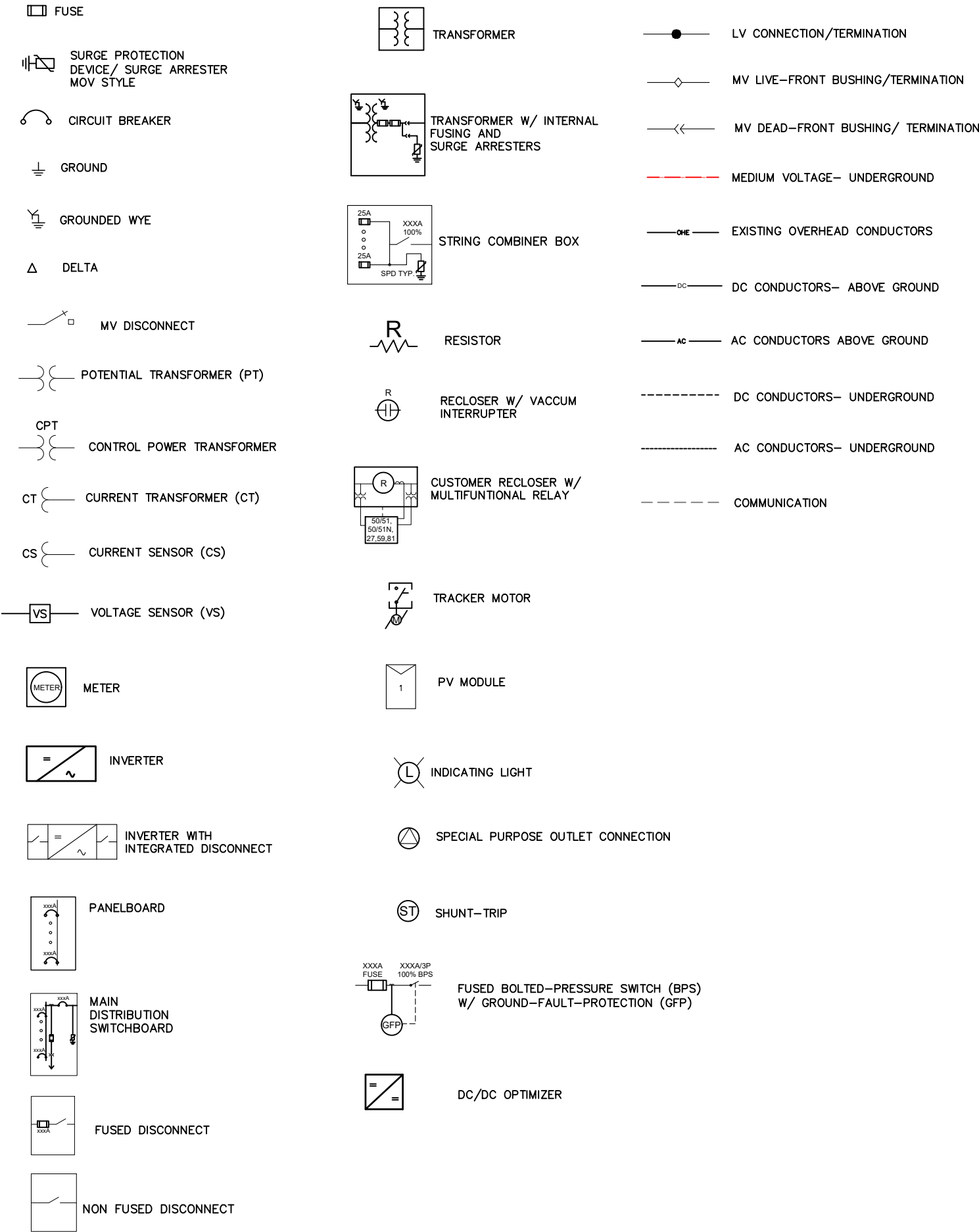


PV SYSTEM DETAILS		WATERTOWN HOPS 1224 AMERICAN WAY, WATERTOWN, WI 53094 (43.176897, -88.761446)		INSPECTION ITEMS		SUNVEST SOLAR LLC Developing • Renewable • Relationships (262) 547-1200 www.sunvest.com N27 W24025 PAUL CT. SUITE 100 PEWAUKEE, WI 53072 PHONE: (262)–547–1200 WWW.SUNVEST.COM		
ARRAY TYPE:FIXED TILT DC SYSTEM SIZE:2.58542 MW DC DC SYSTEM VOLTAGE:1000 V AC SYSTEM SIZE:2.25 MVA @PF=1 MODULES(3,554) TRINA TSM–DE15H(II) 400W INVERTERS:(1,956) HELIENE 144HC M10 NTYP SL BIFACIAL 595W SOLAREEDGE, (22) SE100KUS, (1) SE40KUS, (1) SE10KUS OPTIMIZERS:(1,777) SOLAREEDGE, P960, 2:1 RACKING:(1,956) SOLAREEDGE, C651U, 1:1 DCE CLAMPS:N/A AZIMUTH:180° ARRAY PITCH:25° ARRAY TILT TRINA:27’–8” CENTER SPACING (TRINA 400W) ARRAY TILT HELIENE:31’–2” CENTER SPACING (HELIENE 595W) DC/AC RATIO:1.149				CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING CODE STANDARDS UNLESS OTHERWISE NOTED WITHIN THE DRAWING; NEC. 2017, IBC. 2015, IFC. 2015 AND APPLICABLE LOCAL CODES. PROGRESS INSPECTIONS: ROUGH ELECTRIC:☐ REQUIRED☐ NOT REQUIRED ROUGH BUILDING:☐ REQUIRED☐ NOT REQUIRED FINAL INSPECTIONS: ELECTRIC:☐ REQUIRED☐ NOT REQUIRED BUILDING:☐ REQUIRED☐ NOT REQUIRED OTHER:☐ REQUIRED☐ NOT REQUIRED CONTRACTOR SHALL BE KNOWLEDGEABLE OF ANY LOCAL AHJ INSPECTIONS REQUIRED NOT LISTED.				
		LOCATION MAP		NOTES				
				1. THE APPLICANT PROPOSES TO INSTALL PV MODULES AND WEATHER PROOF EQUIPMENT FOR AN UNMANNED FACILITY. 2. EQUIPMENT IS UNMANNED AND NOT FOR HUMAN HABITATION, HANDICAP ACCESS IS THEREFORE NOT REQUIRED. 3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. NON–CONFORMING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. 4. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON–CONFORMING MATERIALS OR CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND DEVELOPER FOR REMEDIAL OR CORRECTIVE ACTION. 5. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. DISCLAIMER IT IS A VIOLATION OF THE LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT. UNLESS EXPLICITLY AGREED TO BY THE ENGINEER IN WRITING, THE ENGINEER DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.		PROFESSIONAL ENGINEER STAMPS ISSUANCE: 10% PRELIMINARY PLAN SET LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set. LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set. LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set. It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.		
SITE INFORMATION		AERIAL MAP		DWG NO:	DRAWING INDEX			
