

SHEET INDEX

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SYSTEM SUMMARY

39	REC SOLAR REC365NP2 BLACK MODULES (365W)
01	SOLAR EDGE SE10000H-US INVERTER (10000W)
39	SOLAREEDGE P370 OPTIMIZERS
02	TESLA POWERWALL 2 BATTERY (13.5KWH)

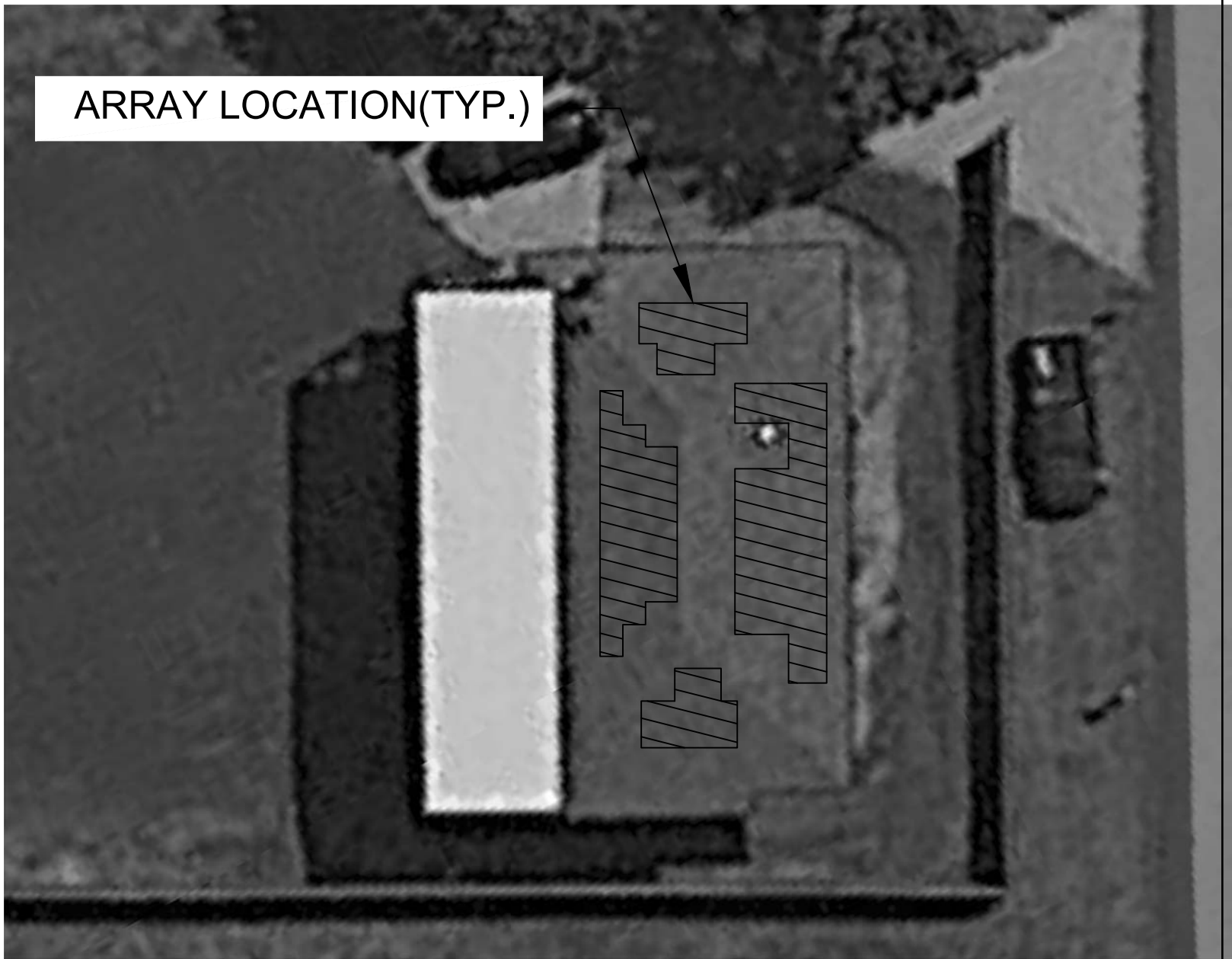
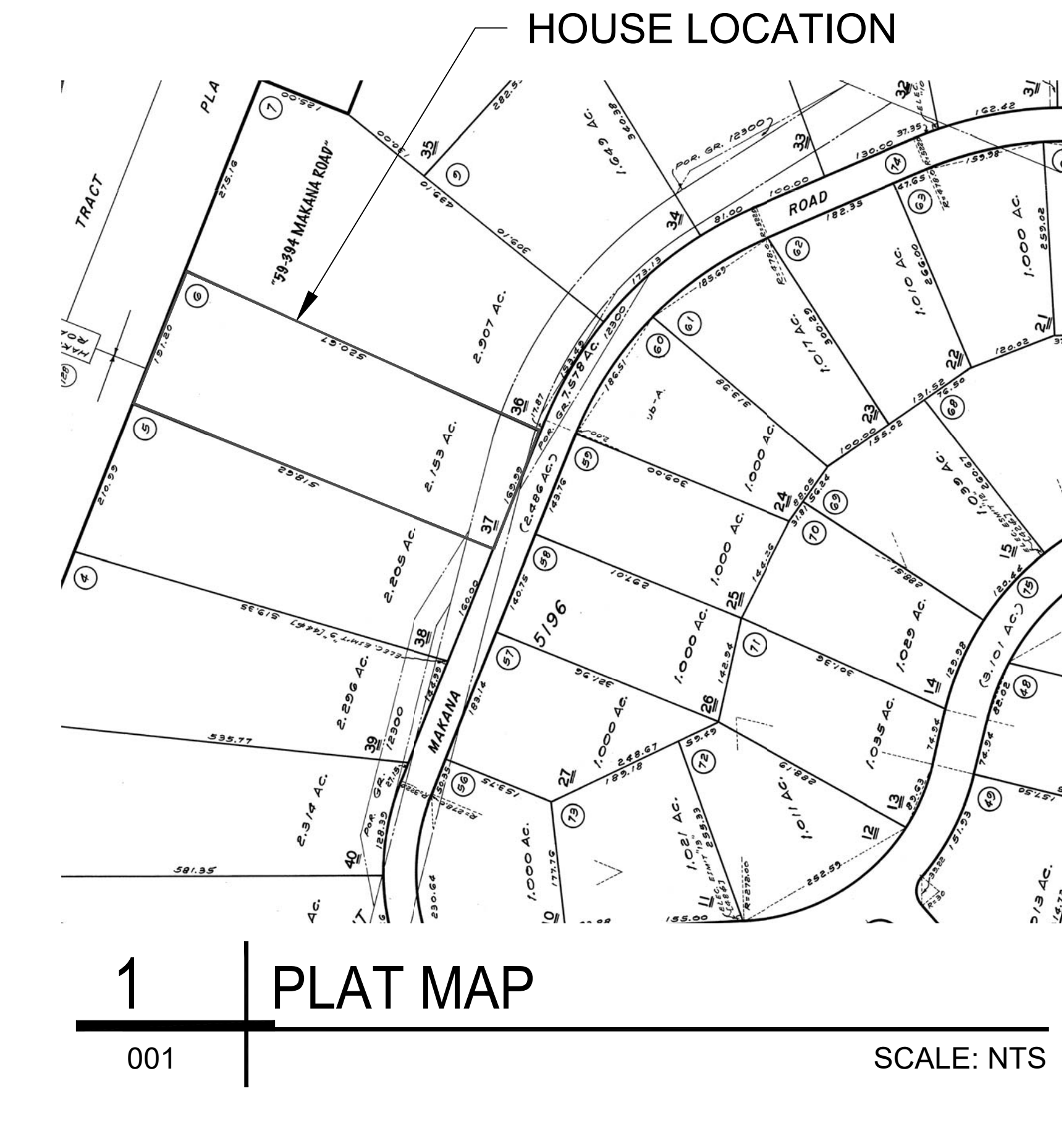
GENERAL INSTALLATION NOTES

