GENERAL NOTES

1.1.1 **PROJECT NOTES:**

1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.

1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION

1.1.4 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4: **PV MODULES:** UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE I**NVERTERS:** UL 1741 CERTIFIED, IEEE 1547, 929, 519 **COMBINER BOX(ES):** UL 1703 OR UL 1741 ACCESSORY

1.1.8 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.

1.1.9 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].

1.1.10 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

1.2.1 **SCOPE OF WORK:**

1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE GROUND MOUNT ARRAY PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

1.3.1 **WORK INCLUDES:**

1.3.2 GROUND MOUNT RACKING - UNIRAC GFT

1.3.3 PV MODULE AND INVERTER INSTALLATION - SOLARIA POWERXT-430C-PD / (2) SOLAR EDGE SE10000H-US (240V) / (1) SOLAR EDGE SE5000H-US (240V)

1.3.4 PV EQUIPMENT GROUNDING

1.3.5 PV INSTALLING SYSTEM MONITORING EQUIPMENT

1.3.6 PV LOAD CENTERS (IF NEC.)

1.3.7 PV METERING (IF NEC.)

1.3.8 PV DISCONNECTS

1.3.9 PV GROUNDING ELECTRODE & BONDING TO (E) GEC

1.3.10 PV FINAL COMMISSIONING

1.3.11 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV

1.3.12 TRENCHING (IF NECESSARY)

SCOPE OF WORK

SYSTEM SIZE:	STC: 62 X 430W = 26.660kW PTC: 62 X 396.2W = 24.564kW (62) SOLARIA POWERXT-430C-PD (2) SOLAR EDGE SE10000H-US (240V) (1) SOLAR EDGE SE5000H-US (240V)
ATTACHMENT TYPE:	UNIRAC GFT
MSP UPGRADE:	NO

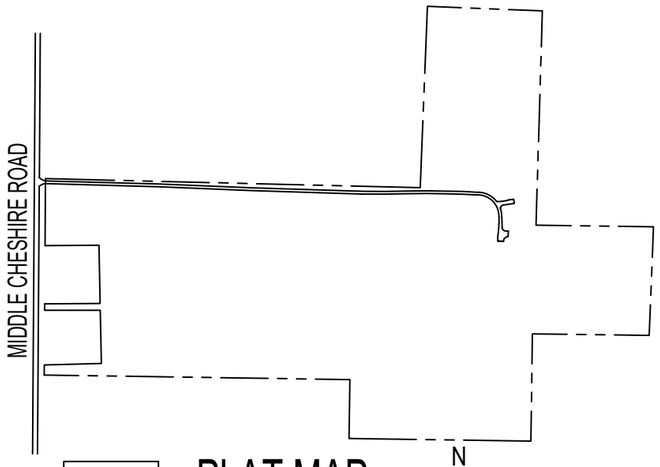
NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE ROAD
CANANDAIGUA, NY 14424
ASSESSOR'S #: 32240012600122121

01 AERIAL PHOTO

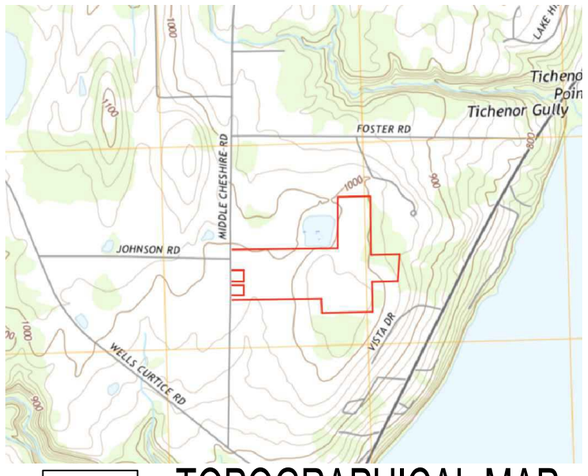
NOT TO SCALE



02 PLAT MAP

NOT TO SCALE

N
W E
S



03 TOPOGRAPHICAL MAP

NOT TO SCALE

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
T-001	COVER PAGE
G-001	NOTES
A-101	SITE PLAN
A-102	PLAN OF LAND
A-103	ELECTRICAL PLAN
A-104	SOLAR ATTACHMENT PLAN
E-601	LINE DIAGRAM
E-602	DESIGN TABLES
E-603	PLACARDS
S-501	ASSEMBLY DETAILS
S-502	ASSEMBLY DETAILS
S-503	ASSEMBLY DETAILS
R-001	RESOURCE DOCUMENT
R-002	RESOURCE DOCUMENT
R-003	RESOURCE DOCUMENT
R-004	RESOURCE DOCUMENT
R-005	RESOURCE DOCUMENT
R-006	RESOURCE DOCUMENT

PROJECT INFORMATION

OWNER

NAME: DR. CHRISTOPHER RITCHLIN

PROJECT MANAGER

NAME: QUINN PORZIO

PHONE: (716) 697-7190

CONTRACTOR

NAME: BUFFALO SOLAR INC.

PHONE: (716) 800-7775

AUTHORITIES HAVING JURISDICTION

BUILDING: TOWN OF CANANDAIGUA

ZONING: TOWN OF CANANDAIGUA

UTILITY: RG&E

DESIGN SPECIFICATIONS

OCCUPANCY: II

CONSTRUCTION: SINGLE-FAMILY

ZONING: RESIDENTIAL (AR-2 - AGRICULTURAL RURAL RESIDENTIAL)

GROUND SNOW LOAD: 50 PSF

WIND EXPOSURE: C

WIND SPEED: 115 MPH

APPLICABLE CODES & STANDARDS

BUILDING: NYSBC 2020, NYSRC 2020

ELECTRICAL: NEC 2017

FIRE: NYSFC 2020

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CONTRACTOR

BUFFALO SOLAR INC.

PHONE: (716) 800-7775

ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

X.
TOWN OF CANANDAIGUA PLANNING BOARD CHAIR

X.
TOWN OF CANANDAIGUA TOWN ENGENEER

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

DATE: 09.11.2020

DESIGN BY: A.Y.

CHECKED BY: M.M.

REVISIONS

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(SHEET 1)

2.1.1 **SITE NOTES**:

2.1.2 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.

2.1.3 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING OR MECHANICAL.

2.1.4 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.

2.2.1 **EQUIPMENT LOCATIONS**

2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.

2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).

2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.

2.2.4 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.

2.2.5 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.

2.2.6 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.2.7 SOLAR ARRAY LOCATION SHALL BE ADJUSTED ACCORDINGLY TO MEET LOCAL SETBACK REQUIREMENTS.

2.3.1 **STRUCTURAL NOTES:**

2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.

2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IT SHALL BE SEALED PER LOCAL REQUIREMENTS.

2.3.4 ALL PV RELATED ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.

2.4.1 **GROUNDING NOTES:**

2.4.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVISES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.

2.4.3 PV SYSTEMS REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN ACCORDANCE WITH 250.134 OR 250.136(A). ONLY THE DC CONDUCTORS ARE UNGROUNDED.

2.4.4 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.

2.4.5 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURE CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).

2.4.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.

2.4.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

2.4.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]

2.4.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.

2.4.10 DC PV ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION MEETING THE REQUIREMENTS OF 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS.

2.5.1 **INTERCONNECTION NOTES:**

2.5.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 705.12 (B)]

2.5.3 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF BUSBAR RATING [NEC 705.12(B)(2)(3)].

2.5.4 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(2)(3)].

2.5.5 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(2)(3)(C).

2.5.6 FEEDER TAP INTERCONECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(2)(1)

2.5.7 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42

2.5.8 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (B)(5)].

2.6.1 **DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:**

2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).

2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.

2.6.4 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED. THEREFORE BOTH MUST OPEN WHERE A DISCONNECT IS REQUIRED, ACCORDING TO NEC 690.13.

2.6.5 ISOLATING DEVICES OR EQUIPMENT DISCONNECTING MEANS SHALL BE INSTALLED IN CIRCUITS CONNECTED TO EQUIPMENT AT A LOCATION WITHIN THE EQUIPMENT, OR WITHIN SIGHT AND WITHIN 10 FT OF THE EQUIPMENT. AN EQUIPMENT DISCONNECTING MEANS SHALL BE PERMITTED TO BE REMOTE FROM THE EQUIPMENT WHERE THE EQUIPMENT DISCONNECTING MEANS CAN BE REMOTELY OPERATED FROM WITHIN 10 FT OF THE EQUIPMENT, ACCORDING TO NEC 690.15 (A).

2.6.6 PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D)

2.6.7 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.

2.6.8 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED, THEREFORE BOTH REQUIRE OVER-CURRENT PROTECTION, ACCORDING TO NEC 240.21. (SEE EXCEPTION IN NEC 690.9)

2.6.9 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 **WIRING & CONDUIT NOTES:**

2.7.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.

2.7.3 ALL CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.

2.7.4 EXPOSED PV SOURCE CIRCUITS AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.31 (C)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE ON PV ARRAYS, ACCORDING TO NEC 690.31 (A).

2.7.5 PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE [NEC 200.6 (A)(6)].

2.7.6 MODULE WIRING SHALL BE LOCATED AND SECURED UNDER THE ARRAY.

2.7.7 ACCORDING TO NEC 200.7, UNGROUNDED SYSTEMS DC CONDUCTORS COLORED OR MARKED AS FOLLOWS:
DC POSITIVE- RED, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN
DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN

2.7.8 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:
PHASE A OR L1- BLACK
PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE
PHASE C OR L3- BLUE, YELLOW, ORANGE*, OR OTHER CONVENTION
NEUTRAL- WHITE OR GREY

* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

2.7.9 ELECTRICAL WIRES IN TRENCH SHALL BE ATLEAST 18IN. BELOW GRADE (RESIDENTIAL).

NOTES REGARDING PHOSPHORUS USE:

- **NO PHOSPHORUS SHALL BE USED AT PLANTING TIME UNLESS SOIL TESTING HAS BEEN COMPLETED AND TESTED BY A HORTICULTURAL TESTING LAB AND THE SOIL TESTS SPECIFICALLY INDICATE A PHOSPHORUS DEFICIENCY THAT IS HARMFUL, OR WILL PREVENT NEW LAWNS AND PLANTINGS FROM ESTABLISHING PROPERLY.**
- **IF SOIL TESTS INDICATE A PHOSPHORUS DEFICIENCY THAT WILL IMPACT PLANT AND LAWN ESTABLISHMENT, PHOSPHORUS SHALL BE APPLIED AT THE MINIMUM RECOMMENDED LEVEL PRESCRIBED IN THE SOIL TEST FOLLOWING ALL NYS DEC REGULATIONS.**

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CONTRACTOR

BUFFALO SOLAR INC.

