# NEW PHOTOVOLTAIC SYSTEM 207.90 KW DC WITH ENERGY STORAGE SYSTEM 60 KWH ESS 315 LANE STREET, HAMDEN, CT 6514, USA

## GENERAL NOTES

#### 1.1.1 PROJECT NOTES:

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

1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED

- 1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
- 1.1.4 GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE MICROINVERTER IN ACCORDANCE WITH NEC 690.41(B)
- 1.1.5 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4: PV MODULES: UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE INVERTERS: UL 1741 CERTIFIED, IEEE 1547, 929, 519 COMBINER BOX(ES): UL 1703 OR UL 1741 ACCESSORY
- 1.1.6 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.
- 1.1.7 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].
- 1.1.8 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

#### 1.2.1 SCOPE OF WORK:

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

1.2.3 INSTALLING CONTRACTOR IS RESPONSIBLE FOR FOLLOWING EQUIPMENT MANUFACTURER'S INSTALLATION AND COMMISSIONING MEANS AND METHODS.

#### 1.3.1 WORK INCLUDES:

- 1.3.2 PV RACKING SYSTEM INSTALLATION SOLLEGA FASTRACK FR510 BALLAST SYSTEM
- 1.3.3 PV MODULE, INVERTER AND BATTERY INSTALLATION LONGI SOLAR LR5-72HBD-540M (540W) MODULES / YOTTA DPI-1726-208 MICROINVERTERS / YOTTA ENERGY SL-1000 (1KWH) BATTERIES
- 1.3.4 PV EQUIPMENT ROOF MOUNT
- 1.3.5 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
- 1.3.6 PV LOAD CENTERS (IF INCLUDED)
- 1.3.7 PV METERING/MONITORING (IF INCLUDED)
- 1.3.8 PV DISCONNECTS
- 1.3.9 PV GROUNDING ELECTRODE & BONDING TO (E) GEC
- 1.3.10 PV FINAL COMMISSIONING
- 1.3.11 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV
- 1.3.12 SÍGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

#### PROJECT INFORMATION

#### PROJECT NAME

NAME: DUNBAR HILL SCHOOL OWNER NAME: TOWN OF HAMDEN

#### **CONTRACTOR INFORMATION:**

CONTRACTOR NAME: ADVANCED ENERGY EFFICIENCIES

#### SCOPE OF WORK

SYSTEM SIZE : STC : 385 X 540W= 207.90 KW DC

PTC: 385 X 497.4W = 191.50 KW DC

AC SIZE: 171.07 KW AC ESS SIZE: 60kWh

(385) LONGI SOLAR LR5-72HBD-540M (540W) MODULES

(99) YOTTA ENERGY DPI-208V MICROINVERTERS (60) YOTTA ENERGY SL-1000 (1KWH) BATTERIES

#### ATTACHMENT TYPE: SOLLEGA FASTRACK FR510 BALLAST SYSTEM

MSP UPGRADE: NO

#### **AUTHORITIES HAVING JURISDICTION**

BUILDING : TOWN OF HAMDEN
UTILITY : UNITED ILLUMINATING

#### **DESIGN SPECIFICATION**

OCCUPANCY: - GROUP B CONSTRUCTION: - TYPE 2

ZONING: - TOWN OF HAMDEN

GROUND SNOW LOAD - 49 PSF WIND EXPOSURE - B

WIND SPEED - 119 MPH

RISK CATEGORY - III

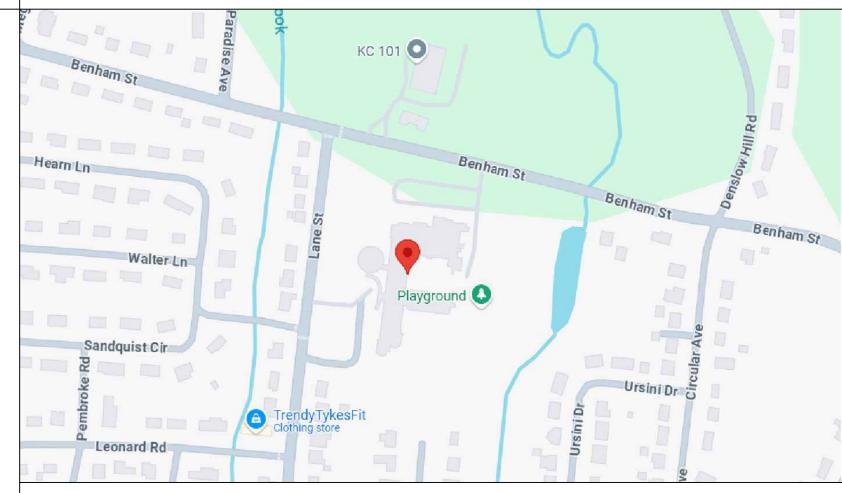
#### APPLICABLE CODES & STANDARDS

BUILDING: IBC 2021, IRC 2021

ELECTRICAL: NEC 2020

FIRE: IFC 2021

## VICINITY MAP



# SATELLITE VIEW



## SHEET INDEX

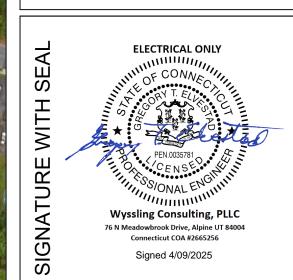
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ADVANCED ENERGY EFFICIENCIES 3000 WHITNEY AVE, HAMDEN, CT 6518, USA LICENSE NO: 200969 PHONE NO - (844) 476-3649

DUNBAR HILL SCHOOL
315 LANE STREET,



を		DATE	04/07/2025			
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#### **NOTES**

- 1. EXISTING PLUMBING VENTS, SKYLIGHTS, EXHAUST OUTLETS, VENTILATIONS INTAKE AIR OPENINGS SHALL NOT BE COVERED BY THE SOLAR PHOTOVOLTAIC SYSTEM.
- 2. EQUIPMENT. INVERTERS, MOTOR GENERATORS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AC PHOTOVOLTAIC MODULES, SOURCE-CIRCUIT COMBINERS, AND CHARGE CONTROLLERS INTENDED FOR USE IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AND LISTED FOR THE APPLICATION. (NEC 690.4(B))
- 3. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED, INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND NON ROOF SWITCHES. ROOF SWITCHES TO BE NEMA 4 RATED.

  4. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- 5.PROTECTION DEVICES FOR PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS ALSO CONNECTED TO SOURCES HAVING SIGNIFICANTLY HIGHER CURRENT
- AVAILABILITY (E.G., PARALLEL STRINGS OF MODULES, UTILITY POWER), SHALL BE PROTECTED AT THE SOURCE FROM OVERCURRENT. [ NEC 690.9(A)] 6.PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS.

#### [ NEC 690.12]

7.THE UTILITY INTERACTIVE INVERTERS SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THE SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL

THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED.

#### [NEC 705.41]

8.ALL CONDUCTOR EXPOSED TO WEATHER SHALL BE LISTED & IDENTIFIED FOR USE IN DIRECT SUNLIGHT. [NEC 310.10(D)(1)] 9.THE MODULE CONDUCTORS MUST BE TYPE USE-2 OR LISTED FOR PHOTOVOLTAIC (PV) WIRE. NEC 690.31(C)

10.ALL CONDUCTORS SHALL BE MARKED ON EACH END FOR UNIQUE IDENTIFICATION.

11.AN INSULATED GROUNDED CONDUCTOR OF 6 AWG OR SMALLER SHALL BE IDENTIFIED AS A CONTINUOUS WHITE FINISH.[ NEC 200.6]

12.THE OUTPUT OF AN INTERCONNECTED ELECTRICAL POWER SOURCE SHALL BE PERMITTED TO BE CONNECTED TO THE LOAD SIDE. INTERCONNECTING

PROVISIONS FOR OTHER POWER SOURCES SHALL COMPLY WITH 705.12(B)(1) THROUGH 705.12(B)(5)

13. EACH SOURCE INTERCONNECTION OF ONE OR MORE POWER SOURCES INSTALLED IN ONE SYSTEM SHALL BE MADE AT A DEDICATED CIRCUIT BREAKER OR FUSIBLE DISCONNECTING MEANS [ NEC 705.12(B)(1)]

14.THE SUM OF THE AMPERE RATING OF THE OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUSBAR OR CONDUCTOR SHALL NOT EXCEED 120% OF THE RATING OF BUSBAR OR CONDUCTOR.[NEC 705.12(B)(3)(2)]

15.A CONNECTION AT EITHER END, BUT NOT BOTH ENDS, OF A CENTER-FED PANEL BOARD IN DWELLINGS SHALL BE PERMITTED WHERE THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR DOES NOT EXCEED 120 PERCENT OF THE CURRENT RATING OF THE BUSBAR. [NEC 705.12(B)(3)(2)]

16.EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUS BAR OR CONDUCTOR

SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES. [NEC 705.12(B)(3)]

17.CIRCUIT BREAKER, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION. [NEC 705.12(B)(4)]

18.TO MINIMIZE OVERHEATING OF THE BUSBAR IN PANELBOARD, THE PANELBOARD MAIN CIRCUIT BREAKER AND THE PV POWER SOURCE CIRCUIT BREAKER SHALL BE PHYSICALLY LOCATED AT THE OPPOSITE END OF THE BUSBAR.

