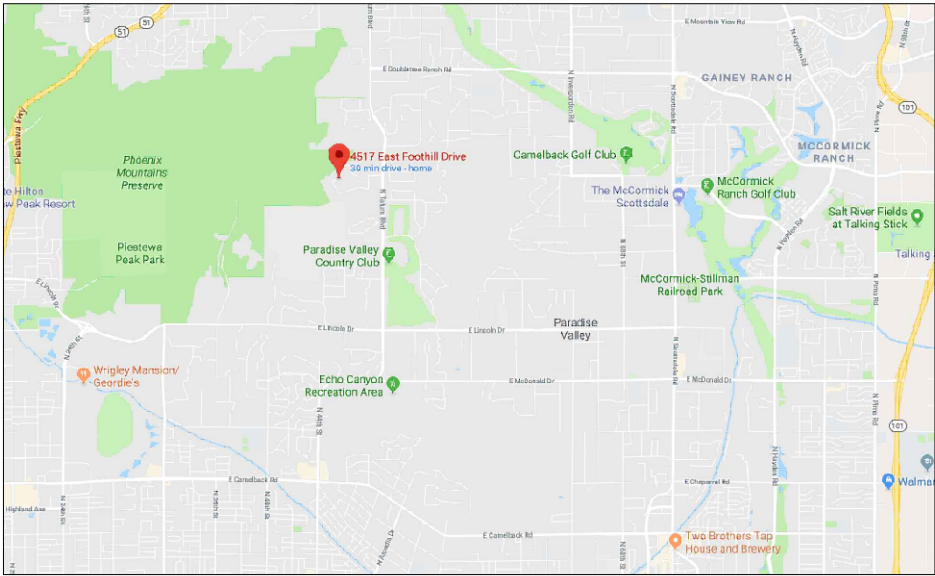
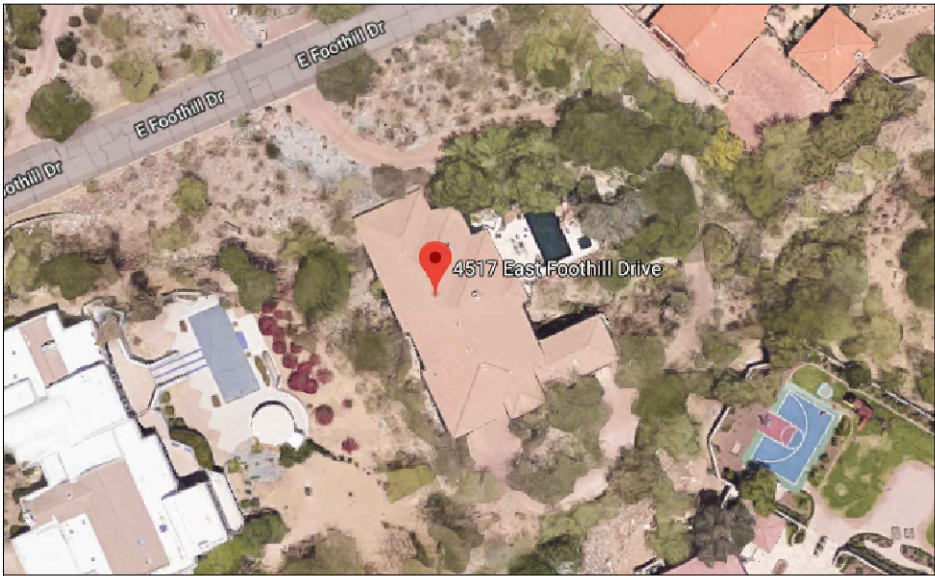
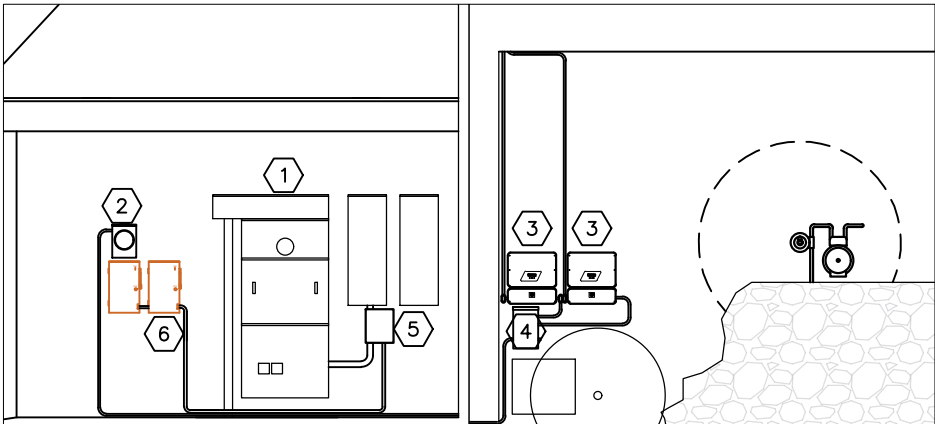