PHONE: (716) 800-7775
ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

X.
TOWN OF CANANDAIGUA PLANNING BOARD CHAIR

X.
TOWN OF CANANDAIGUA TOWN ENGENEER

PAPER SIZE: 11" x 17" (ANSI B)

NOTES

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

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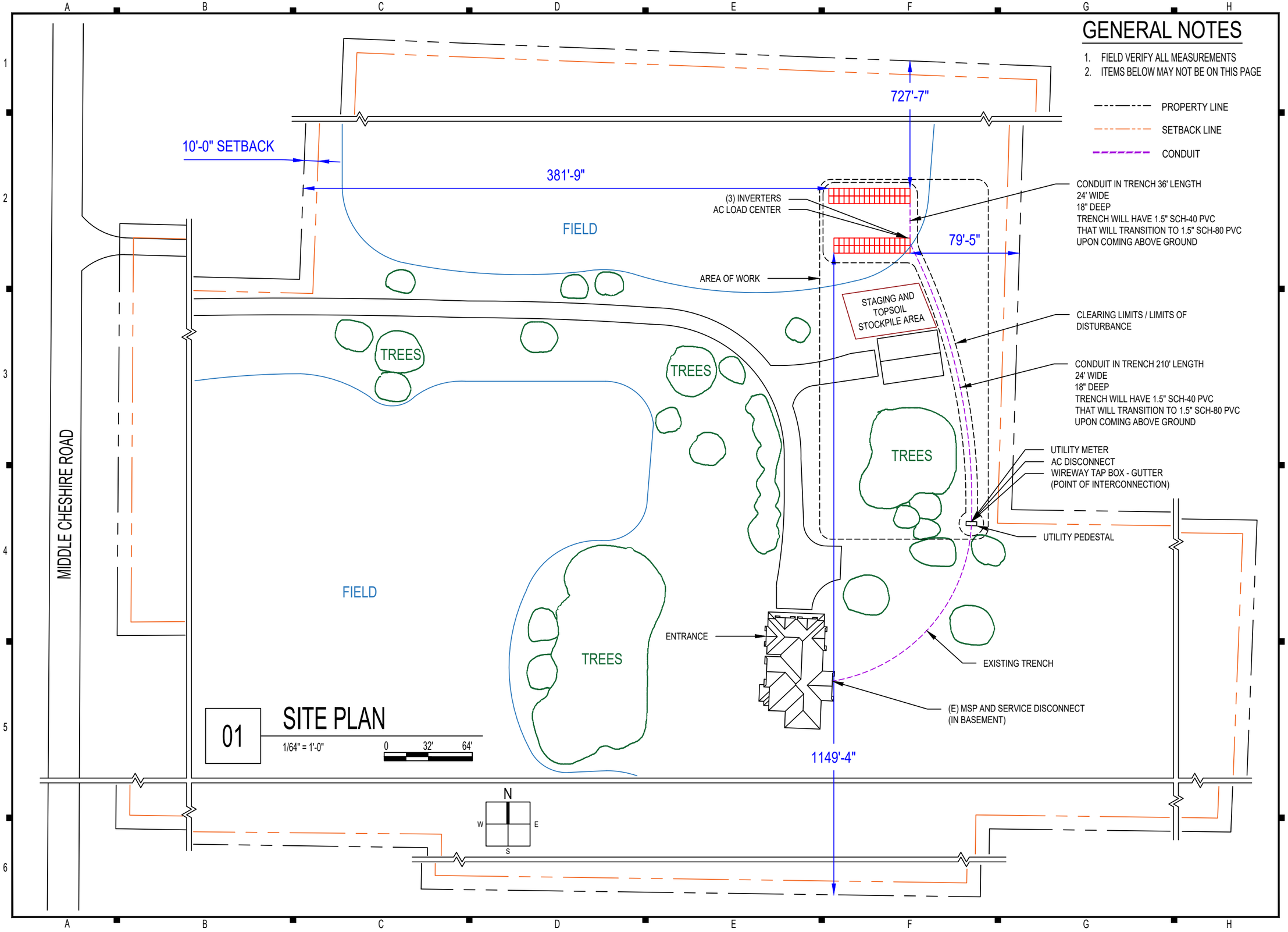
(SHEET 2)



01 SITE PLAN

1/64" = 1'-0"

0 32' 64'

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

PROPERTY LINE

SETBACK LINE

CONDUIT

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SITE PLAN

DATE: 09.11.2020

DESIGN BY: A.Y.

CHECKED BY: M.M

REVISIONS

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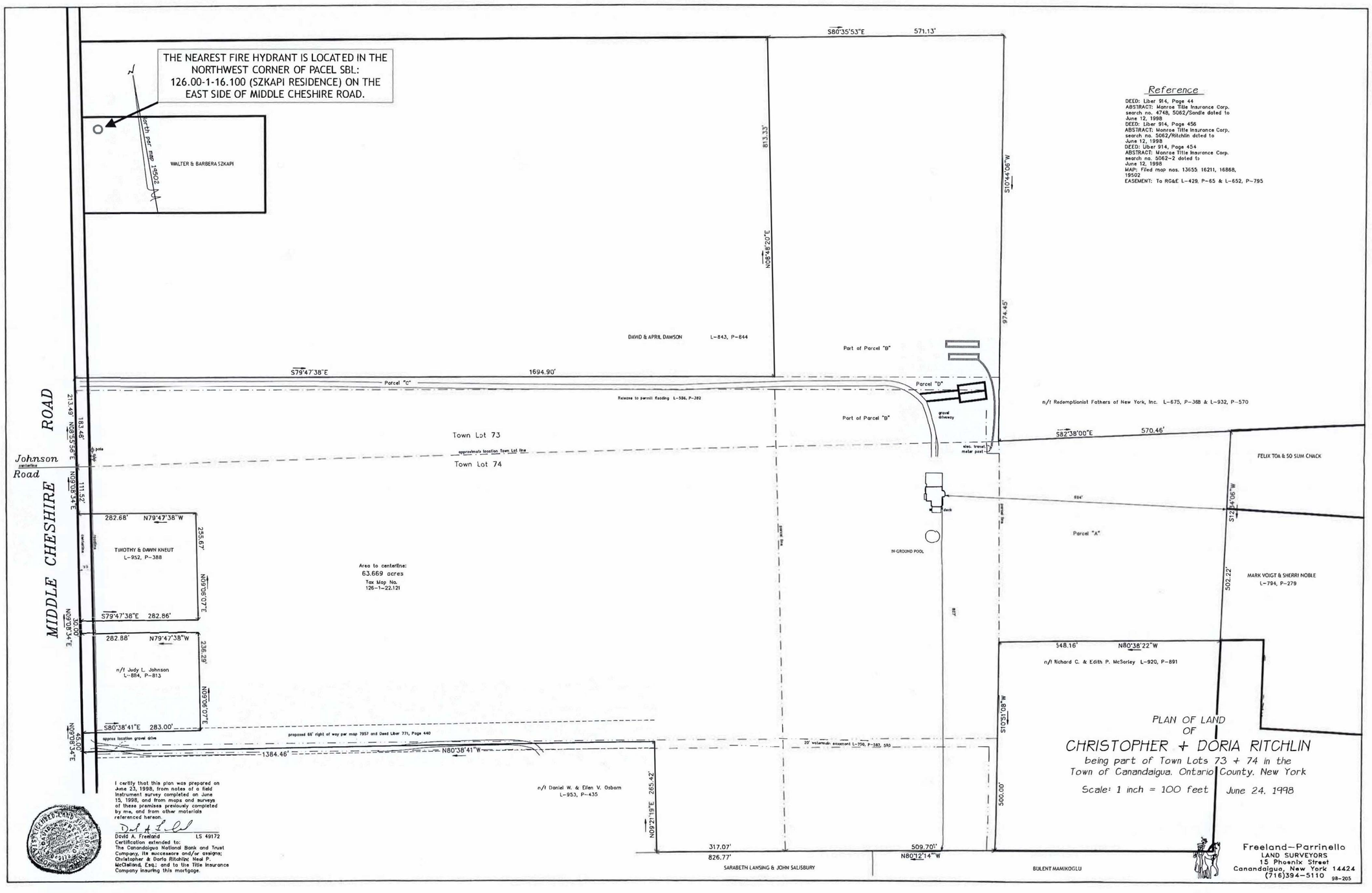
(SHEET 3)



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PAPER SIZE: 11" x 17" (ANSI B)

PLAN OF LAND

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M

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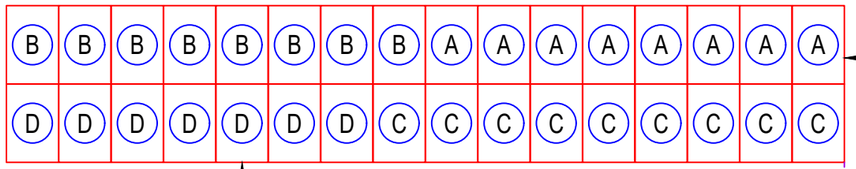
(SHEET 4)



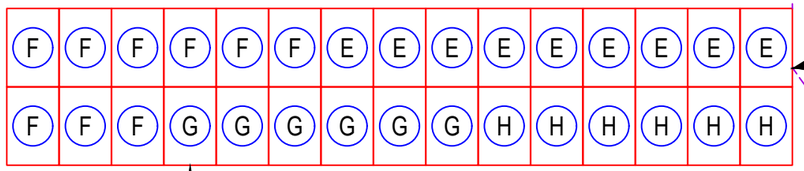
EXTERIOR PV EQUIPMENT
(N) (1) GROUND-MOUNT JUNCTION BOX

ARRAY 1 - 13.760 kW
[x32] (N) MODULES
TILT: 30 DEGREES
AZIMUTH: 180 DEGREES

CONDUIT IN TRENCH 36' LENGTH
24' WIDE
18" DEEP
TRENCH WILL HAVE 1.5" SCH-40 PVC
THAT WILL TRANSITION TO 1.5" SCH-80 PVC
UPON COMING ABOVE GROUND

ARRAY-TO-ARRAY =25'

ARRAY 1 C-PILE TO
ARRAY 2 C-PILE = 36'



EXTERIOR PV EQUIPMENT
MOUNTED ON UNISTRUT
ON THE REAR OF ARRAY2
(N) (3) INVERTERS
(N) (1) WIREWAY TAP BOX
(N) (1) AC LOAD CENTER

ARRAY 2 - 12.900 kW
[x30] (N) MODULES
TILT: 30 DEGREES
AZIMUTH: 180 DEGREES

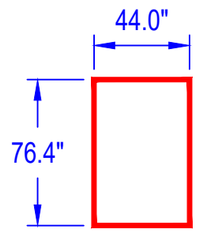
CONDUIT IN TRENCH 210' LENGTH
24' WIDE
18" DEEP
TRENCH WILL HAVE 1.5" SCH-40 PVC
THAT WILL TRANSITION TO 1.5" SCH-80 PVC
UPON COMING ABOVE GROUND

EXTERIOR PV EQUIPMENT
(E) (1) UTILITY METER
(N) (1) AC DISCONNECT
(N) (1) WIREWAY TAP BOX - GUTTER
(POINT OF INTERCONNECTION)

UTILITY PEDESTAL

01 ELECTRICAL PLAN
3/32" = 1'
0 5'-4" 10'-8"

N
W E
S



MODULE:
SOLARIA
POWERXT-430C-PD
430 WATTS

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

CONDUIT

- A — MODULE STRINGING
- B — MODULE STRINGING
- C — MODULE STRINGING
- D — MODULE STRINGING
- E — MODULE STRINGING
- F — MODULE STRINGING
- G — MODULE STRINGING
- H — MODULE STRINGING

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PAPER SIZE: 11" x 17" (ANSI B)

