OWNER & DESIGN TEAM INFORMATION

CFP IL BLUESTEM SOLAR LLC 2303 WYCLIFF, SUITE 300 ST. PAUL, MN 55114

CONTACT: **GARY LANOCE**

215-932-2559 glanoce@cleanfieldpower.com

CONTRACTOR:

INWAVE RENEWABLES. LLC NAPERVILLE, IL 60565

CONTACT:

MOHAMMAD NAJJAR 331-250-1166 mnajjar@inwavere.com

ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007

CONTACT:

ASFANDYAR KHAN 331-237-8022 akhan@iedesignco.com

CIVIL ENGINEER:

BONO CONSULTING CIVIL ENGINEERS 018 BUSSE HIGHWAY

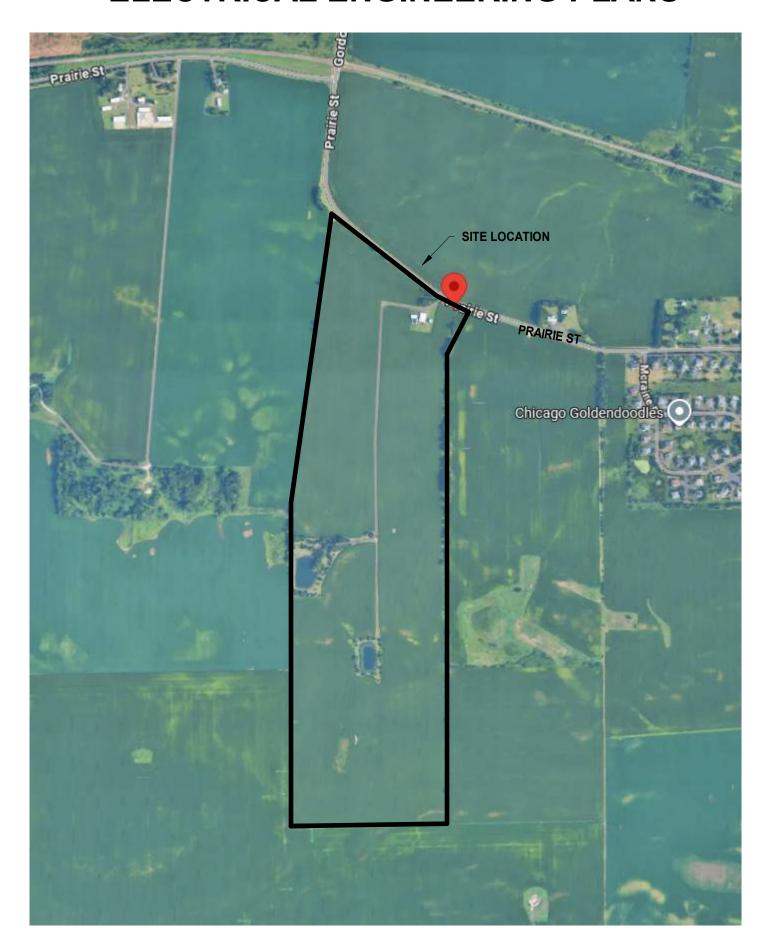
PARK RIDGE, IL 60068

CONTACT:

ROBERT (BOB) WALKER 331-803-4304 rwalker@bonoconsulting.com

BLUESTEM SOLAR

AURORA, KANE COUNTY, IL ELECTRICAL ENGINEERING PLANS



DESIGN CODES AND STANDARDS

NFPA 70 - 2014 -NATIONAL ELECTRICAL CODE (NEC) STANDARD FOR ELECTRICAL SAFETY IN THE NFPA 70E - 2014 -

WORKPLACE

IBC 2015 INTERNATIONAL BUILDING CODE INTERNATIONAL FIRE CODE ILLINOIS URBAN IFC 2015

AIMA AGRICULTURAL IMPACT MITIGATION AGREEMENT

DRAWING INDEX							
SHEET#	DATE						
PV-001	TITLE SHEET	30% DESIGN SET	09/17/2025				
PV-002	SYMBOLS & ABBREVATIONS	30% DESIGN SET	09/17/2025				
PV-003	GENERAL NOTES	30% DESIGN SET	09/17/2025				
PV-101	SITE PLAN	30% DESIGN SET	09/17/2025				
PV-201	SOLAR LAYOUT SYSTEM -1	30% DESIGN SET	09/17/2025				
PV-202	SOLAR LAYOUT SYSTEM - 2	30% DESIGN SET	09/17/2025				
PV-203	SOLAR LAYOUT SYSTEM - 3	30% DESIGN SET	09/17/2025				
PV-301	SINGLE LINE DIAGRAM - SYSTEM-1	30% DESIGN SET	09/17/2025				
PV-302	SINGLE LINE DIAGRAM - SYSTEM-2	30% DESIGN SET	09/17/2025				
PV-303	SINGLE LINE DIAGRAM - SYSTEM-3	30% DESIGN SET	09/17/2025				
PV-304	SCHEDULES	30% DESIGN SET	09/17/2025				
PV-401	DETAILS (1 of 3)	30% DESIGN SET	09/17/2025				
PV-402	DETAILS (2 of 3)	30% DESIGN SET	09/17/2025				
PV-403	DETAILS (3 OF 3)	30% DESIGN SET	09/17/2025				
PV-501	SIGNAGE	30% DESIGN SET	09/17/2025				
PV-601	EQUIPMENT SPEC SHEETS	30% DESIGN SET	09/17/2025				

PROJECT INFORMATION

THREE (3) COMMUNITY SOLAR FACILITIES ARE PLANNED FOR DEVELOPMENT ON THE

PROPERTY COMBINED TOTAL CAPACITY (DC) - 21.111 MWDC

 COMBINED TOTAL CAPACITY (AC) CAPACITY PER SYSTEM (DC) - 7.037 MWDC

 CAPACITY PER SYSTEM (AC) - 5 MWAC LOCATED WITHIN AN AREA CURRENTLY USED FOR AGRICULTURE.

PROJECT OVERVIEW

TOTAL PROPERTY AREA -~138.94 ACRES SOLAR FOOTPRINT ~77.72 ACRES

INTERCONNECTION

ALL SYSTEMS WILL CONNECT TO COMED'S DISTRIBUTION GRID

ABP / ILLINOIS SHINES

SYSTEM 3 WILL BE DEVELOPED UNDER THE ILLINOIS POWER AGENCY'S 2022 LONG-TERM RENEWABLE RESOURCES PROCUREMENT PLAN (ILLINOIS SHINES)

NON-ABP / ILLINOIS SHINES

SYSTEMS 1 AND 2 WILL FOLLOW THE SAME DESIGN AND CONSTRUCTION APPROACH BUT ARE NOT ENROLLED IN THE ILLINOIS SHINES PROGRAM

POST-CONSTRUCTION LAND USE

SITE COMBINED SIZE - DC

NON SOLAR AREAS OUTSIDE OF FENCE LINE WILL CONTINUE TO BE FARMED. AFTER SOLAR PANEL ARE IN PLACE. THE PROJECT WILL BE LANDSCAPED AS NATIVE PRAIRIE AND POLLINATOR HABITAT.

SYSTEM INFORMATION

SITE COMBINED SIZE - AC

			15000 kW					
INVERTERS								
POWER	QTY	MANUFA	CTURER	MODE	L	AC \	/OLTAGE	DC VOLTAGE
250 kW	60	SOLE	CTRIA	XGI 1500	-250		600 V	1500 V
			MODULES	8 & STRINGS				
SIZE	MAN	UFACTURER	MODEL	QTY	STRING	SIZE	APPROX	. # OF STRINGS
540 W		WAAREE	Bi-55-540	39096	24			1629
TRANSFORMERS								
QTY	kV	A (EACH)	SECONDARY VOLTAGE			PRIM	ARY VOLT	AGE (POI)

34500 V **RACKING** GCR **RACKING TYPE** MODULE ORIENTATION SINGLE AXIS TRACKER

WEATHER INFO

ASHRAE 0.4% AVG HIGH TEMP | ASHRAE MIN EXTREME TEMP ASHRAE WEATHER STATION AURORA MUNICPAL, IL, WMO:744655

CLIENT: **CLEAN FIELD**

MUNICIPALITY APPROVAL STAMP

MAHWAH, NJ 07430

CONTRACTOR:

NAPERVILLE, IL 60565

contact@inwavere.com

ELECTRICAL ENGINEER:



IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM #

CIVIL ENGINEER



1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com AURORA, IL 60504 DESIGN FIRM NO. 184.008857-0002

207-829-5016 sme-engineers.com

4 BLANCHARD ROAD,

BLUESTEM SOLAR

PROJECT NAME:

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE # **ISSUED FOR:** DATE 30% DESIGN SET 09/17/2025

DATE: 09/12/2025

TITLE:

TITLE SHEET

PROJECT #:

IW-101

PV-001

IMPORTANT! CALL BEFORE YOU DIG

CONTRACTOR SHALL CONTACT THE APPROPRIATE ORGANIZATIONS BEFORE STARTING ANY CONSTRUCTION ACTIVITIES TO OBTAIN UTILITY INFORMATION AND HAVE EXISTING UTILITIES LOCATED IN THE FIELD. CONSTRUCTION ACTIVITIES WITHIN ANY GIVEN AREA MAY NOT PROCEED UNTIL THAT AREA HAS BEEN CHECKED AND MARKED FOR UTILITIES BY ALL APPROPRIATE ORGANIZATIONS.

- JULIE JULIEBEFOREYOUDIG.COM
- AHJ's BUILDING & ZONING DEPARTMENT

CONTRACTOR SHALL CONTACT THE APPROPRIATE ORGANIZATIONS AT LEAST TWO (2) WORKING DAYS BEFORE STARTING ANY CONSTRUCTION ACTIVITIES TO ARRANGE FOR CONSTRUCTION INSPECTIONS. THE CONTRACTOR SHALL ALSO MAKE ARRANGEMENTS AND PROVIDE NOTIFICATIONS FOR INSPECTIONS DURING THE COURSE OF CONSTRUCTION AS REQUIRED BY THE THE AHJ'S BUILDING & ZONING DEPARTMENT.

	ONE-LINE DIAC
SYMBOLS	DESCRIPTION
PANEL NAME AMPS VOLTS	POWER DISTRIBUTION PANELBOARD
CONTROL PANEL VOLTS	CONTROL PANEL
MCC XX AMPS VOLTS	MOTOR CONTROL CENTER
— (—	CAPACITOR
	FUSE
<u></u>	GROUND SYMBOL
•	LOW VOLTAGE CIRCUIT BREAKER <1500V AC/DC
	MED. VOLTAGE CIRCUIT BREAKER FXXX — DENOTES FEEDER BREAKER UXXX — DENOTES UTILITY BREAKER TXXX — DENOTES TRANSFORMER BREAKER GXXX — DENOTES GENERATOR BREAKER BTXX — DENOTES BUS TIE BREAKER "XX" DENOTES BUSSES BEND TIED
0 0	NORMALLY OPEN DISCONNECT SWITCH
0 0	NORMALLY OPEN FUSED DISCONNECT
«	SEPARABLE DISCONNECTS, DRAWOUTS
\	NORMALLY CLOSED CONTACT
cc C	CLOSE CIRCUIT
TC	TRIP CIRCUIT
	TRANSFORMER WITH DELTA/WYE WIRING CONVENTION
¥ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	TRANSFORMER WITH WYE/WYE WIRING CONVENTION
±'	AC WIRING
(M)	MOTOR OUTLET: HORSEPOWER AS NOTED
7	MOTOR STARTER
	RELAY
b) VFI	MEDIUM VOLTAGE VACUUM FAULT INTERRUPTER
PR	PHASE RELAY
CAP TRIP	CAPACITOR TRIP
×	UTILITY POLE
sw	SWITCHGEAR
	TRANSFORMER
M	PRIMARY METER
R	RECLOSER
	SOLAR PANEL
•—•	OPTIMIZER
_=	INVERTER

SYMBOLS POTENTIAL TRANSFORMER POTENTIAL TRANSFORMER, # = NUMBER OF PTs POTENTIAL TRANSFORMER WITH POLARITY MARKS CURRENT TRANSFORMERS WITH POLARITY MARKS CURRENT TRANSFORMERS WITH POLARITY MARKS CURRENT TRANSFORMERS WITH POLARITY MARKS BUSHING TYPE CURRENT TRANSFORMERS CIRCUIT BREAKER WITH THERMAL OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING CIRCUIT BREAKER WITH MAGNETIC OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING AT = AMP TRIP RATING TO AMP TRIP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR NACUUM O FOR NACUUM G FOR GAS TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) TEST SWITCH (POTENTIAL OR ISOLATION) TEST SWITCH (POTENTIAL OR ISOLATION)	RAM SYMBO	LS			
POTENTIAL TRANSFORMER, # = NUMBER OF PTS POTENTIAL TRANSFORMERS WITH POLARITY MARKS CURRENT TRANSFORMER CURRENT TRANSFORMERS WITH POLARITY MARKS BUSHING TYPE CURRENT TRANSFORMERS CIRCUIT BREAKER WITH THERMAL OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING CIRCUIT BREAKER WITH MAGNETIC OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING DRAWOUT CIRCUIT BREAKER AF = FRAME AMP RATING AT = AMP TRIP RATING FUSED DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIR O FOR GAS MFR - TYPE TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD GROUND ROD GROUND ROD GROUND WIGROUND ROD	SYMBOLS	DESCRIPTION			
POTENTIAL TRANSFORMERS WITH POLARITY MARKS CURRENT TRANSFORMER CURRENT TRANSFORMER, # = NUMBER OF CTs CURRENT TRANSFORMERS WITH POLARITY MARKS BUSHING TYPE CURRENT TRANSFORMERS CIRCUIT BREAKER WITH THERMAL OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING CIRCUIT BREAKER WITH MAGNETIC OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING DRAWOUT CIRCUIT BREAKER AF = FRAME AMP RATING AT = AMP TRIP RATING FUSED DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIR	36	POTENTIAL TRANSFORMER			
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CURRENT TRANSFORMER, # = NUMBER OF CTs CURRENT TRANSFORMERS WITH POLARITY MARKS BUSHING TYPE CURRENT TRANSFORMERS CIRCUIT BREAKER WITH THERMAL OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING CIRCUIT BREAKER WITH MAGNETIC OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING DRAWOUT CIRCUIT BREAKER AF = FRAME AMP RATING AT = AMP TRIP RATING FUSED DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIR	•) (•	POTENTIAL TRANSFORMERS WITH POLARITY MARKS			
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CIRCUIT BREAKER WITH THERMAL OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING CIRCUIT BREAKER WITH MAGNETIC OVERLOAD AF = FRAME AMP RATING AT = AMP TRIP RATING DRAWOUT CIRCUIT BREAKER AF = FRAME AMP RATING AT = AMP TRIP RATING FUSED DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIR OF OR OIL OF OR OIL OF OR OIL OF OR OSA FOR GAS TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD G	•	CURRENT TRANSFORMERS WITH POLARITY MARKS			
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AT = AMP TRIP RATING FUSED DISCONNECT AT = AMP RATING FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIRA KV 0 FOR VACUUMW BIL V FOR VACUUMW BIL G FOR GAS MFR - TYPE TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD GROUND W/GROUND ROD	\uparrow	DRAWOUT CIRCUIT BREAKER			
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FUSED CUT-OUT DISCONNECT AT = AMP RATING POWER CIRCUIT BREAKER WITH OVERCURRENT PROTECTION RECLOSER # = A FOR AIRA KV 0 FOR OILA INT CAP V FOR VACUUMW BIL G FOR GAS MFR - TYPE TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD GROUND W/GROUND ROD		AT = AMP TRIP RATING			
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OVERCURRENT PROTECTION RECLOSER #= A FOR AIRA KV 0 FOR OILA INT CAP V FOR VACUUMW BIL G FOR GAS MFR - TYPE TEST SWITCH (CURRENT SHORTING) TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD GROUND W/GROUND ROD	SA				
# = A FOR AIRA	52				
TEST SWITCH (POTENTIAL OR ISOLATION) GROUND GROUND ROD GROUND W/GROUND ROD	79	# = A FOR AIRA KV 0 FOR OILA INT CAP V FOR VACUUMW BIL			
GROUND GROUND ROD GROUND W/GROUND ROD	★	TEST SWITCH (CURRENT SHORTING)			
GROUND GROUND ROD GROUND W/GROUND ROD	X	TEST SWITCH (POTENTIAL OR ISOLATION)			
	<u>_</u> • •	GROUND GROUND ROD GROUND W/GROUND ROD			
GROUND TEST WELL WITH GROUND ROD		GROUND TEST WELL WITH GROUND ROD			

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.

