EXISTING PV SYSTEM: 9.125 kWp

NEW BATTERY ADD-ON

DAMANTI RESIDENCE

405 PARKER CREEK RD
HOLLY SPRINGS, NC 27540
ASSESSOR'S #: 1500011889

GENERAL NOTES

1.1.1 PROJECT NOTES:
1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
1.1.4 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.

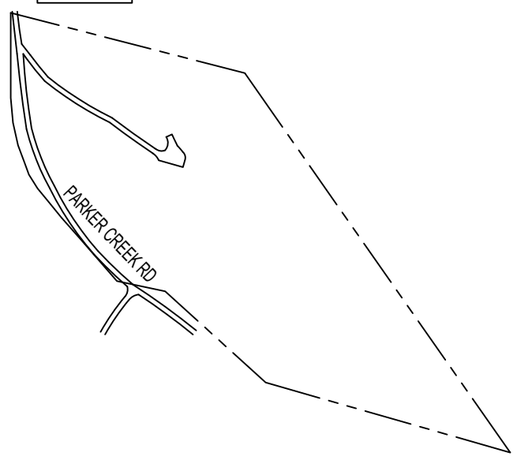
1.2.1 SCOPE OF WORK:
1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC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

1.3.1 WORK INCLUDES:
1.3.2 PV MODULE AND INVERTER INSTALLATION - TESLA BACKUP GATEWAY 2 / TESLA POWERWALL 2AC 5KW
1.3.3 PV EQUIPMENT GROUNDING
1.3.4 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV

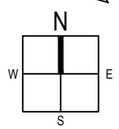
SCOPE OF WORK

SYSTEM SIZE:	(1) TESLA POWERWALL-2-AC 5KW (1) TESLA BACKUP GATEWAY 2
MSP UPGRADE:	NO

01 AERIAL PHOTO
NOT TO SCALE



02 PLAT MAP
NOT TO SCALE



SHEET LIST TABLE

PROJECT INFORMATION

OWNER
NAME: DJ DAMANTI

PROJECT MANAGER
NAME: ANDREW O'DONNELL
PHONE: 7045256767

CONTRACTOR
NAME: RENU ENERGY SOLUTIONS, LLC
PHONE: 704-525-6767

AUTHORITIES HAVING JURISDICTION
BUILDING: HARNETT COUNTY
ZONING: HARNETT COUNTY
UTILITY: DUKE ENERGY CAROLINAS

DESIGN SPECIFICATIONS
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: 15 PSF
WIND EXPOSURE: B
WIND SPEED: 115 MPH

APPLICABLE CODES & STANDARDS
BUILDING: IBC 2018, IRC 2018
ELECTRICAL: NEC 2017
FIRE: IFC 2018

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

PHONE: 704-525-6767
ADDRESS: 801 PRESSLEY ROAD SUITE 100, CHARLOTTE, NC 28217

LIC. NO.: 76615
HIC. NO.:
ELE. NO.: 20334U

EXISTING PV SYSTEM:9.125KWP
NEW BATTERY ADD-ON

DAMANTI RESIDENCE
405 PARKER CREEK RD
HOLLY SPRINGS, NC 27540
APN: 1500011889

ENGINEER OF RECORD

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

COVER PAGE

DATE: 02.15.2023
DESIGN BY: A.O.
CHECKED BY: M.M.

REVISIONS

T-001.00
(SHEET 1)

2.1.1 SITE NOTES:

2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.

2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH STORAGE BATTERIES.

2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.

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

2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 EQUIPMENT LOCATIONS:

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

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

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

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

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

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

2.3.1 STRUCTURAL NOTES:

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

2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.

2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.

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

2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 WIRING & CONDUIT NOTES:

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

2.4.3 CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.

2.4.4 VOLTAGE DROP LIMITED TO 1.5%.

2.4.5 DC WIRING LIMITED TO MODULE FOOTPRINT. MICROINVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.

2.4.6 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:

PHASE A OR L1- BLACK
PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE
PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION
NEUTRAL- WHITE OR GRAY

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

2.5.1 GROUNDING NOTES:

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

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

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

2.5.5 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45 AND MICROINVERTER MANUFACTURERS' INSTRUCTIONS.

