

HARRISON RESIDENCE

EXISTING PHOTOVOLTAIC & NEW ENERGY STORAGE SYSTEM PROJECT - (E)4.250 kW DC / (E)3.000 kW AC

PROJECT INFORMATION

PROPERTY OWNER

NAME: MICHAEL HARRISON
PHONE: -

CONTRACTOR

NAME: RICHARD SMITH
PHONE: (213) 561-5038

DESIGN SPECIFICATIONS

OCCUPANCY: R-3
CONSTRUCTION TYPE: SINGLE FAMILY RESIDENCE
NAME: RESIDENTIAL
GROUND SNOW LOAD: 5 PSF
WIND EXPOSURE: C
WIND SPEED: 94 MPH

APPLICABLE CODES & STANDARDS

- 2022 CALIFORNIA RESIDENTIAL CODE (CRC)
- 2022 CALIFORNIA BUILDING CODE (CBC)
- 2022 CALIFORNIA MECHANICAL CODE (CMC)
- 2022 CALIFORNIA ELECTRICAL CODE (CEC)
- 2022 CALIFORNIA PLUMBING CODE (CPC)
- 2022 CALIFORNIA ENERGY CODE (ENERGY)
- 2022 CALIFORNIA GREEN BUILDING CODE (CALGREEN)
- 2020 NATIONAL ELECTRICAL CODE (NEC)

TYPE OF

INTERCONNECTION: WHOLE HOME BACKUP

SCOPE OF WORK

EXISTING
SYSTEM SIZE: STC: 25 X 170W = 4.250kW
AC SIZE : 1 X 3000W =3.000kW
(25) BP SOLAR BP3170N-F (170W) SOLAR MODULES
(1) SB 3000HFUS-30 SUNNYBOY INVERTER

NEW
SYSTEM SIZE: (1) 10KW FRANKLIN ENERGY STORAGE INC. A POWER X
(1) FRANKLINWH ENERGY STORAGE INC. aGATE X (AGT-RIV2-US)