ELECTRICAL ABBREVIATIONS

ABBREV	DESCRIPTION	<u>ABBREV</u>	DESCRIPTION	ABBREV	DESCRIPTION
4	AMPERE	FAAP	FIRE ALARM ANNUNCIATOR PANEL	O/H	OVERHEAD
AC	ALTERNATING CURRENT	FACP	FIRE ALARM CONTROL PANEL	OL	OVERLOAD
VC ACL	AIR CONDITIONING	FB FBO	FLOORBOX	OPT	OPTIMIZER
ICS	ACROSS THE LINE AUXILIARY CONTACTS	FCU	FURNISHED BY OTHERS FAN COIL UNIT	P	POLE
vF	FUSED AMPS	FDC	FIRE DEPARTMENT CONNECTION	PA	PUBLIC ADDRESS
 FCI	ARC FAULT CIRCUIT INTERRUPTER	FDR	FEEDER	PB	PULL BOX
\FF	ABOVE FINISHED FLOOR	FIXT	FIXTURE	PF	POWER FACTOR
.HJ	AUTHORITYHAVING JURISDICTION	FLA	FULL LOAD AMPS	PH	PHASE
HU	AIR HANDLING UNIT	FLR	FLOOR	PNL PR	PANEL PAIR
l IC	ANALOG INPUT AMPERES INTERRUPTING CAPACTY	FLUOR FPB	FLUORESCENT FAN POWERED BOX	PRI	PRIMARY
L	ALUMINUM	FPC	FIRE PUMP CONTROLLER	PROT	PROTECTION/PROTECTIVE
_ LM	ALARM	F.S.	FUSED SWITCH	PRV	POWER ROOF VENTILATOR
MP	AMPERE	FT	FOOT/FEET	PT	POTENTIAL TRANSFORMER
١N	ANNUNCIATOR	FU	FUSE	PWR	POWER
)	ANALOG OUTPUT	FVNR	FULL VOLTAGE, NON REVERSING		DECICTANCE
RCH S	ARCHITECT, ARCHITECTURAL SWITCH AMPS		(MAGNETIC STARTER)	R RC	RESISTANCE REMOTE CONTROL
Γ	AMPS TRIP	G	GROUND	RECP	RECEPTACLE
TS .	AUTOMATIC TRANSFER SWITCH	GEN	GENERATOR	REQ'D	REQUIRED
/G	AVERAGE	GFI	GROUND FAULT INTERRUPTER	RLP	RELAY LIGHTING PANEL
٧Ġ	AMERICAN WIRE GAUGE	GFP	GROUND FAULT PROTECTION	RT	RAINTIGHT
	DALL 6.07	GHW	GALVANIZED HEAVY STEEL CONDUIT		0)4/170::
AL AC	BALLAST	GRS	GALVANIZED RIGID STEEL CONDUIT	S	SWITCH
S S	BUILDING AUTOMATION SYSTEM		HEICHT MOUNTED ABOVE COUNTED	SC SE	SHORT CIRCUIT SWITCH EMERGENCY
BB	BELOW FINISHED CEILING BUILDING GROUND BOX	H HOA	HEIGHT-MOUNTED ABOVE COUNTER HAND-OFF-AUTO	SEC	SECONDARY
iP	BRAKE HORSEPOWER	HP	HORSE POWER	SF	SQUARE FOOT/FEET
··· ⁄INT	BASEMENT	HPS	HIGH PRESSURE SODIUM	SGR	SINGLE GROUNDED RECEPTACLE
S	BOLTED PRESSURE SWITCH	HR	HOUR	SP	SINGLE POLE
ξ	BRANCH	HV	HIGH VOLTAGE	SPD	SURGE PROTECTIVE DEVICE
RKR	BREAKER	HZ	HERTZ	SPDT	SINGLE POLE DOUBLE THROW
	CONDUIT	IC	INTERRUPTING CAPACITY	SPEC SPKR	SPECIFICATION SPEAKER
λB	CABINET	IG IG	INTERRUPTING CAPACITY ISOLATED GROUND	SPO	SPEAKER SPECIAL PURPOSE OUTLET
vВ VP	CAPACITY	IMC	INTERMEDIATE STEEL CONDUIT	SPST	SINGLE POLE SINGLE THROW
 λΤV	CABLE TELEOSON	IN	INCH(ES)	SQ FT	SQUARE FOOT/FEET
3	CIRCUIT BREAKER	INC	INCANDESCENT	SS	STAINLESS STEEL
T	CIRCUIT	INV	INVERTER	STA	STATION
CTV	CLOSED CIRCUIT TELEVISION			STD	STANDARD
EC	CHICAGO ELECTRIC CODE	JB	JUNCTION BOX	SW	SWITCH
_G	CEILING CLOSET	JPC	JOCKEY PUMP CONTROLLER	SWBD SWGR	SWITCHBOARD SWITCHGEAR
_О ИВ	COMBINER BOX	KCMIL	THOUSAND CIRCULAR MILS WIRE	SYM	SYMMETRICAL
O O	CARBON MONOXIDE DETECTOR	NOIVIIL	CROSS SECTION AREA	SYS	SYSTEM
DAX	COAXIAL	KO	KNOCKOUT		0 · 0 · 2 · ·
OMED	COMMON WEALTH EDISON COMPANY	KVA	KILOVOLT-AMPERE	TTC	TERMINAL CABINET
NNC	CONNECTION	KW	KILOWATT	TCP	TEMP. CONTROL PANEL
VNC	CONVENIENCE	KWH	KILOWATT-HOUR	TEL	TELEPHONE
Σ	CONTROL PANEL CURRENT TRANSFORMER	LB	POUND	TEL CL TEMP	TELEPHONE CLOSET TEMPERATURE
J	COPPER	LCP	LIGHTING CONTROL PANEL	TERM	TERMINAL
U.	COEFFICIENT OF UTILIZATION	II	LOW LIMIT RELAY	TL	TWIST LOCK
JH	CABINET UNIT HEATER	LS	LOUD SPEAKER	TR	TRANSFORMER RATING (e.g. TOROI
		LTG	LIGHTING	TTC	TELEPHONE TERMINAL CABINET
	DIRECT CURRENT	LV	LOW VOLTAGE	TV	TELEVISION
€R	DUPLEX GROUNDED RECEPTACLE			TX	TRANSMISSION TRANSFORMER
4	DIAMETER	M	MOTOR	TYP.	TYPICAL
SC ST	DISCONNECT DISTRBUTION	MAX MC	MAXIMUM MECHANICAL CONTRACTOR	UC	UNDER COUNTER
R.	DISTRBUTION DISTRBUTED ENERGY RESOURCES	MCB	MAIN CIRCUIT BREAKER	UE	UNDERGROUND ELECTRICAL
√ 	DIVISION	MCC	MOTOR CONTROL CENTER	ÜĞ	UNDERGROUND
l	DOWN	MCP	MAXIMUM CIRCUIT PROTECTION	UH	UNIT HEATER
)	DRAWOUT	MDF	MAIN DISTRIBUTION FRAME	UL	UNDERWRITER'S LABORATORY
PDT	DOUBLE POLE DOUBLE THROW	MECH	MECHANICAL	UNO	UNLESS NOTED OTHERWISE
PST	DOUBLE POLE SINGLE THROW DISCONNECT SWITCH	MED MERC	MEDIUM MERCURY VAPOR	UPS	UNINTERRUPTIBLE POWER SOURCE
5	DUST TIGHT	MERC	MERCURY VAPOR MANUFACTURER	V	VOLT
٧G	DRAWING	MH	MANHOLE	VA VA	VOLT—AMPERE
- —		MIN	MINMUM	VDC	DC VOLTAGE
	EXISTING TO REMAIN	MLO	MAIN LUGS ONLY	VDT	VIDEO DISPLAY TERMINAL
•	ELECTRICAL CONTRACTOR	MOCP	MAX OVER CURRENT PROTECTION	VERT	VERTICAL
F0	EXHAUST FAN	MSB	MAIN SWITCHBOARD	VFD	VARIABLE FREQUENCY DRIVE
EC 1	ELECTRIC EMERGENCY	MTD MTD	MOUNTED MOTOR	VIF	VERIFY IN FIELD
1 1T	EMERGENCY ELECTRIC METALLIC TUBING	MTR MV	MOTOR MULTI-VAPOR	VOL VP	VOLUME VAPOR PROOF
)	EXPLOSION PROOF	IVIV	IVIOLII-V/M OIN	VP	VAPOR PROOF VAPOR TIGHT
0	EMERGENCY POWER OFF DEVICE	N	NEUTRAL	V -	V OIX II OIII
Q	EQUAL	N/A	NOT APPLICABLE	W	WATT
QUIP	EQUIPMENT	NC	NORMALLY CLOSED	W/	WITH
₹	EXISTING TO BE RELOCATED	NEC	NATIONAL ELECTRIC CODE	WP	WEATHERPROOF
JR VC	ELECTRIC UNIT HEATER	NEMA	NATIONAL ELECTROAL	WT	WATER TIGHT
VC VH	ELECTRIC WATER COOLER ELECTRIC WATER HEATER	NEUT	MANUFACTURER'S ASSOCIATION NEUTRAL	XFMR	TRANSFORMER
VН (EXISTING	NEUT NF	NON-FUSED	XFINIR	EXISTING TO BE REMOVED
•	2.31110	NIC	NOT IN CONRACT	XRL	EXISTING TO BE RELOCATED
	FUSE	NL	NIGHT LIGHT		
.l	FURNISH AND INSTALL FIRE ALARM	NO	NORMALLY OPEN	30cd	"30cd" INDICATES VISUAL STROBE
		NTS	NOT TO SCALE		LIGHT CANDELA

MUNICIPALITY APPROVAL STAMP

CLIENT: CLEAN FIELD POWER 211 ISLAND RD, MAHWAH, NJ 07430

CONTRACTOR:

NAPERVILLE, IL 60565 contact@inwavere.com

ELECTRICAL ENGINEER:

DESIGN 184.008367-0002

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM #

CIVIL ENGINEER:



1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 BONO CONSULTING bbono@bonoconsulting.com CIVIL ENGINEERS
A Sevee & Maher Engineers company

4234 MERIDIAN PKWY, STE 116
AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

SME
SEVEE & MAHER
ENGINEERS

4 BLANCHARD ROAD,
PO BOX 85A, CUMBERLAND
MAINE 04021
207-820-5016 207-829-5016 sme-engineers.com

PROJECT NAME:

BLUESTEM SOLAR

LOCATION: 41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE # ISSUED FOR: DATE 1 30% DESIGN SET 09/17/2025

DATE: 09/12/2025

SYMBOLS & ABBREVATIONS

PROJECT #:

IW-101

GENERAL NOTES

SUBMISSION OF BIDS.

- PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS REQUIRED FOR THE COMPLETE EXECUTION OF THE ELECTRICAL WORK AS SHOWN ON THE
- PROVIDE ALL ADDITIONAL WORK NOT SPECIFICALLY SHOWN OR SPECIFIED YET REQUIRED TO ENSURE PROPER AND COMPLETE OPERATION OF ALL SYSTEMS, TO SATISFY THE DESIGN INTENT, AND TO COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.
- ENSURE ALL LABOR IS PERFORMED BY EXPERIENCED PERSONS OF THE PROPER TRADE. ALL WORKMANSHIP SHALL BE FIRST CLASS, AND SHALL BE IN COMPLIANCE WITH THE SPECIFIC REQUIREMENTS OF THE CONTRACT DRAWINGS, AS WELL AS ALL APPLICABLE SAFETY CODES AND 'STANDARDS.
- NOTIFY THE ENGINEER IN WRITING OF ALL DRAWING DISCREPANCIES PRIOR TO
- PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE CODES INDICATED ON PV-001, AS WELL AS THE FOLLOWING: a. ALL LOCAL CODES, ORDINANCES, REGULATIONS;
- THE AUTHORITY HAVING JURISDICTION. ENSURE ALL MATERIALS PROVIDED ARE NEW, FREE OF DEFECTS, AND ARE UL LISTED FOR THE INTENDED APPLICATION. ALL ELECTRICAL MATERIALS, INSTALLATION AND SYSTEMS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS, INCLUDING THE LATEST ADDENDA AND AMENDMENTS: AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
 - ELECTRONIC INDUSTRY ASSOCIATION (EIA)
 - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION, (NECA)
 - NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 - TELECOMMUNICATION INDUSTRY ASSOCIATION (TIA) UNDERWRITER'S LABORATORIES, INC. (UL) ENSURE THE ELECTRICAL DRAWINGS ARE NOT TO BE SCALED. CONTRACTOR SHALL TAKE MEASUREMENTS AND MAKE LAYOUTS AS REQUIRED FOR THE
- PROPER INSTALLATION AND COMPLETION OF THE WORK WHERE SPECIFIC DETAILS AND DIMENSIONS ARE NOT SHOWN ON THE DRAWINGS. OBTAIN ALL NECESSARY PERMITS. ARRANGE ALL REQUIRED INSPECTIONS. AND
- PAY ALL FEES AND CHARGES INCIDENTAL THERE TO. INSPECT SITE FOR FIELD VERIFICATION OF ALL ASPECTS OF THE PROJECT PRIOR TO BIDDING. SUBMISSION OF A BID CONSTITUTES ACCEPTANCE OF FIELD
- CONDITIONS. INSTALL WORK AS REQUIRED TO FIT STRUCTURE, AVOID OBSTRUCTIONS, AVOID OR PROVIDE PROTECTION IN AREAS SUBJECT TO DAMAGE, RETAIN CLEARANCE,
- HEADROOM, OPENINGS AND PASSAGEWAYS. INSTALL ALL MATERIALS AND EQUIPMENT AND COMPLETE ALL WORK IN A NEAT AND WORKMANLIKE MANNER, AND IN ACCORDANCE WITH BEST-IN-CLASS MODERN METHODS AND PRACTICES. ANY MATERIALS INSTALLED WHICH DO NOT PRESENT AN ORDERLY AND REASONABLY NEAT AND/OR WORKMANLIKE APPEARANCE, OR DO NOT ALLOW ADEQUATE SPACE FOR MAINTENANCE, SHALL
- BE REMOVED AND REPLACED WHEN SO DIRECTED BY THE ENGINEER. COMMISSION EACH ITEM OF EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS; OR WHERE NOTED UNDER EQUIPMENT SPECIFICATION. COMMISSIONING SHALL BE PERFORMED BY QUALIFIED MANUFACTURER'S REPRESENTATIVE.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATION OF SWITCHES, PANELBOARDS, CONDUITS, AND OTHER WORK. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS PRIOR TO INSTALLATION OF WORK.
- THE ELECTRICAL CIRCUITS, COMPONENTS, AND CONTROLS ARE SELECTED AND SIZED FOR THE EQUIPMENT SPECIFIED AND OR SHOWN. IF SUBSTITUTIONS AND/OR EQUIVALENT EQUIPMENT ARE FURNISHED, IT SHALL BE THE RESPONSIBILITIES OF ALL PARTIES CONCERNED, INVOLVED IN AND FURNISHING THE SUBSTITUTE AND/OR EQUIVALENT EQUIPMENT TO VERIFY AND COMPARE THE ELECTRICAL CHARACTERISTICS OF THAT FURNISHED TO THAT SHOWN.
- FIELD COORDINATE EXACT ELECTRICAL CONNECTION POINTS TO EQUIPMENT PRIOR TO ROUGH IN OF ELECTRICAL COMPONENTS.
- FIELD COORDINATE EXACT ROUTING OF CONDUIT. SPECIFIED CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY.
- FURNISH AND INSTALL ALL RACEWAYS, BOXES, ENCLOSURES, AND CABINETS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- FURNISH AND INSTALL ALL CHANNEL AND ANGLE SUPPORTING SYSTEMS. HANGERS, ANCHORS, SLEEVES, BRACKETS, FABRICATED ITEMS, AND HARDWARE AS REQUIRED TO PROVIDE SECURE SUPPORT, PER NATIONAL ELECTRICAL CODE. SEE STRUCTURAL DRAWINGS FOR FOUNDATIONS AND EQUIPMENT SUPPORT AND
- ALL CONNECTIONS OF DISSIMILAR METALS SHALL BE MADE TO MINIMIZE GALVANIC ACTION, CORROSION OR ELECTROLYSIS. ALL CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SHALL ENSURE THAT METALS IN DIRECT CONTACT ARE GALVANICALLY COMPATIBLE.
- AFTER INSTALLATION OF ALL CONDUCTORS, CONTRACTOR SHALL COMPLETELY SEAL OFF ALL CONDUIT ENDS TO PREVENT THE POSSIBILITY OF ANY MOISTURE FROM ENTERING ANY ELECTRICAL ENCLOSURE. ALL USED AND UNUSED OPENINGS IN ALL EQUIPMENT, BOXES, AND ENCLOSURES SHALL BE SEALED WEATHERTIGHT WITH A MATERIAL THAT WILL ALSO PREVENT INSECT INCURSION.

- CONTRACTOR SHALL SUBMIT MANUFACTURER CUT SHEETS AND CATALOG DATA
- FOR ALL MATERIALS, A. CLEARLY INDICATING THE SPECIFIC PART OR PRODUCT CATALOG NUMBER(S) TO BE USED. ITEMS REQUIRING SIGNIFICANT LEAD TIME SHOULD BE SUBMITTED AS SOON AS POSSIBLE. ELECTRONICALLY SUBMIT 1 COPY OF ALL REQUESTED INFORMATION TO THE ENGINEER, NEATLY
- INDEXED PER CATEGORY, FOR THE FOLLOWING ITEMS: SWITCHBOARDS, PANELBOARDS, AC DISCONNECT SWITCHES.
- CONDUIT, RACEWAYS, WIREWAYS, ENCLOSURES, BOXES, FITTINGS, SUPPORTS AND HARDWARE. CONDUCTORS, BOTH DC AND AC. LICHT FIXTURES, RECEPTACLES, SWITCHES AND ASSOCIATED
- PHOTOVOLTAIC INVERTERS AND ASSOCIATED CONTROL SYSTEMS.
- PHOTOVOLTAIC MODULES.
- DC PHOTOVOLTAIC COMBINER BOXES, SPLICE BOXES AND DISCONNECT METERING AND COMMUNICATIONS EQUIPMENT.
- FOR ALL OWNER-FURNISHED EQUIPMENT, CONTRACTOR SHALL SUBMIT A COPY OF ALL INSTALLATION, COMMISSIONING AND PROGRAMMING DATA AND/OR SETTINGS, INCLUDING PASSWORD AND LOGIN DATA. CONTRACTOR SHALL ELECTRONICALLY SUBMIT A COPY TO THE ENGINEER.

- CONTRACTOR SHALL RECEIVE, INSPECT, UNLOAD AND INSTALL ALL SOLAR PHOTOVOLTAIC MODULES. ALL MODULES DAMAGED DURING SHIPPING SHALL BE REFUSED AND SHALL NOT BE INSTALLED. COORDINATE SPECIFIC SCOPE REQUIREMENTS DURING BIDDING.
- MODULES SHALL BE INSTALLED, SECURED, AND MECHANICALLY GROUNDED TO THE RACKING SYSTEM AND EACH OTHER PER THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PER UL LISTING TO ENSURE ELECTRICAL CONTINUITY
- CONTRACTOR SHALL NOT PLACE ANY TOOLS, EQUIPMENT OR OTHER WEIGHT (INCLUDING BODYWEIGHT) ON THE SURFACE PORTION OF ANY MODULE. CONTRACTOR SHALL PROMPTLY REPORT MODULE DAMAGE. INCLUDING MICRO-FRACTURES, AND SHALL IMMEDIATELY REPLACE THE DAMAGED MODULE WITH A NEW, UNDAMAGED MODULE AT CONTRACTOR'S EXPENSE.

- CONTRACTOR SHALL RECEIVE, UNLOAD AND INSTALL ALL INVERTERS, ASSOCIATED ACCESSORIES. COORDINATE SPECIFIC SCOPE REQUIREMENTS
- DURING BIDDING. INVERTERS SHALL BE NEW, UTILITY GRADE, FROM A REPUTABLE MANUFACTURER, AND SHALL BE SPECIFICALLY DESIGNED FOR GRID-TIED PHOTOVOLTAIC INSTALLATIONS.
- INVERTERS SHALL MEET THE FOLLOWING MIN. STANDARDS: UL 1741 SA STANDARD FOR INVERTERS, CONVERTERS, CONTROLLERS AND INTERCONNECTION SYSTEM EQUIPMENT FOR USE WITH DISTRIBUTED ENERGY RESOURCES. IEEE 929-2000 - RECOMMENDED PRACTICE FOR UTILITY INTERFACE OF PHOTOVOLTAIC (PV) SYSTEMS.
- COORDINATE SPECIFIC SCOPE REQUIREMENTS DURING BIDDING. INVERTERS SHALL BE INSTALLED, SECURED, WIRED, TESTED AND GROUNDED
- PER THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. CONTRACTOR SHALL CONFIGURE ALL INVERTER PROTECTION AND COMMUNICATIONS SETTINGS IN COMPLIANCE WITH LOCAL UTILITY STANDARDS,
- AHJ REQUIREMENTS, AND SHALL COORDINATE WITH OWNER'S REPRESENTATIVE TO PROVIDE MONITORING ACCESS.

- ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE SPECIFIED AND INSTALLED IN ACCORDANCE WITH NEMA STANDARDS AND TYPE NUMBER AND SHALL BE SUITABLE FOR THE LOCATION CONDITIONS.
- ALL EXTERIOR ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE MIN.TYPE NEMA 3R OR 4. THIS SHALL INCLUDE BUT NOT BE LIMITED TO SWITCHBOARDS, DISTRIBUTION PANELS, CONTROL CABINETS, PULL BOXES, JUNCTION BOXES, DISCONNECT SWITCHES, COMBINER BOXES, WIREWAYS, ETC.