PROPERTY OWNER: WATERTOWN HOPS					SHEET TITLE			
POWER COMPANY: WE ENERGIES				T-1.00	TITLE SHEET			
PROJECT MANAGER: TBD		PHONE:		G-1.00	GENERAL NOTES AND SYMBOLS			
FENCE LINEAR FEET: 3,855’ LF				G-2.00	GENERAL NOTES			
APPROXIMATE SITE ACREAGE: 10.27 ACRES		COORDINATE SYSTEM: TBD		PV-1.00	ARRAY LAYOUT			
GEOLOCATION COORDINATES: TBD				E-1.00	ONE-LINE DIAGRAM			
		DO NOT SCALE DRAWINGS		E-4.00	SPEC SHEETS			
				E-4.01	SPEC SHEETS			
		CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE DEVELOPER OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.						

SYMBOL LEGEND:



GENERAL NOTES:

1. GENERAL REQUIREMENTS:

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES NOT INCLUDED IN THE B.O.M, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.

1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:

1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.

1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.

1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.

1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.

1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.

1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.

1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.

1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.

1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.

1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.

1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY AQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.

1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.

1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.

1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.

1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.

1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.

1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIRMENTS.

1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.

1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 30" BELOW FINISHED GRADE.



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PEWAUKEE, WI 53072
PHONE: (262)-547-1200
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PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

**10% PRELIMINARY
PLAN SET**

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1	03/07/24	12	
0	04/12/23	11	
REV	SET/DATE	REV	SET/DATE
DRAWN BY: TG		CHECKED BY: BN	
SCALE: AS NOTED		JOB NO: 01953	

WATERTOWN HOPS

1224 AMERICAN WAY
WATERTOWN, WI 53094

SHEET TITLE

GENERAL NOTES
AND SYMBOLS

DWG. NO.