MSP UPGRADE: YES, TO 200A/200A
MAIN BREAKER DERATE: NO

REVIEWED FOR
CODE COMPLIANCE

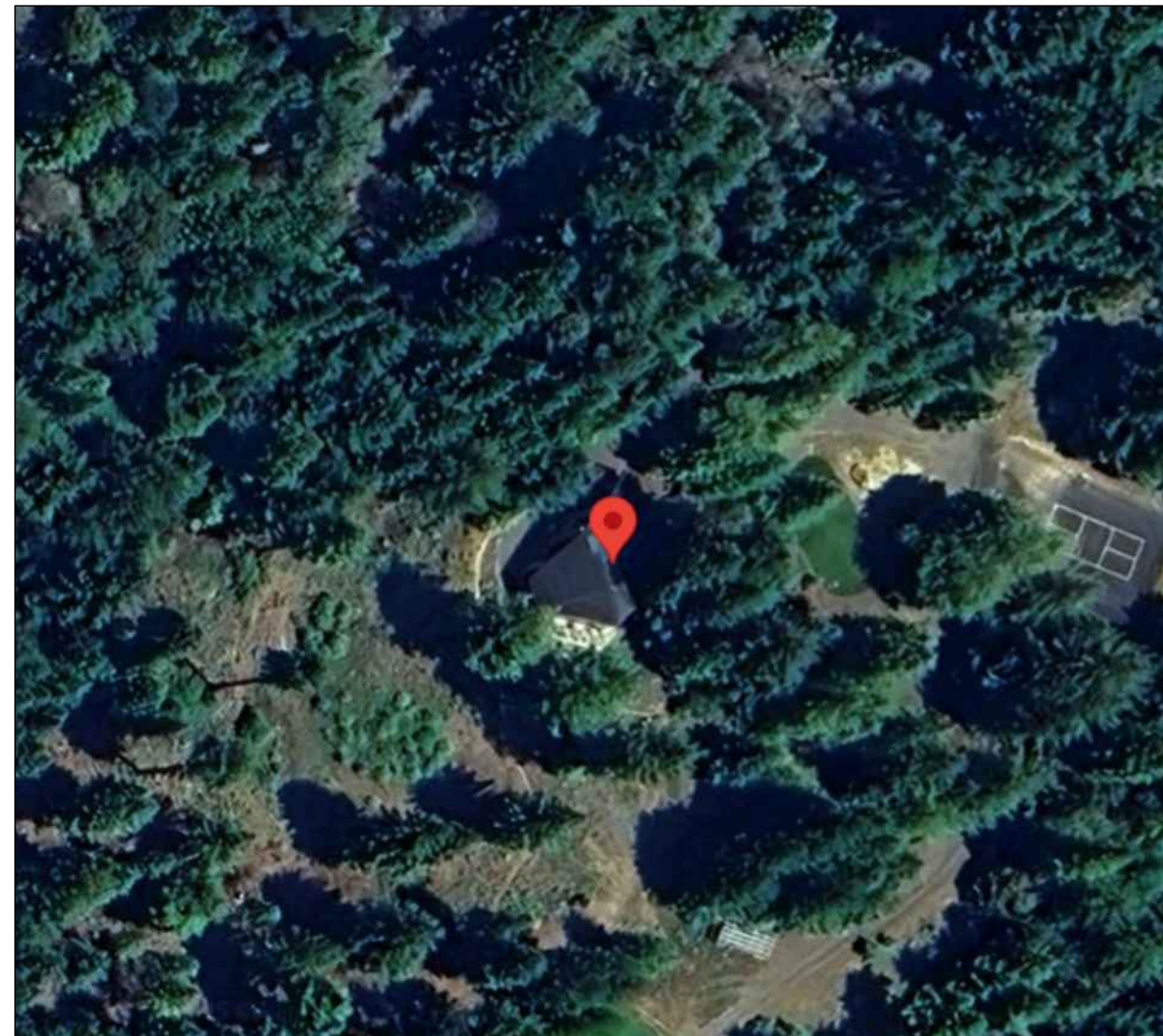
11/6/2025

Ronald Morris BLD25-6635

PERMIT SONOMA

COORDINATES:
38.534409, -123.265724

AERIAL VIEW



SHEET #	SHEET NAME
T-1	COVER SHEET
T-2	PLAN NOTES
PV-1	SITE PLAN LAYOUT
PV-1.1	SITE PLAN LAYOUT
E-1	ELECTRICAL CALCULATION
E-2	WARNING LABELS
S-1	SPEC SHEET



CONTRACTOR

**SOLARLINK ENERGY
CONSTRUCTION INC**

NAME: RICHARD SMITH

SIGNATURE:

Richard Smith

ADDRESS:

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CA 95742

TEL: (213) 561-4999

LICENSE#: B, C10 1042451

LICENSE EXPIRY: 07/31/2026

**HARRISON
RESIDENCE**

21365 CA-1,
JENNER,
CA 95450

DATE:11/1/2025

SHEET
T-1

Date Stamped: 11/6/2025 Permit #: BLD25-6635 Examin: Ronald Morris
REVIEWED FOR CODE COMPLIANCE - PERMIT SONOMA - BUILDING PLAN CHECK
BUILDER SHALL NOT DEVIATE FROM THE APPROVED PLANS. REQUESTS FOR CHANGES SHALL BE MADE IN WRITING TO PERMIT SONOMA. CHANGES MADE WITHOUT PRIOR APPROVAL SHALL BE SUBJECT TO REJECTION OF THE WORK.
APPROVED PLANS AND DOCUMENTS ARE AVAILABLE FOR REVIEW AT THE JOB SITE.
PLEASE READ ALL PERMIT SECTIONS OF APPLICABLE CODES.

1.1. PROJECT NOTES:

- 1.2. THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE 2022 CALIFORNIA ELECTRICAL CODE (CEC) ARTICLE 690, ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
- 1.3. THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
- 1.4. GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE MICROINVERTER IN ACCORDANCE WITH 2022 CEC 690.41(B)
- 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 2022 CEC 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
- 1.6. MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO 2022 CEC 690.7.
- 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 [2022 CEC 110.3].
- 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 CEC AND AHJ.

1.9. SCOPE OF WORK:

- 1.10. 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.

1.11. WORK INCLUDES:

- 1.12. PV ROOF ATTACHMENTS -
- 1.13. PV RACKING SYSTEM INSTALLATION -
- 1.14. PV MODULE AND INVERTER INSTALLATION - (E)BP3170N-F (170W) SOLAR (320W) MODULES /(E) SB 3000HFUS-30 SUNNYBOY INVERTER
- 1.15. PV EQUIPMENT GROUNDING
- 1.16. PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
- 1.17. PV LOAD CENTERS (IF INCLUDED)
- 1.18. PV METERING/MONITORING (IF INCLUDED)
- 1.19. PV DISCONNECTS
- 1.20. PV GROUNDING ELECTRODE & BONDING TO (E) GEC
- 1.21. PV FINAL COMMISSIONING
- 1.22. (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV
- 1.23. SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

1.24. SITE NOTES:

- 1.25. A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- 1.26. THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH 10KW STORAGE BATTERIES.
- 1.27. THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- 1.28. PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION 2022 CEC 110.26.
- 1.29. 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.

1.30. EQUIPMENT LOCATIONS:

- 1.31. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY 2022 CEC 110.26.
- 1.32. WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY 2022 CEC 690.31 (A),(C) AND CEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C)
- 1.33. JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO 2022 CEC 690.34.
- 1.34. ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT .
- 1.35. ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO 2022 CEC APPLICABLE CODES.
- 1.36. ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

1.37. STRUCTURAL NOTES:

- 1.38. RACKING SYSTEM
- 1.39. PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND
- 1.40. A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.
- 1.41. JUNCTION BOX WILL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED SEALED PER LOCAL REQUIREMENTS.
- 1.42. ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED WITH APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.
- 1.43. ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.
- 1.44. WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

1.45. WIRING & CONDUIT NOTES:

- 1.46. 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.
- 1.47. CONDUCTORS SIZED ACCORDING TO 2022 CEC 690.8, 2022 CEC 690.7.
- 1.48. VOLTAGE DROP LIMITED TO 2%.
- 1.49. DC WIRING LIMITED TO MODULE FOOTPRINT. MICROINVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY WITH SUITABLE WIRING CLIPS.
- 1.50. AC CONDUCTORS COLORED OR MARKED AS FOLLOWS: PHASE A OR L1- BLACK PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION NEUTRAL- WHITE OR GREY IN 4-WIRE DELTA CON2022 CECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [2022 CEC 110.15

1.51. GROUNDING NOTES:

- 1.52. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
- 1.53. PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO 2022 CEC 690.43 AND MINIMUM 2022 CEC TABLE 250.122.
- 1.54. METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORDING WITH 2022 CEC 250.134 AND 2022 250.136(A).
- 1.55. EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO CEC 690.45 AND MICROINVERTER MANUFACTURER'S INSTRUCTIONS.