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

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

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

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

2.5.10 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS

2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:

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

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

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

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

2.6.6 MICROINVERTER BRANCHES CONNECTED TO A SINGLE BREAKER OR GROUPED FUSES IN ACCORDANCE WITH NEC 110.3(B).

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

2.7.1 INTERCONNECTION NOTES:

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

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

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

2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(2)(1)

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

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

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

PHONE: 704-525-6767
ADDRESS: 801 PRESSLEY ROAD SUITE 100, CHARLOTTE, NC 28217

LIC. NO.: 76615
HIC. NO.:
ELE. NO.: 20334U

EXISTING PV SYSTEM:9.125KWP
NEW BATTERY ADD-ON

DAMANTI RESIDENCE

405 PARKER CREEK RD
HOLLY SPRINGS, NC 27540
APN: 1500011889

ENGINEER OF RECORD

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

NOTES

DATE: 02.15.2023

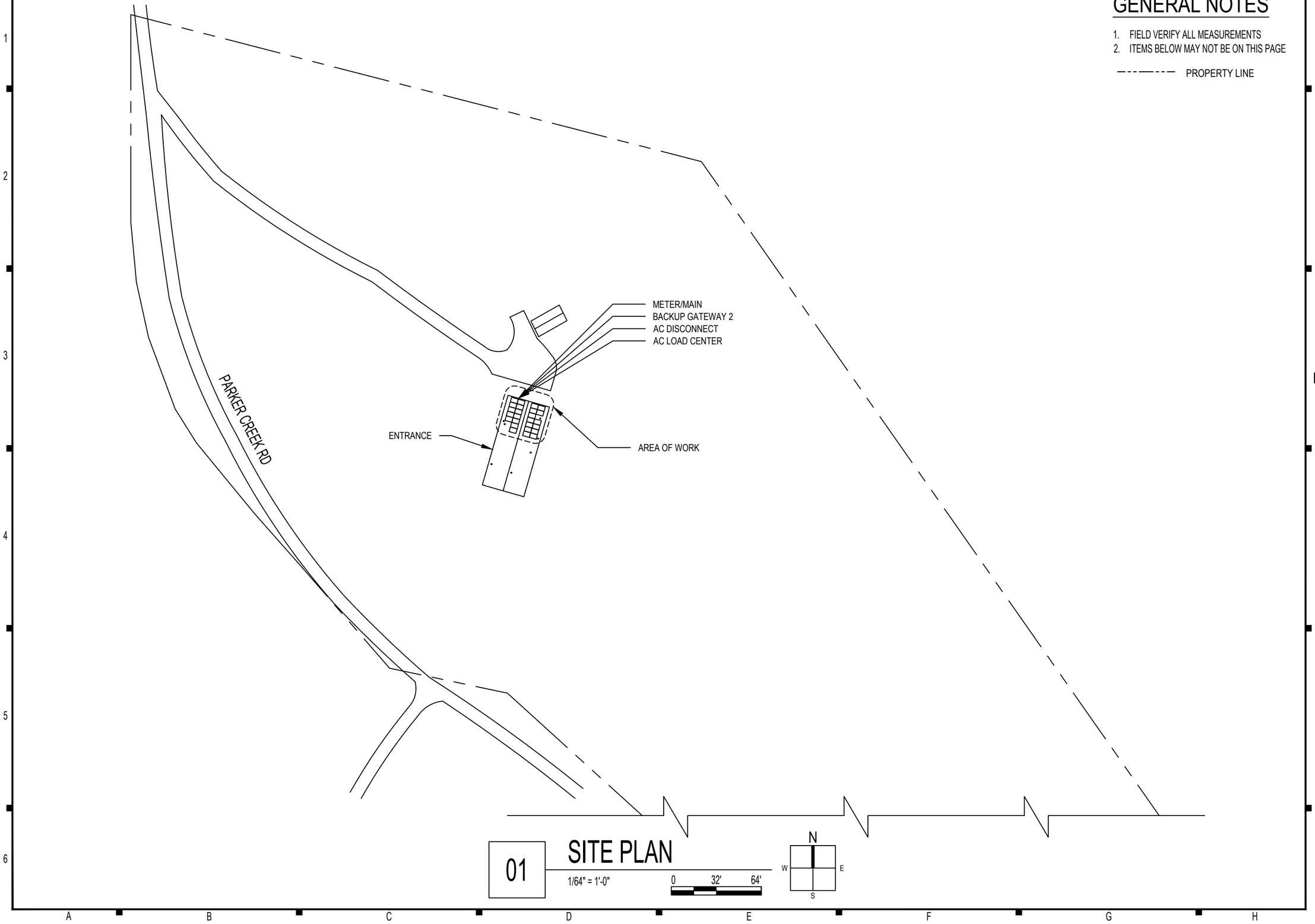
DESIGN BY: A.O.