1. INSTALLER SHALL ASSUME FULL RESPONSIBILITY AND LIABILITY FOR COMPLIANCE WITH REGULATIONS PER FEDERAL OSHA AND LOCAL REGULATIONS PERTAINING TO WORK PRACTICES, PROTECTION OF WORKERS AND VISITORS TO THE SITE.
2. INSTALLER SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT SITE BEFORE COMMENCING WORK.
3. CONTRACTOR SHALL FURNISH ALL MATERIAL EXCEPT AS SPECIFIED IN THE CONTRACT AND/OR THESE DRAWINGS.
4. ALL MATERIALS SHALL BE IN NEW AND UNUSED CONDITION.
5. MANUFACTURER'S MATERIAL EQUIPMENT, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
6. THE INSTALLER SHALL BECOME FAMILIAR WITH ALL UTILITY AS-BUILT PLANS AND THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES, PAVEMENT OR IMPROVEMENTS.
7. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE OWNER OF DISCREPANCIES REQUIRING FURTHER CLARIFICATION BEFORE PROCEEDING WITH THE WORKS.
8. INSTALL ALL ASPECTS OF THIS PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS AND AS NOTED ON DRAWINGS ISSUED FOR CONSTRUCTION.
9. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER 310.0(D)
10. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26
11. EXACT CONDUIT RUN LOCATIONS SUBJECT TO CHANGE
12. ROOF PENETRATIONS ARE SEALED.
13. INVERTER IS LISTED TO UL-1741 "UTILITY INTERACTIVE"

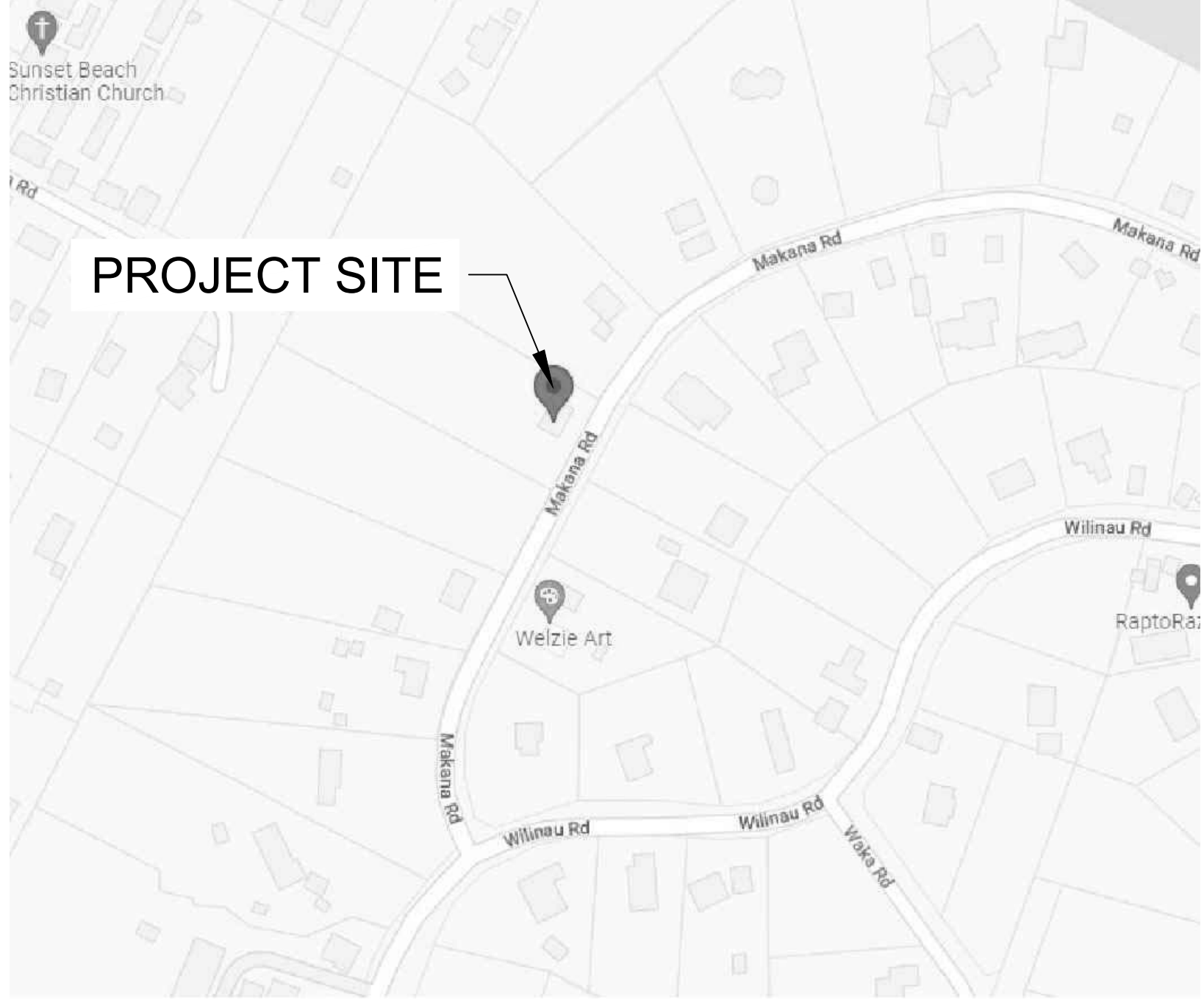
CODE COMPLIANCE

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES, ORDINANCES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

AHJ CODES
 2018 INTERNATIONAL RESIDENTIAL CODE
 2018 INTERNATIONAL BUILDING CODE
 2018 INTERNATIONAL FIRE CODE
 2017 NATIONAL ELECTRICAL CODE



2 HOUSE PHOTO
SCALE: NTS



REVISIONS	REV	DATE	DESCRIPTION
	01	28-FEB-23	100% DESIGN

Signature with Seal

CUSTOMER INFORMATION

BRANDON WEAVER
 39 REC SOLAR REC365NP2 BLACK
 ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
 SYSTEM SIZE: 14.23 KW DC STC
 SYSTEM SIZE: 10.0 KW AC
 59-384 MAKANA RD.,
 HALEIWA, HI, 96712
 TMK: 590290370002