ELECTRICAL PLAN

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M

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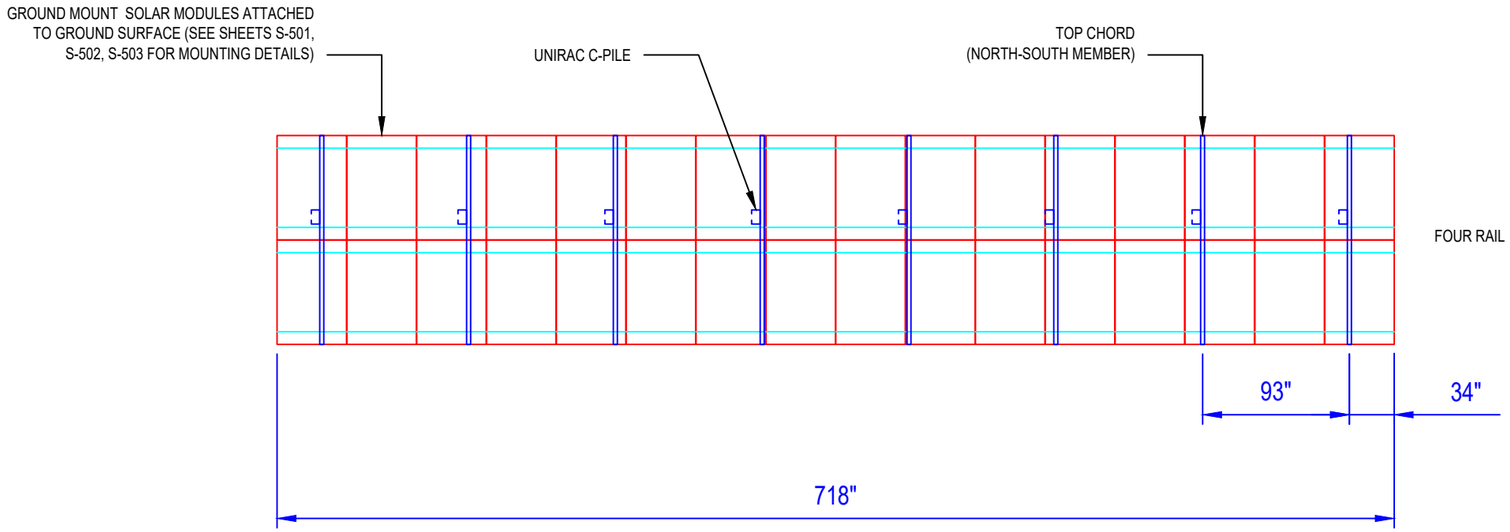
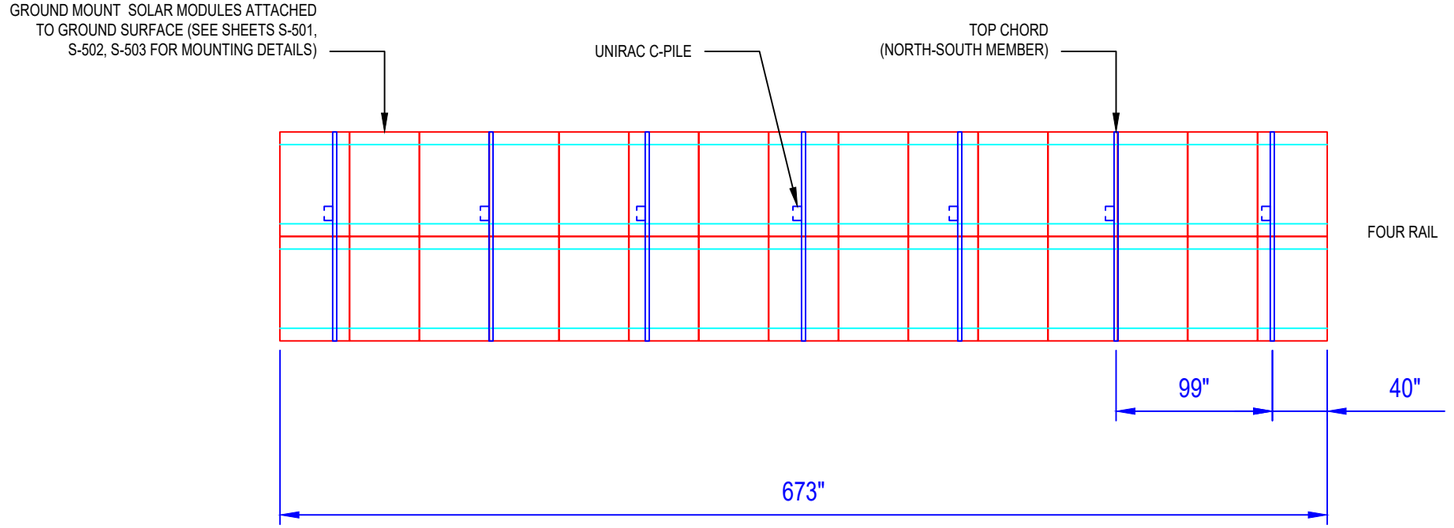


* FINAL GRADE WILL BE FLAT AROUND AND UNDER ARRAY. WILL NOT DIFFER FROM CURRENT/EXISTING AREA GRADE/CONTOUR.



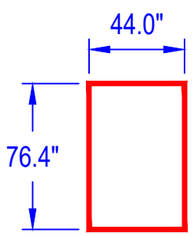
SOLAR ATTACHMENT PLAN

01

1/8" = 1'

0 4' 8'

N W E S



MODULE:
SOLARIA
POWERXT-430C-PD
430 WATTS

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

C-PILE EMBEDMENT DEPTH: 8'-9"
FRONT ARRAY CLEARANCE: 2'-6"
REAR ARRAY CLEARANCE: 8'-11"

PROJECT DIMENSIONS:
- (62) SOLARIA POWERXT-430C-PD @ 0° TILT
= 1444.228 SQ. FT. OF PANEL COVERAGE

- (62) SOLARIA POWERXT-430C-PD
@ 30° TILT (FIXED TILT)
= 1277.394 SQ. FT. OF PANEL COVERAGE

PARCEL ACREAGE:
63.669 ACRES

PROJECT PARCEL COVERAGE:
1444.228 SQ.FT. / 2773421.64 SQ.FT. = 0.005% PARCEL

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PHONE: (716) 800-7775
ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

X.
TOWN OF CANANDAIGUA PLANNING BOARD CHAIR

X.
TOWN OF CANANDAIGUA TOWN ENGENEER

PAPER SIZE: 11" x 17" (ANSI B)

SOLAR ATTACHMENT PLAN

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M

REVISIONS

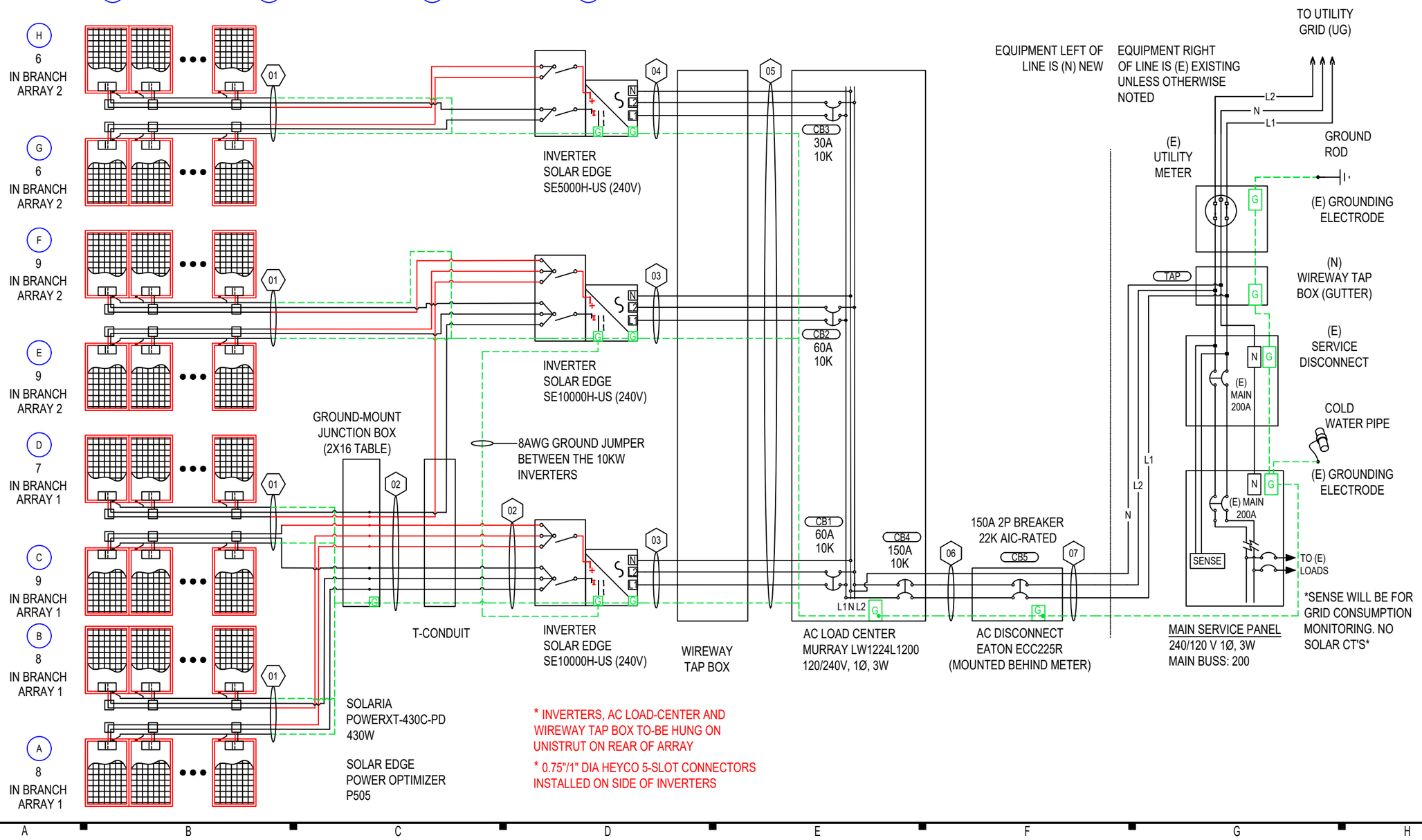
A-104.00
(SHEET 6)

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL	VOLTAGE DROP
01	8	10 AWG PV WIRE, COPPER	FREE AIR	2	N/A	6 AWG BARE, COPPER	0.96 (31.5 °C)	1	15A	18.75A	55A	52.8A	75°C	50A	-
02	1	10 AWG PV WIRE, COPPER	1.0" SCH-40 PVC / 1.0" DIA SCH-80 PVC	4	N/A	8 AWG THWN-2, COPPER	0.96 (31.5 °C)	1	15A	18.75A	40A	38.4A	75°C	35A	0.5%
03	2	6 AWG THWN-2, COPPER	0.75" DIA LFMC	2	N/A	8 AWG THWN-2, COPPER	0.96 (31.5 °C)	1	42A	52.5A	75A	72A	75°C	65A	-
04	1	10 AWG THWN-2, COPPER	0.75" DIA LFMC	2	N/A	8 AWG THWN-2, COPPER	0.96 (31.5 °C)	1	21A	26.25A	40A	38.4A	75°C	35A	-
05	1	6 AWG THWN-2, COPPER 10 AWG THWN-2, COPPER	1.0" DIA LFMC	6	60A	8 AWG THWN-2, COPPER	0.96 (31.5 °C)	0.8	42A 21A	52.5A 26.25A	75A 40A	72A 38.4A	75°C	65A 35A	-
06	1	1/O AWG THWN-2, COPPER	2" SCH-40 PVC / 2" DIA SCH-80 PVC	2	150A	6 AWG THWN-2, COPPER	0.96 (31.5 °C)	1	105A	131.5A	170A	163.2A	75°C	150A	1.81%
07	1	1/O AWG THWN-2, COPPER	2" SCH-40 PVC	2	N/A	6 AWG THWN-2, COPPER	0.96 (31.5 °C)	1	105A	131.5A	170A	163.2A	75°C	150A	-

A MODULE STRINGING
B MODULE STRINGING
C MODULE STRINGING
D MODULE STRINGING
E MODULE STRINGING
F MODULE STRINGING
G MODULE STRINGING
H MODULE STRINGING

PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN AND COMPLIANT WITH NEC 690.12.



EQUIPMENT LEFT OF LINE IS (N) NEW

EQUIPMENT RIGHT OF LINE IS (E) EXISTING UNLESS OTHERWISE NOTED

* INVERTERS, AC LOAD-CENTER AND WIREWAY TAP BOX TO-BE HUNG ON UNISTRUT ON REAR OF ARRAY

* 0.75"/1" DIA HEYCO 5-SLOT CONNECTORS INSTALLED ON SIDE OF INVERTERS

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CONTRACTOR

BUFFALO SOLAR INC.