- 1.56. 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.
- 1.57. 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.
- 1.58. GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [2022 CEC 250.119]
- 1.59. THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH CEC 690.47 AND CEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO CEC 250. CEC 690.47 AND AHJ.
- 1.60. GROUND-FAULT DETECTION SHALL COMPLY WITH CEC 690.41 IN GENERAL AND CEC 690.41 (A)(1) SPECIFICALLY.

1.61. DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:

- 1.62. 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).
- 1.63. DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
- 1.64. RAPID SHUTDOWN OF ENERGIZED CONDUCTORS BEYOND 1 FT OF PV ARRAY OR 5 FT INSIDE A BUILDING WITHIN 10 SECONDS. CONTROLLED CONDUCTORS ≤30V AND ≤240VA [CEC 690.12(B)]. LOCATION OF LABEL ACCORDING TO AHJ
- 1.65. ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO CEC 690.8, 690.9, AND 240.
- 1.66. EQUIPMENT THAT IS LISTED, LABELED, OR BOTH SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING. CEC 110.3(B).
- 1.67. IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO CEC 690.11 AND UL1699B.

1.68. ELECTRICAL INTERCONNECTION NOTES:

- 1.69. THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF THE BUSBAR RATING.
- 1.70. WHEN THE SUM OF THE PV SOURCES EQUALS >100% OF THE BUSBAR RATING, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD.
- 1.71. AT MULTIPLE PV OUTPUT COMBINER PANEL, THE TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED THE AMPACITY OF THE BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED.
- 1.72. SUPPLY-SIDE TAP INTERCONNECTION SHOULD BE WITH SERVICE ENTRANCE CONDUCTORS.
- 1.73. BACKFEEDING BREAKER FOR UTILITY-INTERACTIVE INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING



CONTRACTOR

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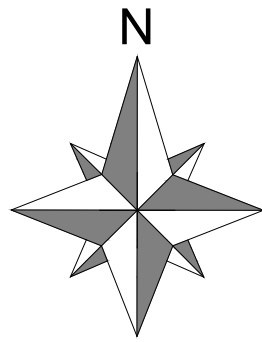
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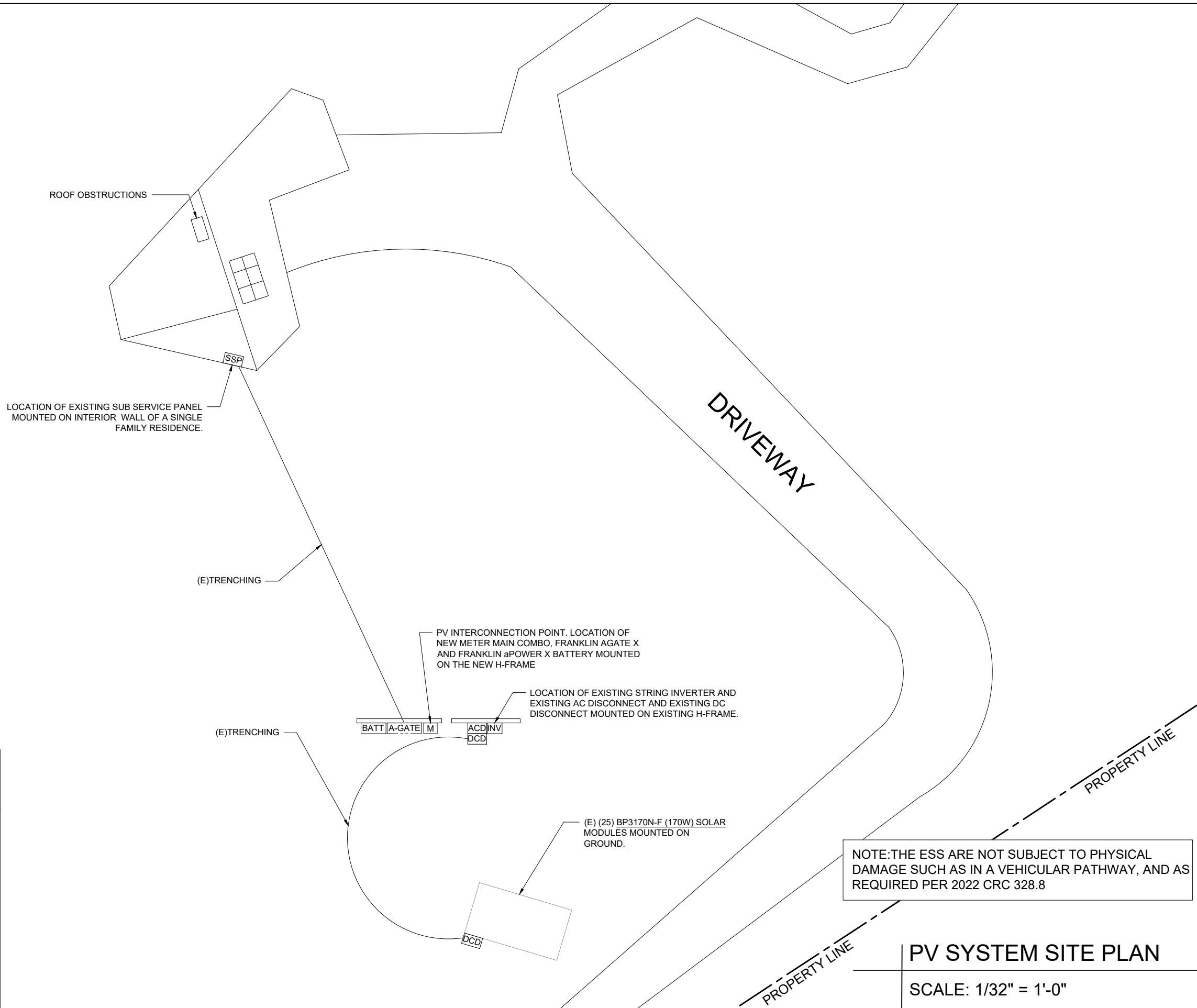
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SHEET
T-2