ALL ENCLOSURES SHALL BE PROVIDED WITH PADLOCKING PROVISIONS OR

ALL SOLAR PHOTOVOLTAIC MODULES AND OTHER MATERIALS ENCLOSURES, INCLUDING LARCE CONTRACTOR INSTALLED ELECTRICAL EQUIPMENT (INCLUDING SWITCHBOARDS, DISTRIBUTION PANELS, CONTROL CABINETS, PULL BOXES, JUNCTIONS BOXES, COMBINER BOXES, AND INVERTERS) SHALL BE ENTIRELY LOCATED AT OR ABOVE THE EQUIPMENT ELEVATION SHOWN, UNLESS OTHERWISE APPROVED BY OWNER. CONTRACTOR SHALL PROVIDE SAFE EGRESS IN COMPLIANCE WITH OSHA AND CUSTOMER STANDARDS TO ALLOW FOR ACCESS TO SUCH EQUIPMENT ENCLOSURES FOR OPERATIONS AND MAINTENANCE RESPONSIBILITIES. SUCH EGRESS FEATURES SHALL INCLUDE BUT NOT BE LIMITED TO STAIRS, LADDERS, HANDRAILS, TIE-OFF POINTS, ETC.

EQUIVALENT

- ALL CONDUCTORS, LUGS AND CABLE ACCESSORIES SHALL BE NRTL LISTED TO APPLICABLE UL STANDARDS.
- ALL LOW VOLTAGE AC WIRING SHALL UTILIZE COPPER CONDUCTORS WITH INSULATION AND INSULATION LEVELS AS NOTED ON THE PLANS.
- ALL AC WIRING RATING TO BE AS PER THE AC CABLE SCHEDULE ON THE PLANS. ALL MEDIUM VOLTAGE AC WIRE SHALL BE ALUMINUM 15KV, MV105, 13370, 100% CONCENTRIC COPPER NEUTRAL, TRXLPE OR EPR OR URD RATED FOR DIRECT BURIAL BELOW GROUND AND INSTALLED IN PVC80 CONDUIT WHEN BURIED IN TRENCH REFER TO PLANS FOR SPECIFIC DETAILS IF AN UNDERGOUND CABLE RUN IS TO BE CONCRETE ENCASED.
- ALL CONDUCTORS INSTALLED BELOW THE EQUIPMENT ELEVATION (AND THEREFORE INCLUDES CONDUCTORS BELOW GRADE) MUST BE LISTED FOR USE IN WET LOCATIONS (PER NEC AND UL DEFINITIONS, INCLUDING SUBMERSION). AND BE OF A CORROSION RESISTANT DESIGN. ALL UNDERGROUND WIRING SHALL BE IN PVC80 CONDUIT AND BE CONCRETE ENCASED WHERE SPECIFIED ON THE
- ALL CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH CURRENT NEC CODE REQUIREMENTS
- CONDUCTORS SHALL HAVE INTEGRAL COLORING OR COLORED HEAT SHRINK SLEEVE AT ALL TERMINATIONS TO INDICATE GROUNDED CONDUCTORS, EQUIPMENT GROUNDING CONDUCTORS, AND AC PHASE CONDUCTORS. COLOR CODING SHALL BE AS FOLLOWS:

WN BLACK BROWN BLACK

- ALL LUGS AND CONNECTORS SHALL BE 90C RATED, UL LISTED AND DESIGNATED FOR USE WITH THE CONDUCTOR BEING CONNECTED LUGS AND CONNECTORS USED TO TRANSITION FROM COPPER TO ALUMINUM WIRE SHALL BE LISTED AND RATED FOR SUCH USE. APPLY ANTI-OXIDANT
- COATING MATERIAL TO ALL ALUMINUM TERMINATIONS. ALL AC POWER CONDUCTOR TERMINATIONS SHALL BE IRREVERSIBLE. DOUBLE CRIMP, LONG BARREL, TWO BOLT COMPRESSION TYPE LUGS RATED AT 90C AND APPROVED BY THE EQUIPMENT MANUFACTURER OR SUPPLIER. WHERE NOT POSSIBLE, SINGLE BOLT COMPRESSION LUGS MAY BE USED. MECHANICAL SET SCREW TERMINATIONS ARE APPROVED FOR EQUIPMENT TERMINATIONS WITH FACTORY INSTALLED MECHANICAL LUGS. ALL CRIMPED CONNECTIONS MUST BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. COAT CONDUCTOR WITH
- DIELECTRIC GREASE PRIOR TO CRIMPING. PROVIDE A MAX. OF TWO STACKABLE COMPRESSION LUGS WHEN MORE THAN ONE COMPRESSION LUC NEEDS TO BE TERMINATED AT A SINGLE SET OF BUS BAR HOLES
- NO SPLICING OF ANY WIRES WITHOUT WRITTEN CONSENT OF OWNER. ALL UNDERGROUND WIRING SHALL BE CONTINUOUS WITHOUT SPLICES.
- ALL SINGLE PHASE POWER CIRCUITS SHALL HAVE A DEDICATED NEUTRAL. CLASS 1 AND CLASS 2 CONTROL CIRCUITS SHALL BE TYPE THHN/THWN,
- INSTALLED IN RACEWAY. TERMINAL SCREW TORQUE SPECS PER MANUFACTURER TO BE FOLLOWED AND WITNESSED BY QA.

DC SYSTEM WIRING:

- ALL CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH CURRENT NEC CODE REQUIREMENTS, INCLUDING TEMPERATURE RATING, AND OWNER SPECIFIED
- ALL CONDUCTORS INSTALLED BELOW THE EQUIPMENT ELEVATION (AND THEREFORE INCLUDES CONDUCTORS BELOW GRADE) MUST BE LISTED FOR USE IN WET LOCATIONS (PER NEC AND UL DEFINITIONS, INCLUDING SUBMERSION), AND BE OF A CORROSION RESISTANT DESIGN.
- ALL DC STRING AND STRING TO INVERTERS, CONDUCTORS AND CABLES SHALL BE COPPER TYPE "PV-2", 2000VDC, 90'C (WET OR DRY), W RESISTANT, COPPER WIRE, UL 4703. DC CONDUCTORS FROM DC BOXES TO INVERTERS SHALL BE ALUMINUM.
- FURNISH STRANDED WIRE FOR SIZES # 12 AND LARGER UNLESS OTHERWISE NOTED. MIN. CONDUCTOR SIZE SHALL BE AWG # 12. ALL STRING WIRE SHALL BE ALL WIRES AND CABLE SHALL HAVE UV RESISTANT AND OUTDOOR RATED WRAP-
- AROUND LAMINATING VINYL MACHINE PRINTED ID LABELS OR OTHER APPROVED LABELING METHOD INDICATING DESIGNATION AND POLARITY. CONDUCTORS SHALL HAVE INTEGRAL COLORING OR A COLORED OUTDOOR RATED HEAT SHRINK SLEEVE AT ALL TERMINATIONS TO INDICATE GROUNDED CONDUCTORS, EQUIPMENT GROUNDING CONDUCTORS AND CURRENT-CARRYING CONDUCTORS, PER NEC REQUIREMENTS AND INDUSTRY STANDARDS. COLOR CODINC SHALL BE
 - a. PV POSITIVE (+): RED PV NEGATIVE (-): BLACK
- GROUND: GREEN WITH STRIPE OR BARE SERIES STRING CONNECTIONS BETWEEN SOLAR PHOTOVOLTAIC MODULES SHALL BE VIA FACTORY-SUPPLIED TYPE "MC4" QUICK CONNECT CONNECTORS. FIELD INSTALLED QUICK CONNECT CONNECTORS SHALL BE OF THE SAME MAKE AND MODEL AS THOSE FACTORY SUPPLIED WITH THE MODULES. ALL MODULE CONNECTORS SHALL BE UL LISTED, NEC 690 COMPLIANT, LATCHING TYPE WITH

POSITIVE LATCHING INDICATOR. CONNECTORS SHALL BE POLARIZED SUCH THAT

- POSITIVE AND NEGATIVE TERMINALS ARE NOT INTERCHANGEABLE. STRING WIRING SHALL BE RATED FOR DIRECT SUNLIGHT EXPOSURE. STRING WIRING SHALL BE PROPERLY SUPPORTED TO RACK AND/OR MODULE FRAMES USING STAINLESS STEEL PV CABLE CUPS, AND/OR OTHER OWNER-APPROVED WIRE MANAGEMENT METHOD. NYLON CABLE TIES SHALL NOT BE ALLOWED. PV CABLE CLIPS AND WIRE MANAGEMENT METHOD MUST BE APPROVED BY OWNER BEFORE INSTALLATION. ALL CABLES SHALL BE SECURED MIN. 24" ON CENTER AND 6" AT EACH END WHEN CHANCING DIRECTION. NO CABLE SHALL BE ALLOWED TO TOUCH THE SURFACE OF THE GROUND.
- RUN WIRING UNDERNEATH MODULE FRAMES, ALONG THE TRACKER TABLE FRAMING
- STRING WIRING SHALL ENTER ENCLOSURES THROUGH CONDUIT, CORD GRIPS, OR OTHER APPROVED METHOD THAT WILL PROPERLY SEAL THE PENETRATION AND UPHOLD THE WEATHERPROOF RATING OF THE ENCLOSURE OR BOX.
- ON PROJECTS WITH COMBINERS, COMBINER OUTPUT FEEDERS SHALL BE ALUMINUM, WITH THERMOSET XLPE INSULATION AND JACKET MATERIALS, NON-THERMOPLASTIC INSULATION. CABLE SHALL BE 2000V RATED, WET LOCATION, 90
- C OR BETTER. ALL POWER CONDUCTOR TERMINATIONS SHALL BE IRREVERSIBLE, DOUBLE CRIMP, LONG BARREL, TWO BOLT COMPRESSION TYPE LUGS RATED AT 90C WHERE APPROVED BY THE EQUIPMENT MANUFACTURER OR SUPPLIER. WHERE NOT POSSIBLE. SINGLE BOLT COMPRESSION LUGS MAY BE USED. MECHANICAL SET SCREW TERMINATIONS ARE APPROVED FOR COMBINER BOX TERMINATIONS ONLY. ALL CRIMPED CONNECTIONS MUST BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- ALL CONTROL AND INSTRUMENTATION CONDUCTORS SHALL BE TERMINATED BY CONTRACTOR. ALL LUGS AND CONNECTORS SHALL BE 90C RATED, UL LISTED AND DESIGNATED
- FOR USE WITH THE CONDUCTOR BEING CONNECTED.
- NO SPLICING OF ANY WIRES SHALL BE PERFORMED WITHOUT WRITTEN CONSENT FROM OWNER.
- TERMINAL SCREW TORQUE SPECS PER MANUFACTURER TO BE FOLLOWED AND
- ALL DC WIRING INSTALLED BELOW GRADE SHALL BE RATED SUITABLE FOR DIRECT BURIAL IN PVC80 CONDUIT AND BE CONCRETE ENCASED BELOW VEHICULAR TRAVELED SURFACES.

THESE SPECIFICATIONS ARE PROVIDED FOR GENERAL INSTALLATION AND EQUIPMENT REQUIREMENTS. REFER TO OWNER SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. SHOULD THERE BE ANY CONFLICTS BETWEEN THE SPECIFICATIONS HEREIN AND THAT OF THE OWNER. THE OWNER SPECIFICATIONS SHALL TAKE PRECEDENCE.

- MODULE EQUIPMENT GROUNDING CONNECTION SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S CUIDELINES AND APPLICABLE LISTINGS. MODULE FRAME GROUNDING HARDWARE SHALL BE LISTED TO ULJ70J AND SPECIFIED BY MODULE MANUFACTURER AS ACCEPTABLE FOR USE WITH THE MODULE MODEL. WEEBS WILL BE CONSIDERED AN ACCEPTABLE MEANS OF GROUNDING BUT THEIR USE MUST BE AN APPROVED USE BY THE APPLICABLE MANUFACTURER(S). MANUFACTURER'S APPROVAL LETTER FOR THE SPECIFIC CASE MUST BE PROVIDED TO OWNER AND APPROVED BY OWNER, OTHERWISE A CONTINUOUS GROUND LOOP MUST BE INSTALLED.
- METHODS THAT GROUND MODULE FRAMES BY UTILIZING THE RACKING AS THE GROUNDING MEANS SHALL BE LISTED TO UL 3703.
- ALL BRANCH AND FEEDER CIRCUITS SHALL CONTAIN A GROUNDING CONDUCTOR UNLESS OTHERWISE NOTED, AND BE SIZED AND BONDED IN ACCORDANCE WITH NEC ART. 250.
- UNLESS OTHERWISE NOTED, CROUNDING CONDUCTORS SHALL BE COPPER. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED WITH GREEN-COLORED INSULATION. UNDERGROUND CONDUCTORS SHALL BE BARE, TINNED. AND STRANDED. USE ONLY COPPER CONDUCTORS FOR BOTH INSULATED AND BARE GROUNDING CONDUCTORS IN DIRECT CONTACT WITH EARTH, CONCRETE MASONRY, CRUSHED STONE AND SIMILAR MATERIALS. IN RACEWAYS, USE INSULATED EQUIPMENT GROUNDING CONDUCTORS. EXPOSED BARE EQUIPMENT
- GROUNDING CONDUCTORS WILL BE MIN. 6 AWG COPPER. INSTALL INSULATED EQUIPMENT CROUNDING CONDUCTORS WITH CIRCUIT CONDUCTORS FOR THE FOLLOWINC ITEMS, IN ADDITION TO THOSE REQUIRED BY NEC: FEEDERS AND BRANCH CIRCUITS; RECEPTACLE CIRCUITS; SINGLE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS: THREE-PHASE MOTOR AND
- APPLIANCE BRANCH CIRCUITS; FLEXIBLE RACEWAY RUNS. ALL NON-CURRENT CARRYING EXPOSED METAL PARTS OF SYSTEM JUNCTION BOXES, EQUIPMENT, MODULE FRAMES, SUPPORT RACKING, INVERTER CASES AND APPLIANCES IN THE ENTIRE ELECTRICAL SYSTEM THAT MAY BE ACCIDENTALLY ENERGIZED SHALL BE GROUNDED PER NEC 690.43 AND 690.45 AND SIZED PER
- GROUND LUGS SHALL BE MECHANICAL AND ACCEPTABLE FOR COPPER CONDUCTOR TERMINATION. LUGS SHALL BE SELECTED SO AS TO PREVENT GALVANIC CORROSION AND DISSIMILAR THERMAL EXPANSION OF LUGS AND
- TIN-PLATED COPPER LAY-IN GROUND LUGS OR CONDUIT GROUND CLAMPS SHALL BE PROVIDED FOR ALL METALLIC CONDUIT CARRYING POWER CONDUCTORS. SUCH MEANS OF GROUNDING SHALL NOT BE REQUIRED FOR METALLIC CONDUIT CARRYING COMMUNICATION CONDUCTORS.
- ALL GROUND LUGS NOT INSTALLED IN AN ENCLOSURE MUST BE UL LISTED FOR
- ALL EQUIPMENT GROUNDING CONDUCTORS (EGC) AND GROUNDING ELECTRODE CONDUCTORS (CEC) SHALL BE SIZED IN ACCORDANCE WITH THE PROPER SECTIONS OF THE NEC.
- METALLIC CONDUIT CONTAINING A GROUNDING ELECTRODE CONDUCTOR MUST BE BONDED AT BOTH ENDS.
- ALL INVERTERS AND INTERCONNECTION SWITCHBOARDS SHALL UTILIZE A GROUNDING ELECTRODE SYSTEM CONSISTING OF A GROUND RINC/CRID SIZED AND INSTALLED TO COMPLY WITH NEC AND IEEE STANDARDS. IF THE APPLICABLE GOVERNMENTAL AUTHORITY REQUIRES A GROUNDING CONDUCTOR TO BE EXTENDED FROM THE GROUND GRID TO THE EXISTING BUILDING STRUCTURE, SUCH WORK WILL BE INCLUDED IN SCOPE AT NO EXTRA COST TO OWNER.
- EQUIPMENT GROUNDING CONDUCTORS SHALL BE ROUTED WITH ALL CIRCUIT AND PHASE CONDUCTORS.
- ALL BELOW GRADE CONNECTIONS SHALL BE EXOTHERMICALLY WELDED AND UL LISTED FOR DIRECT BURIAL APPLICATIONS. GROUND RODS, IF REQUIRED, SHALL BE SECTIONAL COPPER-CLAD STEEL, 3/4" IN
- DIAMETER BY 10' DRIVEN VERTICALLY. PROVIDE MECHANICAL CONNECTIONS FOR CONNECTIONS TO STRUCTURAL STEEL
- AND FOR UNDERGROUND CONNECTIONS. ALL EXPOSED GROUND CONNECTIONS TO EQUIPMENT SHALL BE CABLE LUGS
- WITH BOLTED/MECHANICAL ATTACHMENTS. USE INSULATED COPPER EQUIPMENT GROUNDING CONDUCTORS FOR GROUNDING RACKING SYSTEMS WHEN ALUMINUM RACKING IS USED. BOND TO RACKING WITH CU-AL RATED LUGS PER RACKING MANUFACTURER'S
- REQUIREMENTS. INSTALL CU INSULATED BONDING JUMPERS BETWEEN ADJACENT RACKS PER
- MANUFACTURERS GROUNDING AND INSTALLATION DETAILS. GROUNDING SCREWS SHOULD BE THREAD-FORMING OR HOT DIPPED, NOT THREAD CUTTING.

CONDUCTOR PROTECTION

- ALL ABOVE GROUND AC CABLES SHALL BE PROTECTED IN CONDUIT OR CABLE TRAYS OR INSTALLED IN A CAB SYSTEM, AS NOTED ON THE PLANS.
- PULL AND JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE THE INSTALLATION OF WIRING. BENDS IN CONDUITS BETWEEN PULL BOXES SHALL NOT EXCEED THE EQUIVALENT OF FOUR 90 DEGREE BENDS. CONDUITS REQUIRING FIELD CUTTING SHALL BE CUT SQUARE AND DE-BURRED. CONDUIT END BELLS OR BUSHINGS SHALL BE PROVIDED TO PREVENT CABLE
- BENDS IN CONDUITS SHALL NOT DAMACE RACEWAYS OR SIGNIFICANTLY CHANCE THE INTERNAL DIAMETER OF RACEWAYS (NO KINKS). COMMUNICATIONS WIRING SHALL BE RUN IN SEPARATE CONDUITS FROM POWER
- ALL AC BRANCH CIRCUIT WIRE SHALL BE INSTALLED IN RACEWAY, UNLESS
- OTHERWISE NOTED. MIN. SIZE SHALL BE 3/4". ALL EXPOSED CONDUITS INSTALLED IN EXTERIOR LOCATIONS SHALL BE RCSC
- RACEWAYS SHALL BE SUPPORTED BY APPROVED TYPES OF GALVANIZED SUPPORTS. USE STAINLESS STEEL HARDWARE AND CONDUIT STRAPS OUTDOORS. PAINT ALL EXPOSED MATERIALS TO MATCH EXISTING COLORS.
- JOB CUT THREADS SHALL BE GIVEN A COAT OF RUST RESISTANT PAINT SUCH AS ZINC CHROMATE OR EQUAL. WIRE TERMINATIONS AND SPLICES SHALL BE COMPLETED WITH THE APPROPRIATE UL LISTED HEAVY DUTY RATCHETING TYPE JAWS AND
- INTERCHANGEABLE DIES FOR PROPER CRIMPING OF TERMINALS. TERMINALS SHALL BE UN-INSULATED TYPE AND CORRECTLY SIZED FOR THE WIRE USED. BLOCKS AND TERMINAL LUGS SHALL BE LISTED FOR THE APPROPRIATE
- CONDUCTOR MATERIAL. AFTER INSTALLATION OF CONDUCTORS, ALL RACEWAYS SHALL BE SEALED WITH
- DUCTSEAL INSTALL MAGNETIC WARNING TAPE ABOVE ALL BURIED WIRE.