SHEET NAME
TITLE SHEET

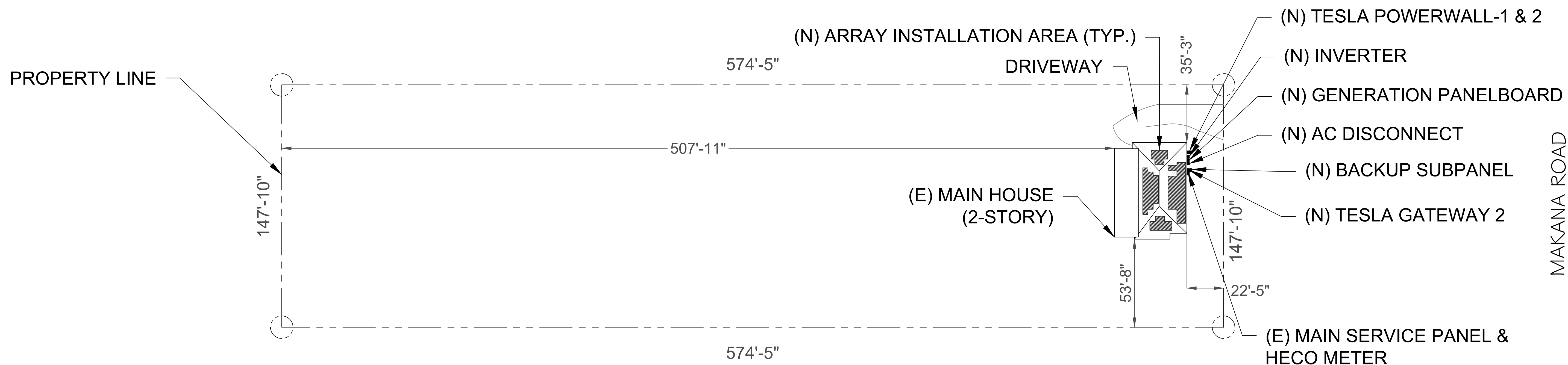
SHEET SIZE
**ARCH D
36" X 24"**

SHEET NUMBER
001

SYSTEM SUMMARY

- 39 REC SOLAR REC365NP2 BLACK (365W) MODULES
- 01 SOLAR EDGE SE10000H-US [240V] INVERTER
- 39 SOLAREGE P370 OPTIMIZERS
- 02 TESLA POWERWALL 2 BATTERY (13.5KWH)

SYSTEM SIZE: 14.23 KWDC 10.0 KWAC



NOTES:

1. ALL WIRE WILL ENTER AND EXIT THROUGH THE BACK OF THE DISCONNECT.
2. NO CONDUIT, JUNCTION BOX OR RACKS WILL BE VISIBLE ON THE ROOF. ALL CONDUITS WILL BE ROUTED THROUGH THE ATTIC. PANELS WILL BE FLUSH MOUNTED.
3. ALL CONDUIT AND EQUIPMENT WILL BE PAINTED TO MATCH THE COLOR OF HOUSE.
4. THE INSTALLATION OF THE PHOTOVOLTAIC SYSTEM WIRING WILL NOT PENETRATE A FIRE-RESISTANT-RATED WALL, PARTITION, FLOOR, OR CEILING.
5. ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.

1 | PLOT PLAN
 A001 | SCALE: 1/32"=1'-0"

REVISIONS	DESCRIPTION	DATE	REV
	100% DESIGN	28-FEB-23	01

Signature with Seal

CUSTOMER INFORMATION

BRANDON WEAVER

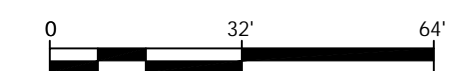
39 REC SOLAR REC365NP2 BLACK
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 SYSTEM SIZE: 14.23 KW DC STC
 SYSTEM SIZE: 10.0 KW AC

59-384 MAKANA RD.,
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SHEET NAME
PLOT PLAN

SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
A001



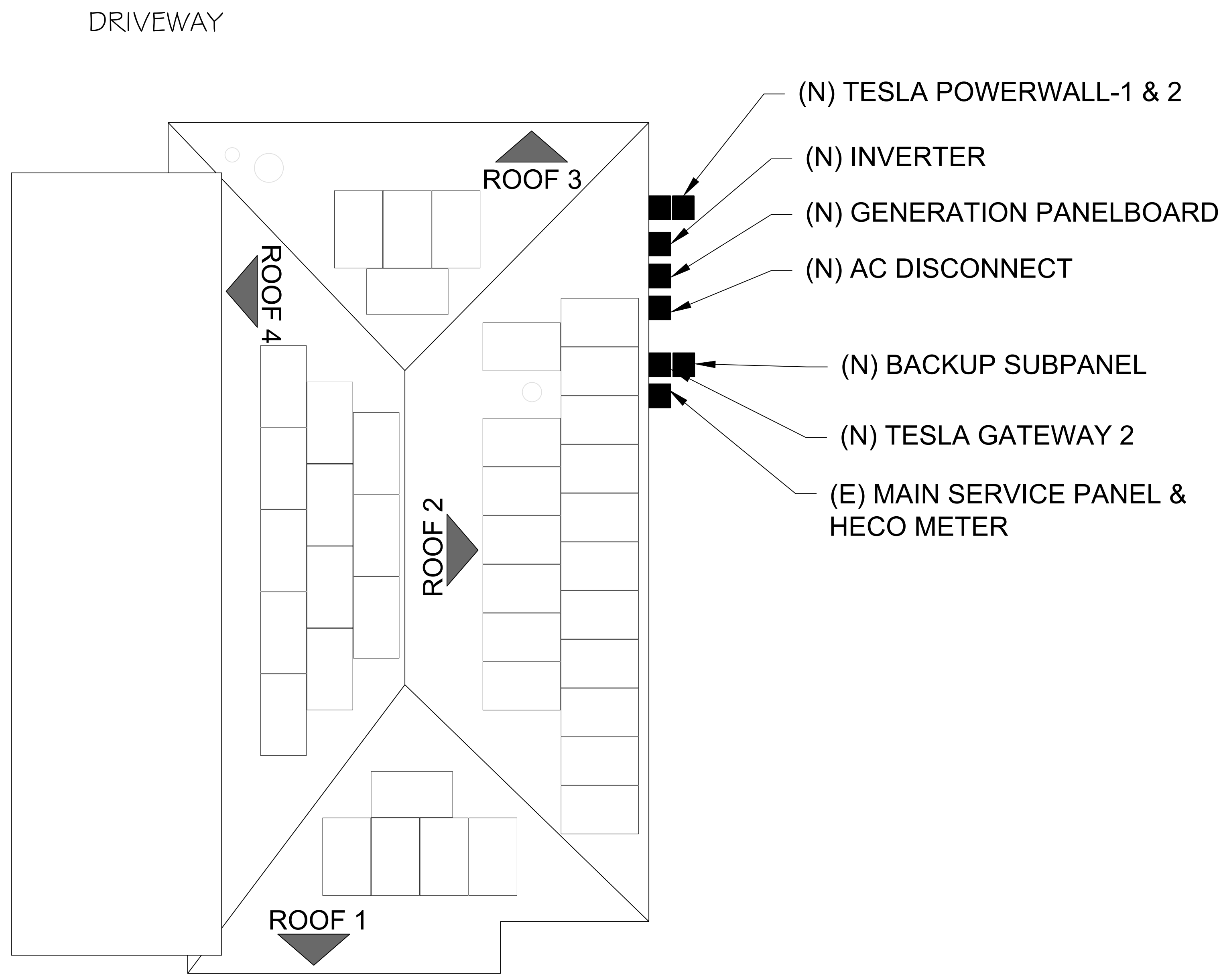
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- 02 TESLA POWERWALL 2 BATTERY (13.5KWH)

SYSTEM SIZE: 14.23 KWDC 10.0 KWAC



MOUNTING PLANE	TILT	AZIMUTH	ROOF TYPE	STORY	# OF MODULES
ROOF 1	18°	208°	COMP. SHINGLE	2-STORY	5
ROOF 2	18°	118°	COMP. SHINGLE	2-STORY	18
ROOF 3	18°	28°	COMP. SHINGLE	2-STORY	4
ROOF 4	18°	298°	COMP. SHINGLE	2-STORY	12



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	100% DESIGN	28-FEB-23	01

Signature with Seal

CUSTOMER INFORMATION

BRANDON WEAVER

39 REC SOLAR REC365NP2 BLACK
 ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
 SYSTEM SIZE: 14.23 KW DC STC
 SYSTEM SIZE: 10.0 KW AC