SITE LOCATION



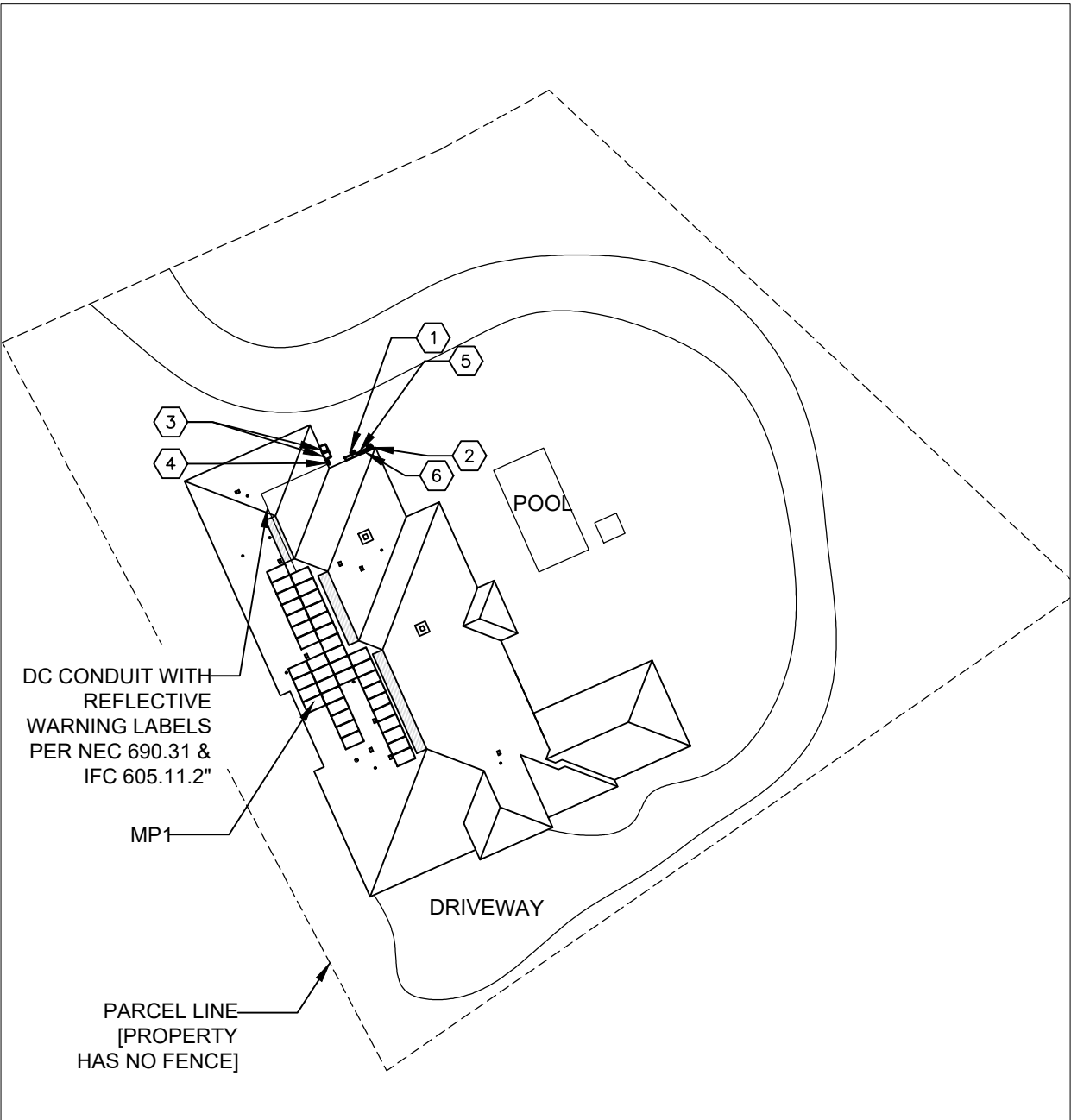
AERIAL VIEW



NOTE: All equipment (excluding the inverters due to warranty) will be painted to match the exterior.

NOTE: EQUIPMENT LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE

EQUIPMENT ELEVATION



SITE PLAN

Project Manager:
Kaleina Eden

ONE ARRAY

MP1	PITCH: 18	AZIMUTH: 245
	MATERIAL: Metal Roof	
	MOUNTING: Flush Mounted	

	3FT FIRE CODE ACCESS PATH
--	---------------------------

ROOF LEGEND

	GAS VENT
	T-TOP VENT
	DORMER VENT

PARCEL INFO

PARCEL #: 169-11-069

SQUARE FOOTAGE: 5,063

CONST. YEAR: 1994

270° 90° 180°

SCALE: NTS

- NOTE:
- UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
 - WORKSPACE IN FRONT OF THE AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS & NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM & SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.
 - REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER & GAS.