Date Stamped: 11/02/2025 Permit #: BLD25-6635 Plans Examiner: Ronald Morris
REVIEWED FOR CODE COMPLIANCE - PERMIT SONOMA



PV SYSTEM SIZE:
(E)4.25 kW DC



LEGEND	
	EXISTING SOLAR MODULES
	METER MAIN COMBO
	SUB SERVICE PANEL
	FRANKLIN aPOWER2 BATTERY
	FRANKLIN aGATE X
	EXISTING AC DISCONNECT
	EXISTING STRING INVERTER
	EXISTING DC DISCONNECT



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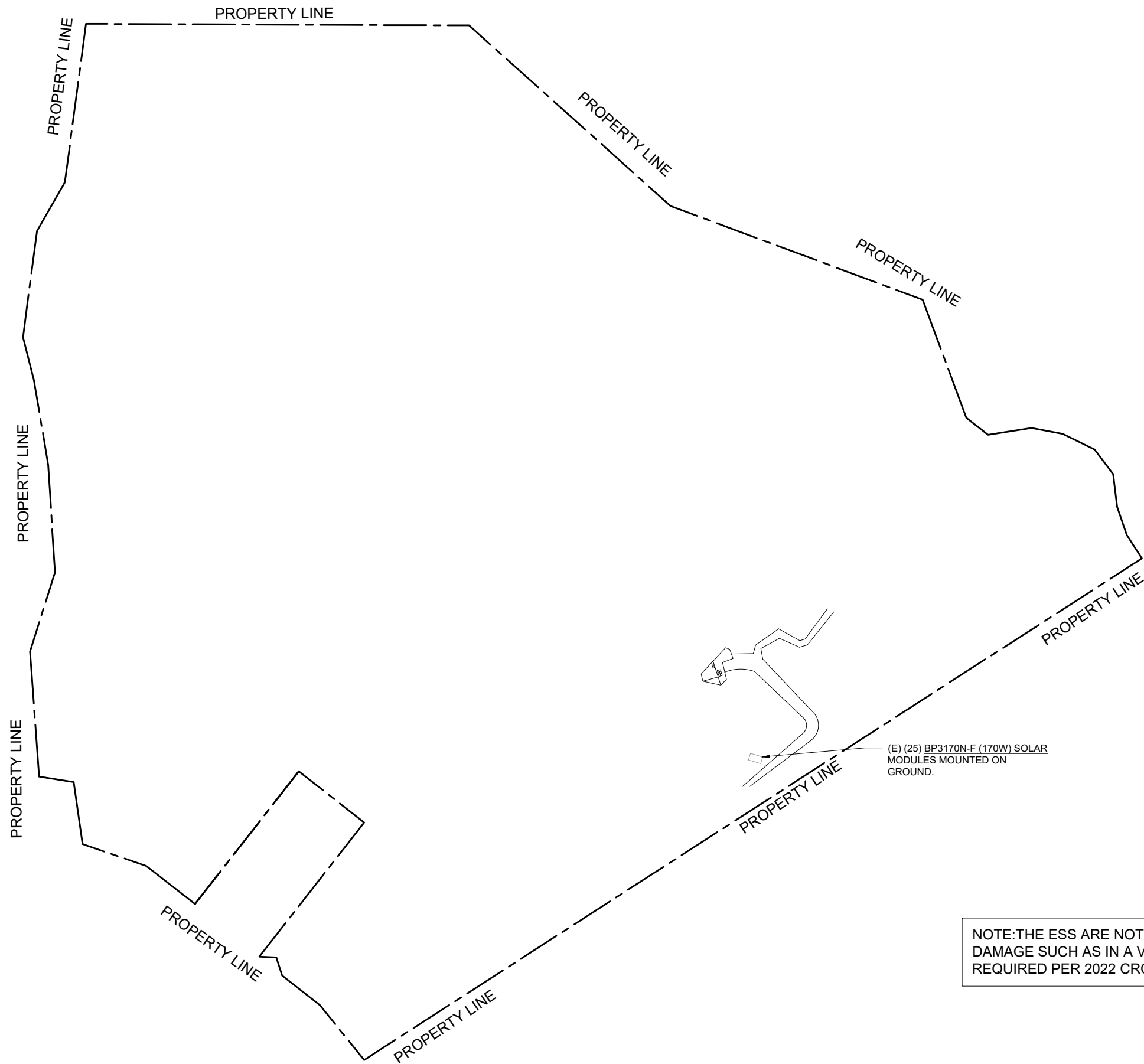
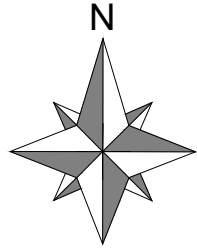
PV SYSTEM SITE PLAN