59-384 MAKANA RD.,
 HALEIWA, HI, 96712
 TMK: 590290370002

SHEET NAME
ARRAY PLAN

SHEET SIZE
**ARCH D
36" X 24"**

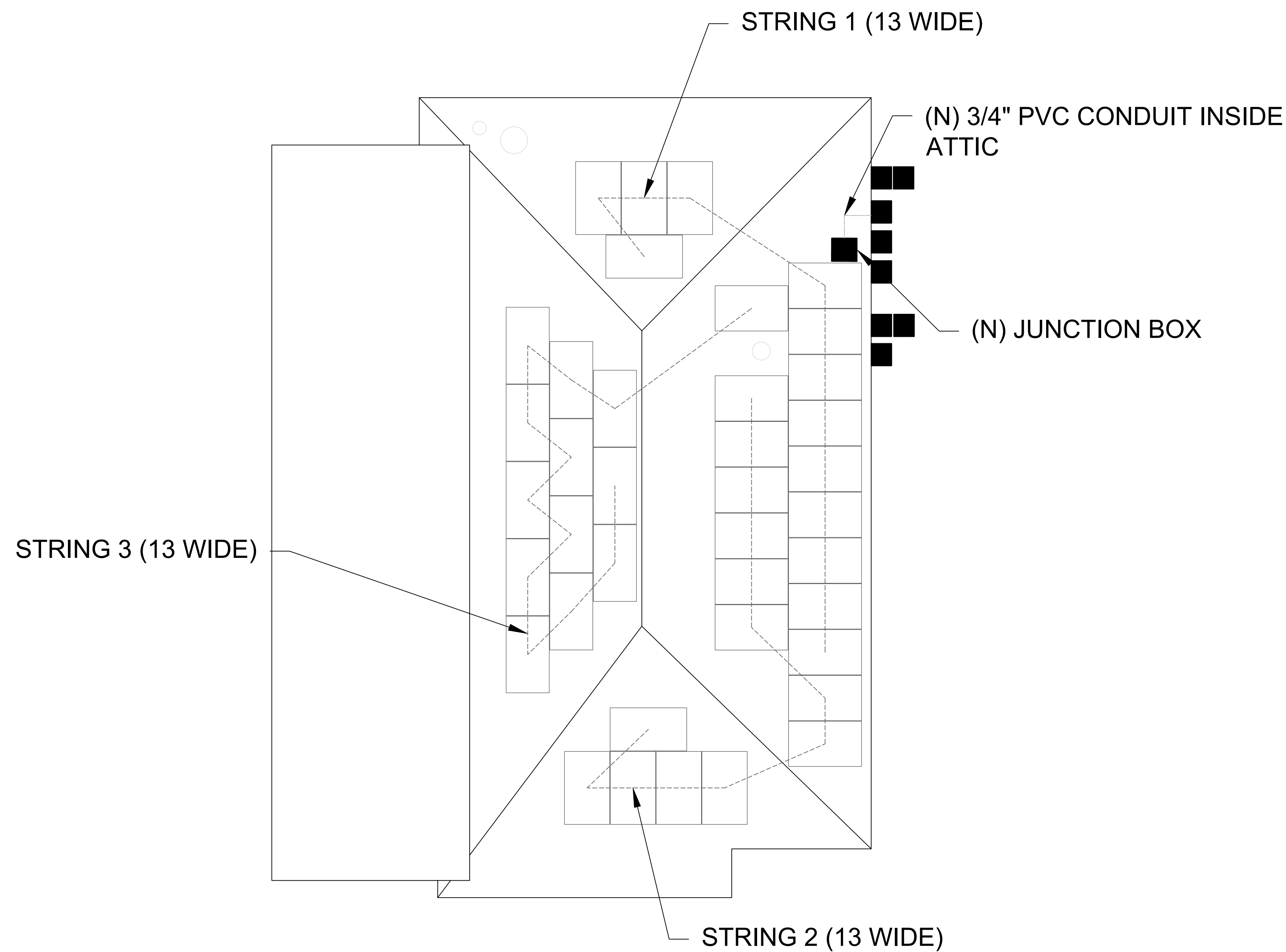
SHEET NUMBER
A002



SYSTEM SUMMARY

- 39 REC SOLAR REC365NP2 BLACK (365W) MODULES
- 01 SOLAR EDGE SE10000H-US [240V] INVERTER
- 39 SOLAREEDGE P370 OPTIMIZERS
- 02 TESLA POWERWALL 2 BATTERY (13.5KWH)

SYSTEM SIZE: 14.23 KWDC 10.0 KWAC



REVISIONS	
DESCRIPTION	DATE
100% DESIGN	28-FEB-23

Signature with Seal

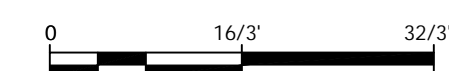
CUSTOMER INFORMATION

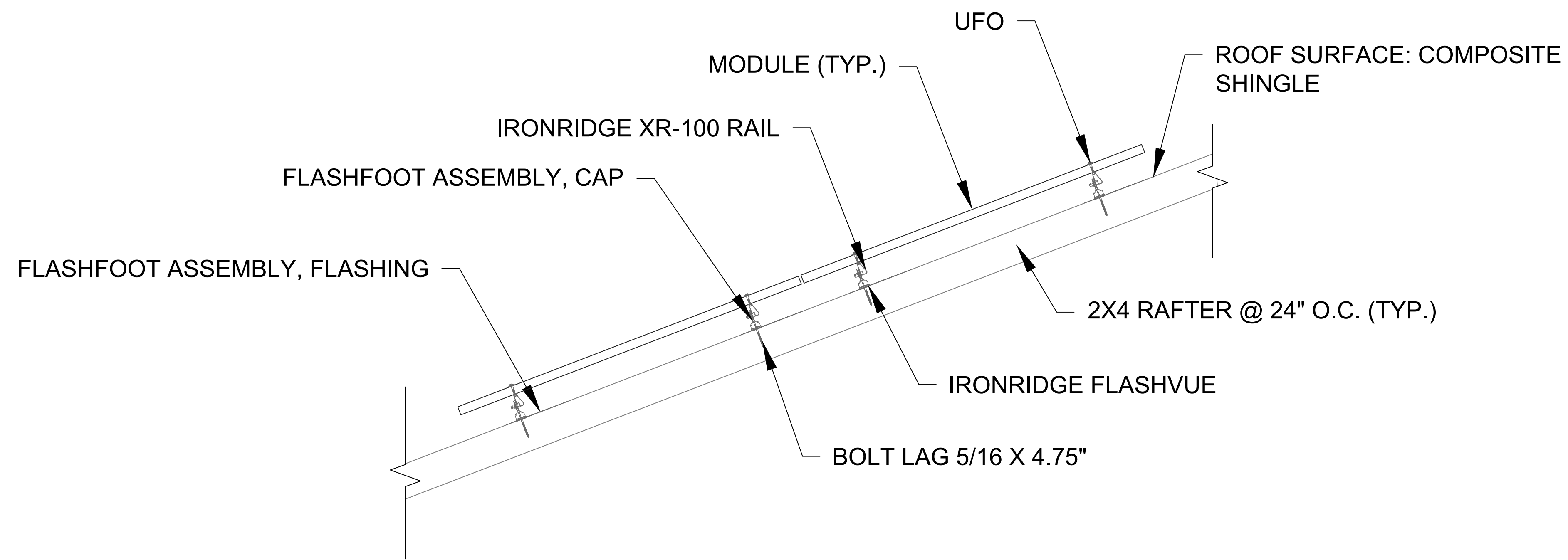
BRANDON WEAVER
 39 REC SOLAR REC365NP2 BLACK
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 SYSTEM SIZE: 14.23 KW DC STC
 SYSTEM SIZE: 10.0 KW AC
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SHEET NAME
STRING PLAN