SCOPE OF WORK

TO INSTALL A PHOTOVOLTAIC (PV) SYSTEM AT THE
Nute, Howard Residence

LOCATED AT
4517 E Foothill Drive
Paradise Valley , AZ 85253

THE POWER GENERATED BY THE PV
SYSTEM WILL BE INTERCONNECTED WITH
THE UTILITY GRID THROUGH THE EXISTING
ELECTRICAL SERVICE EQUIPMENT.

SHEET INDEX

PV1 SITE MAP / SITE PLAN
PV2 ROOF PLAN
E1 THREE LINE DIAGRAM
L1 LABELING
ATTACHMENTS: CUT-SHEETS

GOVERNING CODES

LOCAL JURISDICTION - Paradise Valley
UTILITY - APS
2014 NATIONAL ELECTRICAL CODE
2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL RESIDENTIAL CODE
2015 INTERNATIONAL FIRE CODE
CITY AMENDMENTS

SITE PLAN NOTES

- (EXISTING) ELECTRICAL SERVICE ENTRANCE 400A SPLIT MAIN SERVICE PANEL WITH TWO 200A MCB and UTILITY REVENUE METER
- (NEW) DEDICATED PV SYSTEM KWH METER and UTILITY DISCONNECT SWITCH
- (NEW) INVERTER WITH INTEGRATED DC DISCONNECT
- (NEW) COMBINER PANEL
- (NEW) TAP BOX
- (NEW) FUSED DISCONNECT

EQUIPMENT SUMMARY

- | | |
|----|----------------------------------|
| 39 | Hanwha Q CELLS Q.PEAK G4.1 305 |
| 01 | SolarEdge SE7600H-US |
| 01 | SolarEdge SE7600H-US |
| 01 | Milbank 100A Meter Base |
| 39 | SolarEdge Power Optimizer P320 |
| 01 | EATON, 100A, DG223URB, 2P |
| 01 | EATON, 100A, DG223NRB, 2P, Fused |
| 01 | EATON BR48L125RP (2 BREAKERS) |

SHEET:
PV1

DATE:
2/19/2019

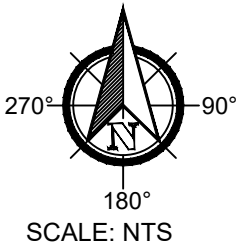
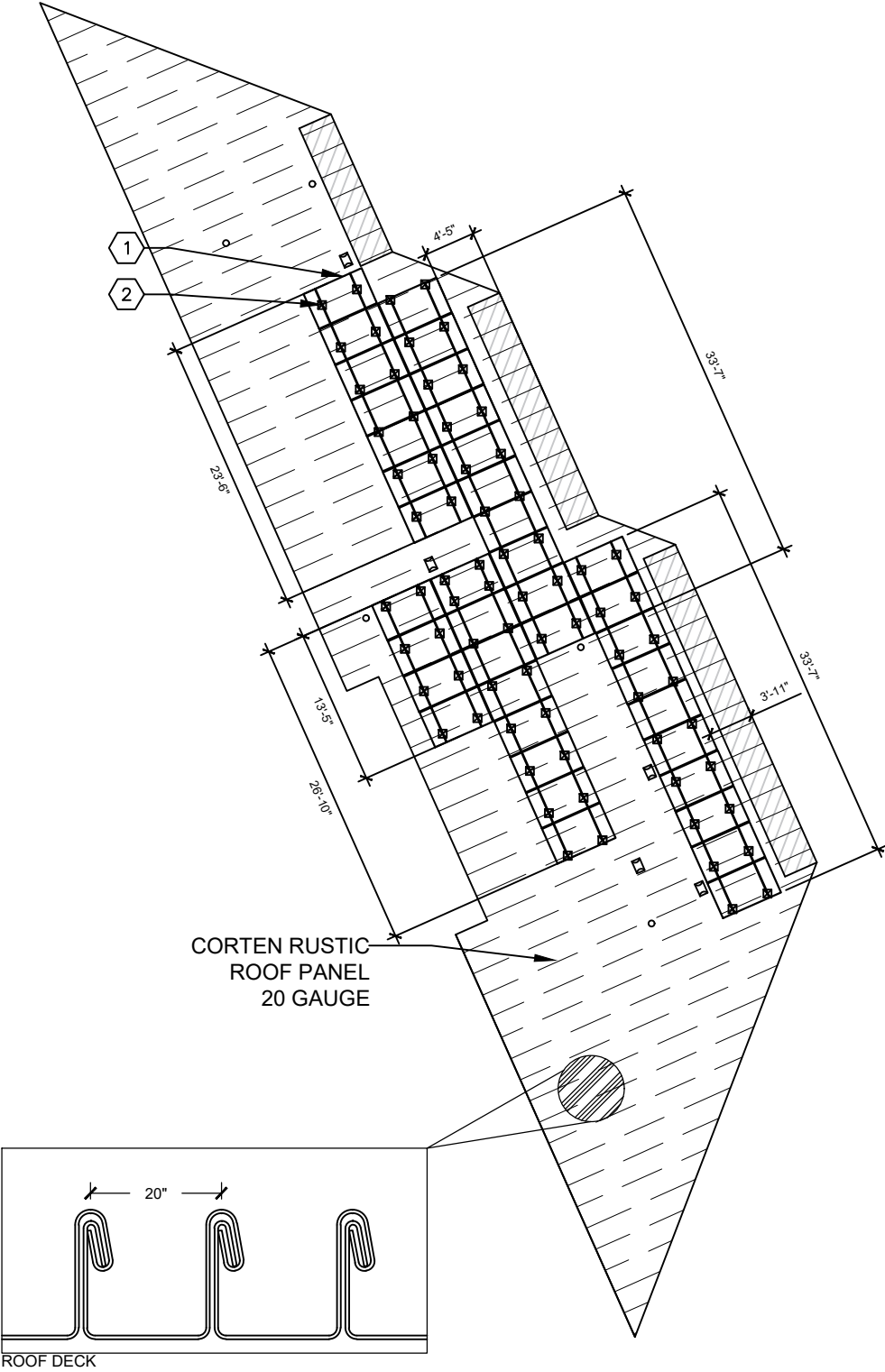
Revision: 0
Designer: Alex Meehl