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LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

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CANANDAIGUA, NY 14424
APN: 32240012600122121

X.
TOWN OF CANANDAIGUA PLANNING BOARD CHAIR

X.
TOWN OF CANANDAIGUA TOWN ENGENEER

PAPER SIZE: 11" x 17" (ANSI B)

LINE DIAGRAM

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

E-601.00

(SHEET 7)

SYSTEM SUMMARY

	INVERTER #1			INVERTER #2			INVERTER #3	
	STRING #1	STRING #2	STRING #3	STRING #1	STRING #2	STRING #3	STRING #1	STRING #2
POWERBOX MAX OUTPUT CURRENT	15A	15A	15A	15A	15A	15A	15A	15A
OPTIMIZERS IN SERIES	8	8	9	7	9	9	6	6
NOMINAL STRING VOLTAGE	400V	400V	400V	400V	400V	400V	380V	380V
ARRAY OPERATING CURRENT	8.6A	8.6A	9.68A	7.53A	9.68A	9.68A	6.79A	6.79A
ARRAY STC POWER	10,750W			10,750W			5,160W	
ARRAY PTC POWER	9,905W			9,905W			4,754W	
MAX AC CURRENT	42A			42A			21A	
MAX AC POWER	10,000W			10,000W			5,000W	
DERATED (CEC) AC POWER	9,669W			9,669W			4,641W	
TOTAL STC POWER	26,660W							
TOTAL PTC POWER	24,564W							
MAX AC CURRENT	105A							
MAX AC POWER	25,000W							
DERATED (CEC) AC POWER	23,979W							

MODULES

REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-62	62	SOLARIA POWERXT-430C-PD	430W	396.2W	11.43A	10.93A	47.3V	39.3V	-0.137V/°C (-0.29%/°C)	20A

POWER OPTIMIZERS

REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC	MAX DC VOLTAGE	WEIGHTED EFFICIENCY
PO1-62	62	SOLAR EDGE P505	505W	15A	14A	83V	98.6%

INVERTERS

REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1-2	2	SOLAR EDGE SE10000H-US (240V)	240V	FLOATING	60A	10000W	42A	27A	480V	99.0%
I3	1	SOLAR EDGE SE5000H-US (240V)	240V	FLOATING	30A	5000W	21A	13.5A	480V	99.0%

DISCONNECTS

REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	EATON ECC225R OR EQUIV.	225A	240VAC

OCPDS

REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1-2	2	60A	240VAC
CB3	1	30A	240VAC
CB4-5	2	150A	240VAC

ASHRAE EXTREME LOW	-23.6°C (-10.5°F), SOURCE: ROCHESTER-MONROE CO (43.12°; -77.68°)
ASHRAE 2% HIGH	31.5°C (88.7°F), SOURCE: ROCHESTER-MONROE CO (43.12°; -77.68°)

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DESIGN TABLES

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

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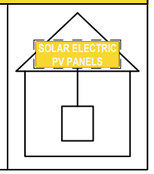
(SHEET 8)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



LABEL 1
AT RAPID SHUTDOWN SYSTEM
[NEC 690.56(C)(1)(A)].

MAXIMUM VOLTAGE: 480 V DC
MAXIMUM CIRCUIT CURRENT: 26.88 A DC
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED): 45 A DC

MAXIMUM VOLTAGE: 480 V DC
MAXIMUM CIRCUIT CURRENT: 26.88 A DC
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED): 45 A DC

! WARNING !
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPLOSED TO SUNLIGHT

LABEL 3
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT
[NEC 690.15]

ALL SIGNAGE MUST BE PERMANENTLY ATTACHED AND BE WEATHER RESISTANT/SUNLIGHT RESISTANT AND CANNOT BE HAND-WRITTEN PER NEC 110.21(B)

! WARNING !
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

LABEL 4
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT
[NEC 690.13 AND 690.15]

MAXIMUM VOLTAGE: 480 V DC
MAXIMUM CIRCUIT CURRENT: 13.5 A DC
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED): 30 A DC

LABEL 5
AT EACH DC DISCONNECTING MEANS
[NEC 690.53]

PHOTOVOLTAIC AC DISCONNECT
OPERATING CURRENT: 105 A AC
OPERATING VOLTAGE: 240 V AC

LABEL 6
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS
[NEC 690.54]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 7
AT RAPID SHUTDOWN DISCONNECT SWITCH
[NEC 690.56(C)(3)].

! WARNING !
DUAL POWER SOURCES.
SECOND SOURCE IS PV SYSTEM

LABEL 8

! CAUTION !
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL 9

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED
PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED NORTH SIDE OF THE HOUSE ON UTILITY PEDESTAL

PLAQUE

AT POINT OF INTERCONNECTION; LABEL, SUCH AS LABEL 5 OR LABEL 6 MUST IDENTIFY PHOTOVOLTAIC SYSTEM
[NEC 705.12(B)(4)]

DIRECTORY
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION
[NEC 690.56(B)]
WHERE THE PV SYSTEMS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE PROVIDED AT EACH PV SYSTEM DISCONNECTING MEANS. PV SYSTEM EQUIPMENT AND DISCONNECTING MEANS SHALL NOT BE INSTALLED IN BATHROOMS
[NEC 690.4(D),(E)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED

LABEL 10
AT UTILITY METER
[NEC 690.56(B)]

PHOTOVOLTAIC DC DISCONNECT

LABEL 11
AT EACH DC DISCONNECTING MEANS
[NEC 690.13(B)]

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL 12
AT RAPID SHUTDOWN SWITCH
[NEC 690.56(C)].
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL 13
AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.
[NEC 690.31(G)]
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

PHOTOVOLTAIC AC DISCONNECT

LABEL 14
AT EACH AC DISCONNECTING MEANS
[NEC 690.13(B)]

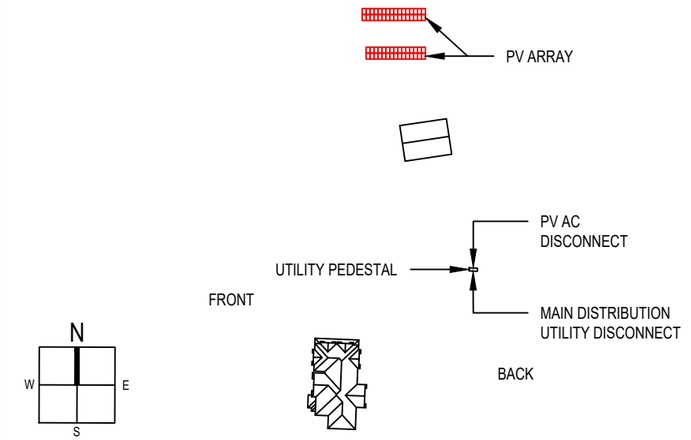
! WARNING !
POWER SOURCE OUTPUT CONNECTION - DO NOT RELOCATE THIS OVERCURRENT DEVISE

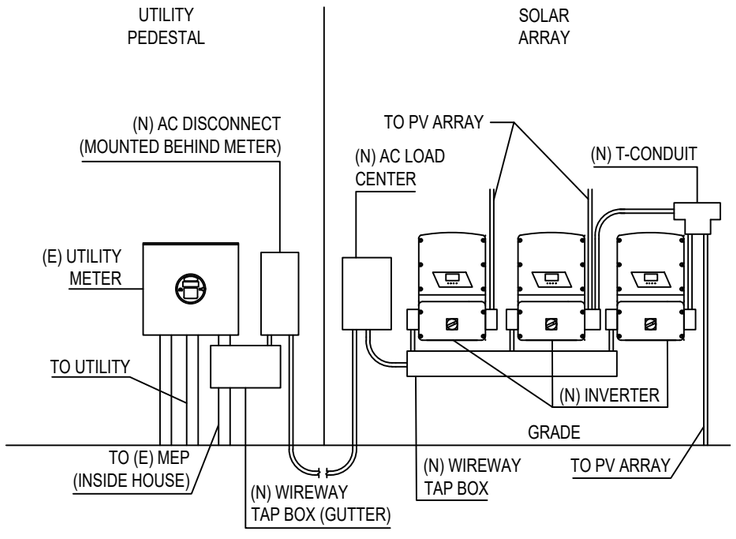
LABEL 15
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE
[NEC 705.12(B)(2)(3)(B)]

LABELING NOTES
1.1 LABELING REQUIREMENTS BASED ON THE 2017 NATIONAL ELECTRICAL CODE, INTERNATIONAL FIRE CODE 605.11, OSHA STANDARD 1910.145, ANSI Z535
1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]

!CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:





01 EQUIPMENT ELEVATION
NOT TO SCALE

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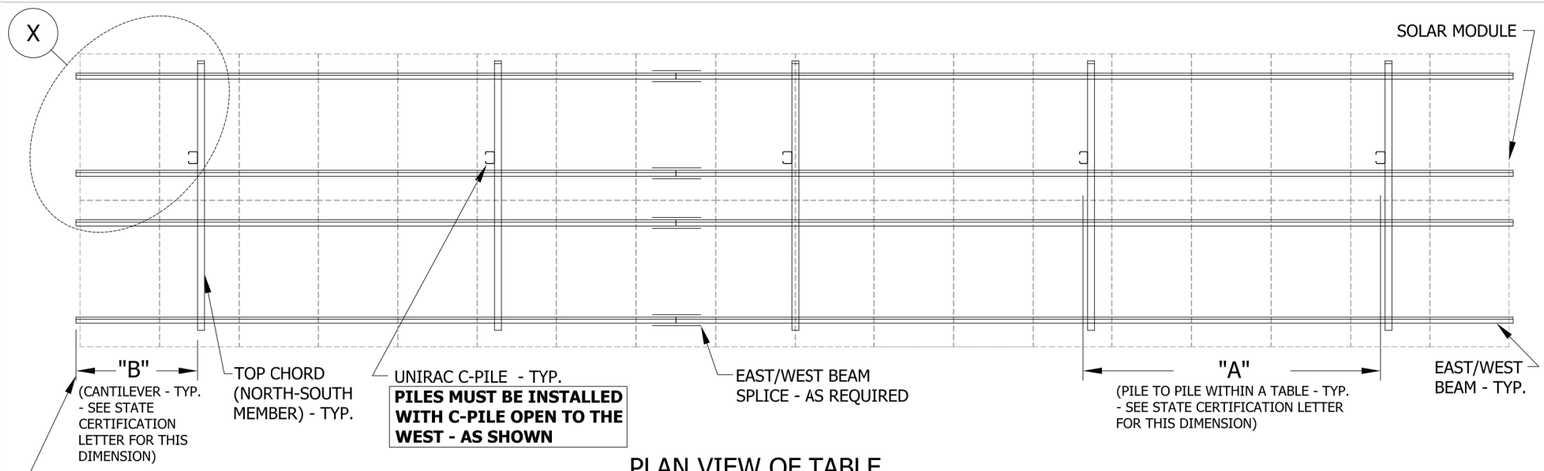
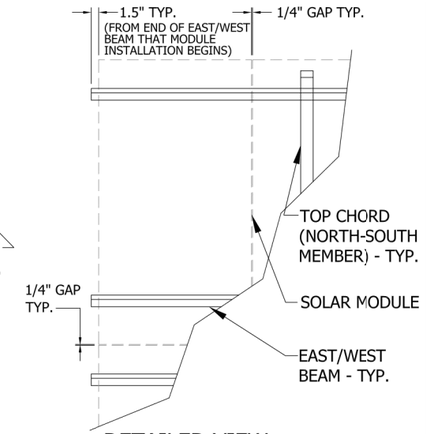