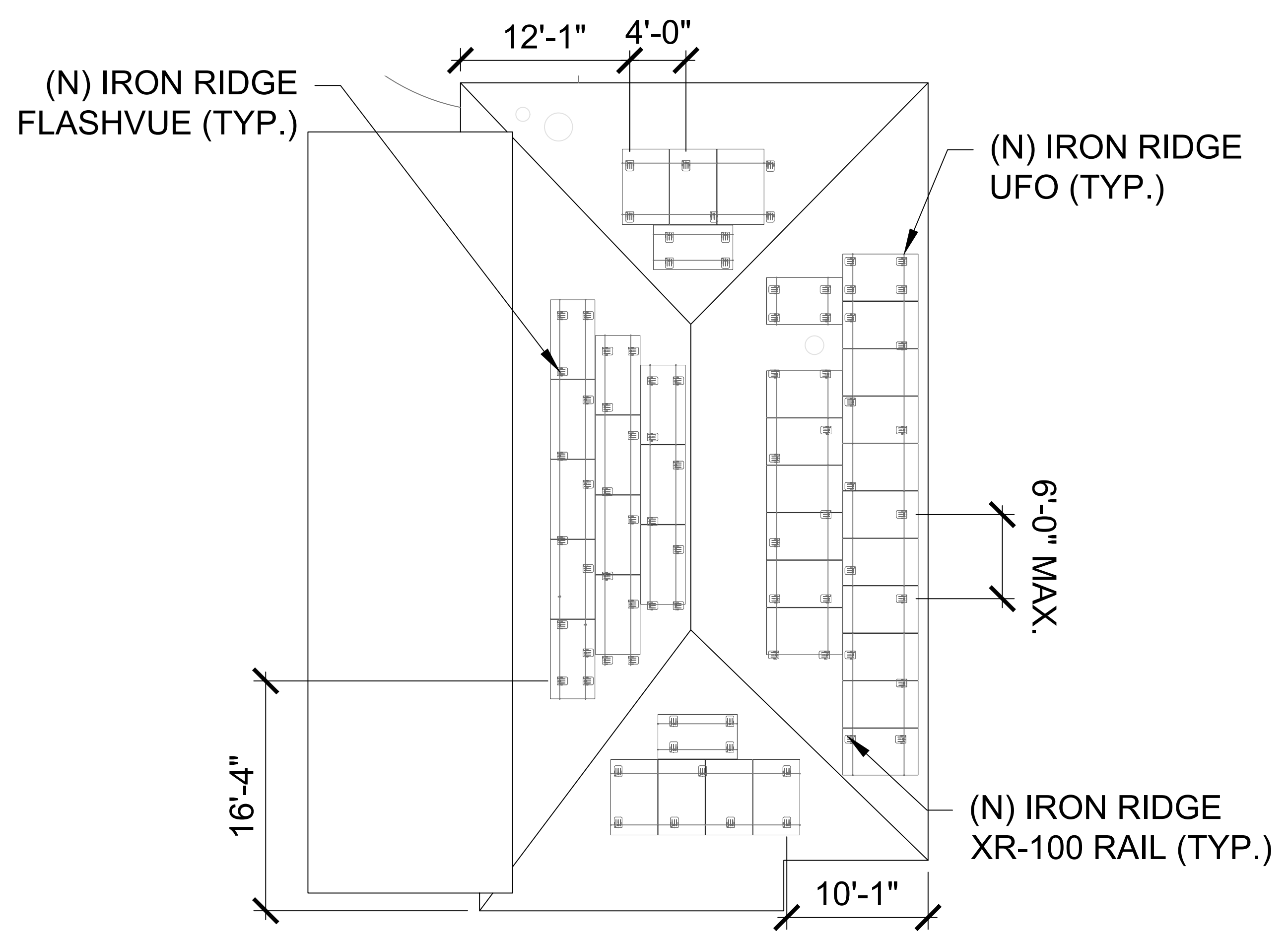
SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
E001





1 ATTACHMENT DETAIL (TYP.)
 S100 SCALE: NTS



2 STRUCTURE LAYOUT
 S100 SCALE: NTS

REVISIONS	
DESCRIPTION	REV
100% DESIGN <td>01</td>	01

Signature with Seal

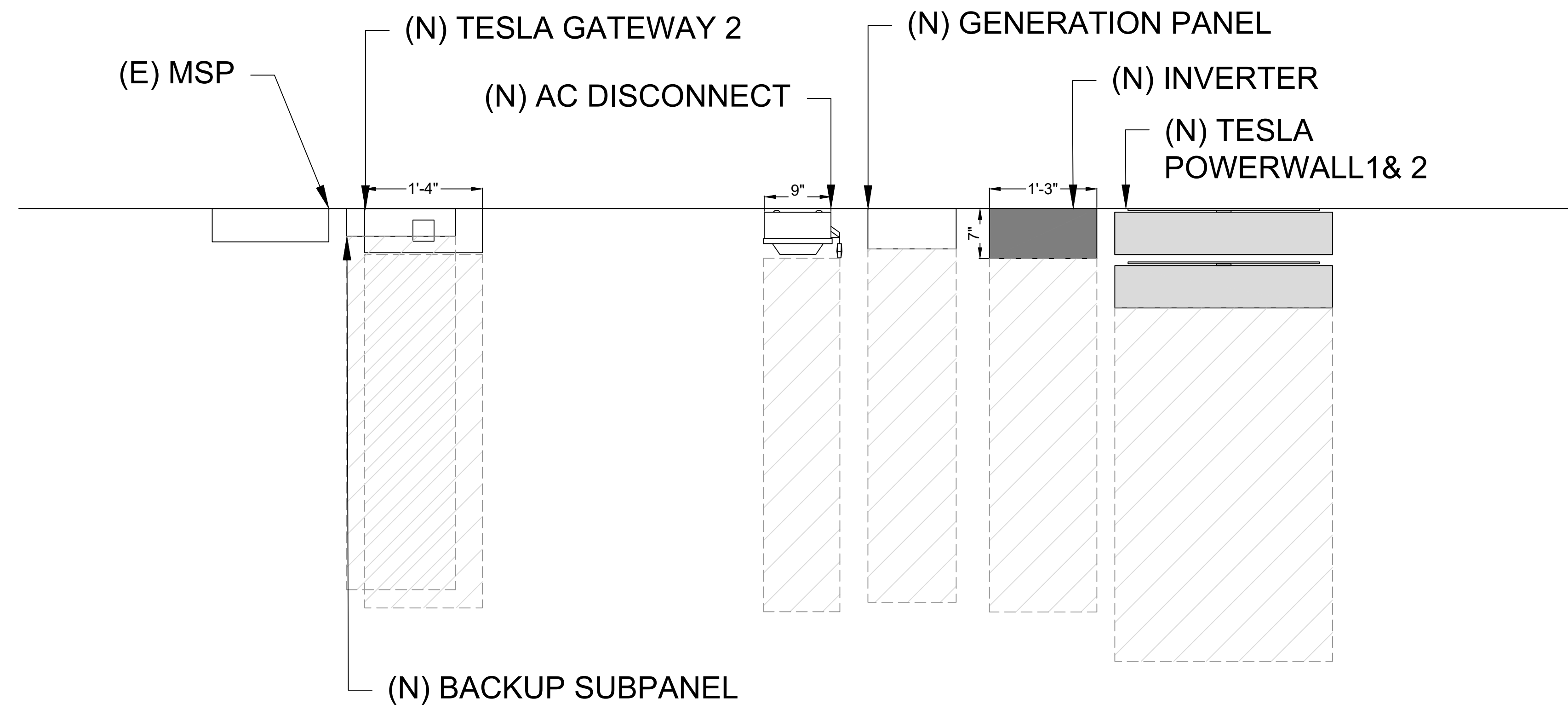
CUSTOMER INFORMATION

BRANDON WEAVER
 39 REC SOLAR REC365NP2 BLACK
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SHEET NAME
**ATTACHMENT
 DETAIL**

SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
S100



1 EQUIPMENT LAYOUT PLAN

E002

SCALE: 1"=1'-0"

REVISIONS	
DESCRIPTION	DATE
100% DESIGN	28-FEB-23

Signature with Seal

CUSTOMER INFORMATION

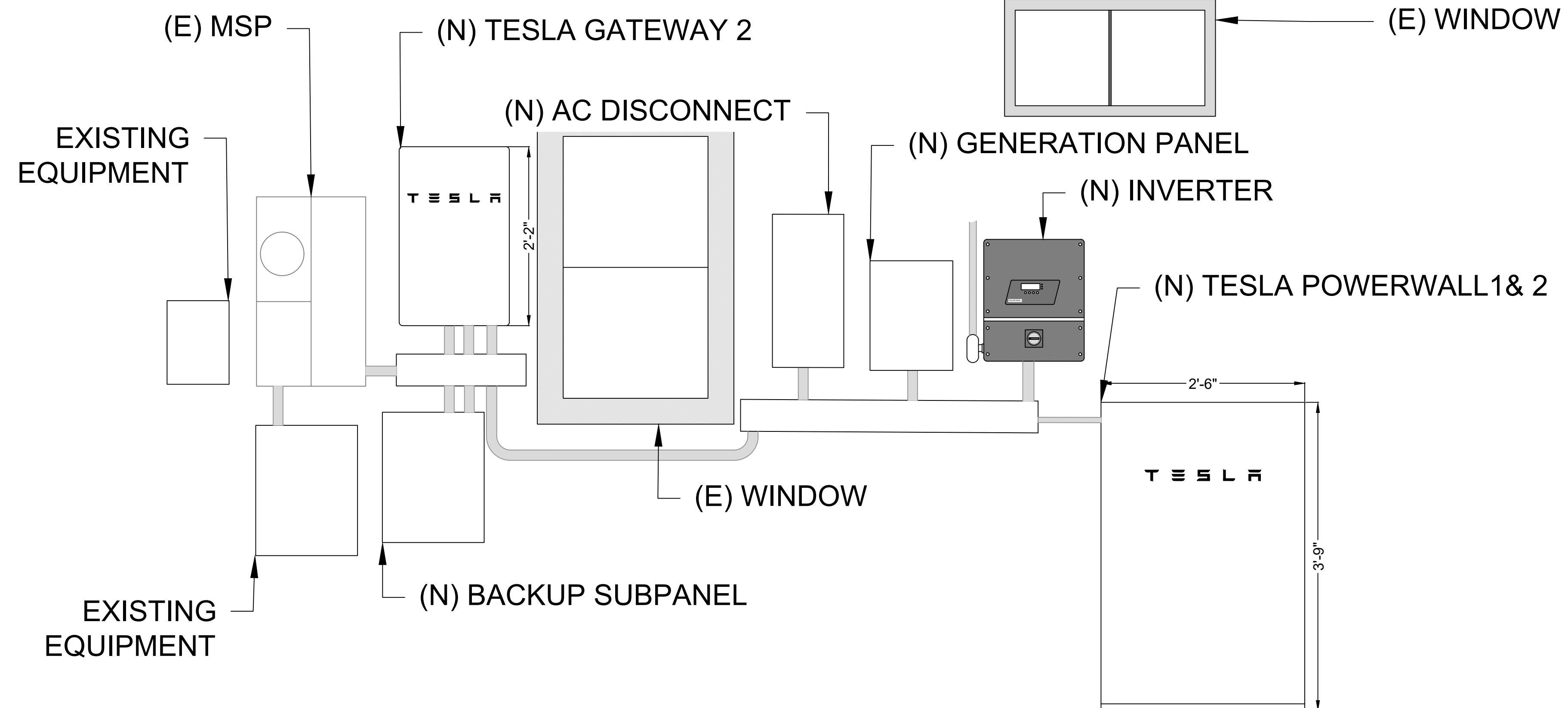
BRANDON WEAVER

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 HALEIWA, HI, 96712
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SHEET NAME
**EQUIPMENT
 ELEVATION**

SHEET SIZE
**ARCH D
 36" X 24"**

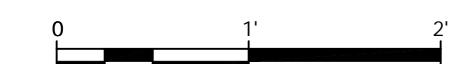
SHEET NUMBER
E002



2 EQUIPMENT ELEVATION

E002

SCALE: 1"=1'-0"



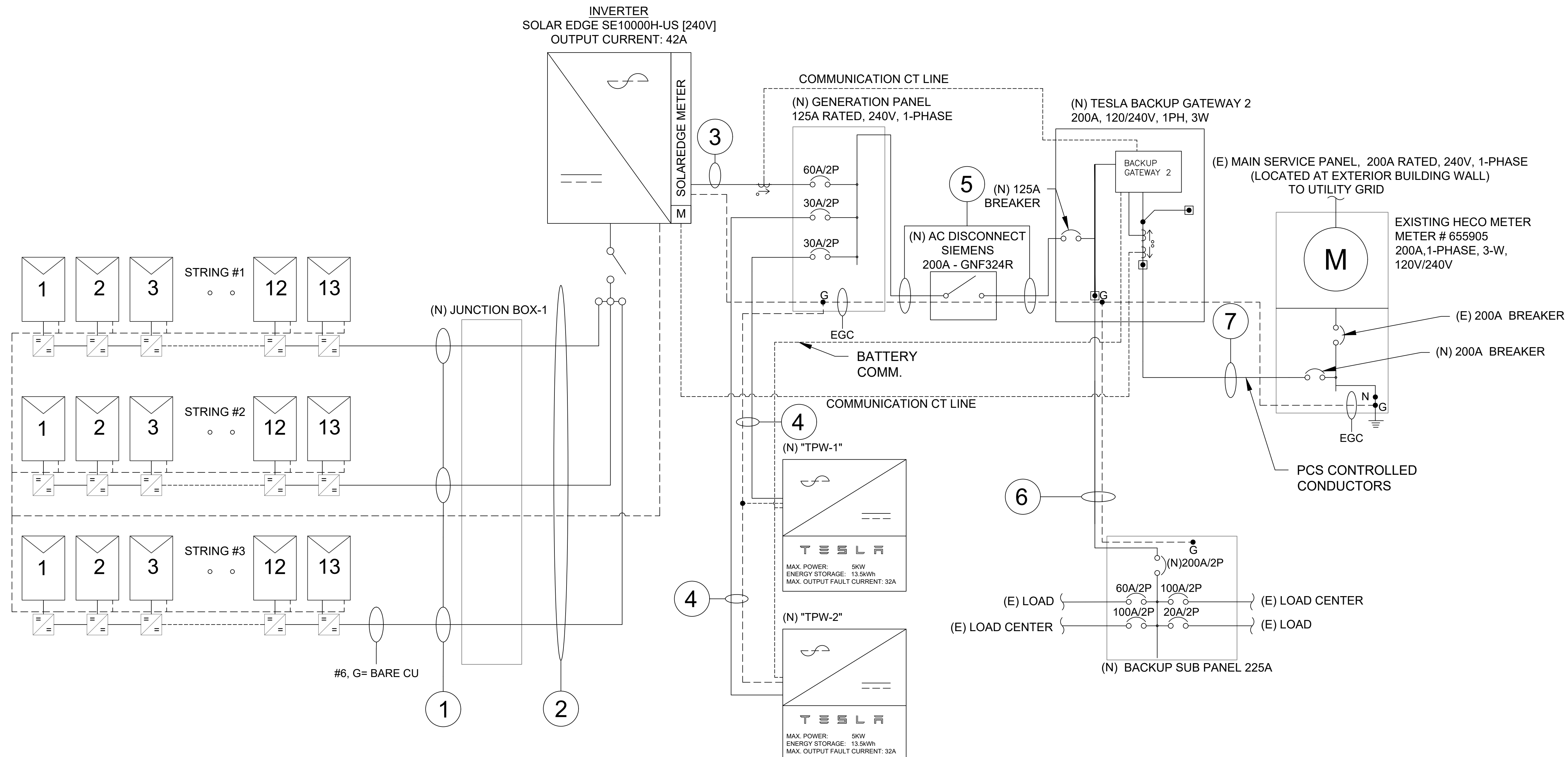
SYSTEM SUMMARY

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- 01 SOLAR EDGE SE10000H-US [240V] INVERTER
- 39 SOLAREGE P370 OPTIMIZERS
- 02 TESLA POWERWALL 2 BATTERY (13.5KWH)