- MONITORING: ALL THE CONTRACTOR SHALL:
- FURNISH AND INSTALL ALL COMMUNICATIONS DEVICES NECESSARY TO BRING ALL PV SYSTEM DATA TO THE OWNER'S IT EQUIPMENT RACK. FINAL SYSTEM CONNECTIVITY TO BE DETERMINED BY OWNER.
- FURNISH AND INSTALL AN RS485, 2C#16, SHIELDED, TWISTED PAIR CABLE BETWEEN EACH INVERTER AND A SYSTEM COMMUNICATIONS GATEWAY. (GATEWAY TO BE COMPATIBLE WITH SUPPLIED INVERTERS). GROUND SHIELD PER INVERTER MANUFACTURER'S REQUIREMENTS. OR INSTALL OWNER FURNISHED AC-POWER LINE CARRIER (AC-PLC) PER INVERTER MANUFACTURER'S
- CONNECT COMMUNICATIONS GATEWAY ETHERNET OUTPUT TO OWNERS I-AN SWITCH, IF AVAILABLE. ETHERNET CABLE SHALL HAVE RJ45 CONNECTORS AT EACH END. ETHERNET CABLE SHALL BE CONSISTENT WITH OWNERS LAN (CAT5e

ALL EXTERIOR MOUNTING HARDWARE USED SHALL BE STAINLESS STEEL, SIZED PER SYSTEM MANUFACTURER'S RECOMMENDATIONS. USE ANTI-SEIZE FOR EACH

PANELBOARDS SHALL BE FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-

- CIRCUIT CURRENT AVAILABLE AT TERMINALS. PANELBOARDS SHALL UTILIZE CIRCUIT-BREAKER TYPE OCPD's AND ALL PHASE AND GROUND BUSSES SHALL BE UNLESS OTHERWISE NOTED, ALL ENCLOSURES FOR OUTDOOR EQUIPMENT SHALL BE NEMA 3R OR 4 RATED ENCLOSURES. ENCLOSURES FOR INDOOR EQUIPMENT
- SHALL BE NEMA I RATED. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SPOILS FROM THE PROJECT SITE. CONTRACTOR SHALL PROVIDE DUMPSTERS OR OTHER CONTAINERS AS REQUIRED, AND SHALL COORDINATE LOCATIONS AND PICKUP SCHEDULES WITH THE OWNER TO MINIMIZE INTERRUPTION.

- CONTRACTOR SHALL PERFORM START-UP AND COMMISSIONING UPON COMPLETION OF INSTALLATION OF THE FACILITY. TO SUCCESSFULLY COMMISSION THE FACILITY, CONTRACTOR MUST ENSURE A COMPLETE INSTALLATION, APPROPRIATE CONFIGURATION, AND MUST DEMONSTRATE THAT THE FACILITY PERFORMS IN ITS FULL, PROPER OPERATING CONDITION. CONTRACTOR SHALL RECORD ALL MEASURED DATA AND PROVIDE OWNER AND ENGINEER WITH A DETAILED REPORT RECARDINC ANY ISSUES THAT CONTRACTOR DISCOVERS
- DURING SUCH PERFORMANCE TESTING. PROVIDE FINAL CLEANUP AND CONDUCT FIELD TESTS AFTER INSTALLATION OF ALL ELECTRICAL WORK. ADJUST ITEMS TO THE SATISFACTION OF THE OWNER AND ENGINEER. LEAVE ALL EQUIPMENT INTERIORS CLEAN AND FREE FROM CONSTRUCTION DEBRIS. NEATLY DRESS ALL WIRING, AND RE-TICHTEN ALL TERMINATIONS PER MANUFACTURERS' RECOMMENDATIONS.
- AS A CONDITION OF ACHIEVING SUBSTANTIAL COMPLETION. CONTRACTOR SHALL COMPLETE ALL ITEMS IDENTIFIED IN THE PUNCHLIST. PUNCHLIST SHALL BE PREPARED BY OWNER AND OWNER'S ENGINEER.

REQUEST FOR INFORMATION:

UNLESS SPECIFIED DIFFERENTLY IN THE CONTRACT DOCUMENTS:

ALL QUESTIONS OR REQUESTS FOR INFORMATION (RFI) SHALL BE SUBMITTED IN WRITING DIRECTLY TO OWNER. PLEASE INCLUDE: I) DATE; 2) THE PROJECT NAME; 3) FIRM NAME; 4) YOUR NAME : 5) DRAWING NUMBER, DATE AND REVISION NUMBER AND/OR SPECIFICATION SECTION REFERENCE; AND 6) ADEQUATE SPACE FOR REPLY. OWNER WILL REFER ALL ENGINEERINC RFIs TO THE PRIME CONSULTANT AS DETERMINED BY OWNER.

UNDOCUMENTED PHONE CALLS SHALL NOT BE USED AS A BASIS FOR ANY FUTURE CONTRACTOR

WIRING AND WIRING METHODS:

- IF APPLICABLE, PV MODULES SHALL FOLLOW SKIP STRINGING WITH TYP. WIRE MANAGEMENT PRACTICES. ALL CONNECTORS SHALL BE MANUFACTURER &
- HOMERUNS FROM THE STRINGS BACK TO THE DC COMBINERS, AND FROM THE COMBINERS BACK TO THE INVERTERS, SHALL BE SIZED AS NOTED ON THE PLANS. ALL HOMERUNS SHALL BE MIN. #10 AWC. PROVIDE #10 AWG GREEN GROUNDING CONDUCTOR WITH EACH STRING. NO STRING CABLE LENGTH (ROUND-TRIP) SHALL

UTILITY COORDINATION:

- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ITS WORK WITH THE OWNER AND UTILITY.
- IT WILL BE NECESSARY FOR THE UTILITY TO INSTALL REVENUE METERING AND UTILITY RELAYING AND RECLOSER. THE CONTRACTOR SHALL COORDINATE ITS WORK WITH THE UTILITY AND OWNER. OVERHEAD POLE MOUNTED WIRING WILL BE NECESSARY TO ACCOMMODATE THE CONNECTION OF THE SOLAR SYSTEM TO THE GRID AT THE DESIGNATED POI
- FURNISH OVERHEAD WIRE TO MATCH UTILITY CABLE IN TYPE AND SIZE.
- PULL LINE TENSION TO UTILITY REQUIREMENTS AND INSTALL GUYING AS DETAILED ON THE PLANS. INSTALL ALL OVERHEAD W EQUIPMENT TO MANUFACTURER'S REQUIREMENTS. AS

NOTED ON THE PLANS AND TO UTILITY REQUIREMENTS. SET RELAYS AND

MARKING OR LABELING:

- SHALL COMPLY WITH NEC. FOR LOW VOLTAGE AC AND ALL DC MAIN DISCONNECTS, PROVIDE LABELS
 - WARNING ELECTRIC SHOCK HAZARD
 - DO NOT TOUCH TERMINALS
- TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

"OFF" POSITION TO SHUTDOWN PV.

SYSTEM AND REDUCE SHOCK HAZARD

EQUIPMENT: ALL MAJOR EQUIPMENT SHALL BE AS INDICATED BY THE OWNER.

- FOR MAIN AC DISCONNECT, ALSO PROVIDE THE FOLLOWING LABEL: PLACE THIS SWITCH IN THE
- IN THE ARRAY. FOR NEW AC COMBINER AND OCPD PANELS, PROVIDE LABEL WARNING

MULTIPLE POWER SOURCES

MUNICIPALITY APPROVAL STAMP





ELECTRICAL ENGINEER:



contact@inwavere.com

MAHWAH, NJ 07430

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # **DESIGN** 184.008367-0002

CIVIL ENGINEER:



PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

4 BLANCHARD ROAD,

MAINE 04021

207-829-5016

sme-engineers.com

PO BOX 85A, CUMBERLAND

1018 BUSSE HIGHWAY

ENGINEERS

SEVEE & MAHER

PROJECT NAME:

SME _

BLUESTEM SOLAR

LOCATION: 41°45'08.6"N 88°24'16.0"W

AURORA, KANE COUNTY, IL

ISSUE#	ISSUED FOR:	DATE							
1	30% DESIGN SET	09/17/2025							

TITLE:

DATE: 09/12/2025

PROJECT #:

GENERAL NOTES

IW-101

GENERAL NOTE

- FENCING AND ACCESS ROADS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY. REFER TO CIVIL DWG FOR FINAL DESIGN.
- WETLAND, TILE DRAIN, AND OTHER SITE ENVIRNOMENTAL RELATED ASPECTS ARE SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO OWNER PROVIDED STUDIES AND SURVEYES FOR EXACT INFORMATION.



KEY NOTES

TREES ALONG THE EAST PROPERTY LINE TO BE CLEARED. REFER TO CIVIL

- 2 UTILITY POLE. SIZE, SPEC AND SPACING TO BE DETERMINED BY THE UTILITY. WORK TO BE UNDERTAKEN BY THE UTILITY; SHOWN FOR INFORMATION
- 3 POLE LAYOUT, EQUIPMENT AND ARRANGEMENT IS TYP. FOR EACH SYSTEM.
- 4 TYP. MIN. CLEARNACE FOR ALL POLES WITH EQUIPMENT.
- 5 ALL POLES ARE TO BE 60' TALL AND CLASS 1. 6 MV CONDUIT FROM THE SOLAR SYSTEMS. MAINTAIN MIN. 36" COVER FROM GRADE TO TOP OF CONDUIT AND MAINTAIN 6' FROM THE EDGE OF THE ROAD TO THE FIRST CONDUIT. REFER TO DETAIL.

CLIENT: **CLEAN FIELD**

MUNICIPALITY APPROVAL STAMP

211 ISLAND RD, MAHWAH, NJ 07430 CONTRACTOR:

NAPERVILLE, IL 60565

contact@inwavere.com

ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # DESIGN 184.008367-0002

CIVIL ENGINEER:



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SME SEVEE & MAHER ENGINEERS

PROJECT NAME:

4 BLANCHARD ROAD, PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

BLUESTEM SOLAR

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE #	ISSUED FOR:	DATE
1	30% DESIGN SET	09/17/2025
OEAL.	1	
SEAL:		

DATE: 09/12/2025

TITLE:

KEYPLAN

3

SITE PLAN

PROJECT #:

IW-101

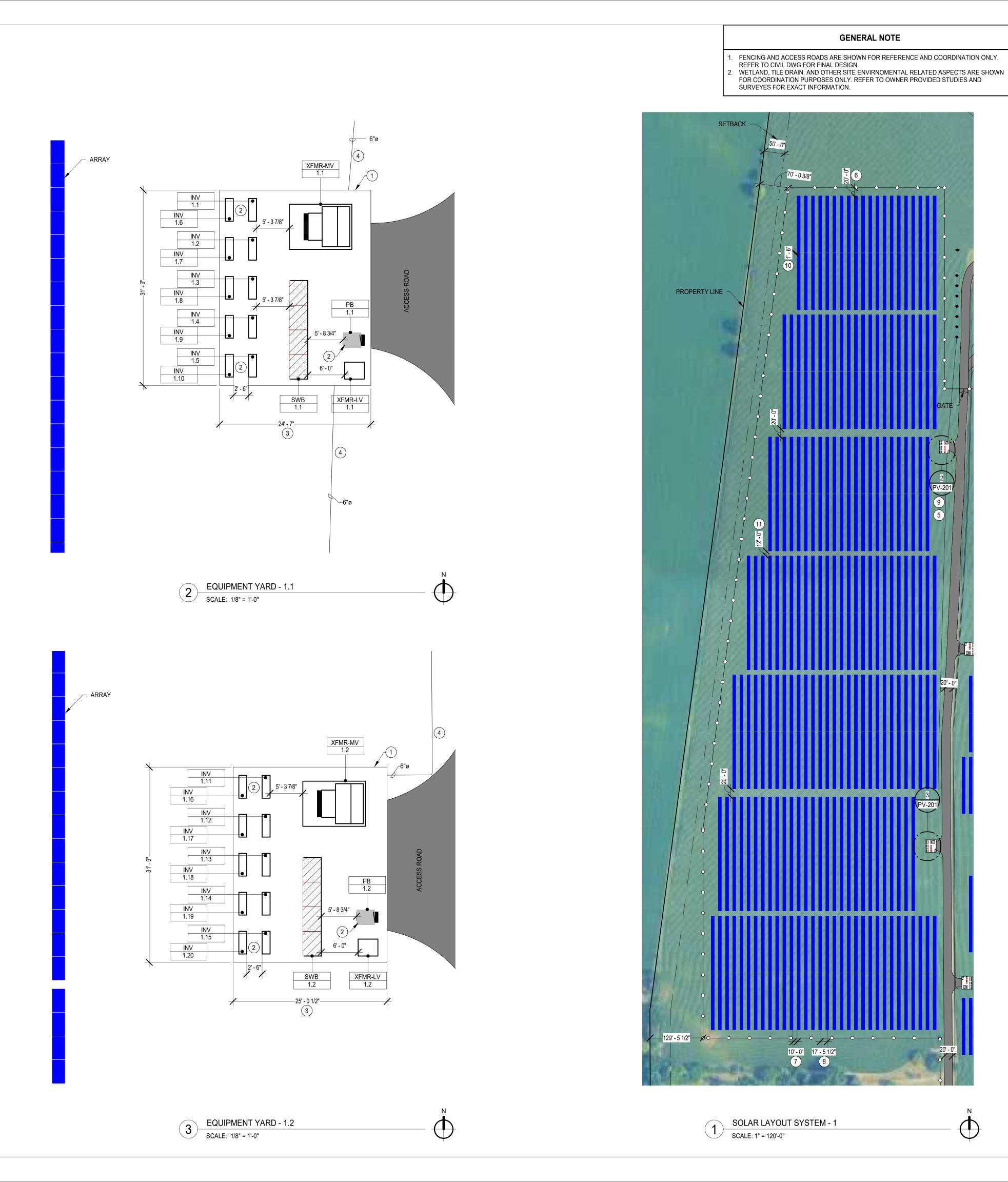
PV-101

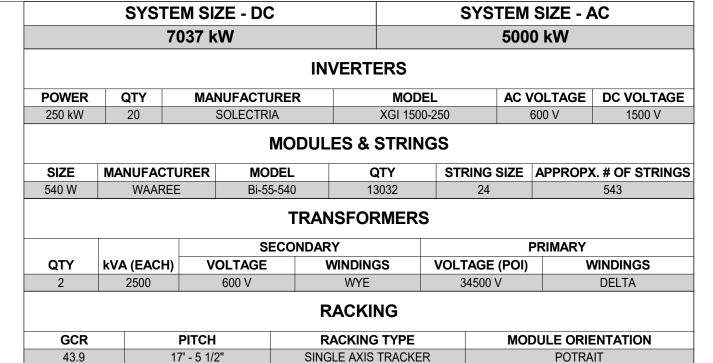


2 ENLARGED POI PLAN
SCALE: 1" = 60'-0"

SITE PLAN

SCALE: 1" = 250'-0"





(#) KEY NOTES

1 STRUCTURAL FOUNDATION PAD FOR THE SOLAR AND ELECTRICAL EQUIPMENT. 2 INSTALL EQUIPMENT ON STRUCTURAL SUPPORT. REFER TO MANUFACTURER.

- INSTRUCTIONS. 3 MAINTAIN CLEARANCES SHOWN. TYP. OF ALL DIMENSIONS LISTED.
- 4 MIN. COVER: 36" FROM FINISHED GRADE TO TOP OF CONDUIT.
- 5 MAINTAIN 6' FROM THE EDGE OF THE ROAD TO THE FIRST CONDUIT. PROVIDE A BUFFER ZONE OF 3' STARTING FROM THE LAST CONDUIT IN THE DIRECTION AWAY FROM THE ROAD.
- 6 TYP. DISTANCE FROM FENCE TO ALL PANELS UNLESS NOTED OTHERWISE 7 ROW TO ROW SPACING.
- 8 ROW PITCH.
- 9 MV CONDUIT FROM THE SOLAR SYSTEMS. MAINTAIN MIN. 36" COVER FROM GRADE TO TOP OF CONDUIT. REFER TO DETAIL. 10 CLEARANCE PROVIDED FOR TRACKER MOTOR INSTALLATION. TYPICAL OF ALL
- ARRAYS. FINAL REQUIREMENTS TO BE CONFIRMED BY RACKING DESIGN.
- 11 ALL AISLEWAYS ARE TO BE TYPICAL TO THIS DIMENSION UNLESS STATED OTHERWISE.

MUNICIPALITY APPROVAL STAMP

CLIENT: **CLEAN FIELD**

211 ISLAND RD, MAHWAH, NJ 07430

CONTRACTOR:

NAPERVILLE, IL 60565

contact@inwavere.com

ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # **DESIGN** 184.008367-0002

CIVIL ENGINEER:

CIVIL ENGINEERS A Sevee & Maher Engineers company

1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

SME SEVEE & MAHER **ENGINEERS**

PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

4 BLANCHARD ROAD,

PROJECT NAME:

BLUESTEM SOLAR

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE #	ISSUED FOR:	DATE
1	30% DESIGN SET	09/17/2025
0541		
SEAL:		

DATE: 09/12/2025

TITLE:

SOLAR LAYOUT SYSTEM -1

PROJECT #:

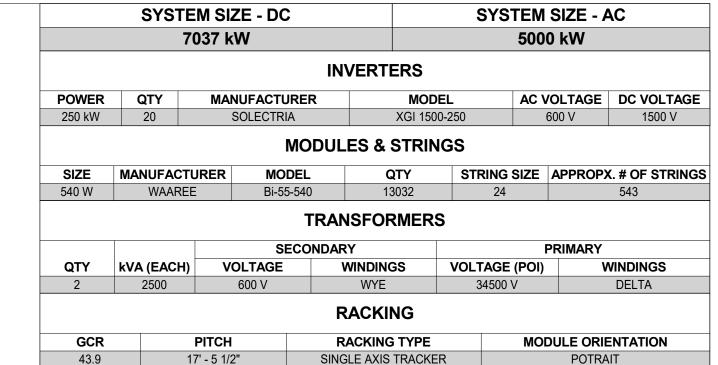
IW-101

PV-201

KEYPLAN



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1 STRUCTURAL FOUNDATION PAD FOR THE SOLAR AND ELECTRICAL

3 MAINTAIN CLEARANCES SHOWN TYP. OF ALL DIMENSIONS LISTED. 4 MIN. COVER: 36" FROM FINISHED GRADE TO TOPT OF CONDUIT.

2 INSTALL EQUIPMENT ON STRUCTURAL SUPPORT. REFER TO MANUFACTURER.

5 MAINTAIN 6' FROM THE EDGE OF THE ROAD TO THE FIRST CONDUIT. PROVIDE

6 TYP. DISTANCE FROM FENCE TO ALL PANELS UNLESS NOTED OTHERWISE

9 MV CONDUIT FROM THE SOLAR SYSTEMS. MAINTAIN MIN. 36" COVER FROM

10 CLEARNANCE PROVIDED FOR TRACKER MOTOR INSTALLATION. TYPICAL OF

ALL ARRAYS. RACKING DESIGN TO FINALIZE EXACT REQUIREMENTS.