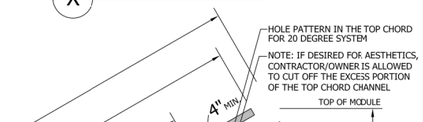
PLAN VIEW OF TABLE

SEE LETTER FOR PILE QUANTITY REQUIREMENT PER TABLE SIZE

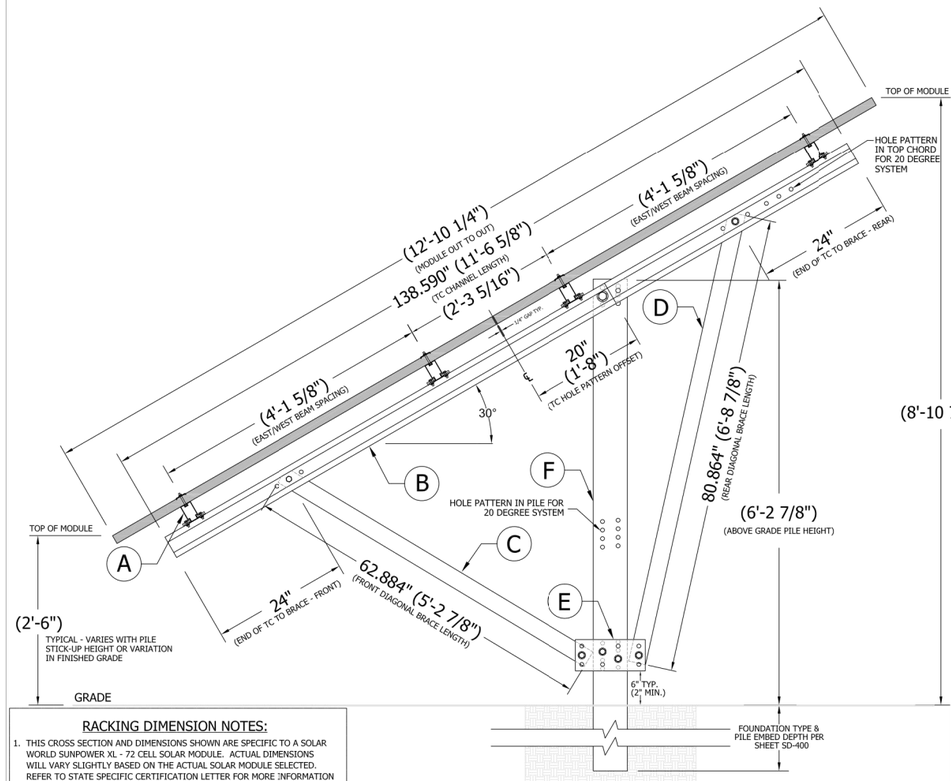
NOTE:
FOR INFORMATION REGARDING T-BOLT (MID-CLAMP) SETBACKS AT EAST/WEST BEAM SPLICE LOCATIONS, REFER TO DETAIL 502 ON SHEET SD-500.



X DETAILED VIEW



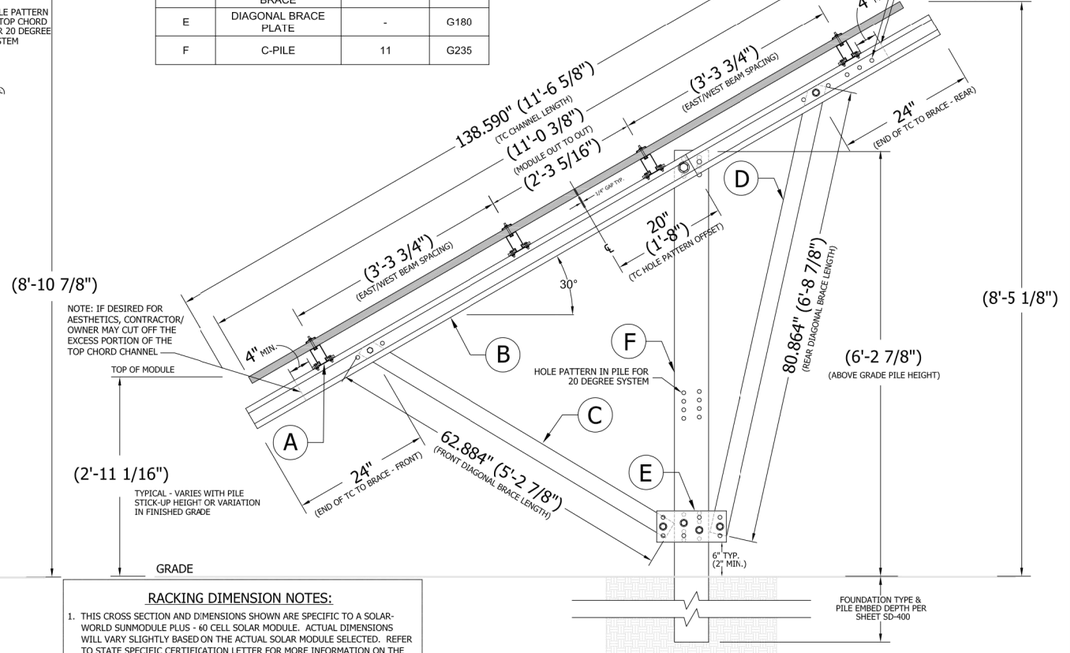
GFT PARTS LIST			
REF NUMBER	PART DESCRIPTION	GUAGE/ THICKNESS	FINISH
A	ALUMINUM E-W BEAM	-	MILL
B	TOP CHORD CHANNEL	14	G180
C	FRONT DIAGONAL BRACE	14	G180
D	REAR DIAGONAL BRACE	14	G180
E	DIAGONAL BRACE PLATE	-	G180
F	C-PILE	11	G235



RACKING DIMENSION NOTES:

1. THIS CROSS SECTION AND DIMENSIONS SHOWN ARE SPECIFIC TO A SOLAR WORLD SUNPOWER XL - 72 CELL SOLAR MODULE. ACTUAL DIMENSIONS WILL VARY SLIGHTLY BASED ON THE ACTUAL SOLAR MODULE SELECTED. REFER TO STATE SPECIFIC CERTIFICATION LETTER FOR MORE INFORMATION ON THE LIMITS OF THIS REGION SPECIFIC DGFT RACKING DESIGN. (SEE DIMENSION AND WEIGHT LIMITS.)
2. EAST/WEST BEAM SPACING IS BASED ON A COMBINATION OF CLAMPING RANGES SPECIFIED IN THE INSTALLATION MANUALS FOR THE SOLARWORLD XL 72 CELL SOLAR MODULES. FINE TUNE ADJUSTMENTS IN THE EAST/WEST BEAM TO TOP CHORD CHANNEL CONNECTIONS EXIST. SEE SHEET SD-500 FOR ALL RACKING CONNECTION DETAILS. REFER TO THE DGFT INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.

SECTION VIEW OF DGFT TABLE - 30° TILT
(72 CELL SOLAR PANELS)



RACKING DIMENSION NOTES:

1. THIS CROSS SECTION AND DIMENSIONS SHOWN ARE SPECIFIC TO A SOLAR-WORLD SUNMODULE PLUS - 60 CELL SOLAR MODULE. ACTUAL DIMENSIONS WILL VARY SLIGHTLY BASED ON THE ACTUAL SOLAR MODULE SELECTED. REFER TO STATE SPECIFIC CERTIFICATION LETTER FOR MORE INFORMATION ON THE LIMITS OF THIS REGION SPECIFIC DGFT RACKING DESIGN. (SEE DIMENSION AND WEIGHT LIMITS.)
2. EAST/WEST BEAM SPACING IS BASED ON A COMBINATION OF CLAMPING RANGES SPECIFIED IN THE INSTALLATION MANUALS FOR THE SOLARWORLD SUNMODULE PLUS AND TRINA PD05 - 60 CELL SOLAR MODULES. FINE TUNE ADJUSTMENTS IN THE EAST/WEST BEAM TO TOP CHORD CHANNEL CONNECTIONS EXIST. SEE SHEET SD-500 FOR ALL RACKING CONNECTION DETAILS. REFER TO THE DGFT INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.

SECTION VIEW OF DGFT TABLE - 30° TILT
(60 CELL SOLAR PANELS)

REVISION BLOCK		
MARK	DATE	DESCRIPTION
1	10/19/16	NOTE & BRACE REVISIONS
2	1/06/2017	ADDED SD-200
3	2/02/2017	REVED NOTES
4	2/13/2017	REVED NOTES & SD-300
5	3/10/2017	UPDATED LINE TYPES

OWNER/CLIENT:

ENGINEERING CONSULTANT:
Design Optimization Technologies
424 Jefferson Street
St. Charles, Mo 63301
Phone: (636) 724-9872
www.DOTecEngineering.com

PROFESSIONAL SEAL

SEE STATE SPECIFIC STAMPED & SIGNED GFT CERTIFICATION LETTER

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Albuquerque, New Mexico 87102
Toll Free: (800) 967-9411
Fax: (505) 242-6412
www.unirac.com

PROJECT NUMBER:	DGFT
ENGINEERED BY:	Jon S
DRAFTED BY:	Jeff H
REVIEWED BY:	Jeff H
ORIGINAL RELEASE DATE:	9/30/2016
DRAWING SHEET SIZE:	'D' - 24x36

SHEET TITLE
DGFT TABLE CROSS-SECTION AND PARTS LIST (30 DEGREE TILT)

SHEET NUMBER SD-300 SHEET 3 of 5

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ASSEMBLY DETAILS

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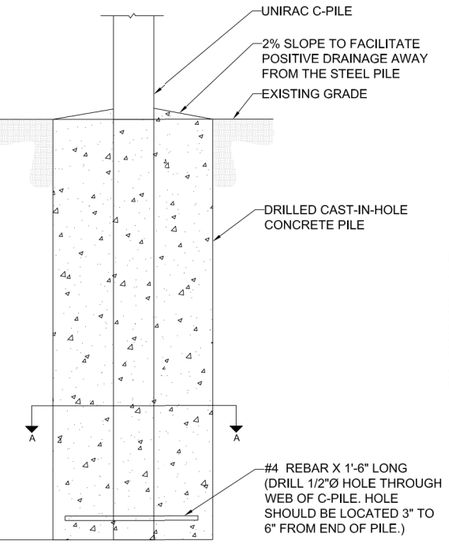
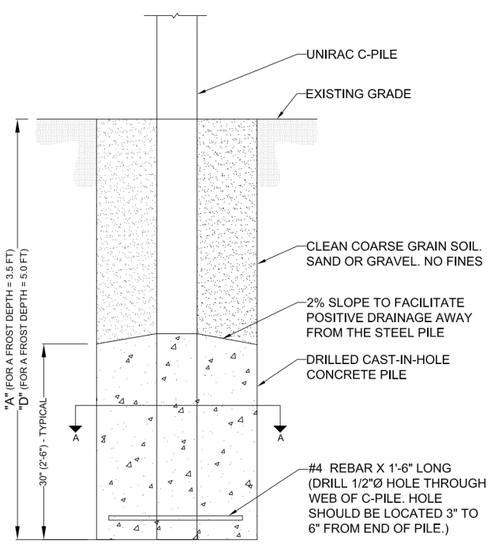
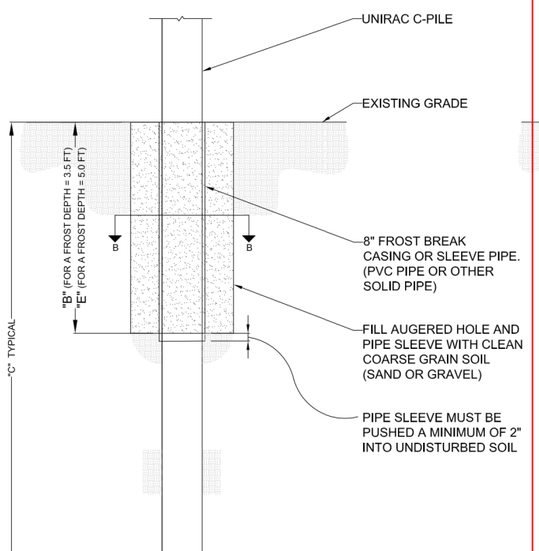


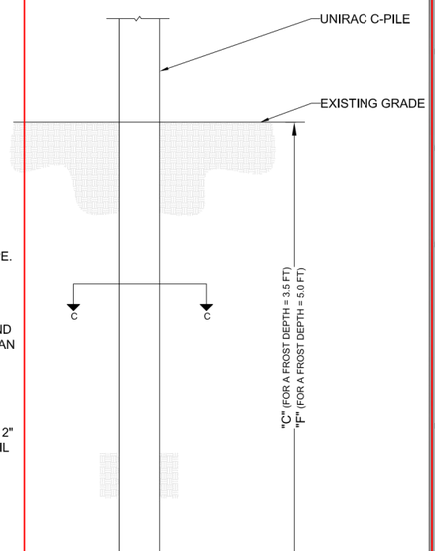
400 DRILLED CAST-IN-HOLE CONCRETE PILE FOUNDATION
(ALTERNATE OPTION) NOT TO SCALE



401 DRILLED "PARTIAL" CAST-IN-HOLE CONCRETE PILE FOUNDATION
(ALTERNATE OPTION) NOT TO SCALE



402 PARTIAL DRIVEN PILE WITH CLEAN COARSE BACKFILL
(ALTERNATE OPTION) NOT TO SCALE



403 FULLY DRIVEN PILE
(ALTERNATE OPTION) NOT TO SCALE

FOUNDATION 400: DRILLED CAST-IN-HOLE CONCRETE PILE FOUNDATION
1. THE FOUNDATION MUST BE EXCAVATED WITH LITTLE TO NO LOOSE MATERIAL IN THE BOTTOM.
2. IF THE FOUNDATION IS BELOW THE GROUND WATER LEVEL, THERE MUST BE A TEMPORARY CASING IN PLACE TO STABILIZE THE EXCAVATION.
3. THE PILE SHALL HAVE A #4 REBAR PLACED THROUGH THE BOTTOM OF THE PILE.
4. THE PILE MUST BE CENTERED IN THE HOLE WITH EQUAL AMOUNTS OF CONCRETE AROUND THE CASING.
5. CONCRETE SHALL CONFORM TO THE CONCRETE SPECIFICATIONS LISTED ON DR-100.
6. CONCRETE DEPTH SHALL CONFIRM TO THE DEPTHS LISTED IN THE TABLE ON THIS SHEET.
7. THE TOP OF THE CONCRETE MUST BE ABOVE GARDE.
8. THE CORE OF THE CONCRETE CAST-IN-DRILLED HOLE PILE WILL CONSIST OF THE UNIRAC C- PILES AS DEPICTED IN THE FIGURE.