TITLE: SITE PLAN 15.200 kW-AC
Nute, Howard Residence 11,895 W-DC
4517 E Foothill Drive, Paradise Valley , AZ 85253

Sun Valley Solar Solutions LLC
3225 N Colorado St. Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
www.sunvalleysolar.com



ROOF PLAN



NOTE: EXPOSED PV ROOFTOP CONDUCTORS THAT ARE NOT LOCATED UNDER THE ARRAY MODULES, SHALL BE INSTALLED IN A LISTED RACEWAY, AND SHALL INCLUDE LISTED JUNCTION BOXES AT BOTH ENDS OF THE RACEWAY TO TRANSITION FROM EXPOSED CONDUCTORS TO THE LISTED RACEWAYS. 2011 NEC ARTICLE 690.31(A) AND (B) EXCEPTION

MP1	PITCH: 18	AZIMUTH: 245
	MATERIAL: Metal Roof	MOUNTING: Flush Mounted
ROOF LEGEND		
	GAS VENT	
	T-TOP VENT	
	DORMER VENT	

ROOF PLAN NOTES:

- 1
- (NEW) PHOTOVOLTAIC PANEL ARRAY MOUNTED FLUSH TO ROOF WITH 18DEG PITCH
- 2
- RACKING INFORMATION

EVEREST MOUNTING RAIL - **Black**

S-5! | S-5-S

TRUSS SPACING = 20" O.C.