G-1.00

GENERAL NOTES:

2. PROJECT COORDINATION:

- 2.1 THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER’S REPRESENTATIVE.
- 2.4 SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.5 ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.6 EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.7 PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.8 THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.

3. CONNECTORS:

- 3.1 DO NOT CROSS MATE CONNECTORS ON ANY SYSTEM. ENSURE THAT CONNECTOR SELECTION MEETS THE LEGAL BASIS THE EXCLUDE CROSS–CONNECTIONS OF:
- PRODUCT NORMS ((IEC 62852 (EN62852)) AND UL 6703 PRODUCT NORM RESP. UL 1703 MODULE NORM

• INSTALLATION NORMS AND LOCAL REGULATIONS

• ASSEMBLY INSTRUCTIONS OF THE MANUFACTURER

VALID PV STANDARDS (IEC 60364–7–712:2017; E343181) STATE THAT "MALE AND FEMALE CONNECTORS [...] SHALL BE OF THE SAME TYPE FROM THE SAME MANUFACTURER" AND THAT UL CERTIFICATION FOR CONNECTORS ONLY APPLIES IF PRODUCTS FROM THE SAME PRODUCT FAMILY HAVE BEEN MATED

4. WARRANTIES:

- 4.1 ALL MATERIALS AND EQUIPMENT SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2 WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF 5 YEARS AFTER FINAL ACCEPTANCE BY OWNER
- 4.3 OBTAIN AND DELIVER TO THE OWNER’S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1 CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1 ALL CONDUIT SHALL BE MINIMUM SIZE OF 1/2” FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE PVC. ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE SCH. 40 PVC. CHANGE TO SCH. 80 PVC CONDUIT BEFORE EXITING OUT OF UNDERGROUND SECTIONS. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2 ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3 CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4 ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5 ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6 ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7 ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8 FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1–1/4”, AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1” AND SMALLER.
- 6.9 THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE–APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10 THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11 EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12 ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY, SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14 SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15 DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1 INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.

8. WIRING:

- 8.1 ALL WIRE SHALL BE MADE OF COPPER WITH INSOLATION SUITABLE FOR THE APPLICABLE ENVIROMENT AND VOLTAGE. CONTRACTOR SHALL GET APPROVAL FOR ANY OTHER WIRE TYPE.
- 8.2 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3 ALL ELECTRICAL TERMINAL TEMPERATURE RATINGS ASSUMED TO BE 75° C UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
- 8.4 WIRE SIZES SHALL BE INCREASED WHERE NECESSARY TO LIMIT AC VOLTAGE DROP TO 1.5% TOTAL FROM INVERTER TO POINT OF COMMON COUPLING

9. GROUNDING:

- 9.1 PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250 AND 690, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2 ALL BRANCH CIRCUITS AND FEEDERS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

10. MECHANICAL SYSTEMS POWER:

- 10.1 DISCONNECT SWITCHES SHALL BE HEAVY DUTY, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON–FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
- 10.2 THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
- 10.3 A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.

11. PANEL BOARDS:

- 11.1 PANELBOARDS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN–PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME–PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3–POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI–CONCEALED, 5–KNUCKLE STEEL WITH NONFRERROUS PINS, 180–DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR–IN–DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5– BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 11.2 PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 11.3 WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 11.4 PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 11.5 CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 11.6 CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.

12. IDENTIFICATION:

- 12.1 REFER TO NEC LABELS DRAWING FOR LABELING REQUIREMENTS
- 12.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 12.3 APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

13. RECORD DRAWINGS:

- 13.1 THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 13.2 PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
- 13.3 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
- 13.4 UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
- 13.5 REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD FORMAT SHALL BE PROVIDED AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED AFTER COMPLETION OF THE INSTALLATION.
- 13.6 UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

14. PROTECTION OF WORK:

- 14.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.



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PROFESSIONAL ENGINEER STAMPS

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DRAWN BY: TG		CHECKED BY: BN	
SCALE: AS NOTED		JOB NO: 01953	

WATERTOWN HOPS

1224 AMERICAN WAY
WATERTOWN, WI 53094

SHEET TITLE

GENERAL NOTES

DWG. NO.

