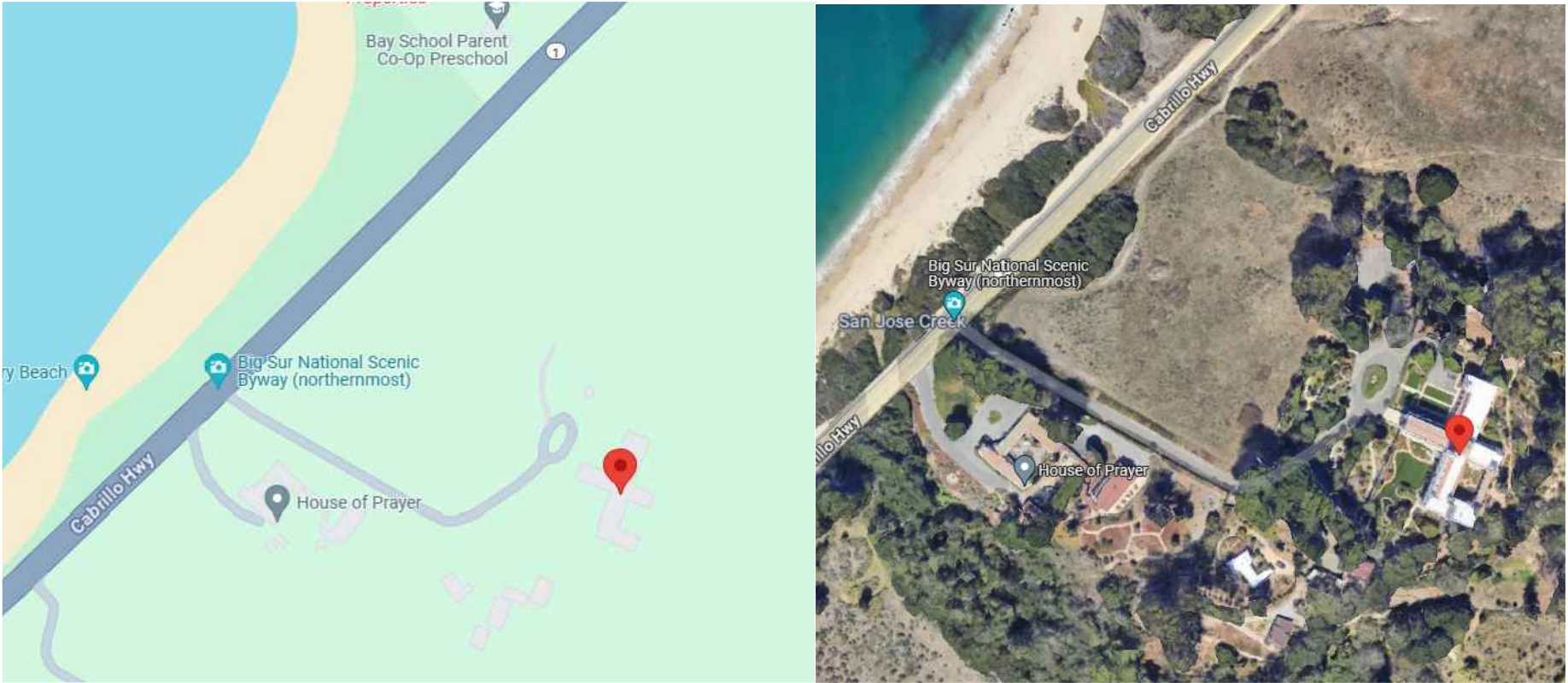


GENERAL NOTES:

1. LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION.
2. NO SHEET METAL OR TECH SCREWS SHALL BE USED TO GROUND DISCONNECT ENCLOSURE WITH TIN-PLATED ALUMINUM LUGS; PROPER GROUNDING/GROUND BAR KITS SHOULD BE USED.
3. ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE WITH RAIN TIGHT AND APPROVED FOR USE IN WET LOCATIONS.
4. BACK-FED BREAKER MUST BE AT THE OPPOSITE END OF BUS BAR FROM THE MAIN BREAKER OR MAIN LUG SUPPLYING CURRENT FROM THE UTILITIES.
5. ALL CONDUCTORS EXPOSED TO SUNLIGHT ARE LISTED AS SUNLIGHT RESISTANT.
6. INSTALLER TO FOLLOW ALL LOCAL JURISDICTION GUIDELINES.
7. GROUNDING BUSHINGS ARE REQUIRED AROUND PRE-PUNCHED CONCENTRIC KNOCKOUTS ON THE DC SIDE OF THE SYSTEM.
8. DRAWINGS ARE DIAGRAMMATIC ONLY. THE LOCATION AND ROUTING OF RACEWAYS SHALL BE DETERMINED BY THE CONTRACTOR UNLESS OTHERWISE NOTED OR STANDARDIZED.
9. ALL EQUATIONS ACCOUNT FOR WORST CASE CONDITIONS.
10. IF A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, OVERCURRENT PROTECTION, GROUNDING SYSTEMS, ETC. (ALL EQUIPMENT AND MATERIALS) THE CONTRACTOR AND OR HOME OWNER SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIALS AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS IN THE SPECIFICATIONS OR NOTED ON THE PLANS TO ENSURE COMPLETE COMPLIANCE WITH ALL CODES AND TO ENSURE THE LONGEVITY AND SAFETY OF THE OPERABLE SYSTEM.
11. ALL OUTDOOR EQUIPMENT SHALL BE MIN. NEMA 3R RATED.
12. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ANY AND ALL REQUIREMENTS GIVEN BY UTILITY COMPANIES.
13. FOR ADDITIONAL EQUIPMENT SPECIFICATIONS, SEE PROVIDED CUT SHEETS.
14. ALL LABELS AND MARKINGS SHALL BE ATTACHED ACCORDING TO REQUIREMENTS BY LOCAL AHJ. THE AHJ MAY HAVE SPECIAL LABEL REQUIREMENTS BEYOND THE SCOPE OF THIS DOCUMENT.

VICINITY MAP



Prepared by(N.H.)

www.solarpermitservices.com
info@solarpermitservices.com
(949) 872-8236



SCOPE OF WORK:

GROUND MOUNT PV SOLAR

ARRAY / MODULES:

(144)HYUNDAI SOLAR HIS-S400YH(BK) 400W

INVERTER(S) / MICRO / OPTIMIZERS:

(2)SOL-ARK C&I HYBIRD 30K-3P-208V

(36)(9X4)DEKA DD5300 HIGH VOLTAGE DURATION 5.3 BATTERIES

ARRAY PITCH: 15°

AZIMUTH: 180°

ONE-STORY HOUSE

LISTED BY UNDERWRITERS LABORATORIES FOR ELECTRICAL AND FIRE SAFETY(CLASS A FIRE RATING)
1) NO DISCHARGE OF ANY POLLUTANTS TO ANY STORM DRAIN SYSTEM.
2) UL 1703 FOR MODULES & UL 1741 FOR INVERTERS PER CITY SOLAR REQUIRMENTS.

THIS PROJECT SHALL COMPLY WITH THE :
2022 CA BUILDING CODE
2022 CA PLUMBING CODE
2022 CA RESIDENTIAL CODE
2022 CA ENERGY CODE
2022 CA MECHANICAL CODE
2022 CA FIRE CODE
2022 CA ELECTRICAL CODE
ORDINANCES OF CITY AND OR COUNTY OF CARMEL

INDEX SHEET :

- CS1 COVER SHEET
- B2 SITE PLAN
- B3 PLOT PLAN
- B4 EQUIPMENT PLAN
- E5 ELECTRICAL DIAGRAM
- S6 SIDE VIEW
- S7 SIDE VIEW
- S8 SIDE VIEW
- S9 SIDE VIEW
- S10 SIDE VIEW
- B11 WARNING LABELS
- B12 SPECS
- B13 SPECS
- B14 SPECS

UMSTEAD ELECTRIC

MODULES / INVERTER(S) / OPTIMIZERS

(144)HYUNDAI SOLAR HIS-S400YH(BK) 400W
(2)SOL-ARK C&I HYBIRD 30K-3P-208V
(36)DEKA DD5300 HIGH VOLTAGE DURATION 5.3 BATTERIES

SYSTEM SIZE:

57.600 KW DC (STC)
52.430 KW DC (PTC)
50.857 KW AC (CEC)

COMPLETED:	8/20/2024
REVISION #1:	
REVISION #2:	

PROJECT: PHONE# 831 214 3497

CARMELITE MONASTERY
27601 CA-1
CARMEL, CA 93923
OCCUPANCY TYPE: A GROUP:A-3
APN# 243-101-002-000
36.523111349, -121.9228852910