PENETRATION POINTS = 4' SPACING

MOUNTING DETAIL

Light Reflective Value- 5-8%

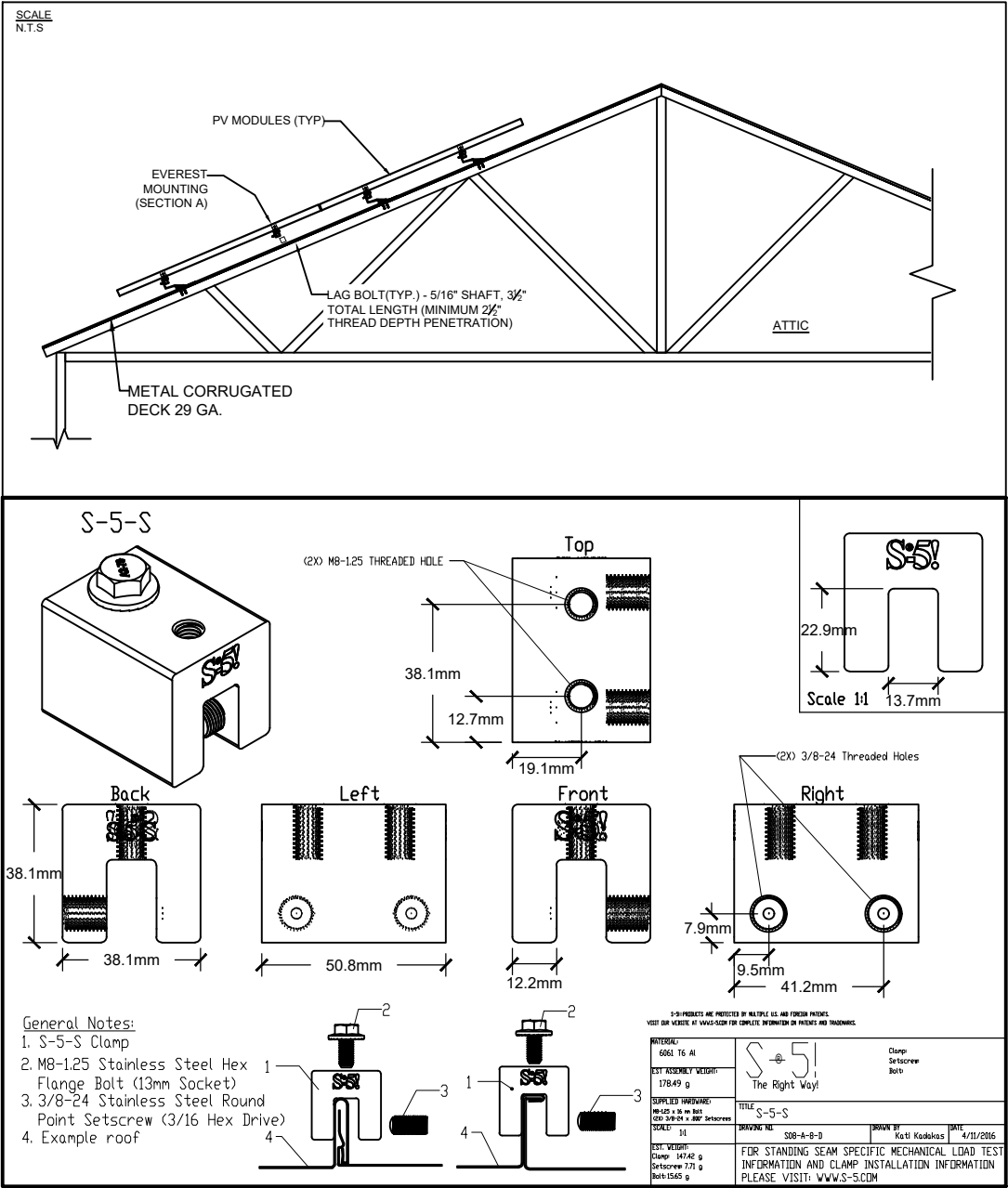
Conduit will be painted to match roof/exterior wall color (see site plan for location)

ROOF 1 CALCULATIONS:

DESIGN PER ASCE 7-10 2.4.1 & IBC 2015
SOLAR MODULE WEIGHT = 41.45 LBS.
EXPOSURE CATEGORY = B
BASIC WIND SPEED = 115 MPH

STRUCTURAL NOTES:
1) TOTAL ASSEMBLY WEIGHT: 1880.5 LBS
2) TOTAL AREA COVERED BY MODULES: 735.6 FT2
3) DEAD LOAD = 1880.5 / 735.6 = 2.6 LBS/FT2
4) POINT LOAD CALCULATIONS [# OF POINTS (72)] - 26.1 lb/point
5) TOTAL DESIGN LOAD (DOWNFORCE) = 14.0 psf
6) TOTAL DESIGN LOAD (UPFORCE) = -28.6 psf

RAILS TO BE BONDED TO GROUND (EGC) - 690.4 (C)
RAIL SPLICES TO BE ELECTRICALLY BONDED
FLASHING REQUIRED FOR STANDOFF PENETRATIONS
FOLLOW MODULE INSTRUCTION ON FRAME MOUNTING POINT



SHEET:
PV2

DATE:
10/10/2018

Revision: 0
Designer: Alex Meehl

TITLE: ROOF PLAN 15,200 kW-AC
Nute, Howard Residence 11,895 W-DC
4517 E Foothill Drive, Paradise Valley, AZ 85253

Sun Valley Solar Solutions LLC
3225 N Colorado St, Chandler, AZ 85225
T: (480) 689-5000 / F: (480) 659-3429
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One Array

(SEE ARRAY PAGE)

PV MODULE = 305 WATTS
21 MODULES = 6405 WATTS
1 STRING OF 11 PV MODULES
1 STRING OF 10 PV MODULES

ROOF TOP CONDUIT MIN. INSTALL
1/2" FROM ROOF SURFACE

6 #10 CU PV WIRE
SUNLIGHT RESISTANT
1 #10 GROUND
PV WIRE IN FREE AIR or
PV WIRE IN 3/4" EMT

(SEE ARRAY PAGE)

PV MODULE = 305 WATTS
18 MODULES = 5490 WATTS
1 STRING OF 18 PV MODULES

ROOF TOP CONDUIT MIN. INSTALL
1/2" FROM ROOF SURFACE

4 #10 CU PV WIRE
SUNLIGHT RESISTANT
1 #10 GROUND
PV WIRE IN FREE AIR or
PV WIRE IN 3/4" EMT

7600 WATT TRANSFORMERLESS INVERTER
SolarEdge SE7600H-US
400 - 480 VDC TO 240 VAC 1 PHASE
DC DISCONNECT ON INVERTER,
MAX AC OUTPUT 32A, UL LISTED