19. ALL THE NEC REQUIRED WARNING SIGNS, MARKINGS, AND LABELS SHALL BE POSTED ON EQUIPMENT AND DISCONNECTS PRIOR TO ANY INSPECTIONS TO BE PERFORMED BY THE BUILDING DEPARTMENT INSPECTOR. 20.WHERE PV SYSTEM DC CIRCUIT'S RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS TYPE MC METAL CLAD CABLE OR METAL ENCLOSURES FROM POINT OF PENETRATION OF THE SURFACE OF THE BUILDING TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS. [ NEC 690.31(G)] 21.FLEXIBLE, FINE-STRANDED CABLES SHALL BE TERMINATED ONLY WITH TERMINALS, LUGS, DEVICES OR CONNECTOR THAT ARE IS IN ACCORDANCE WITH NEC 110.14

22.CONNECTORS SHALL BE OF LATCHING OR LOCKING TYPE. CONNECTORS THAT ARE READILY ACCESSIBLE AND OPERATING AT OVER 30V DC OR 15V AC SHALL REQUIRE TOOL TO OPEN AND MARKED "DO NOT DISCONNECT UNDER LOAD" OR "NOT FOR CURRENT INTERRUPTING".

[NEC 690.33(C) & (E)(2)]

23. EQUIPMENT GROUNDING CONDUCTOR FOR PV MODULES SMALLER THAN 6AWG SHALL BE PROTECTED FROM

PHYSICAL DAMAGE BY A RACEWAY OR CABLE ARMOR. NEC 690.46 & 250.120(C)]

24. AN EQUIPMENT GROUNDING CONDUCTOR SHALL NOT BE SMALLER THAN 14 AWG. [ NEC 690.45]
25. FINE STRANDED CABLES USED FOR BATTERY TERMINALS, DEVICES, AND CONNECTIONS REQUIRE LUGS AND TERMINALS IS IN ACCORDANCE WITH NEC 110.14
26.GROUNDING ELECTRODE CONDUCTOR(S) SHALL BE INSTALLED IN ONE CONTINUOUS LENGTH WITHOUT A SPLICE OR JOINT. IF NECESSARY, SPLICES OR CONNECTIONS SHALL BE MADE AS PERMITTED. (NEC 250.64 C)

27.ALL SMOKE ALARMS, CARBON MONOXIDE ALARMS AND AUDIBLE NOTIFICATION DEVICES SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 217 AND UL 2034. THEY WILL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND NFPA 720..

28.SMOKE ALARMS AND CARBON MONOXIDE ALARMS WILL BE RETROFITTED INTO THE EXISTING DWELLING. THESE SMOKE ALARMS ARE REQUIRED TO BE IN ALL BEDROOMS, OUTSIDE EACH BEDROOM, AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED OUTSIDE EACH BEDROOM AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE. THESE ALARMS MAY BE SOLELY BATTERY OPERATED IF THE PHOTOVOLTAIC PROJECT DOES NOT INVOLVE THE REMOVAL OF INTERIOR WALL AND 29.CEILING FINISHES INSIDE THE HOME, OTHERWISE, THE ALARMS MUST BE HARD WIRED AND INTERCONNECTED.

**GENERAL CONDUCTOR INSULATION KEY** 

DC CONDUCTORS

POSITIVE(UNGROUNDED) RED
NEGATIVE(UNGROUNDED) BLACK
480/277V AC CONDUCTORS

PHASE L1 BROWN
PHASE L2 ORANGE
PHASE L3 YELLOW

120/208V OR 240V AC CONDUCTORS
PHASE L1 BLACK

PHASE L2 RED (SEE NOTE)
PHASE L3 BLUE

NEUTRAL WHITE OR GREY
GROUND GREEN OR BARE Cu

NOTE: THREE PHASE HIGH LEG MUST BE IN ORANGE COLOR PER NFPA 70.

#### GROUND FAULT PROTECTION

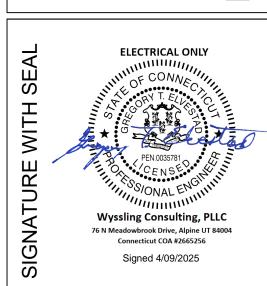
- 1. PHOTOVOLTAIC INVERTERS SHALL BE EQUIPPED WITH DC GROUND FAULT PROTECTION. INVERTERS ARE ALSO EQUIPPED WITH ANTI-ISLANDING CIRCUITRY. DISCONNECTING MEANS
- 1. MEANS SHALL BE PROVIDED TO ISOLATE EACH SOURCE CIRCUIT FROM THE SYSTEM.
- 2. WHERE A CIRCUIT GROUNDING CONNECTION IS NOT DESIGNED TO BE AUTOMATICALLY INTERRUPTED AS PART OF THE GROUND-FAULT PROTECTION, A SWITCH OR CIRCUIT BREAKER USED AS A DISCONNECTING MEANS SHALL NOT HAVE A POLE ON THE GROUNDED CONDUCTOR.
- 3. THE GROUNDED CONDUCTOR MAY HAVE A BOLTED OR TERMINAL DISCONNECTING MEANS TO ALLOW MAINTENANCE OR TROUBLESHOOTING BY QUALIFIED PERSONNEL.
- 4. EQUIPMENT SUCH AS PHOTOVOLTAIC SOURCE CIRCUITS, OVER CURRENT DEVICES, AND BLOCKING DIODES SHALL BE PERMITTED ON THE PHOTOVOLTAIC SIDE OF THE PHOTOVOLTAIC DISCONNECTING MEANS.
- 5. MEANS SHALL BE PROVIDED TO DISCONNECT INVERTERS FROM ALL UNGROUNDED CONDUCTORS OF ALL SOURCES. IF THE EQUIPMENT IS ENERGIZED FROM MORE THAN ONE SOURCE, THE DISCONNECTING MEANS SHALL BE GROUPED AND IDENTIFIED.
- 6. A SINGLE DISCONNECTING MEANS SHALL BE PERMITTED FOR THE COMBINED OUTPUT OF ONE OR MORE INVERTERS IN A GRID INTERACTIVE SYSTEM.
- 7. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT A FUSE FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTIONS AND IS ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS. SUCH A FUSE IN A PHOTOVOLTAIC SOURCE CIRCUIT SHALL BE CAPABLE OF BEING DISCONNECTED INDEPENDENTLY OF FUSES IN OTHER PHOTOVOLTAIC SOURCE CIRCUITS.