11 ALL AISLEWAYS ARE TO BE TYPICAL TO THIS DIMENSION UNLESS STATED

GRADE TO TOP OF CONDUIT. REFER TO DETAIL.

A BUFFER ZONE OF 3' STARTING FROM THE LAST CONDUIT IN THE DIRECTION

(#) KEY NOTES

EQUIPMENT.

8 ROW PITCH.

INSTRUCTIONS.

AWAY FROM THE ROAD.

ROW TO ROW SPACING.

CLIENT: **CLEAN FIELD** SINGLE AXIS TRACKER POTRAIT 211 ISLAND RD, MAHWAH, NJ 07430 CONTRACTOR:

> RENEWABLES NAPERVILLE, IL 60565

MUNICIPALITY APPROVAL STAMP

contact@inwavere.com ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # DESIGN 184.008367-0002

CIVIL ENGINEER:

CIVIL ENGINEERS A Sevee & Maher Engineers company

1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

SME SEVEE & MAHER ENGINEERS

4 BLANCHARD ROAD, PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

BLUESTEM SOLAR

PROJECT NAME:

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE#	ISSUED FOR:	DATE
1	30% DESIGN SET	09/17/202
SEAL:	1	_
0 		

DATE: 09/12/2025

TITLE:

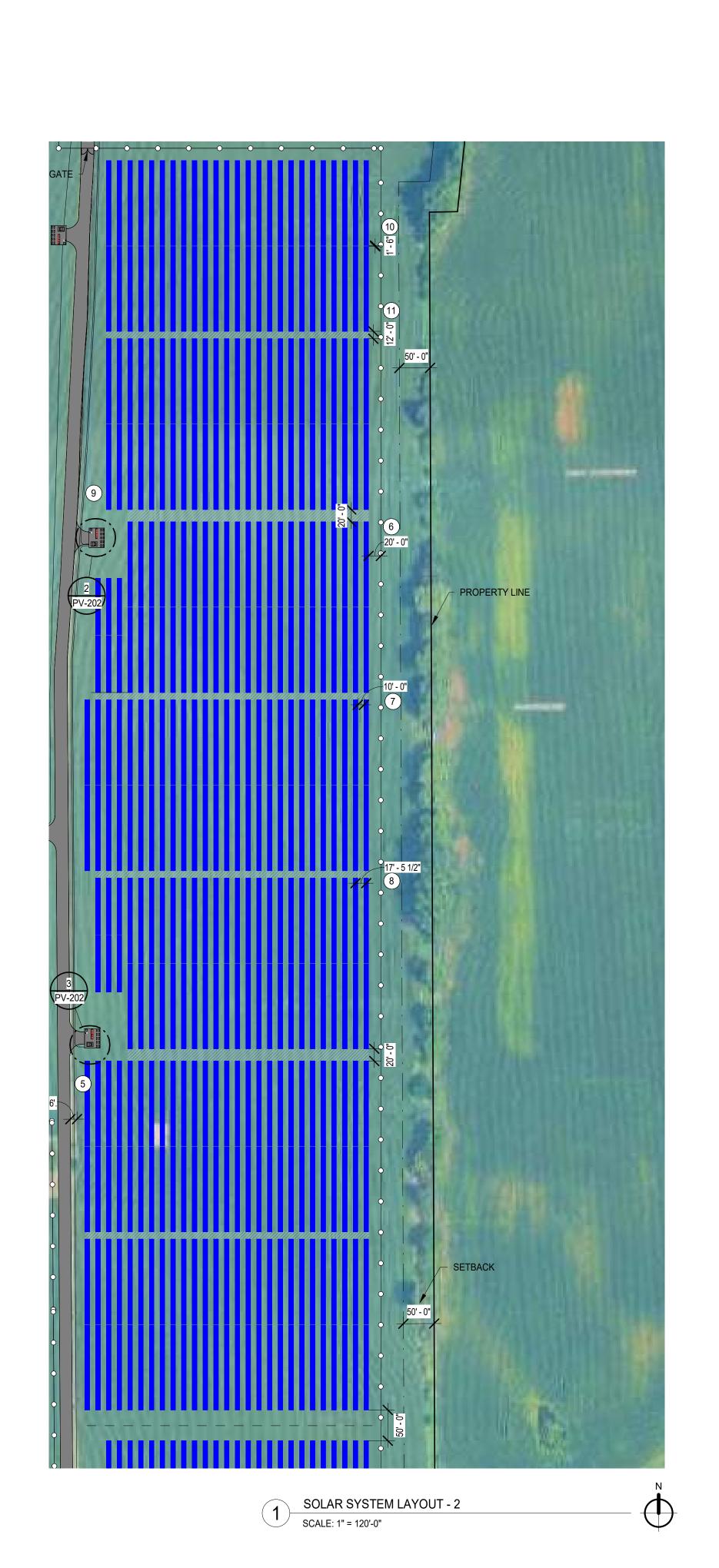
KEYPLAN

SOLAR LAYOUT SYSTEM - 2

PROJECT #:

IW-101

PV-202

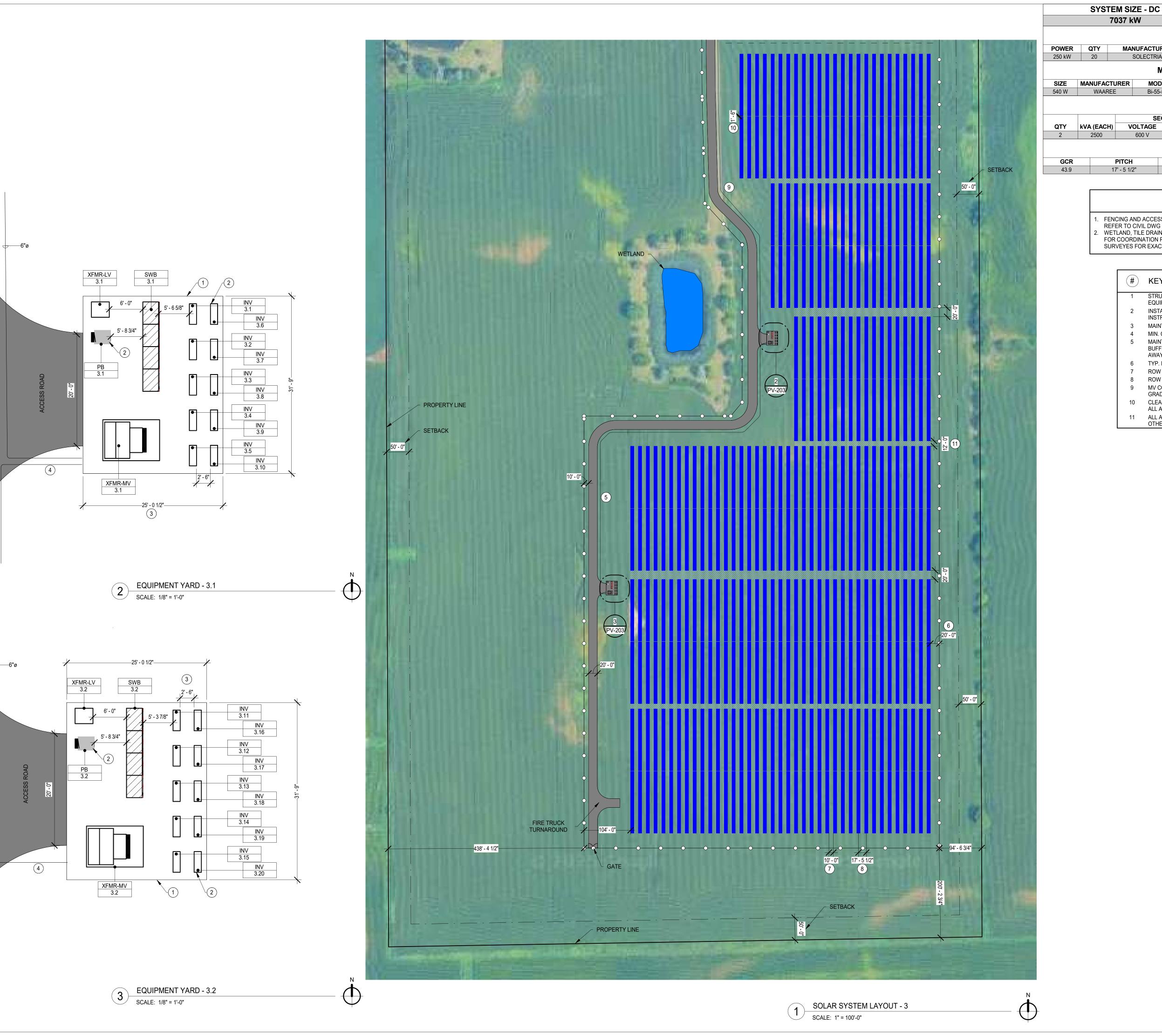


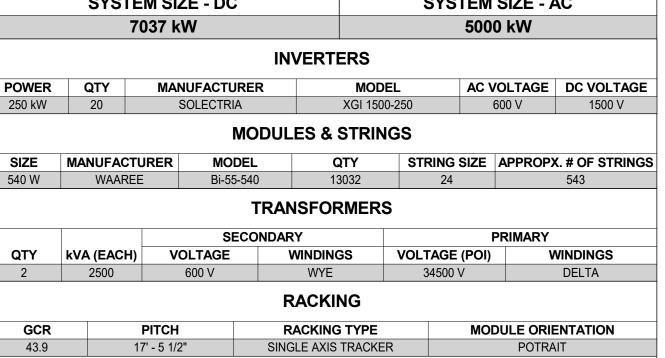
—6"ø

2 EQUIPMENT YARD - 2.1

SCALE: 1/8" = 1'-0"

EQUIPMENT YARD - 2.2 SCALE: 1/8" = 1'-0"





GENERAL NOTE

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 - (#) KEY NOTES

EQUIPMENT.

- STRUCTURAL FOUNDATION PAD FOR THE SOLAR AND ELECTRICAL
- 2 INSTALL EQUIPMENT ON STRUCTURAL SUPPORT. REFER TO MANUFACTURER. INSTRUCTIONS.
- MAINTAIN CLEARANCES SHOW TYP. OF ALL DIMENSIONS LISTED.
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- ROW TO ROW SPACING.
- 8 ROW PITCH.
- MV CONDUIT FROM THE SOLAR SYSTEMS. MAINTAIN MIN. 36" COVER FROM
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- ALL ARRAYS. RACKING DESIGN TO FINALIZE EXACT REQUIREMENTS. ALL AISLEWAYS ARE TO BE TYPICAL TO THIS DIMENSION UNLESS STATED
- OTHERWISE.

SYSTEM SIZE - AC MUNICIPALITY APPROVAL STAMP



MAHWAH, NJ 07430 CONTRACTOR:

NAPERVILLE, IL 60565 contact@inwavere.com

ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # DESIGN 184.008367-0002

CIVIL ENGINEER:

CIVIL ENGINEERS

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SME SEVEE & MAHER ENGINEERS

4 BLANCHARD ROAD, PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

BLUESTEM SOLAR

PROJECT NAME:

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

DATE ISSUED FOR: 09/17/2025 1 30% DESIGN SET

DATE: 09/12/2025

TITLE:

SOLAR LAYOUT SYSTEM - 3

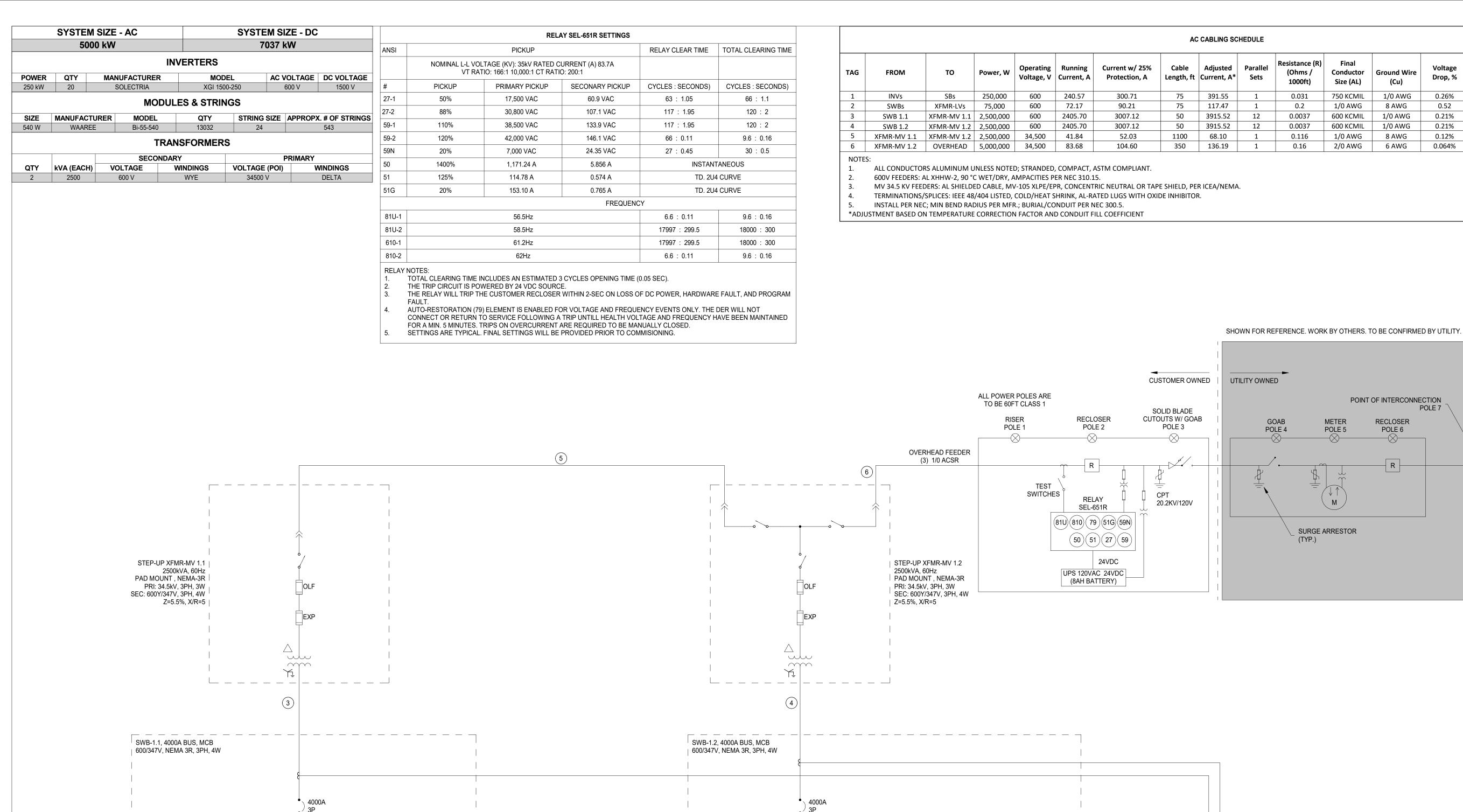
PROJECT #:

IW-101

PV-203

3

KEYPLAN



400A

250kW

= 600V-3PH

✓ 27 STRINGS PER CB

24 MODULES PER STRING (TYP.)

☐ • • • ☐ CB-1.11

△ (11-17)

PB-1.1, 100A BUS, MLO

480/277V, NEMA -3R, 3PH, 4W

FINAL QTY, SIZE AND SPEC TO BE DETERMINED DURING FINAL DESIGN.

TO TCU, TYP.

400A

NV-1.20

== 250kW 600V-3PH

28 STRINGS PER CB

(18-20)

COMM. LINE FROM DAS TO EACH INVERTER

10 INVERTERS

1 CB PER

INVERTER

PER SWITCH BOARD

100A

PAD MOUNT PRI:600/347V, 3PH, 4W

SEC:480/277V, 3PH, 4W Z=5.57%, X/R=4

XFMR-LV 1.2

75kVA

400A

INV-1.1 250kW 600V-3PH

☐ • • • ☐ CB-1.1

27 STRINGS PER CB

24 MODULES

PER STRING

_____ (TYP.)

(QTY 10)

10 INVERTERS

PER SWITCH BOARD

INVERTER

400A

NV-1.10

== 250kW 600V-3PH

27 STRINGS PER CB

Yi Yi

PAD MOUNT PRI:600/347V, 3PH, 4W SEC:480/277V, 3PH, 4W

COMM. LINE FROM DAS TO EACH INVERTER

XFMR-LV 1.1

Z=5.57%, X/R=4

75kVA

Resistance (R) (Ohms / Conductor Ground Wire Conduit Type | Conduit Size Drop, % Drop, Dvac Size (AL) (Cu) PVC SCH40 750 KCMIL 1/0 AWG 0.26% 1.58 3.50 1/0 AWG 8 AWG 0.52 3.09 1.5 PVC SCH40 0.21% 600 KCMIL 1/0 AWG 1.25 PVC SCH40 3.5 600 KCMIL 1/0 AWG 0.21% 1.25 PVC SCH40 3.5 1/0 AWG PVC SCH80 8 AWG 0.12% 2/0 AWG 6 AWG 0.064% 22 PVC SCH80

METER

POLE 5

POINT OF INTERCONNECTION

RECLOSER

POLE 6

PB-1.1, 100A BUS, MLO

480/277V, NEMA-3R,3PH,4W

24V DC PWR

DAS (EN2)

RS-485 ANALOG

WEATHER STATION

FINAL QTY, SIZE AND SPEC TO BE DETERMINED DURING FINAL DESIGN.

TO TCU, TYP.