G-2.00

PROFESSIONAL ENGINEER STAMPS

ISSUANCE:
**10% PRELIMINARY
PLAN SET**

SCALE: 1"=75'

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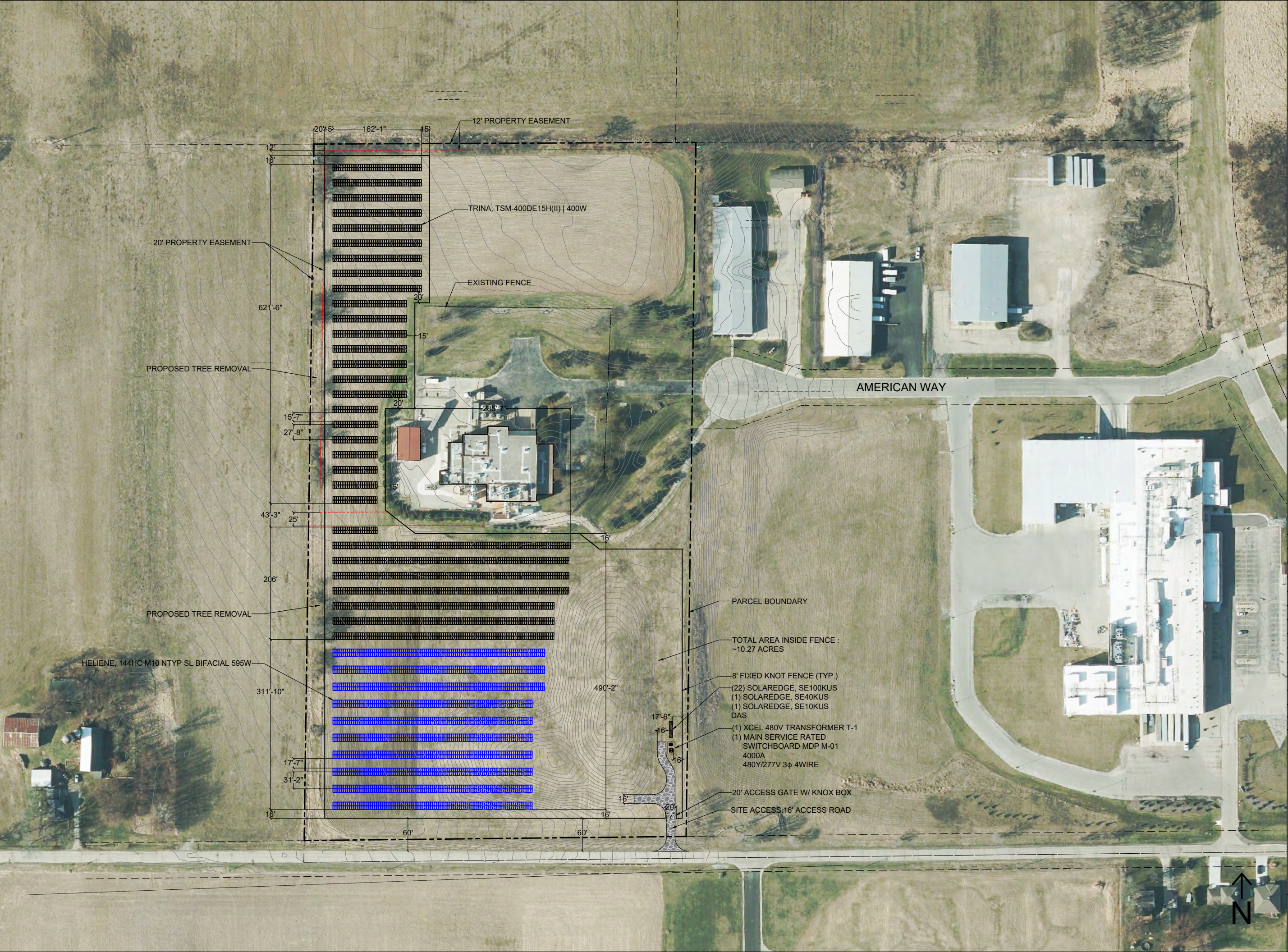
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DRAWN BY: TG		CHECKED BY: BN	
SCALE: AS NOTED		JOB NO: 01953	