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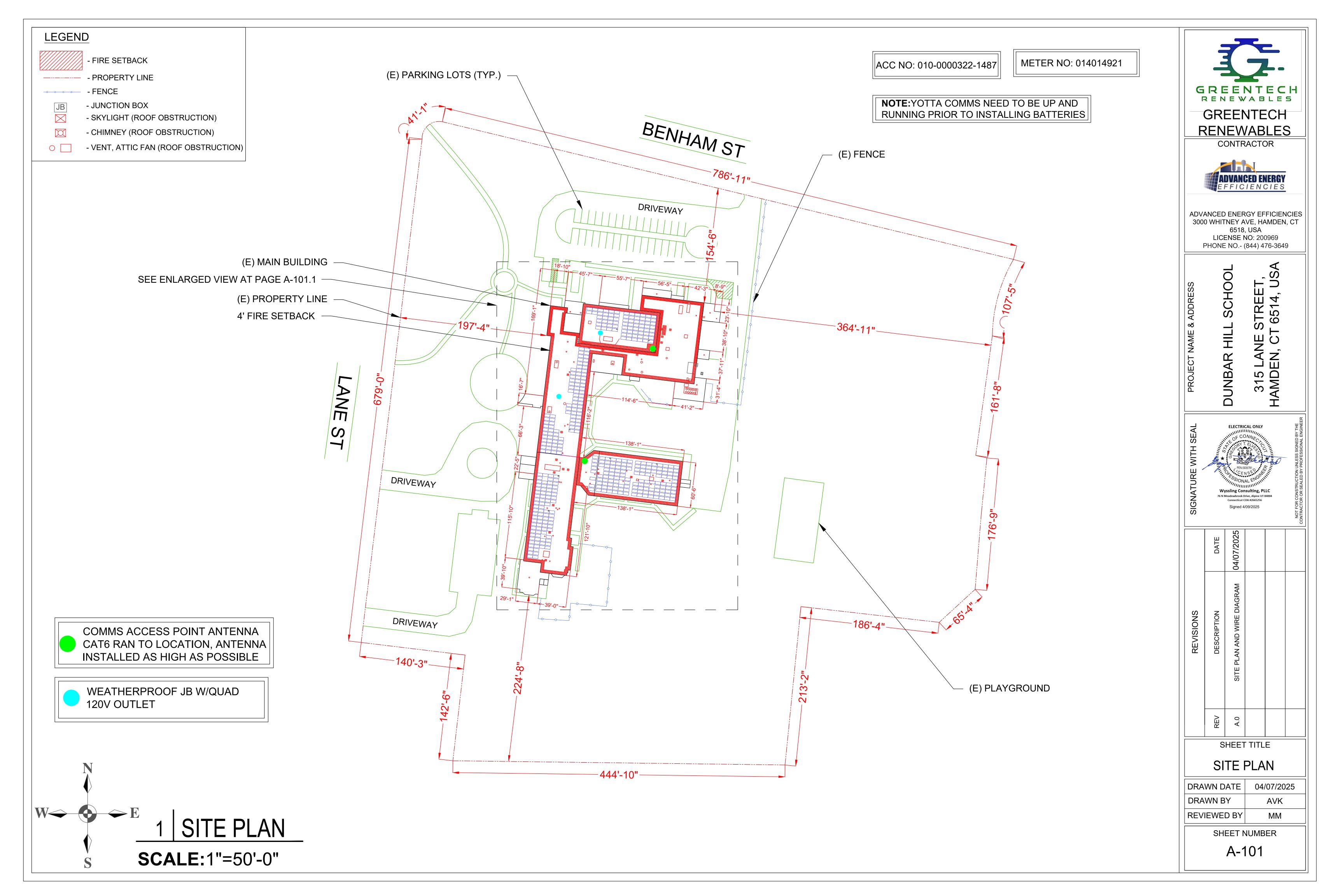
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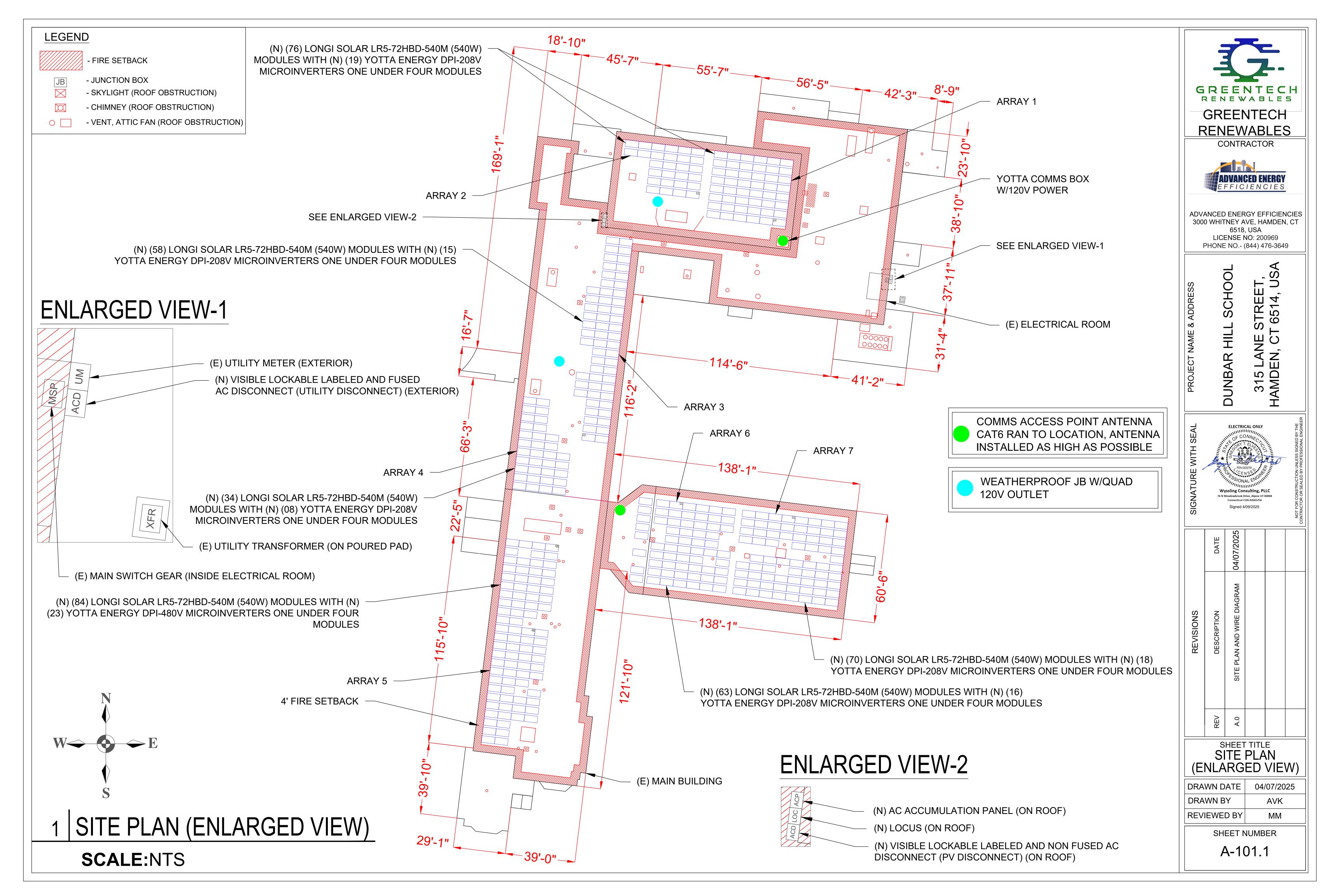
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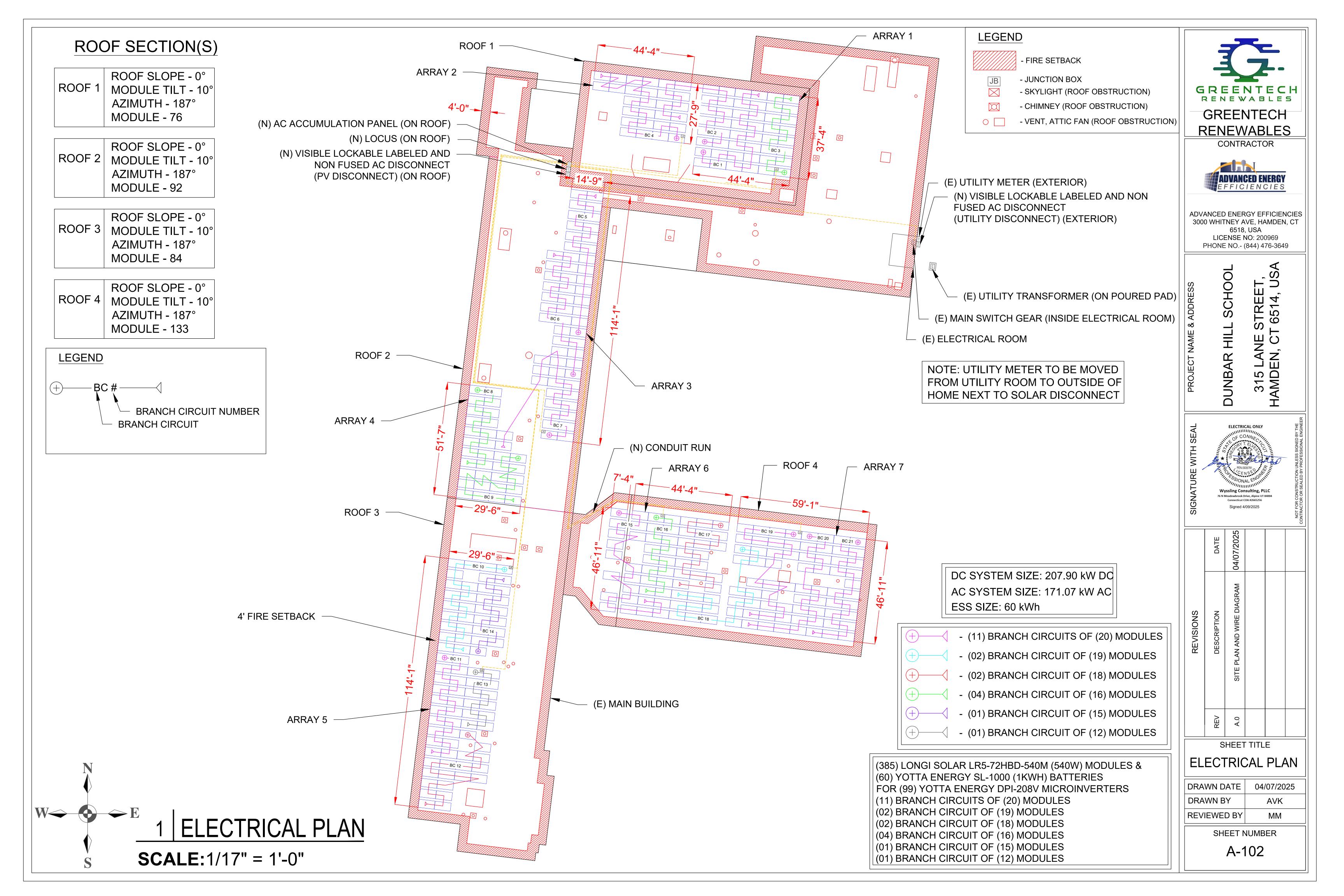
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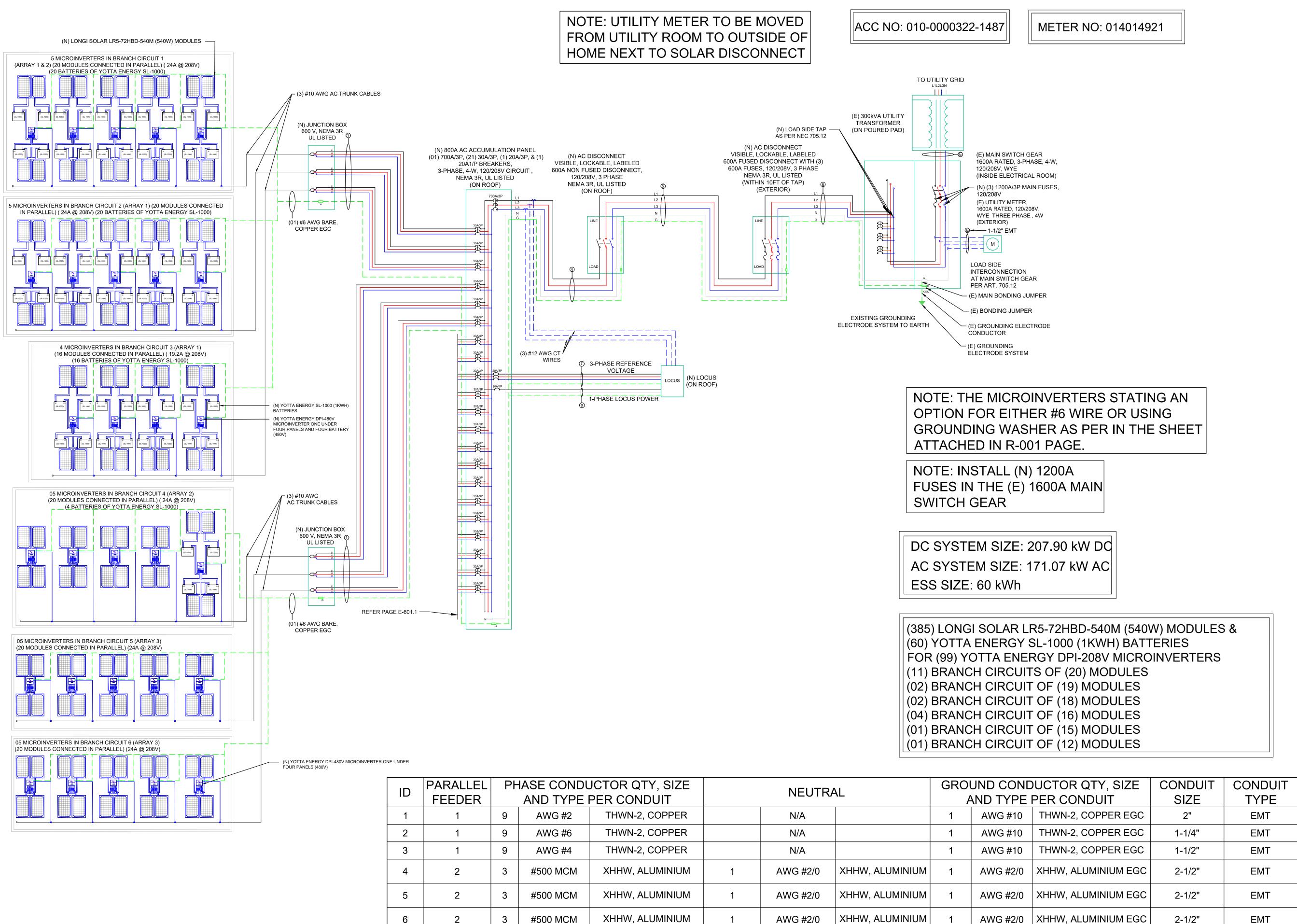
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THWN-2, COPPER