V-REF ETHERNET FIBER RS-485

DAS (EN1)

DAS + COMMS ENCLOSURE

POLE 7

contact@inwavere.com ELECTRICAL ENGINEER: contact@iedesignco.com

NAPERVILLE, IL 60565

CLIENT:

211 ISLAND RD, MAHWAH, NJ 07430

CONTRACTOR:

MUNICIPALITY APPROVAL STAMP

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007

CLEAN FIELD

PROFESSIONAL DESIGN FIRM # **DESIGN** 184.008367-0002

CIVIL ENGINEER:



1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

PO BOX 85A, CUMBERLAND

SEVEE & MAHER **ENGINEERS**

207-829-5016 sme-engineers.com PROJECT NAME:

MAINE 04021

4 BLANCHARD ROAD,

BLUESTEM SOLAR

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE#	ISSUED FOR:	DATE
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	COK	

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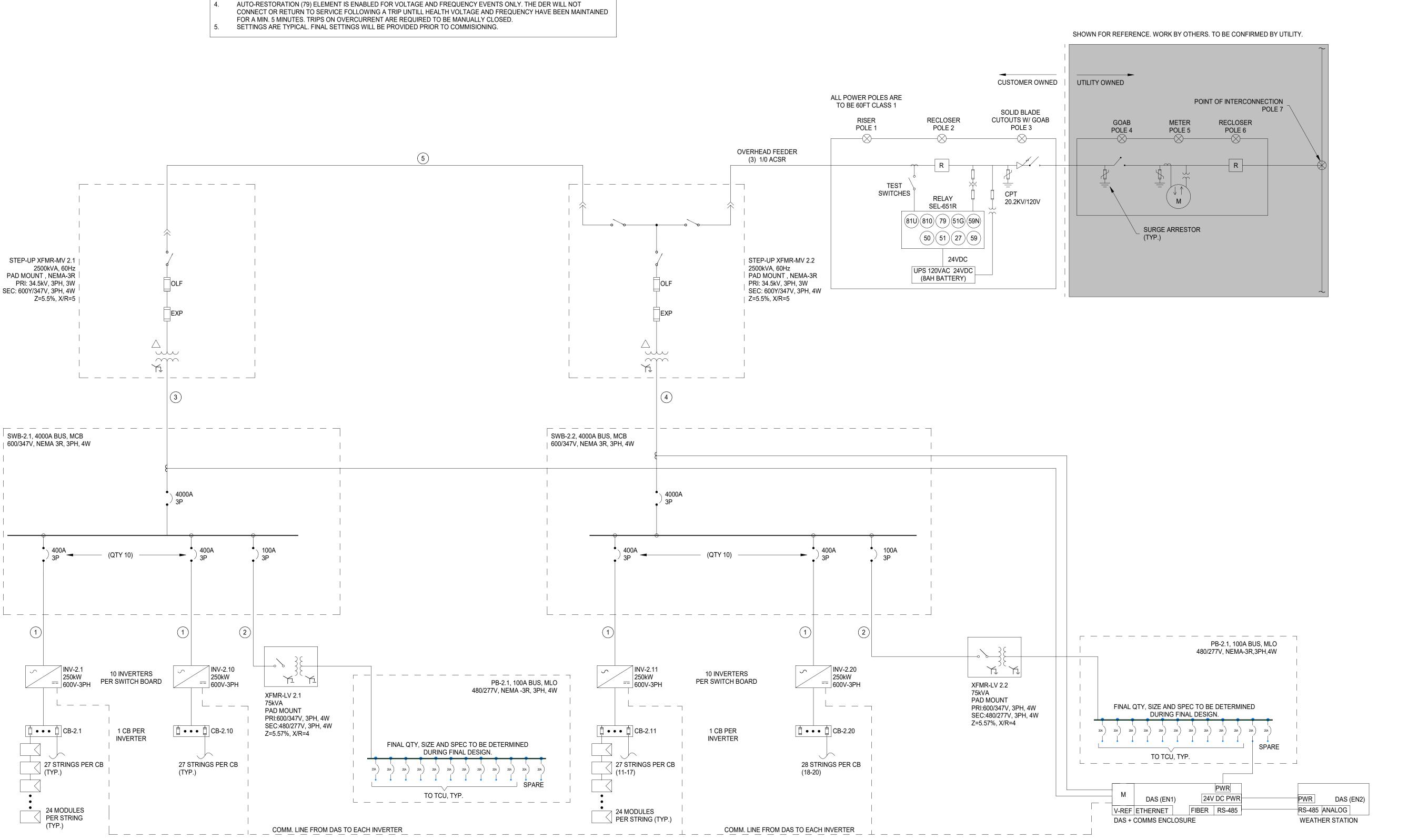
SINGLE LINE DIAGRAM -SYSTEM-1

PROJECT #:

IW-101

SHEET:

SYSTEM SIZE - AC SYSTEM SIZE - DC					REL	AY SEL-651R SETTINGS					
	5000) kW		7037	kW	ANSI		PICKUP		RELAY CLEAR TIME	TOTAL CLEARING TIME
			INVERTERS			AIVOI		DLTAGE (KV): 35kV RATED C NTIO: 166:1 10,000:1 CT RAT		NEEAT OLEAN HIVE	TOTAL OLLANING HIVE
POWER 250 kW	QTY 20	MANUFACTUREI SOLECTRIA	R MOI XGI 15		VOLTAGE DC VOLTAGE 600 V 1500 V	#	PICKUP	PRIMARY PICKUP	SECONARY PICKUP	CYCLES : SECONDS)	CYCLES : SECONDS)
200 KVV	20				1000 V	27-1	50%	17,500 VAC	60.9 VAC	63 : 1.05	66 : 1.1
		MIO	DULES & STRII	NGS		27-2	88%	30,800 VAC	107.1 VAC	117 : 1.95	120 : 2
SIZE	MANUFACTU		· · · · · · · · · · · · · · · · · · ·		APPROPX. # OF STRINGS	59-1	110%	38,500 VAC	133.9 VAC	117 : 1.95	120 : 2
540 W	WAAREE			24	543	59-2	120%	42,000 VAC	146.1 VAC	66 : 0.11	9.6 : 0.16
		7	RANSFORMER	RS		59-2 59N	20%	7,000 VAC	24.35 VAC	27 : 0.45	30 : 0.5
		SECO	NDARY		PRIMARY			,			
QTY	kVA (EACH)	VOLTAGE	WINDINGS	VOLTAGE (POI		50	1400%	1,171.24 A	5.856 A		TANEOUS
2	2500	600 V	WYE	34500 V	DELTA	51	125%	114.78 A	0.574 A	TD. 2U4 CURVE	
						51G	20%	153.10 A	0.765 A		4 CURVE
									FREQUEN	CY	
						81U-1		56.5Hz		6.6 : 0.11	9.6 : 0.16
						81U-2		58.5Hz		17997 : 299.5	18000 : 300
						610-1		61.2Hz		17997 : 299.5	18000 : 300
						810-2		62Hz		6.6 : 0.11	9.6 : 0.16
				RELAY NOTES: 1. TOTAL CLEARING TIME INCLUDES AN ESTIMATED 3 CYCLES OPENING TIME (0.05 SEC). 2. THE TRIP CIRCUIT IS POWERED BY 24 VDC SOURCE. 3. THE RELAY WILL TRIP THE CUSTOMER RECLOSER WITHIN 2-SEC ON LOSS OF DC POWER, HARDWARE FAULT, AND PROGIFAULT. 4. AUTO-RESTORATION (79) ELEMENT IS ENABLED FOR VOLTAGE AND FREQUENCY EVENTS ONLY. THE DER WILL NOT CONNECT OR RETURN TO SERVICE FOLLOWING A TRIP UNTILL HEALTH VOLTAGE AND FREQUENCY HAVE BEEN MAINTAIN FOR A MIN. 5 MINUTES. TRIPS ON OVERCURRENT ARE REQUIRED TO BE MANUALLY CLOSED. 5. SETTINGS ARE TYPICAL. FINAL SETTINGS WILL BE PROVIDED PRIOR TO COMMISIONING.						DER WILL NOT	



TAG

FROM

INVs

SWBs

SWB 2.2

MUNICIPALITY APPROVAL STAMP

Conduit Type | Conduit Size

3.50

1.5

3.5

3.5

PVC SCH40

PVC SCH40

PVC SCH40

PVC SCH40

PVC SCH80

PVC SCH80

AC CABLING SCHEDULE

Length, ft | Current, A* | Sets

391.55

117.47

3915.52

3915.52

136.19

Adjusted Parallel

Cable

75

50

1000

Current w/ 25%

Protection, A

90.21

3007.12

104.60

Operating Running

Voltage, V | Current, A

MV 34.5 KV FEEDERS: AL SHIELDED CABLE, MV-105 XLPE/EPR, CONCENTRIC NEUTRAL OR TAPE SHIELD, PER ICEA/NEMA.

600

600

34,500

34,500

TERMINATIONS/SPLICES: IEEE 48/404 LISTED, COLD/HEAT SHRINK, AL-RATED LUGS WITH OXIDE INHIBITOR.

240.57

72.17

2405.70

2405.70

83.68

250,000

75,000

2,500,000

600V FEEDERS: AL XHHW-2, 90 °C WET/DRY, AMPACITIES PER NEC 310.15.

INSTALL PER NEC; MIN BEND RADIUS PER MFR.; BURIAL/CONDUIT PER NEC 300.5.

*ADJUSTMENT BASED ON TEMPERATURE CORRECTION FACTOR AND CONDUIT FILL COEFFICIENT

ALL CONDUCTORS ALUMINUM UNLESS NOTED; STRANDED, COMPACT, ASTM COMPLIANT.

XFMR-LVs

XFMR-MV 2.1

XFMR-MV 2.2 | OVERHEAD | 5,000,000 |

| XFMR-MV 2.2 | 2,500,000

XFMR-MV 2.2 | 2,500,000

Resistance (R)

Conductor

Size (AL)

750 KCMIL

1/0 AWG

600 KCMIL

600 KCMIL

1/0 AWG

2/0 AWG

Ground Wire

1/0 AWG

8 AWG

1/0 AWG

1/0 AWG

8 AWG

6 AWG

Drop, %

0.26%

0.52

0.21%

0.21%

0.111%

0.181%

Drop, Dvac

3.09

1.25

1.25

38.4

62.5

(Ohms /

1000ft)

0.2

0.0037

0.0037

0.16

CLIENT: **CLEAN FIELD** 211 ISLAND RD,

MAHWAH, NJ 07430 CONTRACTOR:

NAPERVILLE, IL 60565 contact@inwavere.com

ELECTRICAL ENGINEER:



IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com PROFESSIONAL DESIGN FIRM #

CIVIL ENGINEER:



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SME SEVEE & MAHER **ENGINEERS**

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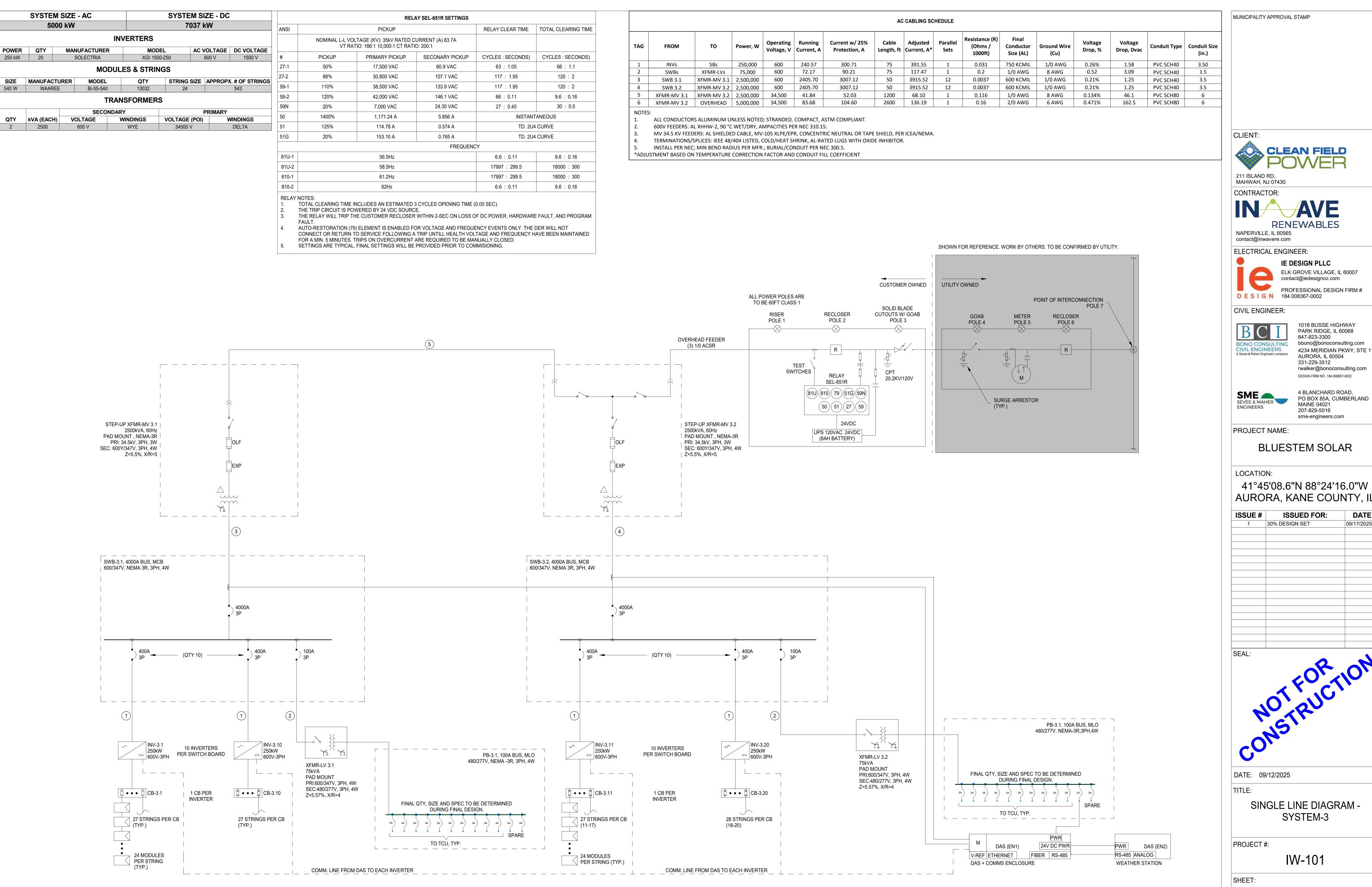
DATE: 09/12/2025

TITLE:

SINGLE LINE DIAGRAM -SYSTEM-2

PROJECT #:

IW-101



CLEAN FIELD

ELECTRICAL ENGINEER:

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

> 1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

BLUESTEM SOLAR

MAINE 04021

207-829-5016 sme-engineers.com

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE#	ISSUED FOR:	DATE
1	30% DESIGN SET	09/17/2025
SEAL:		•

SINGLE LINE DIAGRAM -SYSTEM-3

IW-101

	INVERTER SCHEDULE (OWNER PROCURED)																								
								DC INPUT				AC OUTPUT													
TAG	CVCTERA	CHANTITY	MED	MAODEL #	MAX RATED PV	MAX INPUT	MIN INPUT	OPERATING	NO OF MPPT	MAX. DC/AC	MAX RATED PV SHORT	MAX OUTPUT	OUTPUT	MAX OUTPUT	I _{MAX} (A) x 1.25	OCPD (A)	FAULT CURRENT	NOMINAL OUTPUT	POWER FACTOR	TOTAL HARMONIC	INV EFFICIENCY	DEPTH	WIDTH	HEIGHT	WEIGHT
TAG	SYSTEIVI	QUANTITY	MFR.	MODEL#	POWER (kW)	VOLTS (VDC)	VOLTS (VDC)	VOLATGE RANGE	TRACKERS	RATIO	CIRCUIT CURRENT(A)	POWER (kW)	VOLATGE (V)	CURRENT I _{MAX} (A)	IVIAX (71) X 2123	OCI D (A)	CONTRIBUTION (1 CYCLE RMS)	FREQUENCY (HZ)	(UNITY DEFAULT)	DISTORTION (THD)	CEC %	(in)	(in)	(in)	(lb)
INV 1.1 - 1.20	1	20	SOLECTRIA	XGI 1500-250 SERIES	500	1500	860	860-1450	1	2	800	250	600	240.6	300.75	400	390	60	+/- 0.80 ADJUSTABLE	< 3%	98.5	15.4	44.3	29.5	290
INV 2.1 - 2.20	2	20	SOLECTRIA	XGI 1500-250 SERIES	500	1500	860	860-1450	1	2	800	250	600	240.6	300.75	400	390	60	+/- 0.80 ADJUSTABLE	< 3%	98.5	15.4	44.3	29.5	290
INV 3.1 - 3.20	3	20	SOLECTRIA	XGI 1500-250 SERIES	500	1500	860	860-1450	1	2	800	250	600	240.6	300.75	400	390	60	+/- 0.80 ADJUSTABLE	< 3%	98.5	15.4	44.3	29.5	290
	TOTAL	60																							

NOTES

- 1. INV SHALL BE NRTL LISTED TO UL 1741 SA/SB AND COMPLY WITH IEEE 1547-2018.
- 2. INV SHALL APPEAR ON THE APPLICABLE CEC OR UTILITY APPROVED EQUIPMENT LIST.
- 3. INC SHALL HAVE MAX DC INPUT RATING SUITABLE FOR 1,500 VDC ARRAYS AND AC OUTPUT RATINGS PER PROJECT DESIGN.
- INV SHALL BE RATED NEMA 3R/4 OR IP54 MIN FOR OUTDOOR INSTALLATION.
 USE UTILITY-APPROVED COMMUNICATION PROTOCOLS FOR MONITORING AND CONTROL.

						РНОТО	OVOLTAIC (PV) MO	DULE SCHEDULE (O	WNER PROCURED)								
TAG	QUANTITY	MFR.	MODEL#	RATED POWER @ STC P _{MAX} (W)	OPEN CIRCUIT VOLTAGE Voc(V)	MAX POWER VOLTAGE V _{MP} (V)	SHORT CIRCUIT CURRENT I _{SC} (A)		MAX SERIES FUSE RATING (A)		TEMPERATURE COEFICIENT OF V _{oc} (%/°C)	LENGTH (in)	WIDTH (in)	THICKNESS (in)	WEIGHT (lb)		MAX SYSTEM VOLTAGE MODULE RATING (V)
MODULES	39,096	WAAREE	BI-55-540	540	49.61	41.75	13.83	12.95	25	20.98	-0.33	89.45	44.60	1.38	71.65	144	1500

NOTES

- 1. MODULES SHALL BE NRTL-LISTED TO UL 61730-1/-2, APPLICATION CLASS A; FIRE TYPE PER NAMEPLATE.
- 2. MODULES SHALL BE IEC 61215
- 3. USE UL 2703 LISTED RACKING/BONDING HARDWARE APPROVED FOR THE MODULE.

	TRANSFORMER SCHEDULE																	
710	0.407514	071		140051 #	POWER RATING	FREQUENCY	MOUNTING	ENGLOCUES.	PRII	MARY			SECO	ONDARY			10.405050105 (7)	V/D DATIO
TAG	SYSTEM	QTY.	MFR.	MODEL #	(kVA)	(HZ)	MOUNTING	ENCLOSURE	VOLTAGE	PHASE	WIRE	WINDING	VOLTAGE	PHASE	WIRE	WINDING	IMPEDENCE (Z)	X/R RATIO
XFMR MV-1.1,1.2	1	2	TBD	TBD	2500	60	PAD	NEMA-3R	34.5kV	3	3	DELTA	600Y/347V	3	4	WYE	5.5%	5
XFMR MV-2.1,2.2	2	2	TBD	TBD	2500	60	PAD	NEMA-3R	34.5kV	3	3	DELTA	600Y/347V	3	4	WYE	5.5%	5
XFMR MV-3.1,3.2	3	2	TBD	TBD	2500	60	PAD	NEMA-3R	34.5kV	3	3	DELTA	600Y/347V	3	4	WYE	5.5%	5
XFMR LV-1.1,1.2	1	2	TBD	TBD	40	60	PAD	NEMA-3R	600V/346V	3	4	WYE	480Y/277V	3	4	WYE	5.57%	4
XFMR LV-2.1,2.2	2	2	TBD	TBD	40	60	PAD	NEMA-3R	600V/346V	3	4	WYE	480Y/277V	3	4	WYE	5.57%	4
XFMR LV-3.1,3.2	3	2	TBD	TBD	40	60	PAD	NEMA-3R	600V/346V	3	4	WYE	480Y/277V	3	4	WYE	5.57%	4
	TOTAL	12																

NOTES:

- TRANSFORMER SHALL BE NRTL-LISTED, DESIGNED AND TESTED TO IEEE C57 AND DOE EFFICIENCY STANDARDS.
- TRANSFORMER SHALL BE ONAN COOLED, WITH TEMPERATURE RISE PER ANSI/IEEE C57 LIMITS.
- TRANSFORMER SHALL INCLUDE 65 KV BIL FOR SCEONDARY AND 150 KV BIL FOR PRIMARY MINIMUM.
- TRANSFORMER SHALL BE PROVIDED WITH DE-ENERGIZED TAP CHANGER (±2.5%, 2 STEPS EACH SIDE) ON THE PRIMARY WINDING.
 TRANSFORMER SHALL BE LIQUID-FILLED (BIODEGRADABLE MINERAL OIL) IN NEMA 3R PAD-MOUNT ENCLOSURE, WITH TAMPER-PROOF CONSTRUCTION AND DEAD-FRONT HV TERMINATIONS.
- TRANSFORMER SHALL INCLUDE CURRENT TRANSFORMERS, TEMPERATURE SENSORS, AND PROVISIONS FOR PROTECTIVE RELAYING AS REQUIRED.