WATERTOWN HOPS

1224 AMERICAN WAY
WATERTOWN, WI 53094

SHEET TITLE
ARRAY LAYOUT

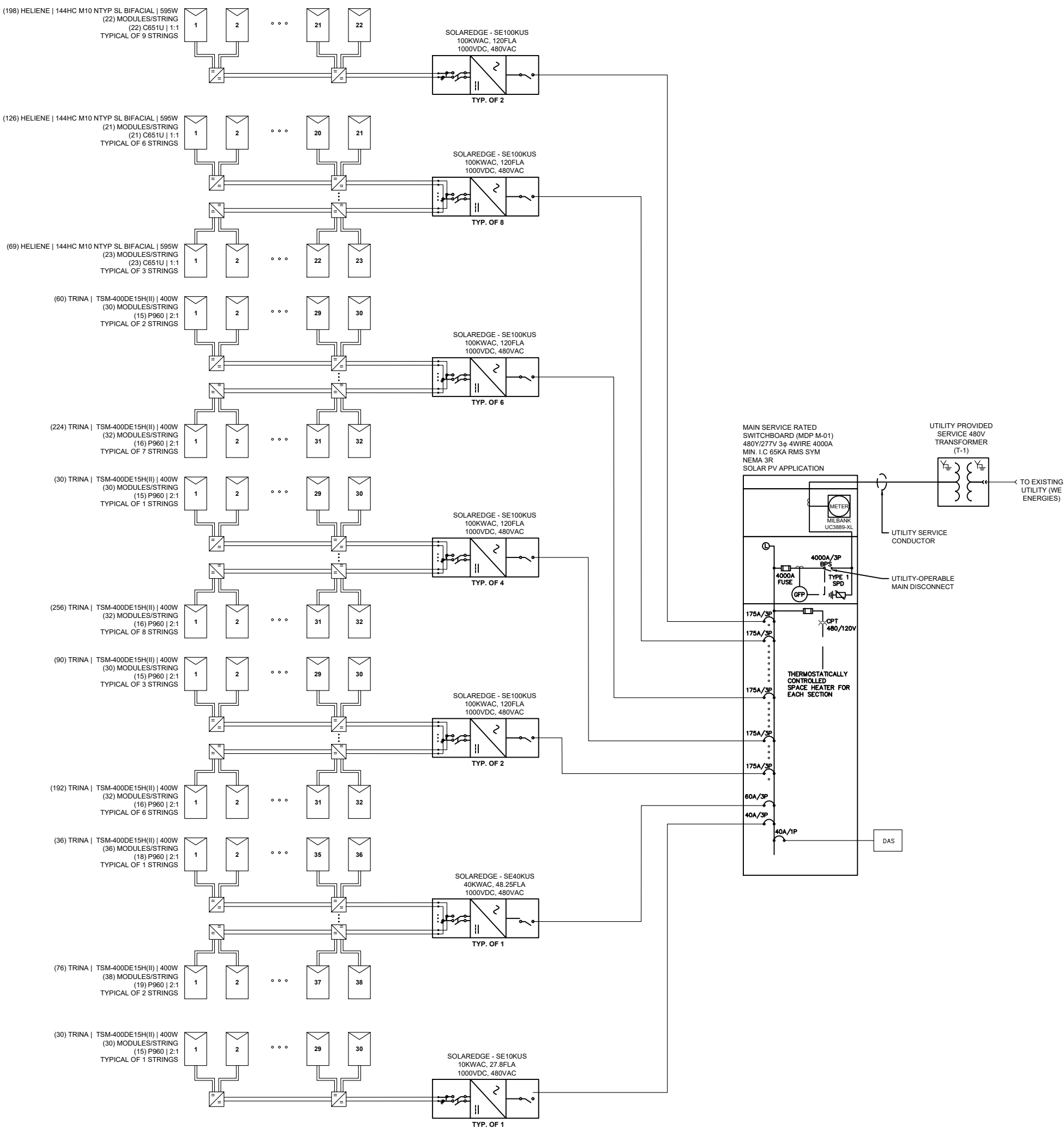
DWG. NO.
PV-1.00



PV SYSTEM DETAILS	
ARRAY TYPE:	FIXED TILT
DC SYSTEM SIZE:	2.58542 MW DC
DC SYSTEM VOLTAGE:	1000 V
AC SYSTEM SIZE:	2.25 MVA @PF=1
MODULES	(3,554) TRINA TSM-DE15H(II) 400W (1,956) HELIENE 144HC M10 NTYP SL BIFACIAL 595W
INVERTERS:	SOLAREDGE, (22) SE100KUS, (1) SE40KUS, (1) SE10KUS
OPTIMIZERS:	(1,777) SOLAREDGE, P960, 2:1 (1,956) SOLAREDGE, C651U, 1:1
RACKING:	DCE
CLAMPS:	N/A
AZIMUTH:	180°
ARRAY PITCH:	25°
ARRAY TILT TRINA:	27'-8" CENTER SPACING (TRINA 400W)
ARRAY TILT HELIENE:	31'-2" CENTER SPACING (HELIENE 595W)
DC/AC RATIO:	1.149

GENERAL NOTES:

- SWITCHBOARD TERMINATION COMPARTMENT AND METERING CT COMPARTMENT SHALL BE PROVIDED PER WE ENERGIES REQUIREMENTS. FOR CT METERING COMPARTMENT REFER TO ELECTRIC SERVICE AND METERING MANUAL M-22
- SWITCHBOARD MAIN DISCONNECT SHALL MEET THE REQUIREMENTS OF CUSTOMER-OWNED GENERATION MANUAL PAGE 19 AND 20.



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ISSUANCE:
**10% PRELIMINARY
PLAN SET**

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DRAWN BY: TG		CHECKED BY: BN	
SCALE: AS NOTED		JOB NO: 01953	

WATERTOWN HOPS

1224 AMERICAN WAY
WATERTOWN, WI 53094

SHEET TITLE

ONE LINE DIAGRAM

DWG. NO.

E-1.00

Three Phase Inverters for the 277/480V Grid for North America

SE30KUS / SE40KUS



12-20 YEAR WARRANTY

INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for superior efficiency (98.5%) and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per articles 690.11 and 690.12
- Built-in module level monitoring with Ethernet, wireless, or cellular communication for full system visibility
- Integrated safety switch
- UL1741 SA and SB certified, for CPUC Rule 21 grid compliance

solaredge.com



Three Phase Inverters

For the 277/480V Grid for North America

SE10KUS / SE20KUS / SE30KUS / SE33.3KUS



12-20 YEAR WARRANTY

INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Superior efficiency (98.5%)
- 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
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Small, lightweight, and easy to install outdoors or indoors on provided bracket
- Fixed voltage inverter for longer strings
- Integrated Safety Switch
- Supplied with RS485 Surge Protection Device, to better withstand lightning events

solaredge.com



Power Optimizer

P860 / P960



25 YEAR WARRANTY

POWEROPTIMIZER

PV power optimization at the module-level

The most cost effective solution for commercial and large field installations

- Specifically designed to work with SolarEdge inverters
- High efficiency with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
- Superior efficiency (99.5%)
- Balance of System cost reduction; 50% less cables, fuses and combiner boxes, over 2x longer string lengths possible
- Fast installation with a single bolt
- Advanced maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety
- Use with two PV modules connected in series or in parallel
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