THWN-2, COPPER

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AWG #12

THWN-2, COPPER

**EXISTING** 

AWG #12

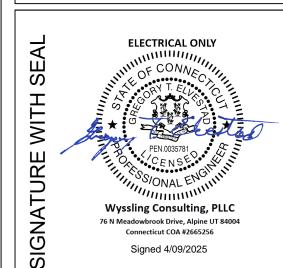
AWG #12

GREENTECH RENEWABLES GREENTECH RENEWABLES CONTRACTOR



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		DATE	04/07/2025		
	REVISIONS	DESCRIPTION	SITE PLAN AND WIRE DIAGRAM		
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# SHEET TITLE ELECTRICAL LINE DIAGRAM

DRAWN DATE 04/07/2025
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REVIEWED BY MM

**EMT** 

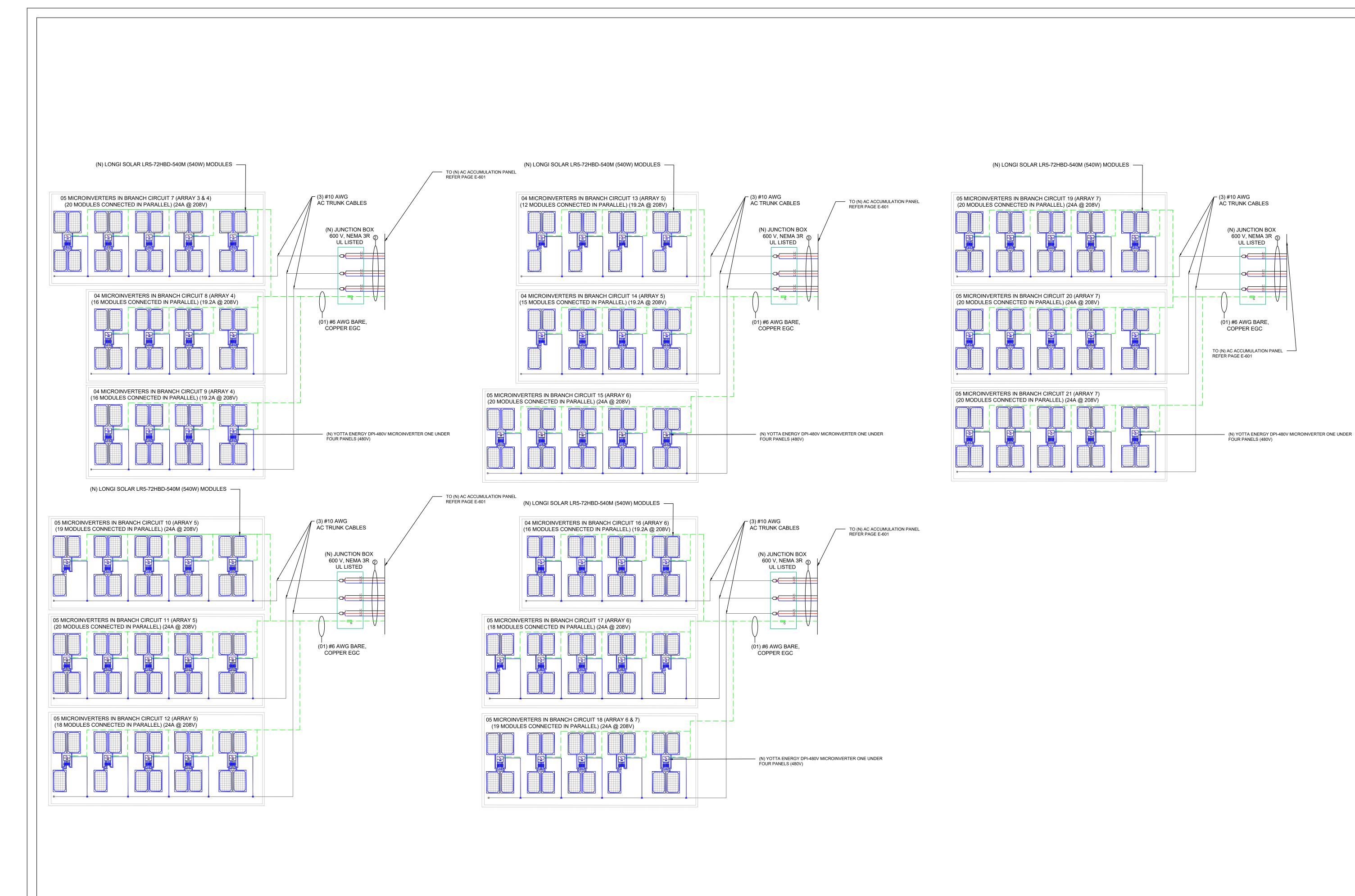
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AWG #12 | THWN-2, COPPER EGC