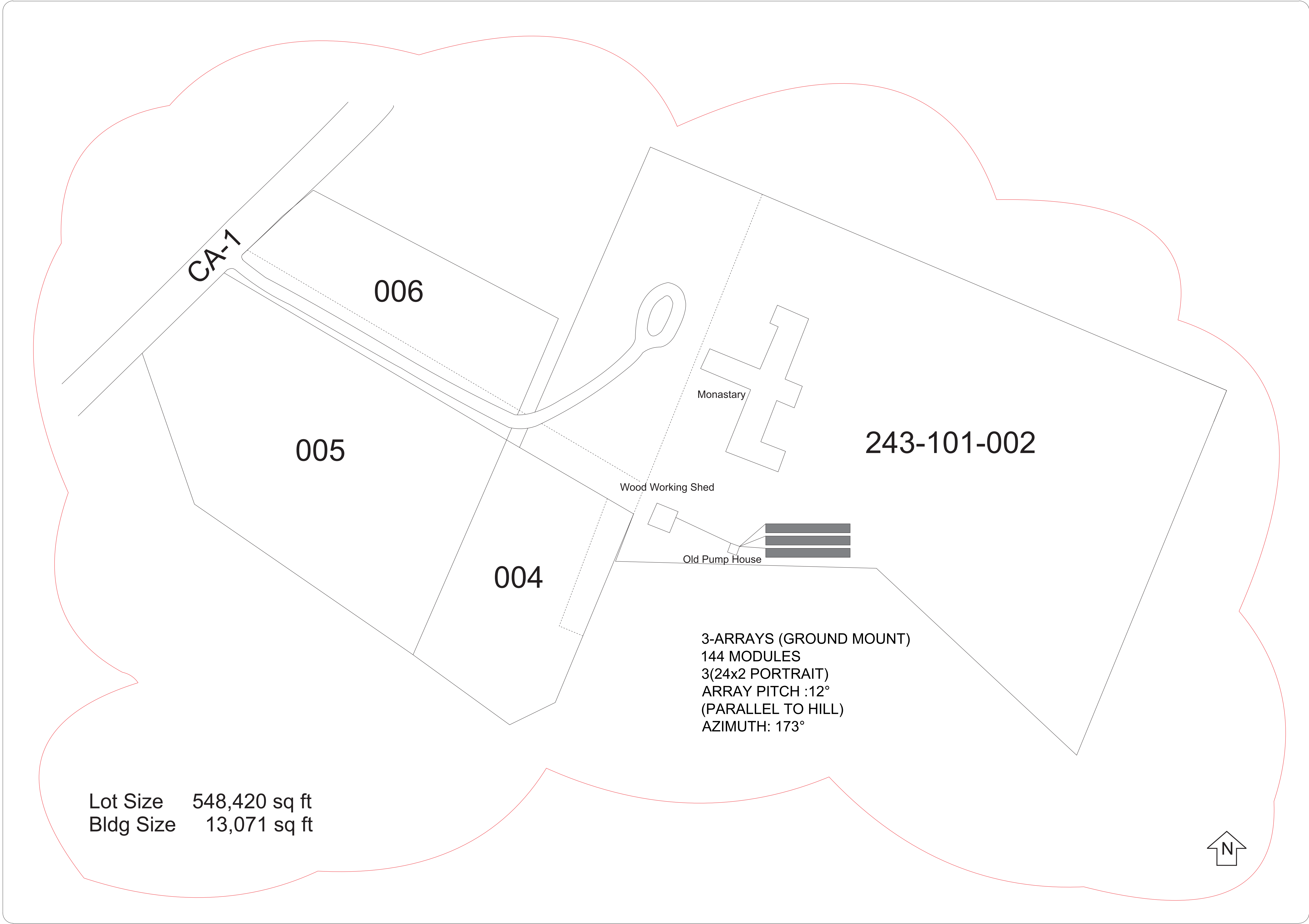
UMSTEAD ELECTRIC
602 S 1ST ST.
KING CITY, CA 93930
PHONE: 831 214 3497

CONTRACTOR: TED UMSTEAD
STATE LICENSE # 778831

EXPIRATION DATE 05/31/2026
LICENSE CLASS C-10

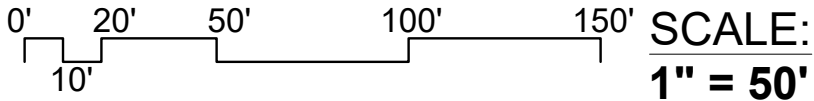
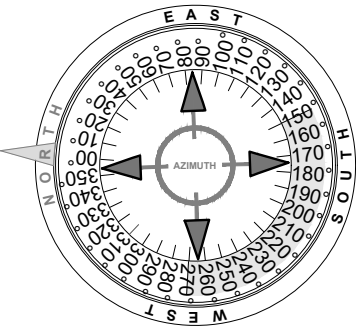
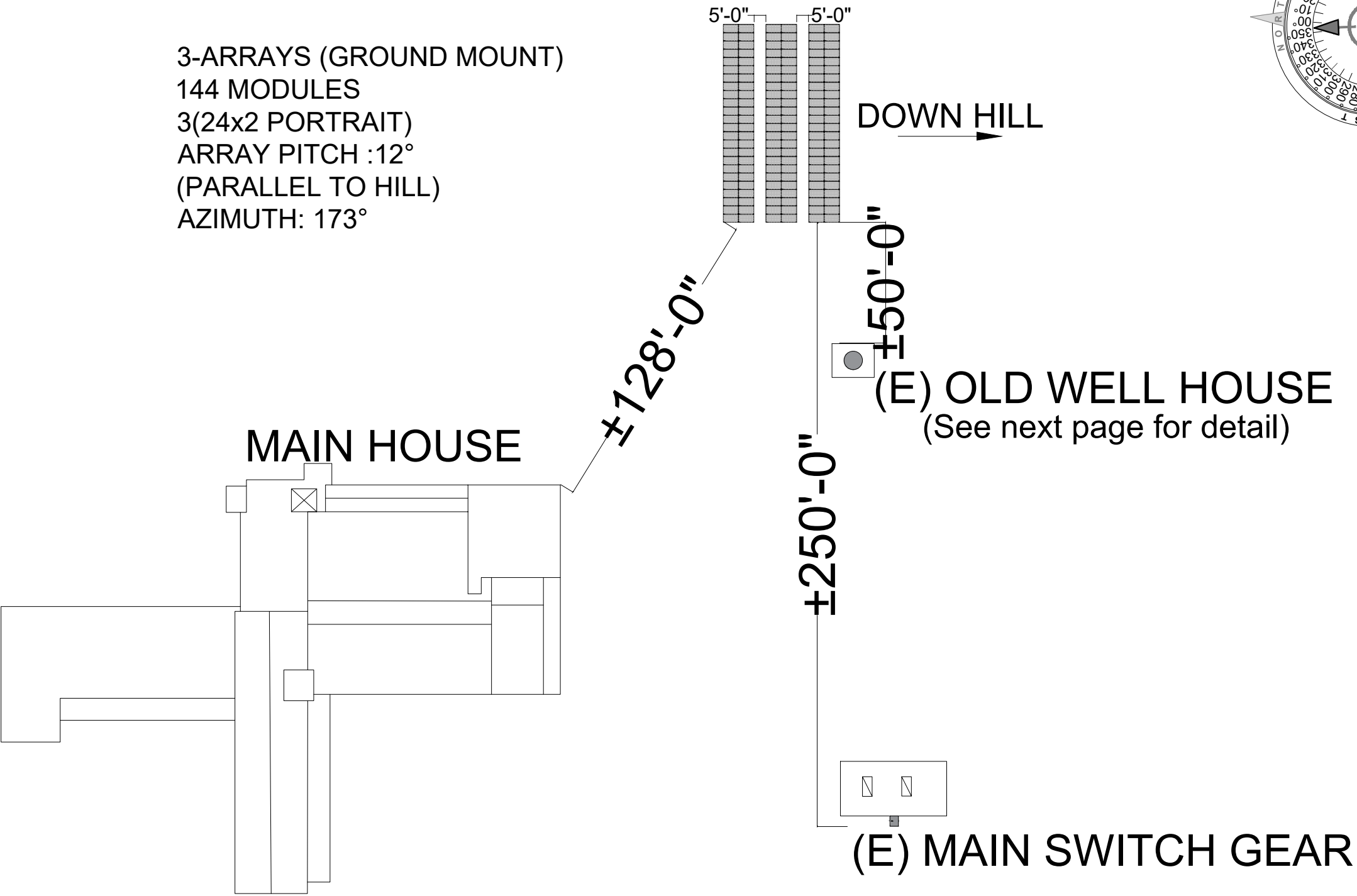
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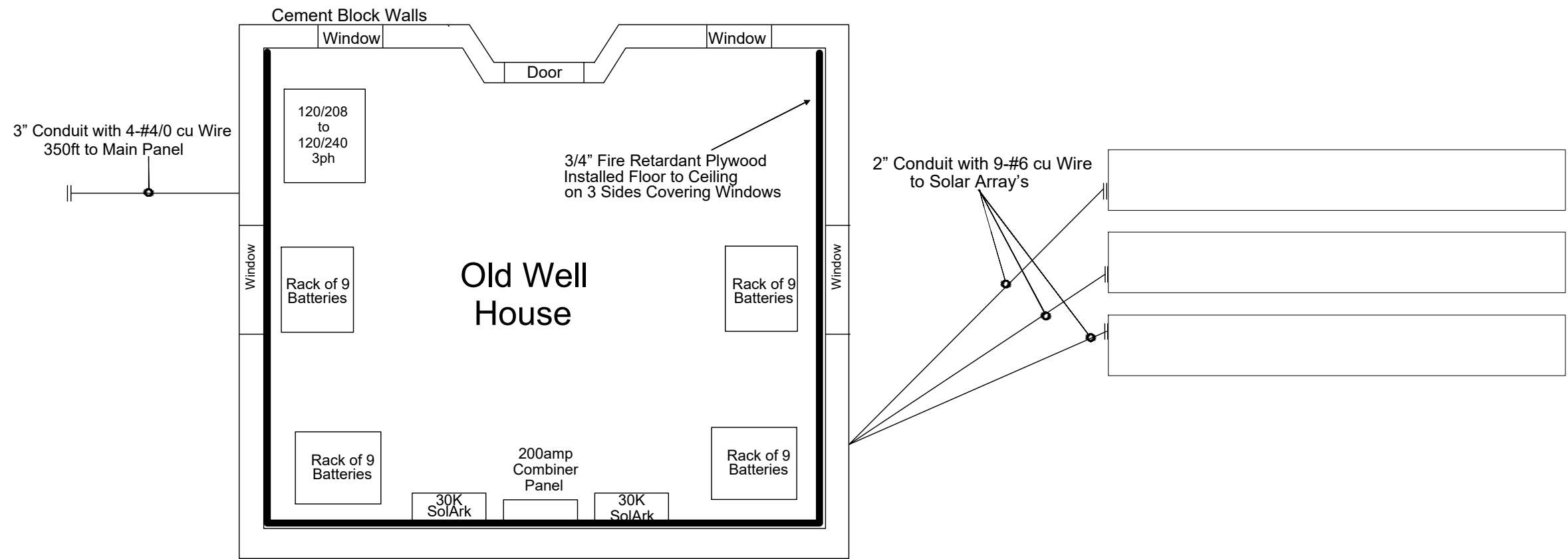
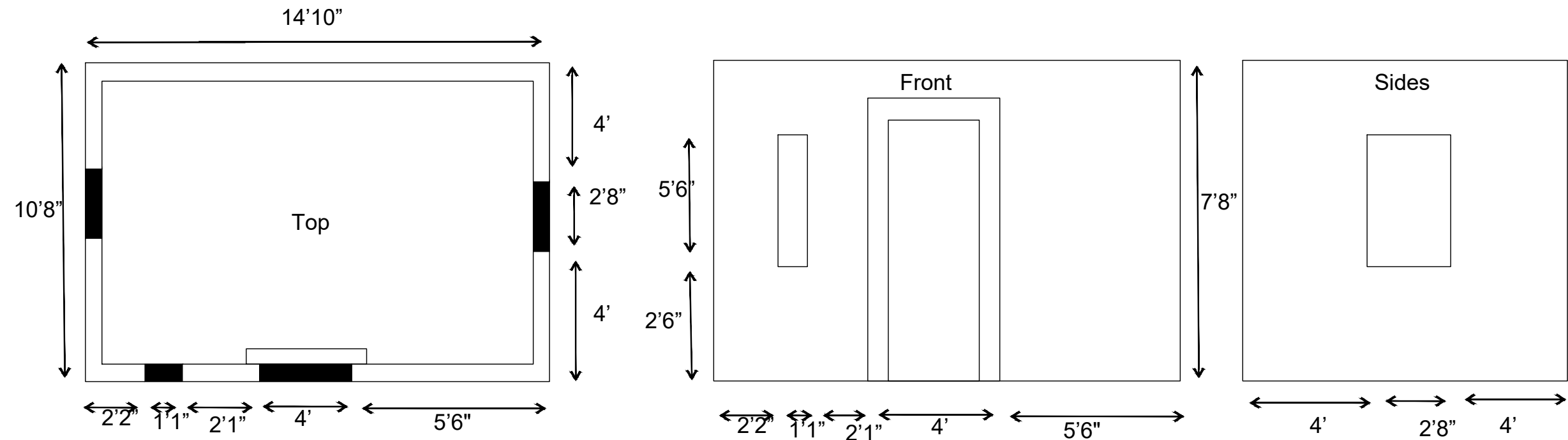
UMSTEAD ELECTRIC			
MODULES / INVERTER(S) / OPTIMIZERS (144)HYUNDAI SOLAR HIS-S400YH(BK) 400W (2)SOL-ARK C&I HYBRID 30K-3P-208V (36)DEKA DD5300 HIGH VOLTAGE DURATION 5.3 BATTERIES SYSTEM SIZE: 57.600 KW DC (STC) 52.430 KW DC (PTC) 50.857 KW AC (CEC)			
PROJECT:		PHONE# 831 214 3497	
CARMELITE MONASTERY		CARMEL, CA 93923	
27601 CA-1		OCCUPANCY TYPE: A GROUP:A-3	
APN# 243-101-002-000		36.523111349, -121.9228852910	
UMSTEAD ELECTRIC		CONTRACTOR: TED UMSTEAD	EXPIRATION DATE
602 S 1ST ST.		LICENSE CLASS	05/31/2026
KING CITY, CA 93930		C-10	
PHONE: 831 214 3497		STATE LICENSE #	
		778831	
B2			