SCALE: 1/32" = 1'-0"

SHEET
PV-1

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NOTE: THE ESS ARE NOT SUBJECT TO PHYSICAL DAMAGE SUCH AS IN A VEHICULAR PATHWAY, AND AS REQUIRED PER 2022 CRC 328.8

PV SYSTEM SITE PLAN



CONTRACTOR

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PV-1.1

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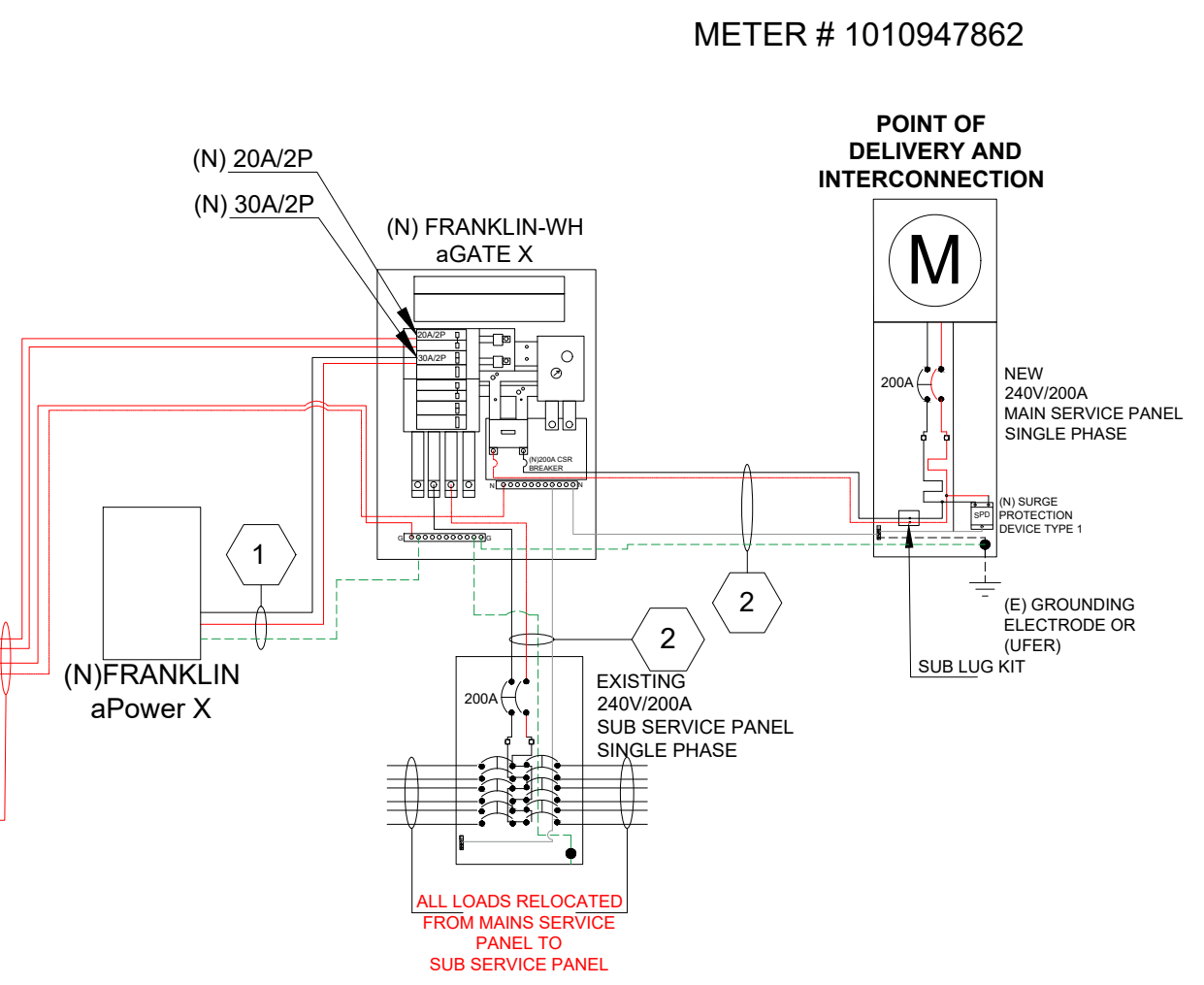
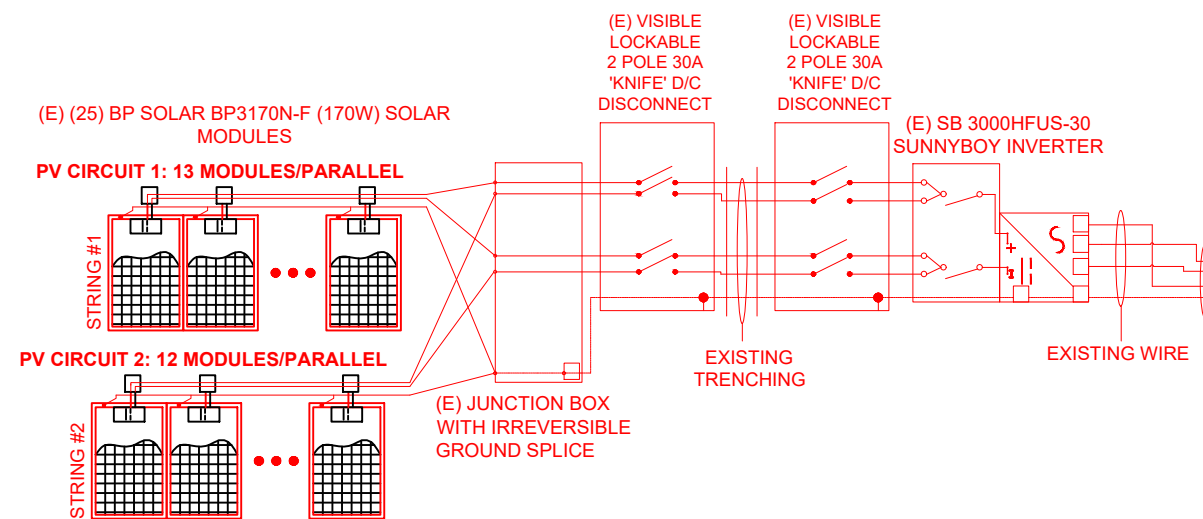
DESIGN TEMPERATURES	
ASHRAE EXTREME LOW	-3°C
ASHRAE 2% HIGH	37°C