SYSTEM SIZE: 14.23 KWDC 10.0 KWAC

NOTE

ALL THE DISCONNECTS SHALL BE RATED FOR CONTINUOUS DUTY.



REV	DATE	DESCRIPTION
01	28-FEB-23	100% DESIGN

Signature with Seal

BRANDON WEAVER
 39 REC SOLAR REC365NP2 BLACK
 ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
 SYSTEM SIZE: 14.23 KW DC STC
 SYSTEM SIZE: 10.0 KW AC
 59-384 MAKANA RD.,
 HALEIWA, HI, 96712
 TMK: 590290370002

SHEET NAME
**ELECTRICAL LINE
 DIAGRAM**

SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
E100

CONDUIT TO BE MIN. 7/8" ABOVE ROOF SURFACE

PV BREAKER TO BE INSTALLED AT THE END OF THE BUS

WIRE TAG #	WIRE FROM -TO -	CONDUIT	WIRE QTY. (CCC)	WIRE GAUGE:	WIRE TYPE	TEMP RATING:	WIRE AMP	TEMP DE-RATE:	CONDUIT FILL:	WIRE OCP:	TERMINAL 75°C RATING:	AMP.	QTY:	NEC:	STRING AMPS
①	ARRAY TO JUNCTION BOX	FREE AIR	2	#10	PV WIRE-600V	90°C	40A x	0.96 x	NA	= 38.4A	35A	15	x 1	x 1.25	=18.75A
②	JUNCTION BOX TO INVERTER	3/4"PVC	6	#10	THWN-2	90°C	40A x	0.96 x	0.8	=30.72A	35A	15	x 1	x 1.25	=18.75A
③	INVERTER TO GENERATION PANEL	1"PVC	3	#6	THWN-2	90°C	75A x	0.96 x	1.00	= 72A	65A	42	x 1	x 1.25	= 52.5A
④	BATTERY TO GENERATION PANEL	3/4"PVC	3	#10	THWN-2	90°C	40A x	0.96 x	1.00	= 38.4A	35A	24	x 1	x 1.25	= 30A
⑤	GENERATION PANEL TO TESLA GATEWAY	1-1/2" PVC	3	#1	THWN-2	90°C	130Ax	0.96 x	1.00	=124.8A	115A	90	x 1	x 1.25	=112.5A
⑥	TESLA GATEWAY TO BACKUP SUBPANEL	2" PVC	3	#3/0	THWN-2	90°C	225Ax	0.96 x	1.00	= 216A	200A	200	x 1	x 1	= 200A
⑦	TESLA GATEWAY TO MSP	2" PVC	3	#3/0	THWN-2	90°C	225Ax	0.96 x	1.00	= 216A	200A	200	x 1	x 1	= 200A

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE data tables

RECORD LOW TEMP	14°C
AMBIENT TEMP (HIGH TEMP 2%)	32°C
CONDUIT HEIGHT	7/8" MIN.
CONDUCTOR TEMPERATURE RATE	90°C

WIRE TAG #	CONDUIT FILL	OCPD	GRND SIZE	GRND WIRE TYPE
①	N/A	N/A	#6	BARE COPPER
②	73%	N/A	#10	THWN-2
③	52.2%	60A	#8	THWN-2
④	75%	30A	#10	THWN-2
⑤	68.67%	125A	#6	THWN-2
⑥	64%	200A	#6	THWN-2
⑦	64%	200A	#6	THWN-2

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SHEET NAME
WIRE CALCULATIONS

SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
E200

WARNING
 INVERTER OUTPUT CONNECTION DO NOT
 RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: NEC 705.12(B)[Not required if panelboard is rated not less
 than sum of ampere ratings of all overcurrent devices supplying it])

PHOTOVOLTAIC SYSTEM AC DISCONNECT
 RATED AC OPERATING CURRENT 90 AMPS
 AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
 AC DISCONNECT, GENERATION PANELBOARD
 (PER CODE: NEC 690.54)

**MAIN PHOTOVOLTAIC AND
 ENERGY STORAGE SYSTEM
 AC DISCONNECT**

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

⚠ WARNING
ELECTRIC SHOCK HAZARD
 DO NOT TOUCH TERMINALS
 TERMINALS ON BOTH LINE AND
 LOAD SIDES MAY BE ENERGIZED
 IN THE OPEN POSITION

LABEL LOCATION:
 AT EACH DISCONNECTING MEANS
 FOR PHOTOVOLTAIC EQUIPMENT
 (PER CODE: NEC 690.17)

⚠ WARNING
ELECTRIC SHOCK HAZARD
 THE DC CONDUCTORS OF THIS
 PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
 AND MAY BE ENERGIZED

LABEL LOCATION:
 AT EACH JUNCTION, COMBINER, DISCONNECT
 AND DEVICE WHERE ENERGIZED
 UNGROUNDED CONDUCTORS MAY BE
 EXPOSED DURING SERVICE
 (PER CODE: NEC 690.35(F))

ENERGY STORAGE SYSTEM DISCONNECT

NOMINAL ESS AC VOLTAGE:
 MAXIMUM ESS DC VOLTAGE:
 AVAILABLE FAULT CURRENT
 DERIVED FROM THE ESS:

LABEL LOCATION:
 BATTERY DISCONNECT
 (PER CODE: NEC 706.7(D))