FOUNDATION 401: DRILLED "PARTIAL" CAST-IN-HOLE CONCRETE PILE FOUNDATION
1. THE FOUNDATION MUST BE EXCAVATED WITH LITTLE TO NO LOOSE MATERIAL IN THE BOTTOM.
2. IF THE FOUNDATION IS BELOW THE GROUND WATER LEVEL, THERE MUST BE A TEMPORARY CASING IN PLACE TO STABILIZE THE EXCAVATION.
3. THE PILE SHALL HAVE A #4 REBAR PLACED THROUGH THE BOTTOM OF THE PILE.
4. THE PILE MUST BE CENTERED IN THE HOLE WITH EQUAL AMOUNTS OF CONCRETE AROUND THE CASING.
5. CONCRETE SHALL CONFORM TO THE CONCRETE SPECIFICATIONS LISTED ON DR-100.
6. CONCRETE DEPTH SHALL CONFIRM TO THE DEPTHS LISTED IN THE TABLE ON THIS SHEET.
7. THE TOP OF THE CONCRETE MUST BE BELOW THE DEPTH OF THE FROST ZONE.
8. THE CORE OF THE CONCRETE CAST-IN-DRILLED HOLE PILE WILL CONSIST OF THE UNIRAC C- PILES AS DEPICTED IN THE FIGURE.
9. THE BACKFILL MATERIAL MUST CONSIST OF MEDIUM TO COARSE SAND OR GRAVEL. NO CLAY OR ORGANICS MAY BE USED IN THE BACKFILL.

FOUNDATION 402: PARTIAL DRIVEN PILE WITH CLEAN COARSE BACKFILL.
1. EACH PILE LOCATION MUST BE EXCAVATED TO A MINIMUM OF THE DIMENSION SHOWN.
2. THE PILE MUST BE CENTERED IN THE HOLE WITH THE FROST BREAK CASING PLACED AROUND THE PILE PRIOR TO BACKFILLING THE EXCAVATION.
3. THE FROST BREAK CASING MUST NOT HAVE ANY CRACKS OR HOLES THAT MAY ALLOW WATER TO SEEP IN. THE CASING MUST BE SET A MINIMUM OF 2 INCHES INTO THE NATIVE SOIL IN THE BOTTOM OF THE EXCAVATION. THE CASING TOP MUST EXTEND TO THE GROUND SURFACE.
4. THE FILL MATERIAL MUST CONSIST OF MEDIUM TO COARSE SAND OR GRAVEL WITH LITTLE SILT CONTENT. NO CLAY OR ORGANICS MAY BE USED IN THE BACKFILL MATERIAL.
5. THE PILE MUST BE INSTALLED TO THE FULL DEPTH INDICATED. PILES NOT DRIVEN TO THE FULL DEPTH ARE CONSIDERED FAILED AND THE CONCRETE OPTION MUST BE UTILIZED.
6. THE CASING MUST BE FILLED WITH THE SAME FILL MATERIAL AFTER THE PILE IS INSTALLED TO THE CORRECT DEPTH.
7. THE FILL SHALL BE FORMED IN A WAY TO DIRECT WATER AWAY FROM THE FOUNDATION.
8. IF THE CASING IS AFFECTED BY FROST HEAVE, THE CASING SHALL BE ATTEMPTED TO BE RE-EMBEDED TO THE PROPER DEPTH IN ORDER TO PROTECT THE C-PILE FROM FUTURE FROST HEAVE.

FOUNDATION 403: FULLY DRIVEN PILE:
1. DRIVEN PILE FOUNDATIONS MAY ONLY BE USE IN SOILS THAT ARE NOT FROST SUSCEPTIBLE OR WHERE GROUND WATER IS NOT WITHIN 12 FEET OF THE SURFACE UNLESS APPROVED BY A GEOTECHNICAL ENGINEER. FROST SUSCEPTIBLE SOILS CONSIST OF ANY SOIL THAT IS NOT MEDIUM TO COARSE GRAIN SAND OR GRAVEL.. DRIVEN PILE FOUNDATIONS ABSOLUTELY MAY NOT BE USED IN SOILS THAT CONTAIN SILT OR CLAY OR GROUNDWATER WITHIN 12 FEET OF THE SURFACE UNLESS APPROVED BY A GEOTECHNICAL ENGINEER.
2. PILES MUST BE INSTALLED TO THE FULL DEPTH. PILES NOT DRIVEN TO FULL DEPTH ARE CONSIDERED FAILED PILES AND A DIFFERENT FOUNDATION MUST BE UTILIZED.

NOTE:
FOR PILE QUANTITY BASED ON TABLE SIZE. SEE TABLES ON THE STATE SPECIFIC CERTIFICATION LETTER. ALSO
FOR PILE EMBEDMENT DEPTH AND TOTAL PILE LENGTH, SEE TABLES ON STATE SPECIFIC CERTIFICATION LETTER.

20 DEGREE UNIRAC STEEL C-PILE FOUNDATION DEPTHS

FOUNDATION TYPE	DETAIL NUMBER	FROST DEPTH = 3.5 FT OR LESS			FROST DEPTH = 5.0 FT		
		DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"	DIMENSION "E"	DIMENSION "F"
FULL CAST IN-PLACE CONCRETE	400	8'-0"	--	--	8'-0"	--	--
CAST IN-PLACE CONCRETE	401	8'-0"	--	--	8'-0"	--	--
PARTIAL DRIVEN PILE WITH FROST BREAK	402	--	3'-6"	10'-6"	--	5'-0"	--
FULLY DRIVEN PILE*	403	--	--	10'-6"	--	--	10'-6"

*SHALLOWER PILE EMBEDMENT MAY BE USED IF APPROVED BY A GEOTECHNICAL ENGINEER.

30 DEGREE UNIRAC STEEL C-PILE FOUNDATION DEPTHS

FOUNDATION TYPE	DETAIL NUMBER	FROST DEPTH = 3.5 FT OR LESS			FROST DEPTH = 5.0 FT		
		DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"	DIMENSION "E"	DIMENSION "F"
FULL CAST IN-PLACE CONCRETE	400	6'-0"	--	--	6'-0"	--	--
CAST IN-PLACE CONCRETE	401	6'-0"	--	--	7'-6"	--	--
PARTIAL DRIVEN PILE WITH FROST BREAK	402	--	2'-6"	8'-6"	--	5'-0"	--
FULLY DRIVEN PILE	403	--	--	8'-6"	--	--	8'-6"

*SHALLOWER PILE EMBEDMENT MAY BE USED IF APPROVED BY A GEOTECHNICAL ENGINEER.

REVISION BLOCK		
MARK	DATE	DESCRIPTION
1	10/19/16	NOTE & BRACE REVISIONS
2	1/06/2017	ADDED SD-200
3	2/02/2017	REVED NOTES
4	2/13/2017	REVED NOTES & SD-300
5	3/10/2017	UPDATED LINE TYPES

OWNER/CLIENT:

ENGINEERING CONSULTANT:
Design Optimization Technologies
424 Jefferson Street
St. Charles, Mo 63301
Phone: (636) 724-9872
www.DOTecEngineering.com

PROFESSIONAL SEAL

SEE STATE SPECIFIC STAMPED & SIGNED GFT CERTIFICATION LETTER

UNIRAC'S DGFT
GROUND FIXED TILT
DISTRIBUTION
STRUCTURAL RACKING DRAWINGS

UNIRAC®
1411 Broadway Boulevard NE
Albuquerque, New Mexico 87102
Phone: (505) 462-2161
Fax: (505) 242-6412
www.unirac.com

PROJECT NUMBER:	DGFT
ENGINEERED BY:	Jon S
DRAFTED BY:	Jeff H
REVIEWED BY:	Jeff H
ORIGINAL RELEASE DATE:	9/30/2016
DRAWING SHEET SIZE:	'D' - 24x36

SHEET TITLE
FOUNDATION EMBEDMENT AND FOUNDATION DETAILS

SHEET NUMBER SD-400 SHEET 4 of 5

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CONTRACTOR

BUFFALO SOLAR INC.

PHONE: (716) 800-7775
ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

PAPER SIZE: 11" x 17" (ANSI B)

ASSEMBLY DETAILS

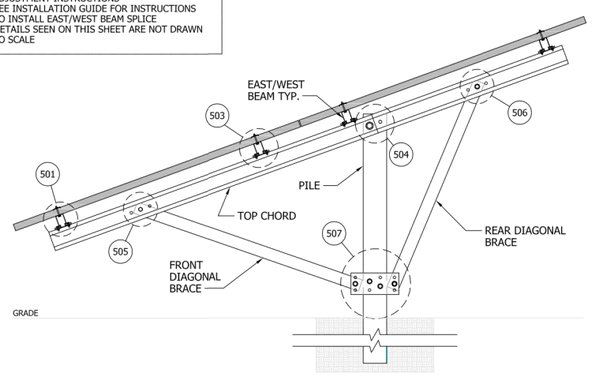
DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

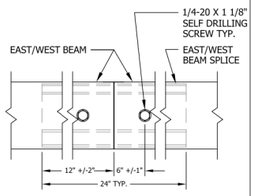
REVISIONS

S-502.00
(SHEET 11)

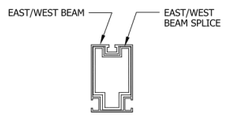
RACKING DETAIL NOTES:

1. SEE INSTALLATION GUIDE FOR PILE TOLERANCES
2. SEE INSTALLATION GUIDE FOR CONNECTION ADJUSTMENT INSTRUCTIONS
3. SEE INSTALLATION GUIDE FOR INSTRUCTIONS TO INSTALL EAST/WEST BEAM SPLICE
4. DETAILS SEEN ON THIS SHEET ARE NOT DRAWN TO SCALE

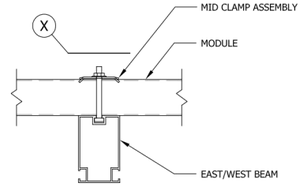


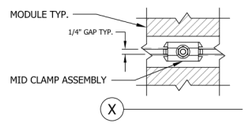


EAST/WEST BEAM WITH SPLICE
(TYPICAL ELEVATION)

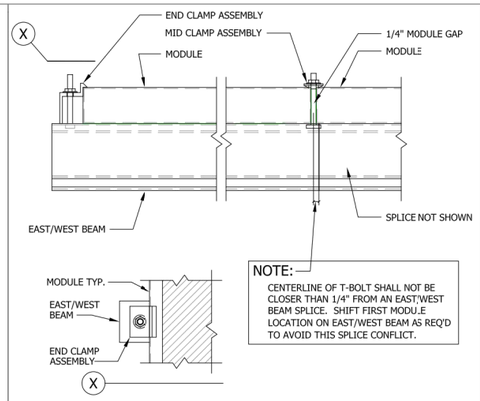


EAST/WEST BEAM WITH SPLICE
(TYPICAL SECTION)





501 MODULE TO EAST/WEST BEAM CONNECTION
(BONDING MID CLAMP)



NOTE:
CENTERLINE OF T-BOLT SHALL NOT BE CLOSER THAN 1/4" FROM AN EAST/WEST BEAM SPLICE. SHIFT FIRST MODU.E LOCATION ON EAST/WEST BEAM AS REQ'D TO AVOID THIS SPLICE CONFLICT.