7600 WATT TRANSFORMERLESS INVERTER
SolarEdge SE7600H-US
400 - 480 VDC TO 240 VAC 1 PHASE
DC DISCONNECT ON INVERTER,
MAX AC OUTPUT 32A, UL LISTED

10 #10 AWG CU THWN-2
1 #10 AWG CU EGC
in 2 RUNS OF 3/4" EMT CONDUIT
OR in 1 RUN of 1" EMT CONDUIT
CREW TO DECIDE

MODULE INFO

Module: Hanwha Q CELLS Q.PEAK G4.1 305
Pmax: 305 W
Voc: 40.05 VDC
Vmp: 32.62 VDC
Imp: 9.35 Amp
Isc: 9.84 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 1 INFO

SolarEdge SE7600H-US
Max PV Power: 11800 Watt
DC Max Voltage: 480 VDC
AC Nom Power: 7600 Watt
AC Max Output Current: 32 Amp
AC OCPD Required = 40 Amp
OCPD = 40 Amp

INVERTER 2 INFO

SolarEdge SE7600H-US
Max PV Power: 11800 Watt
DC Max Voltage: 480 VDC
AC Nom Power: 7600 Watt
AC Max Output Current: 32 Amp
AC OCPD Required = 40 Amp
OCPD = 40 Amp

LABEL REQUIREMENTS

- LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAX SYSTEM VOLTAGE AND SHORT CIRCUIT CURRENT PER NEC 690.53.
- LABEL WARNING SIGN PER NEC 690.35 READING "WARNING - ELECTRIC SHOCK HAZARD - THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED"
- LABEL "PHOTOVOLTAIC POWER SYSTEM DEDICATED KWH METER"
- LABEL "PHOTOVOLTAIC SYSTEM AC UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKABLE. SWITCH TO BE VISIBLE BLADE AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
- LABEL WARNING SIGN PER NEC 690.17 READING "WARNING - ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS. TERMINAL ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION".
- LABEL WARNING SIGN PER NEC 705.12(D)(7) READING "WARNING INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCORRECT PROTECTION DEVICE". LOCATE AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION
- LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.10, AND "BREAKERS ARE BACKFED" PER NEC 705.12 (D)(5). LABELED WITH THE MAX AC OUTPUT OPERATION CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
- LABEL COMBINER PANEL "DEDICATED PHOTOVOLATIC SYSTEM COMBINER PANEL" AND "LOADS NOT TO BE ADDED TO THIS PANEL"
- LABEL "BREAKER HAS BEEN DE-RATED PER NEC 705.12 (D)(2)"

SYSTEM REQUIREMENTS

- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 2011 690 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION
- LISTING AGENCY NAME AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B).
- METALLIC CONDUIT SHALL BE USED WITHIN BUILDINGS PER NEC 690.31(E). EMT BONDED PER NEC 110.3(B).
- GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER AND NEC 690.47
- BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY

NOTE: SYSTEM DESIGN
IN ACCORDANCE WITH
THE 2014 N.E.C.

NEUTRAL IS USED
EXCLUSIVELY FOR PHASE
AND VOLTAGE DETECTION
PER NEC 705.95 (B)

SOLAREEDGE OPTIMIZERS FUNCTION AS
DISCONNECTING CONDUCTORS TO
DE-ENERGIZE PV SOURCE CIRCUITS IN
COMPLIANCE WITH NEC SECTION 690.12
(RAPID SHUTDOWN)

FAULT CALCULATIONS

F1 AVAILABLE = 9,879 AIC
D = 25'
F = 1.121
M = .471
Isc = 20,955 AIC
#4 AWG CU CONDUCTORS

CALCULATIONS IN
ACCORDANCE WITH
NEC 110.9 & 110.10

*CURRENT LIMITED BY FUSE

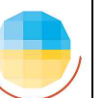
SHEET:
E1

DATE:
9/28/2018

Revision: 0
Designer: Alex Meehl

TITLE: 3-LINE 15,200 kW-AC
Nute, Howard Residence 11,895 W-DC
4517 E Foothill Drive, Paradise Valley , AZ 85253