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UMSTEAD ELECTRIC			
UMSTEAD ELECTRIC 602 S 1ST ST. KING CITY, CA 93930 PHONE: 831 214 3497		MODULES / INVERTER(S) / OPTIMIZERS (144)HYUNDAI SOLAR HIS-S400YH(BK) 400W (2)SOL-ARK C&I HYBRID 30K-3P-208V (36) DEKA DD5300 HIGH VOLTAGE DURATION 5.3 BATTERIES	
		SYSTEM SIZE: 57.600 KW DC (STC) 52.430 KW DC (PTC) 50.857 KW AC (CEC)	
PROJECT: PHONE# 831 214 3497		CARMELITE MONASTERY 27601 CA-1 CARMEL, CA 93923 OCCUPANCY TYPE: A GROUP:A-3 APN# 243-101-002-000 36.523111349, -121.9228852910	
CONTRACTOR: TED UMSTEAD		EXPIRATION DATE 05/31/2026	
STATE LICENSE # 778831	LICENSE CLASS C-10	B3	

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UMSTEAD ELECTRIC 602 S 1ST ST. KING CITY, CA 93930 PHONE: 831 214 3497		PROJECT: <u>PHONE# 831 214 3497</u>	
× CONTRACTOR: TED UMSTEAD		CARMELITE MONASTERY 27601 CA-1 CARMEL, CA 93923 OCCUPANCY TYPE: A GROUP:A-3 APN# 243-101-002-000 36.523111349, -121.9228852910	
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MODULES / INVERTER(S) /OPTIMIZERS	
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(36)DEKA DD5300 HIGH VOLTAGE	
DURATION 5.3 BATTERIES	

SYSTEM SIZE:	
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50.857 KW AC (CEC)	

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ELECTRICAL NOTES:

- E1. ALL EQUIPMENT IS LISTED FOR USE.
E2. MAXIMUM VOLTAGE DOES NOT EXCEED 600VDC.
E3. ANY EQUIPMENT OR ELECTRICAL MATERIALS USED FOR THIS INSTALLATION SHALL BE NEW AND LISTED BY A RECOGNIZED ELECTRICAL TESTING LABORATORY.
E4. CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT WEATHERPROOF PULL BOXES OR JUNCTION BOXES/COMBINER BOXES PER APPROPRIATE JURISDICTIONAL REQUIREMENTS.
E5. ALL PV ARRAYS SHALL BE EQUIPPED WITH DC GROUND FAULT PROTECTION.
E6. ANY AC COMPONENT SHALL MEET OR EXCEED THE AVAILABLE FAULT CURRENT CALCULATED AT THAT COMPONENT.
E7. ALL MODULES AND ANY RELATED ROOF MOUNTED METALLIC EQUIPMENT SHALL BE PROPERLY GROUNDED.
E8. DC EQUIPMENT SHALL BE 600VDC RATED MINIMUM.
E9. MARKINGS SHALL BE PROVIDED TO INDICATE THAT ALL CONTACTS OF THE DISCONNECT EQUIPMENT MIGHT BE ENERGIZED.
E10. INVERTER(S) SHALL CONTAIN A GROUND FAULT DETECTION AND INTERRUPTION DEVICE.
E11. ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS.
E12. THE POINT OF CONNECTION COMPLIES WITH APPLICABLE CEC/NEC.
E13. BACKFED SOLAR BREAKER(S) SHALL BE INSTALLED AT THE OPPOSITE END OF THE CIRCUIT OR FURTHEST AWAY FROM THE MAIN BREAKER.
E14. ALL WIRE, VOLTAGES, AMPERAGES AND EQUIPMENT IS SIZED ACCORDING TO TEMPERATURE DERATING AND LOCATION.
E15. ONLY COPPER (CU) CONDUCTORS SHALL BE USED. CONDUCTORS SHALL BE STRANDED OR SOLID WITH PROPERLY RATED CONNECTORS.
E16. DISCONNECT SHALL BE WIRED SO NO BLADES ARE ENERGIZED
E17. ALL MODULES AND RACKING SHALL BE GROUNDED USING 2703 UL LISTED RAIL INTEGRATED GROUNDING SYSTEM OR WITH TIN PLATED DIRECT BURIAL RATING LAY IN LUGS USING STAINLESS STEEL HARDWARE, STAR WASHERS, AND THREAD FORMING BOLTS OR WEEBS.
E18. ALL EQUIPMENT SHALL BE GROUNDED, INCLUDING BONDING JUMPERS WHERE NECESSARY ACROSS RAIL SPLICE PLATES TO BOND INDIVIDUAL PIECES OF RAIL THAT ARE CONNECTED AS AN EXPANSION SPLICE.

5' EXTERIOR, 2-1/2" EMT AC CONDUIT
(4)#4/0 CU THHN CONDUCTORS
(1)#1 CU THHN GROUND

TO UTILITY GRID
120/240V
THREE PHASE
BI-DIRECTIONAL
UTILITY METER

MOUNTS AND EQUIPMENT
ENCLOSURES GROUNDED
TO MAIN PANEL GROUND (E) UFER GND

250' TRENCH, 24" DEEP,
2-1/2" PVC SCH. 40 AC CONDUIT
(4)#4/0 CU THHN CONDUCTORS
(1)#1 CU THHN GROUND

(N)225A 240V AC DISCONNECT
200A FUSES, 3-POLE, LOCKABLE
KNIFE BLADE, NEMA 3R 6.3 &
NEC690.17

LINE SIDE TAP W/
IRREVERSIBLE
CONNECTORS

(N) 75 KVA TRANSFORMER
INSIDE OLD WELL HOUSE

120/240V
3PHASE

120/208V
3PHASE

2' EXTERIOR, 2-1/2" EMT AC CONDUIT
(4)#4/0 CU THHN CONDUCTORS
(1)#1 CU THHN GROUND

(E) 120/208V 3PHASE 200A
PANEL W/ 200A MCB
(N) 2- 120A PV BREAKERS
INSIDE OLD WELL HOUSE

PER BREAKER
5' EXTERIOR/INTERIOR 1-1/2" EMT AC CONDUIT
(4)#2 CU THNN CONDUCTORS
(1)#8 CU THNN GROUND
INSIDE OLD WELL HOUSE

PER INVERTER

PTC RATING IS: 364.10W					
72	x 364.1	x 0.965	/ 1000 =	25.298	KW-AC (CEC)
72	x 364.1	/ 1000 =	26.215	KW-DC (PTC)	

VOLTAGE DROP % CALCULATION

VD=100' x 2 x 1.24 x 10.61/1000= 2.63V
% =2.63V / 240V = 0.0110 1.10%

ARRAY RATING

VOC: 271.80 VDC
VMP: 226.20 VDC
ISC: 45.00 ADC
IMP: 42.44 ADC

CEC 690.8(A)(1),(B)(1)EACH

ISC = 11.25 x 1.25 x 1.25 = 17.58A
INVERTER DC MAX. INPUT CURRENT = 36.0A
voc =45.3 x 1.13 x 6 = 307.1V/DC
INVERTER MAX. INPUT VOLTAGE = 550 V/DC