GATEWAY Ratings	
MANUFACTURER / MODEL	FRANKLIN
MODEL NO	aGATE X
APOWER OVER CURRENT PROTECTION DEVICE	100A
SOLAR INPUT OVER CURRENT PROTECTION DEVICE	80A

BATTERY Ratings	
MANUFACTURER / MODEL	FRANKLIN
MODEL NO	aPOWER X 13.6KWH BATTERY
MAXIMUM OUTPUT POWER	240V
OUTPUT CURRENT	30A

Conduit and Conductor Schedule

Tag	Description	Wire Gauge	# of Conductors	Conduit Type	Conduit Size
1	THWN-2	10 AWG	2	EMT	3/4"
1	THWN-2 - Ground	10 AWG	1	EMT	3/4"
2	THWN-2	3/0 AWG	3	EMT	2"
2	THWN-2 - Ground	6 AWG	1	EMT	2"



PRODUCERS STORAGE DEVICE(S) WILL NOT CAUSE THE HOST LOAD TO EXCEED ITS NORMAL PEAK DEMAND. NORMAL PEAK DEMAND IS DEFINED AS THE HIGHEST AMOUNT OF POWER REQUIRED FROM THE DISTRIBUTION SYSTEM BY PRODUCERS COMPLETE FACILITIES WITHOUT THE INFLUENCE OR USE OF THE ENERGY STORAGE DEVICE(S)



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WARNING

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

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).
PER CODE(S): CEC 2022: 690.13(B) & 706.15(C)(4)

WARNING

PHOTOVOLTAIC SYSTEM COMBINER PANEL
DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).
PER CODE(S): CEC 2022: 705.12(B)(3)(3)

LABEL LOCATION : BATTERY

CAUTION
TRI POWER SOURCES

SECOND SOURCE IS PV SYSTEM
THIRD SOURCE IS AC BATTERY

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
UTILITY SERVICE ENTRANCE/METER, INVERTER/DC DISCONNECT IF REQUIRED BY LOCAL AHJ, OR OTHER LOCATIONS AS REQUIRED BY LOCAL AHJ.
PER CODE(S): CEC 2022: 690.56(C)(2)
CFC 2022: 1204.5.3

BATTERY CHEMISTRY
LITHIUM IRON PHOSPHATE (LFP)

PHOTOVOLTAIC AC DISCONNECT

MAXIMUM AC OPERATING CURRENT: 32 AMPS
NOMINAL OPERATING AC VOLTAGE: 240.0 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.
PER CODE(S): CEC 2022: 690.54