502 MODULE TO EAST/WEST BEAM CONNECTION
(END CLAMP)

REVISION BLOCK		
MARK	DATE	DESCRIPTION
1	10/19/16	NOTE & BRACE REVISIONS
2	1/06/2017	ADDED SD-200
3	2/02/2017	REVED NOTES
4	2/13/2017	REVED NOTES & SD-300
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OWNER/CLIENT:

ENGINEERING CONSULTANT:
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424 Jefferson Street
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Phone: (636) 724-9872
www.DOTecEngineering.com

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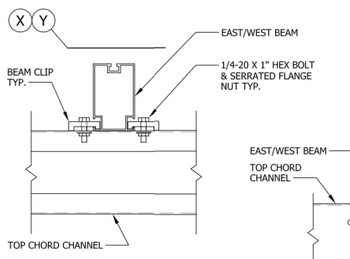
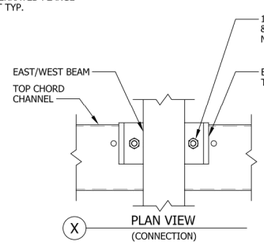
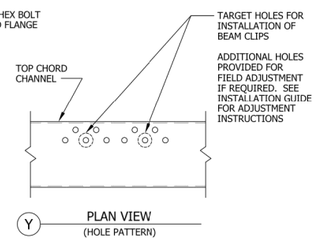
SEE STATE SPECIFIC STAMPED & SIGNED GFT CERTIFICATION LETTER



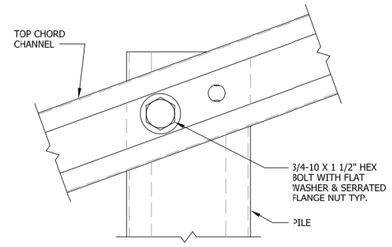


X PLAN VIEW
(CONNECTION)



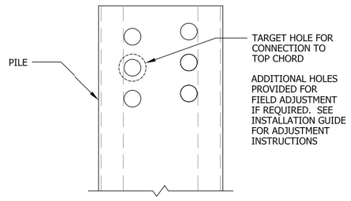
Y PLAN VIEW
(HOLE PATTERN)

503 EAST/WEST BEAM TO TOP CHORD CONNECTION



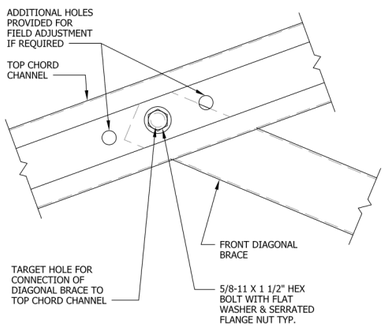
504 TOP CHORD TO PILE CONNECTION

NOTE:
1. BOLT HEAD AND WASHER ALWAYS TO BE INSTALLED ON SIDE OF CONNECTION WITH MEMBER HAVING THE THINNER GAUGE



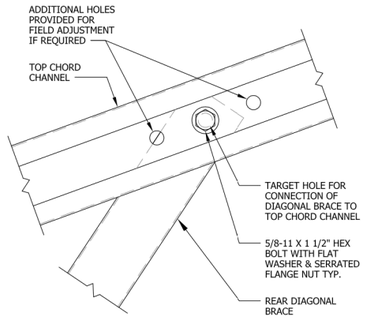
ELEVATION VIEW
(HOLE PATTERN)

NOTE:
1. BOLT HEAD AND WASHER ALWAYS TO BE INSTALLED ON SIDE OF CONNECTION WITH MEMBER HAVING THE THINNER GAUGE

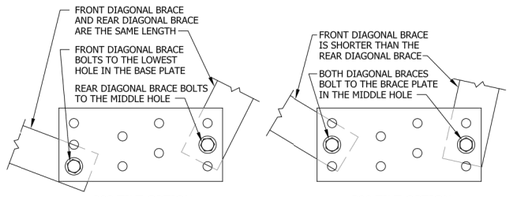


505 TOP CHORD TO DIAGONAL BRACE CONNECTION
(FRONT BRACE)

NOTE:
1. BOLT HEAD AND WASHER ALWAYS TO BE INSTALLED ON SIDE OF CONNECTION WITH MEMBER HAVING THE THINNER GAUGE



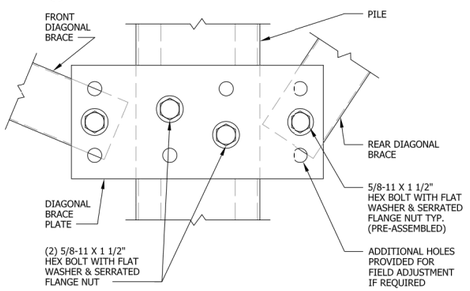
506 TOP CHORD TO DIAGONAL BRACE CONNECTION
(REAR BRACE)



20° TILT OPTION
(DIFFERENT PART NUMBER)

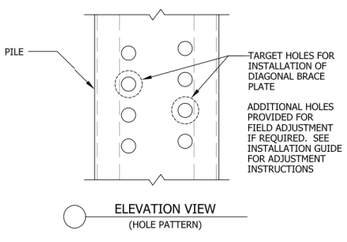
30° TILT OPTION
(DIFFERENT PART NUMBER)

DIFFERENCES IN DIAGONAL BRACE ASSEMBLIES



507 DIAGONAL BRACE TO PILE CONNECTION

NOTE:
1. BOLT HEAD AND WASHER ALWAYS TO BE INSTALLED ON SIDE OF CONNECTION WITH MEMBER HAVING THE THINNER GAUGE



ELEVATION VIEW
(HOLE PATTERN)

UNIRAC'S DGFT GROUND FIXED TILT DISTRIBUTION GRADE STRUCTURAL RACKING DRAWINGS

UNIRAC®
1411 Broadway Boulevard NE
Albuquerque, New Mexico 87102
Phone: (505) 242-6411
Fax: (505) 242-6412
www.unirac.com

PROJECT NUMBER:	DGFT
ENGINEERED BY:	Jon S
DRAFTED BY:	Jeff H
REVIEWED BY:	Jeff H
ORIGINAL RELEASE DATE:	9/30/2016
DRAWING SHEET SIZE:	'D' - 24x36

SHEET TITLE
RACKING DETAILS

SHEET NUMBER
SD-500
SHEET 5 of 5

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CONTRACTOR

BUFFALO SOLAR INC.

PHONE: (716) 800-7775
ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

PAPER SIZE: 11" x 17" (ANSI B)

ASSEMBLY DETAILS

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

S-503.00

(SHEET 12)

SOLARIA®

Solaria PowerXT® | Commercial

Solaria PowerXT®-430C-PD

Achieving up to 20% efficiency, Solaria PowerXT solar modules are one of the highest power modules in the commercial solar market. Compared to conventional modules, Solaria PowerXT modules have fewer gaps between the solar cells; this leads to higher power and superior aesthetics. Solaria PowerXT pure black commercial modules are manufactured with black backsheet and frames, giving them a striking appearance.

Developed in California, Solaria's patented cell cutting and module assembly takes processed solar wafers and turns them into PowerXT solar modules. The process starts by creating a highly reliable PowerXT cell where busbars and ribbon interconnections are eliminated. Solaria then packages the cells into the PowerXT solar module, reducing inactive space between the cells. This process leads to an exceptionally cost effective and efficient solar module.

Higher Efficiency, Higher Power

Solaria PowerXT modules achieve up to 20% efficiency; conventional modules achieve 15% – 17% efficiency. Solaria PowerXT modules are one of the highest power modules available.

Lower System Costs

Solaria PowerXT modules produce more power per square meter area. This reduces installation costs due to fewer balance of system components.

Improved Shading Tolerance

Sub-strings are interconnected in parallel, within each of the four module quadrants, which dramatically lowers the shading losses and boosts energy yield.

Improved Aesthetics

Compared to conventional modules, Solaria PowerXT modules have a more uniform appearance and improved aesthetics.

Durability and Reliability

Solder-less cell interconnections are highly reliable and designed to far exceed the industry leading 25 year warranty.

About Solaria

Established in 2000, The Solaria Corporation has created one of the industry's most respected IP portfolios, with over 100 patents encompassing materials, processes, applications, products, manufacturing automation and equipment. Headquartered in Oakland, CA, Solaria has developed a technology platform that unlocks the potential of solar energy.

TOP PERFORMER 2018 DNV·GL PV MODULE RELIABILITY SCORECARD

TÜVRheinland® Precisely Right.

SOLARIA®

Solaria PowerXT®-430C-PD

Performance at STC (1000W/m², 25° C, AM 1.5)

Solaria PowerXT-		420C-PD	430C-PD
Max Power (P_{max})	[W]	420	430
Efficiency	[%]	19.4	19.8
Open Circuit Voltage (V_{oc})	[V]	47.1	47.3
Short Circuit Current (I_{sc})	[A]	11.39	11.43
Max Power Voltage (V_{mp})	[V]	38.8	39.3
Max Power Current (I_{mp})	[A]	10.82	10.93
Power Tolerance	[%]	-0/+3	-0/+3

Performance at NOCT (800W/m², 20°C Amb, Wind 1 m/s, AM 1.5)

Max Power (Pmax)	[W]	309	316
Open Circuit Voltage (V_{oc})	[V]	44.3	44.5
Short Circuit Current (I_{sc})	[A]	9.18	9.22
Max Power Voltage (V_{mp})	[V]	35.7	36.2
Max Power Current (I_{mp})	[A]	8.65	8.74

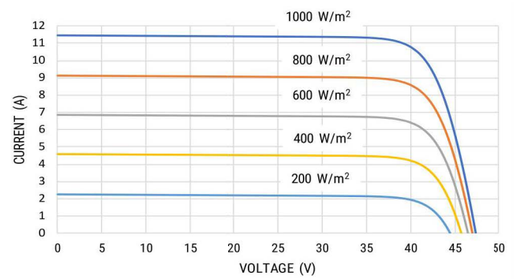
Temperature Characteristics

NOCT	[ºC]	45 +/-2
Temp. Coeff. of P_{max}	[% / ºC]	-0.39
Temp. Coeff. of V_{oc}	[% / ºC]	-0.29
Temp. Coeff. of Isc	[% / ºC]	0.04

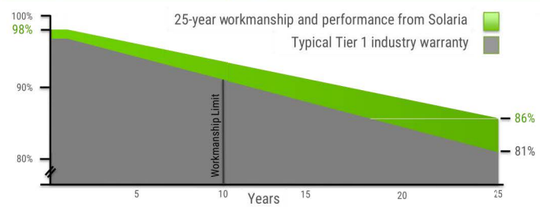
Design Parameters

Operating temperature	[ºC]	-40 to +85
Max System Voltage	[V]	1000
Max Fuse Rating	[A]	20
Bypass Diodes	[#]	4

IV Curves vs. Irradiance (430W Module)