SUB PANEL PV-CB SIZE = 120A

83.4A x 1.25 = 104.25A

CALCULATIONS FOR CURRENT CARRYING
CONDUCTORS:
DC REQUIRED CONDUCTOR AMPACITY

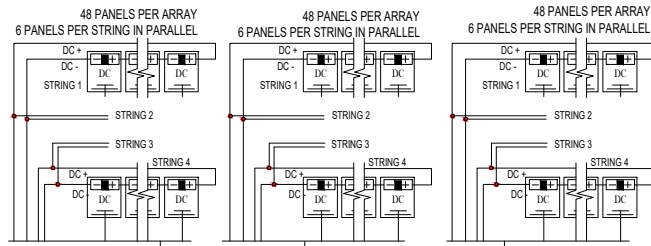
11.25 x 1.25 x 1.25 = 17.58A
AWG #10 DERATED AMPACITY:
40 X 0.58 X 0.8 = 18.6A
18.56A ≥ 17.58A

THEREFORE DC WIRE SIZE IS VALID

CALCULATIONS FOR CURRENT CARRYING
CONDUCTORS:
AC REQUIRED CONDUCTOR AMPACITY

83.4A x 1.25 = 104.25A
AWG #2 DERATED AMPACITY:
155 X 0.91 X 0.8 = 112.8A
112.84A ≥ 104.25A

THEREFORE AC WIRE SIZE IS VALID



PER ARRAY
100' TRENCH, 24" DEEP,
2" PVC SCH. 40 DC CONDUIT
(4)#6 CU THHN CONDUCTORS
(1)#6 CU THHN GROUND

PER BATTERY
1-1/4" EMT DC CONDUIT
(2)#2/0 CU THWN-2 CONDUCTORS
(1)#4 CU THWN-2 NEUTRAL
90°C WET & DRY

SOL-ARK
47.7kWh
HV (9)
5.3kWh
BATTERIES

SOL-ARK
47.7kWh
HV (9)
5.3kWh
BATTERIES

SOL-ARK
47.7kWh
HV (9)
5.3kWh
BATTERIES

SOL-ARK
47.7kWh
HV (9)
5.3kWh
BATTERIES

INSIDE OLD WELL HOUSE

GUTTER - WIRING MANAGEMENT

INSIDE OLD WELL HOUSE

PER INVERTER
1" EMT DC CONDUIT
(4)#6 CU THNN CONDUCTORS
(1)#6 CU THNN NEUTRAL
(1)#6 CU THNN GROUND

4 STRING PER INVERTER

UNGROUND
INVERTER#2
SOL-ARK
30K-3P-208V[120/208V]
MAX. EFFIC. 96.5%
1A 550VDC
EGC
INTEGRATED
DC DISCONNECT

UNGROUND
INVERTER#1
SOL-ARK
30K-3P-208V[120/208V]
MAX. EFFIC. 96.5%
1A 550VDC
EGC
INTEGRATED
DC DISCONNECT

UMSTEAD ELECTRIC

MODULES / INVERTER(S) / OPTIMIZERS

(144)HYUNDAI SOLAR HIS-S400YH(BK) 400W
(2)SOL-ARK C&I HYBRID 30K-3P-208V
(36)DEKA DD5300 HIGH VOLTAGE
DURATION 5.3 BATTERIES

SYSTEM SIZE:

57.600 KW DC (STC)
52.430 KW DC (PTC)
50.857 KW AC (CEC)

PHONE# 831 214 3497

PROJECT:

CARMELITE MONASTERY

27601 CA-1

CARMEL, CA 93923

OCCUPANCY TYPE: A GROUP:A-3

APN# 243-101-002-000

36.523111349, -121.9228852910

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602 S 1ST ST.

KING CITY, CA 93930

PHONE: 831 214 3497

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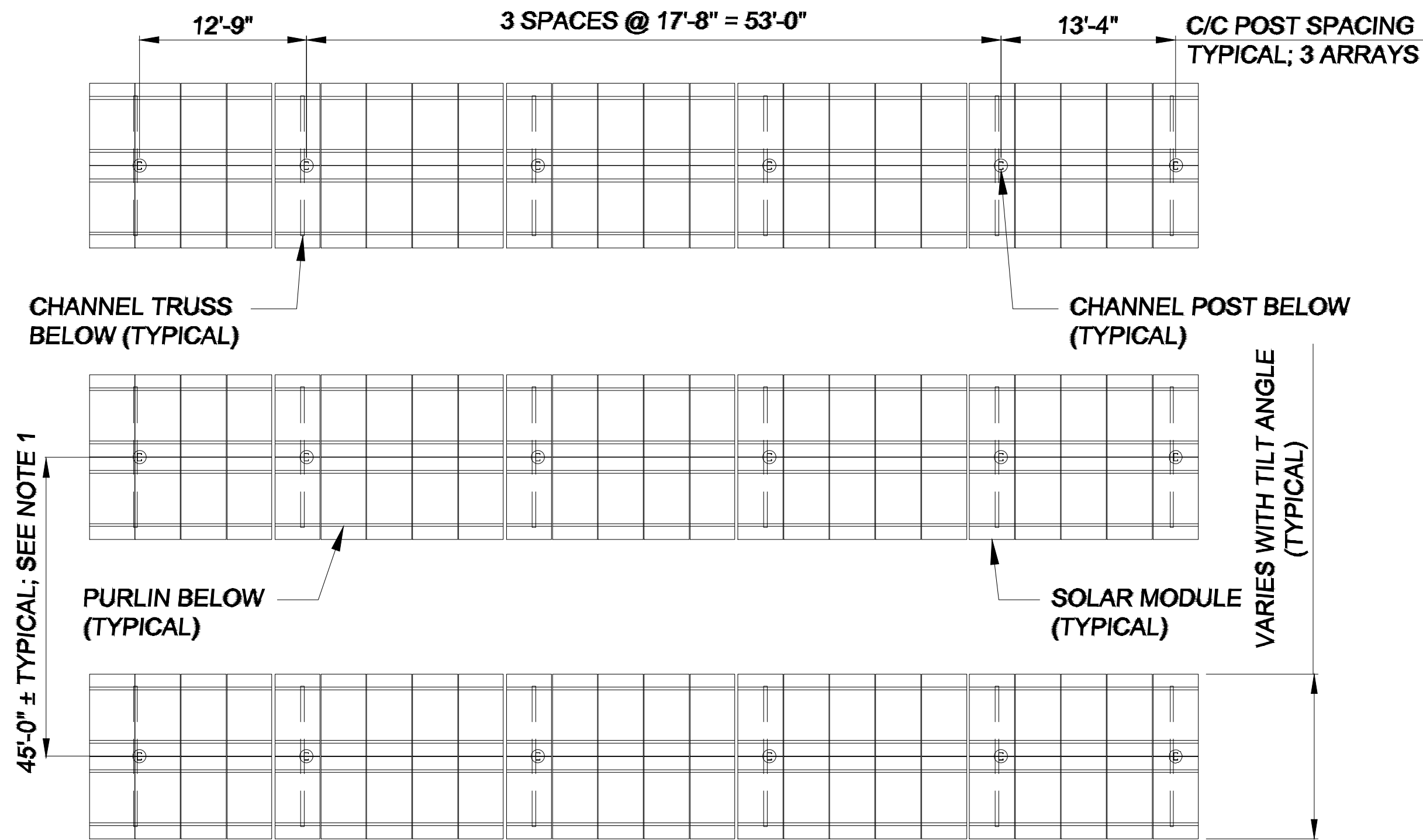
STATE LICENSE #
778831

LICENSE CLASS
C-10

EXPIRATION DATE
05/31/2026

E5

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- NOTES**
- 1. C/C POST DIMENSION AS SHOWN MAY BE FIELD MODIFIED; HOWEVER, CONSIDERATION SHOULD BE GIVEN TO SHADING
 - 2. WEST FACING POST SHOWN IN RACKING SIDE ELEVATION VIEW. EAST FACING POST SIMILAR
 - 3. BOTTOM OF POST SHALL BE NO MORE THAN 2'-0" ABOVE BOTTOM OF CONCRETE FOUNDATION
 - 4. FOUNDATION BORINGS SHALL BE MADE INTO UNDISTURBED SOIL
 - 5. ALL CONCRETE SHALL BE AIR ENTRAINED (5% TO 8%), HAVE A 3 1/2" TO 4 1/2" SLUMP, AND OBTAIN A MINIMUM COMPRESSIVE STRENGTH (1c) OF 4,000 PSI AT 28 DAYS
 - 6. SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION GUIDE AND SPECIFICATIONS
 - 7. DRAINAGE SHALL BE DIVERTED AWAY FROM POSTS. POSTS SHALL NOT BE INSTALLED IN SWALES, DRAINAGE AREAS, OR WHERE WATER MAY BE ALLOWED TO FLOW OR STAND
 - 8. EXISTING GRADE SHALL BE NOMINALLY FLAT WITH NO MORE THAN 5" SLOPE
 - 9. DAMAGED COMPONENTS SHALL BE REJECTED AND REPLACED
 - 10. 55 DEGREES (FROM HORIZONTAL) SHALL BE THE MAXIMUM TILT IN THE WINTER AND 15 DEGREES (FROM HORIZONTAL) SHALL BE THE MINIMUM TILT IN THE SUMMER. THE SYSTEM SHALL BE ADJUSTED THROUGHOUT THE YEAR BETWEEN THESE TWO TILT ANGLES
 - 11. SEE SHEETS C1 THROUGH C3 FOR STANDARD CONNECTION DETAILS AND NOTES