CHECKED BY: M.M.

REVISIONS

G-001.00

(SHEET 2)



GENERAL NOTES

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

PROPERTY LINE

01 SITE PLAN

1/64" = 1'-0"

0 32' 64'

N W E S

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

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SITE PLAN

DATE: 02.15.2023

DESIGN BY: A.O.

CHECKED BY: M.M.

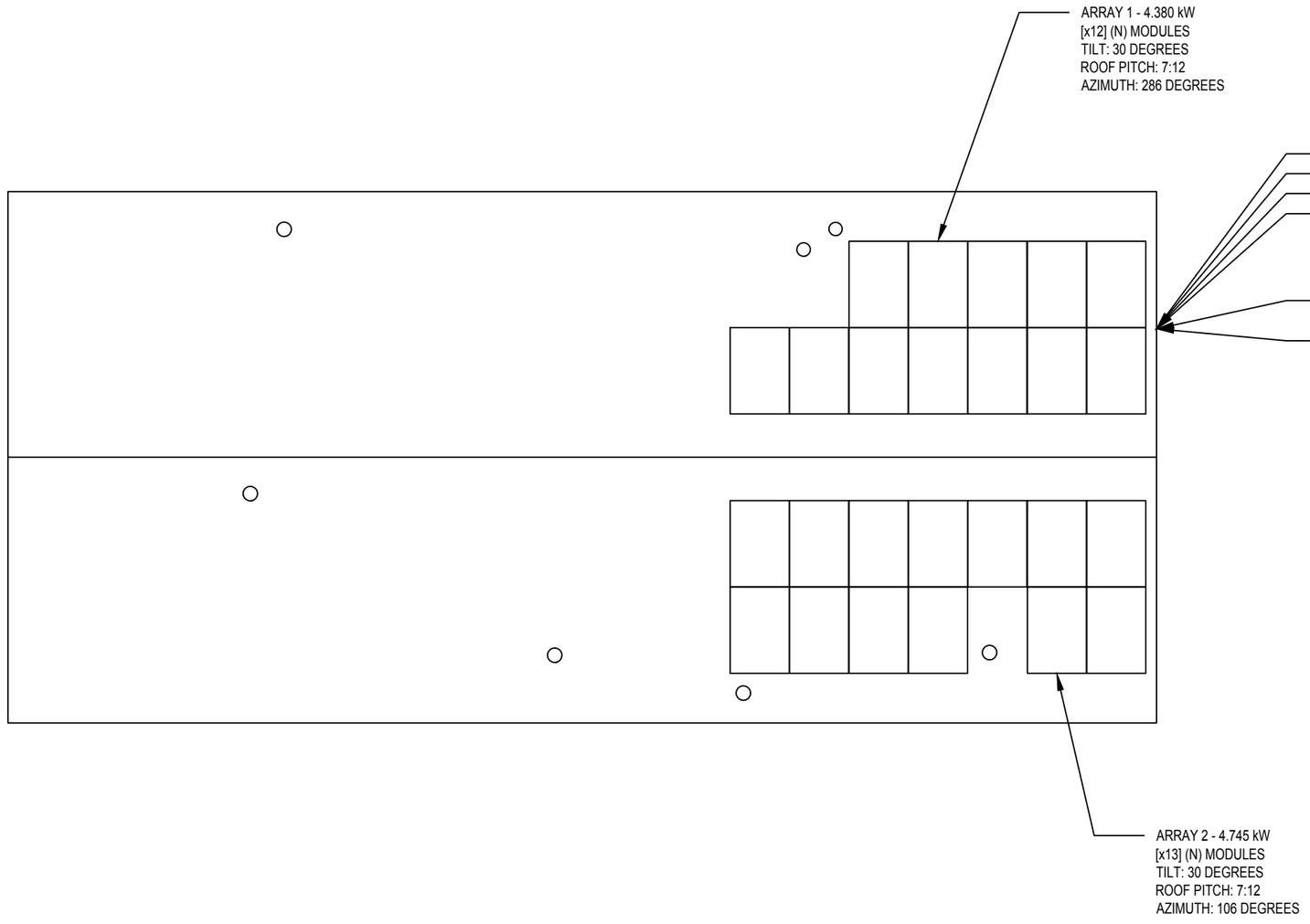
REVISIONS

A-101.00

(SHEET 3)

GENERAL NOTES

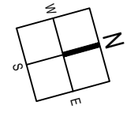