WARNING

POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

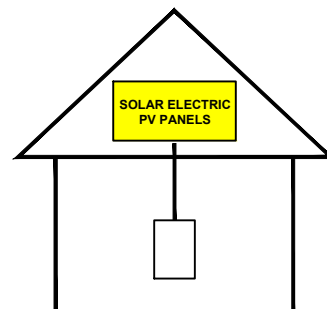
LABEL LOCATION:
ADJACENT TO PV BREAKER (IF APPLICABLE).
PER CODE(S): CEC 2022: 705.12(B)(3)(2)

WARNING

THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

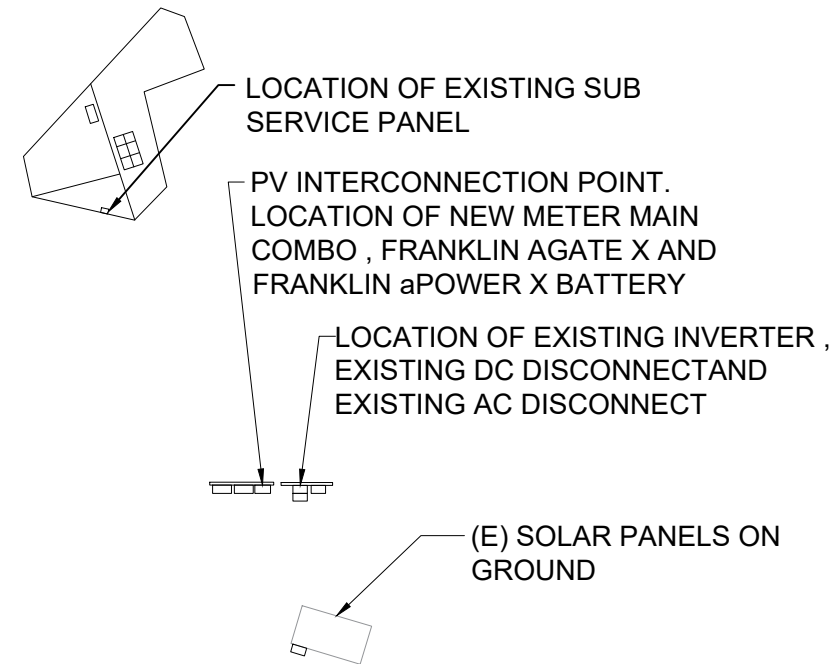
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.



LABEL LOCATION:
ON OR NO MORE THAT 3 M (10 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.

CAUTION:

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



CONTRACTOR

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SHEET
E-2

PERMANENT SIGNAGE NOTES:

- 1. NOT ALL PLACARDS SHOWN MAY BE REQUIRED BY LOCAL AHJ. CONTRACTOR TO VERIFY PLACARD REQUIREMENTS WITH LOCAL AHJ BEFORE INSTALLATION.
- 2. ALL PLAQUES AND SIGNAGE REQUIRED BY THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE
- 3. ALTERNATE POWER SOURCE PLACARD SHALL BE METALLIC OR PLASTIC, ENGRAVED OR MACHINE PRINTED LETTERS IN A CONTRASTING COLOR TO THE PLAQUE. THIS PLAQUE WILL BE ATTACHED BY POP RIVETS OR SCREWS OR OTHER APPROVED METHOD.
- 4. DIRECTORY PLACARD MARKING CONTENT AND FORMAT: RED BACKGROUND, WHITE LETTERING, MINIMUM 3/8" LETTER HIEGHT, ALL CAPITAL LETTERS, ARIAL OR SIMILAR FONT, NON BOLD, REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.

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DATASHEET



Franklin Home Power

The Franklin Home Power (FHP) system integrates the grid, solar generation, batteries and even generators, into a robust energy control system that is managed via a simple mobile app. The FHP provides real time monitoring and control for a home's day-to-day energy usage, and supplies energy from multiple power sources during grid outages.

The FHP's energy management is provided by the aGate X, an intelligent controller that integrates all power sources and automatically detects grid outages to seamlessly transition a home to backup power within 16ms.

An aGate X Smart Circuits Module is available for controlling of and automated load shedding for heavy energy loads during an outage. It provides custom scheduling of unique loads for more efficient use. A Generator Module can also be added to the aGate X for standby generator integration, providing maximum energy resilience and independence. The FHP is designed for daily cycling and emergency backup power. The aGate X complies with NEC 2017, NEC 2020, and UL1741 PCS Certification for main panel upgrade (MPU) avoidance.

The FHP system pairs the aGate X with the aPower X, a lithium iron phosphate (LFP) battery designed by FranklinWH. A single battery has large 13.6kWh capacity with continuous power of 5kW, and its peak power 10kW can last for 10s. Up to 15 aPower X batteries can be connected to a single aGate X.



One aGate X															
aPower X Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Capacity(kWh)	13.6	27.2	40.8	54.4	68	81.6	95.2	108.8	122.4	136	149.6	163.2	176.8	190.4	204
Cont. power(kw)	5	10	15	20	25	30	35	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4
Peak power(kw)	10	20	30	40	50	60	70	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8

For FHP system >= 8 units, please reach out to info@franklinwh.com

Safe

- Lithium iron phosphate battery
- Automotive grade lithium cells
- Advanced Battery Management System (BMS) with State of Health (SOH) pro-active battery technology.