SWITCHBOARD SCHEDULE													
TAG	QUANTITY	MFR.	MODEL#	BUS RATING (A)	MCB RATING (A)	VOLTAGE (V)	ENCLOSURE	PHASE (ø)	WIRE (W)				
SWB-1.1,1.2	2	TBD	TBD	4000	4000	600/347	NEMA-3R	3	4				
SWB-2.1,2.2	2	TBD	TBD	4000	4000	600/347	NEMA-3R	3	4				
SWB-3.1,3.2	2	TBD	TBD	4000	4000	600/347	NEMA-3R	3	4				
TOTAL	6												

- . SWITCHBOARDS SHALL BE NRTL-LISTED TO UL 1558 (SWITCHGEAR >600 V) OR UL 891 (SWITCHBOARDS ≤600 V) AS APPLICABLE.
- SWITCHBOARDS SHALL BE RATED FOR SYSTEM VOLTAGE AND AVAILABLE FAULT CURRENT, WITH BUS BRACING PER ANSI C37 STANDARDS.

 SWITCHBOARDS SHALL HAVE COPPER OR ALLIMINIUM BUS. FULLY INSULATED AND SULVER-PLATED AT IQUITS. WITH PROVISIONS FOR GROUND
- SWITCHBOARDS SHALL HAVE COPPER OR ALUMINUM BUS, FULLY INSULATED AND SILVER-PLATED AT JOINTS, WITH PROVISIONS FOR GROUND BUS. SWITCHBOARDS SHALL BE NEMA 3R OUTDOOR RATED WITH PAD-MOUNT/TAMPER-RESISTANT ENCLOSURE UNLESS OTHERWISE SHOWN.
- SWITCHBOARDS SHALL BE NEMA 3R OUTDOOR RATED WITH PAD-MOUNT/TAMPER-RESISTANT ENCLOSURE UNLESS OTHERWISE SHOWN.
 SWITCHBOARDS SHALL INCLUDE MAIN AND FEEDER PROTECTIVE DEVICES AS SCHEDULED, WITH ELECTRONIC TRIP UNITS SETTABLE TO PROJECT COORDINATION.

PANELBOARD SCHEDULE												
TAG	QUANTITY	MFR.	MODEL#	BUS RATING (A)	VOLTAGE (V)	ENCLOSURE	PHASE (ø)	WIRE (W)				
PB-1.1,1.2	2	TBD	TBD	100	480/277	NEMA-3R	3	4				
PB-2.2,2.2	2	TBD	TBD	100	480/277	NEMA-3R	3	4				
PB-3.1,3.2	2	TBD	TBD	100	480/277	NEMA-3R	3	4				
	_											

OTES:

- 1. PANELBOARDS SHALL BE NRTL-LISTED TO UL 67.
- 2. PANELBOARDS SHALL BE RATED FOR 600 V MAXIMUM, WITH BUS AND BREAKERS SIZED FOR SYSTEM VOLTAGE AND AVAILABLE FAULT CURRENT.
- 3. PANELBOARDS SHALL BE NEMA 3R OUTDOOR RATED UNLESS OTHERWISE NOTED, WITH COPPER OR ALUMINUM BUS AND FULL-SIZED EQUIPMENT GROUND BUS.

MUNICIPALITY APPROVAL STAMP

CLEAN FIELD POVER

MAHWAH, NJ 07430

CONTRACTOR:

RENEWABLES
NAPERVILLE, IL 60565
contact@inwavere.com

ELECTRICAL ENGINEER:



IE DESIGN PLLC
ELK GROVE VILLAGE, IL 60007
contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # 184.008367-0002

CIVIL ENGINEER:



1018 BUSSE HIGHWAY
PARK RIDGE, IL 60068
847-823-3300
bbono@bonoconsulting.com
4234 MERIDIAN PKWY, STE 116
AURORA, IL 60504
331-229-3512
rwalker@bonoconsulting.com
DESIGN FIRM NO. 184.008857-0002

SME SEVEE & MAHER ENGINEERS

PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

4 BLANCHARD ROAD,

BLUESTEM SOLAR

PROJECT NAME:

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE # ISSUED FOR: DATE

1 30% DESIGN SET 09/17/2025

SEAL:

DATE: 09/12/2025

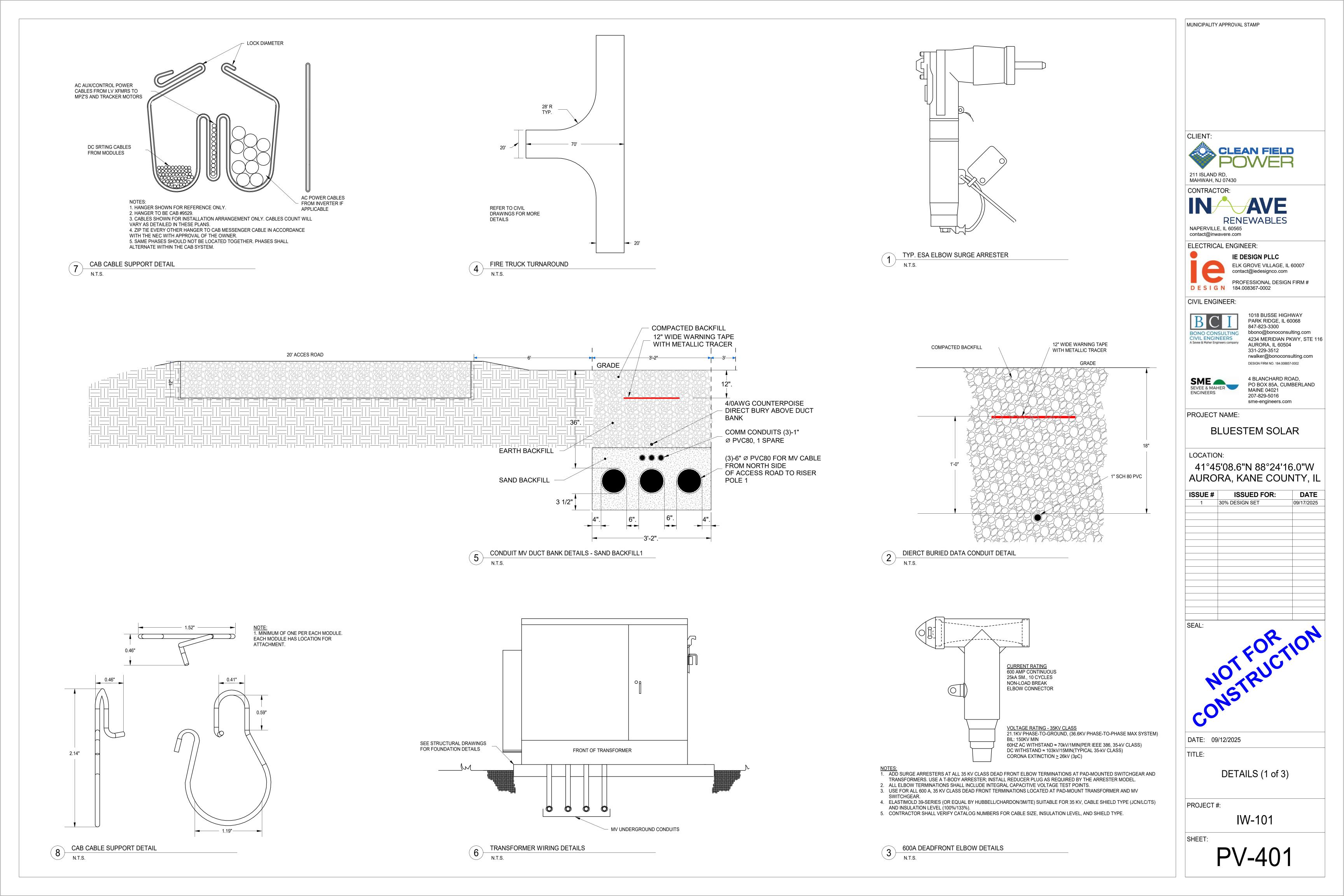
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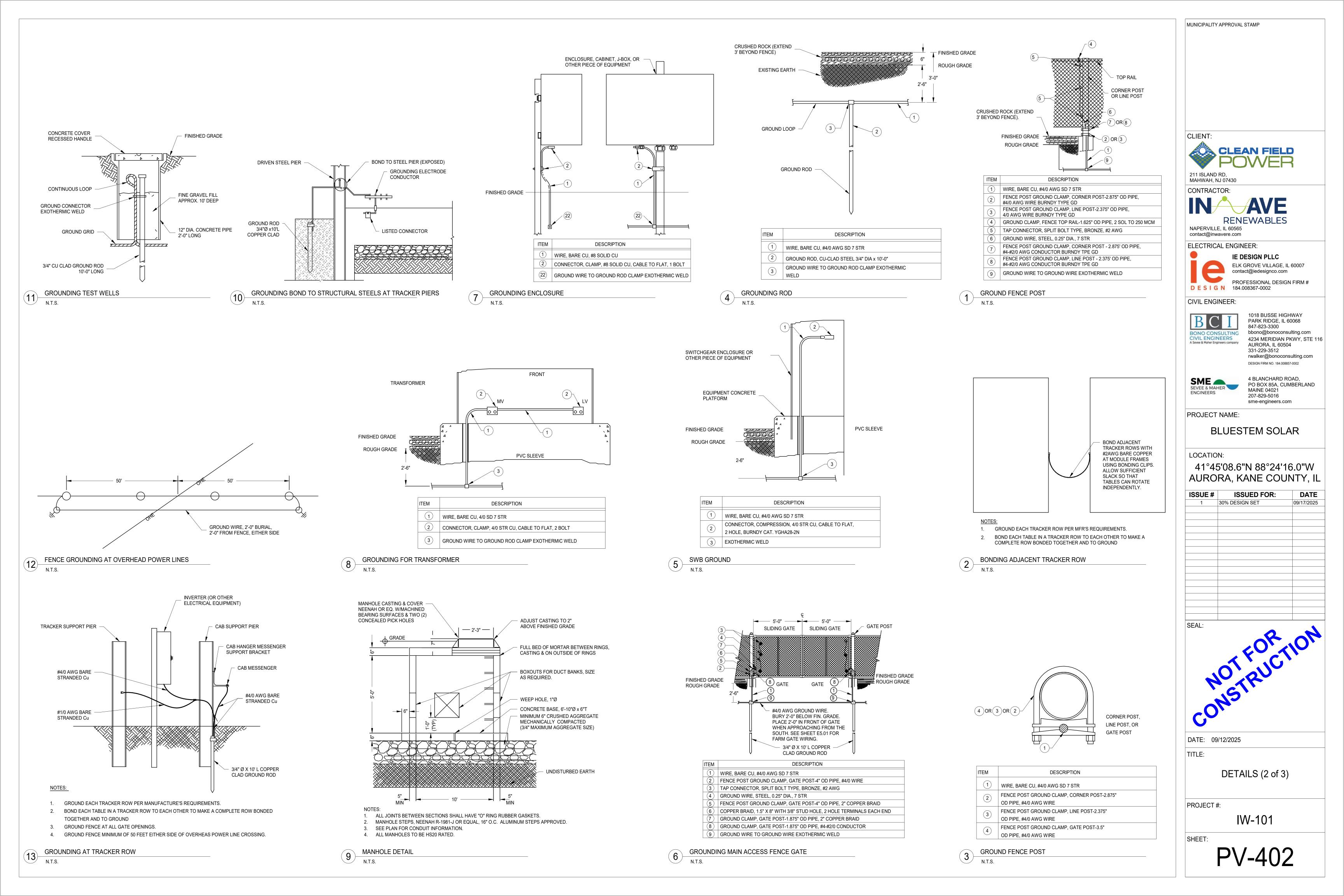
SCHEDULES

PROJECT #:

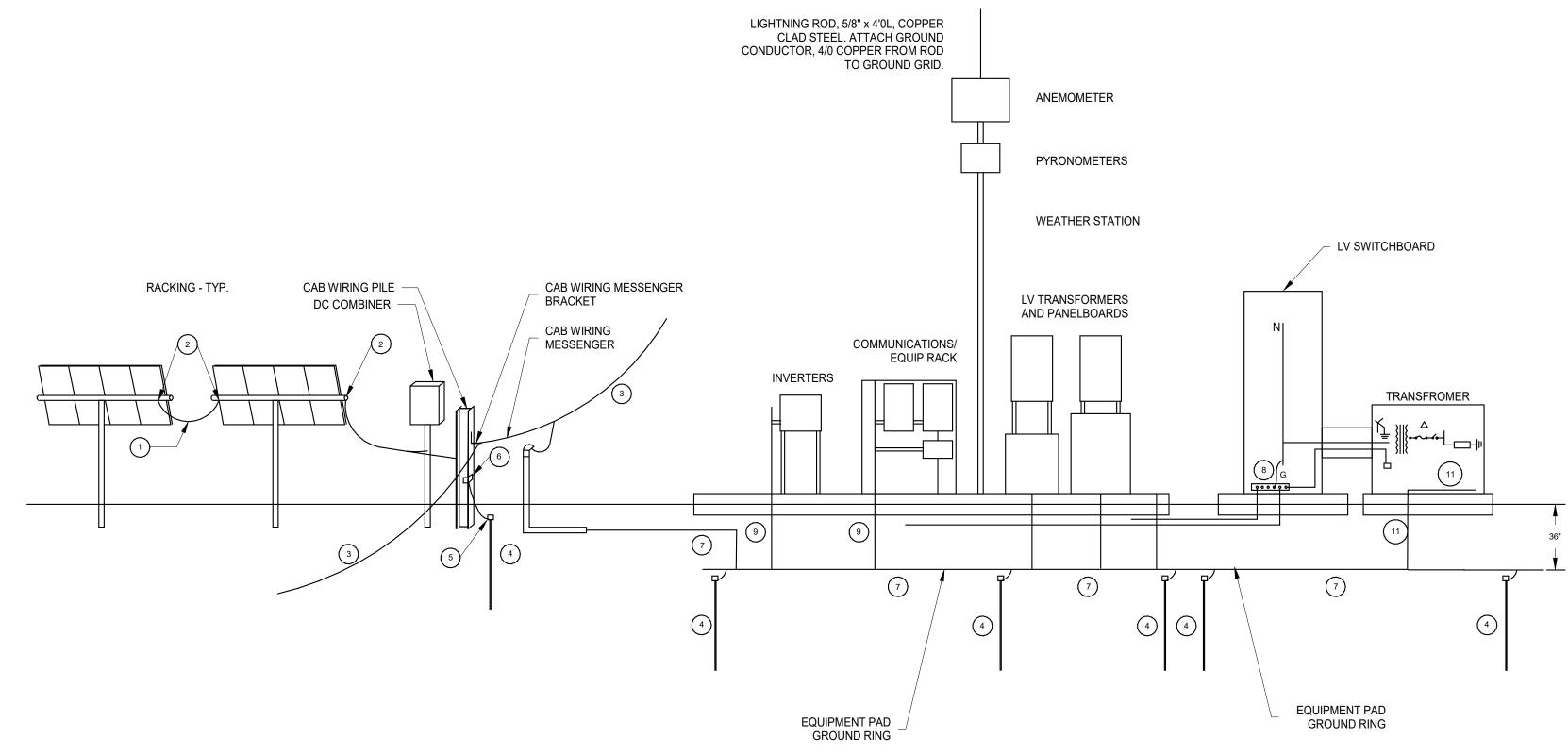
IW-101

SHEET:



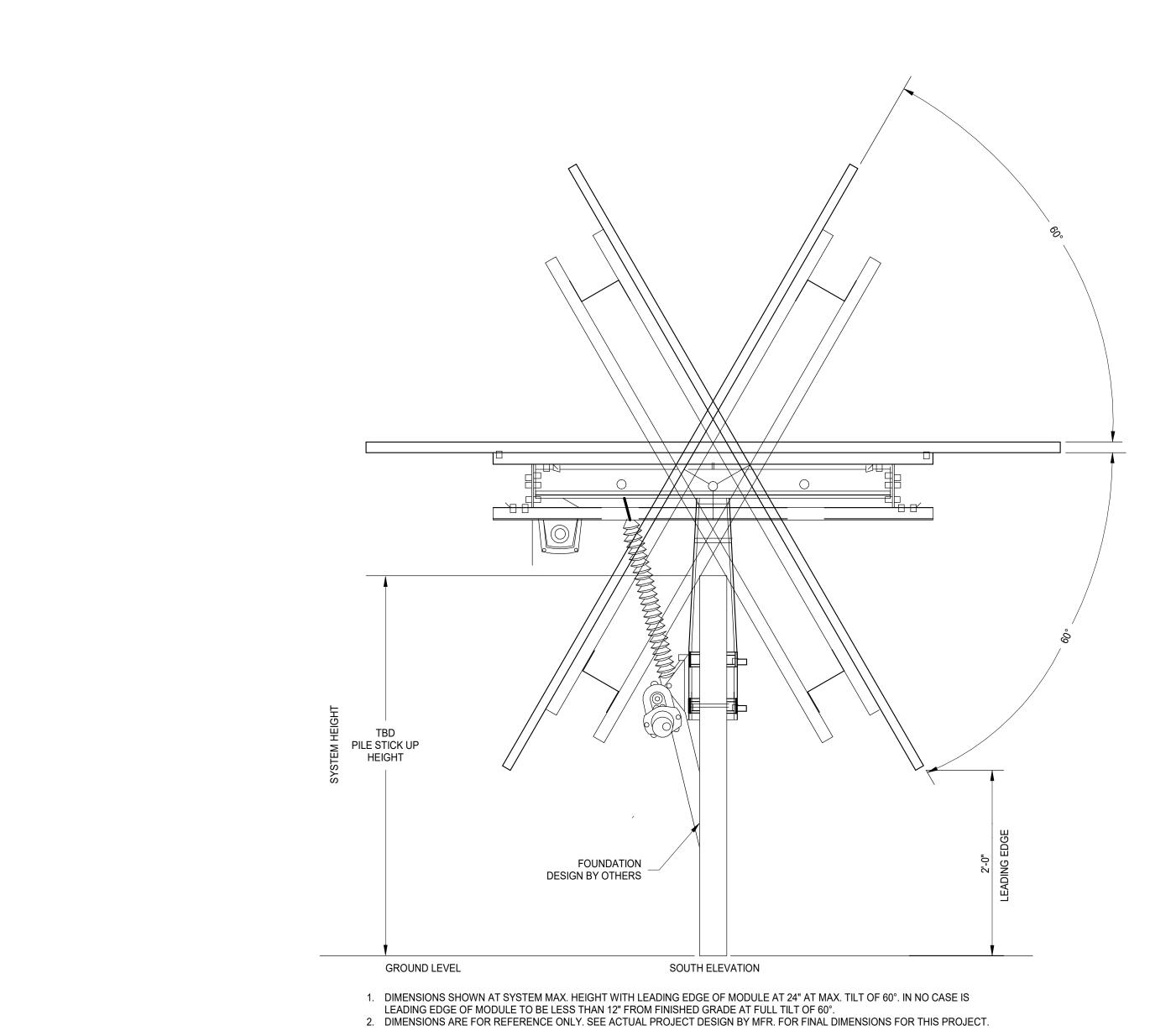


ID#	ITEM	USE	NOTES
1	#6 BARE COPPER	RACKING TABLE BONDING JUMPER	CONNECT TO ADJACENT MODULE FRAMES AT TABLE GAP
2	WEEB-LUG-6.7, BURNDY	MODULE GROUND LUG	ATTACH TO MODULE FRAMES AT TABLE GAPS FOR BONDING JUMPER. USE ONLY AS LISTED WITH RACKING/MODULE
3	CAB MESSENGER, COPPERWELD COPPER- COPPER CLAD STEEL COMPOSITE 40% EHS7X0985, TYPE K	ABOVE GROUND ARRAY CABLE SUPPORT MANAGEMENT	TO BE USED AS PART OF AN INTEGRATED GROUINDING SYSTEM
4	3/4"Ø x 10'L COPPER CLAD GROUND ROD	SYSTEM GROUNDING	ATTACH GROUND CABLES WITH COMPRESSION LUGS ONLY. INSTALL FLUSH/BELOW GRADE. IF R>25 ADD SECOND ROD >= 6 FT AWAY
5	CABLE TO 3/4"Ø ROD COMPRESSION GROUND LUG, BURNDY YGLR29C34	CONNECT GROUND LEAD TO ROD	SIZE AS REQUIRED FOR GROUND CABLE
6	BURNDY GCS29HEX, CONSTRICTOR GROUND CLAMP TO STEEL CONNECTOR	CONNECT STEEL BEAMS TO GROUND SYSTEM	
7	4/0 BARE COPPER STRANDED GROUND WIRE		36" BELOW FINISHED GRADE
8	AC COMBINER GROUND BAR	MAIN SYSTEM GROUNDING BAR	
9	4/0 BARE STRANDED COPPER		
10	#4 COPPER CLAD ALUMINUM	INVERTER GROUND TO SYSTEM GROUND (EGC)	
11	4/0 BARE STRANDED COPPER	TRANSFORMER AND SYSTEM GROUND (GEC)	BOND TRANSFORMER NEUTRAL TO GROUND A



GROUNDING SINGLE LINE DIAGRAM

N.T.S.