TOTAL MODULE COUNT: 144
RACKING PLAN VIEW
SCALE: NONE

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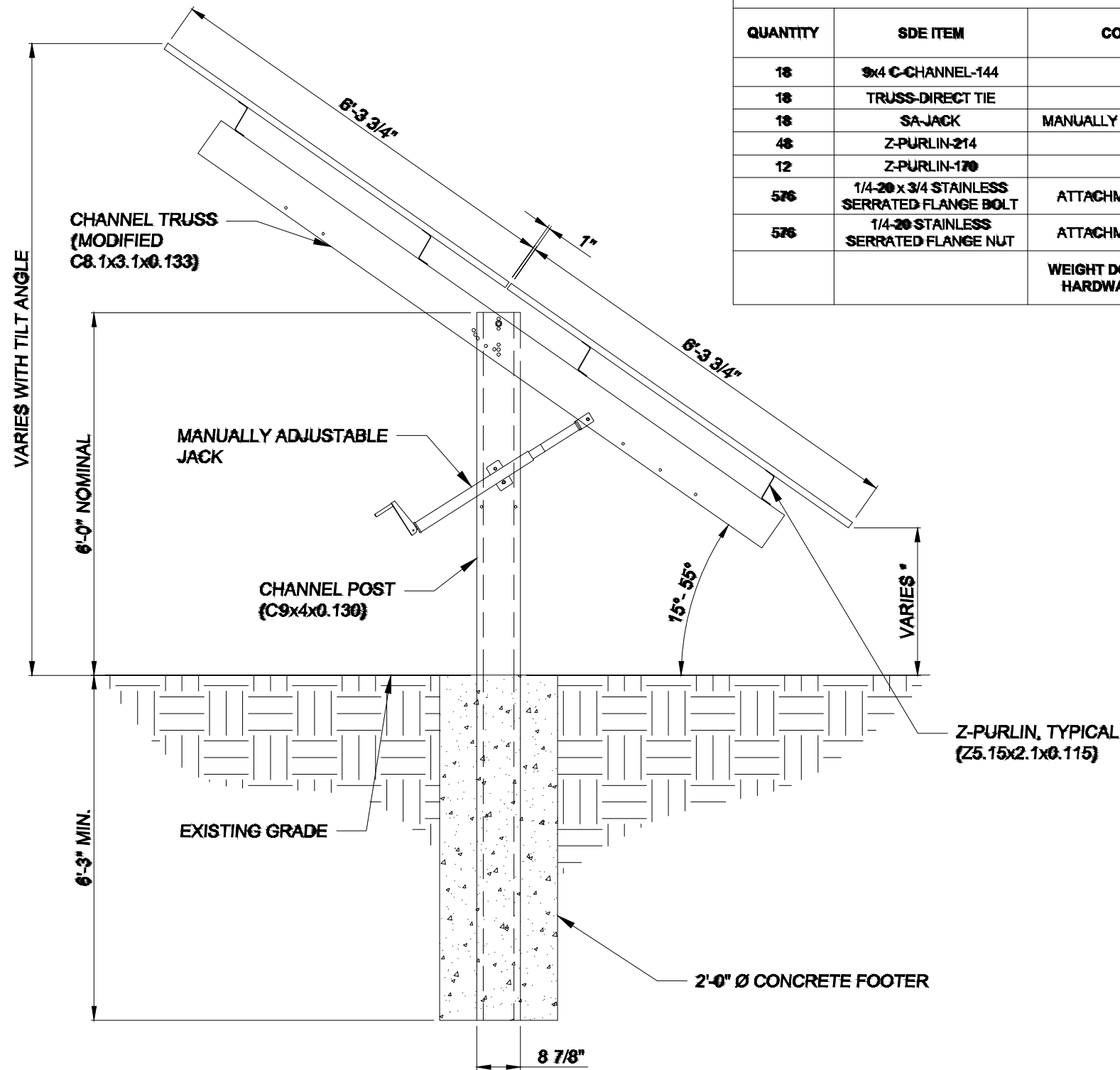
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DURATION 5.3 BATTERIES

SYSTEM SIZE:
57.600 KW DC (STC)
52.430 KW DC (PTC)
50.857 KW AC (CEC)

UMSTEAD ELECTRIC

S6



RACKING SIDE ELEVATION VIEW
SCALE: NONE

TRUSS TOP AND BOTTOM FLANGES
NOT SHOWN FOR CLARITY

* APPROX. 1'-4" @ 55 DEGREES
APPROX. 4'-10" @ 15 DEGREES

BILL OF MATERIALS				
QUANTITY	SDE ITEM	COMPONENT	COMPONENT WEIGHT (LBS)	TOTALS (LBS)
18	3x4 C-CHANNEL-144	POST	95	1710
18	TRUSS-DIRECT TIE	TRUSS	75	1350
18	SA-JACK	MANUALLY ADJUSTABLE JACK	15	270
48	Z-PURLIN-214	PURLIN	62	2976
12	Z-PURLIN-170	PURLIN	49	588
576	1/4-20 x 3/4 STAINLESS SERRATED FLANGE BOLT	ATTACHMENT HARDWARE	NA	-
576	1/4-20 STAINLESS SERRATED FLANGE NUT	ATTACHMENT HARDWARE	NA	-
		WEIGHT DOES NOT INCLUDE HARDWARE OR CLAMPS	TOTAL WEIGHT (LBS)	6894

UMSTEAD ELECTRIC

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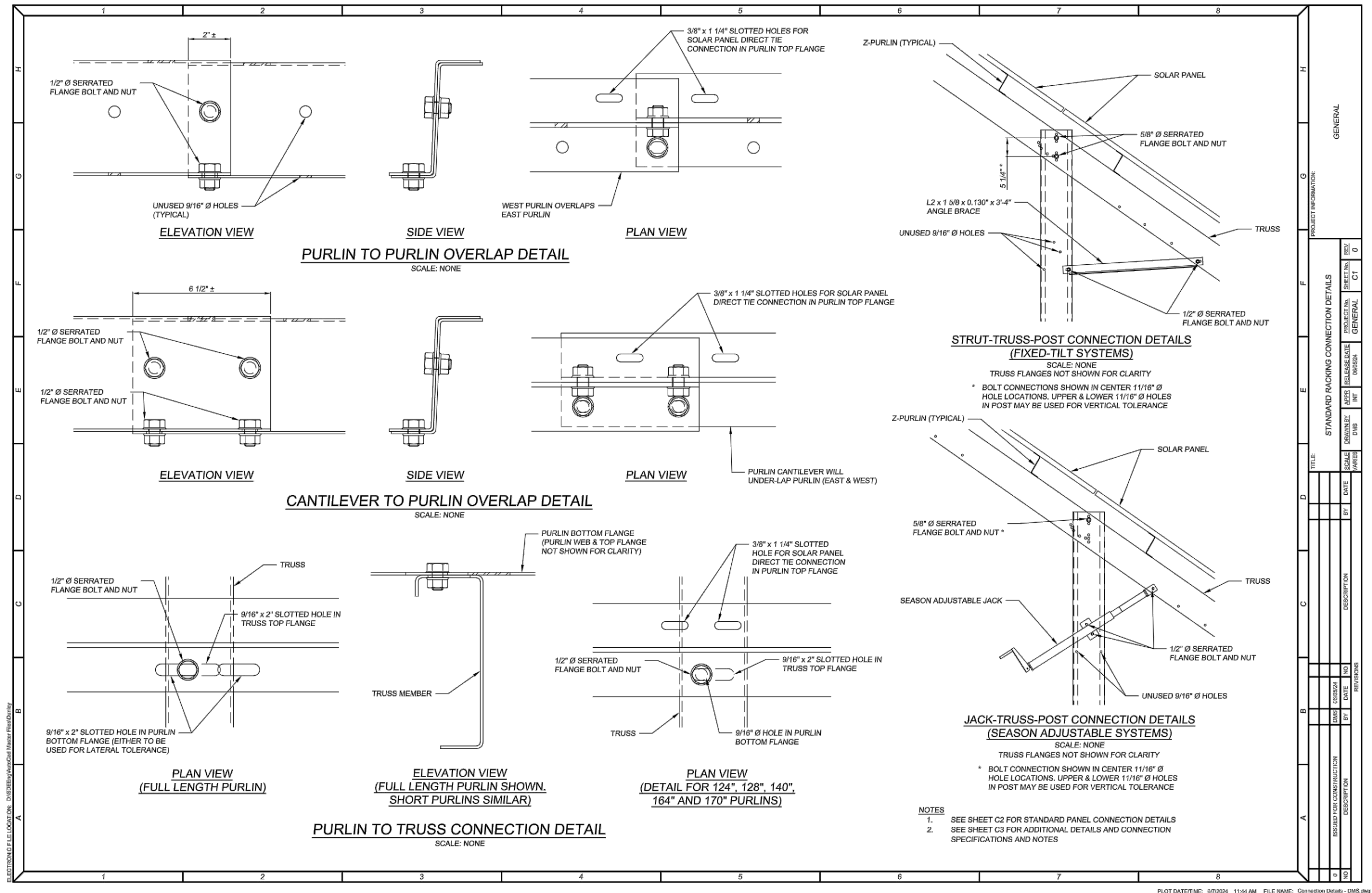
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DURATION 5.3 BATTERIES