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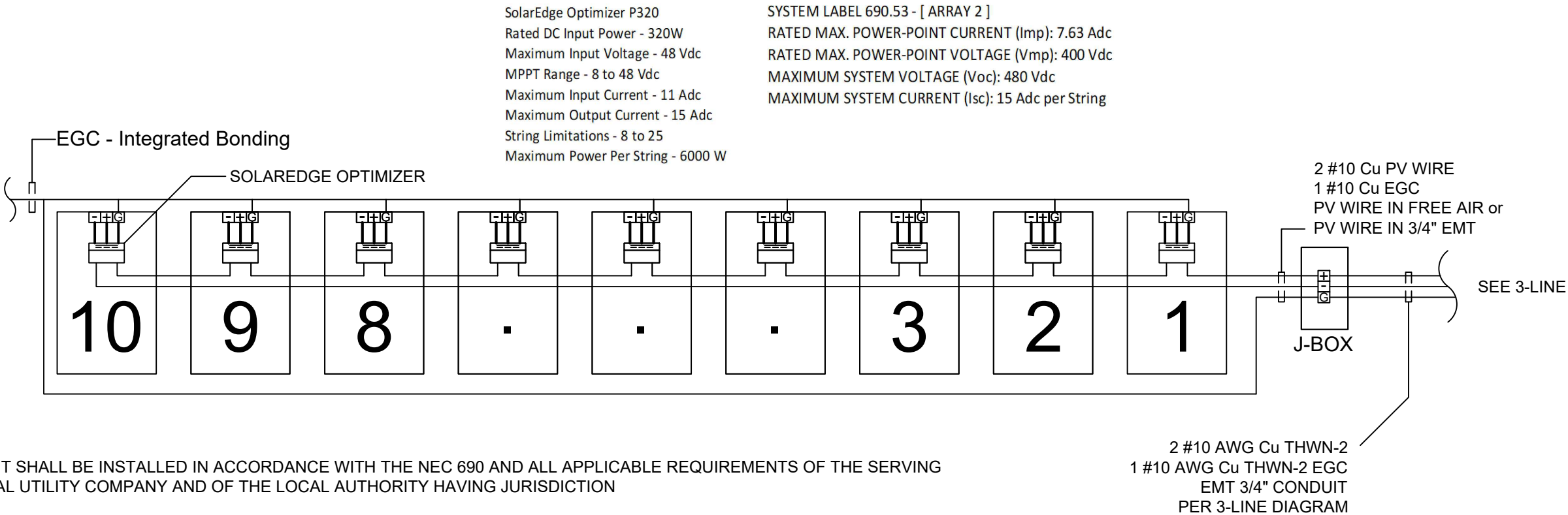
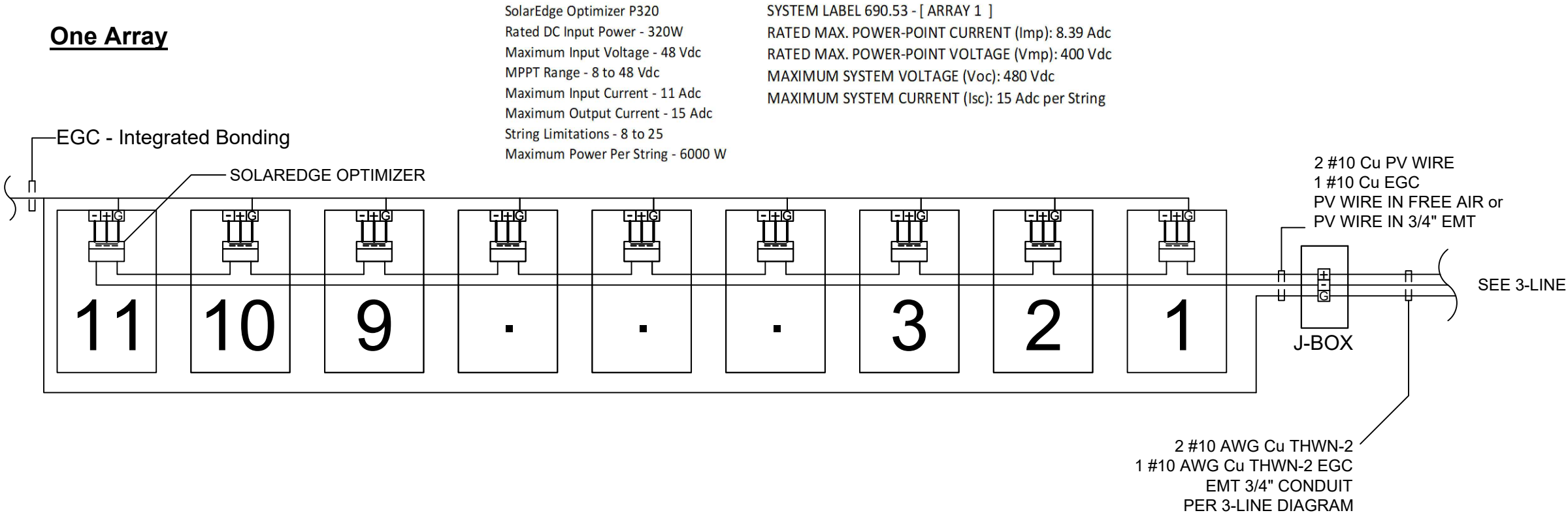
INVERTER 1