solaredge.com



Three Phase Inverters for the 277/480V Grid⁽¹⁾ for North America

SE30KUS / SE40KUS

MODEL NUMBER	SE30KUS	SE40KUS	UNITS
APPLICABLE TO INVERTERS WITH PART NUMBER	SE30KUS	SE40KUS	
OUTPUT			
Rated AC Power Output	30000	40000	W
Maximum Apparent AC Output Power	30000	40000	VA
AC Output Line Connections	3W + PE, 4W + PE		Vdc
AC Output Voltage Minimum-Nominal-Maximum ⁽¹⁾ (L-L)	244 - 277 - 305		Vdc
AC Output Voltage Minimum-Nominal-Maximum ⁽¹⁾ (L-N)	422.5 - 480 - 529		Vdc
AC Frequency Min-Max ⁽²⁾	59.3 - 60 - 60.5		Hz
Maximum Continuous Output Current (per Phase)	36.25	48.25	A
GFI Threshold	1		A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		%
Total Harmonic Distortion	±3		%
Power Factor Range	+/- 0.85 to 1		
INPUT			
Rated AC Power (Module STC)	52500	70000	W
Transformer-less, Ungrounded	Yes		Vdc
Maximum Input Voltage DC+ to DC-	1000		Vdc
Opening Voltage Range	840 - 1000		Vdc
Maximum Input Current	36.25	48.25	A
Maximum Input Short Circuit Current	55		A
Reverse-Polarity Protection	Yes		%
Ground-Fault Isolation Detection	167kV Sensitivity ⁽³⁾		%
CEC Weighted Efficiency	98.5		W
Night-time Power Consumption	<4		
ADDITIONAL FEATURES			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in access point for local connection		
Arc Fault Protection	Integrated, User Configurable (According to UL 1699B)		
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified		
RS485 Surge Protection Plug-In	Supplied with the inverter, Built-In		
DC Surge Protection	Type II, field replaceable, Built-In		
AC Surge Protection	Type II, field replaceable, Built-In		
DC Fuses (Single Pole)	2SA, Built-In		
Smart Energy Management	Export Limitation		
DC SAFETY SWITCH			
DC Disconnect	Integrated		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.L.M.-07		
GFI Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (H)		
Emissions	FCC Part 15 class A		
INSTALLATION SPECIFICATIONS			
AC Output Conduit Size / AWG Range	1" or 1 1/2" - 12 AWG		
DC Input Conduit Size / AWG Range	1" or 1 1/2" - 12 AWG		
Number of DC Inputs	2 pairs		
Dimensions (H x W x D)	21 x 12.5 x 10.5 / 540 x 315 x 260		
Dimensions with Safety Switch (H x W x D)	30.5 x 12.5 x 10.5 / 775 x 315 x 260		
Weight	72.2 / 33.2		
Weight with Safety Switch	79.7 / 36.2		
Cooling	Fans (user replaceable)		
Noise	< 50		
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾		
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 480V/480V Inverters refer to the Three Phase Inverters for the 120/208V Grid for North America database.
(2) For other regional settings please contact SolarEdge support.
(3) Where permitted by local regulations.
(4) For power derating information refer to the Temperature Derating - Technical Note (North America).

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Power Optimizer

USA Domestic Content Eligible for North America

C651U

Power Optimizer Model	C651U	
INPUT		
Rated Input DC Power ⁽¹⁾	650	W
Absolute Maximum Input Voltage (Voc)	80	Vdc
MPPT Operating Range	12.5 - 60	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module ⁽²⁾	20	A
Maximum Adjusted Short Circuit Current (with Safety Factor) ⁽³⁾	25	A
Maximum Efficiency	99.5	%
Weighted Efficiency	98.8	%
Overvoltage Category	II	
OUTPUT DURING OPERATION		
Maximum Output Power	650	Wdc
Maximum Output Current	24	A
Maximum Output Voltage	60	Vdc
SAFETY FEATURES		
Safety ⁽⁴⁾	Yes	
Safety Output Voltage per Power Optimizer	65 ± 0.075	Vdc
Sense Connect	Yes	
Photovoltaic Rapid Shutdown System	Yes, NEC 2014 - 2023	
STANDARD COMPLIANCE		
EMC	FCC Part 15, IEC 60900-6-2, IEC 60900-6-3	
Safety	IEC61009-1 (class II safety), UL 1741, UL 1741, CSA C22.2-M707.1	
Material	UL94 V-0, UV Resistant	
RoHS	Yes	
Fire Safety	VDE-AR-E 7600-712:2013-05	
INSTALLATION SPECIFICATIONS		
Compatible SolarEdge Inverters ⁽⁵⁾	Commercial Three Phase Inverters with one of the following part number structures: SE-SN-U-xxxxxx SE-DBL-U-xxxxxx SE-TBA-U-xxxxxx	
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	128 x 155 x 52 / 5.03 x 6.10 x 2.05	mm / in
Weight	1080 / 2.38	g / lb
Input Connector	MC4 ⁽⁶⁾	m / ft
Input Wire Length	(+) 14, (-) 14 / (+) 59, (-) 4.99 ⁽⁷⁾	m / ft
Output Connector	MC4	m / ft
Output Wire Length	(+) 3.0 (-) 0.10 / (+) 9.84, (-) 0.32	m / ft
Operating Temperature Range ⁽⁸⁾	-40 to +85 / -40 to +185	°C / °F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 - 100	%

(1) Module with a front side maximum power of up to 750W at STC are allowed. Up to +10% power tolerance is allowed.
(2) When using bifacial modules, consider only the front side up to at STC (7% back side gain). For details, see page 8.
(3) Adjusted for ambient temperature, irradiance, thermal gain, safety factor, and so on. In accordance with NEC and CSA.
(4) For detailed inverter compatibility information, see page 8.
(5) For other connector types please contact SolarEdge.
(6) The Sense Connect feature is only enabled on the output wire connectors. For details, see page 8.
(7) For ambient temperature above +40°C / +105°F, power derating is applied. Refer to Temperature Derating Note for more details.
(8) For ambient temperature above +40°C / +105°F, power derating is applied. Refer to Temperature Derating Note for more details.