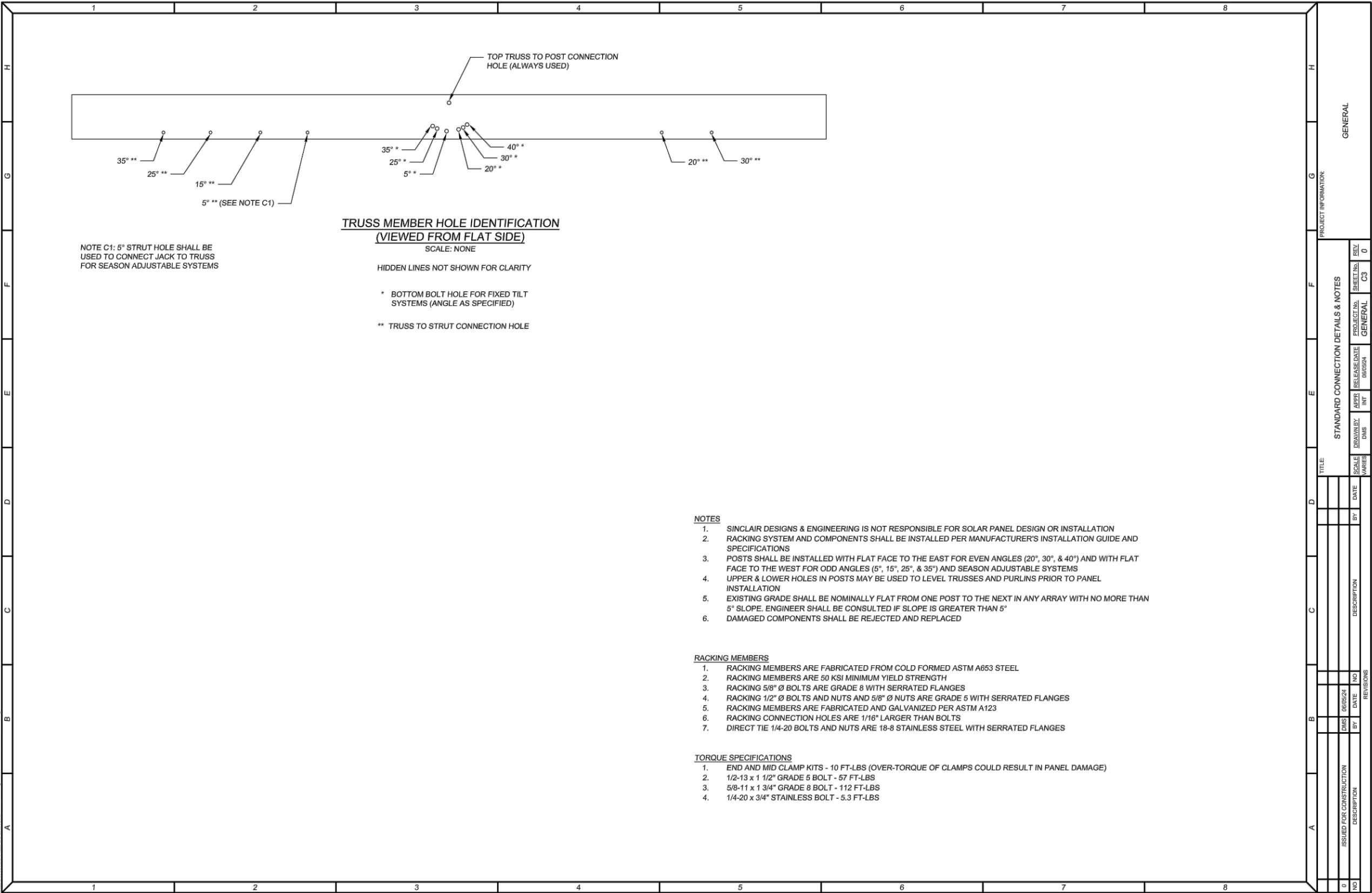
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S7

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ELECTRONIC FILE LOCATION: DISCREPANCY/Modular Files/Duplidy



PLOT DATETIME: 6/7/2024 8:10 AM FILE NAME: Connection Details - DMS.dwg

UMSTEAD ELECTRIC

MODULES / INVERTER(S) / OPTIMIZERS

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DURATION 5.3 BATTERIES

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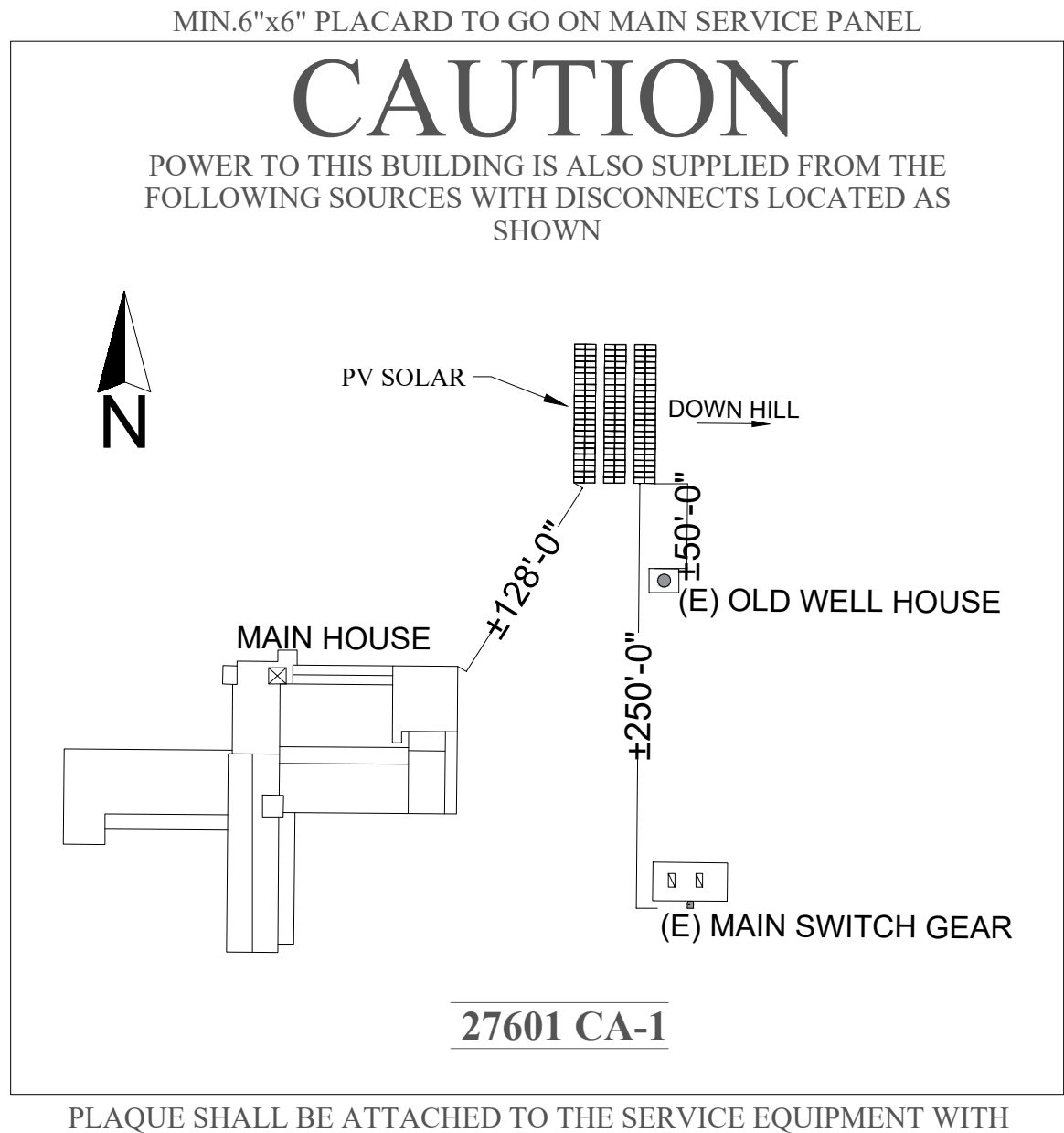
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S10

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- NOTES
- ARTICLES 690 AND 705 MARKINGS SHOWN HEREON
 - ALL MARKINGS SHALL CONSIST OF THE FOLLOWING:
 - UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING
 - RED BACKGROUND COLOR WITH WHITE TEXT AND LINE WORK
 - ARIAL FONT
 - ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED.
 - SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT USING PERMANENT ADHESIVE, POP-RIVETS, OR SCREWS



WARNING
INVERTER OUTPUT CONNECTION DO NOT
RELOCATE THIS OVER CURRENT DEVICE

**CAUTION: SOLAR ELECTRIC
SYSTEM CONNECTED**

CEC690.15,CEC690.13(B)
BLACK TEXT WITH
YELLOW BACKGROUND

**WARNING:
PHOTOVOLTAIC POWER SOURCE**

CEC690.13.G3&CEC690.13.G.4
TO BE PLACED AT LEAST EVERY
10FT WHITE LETTERS WHITE
RED BACKGROUND.

SOLAR DISCONNECT

CEC690.13.(B)
WHITE LETTERS WHITE
RED BACKGROUND.

WARNING

ELECTRICAL SHOCK HAZARD
A GROUNDED FAULT IS INDICATED,
NORMALLY GROUNDED CONDUCTORS
MAY BE UNGROUNDED AND ENERGIZED

CEC690.35(F)
BLACK OUTLINE WITH BLACK TEXT /
WARNING IS IN BLACK TEXT AND
ORANGE BACKGROUND



PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OPERATING CURRENT **L.S.T.** AMPS
AC NOMINAL OPERATING VOLTAGE **240** VOLTS

CEC 690.54
WHITE LETTERS WITH RED BACKGROUND

WARNING

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

CEC690.17(E)
BLACK OUTLINE WITH BLACK TEXT /
WARNING IS IN BLACK TEXT
AND ORANGE BACKGROUND

WARNING

ELECTRICAL SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNGROUNDED AND MAY BE
ENERGIZED

CEC690.35(F)
BLACK OUTLINE WITH BLACK TEXT /
WARNING IS IN BLACK TEXT AND
ORANGE BACKGROUND

UMSTEAD ELECTRIC

MODULES / INVERTER(S) / OPTIMIZERS

(144)HYUNDAI SOLAR HIS-S400YH(BK) 400W
(2)SOL-ARK C&I HYBIRD 30K-3P-208V
(36) DEKA DD5300 HIGH VOLTAGE
DURATION 5.3 BATTERIES

SYSTEM SIZE:

57.600 KW DC (STC)
52.430 KW DC (PTC)
50.857 KW AC (CEC)

PROJECT: PHONE# 831 214 3497

CARMELITE MONASTERY

27601 CA-1

CARMEL, CA 93923

OCCUPANCY TYPE: A GROUP:A-3

APN# 243-101-002-000

36.523111349, -121.9228852910

UMSTEAD ELECTRIC

602 S 1ST ST.

KING CITY, CA 93930

PHONE: 831 214 3497

CONTRACTOR: TED UMSTEAD

STATE LICENSE # 778831

EXPIRATION DATE 05/31/2026

B11

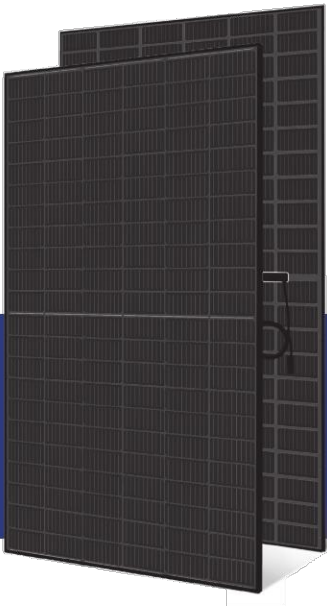
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HD HYUNDAI SOLAR MODULE

YH
SERIES

Dual Black Max

HiS-S400YH(BK) HiS-S405YH(BK) HiS-S410YH(BK)



Bifacial Cells
132



More Power
Generation
In Low Light



All black Module
For Sleek Design
(Black Meshed
T-Backsheet)



Hyundai Cell



Maximized Power
Generation

Increased total power output through capturing light from both the front and back of Bifacial solar modules. Back side power gain up to 25% of the front output depending on PV system design.



Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow(5,400Pa) and strong wind(5,400Pa).



Half-Cut &
Multi-Wire Technology

Improved current flow with half-cut technology and 9 thin wiring technology allows high module efficiency of up to 20.5%. It also reduces power generation loss due to micro-cracks.



UL / VDE Test Labs

HD Hyundai's R&D center is an accredited test laboratory of both UL and VDE.



Anti-LID / PID

Both LID(Light Induced Degradation) and PID(Potential Induced Degradation) are significantly reduced to ensure higher actual yield during lifetime.



Reliable Warranty

Global brand with powerful financial strength provide reliable 25-year warranty.

Hyundai's Warranty Provisions



- 25-Year Product Warranty
- Materials and workmanship



- 25-Year Performance Warranty
- Initial year : 98.0%
- Linear warranty after second year: with 0.54%p annual degradation, 85.0% is guaranteed up to 25 years

Certification



UL61730 certified by UL, Type 1(for Fire Class A)

About HD Hyundai Energy Solutions

Established in 1972, HD Hyundai Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, HD Hyundai is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HD, HD Hyundai Energy Solutions has strong pride in providing high-quality PV products to more than 3,000 customers worldwide.



Electrical Characteristics

		Mono-Crystalline Type(HiS-S_YH(BK))		
		400	405	410
Nominal Output (P _{mp})	W	400	405	410
Open Circuit Voltage (V _{oc})	V	45.3	45.6	45.9
Short Circuit Current (I _{sc})	A	11.25	11.33	11.40
Voltage at P _{max} (V _{mp})	V	37.7	37.9	38.1
Current at P _{max} (I _{mp})	A	10.61	10.69	10.76
Module Efficiency	%	20.0	20.3	20.5
Cell Type	-	Mono crystalline, 9busbar		
Maximum System Voltage	V	1,500		
Temperature Coefficient of P _{max}	%/K	-0.347		
Temperature Coefficient of V _{oc}	%/K	-0.268		
Temperature Coefficient of I _{sc}	%/K	+0.032		

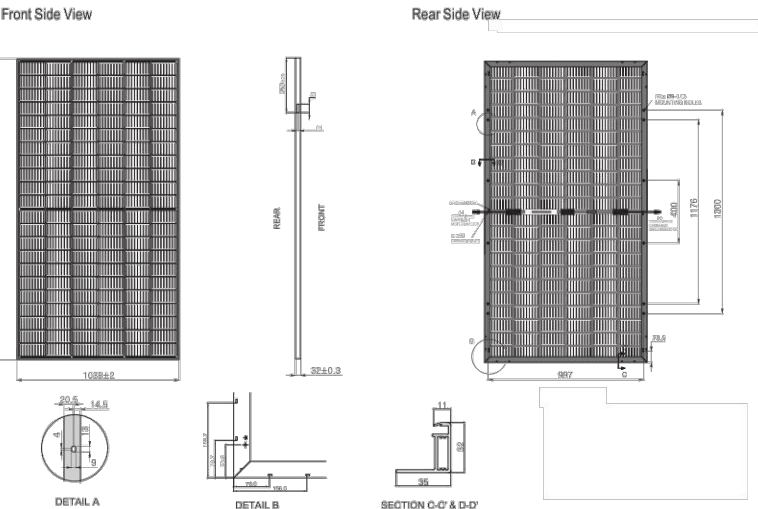
*All data at STC / Measurement tolerances P_{mp} ±3%; I_{sc} ; V_{oc} ±3%. Above data may be changed without prior notice.

Additional Power Gain from rear side		400	405	410
5%	W	415	425	431
15%	W	454	466	472
25%	W	494	506	513

Mechanical Characteristics

Dimensions	75.7 in (L) x 40.9 in (W) x 1.3 in (H) (1,924mm x 1,038mm x 32mm)
Weight	Approx. 46.5 lbs (21.1 kg)
Solar Cells	132 half cut bifacial cells (2 parallel x 66 half cells in series)
Output Cables	Cable : 47.2 in (1,200mm) / 4mm ² Connector : MC4 genuine connector
Junction Box	IP68, weatherproof, IEC certified (UL listed)
Bypass Diodes	3 bypass diodes to prevent power decrease by partial shade
Construction	Front : 3.2mm, High Transmission, AR Coated Tempered Glass Encapsulant : EVA Back Sheet : Black Meshed Transparent Backsheet
Frame	Anodized aluminum alloy type 6063

Module Diagram (unit : mm)

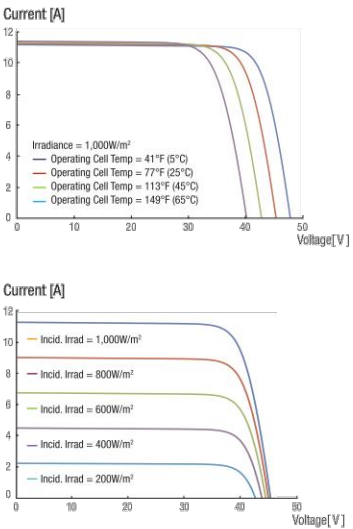


Installation Safety Guide

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temperature	113.9°F ± 3.6°F (45.5°C ± 2°C)
Operating Temperature	-40°F ~ + 185°F (-40°C ~ + 85°C)
Maximum System Voltage	DC 1,500V
Maximum Reverse Current	20A
Maximum Test Load	Front 5,400 Pa (113 psf) Rear 5,400 Pa (113 psf)

I-V Curves



UMSTEAD ELECTRIC

MODULES / INVERTER(S) / OPTIMIZERS

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PHONE# 831 214 3497

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B12



Sol-Ark Commercial Energy Solutions

A global energy technology leader with over 6 generations of hybrid inverters

Deep engineering expertise in smart energy solutions

A track record of results. For over a decade, Sol-Ark has been solving complex energy challenges with innovation and technology

Powered by a vast ecosystem including thousands of distributors, installers, EPCs, integrators, and battery manufacturers

Trusted by global Fortune 500 companies in telecommunications, retail, big tech, restaurants, and the largest space agency in the world

DATASHEET

30K-208V

C&I Hybrid Inverter

Inverter Model Name:

30K-3P-208V

Sol-Ark Product SKU:

30K-3P-208V

Input Data (PV)	
Max. Allowed PV Power (STC)	39,000W
MPPT Voltage Range	150-500V
Startup Voltage	180V
Max. Input Voltage ¹	550V
Max. operating input current per MPPT	36A
Max. short circuit current per MPPT	55A
No. of MPP Trackers	4
No. of PV Strings per MPPT	2
Max. AC Coupled Input Power	30,000W

Output Data (AC)	
Nominal AC Voltage (3Φ)	120/208V
Grid Frequency	50 / 60Hz
Real Power, max continuous (3Φ)	30,000W
Max. Output Current	83.4A
Peak Apparent Power (10s, off-grid, 3Φ)	45,000VA
Max. Grid Passthrough Current (10min)	200A
Continuous Grid Passthrough Current	180A
Power Factor Output Range	+/- 0.8 adjustable
Backup Transfer Time	5ms (adjustable)
CEC Efficiency	96.5%
Max Efficiency	97.5%
Design (DC to AC)	Transformerless DC
Stackable	Up to 10 in parallel

Battery Input Data (DC)	
Battery Chemistry	Lithium iron phosphate
No. of Battery Inputs	2
Battery Input Terminal Rating	50A
Nominal DC Voltage	≥300V
Operating Voltage Range	160 - 500V
Battery Capacity Range	50 – 9900Ah
Max. Battery Charge / Discharge Current	100A (50A per input)
Charge Controller Type	3-Stage with Equalization
Grid to Battery Charging Efficiency	96.0%
Automatic Generator Start (AGS)	2 Wire Start - Integrated
BMS Communication ²	CANBus & RS485

General Data	
Dimensions (H x W x D)	894 x 528 x 295 mm (35.2 x 20.8 x 11.6 in)
Weight	80 Kg / 176 lb.
Enclosure	IP65 / NEMA 3R
Ambient Temperature	-40 – 60°C, >45°C Derating
Noise	< 30 dB @ 25°C (77°F)
Idle Consumption - No Load	60W
Communication and Monitoring	Wi-Fi & LAN Hardware Included
Warranty ³	10 Years (15 Years)

Category	
Certifications and Listings (Grid Support Interactive Inverter)	UL 1741-2021 (UL1741SB), CSA C22.2 No 107.1-16, IEEE 1547-2018 & 1547a-2020 & 1547.1-2020 (SRD V2.0), UL 1741 CRD-PCS, UL1699B, CEC, SGIP ⁴
PV DC Disconnect Switch – NEC 240.15	Integrated
Ground Fault Detection – NEC 690.5	Integrated
PV Rapid Shutdown Control – NEC 690.12	Integrated
PV Arc Fault Detection – NEC 690.11	Integrated
PV Input Lightning Protection	Integrated
PV String Input Reverse Polarity Protection	Integrated
Surge Protection	DC Type II / AC Type III

1. See Installation Guide for more details on sizing array strings. The highest input voltage is based on the open-circuit voltage of the array at the minimum design temperature.
2. Active BMS communication is required for all lithium batteries. A list of compatible batteries can be found on our website.
3. 5-year extension is available for purchase by registered Gold level installers only.
4. Pending listing.