PV MODULE = 305 WATTS
21 MODULES = 6405 WATTS
1 STRING OF 11 PV MODULES
1 STRING OF 10 PV MODULES

MODULE INFO
Module: Hanwha Q CELLS Q.PEAK G4.1 305
Pmax: 305 W
Voc: 40.05 VDC
Vmp: 32.62 VDC
Imp: 9.35 Amp
Isc: 9.84 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 1 INFO
SolarEdge SE7600H-US
Max PV Power: 11800 Watt
DC Max Voltage: 480 VDC
AC Nom Power: 7600 Watt
AC Max Output Current: 32 Amp
AC OCPD Required = 40 Amp
OCPD = 40 Amp

One Array



- NOTES
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC 690 AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRICAL UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION
 - EGC WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE EGC CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690.4(C)
 - FOLLOW MANUFACTURER'S SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
 - CONDUCTORS SHALL BE RATED AND LABELED
 - LISTING AGENCY NAME AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B)
 - METALLIC CONDUIT TO BE USED WITHIN BUILDINGS PER NEC 690.31(E). EMT BONDED PER NEC 250.97

SHEET:
E2.1

DATE:
10/10/2018

Revision: 0
Designer: Alex Meehl

TITLE: ARRAY 15.200 kW-AC
Nute, Howard Residence 11,895 W-DC
4517 E Foothill Drive, Paradise Valley , AZ 85253

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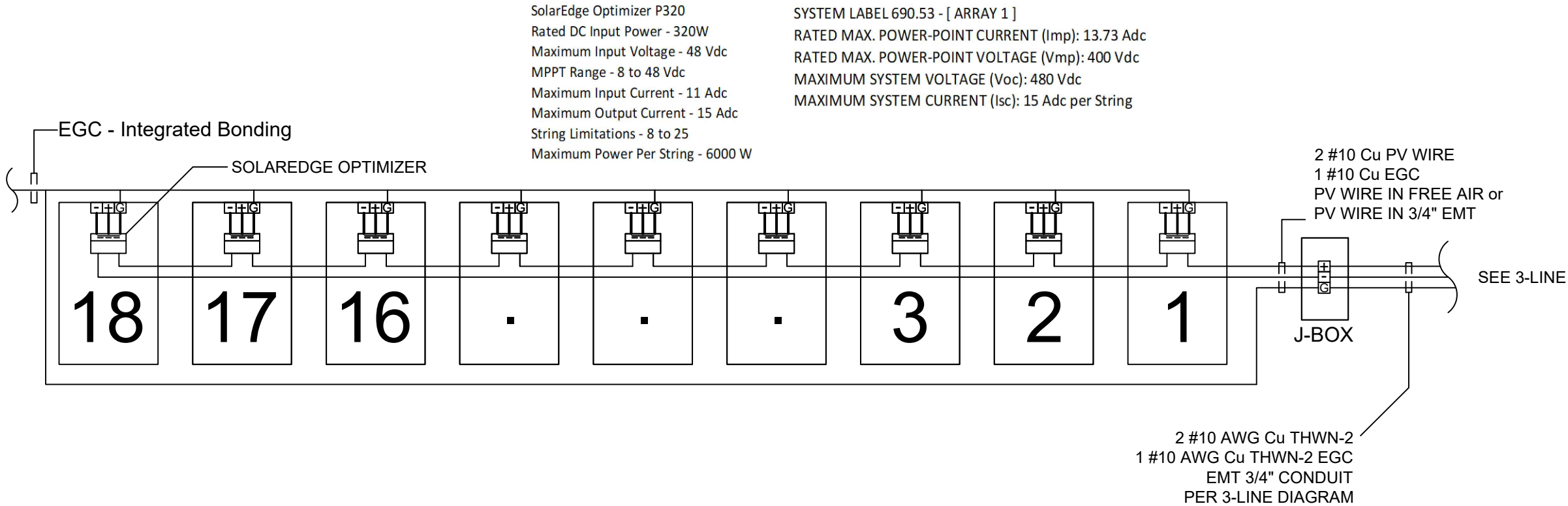


INVERTER 2

PV MODULE = 305 WATTS
18 MODULES = 5490 WATTS
1 STRING OF 18 PV MODULES

MODULE INFO
Module: Hanwha Q CELLS Q.PEAK G4.1 305
Pmax: 305 W
Voc: 40.05 VDC
Vmp: 32.62 VDC
Imp: 9.35 Amp
Isc: 9.84 Amp
Low Amb Temp (C): -9
Avg High Temp (C): 42

INVERTER 2 INFO
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Max PV Power: 11800 Watt
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AC Max Output Current: 32 Amp
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