AWG #12 THWN-2, COPPER EGC

SHEET NUMBER

E-601

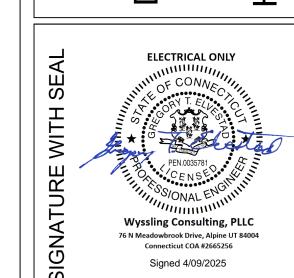






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	DATE	04/07/2025		
REVISIONS	DESCRIPTION	SITE PLAN AND WIRE DIAGRAM		
	REV	A.0		

# SHEET TITLE ELECTRICAL LINE DIAGRAM

DRAWN DATE	04/07/2025
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SHEET NUMBER

E-601.1

SC	SOLAR MODULE SPECIFICATIONS			
MANUEACTURED / MODEL #	LONGI SOLAR LR5-72HBD-540M (540W) MODULES			
MANUFACTURER / MODEL #	STC	5% BI-FACIAL GAIN		
VMP	41.65V	40.02V		
IMP	12.97A	13.61A		
VOC	49.50A	48.81A		
ISC	13.85A	14.54A		
TEMP. COEFF. VOC	-0.26%/°C			
PTC RATING	497.4W			
MODULE DIMENSION	88.82×44.6×1.38 (In Inch)			

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20

MICROINVERTER SPECIFICATIONS		
MANUFACTURER / MODEL #	YOTTA ENERGY DPI-208V MICROINVERTERS	
NOMINAL AC POWER	1728 W	
NOMINAL OUTPUT VOLTAGE	208 VAC	
NOMINAL OUTPUT CURRENT	4.8 A	

5% BIFACIAL GAIN CALCULATION	
IMP = 12.97A X 1.05 = 13.61A	
ISC = 13.85A X 1.05 = 14.54A	

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-19°C
AMBIENT TEMP (HIGH TEMP 2%)	30°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	30°C
CONDUCTOR TEMPERATURE RATE	90°C

BATTERY SPECIFICATIONS		
MANUFACTURER / MODEL #	YOTTA ENERGY SL-1000 (1KWH) BATTERY	
USABLE CAPACITY	1kWH	
NOMINAL OUTPUT VOLTAGE	38.4 VDC	
NOMINAL OUTPUT CURRENT	15A	

							AC WIRE	E CALCULAT	ΓΙΟΝ						
WIRE ID	PARALLEL FEEDERS	EXPECTED WIRE TEMP (In Celsius)	TEMP. CORRECTION PER TABLE 310.15(B)(1)	NO. OF CURRENT CARRYING CONDUCTORS	CONDUIT FILL CORRECTION PER NEC 310.15(C)(1)		CIRCUIT CONDUCTOR AMPACITY @75°(PER FEEDER SET)	CIRCUIT CONDUCTOR AMPACITY @90°(PER FEEDER SET)	REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A)(1)(e) TOTAL INVERTER OUTPUT CURRENT	MINIMUM OCPD REQUIRED PER NEC 690.9(B) TOTAL INVERTER OUTPUT CURRENT X 1.25	DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16 TEMP. CORRECTION PER TABLE (310.15)(1) X CONDUIT FILL CORRECTION PER NEC 310.15(C)(1) X CIRCUIT CONDUCTOR AMPACITY @90°(PER FEEDER SET)	DERATED AMPACITY OF CIRCUIT CONDUCTOR IS GREATER THAN REQUIRED	ESTIMATED DISTANCE (FT)	EXPECTED VOLTAGE DROP (%)	
1	1	30°	1	9	0.7	#2 AWG	115A	130A	24A	30A	91A	YES	280	1.13	
2	1	30°	1	9	0.7	#6 AWG	65A	75A	24A	30A	52.5A	YES	90	0.88	
3	1	30°	1	9	0.7	#4 AWG	85A	95A	24A	30A	66.5A	YES	150	0.93	
5	2	30°	1	3	1	#500 MCM (AL)	310A X 2	350A X 2	475.2A	594A	700A	YES	10	0.08	
6	2	30°	1	3	1	#500 MCM (AL)	310A X 2	350A X 2	475.2A	594A	700A	YES	180	1.61	
7	2	30°	1	3	1	#500 MCM (AL)	310A X 2	350A X 2	475.2A	594A	700A	YES	10	0.08	
			•							•	TOTAL AC VOLTAGE	DROP (FOR TAC	G 1, 5, 6, & 7) (%)	2.90	





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# SHEET TITLE ELECTRICAL CALCULATIONS

DRAWN DATE	04/07/2025
DRAWN BY	AVK
REVIEWED BY	MM

SHEET NUMBER

E-602

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL, AC DISCONNECT, POINT OF INTERCONNECTION PER CODE: NEC 706.15(C)(4), NEC 690.13(B)

# **AWARNING**

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

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LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

#### PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS PER CODE: NEC 690.31(D)(2)

#### **SOLAR PV DC CIRCUIT**

LABEL LOCATION: DC CONDUIT/RACEWAYS PER CODE: NEC 690.31(D)(2)

#### PHOTOVOLTAIC SYSTEM AC DISCONNECT

RATED AC OUTPUT CURRENT: 475.2 A
NOMINAL OPERATING AC VOLTAGE: 208 V

LABEL LOCATION: AC DISCONNECT/POINT OF INTERCONNECTION PER CODE: NEC 690.54

WARNING MULTIPLE POWER SOURCE SOURCES: UTILITY GRID, PV AND ESS SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER PER CODE: NEC 690.59, 705.12(C)

### **PV SYSTEM**

### **DISCONNECT**

LABEL LOCATION: AC DISCONNECT PER CODE: NEC 690.13(B)

8 MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER PER CODE: NEC 690.13(B)

**AWARNING** 

THIS EQUIPMENT FED BY MULTIPLE SOURCES:

TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR

LABEL LOCATION: AC DISCONNECT PER CODE: NEC 705.12(B)(3)(3)

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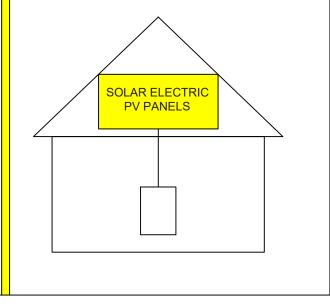
**! WARNING** 

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

LABEL LOCATION: POINT OF INTERCONNECTION PER CODE: NEC 705.12(B)(3)(2)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