1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

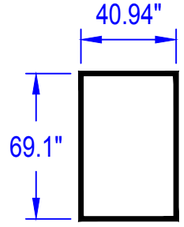


01 ELECTRICAL PLAN

1/8" = 1'-0"

0 4' 8'





MODULE:
REC SOLAR
REC365NP2 BLACK
365 WATTS

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

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ENGINEER OF RECORD

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

ELECTRICAL PLAN

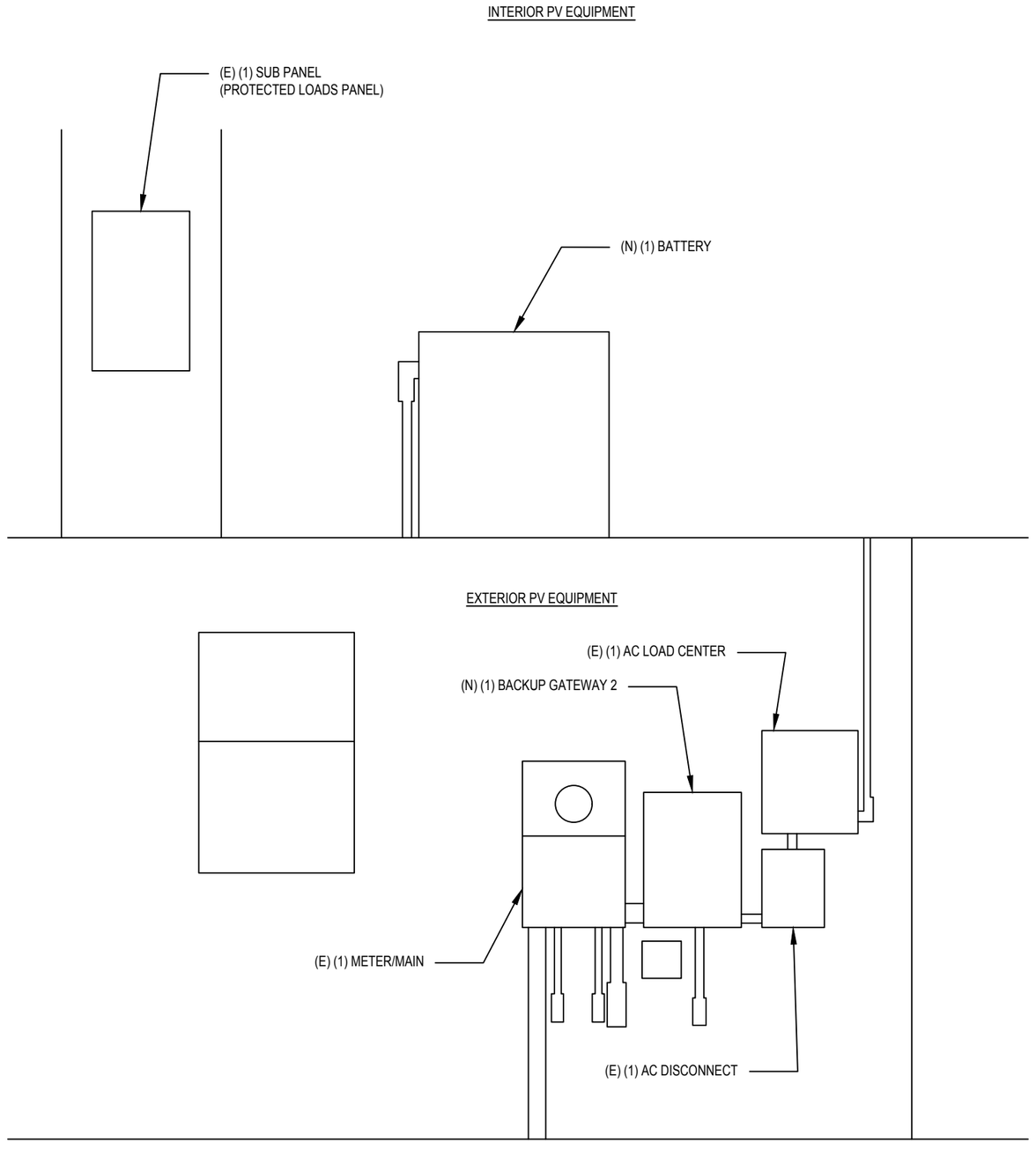
DATE: 02.15.2023
DESIGN BY: A.O.
CHECKED BY: M.M.