**PHOTOVOLTAIC SYSTEM
 EQUIPPED WITH RAPID SHUTDOWN**

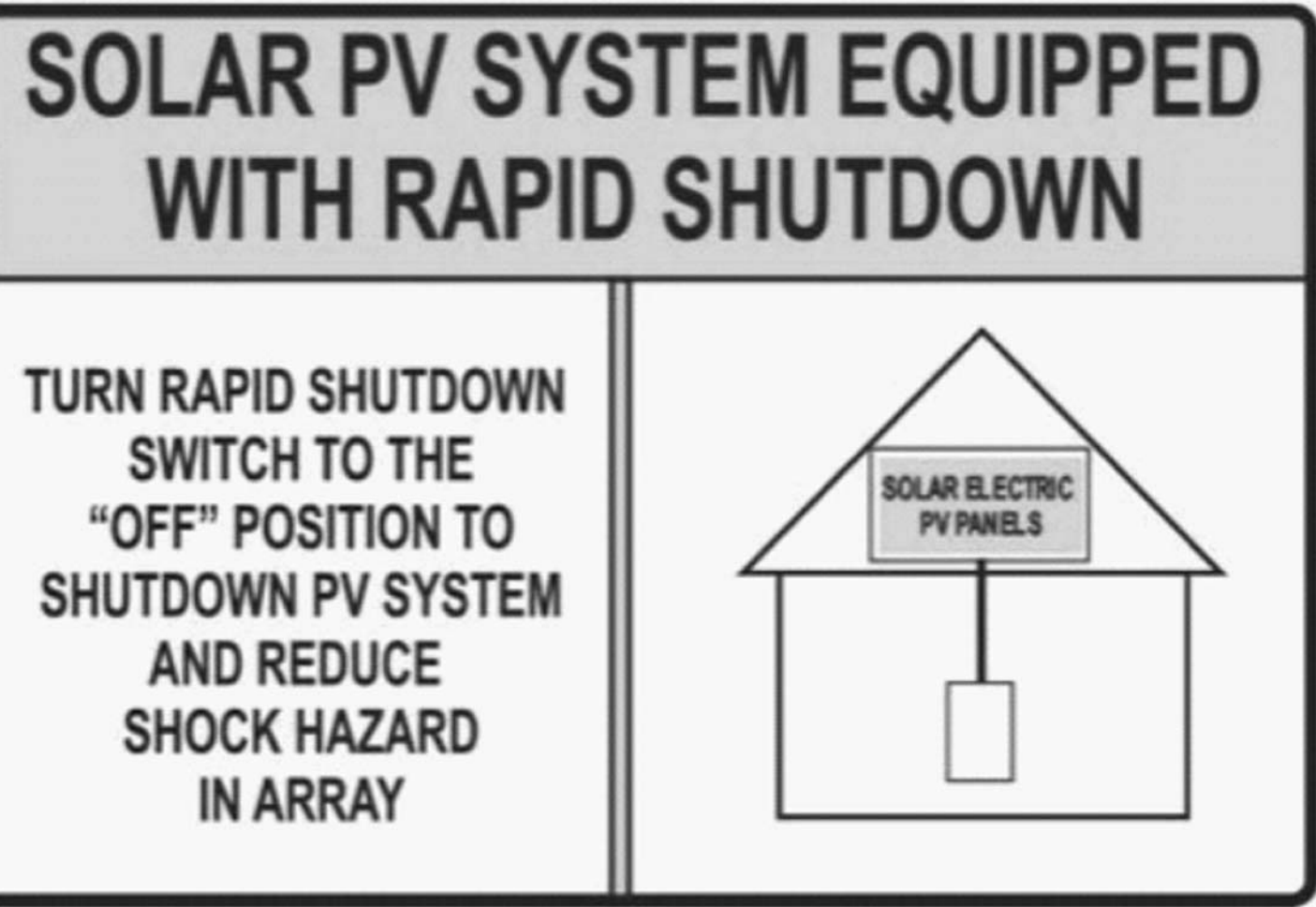
LABEL LOCATION:
 WEATHER RESISTANT MATERIAL, DURABLE PLAQUE, UL969 AS STANDARD TO WEATHER RATING (UL
 LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD,
 PLACED WITHIN THE MAIN SERVICE DISCONNECT, PLACED ON THE OUTSIDE OF THE COVER WHEN
 DISCONNECT IS OPERABLE WITH SERVICE PANEL CLOSED.
 (PER CODE: NEC 690.12, 690.56(C))

WARNING
TRIPLE POWER SOURCE
 SECOND SOURCE IS PHOTOVOLTAIC
 SYSTEM AND THIRD SOURCE IS
 ENERGY STORAGE SYSTEM

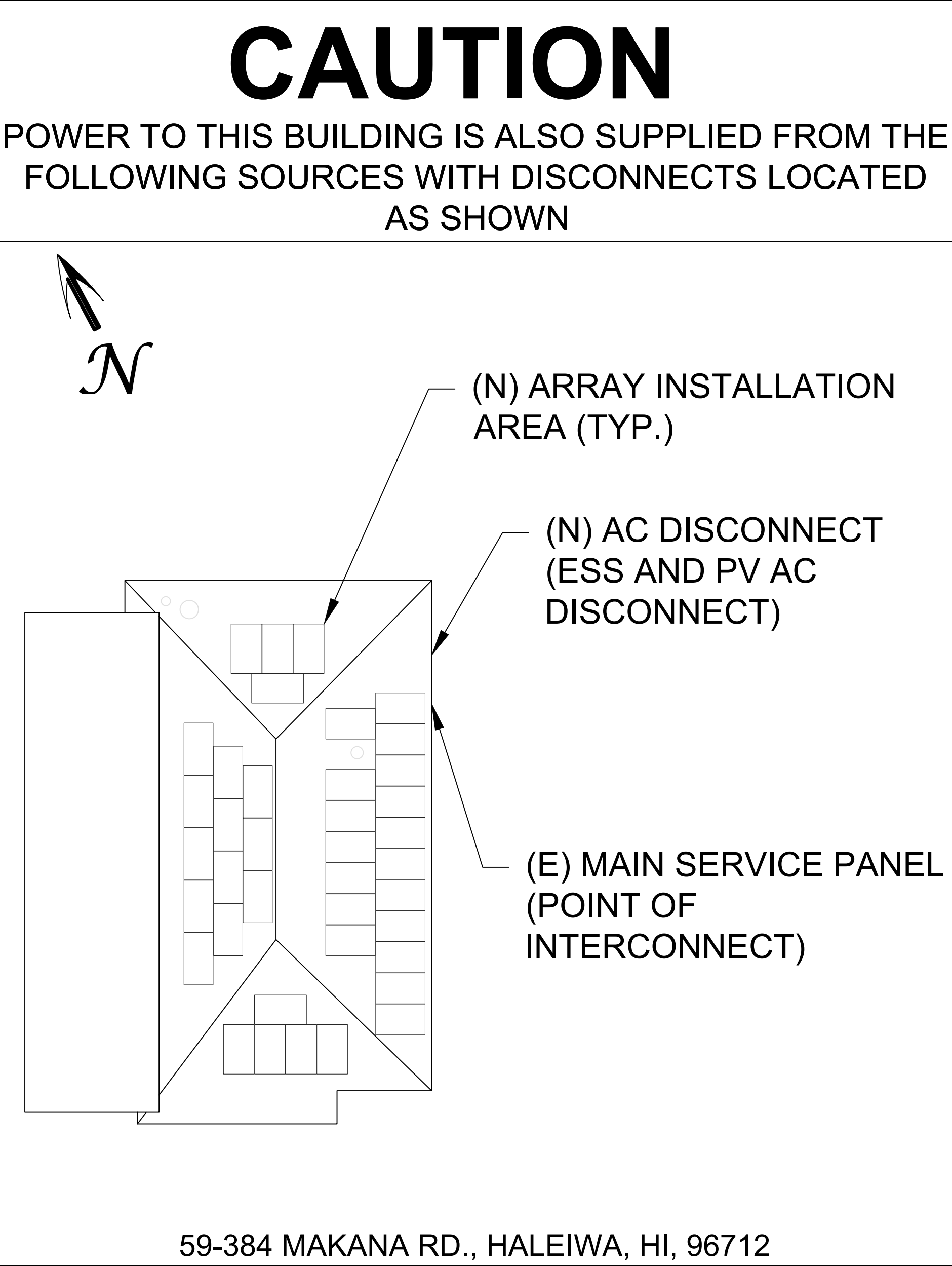
LABEL LOCATION:
 POINT OF INTERCONNECTION
 (PER CODE: NEC 705.12(B)(3))

**WARNING: PHOTOVOLTAIC
 POWER SOURCE**

LABEL LOCATION:
 AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER
 WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION
 OR WHERE SEPARATED BY ENCLOSURES, WALLS,
 PARTITIONS, CEILINGS, OR FLOORS
 (PER CODE: NEC 690.31(G)(3) & (4))



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



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SHEET NAME
**LABELS &
 PLACARDS**

SHEET SIZE
**ARCH D
 36" X 24"**

SHEET NUMBER
E300