LABEL LOCATION: MAIN SERVICE DISCONNECT PER CODE: NEC 690.56(C)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

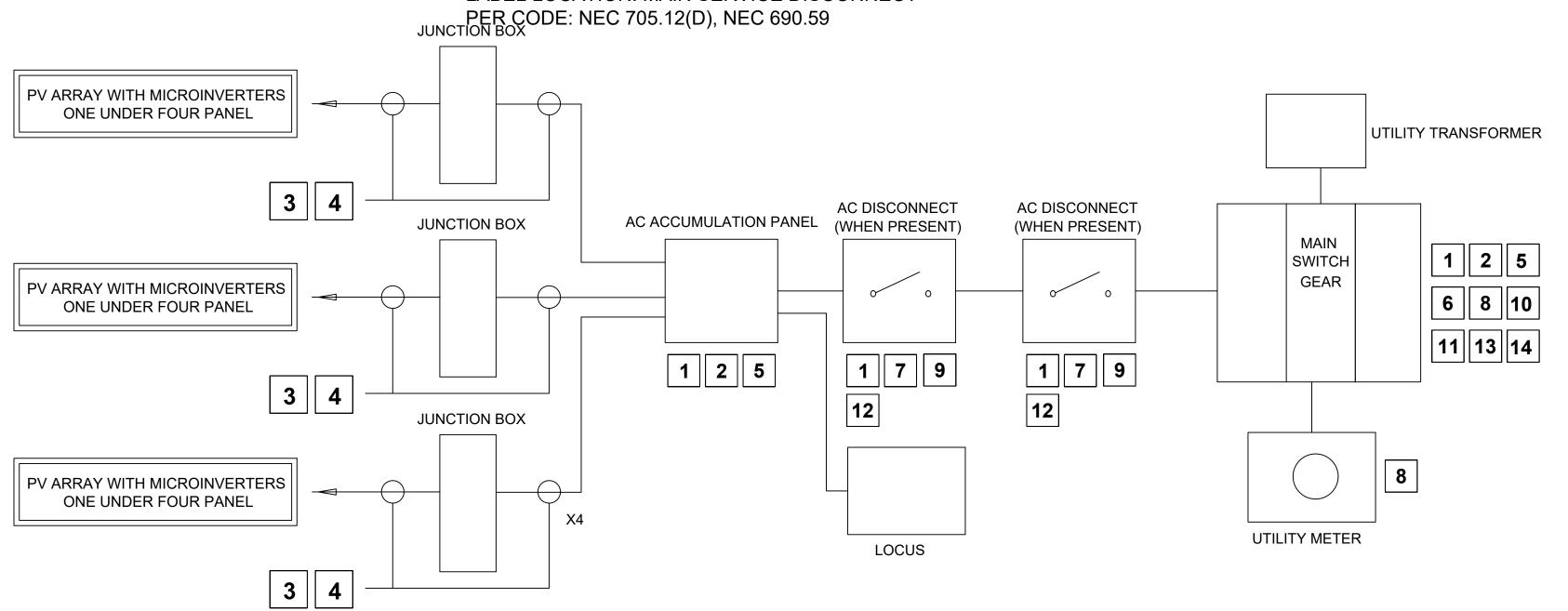
LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT PER CODE: NEC 690.56(C)(2)

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A CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION: MAIN SERVICE DISCONNECT



14 DO NOT DISCONNECT UNDER LOAD

**15** 

16

LABEL LOCATION: MAIN SERVICE DISCONNECT PER CODE: NEC 690.15(B) & NEC 690.33(D)(2)

MAXIMUM DC VOLTAGE

### OF PV SYSTEM

LABEL LOCATION: DC DISCONNECT/INVERTER/PV DIST. EQUIPMENT PER CODE: NEC 690.53

**AWARNING** 

**ELECTRICAL SHOCK HAZARD** 

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

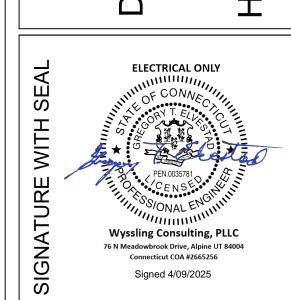
LABEL LOCATION: DC DISCONNECT PER CODE: NEC 690.13(B)

GREENTECH RENEWABLES GREENTECH RENEWABLES CONTRACTOR

ADVANCED ENERGY EFFICIENCIES

ADVANCED ENERGY EFFICIENCIES 3000 WHITNEY AVE, HAMDEN, CT 6518, USA LICENSE NO: 200969 PHONE NO.- (844) 476-3649

> DUNBAR HILL SCHOOL 315 LANE STREET, HAMDEN, CT 6514, USA



REVISIONS

REV

DESCRIPTION

A.0 SITE PLAN AND WIRE DIAGRAM

04/07/2025

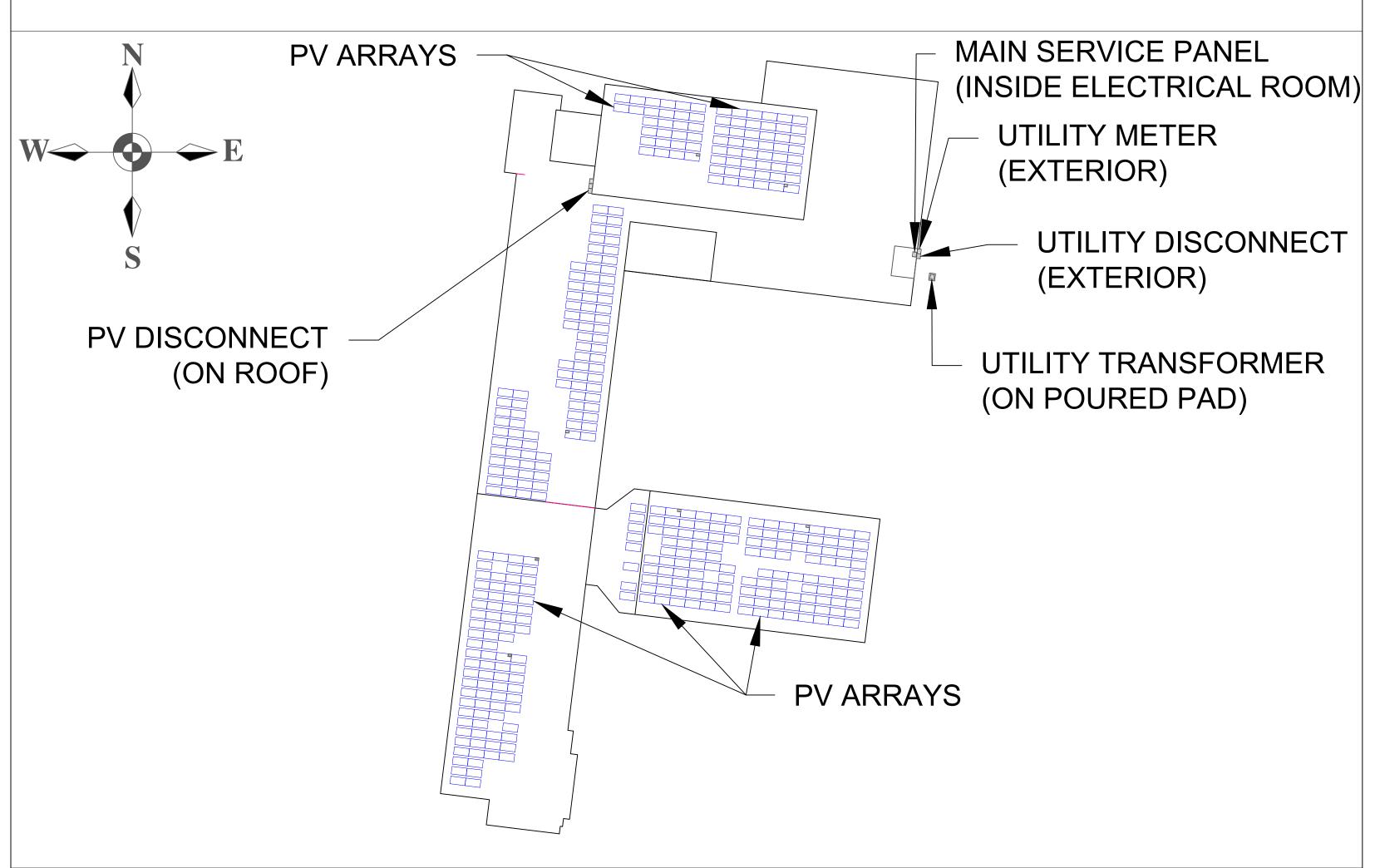
SHEET TITLE
WARNING LABELS

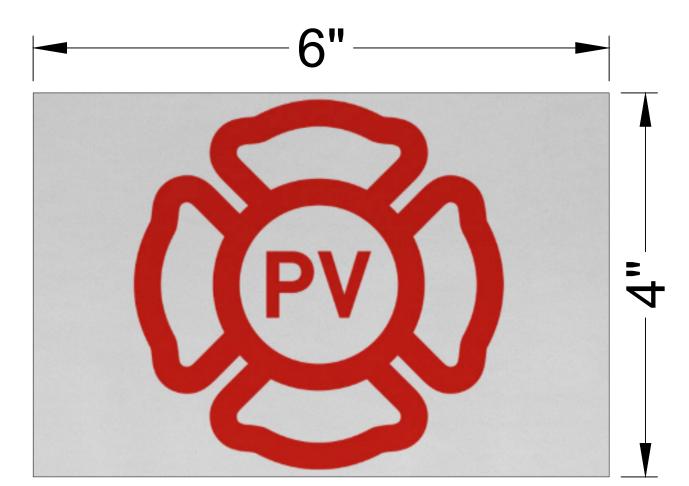
DRAWN DATE 04/07/2025
DRAWN BY AVK
REVIEWED BY MM
SHEET NUMBER