REVISIONS

A-102.00
(SHEET 4)

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE
3. DISCONNECT SWITCH AND METERING



01 EQUIPMENT ELEVATION

NOT TO SCALE

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

PHONE: 704-525-6767

ADDRESS: 801 PRESSLEY ROAD SUITE 100, CHARLOTTE, NC 28217

LIC. NO.: 76615
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405 PARKER CREEK RD
HOLLY SPRINGS, NC 27540
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ENGINEER OF RECORD

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

ELEVATION PLAN

DATE: 02.15.2023

DESIGN BY: A.O.

CHECKED BY: M.M.

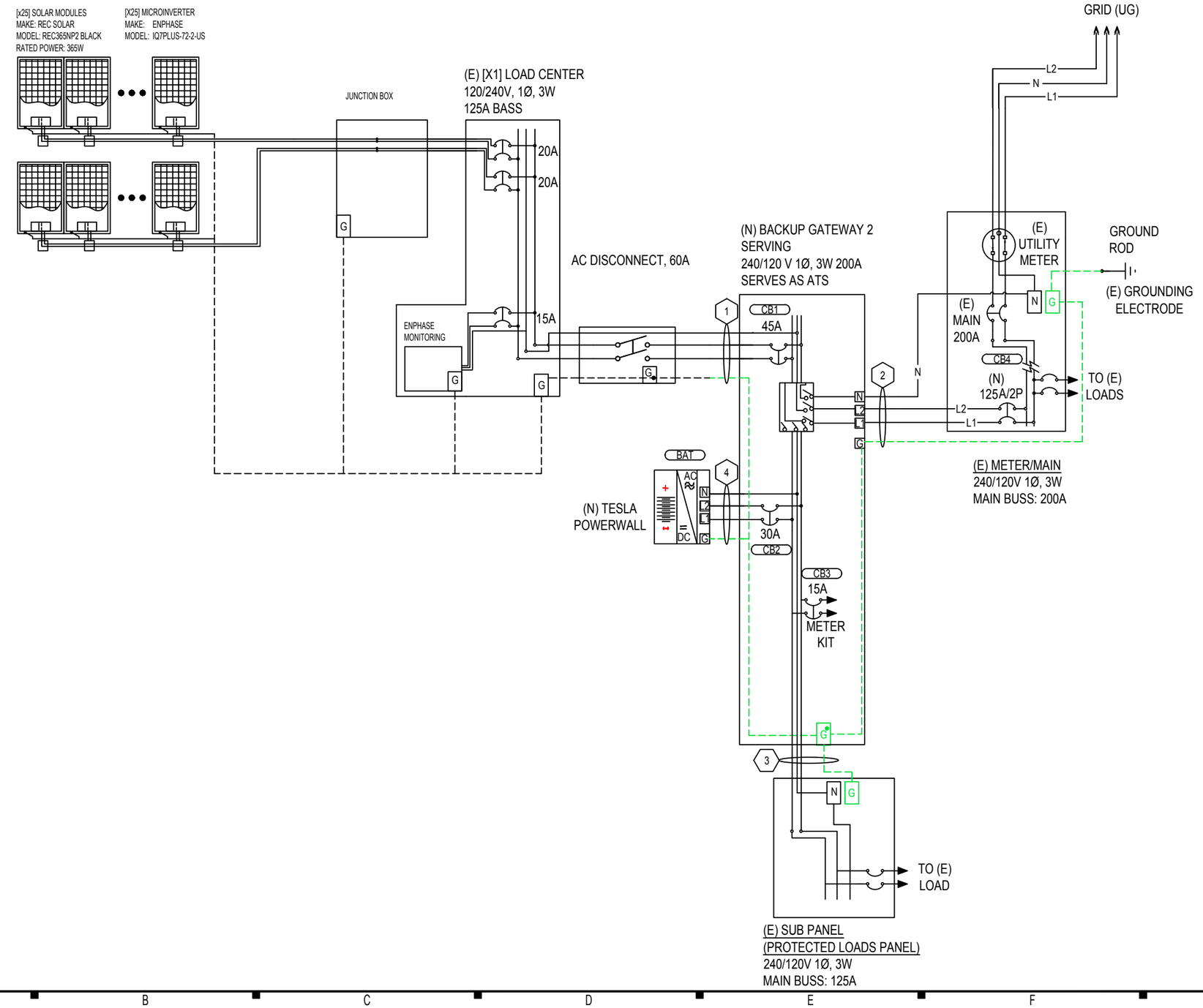
REVISIONS

A-103.00

(SHEET 5)

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	NEUTRAL	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
1	1	8 AWG THWN-2, COPPER	0.75" DIA	2	40A	8 AWG THWN-2, COPPER	8 AWG THWN-2, COPPER	0.91 (35.1 °C)	1	29.04A	36.3A	55A	50.05A	75°C	50A