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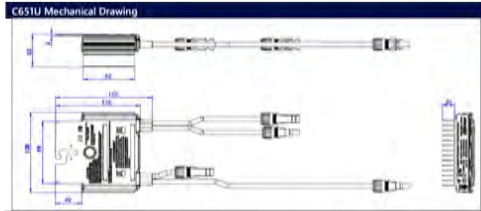
Power Optimizer

USA Domestic Content Eligible for North America

C651U

PV System Design Using a SolarEdge Inverter ⁽¹⁾	208V Grid SE10K	208V Grid SE17.3K	277/480V Grid SE10K, SE17.3K	277/480V Grid SE40K
Compatible Power Optimizers			C651U	
Minimum String Length	Power Optimizers 13	Power Optimizers 13	Power Optimizers 18	Power Optimizers 18
Maximum String Length	Power Optimizers 57	Power Optimizers 57	Power Optimizers 57	Power Optimizers 57
Maximum Continuous Power per String	10,000	9600	20,400	20,400
Maximum Allowed Connected Power per String ⁽²⁾	1 string or more - 15,000	1 string - 11,400 2 strings or more - 15,000	1 string - 22,600 2 strings or more - 30,400	1 string - 22,600 2 strings or more - 30,400
Parallel Strings of Different Lengths or Orientations	Yes	Yes	Yes	Yes
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit	5 Power Optimizers	5 Power Optimizers	5 Power Optimizers	5 Power Optimizers

*The same rules apply for stringing units of equivalent power ratings, that are part of the modular stringing technology inverter.
(1) C651U cannot be mixed with any other Power Optimizer models in the same string.
(2) To correct more PV power per string, design your project following SolarEdge guidelines.



Eligibility for Domestic Content
As it relates to the domestic content rules, the U.S. Department of Treasury and the IRS have not yet issued proposed or final regulations. Rather, the IRS has issued notices - Notice 2023-38, Notice 2024-41 and Notice 2025-08. These notices provide guidance regarding the domestic content rules. SolarEdge products referenced herein are manufactured with the intent to be eligible for inclusion under the elective safe harbor table in calculating the Domestic Content Percentage under the "Right-to-Purchase" (MLPE) category (under IRS Notices 2024-41 and 2025-08, depending on the PV used - see chart below). Eligibility is subject to the installation of qualified USA-Manufactured inverters and Power Optimizers (C651U) in the same project. SolarEdge does not provide tax and/or legal advice. You should consult with your own legal and/or tax advisors regarding the eligibility of your project for the ITC or PTC, including the 10% Domestic Content bonus, to determine how the applicable rules apply to your project. The forward-looking statements in this document are accurate as of the date herein and are subject to change. For more information, please contact your local SolarEdge sales representative.

PN	Domestically produced MPPTs per notice 2024-41 ⁽¹⁾	Domestically produced MPPTs per notice 2025-08 ⁽²⁾
USE-SN-US08BNS6, when paired with C651U	Printed Circuit Board Assemblies, Electrical Parts, Enclosure (35.6%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)
USE-UL-US08BNS6, when paired with C651U	Printed Circuit Board Assemblies, Electrical Parts, Enclosure (35.6%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)
USE-SN-US08BNS6, when paired with C651U	Printed Circuit Board Assemblies, Electrical Parts, Enclosure (17.8%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)
USE-UL-US08BNS6, when paired with C651U	Printed Circuit Board Assemblies, Electrical Parts, Enclosure (17.8%)	Printed Circuit Board Assemblies (DC-DC) and (AC-AC), Enclosure, Production (24.8%)

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ISSUANCE:

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WATERTOWN HOPS

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SHEET TITLE

SPEC SHEETS

DWG. NO.

E-4.01