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BY MK BATTERY
DUAL VOLTAGE DD5300



Lithium Energy Storage System

DD5300

SINGLE MODULE LV/HV
DD5300



BASIC PARAMETERS	DD5300 LV/HV
Cell Type	LiFePO4 Lithium Iron Phosphate (LFP)
Battery System Capacity	5.3 kWh
Single Module Nominal Voltage	52 Vdc
Application	Dual Voltage LV/HV
Modules Expandability	HV-16 in series (up to 9 cluster in parallel with DD21002 HVBOX) LV-15 modules in parallel without DD21001 Intelligent Can Bus Combiner
Cluster Net Capacity	556.5 kWh (LV) / 763.2 kWh (HV)
Voltage Range	48.5-1000 Vdc
Net Capacity	110 Ah
Usable Capacity	100 Ah
Dimensions L x W x H (mm)	593 x 470 x 163
Weight	126.3 lb (57.3 kg)
Charge / Discharge Current	110 A / 110 A (LV)
Discharge Current Peak	200 A (5 sec)
Depth of Discharge	Up to 100%
Communication Port	RS485, CAN, 232, (Wi-Fi external device)
HV String Modules	Up to 16
Discharge Temperature	-4 ~ +131°F (-20 ~ +55°C)
Charge Temperature	+14 ~ +131°F (-10 ~ +55°C)
Shelf Temperature	+14 ~ +122°F (-10 ~ +50°C)
Humidity	5% ~ 95%
Altitude	<3000 m
Design life	15 Years (77°F / 25°C)
Expected Cycle Life @ STC	Up to 7000 @ 86°F (30°C) (Testing is 1°C @ 100% DoD with at least 80% residual capacity)
Standards	UL 1973 IEC62619 CE UN38.3
Features	Pre-Charge + Fuse LV + Fuse HV + Auto Contactor + Dual BMS + Multi BMS FW Management
	Suitable for low voltage and high voltage systems, 4 protection levels with DD21002 HV BOX for HV application, BMS with real time balancing, adaptive charge/discharge CAN logic, 3 steps adaptive charging logic, 2xDI/DO programmable, mobile app for monitoring and remote control, update, debug, data save

UMSTEAD ELECTRIC

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57.6 Kw Solar System
with 81.92 Kwh Battery

Carmelite Monastery

27601 CA-1
Carmel, CA 93923

APN: 243-101-002-000

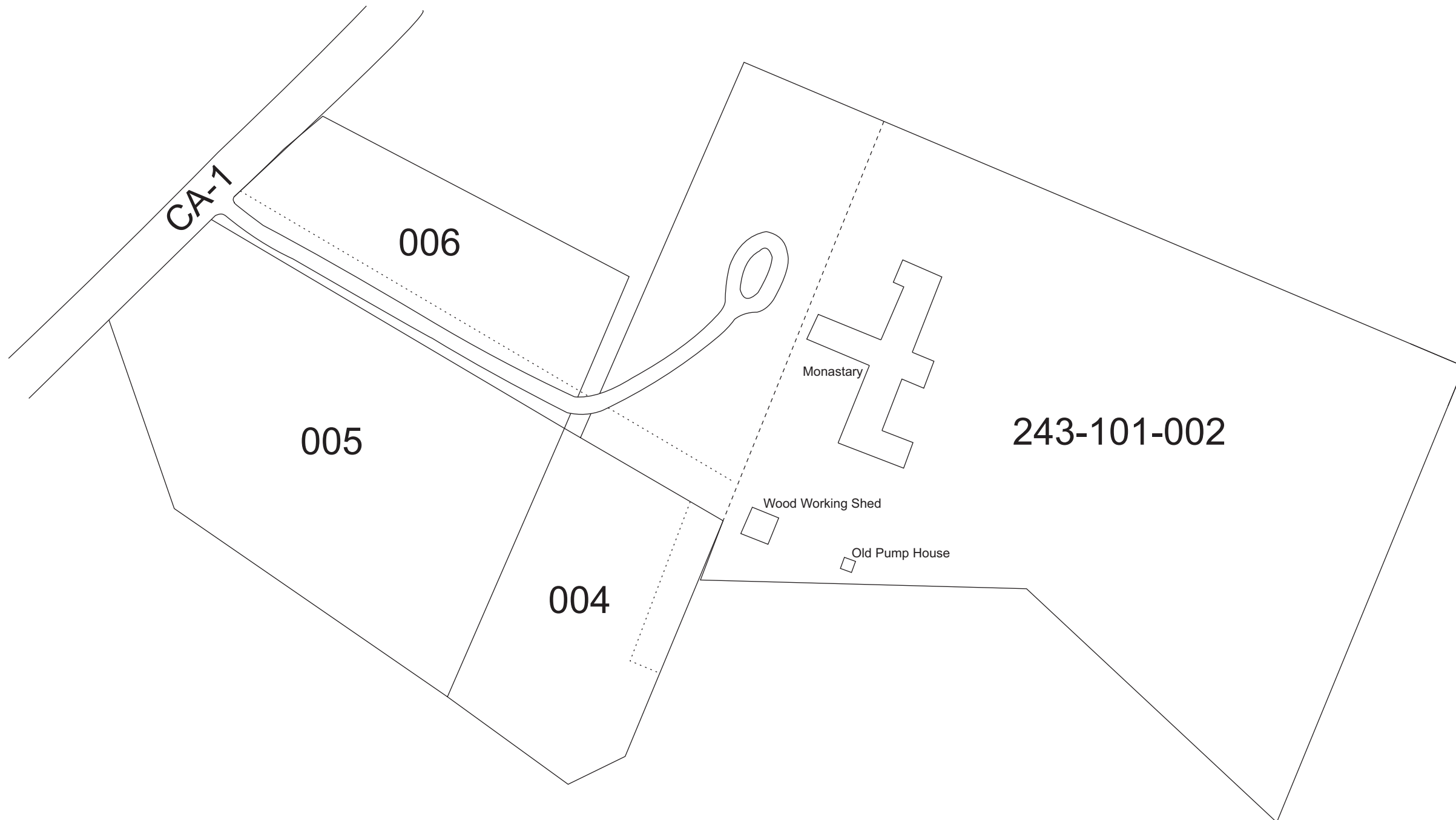
OWNER:
Carmelite Monastery
27601 CA-1
Carmel CA 93923

Design and Installed By

Umstead Electric
PO Box 2160
King City, CA 93930
(831) 385-0411



CA Lic# 778831
ted@umsteadelectric.com



Lot Size 548,420 sq ft
Bldg Size 13,071 sq ft



57.6 Kw Solar System
with 81.92 Kwh Battery

Carmelite Monastery

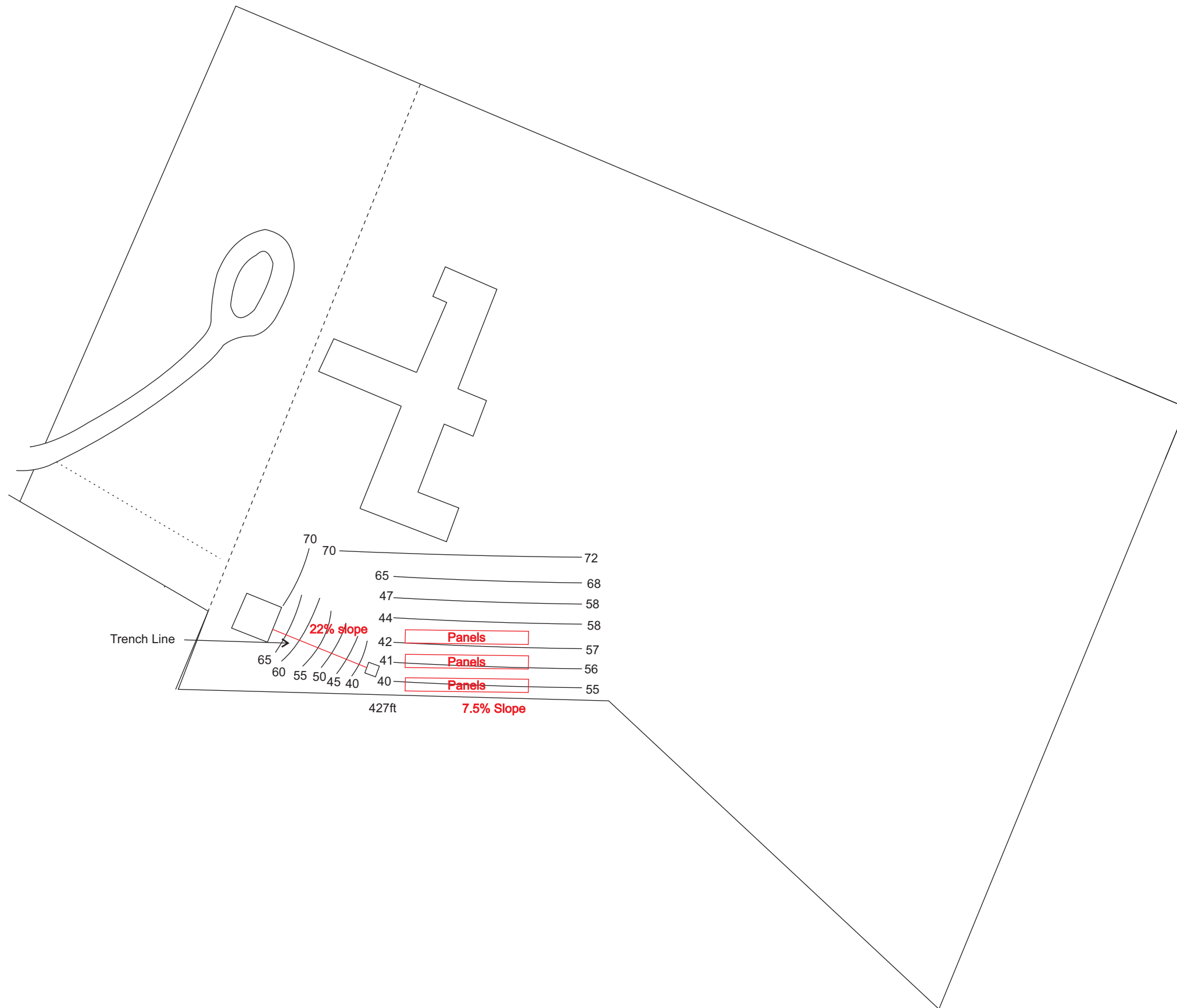
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