2	1	1 AWG THWN-2, COPPER	1.25" DIA	2	125A	1 AWG THWN-2, COPPER	1 AWG THWN-2, COPPER	0.91 (35.1 °C)	1	-	125A	145A	131.95A	75°C	130A
3	2	1 AWG THWN-2, COPPER	1.25" DIA	2	N/A	1 AWG THWN-2, COPPER	1 AWG THWN-2, COPPER	0.91 (35.1 °C)	1	-	125A	145A	131.95A	75°C	130A
4	2	10 AWG THWN-2, COPPER	1" DIA	2	30A	10 AWG THWN-2, COPPER	10 AWG THWN-2, COPPER	0.91 (35.1 °C)	1	-	30A	40A	36.4A	75°C	35A



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LINE DIAGRAM

DATE: 02.15.2023
DESIGN BY: A.O.
CHECKED BY: M.M.

REVISIONS

E-601.00
(SHEET 6)

ASHRAE EXTREME LOW	-12°C (10.4°F), SOURCE: RALEIGH DURHAM INTERNATIONAL
ASHRAE 2% HIGH	34°C (93.2°F), SOURCE: RALEIGH DURHAM INTERNATIONAL

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1	1	40A	240VAC
CB2	1	30A	240VAC
CB3	1	25A	240VAC
CB4	1	125A	240VAC