E-603

# CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:



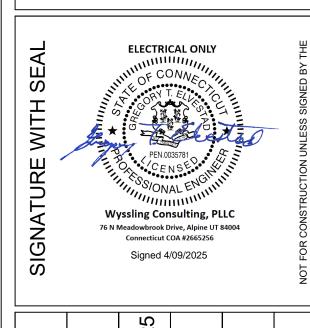






ADVANCED ENERGY EFFICIENCIES 3000 WHITNEY AVE, HAMDEN, CT 6518, USA LICENSE NO: 200969

> DUNBAR HILL SCHOOL 315 LANE STREET,



	DATE	04/07/2025		
REVISIONS	DESCRIPTION	SITE PLAN AND WIRE DIAGRAM		
	REV	A.0		

SHEET TITLE
PLACARDS

DRAWN DATE 04/07/2025
DRAWN BY AVK
REVIEWED BY MM

SHEET NUMBER
E-604







Power Output Tolerance

Maximum System Voltage

Maximum Series Fuse Rating

Nominal Operating Cell Temperature

www.yottaenergy.com

Voc and Isc Tolerance

Bifaciality

Yotta's SolarLEAF™ (SL-1000) is a fully-integrated energy storage technology that seamlessly integrates behind photovoltaic (PV) modules on commercial rooftops which solves one of the industry's biggest challenges of "Where do you put the batteries?". Engineered with an advanced passive thermal regulation technology, SolarLEAF™ safely enables a distributed format while maximizing the life and performance of the battery under extreme thermal conditions.

The SolarLEAF's modular design is able to scale to meet the changing needs of commercial buildings while optimizing for today's needs. With its plug-and-play design and direct integration with Yotta's Dual Power Inverters, deployment





www.yottaenergy.com

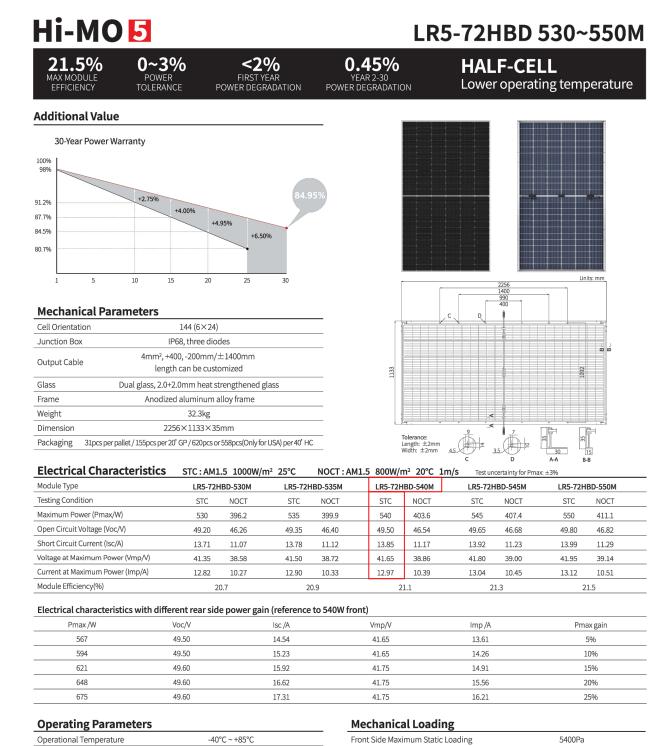
#### **YottaVision Monitoring**

- Monitors and Analyzes each solar module and battery - Allows **Remote Access** to the solar array - Displays **Performance Issues** and alerts the user to

- Real Time Communication - Performance Reporting to support troubleshooting

**ENERGY MADE SIMPLE** 

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Eiro Poting	UL type 29	Temperature Coefficient of Voc	-0.265%/°C	
Fire Rating	IEC Class C	Temperature Coefficient of Pmax	-0.340%/°C	
LONGİ	No.8369 Shangyuan Road, Xi'an Technological Development Zo <b>Web:</b> www.longi.com		Specifications included in this datashed are subject to change without notice. LONGi reserves the right of final interpretation. (20230115V17)	
MODEL			200	

Rear Side Maximum Static Loading

**Temperature Ratings** (S

25mm Hailstone at the speed of 23m/s

+0.050%/°C

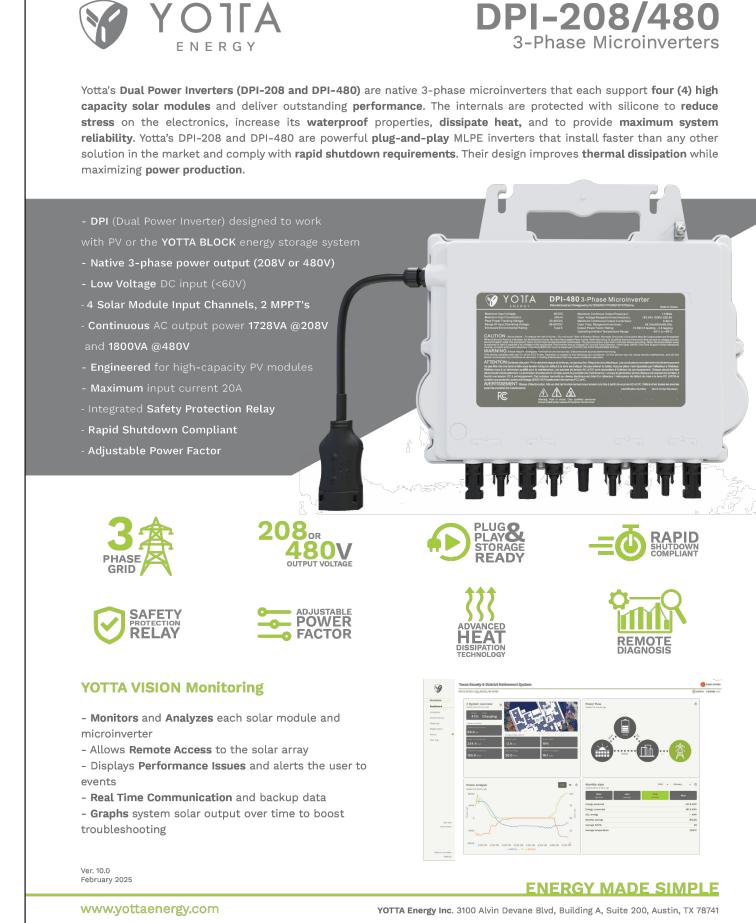
**ENERGY MADE SIMPLE** 

YOTTA ENERGY INC. 3100 Alvin Devane Blvd, Building A, Suite 200, Austin, TX 78741

0 ~ 3%

DC1500V (IEC/UL)