MUNICIPALITY APPROVAL STAMP

CLIENT:

CLEAN FIELD
POVVER

211 ISLAND RD,
MAHWAH, NJ 07430

CONTRACTOR:

RENEWABLE NAPERVILLE, IL 60565

contact@inwavere.com

ELECTRICAL ENGINEER:

IE DESIGN

IE DESIGN PLLC

ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

contact@iedesignco.com

PROFESSIONAL DESIGN FIRM #

184.008367-0002

CIVIL ENGINEER:



1018 BUSSE HIGHWAY
PARK RIDGE, IL 60068
847-823-3300
bbono@bonoconsulting.com
4234 MERIDIAN PKWY, STE 116
AURORA, IL 60504
331-229-3512
rwalker@bonoconsulting.com
DESIGN FIRM NO. 184.008857-0002

SME SEVEE & MAHER ENGINEERS

4 BLANCHARD ROAD, PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

PROJECT NAME:

BLUESTEM SOLAR

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

30% DESIGN SET	09/17/2025

NO FRU

DATE: 09/12/2025

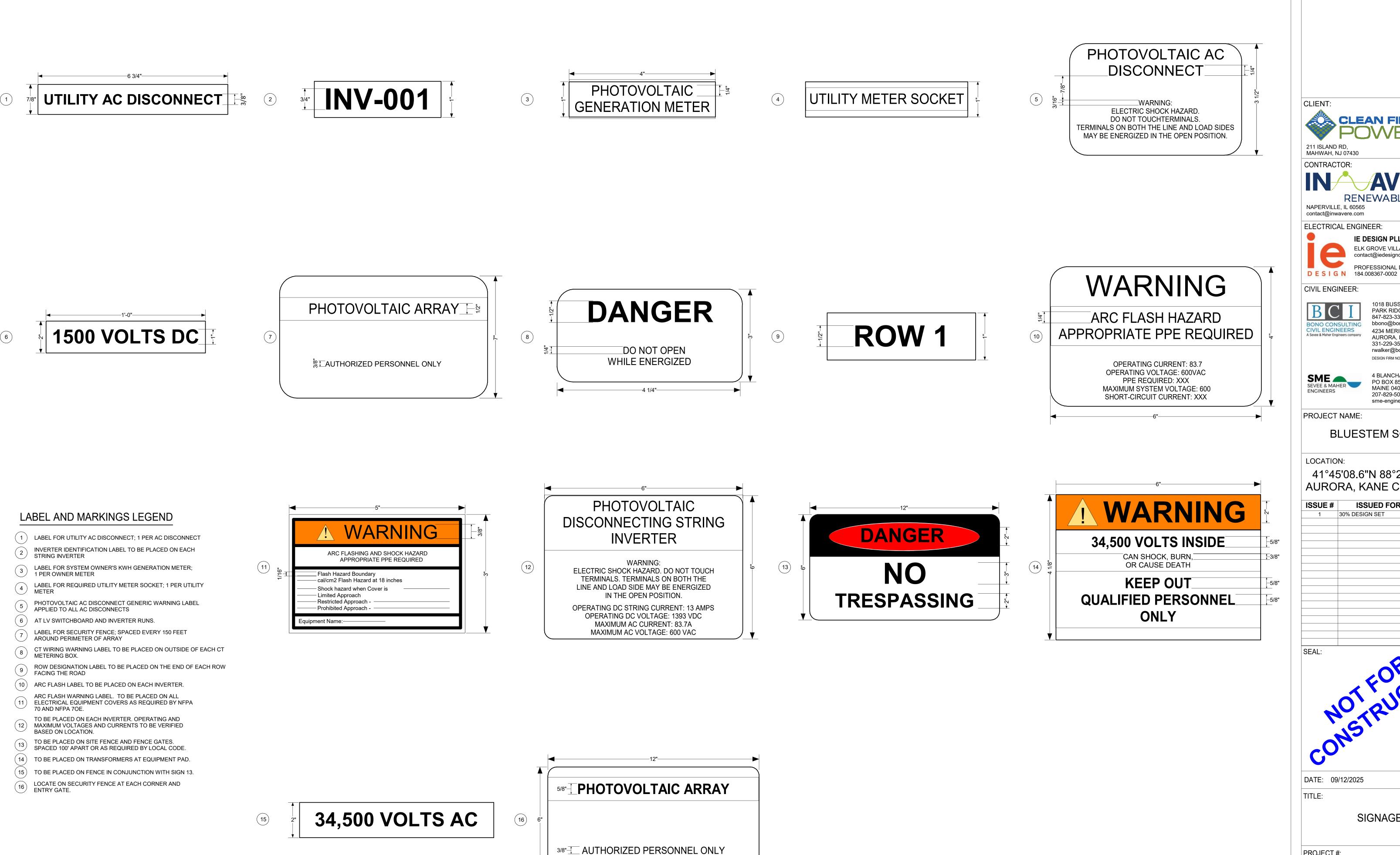
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DETAILS (3 OF 3)

PROJECT #:

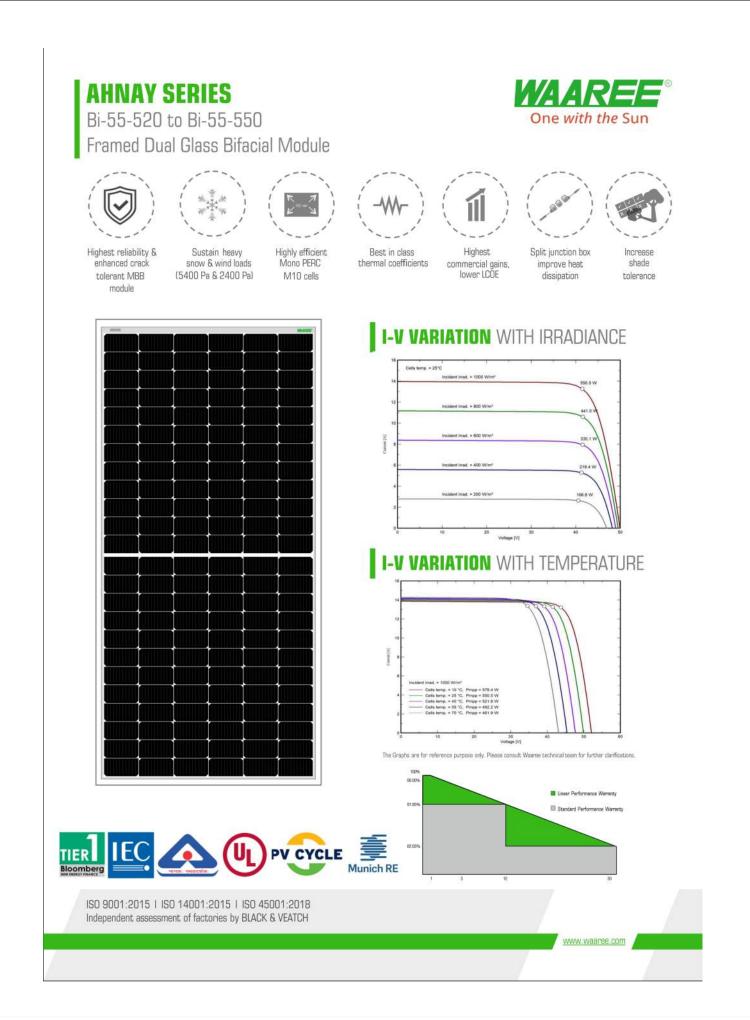
IW-101

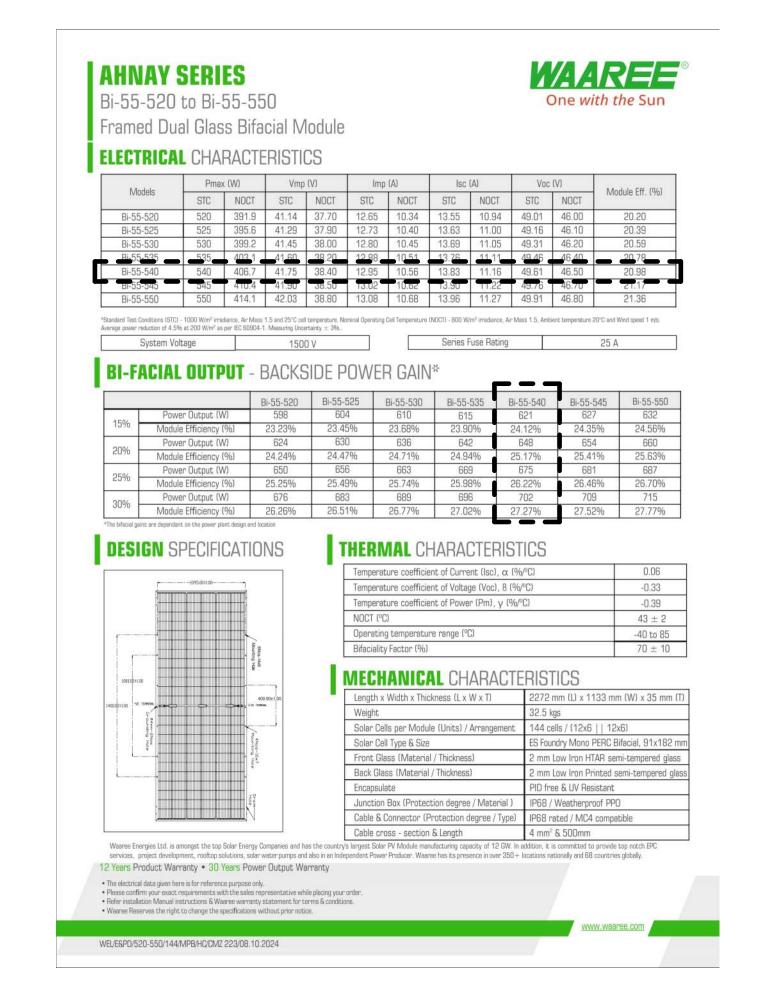
SHEET:



CLEAN FIELD RENEWABLES IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com PROFESSIONAL DESIGN FIRM # 1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002 4 BLANCHARD ROAD, PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com **BLUESTEM SOLAR** 41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL **ISSUED FOR:** DATE 09/17/2025 **SIGNAGE** PROJECT #: IW-101 SHEET: PV-501

MUNICIPALITY APPROVAL STAMP





SOLECTRIA® XGI 1500-250 SERIES

PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

FEATURES

- NEW and MORE POWERFUL!
- XGI 1500-250/250-600 XGI 1500-225-600 (Selectable: 225kW/225kVA or 225kW/250kVA)
- XGI 1500-200/200-480 XGI 1500-175-480 (Selectable:
- Industry-leading maximum

175kW/175kVA or 175kW/200kVA)

- DC/AC Ratio of 2.0 Accepts two input PV Output Circuits,
- with no overcurrent protection required
- Made in the USA with global components
- Buy American Act (BAA) compliant
- 99.0% peak efficiency Flexible solution for
- distributed and centralized system architecture Advanced grid-support functionality
- Rule 21/UL1741SB
- Robust, dependable
- and built to last Lowest O&M and
- installation costs Access all inverters on site
- via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified

OPTIONS

- PV Source Circuit Combiners Web-based monitoring
- Extended warranty

YASKAWA

SOLECTRIA SOLAR



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Yaskawa Solectria Solar is pleased to introduce

YASKAWA

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its most powerful XGI 1500 inverters, with the

XGI 1500-250 models at 600 Vac, and the

XGI 1500-200 models for 480 Vac service.

SOLECTRIA XGI

The XGI 1500-250 and XGI 1500-200 feature

that places them at the top end of the utility-

scale string inverters in the market.

IEEE 1547 and UL 1741 standards for safety.

SiC technology, high power and high efficiency

Yaskawa Solectria Solar designs all XGI 1500 utility-scale string inverters

-- selected, tested and proven to last beyond their warranty. The XGI 1500

inverters provide advanced grid-support functionality and meet the latest

for high reliability and builds them with the highest quality components

The XGI 1500 inverters provide ideal solutions for ground-mounted

utility-scale PV systems, with models available for service connections

at 600 Vac and 480 Vac. Designed and engineered in Lawrence, MA, the

facilities in Buffalo Grove, IL. The XGI 1500 inverters are Made in the USA

with global components, and are compliant with the Buy American Act.

SOLECTRIA XGI inverters are assembled and tested at Yaskawa America's

SOLECTRIA® XGI 1500-250 SERIES TECHNICAL DATA

SPECIFICATIONS RODUCT SPECIFICATION XGI 1500 XGI 1500 XGI 1500 Absolute Maximum Input Voltage 1500 VDC Maximum Power Voltage Range (MPPT) 860-1450 VDC Operating Voltage Range (MPPT) 750-1450 VDC Number of MPP Trackers Maximum Operating Input Current Maximum Operating PV Power 204 kW 255 kW 230 kW Maximum DC/AC Ratio | Max Rated PV Power 2.0 | 500 kW 2.22 | 500 kW 2.5 | 500 kW 2.86 | 500 kW Max Rated PV Short-Circuit Current 800 A (∑Isc x 1.25) **Nominal Output Voltage** 480 VAC, 3-Phase AC Voltage Range -12% to +10% Continuous Real Output Power Continuous Apparent Output Power (kVA) 250 225 200 200 175 250 XGI 1500-XGI 1500-Maximum Output Current (A_{RMS}) 240.6 175/175: 210.5 225/225: 216.5 Fault Current Contribution (1 cycle RMS) 390 A 351 A 312 A 312 A 273 A 600 kemil max, Cu or Alum, 1 or 2 conductors with lugs Conductor Compatibility Nominal Output Frequency Power Factor (Unity default) +/- 0.80 Adjustable Total Harmonic Distortion < 3% (THD) @ Rated Load 3-Ph + N/GND **Grid Connection Type** Peak Efficiency CEC Average Efficiency 98.5% Tare Loss **Ambient Temperature Range** -40°F to 140°F (-40°C to 60°C) De-Rating Temperature 113°F (45°C) Storage Temperature Range -40°F to 167°F (-40°C to 75°C) Relative Humidity (non-condensing) Operating Altitude 9,840 ft (3 km) Advanced Graphical User Interface Communication Interface Ethernet Third-Party Monitoring Protocol SunSpec Modbus TCP/IP Web-Based Monitoring Optional Firmware Updates Remote and Local UL 1741, IEEE 1547, UL 1998, Safety Listings & Certifications UL 1699b Photovoltaic Arc-Fault Circuit Protection Certified Advanced Grid Support Functionality Rule 21, UL 1741SB Testing Agency FCC Part 15 (Subpart B. Class A) **FCC Compliance** 5 Years Standard; Option for 10 Years Standard and Options Acoustic Noise Rating 73 dBA @ 1 m ; 67dBA @ 3 m Integrated 2-Pole 400 A DC Disconnect Mounting Angle Vertical only Height: 29.5 in. (750 mm) | Width: 44.3 in. (1125 mm) | Depth: 15.4 in. (390 mm) 290 lbs (131.5 kg)





Enclosure Rating and Finish

Yaskawa Solectria Solar 1-978-683-9700 | Email: sales@solectria.com | solectria.com Document No. FL.XGI1500-04 | 06/12/2024 | © 2021 Yaskawa America, Inc.

NEMA 4X, IEC IP66, Type 3R, Polyester Powder-Coated Aluminum

IT'S PERSONAL

MUNICIPALITY APPROVAL STAMP

CLIENT: **CLEAN FIELD**

211 ISLAND RD, MAHWAH, NJ 07430 CONTRACTOR:

NAPERVILLE, IL 60565

ELECTRICAL ENGINEER:



contact@inwavere.com

IE DESIGN PLLC ELK GROVE VILLAGE, IL 60007 contact@iedesignco.com

PROFESSIONAL DESIGN FIRM # **DESIGN** 184.008367-0002

CIVIL ENGINEER:



1018 BUSSE HIGHWAY PARK RIDGE, IL 60068 847-823-3300 bbono@bonoconsulting.com 4234 MERIDIAN PKWY, STE 116 AURORA, IL 60504 331-229-3512 rwalker@bonoconsulting.com DESIGN FIRM NO. 184.008857-0002

PO BOX 85A, CUMBERLAND MAINE 04021 207-829-5016 sme-engineers.com

4 BLANCHARD ROAD,

PROJECT NAME:

BLUESTEM SOLAR

LOCATION:

41°45'08.6"N 88°24'16.0"W AURORA, KANE COUNTY, IL

ISSUE #	ISSUED FOR:	DATE
1	30% DESIGN SET	09/17/2025
SEAL:	1	'



DATE: 09/12/2025

TITLE:

EQUIPMENT SPEC SHEETS

PROJECT #:

IW-101