BILL OF MATERIALS

CATEGORY	MAKE	MODEL NUMBER	REF	QTY	UNIT	QTY/UNIT	DESCRIPTION
BACKUP GATEWAY	TESLA	BACKUP GATEWAY 2 SERVING	GW1	1	PIECE	1	TESLA BACKUP GATEWAY 2 SERVING
INVERTER/GENERATION	TESLA	POWERWALL	I1	1	PIECE	1	TESLA POWERWALL, AC BATTERY SYSTEM 13.5 KWH
WIRING		GEN-10-AWG-THWN-2-CU-RD	WR4	10	FEET	1	10 AWG THWN-2, COPPER, RED (LINE 1)
WIRING		GEN-10-AWG-THWN-2-CU-BLK	WR4	10	FEET	1	10 AWG THWN-2, COPPER, BLACK (LINE 2)
WIRING		GEN-10-AWG-THWN-2-CU-WH	WR4	10	FEET	1	10 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-10-AWG-THWN-2-CU-GR	WR4	10	FEET	1	10 AWG THWN-2, COPPER, GREEN (GROUND)
WIRING		GEN-8-AWG-THWN-2-CU-RD	WR1	10	FEET	1	8 AWG THWN-2, COPPER, RED (LINE 1)
WIRING		GEN-8-AWG-THWN-2-CU-BLK	WR1	10	FEET	1	8 AWG THWN-2, COPPER, BLACK (LINE 2)
WIRING		GEN-8-AWG-THWN-2-CU-WH	WR1	10	FEET	1	8 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-8-AWG-THWN-2-CU-GR	WR1	10	FEET	1	8 AWG THWN-2, COPPER, GREEN (GROUND)
WIRING		GEN-1-AWG-THWN-2-CU-RD	WR2-3	50	FEET	1	1 AWG THWN-2, COPPER, RED (LINE 1)
WIRING		GEN-1-AWG-THWN-2-CU-BLK	WR2-3	50	FEET	1	1 AWG THWN-2, COPPER, BLACK (LINE 2)
WIRING		GEN-1-AWG-THWN-2-CU-WH	WR2-3	50	FEET	1	1 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-1-AWG-THWN-2-CU-GR	WR2-3	50	FEET	1	1 AWG THWN-2, COPPER, GREEN (GROUND)
WIREWAY		GEN-0.75" DIA	WW1	10	FEET	1	CONDUIT, 0.75" DIA
WIREWAY		GEN-1" DIA	WW4	20	FEET	1	CONDUIT, 1" DIA
WIREWAY		GEN-1.25" DIA	WW2-3	50	FEET	1	CONDUIT, 1.25" DIA
OCPD	GENERIC MANUFACTURER	GEN-CB-40A-240VAC	CB1	1	PIECE	1	CIRCUIT BREAKER, 40A, 240VAC
OCPD	GENERIC MANUFACTURER	GEN-CB-30A-240VAC	CB2	1	PIECE	1	CIRCUIT BREAKER, 30A, 240VAC
OCPD	GENERIC MANUFACTURER	GEN-CB-15A-240VAC	CB3	1	PIECE	1	CIRCUIT BREAKER, 15A, 240VAC
OCPD	GENERIC MANUFACTURER	GEN-CB-125A-240VAC	CB4	1	PIECE	1	CIRCUIT BREAKER, 125A, 240VAC

CONTRACTOR

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ENGINEER OF RECORD

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

DESIGN TABLES

DATE: 02.15.2023

DESIGN BY: A.O.

CHECKED BY: M.M.

REVISIONS

E-602.00

(SHEET 7)

POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.

PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh
Usable Energy	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10 s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10 s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/– 1.0 adjustable
Power Factor Range (full-rated power)	+/– 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency[1,3]	90%
Warranty	10 years

[1]Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
[2]In Backup mode, grid charge power is limited to 3.3 kW.
[3]AC to battery to AC, at beginning of life.

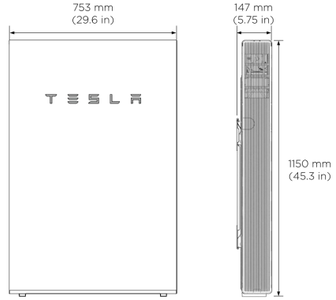
COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEEE 1547, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions[1]	1150 mm x 755 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)
Weight[1]	114 kg (251.3 lbs)
Mounting options	Floor or wall mount

[1]Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.