Comprehensive 25-Year Warranty



Mechanical Characteristics

Cell Type	Monocrystalline Silicon
Dimensions (L x W x H)	1939mm x 1116mm x 40mm
Weight	29 kg / 64 lbs
Glass Type / Thickness	AR Coated, Tempered / 4.0mm
Frame Type	Anodized Aluminum
Cable Type / Length	12 AWG PV Wire (UL) / 1200mm
Connector Type	MC4
Junction Box	IP67 / 4 diodes
Front Load (UL 1703)	5400 Pa / 113 psf*
Rear Load (UL 1703)	2400 Pa / 50 psf*

* Refer to Solaria Installation Manual for details

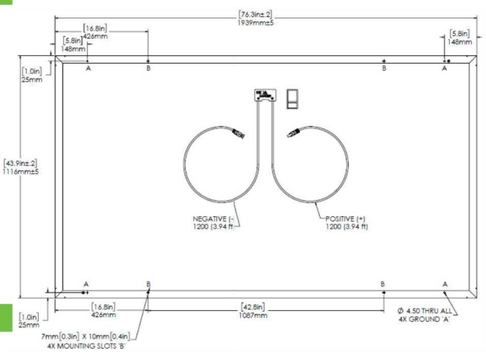
Certifications / Warranty

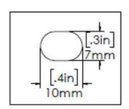
Certifications	UL 1703/IEC 61215/IEC 61730/CEC
Fire Type (UL 1703)	Type-1
Power & Product Warranty	25 years*

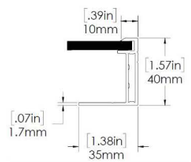
* Warranty details at www.solaria.com

Packaging

Stacking Method	Horizontal / Palletized
Pcs / Pallet	25
Pallet Dims	1988 x 1150 x 1230 mm
Pallet Weight	748 kg / 1650 lbs
Pallets / 40-ft Container	22
Pcs / 40-ft Container	550







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APN: 32240012600122121

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

R-001.00

SHEET 13

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

INVERTERS

12-25 YEAR WARRANTY

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge.com

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Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

Model Number	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER				SEXXXXH-XXXXXBXX4				
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)				59.3 - 60 - 60.5[1]				Hz
Maximum Continuous Output Current @240V	12.5	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	4650	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			400		Vdc
Maximum Input Current @240V[2]	8.5	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				600kΩ Sensitivity				
Maximum Inverter Efficiency	99			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

Model Number	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional[3]							
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi Access Point for local connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)							
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 (HxWxD)	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		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25				<50			dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Revenue grade inverter P/N: SExxxxH-US000BNC4
[4] Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

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ADDRESS: 3279 WALDEN AVENUE
DEPEW, NY 14043

LIC. NO.:
HIC. NO.:
ELE. NO.: MEL11-561082

NEW PV SYSTEM: 26.660 kWp

RITCHLIN RESIDENCE

4459 MIDDLE CHESHIRE RD
CANANDAIGUA, NY 14424
APN: 32240012600122121

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

R-002.00
SHEET 14

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- 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
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com

solaredge

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power[1]	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125[2]	83[2]	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.63		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)							
Maximum Output Current	15						Adc
Maximum Output Voltage	60				85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE 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						
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)	129 x 153 x 27.5 / 5.1 x 6 x 1.1		129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9		129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4		750 / 1.7	845 / 1.9		1064 / 2.3	gr / lb
Input Connector	MC4[3]						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						°C / °F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

(1) Rated STC power of the module. Module of up to +5% power tolerance allowed
(2) NEC 2017 requires max input voltage be not more than 80V
(3) For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter[4][5]		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[6]	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000[7]	12750[8]	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) It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string
(6) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
(7) 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
(8) 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

CE RoHS

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HIC. NO.:
ELE. NO.: MEL11-561082

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RITCHLIN RESIDENCE

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CANANDAIGUA, NY 14424
APN: 32240012600122121

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 09.11.2020
DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

R-003.00

SHEET 15

Type CH Style 3/4 in Loadcenter and Breaker Accessories

ECC225R

UPC:782114225219

Dimensions:

- **Height:** 5.5 IN
- **Length:** 25 IN
- **Width:** 9.5 IN

Weight:15.5 LB

Notes: Order circuit breaker separately. Rainproof panels are furnished with hcp. One ground lug accepting 1-#14-#2 is factory installed. Also, there are pre-drilled holes to accept a GBK5 ground bar. approved for service entrance.

Warranties:

- Limited lifetime

Specifications:

- **Type:** Circuit breaker unit enclosure
- **Amperage Rating:** 225A
- **Interrupt Rating:** 10 kAIC
- **Voltage Rating:** 225V
- **Wire Size:** Determined by circuit breaker installed
- **Used With:** CC circuit breakers
- **Enclosure:** NEMA 3R

Supporting documents:

- Eatons Volume 1-Residential and Light Commercial
- Eaton Specification Sheet - ECC225R

Certifications:

- UL Listed

Product compliance: No Data

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REVISIONS

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SHEET 16

GROUND FIXED TILT

UNIRAC

GROUND FIXED TILT (GFT) has evolved from more than 12 years of experience meeting a variety of project requirements. A synergy of steel components and aluminum parts deliver performance with the lowest system cost. Installation savings are captured through efficiently engineered components, optional pre-assembled parts and integrated bonding for optimized construction sequencing. GFT delivers engineered cost savings to meet your project needs.

SCALABLE TO ANY SIZE PROJECT

LESS STEPS • FEWER PARTS • BEST SERVICE • QUALITY PROVIDER

GROUND FIXED TILT

UNIRAC

SCALABLE TO ANY SIZE PROJECT

ALUMINUM BEAMS WITH MAXIMUM ADJUSTABILITY

East-West aluminum beams include a top mounting slot to accommodate a variety of module sizes without customizing a design for your project. Attachment to North-South top chords is simple and quick with slots yielding maximum construction tolerances throughout the array. A series of pre-drilled holes on the foundation channel and steel top chord ease the assembly process with fewer tools and less labor.

ENGINEERED COST SAVINGS

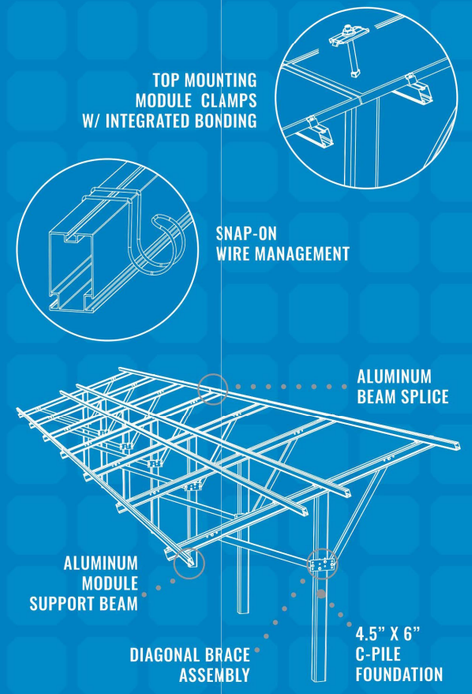
PRE-ASSEMBLY & WIRE MANAGEMENT

When project optimization outweighs component costs, Unirac will pre-assemble the top mounting clamps, shifting part of the installation process to our factory and saving labor steps on the job site. Wire management simply snaps anywhere onto the aluminum beam holding bundles of wire up to 2 inches in diameter.

PROJECT SUPPORT SERVICES

DESIGN & QUOTATION ASSISTANCE

Every project receives standard drawings and calculations to aid permitting and system installation. We provide top notch project management services including design & quotation assistance, site-specific construction drawings and 3rd party structural design documentation.



UL2703 ELECTRICAL BONDING & GROUNDING

UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT

UNMATCHED EXPERIENCE | CERTIFIED QUALITY | ENGINEERING EXCELLENCE | BANKABLE WARRANTY | DESIGN TOOLS | PERMIT DOCUMENTATION

ON-TIME DELIVERY

No waiting. Our goal is simple: Consistently deliver solutions and services correctly, efficiently and dependably to exceed your expectations. Our world-class operations provide a 99% on-time delivery to help you meet your commitment dates.

CERTIFIED QUALITY PROVIDER

Unirac is the only PV mounting vendor with ISO certifications for 9001:2008, 14001:2004 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and our commitment to first class business practices.

BANKABLE WARRANTY

Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. GFT is covered by a 20-year manufacturing warranty on all parts.

PROTECT YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN

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RESOURCE DOCUMENT

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DESIGN BY: A.Y.
CHECKED BY: M.M.

REVISIONS

R-005.00

SHEET 17

ENGINEERING REPORT

Plan review

TOTAL NUMBER OF MODULES	62
TOTAL KW	26.66 KW

Parameters Used for Design

BUILDING CODE	ASCE 7-10
BASIC WIND SPEED	115.00 mph
GROUND SNOW LOAD	50.00 psf
RISK CATEGORY	I
SEISMIC (SS)	0.15
SEISMIC (S1)	0.05
ELEVATION	1010.00 ft
WIND EXPOSURE	C
WIND ON ICE	0.00 mph
ICE THICKNESS	0.00"

Parameters Determined by Zip 14424

CITY, STATE	Canandaigua, NY
BASIC WIND SPEED	115.00 mph
GROUND SNOW LOAD	35.00 psf

Inspection

PRODUCT	GFT
MODULE MANUFACTURER	Solaria
MODEL	52 - PowerXT-400R-PM
MODULE WATTS	430 watts
MODULE LENGTH	76.40"
MODULE WIDTH	44.00"
MODULE THICKNESS	1.57"
MODULE WEIGHT	46.00 lbs
RAILS DIRECTION	EW
RAILS ARRANGEMENT TYPE	Four Rail
TILT	30 degrees
CLAMP SELECTION	Pro Clamps
FOUNDATION TYPE	Driven
FRONT EDGE HEIGHT	2.50 ft
FOUNDATION LENGTH	15.00 ft
SUGGESTED ROW SPACING	120.95"

(Not required for design. Calculated based on latitude, tilt, and no module shading between 10am and 2pm on Dec. 21st. Customer is responsible for final row spacing and energy production.)

Site Area 1 / Table Size 1 (count:1)

NUMBER OF MODULES:	32
TOTAL KW:	13.76 KW

2X16 ARRAY RAIL LAYOUT

246'' RAIL	END-OF-RUN-SCRAP
3 RAIL PER RUN	18.00"

E/W ARRAY DIMENSION (MODULES ONLY)	718.00"
E/W MAX ARRAY DIMENSION (RAIL OUT-TO-OUT)	719.00"
N/S ARRAY DIMENSION (HORIZONTAL DISTANCE)	133.09"
OPTIMUM "Z" DIMENSION (PILE TO PILE)	93.00"
OPTIMUM "W" DIMENSION (WEST CANTILEVER)	34.00"

DRIVEN FOUNDATION	No. of Foundations = 8
	Minimum embedment length required = 8.76 ft
	Maximum Lateral Shear Force = 1433.68 lbs
	Maximum Axial Force = 3828.52 lbs
	Maximum Moment = 8762.05 ft-lbs

Site Area 1 / Table Size 2 (count:1)

NUMBER OF MODULES:	30
TOTAL KW:	12.90 KW

2X15 ARRAY RAIL LAYOUT

246'' RAIL	END-OF-RUN-SCRAP
3 RAIL PER RUN	63.00"

E/W ARRAY DIMENSION (MODULES ONLY)	673.06"
E/W MAX ARRAY DIMENSION (RAIL OUT-TO-OUT)	674.06"
N/S ARRAY DIMENSION (HORIZONTAL DISTANCE)	133.09"
OPTIMUM "Z" DIMENSION (PILE TO PILE)	99.0"
OPTIMUM "W" DIMENSION (WEST CANTILEVER)	40.03"

DRIVEN FOUNDATION	No. of Foundations = 7
	Minimum embedment length required = 8.76 ft
	Maximum Lateral Shear Force = 1344.08 lbs
	Maximum Axial Force = 3595.56 lbs
	Maximum Moment = 8225.33 ft-lbs

**Refer to Unirac GFT Construction Details and Installation Guide for notes and installation details.*

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SHEET 18