Scalable

- Up to 15 aPower X units can be used with a single aGate X
- Usable energy expandable from 13.6kWh to 204kWh
- Continuous output power ranges from 5kW to 38.4kW

Intelligent

- Micro-grid interconnect device (MID) functionality
- Auto-detect grid outages, seamless power transfer
- Black-start functionality; daily PV restart capabilities

Easy & Flexible

- Compatible with any solar inverter/standby generator
- Generator monitoring and controls via the FranklinWH app
- Pre-assembled, indoor/outdoor/wall/floor installation
- Multiple conduit entries
- App-based, remote commissioning

Reliable

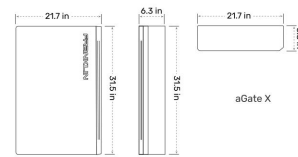
- 12-year warranty
- NEMA 3R enclosure
- Corrosion-proof

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AGATE X DATASHEET

The aGate X is available with two optional accessories that can be added to customize the homeowner's FHP experience:

- Smart Circuits Module:** manual and scheduled control for unique electric circuits, via the FranklinWH app.
- Generator Module:** standby generator integration, redundant power source to the aPower X.



Performance

Switch Over Time (grid to micro-grid)	< 16ms
User Interface	FranklinWH app
Warranty	12 years
Maximum Supply Fault Current	20 kA
Communications	Ethernet / 4G / Wifi

Electrical Connections

aPower Over Current Protection Device	100A Max
Solar Input Over Current Protection Device	80A Max
Backup Load Port Over Current Protection Device	200A Max
Generator Over Current Protection Device ¹	200A Max
Smart Circuits Over Current Protection Device ²	Option A: (1) x 80A Max @240V & (2) x 50A Max @120V Option B: (1) x 80A Max @240V & (1) x 50A Max @240V

Electrical Interface

Coupling	AC Coupled	Dimensions (W*H*D)	aGate X: 21.7 x 31.5 x 6.3 in (550 x 800 x 160 mm)
Feed-in Phase	Split Phase	Weight	aGate X: 50 lb (23 Kg)
Split Phase	L1 / L2 / N / PE	Installation	Wall mount

Mechanical

Compliance & Certificates

aGate X	UL1741 PCS, UL 67 ³ , UL 869A ¹ , UL 916 ¹
Seismic	AC15A, OSHPD, IEEE 493-2005 (high)
Environmental	California Proposition 65, RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

Environmental

Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Storage Condition	14°F to 113°F (-10°C to 45°C) Up to 95% RH, non-condensing
Enclosure Type	NEMA 3R
Environment	Indoor and outdoor rated

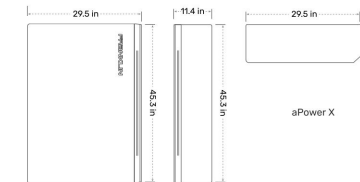
¹ Generator Module is optional.
² Smart Circuit Module is optional.
³ Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

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APOWER X DATASHEET

The aPower X is a lithium iron phosphate (LFP), AC-coupled battery that is proprietary to the FHP system. With an all-in-one form factor, the aPower X battery is self-contained with battery cells, a battery management system, and an AC inverter.



Performance

Battery Chemistry	Lithium Iron Phosphate (LFP)
Usable System Energy	13.6 kWh per unit, scalable up to 15 units ⁴
Warranted Energy Throughput (12yrs)	43 MWh
Inverter Topology	Isolated
Nominal AC Voltage	120V / 240V, 60 Hz
Maximum Continuous / Peak Discharge Power (10 s)	5 kW / 10 kW
Round Trip Efficiency	89% ⁵
Noise Emission (optimal)	< 30 dB (A)
User Interface	FranklinWH app
Warranty	12 years

Electrical Interface

Coupling	AC-Coupled
Feed-in Phase	Split Phase
Split Phase	L1 / L2 / N / PE

Application Mode Programming

Self-Consumption
Load Shifting
Backup Standby

Mechanical

Dimensions(W*H*D)	aPower X: 29.5 x 45.3 x 11.4 in (750 x 1150 x 290mm)
Weight	aPower X: 408 lb (185 Kg)
Installation	Wall mount or floor mount

Compliance & Certificates

aPower X	UL 9540, UL 1741SA, UL 1741SB, UL 1973, UL 9540A, IEEE 1547, IEEE 1547.1, UN 38.3
Seismic	AC15A, OSHPD, IEEE 493-2005 (high)
Environmental	California Proposition 65, RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

Environmental

Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Ingress Rating	IP67 (Battery and power converter system) IP56 (Wiring compartment)
Storage Condition	14°F to 113°F (-10°C to 45°C) Up to 95% RH, non-condensing
Enclosure Type	NEMA 3R
Environment	Indoor and outdoor rated

⁴ Please contact us for solution design support if you have large capacity requirements.
⁵ At beginning of life, AC to battery to AC, 50% power rating.

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CONTRACTOR

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LICENSE EXPIRY: 07/31/2026

HARRISON RESIDENCE

21365 CA-1,
JENNER,
CA 95450

DATE: 11/1/2025

SHEET S-1

Date Stamped: 11/02/2025 Permit #: BLD25-6635 Plans Examiner: Ronald Morris
REVIEWED FOR CODE COMPLIANCE - PERMIT SONOMA