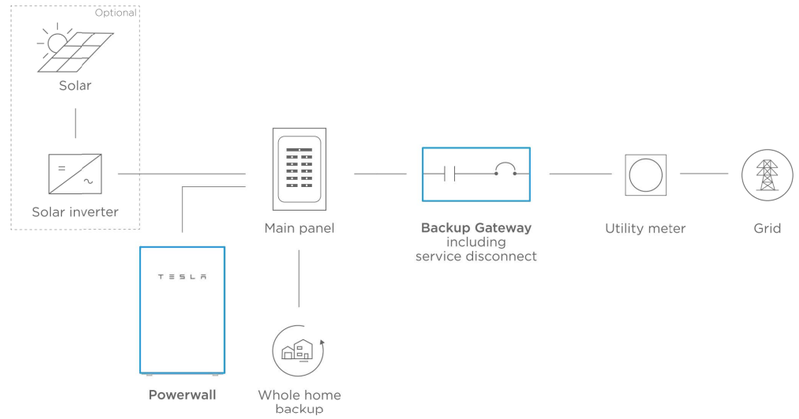


ENVIRONMENTAL SPECIFICATIONS

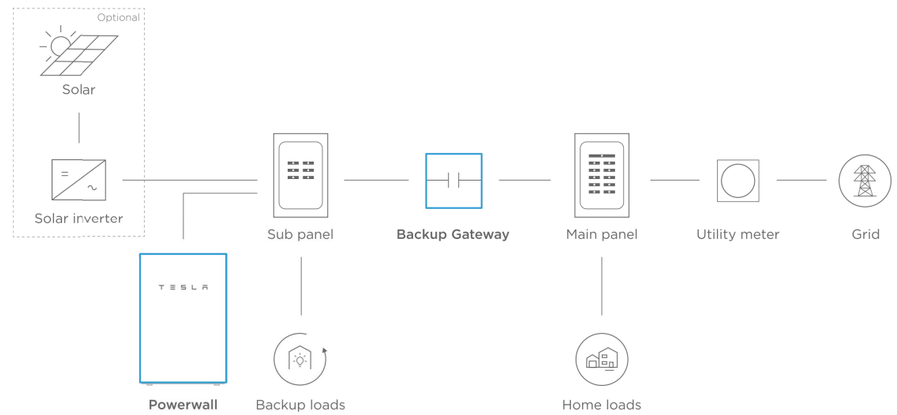
Operating Temperature	–20°C to 50°C (–4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	–20°C to 30°C (–4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

TYPICAL SYSTEM LAYOUTS

WHOLE HOME BACKUP



PARTIAL HOME BACKUP



CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

PHONE: 704-525-6767
ADDRESS: 801 PRESSLEY ROAD SUITE 100, CHARLOTTE, NC 28217

LIC. NO.: 76615
HIC. NO.:
ELE. NO.: 20334U

EXISTING PV SYSTEM:9.125KWP
NEW BATTERY ADD-ON

DAMANTI RESIDENCE

405 PARKER CREEK RD
HOLLY SPRINGS, NC 27540
APN: 1500011889

ENGINEER OF RECORD

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

RESOURCE DOCUMENT

DATE: 02.15.2023
DESIGN BY: A.O.
CHECKED BY: M.M.

REVISIONS

R-001.00
(SHEET 8)

POWERWALL

Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.

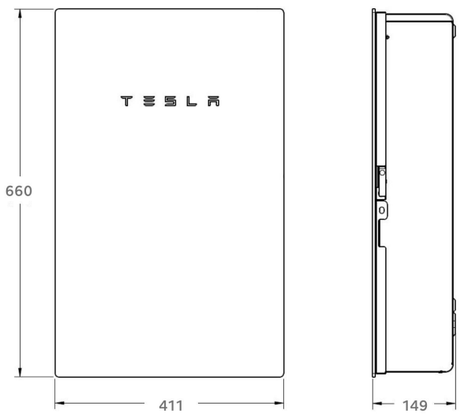
PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA[1]
Overcurrent Protection Device	100-200A; Service Entrance Rated[1]
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/– 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G)[2]
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, and backup
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 years

[1] When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.
[2] The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–20°C to 50°C (–4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R

CONTRACTOR

RENU ENERGY SOLUTIONS, LLC

PHONE: 704-525-6767
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REVISIONS

R-002.00
(SHEET 9)