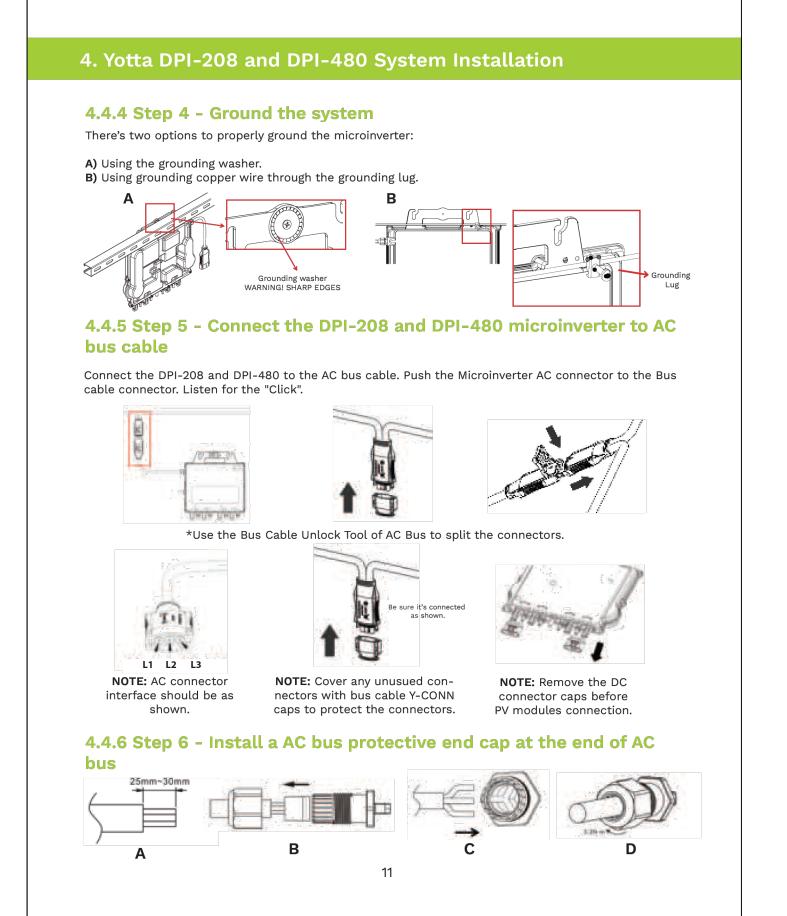
45±2℃

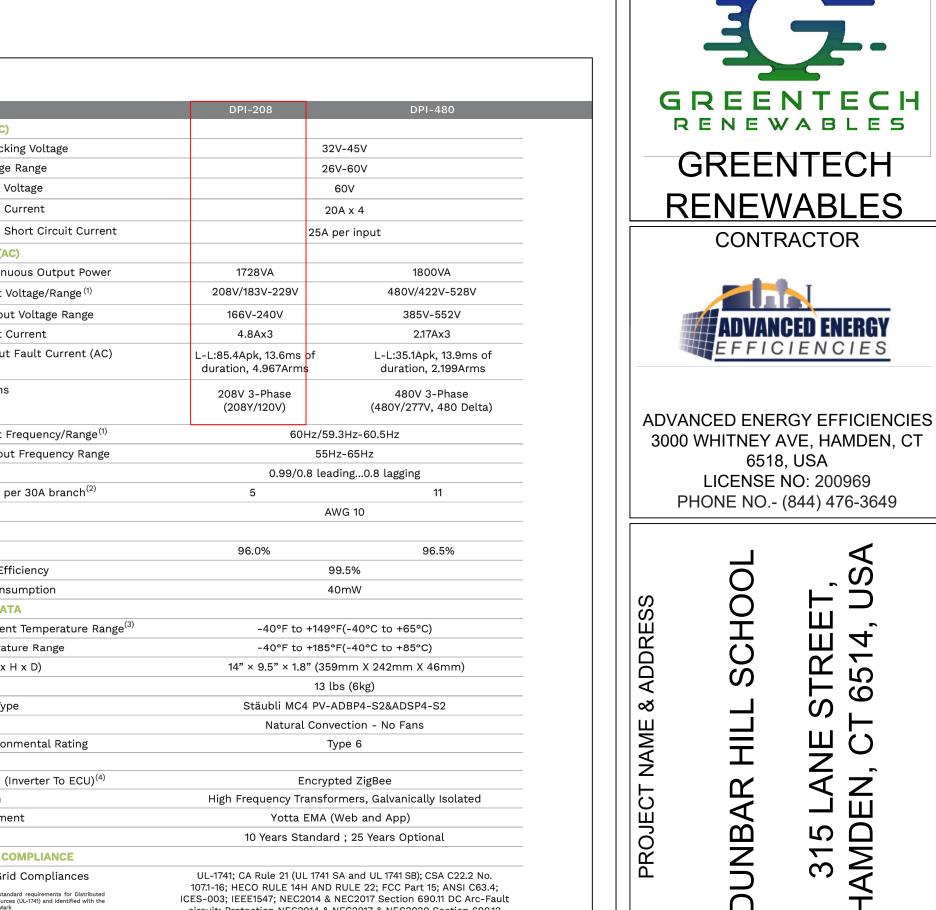


MODEL	DPI-208	DPI-480		
INPUT DATA (DC)				
Peak Power Tracking Voltage		32V-45V		
Operating Voltage Range		26V-60V		
Maximum Input Voltage		60V		
Maximum Input Current		20A x 4		
Maximum Input Short Circuit Current		25A per input		
OUTPUT DATA (AC)		20// per impac		
Maximum Continuous Output Power	1728VA	1800VA		
·	208V/183V-229V	480V/422V-528V		
Nominal Output Voltage/Range (1)	·	·		
Adjustable Output Voltage Range	166V-240V	385V-552V		
Nominal Output Current	4.8Ax3	2.17Ax3		
Maximum Output Fault Current (AC) and Duration	L-L:85.4Apk, 13.6ms duration, 4.967Arms	• •		
Grid Connections	208V 3-Phase (208Y/120V)	480V 3-Phase (480Y/277V, 480 Delta)		
Nominal Output Frequency/Range <sup>(1)</sup>	601	lz/59.3Hz-60.5Hz		
Adjustable Output Frequency Range		55Hz-65Hz		
Power Factor	0.99/0.	B leading0.8 lagging		
Maximum Units per 30A branch <sup>(2)</sup>	5	11		
AC Bus Cable		AWG 10		
EFFICIENCY				
CEC Efficiency	96.0%	96.5%		
Nominal MPPT Efficiency		99.5%		
Night Power Consumption		40mW		
MECHANICAL DATA				
Operating Ambient Temperature Range <sup>(3)</sup>	-40°F to	+149°F(-40°C to +65°C)		
Storage Temperature Range	-40°F to	+185°F(-40°C to +85°C)		
Dimensions (W x H x D)	14" × 9.5" × 1.8	' (359mm X 242mm X 46mm)		
Weight		13 lbs (6kg)		
DC Connector Type	Stäubli MC4	PV-ADBP4-S2&ADSP4-S2		
Cooling	Natural Convection - No Fans			
Enclosure Environmental Rating	Type 6			
FEATURES				
Communication (Inverter To ECU) <sup>(4)</sup>	Er	ncrypted ZigBee		
Isolation Design	High Frequency Transformers, Galvanically Isolated			
Energy Management	Yotta EMA (Web and App)			
Warranty	10 Years Standard ; 25 Years Optional			
CERTIFICATE & COMPLIANCE				
Safety, EMC & Grid Compliances  Meets the standard requirements for Distributed Energy Resources (UL-1741) and Identified with the CSA Listed Mark	107.1-16; HECO RULE 14H ICES-003; IEEE1547; NEC20 circuit; Protection NEC20	1741 SA and UL 1741 SB); CSA C22.2 No. AND RULE 22; FCC Part 15; ANSI C63.4; D14 & NEC2017 Section 690.11 DC Arc-Fault 14 & NEC2017 & NEC2020 Section 690.12 wn of PV systems on Building		
(1) Nominal voltage/frequency range can be extended beyond nominal if required b (2) Limits may vary. Refer to local requirements to define the number of microinver (3) inverter may enter low power mode in environments with poor ventilation or lim (4) Recommend no more than 80 inverters register to one ECU for stable community.	oy the utility. rters per branch in your area. nited heat dissipation	o v oyotomo on bultunig		
		ENERGY MADE SIMP		

www.yottaenergy.com

MODEL	SL-1000
ELECTRICAL	
Solar PV Input	Up to 750W
Module Compatibility	Voc(max) 60V - Isc(max) 15A
Inverter Compatibility	Yotta DPI Microinverter
DC Voltage - Nominal	38.4V
Amp Hours	26.4Ah
Rated Capacity	1000Wh @ (100% DoD)
	800Wh @ (80% DoD)
Allowable Depth of Discharge (DoD) (1)	Up to 100%
Input Voltage (1)	53V
Output Voltage Range	22-45V
MPPT Operating Range	20-50V
Max Continuous Current (charge & discharge)	15A
Max Power Output (2) (discharge)	Up to 675W
Chemistry	Lithium Iron Phosphate
Cycle Life	6,000+ Cycles (@ 80% DoD)
MECHANICAL	
Weight	56.7 lbs (25.7kg)
Roof Loading	2.7 / 3.0 psf typical
Mounting Options	Attaches to PV or ballast racking
Ambient Op. Temp.	-20° to 43°C max continuous
	(-4° to 109°F)
Storage Temp.	-20° to 55°C (-4° to 114°F)
Dimensions	15.75 x 26.25 x 4.25 (in)
SAFETY AND WARRANTY	
Warranty	10 Years
Enclosure	NEMA 4X, IP67
Certifications	UL 1973
	UL 9540
	UN38.3
MONITORING	Yotta Vision
COMPLIANCE	UL 9540, UL 1973 Meets the performance criteria for UL 9540A
(1) Maximum operating ranges. Refer to warranty for recommended con- (2) From battery, but further limited by solar inverter.	ditions.
	ited Energy Storage paired with DPI Microinverters





YOTTA ENERGY INC. 3100 Alvin Devane Blvd, Building A, Suite 200, Austin, TX 78741

SHEET TITLE

RESOURCE DOCUMENT DRAWN DATE 04/07/2025 DRAWN BY AVK

REVIEWED BY SHEET NUMBER

R-001