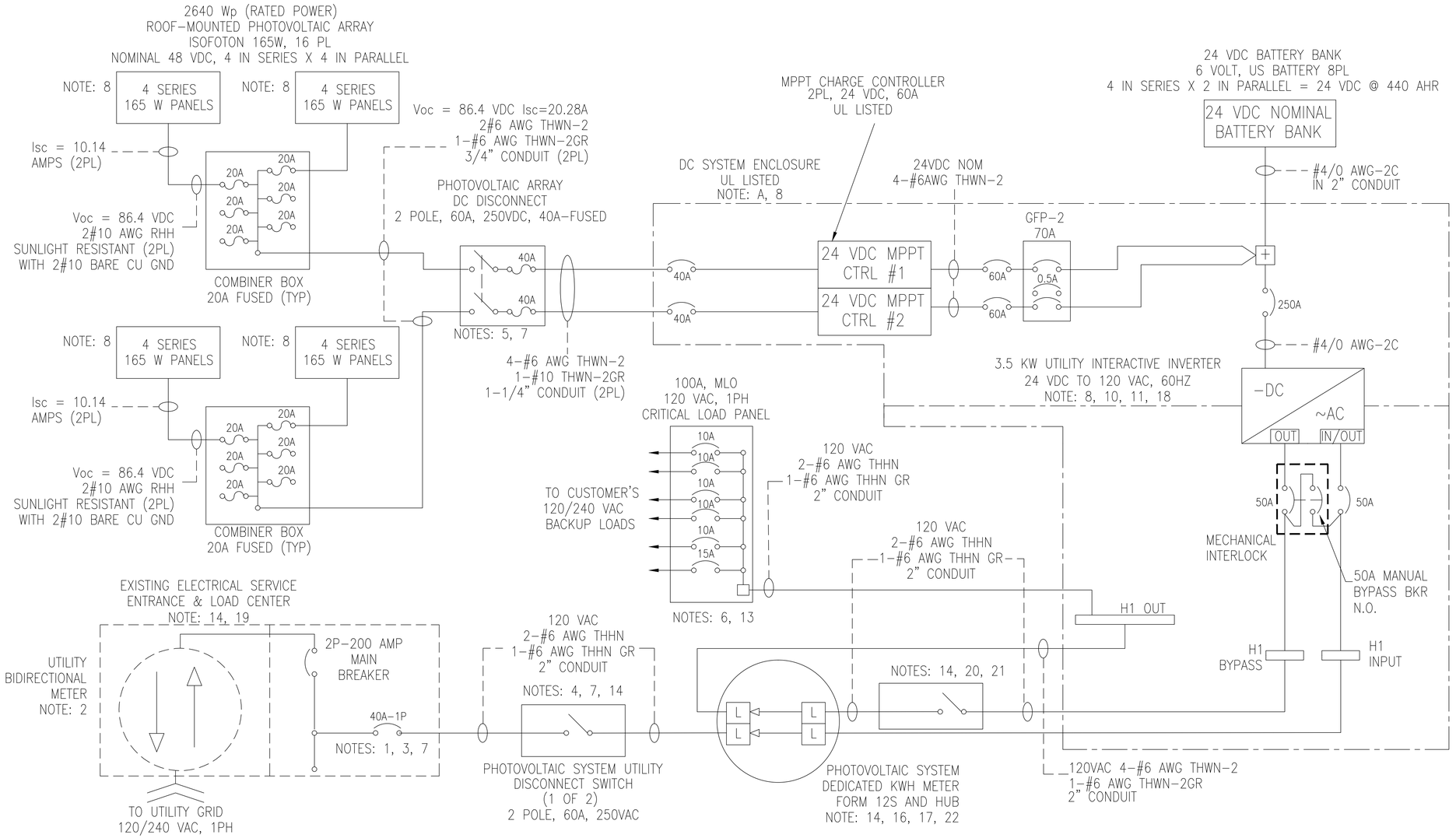


KEY NOTES:

1. LABEL "INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE." LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(D)(7).
2. BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY (WHEN REQUIRED).
3. LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(D)(4) AND "BREAKERS ARE BACKFED" PER NEC690-64(B)(5). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
4. LABEL PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH(1 OF 2)".SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE OPEN & ACCESSIBILITY PER UTILITY REQUIREMENTS AND CONFIRM TO NEC 705.22.
6. LABEL"WARNING: THIS SUB-PANEL FED FROM MULTI POWER PRODUCTION SOURCES."
5. LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH"PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53 SWITCH TO BE LOCKED PER NEC 690.7(D).
8. INVERTER TO BE LISTED TO UL1741
9. METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31 (E).
7. PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAYBE ENERGIZED IN THE OFF POSITION.
10. GROUND FAULT PROTECTION PROVIDED IN DC/AC INVERTER.
11. GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
12. LABEL "MAIN BREAKER HAS BEEN DE-RATED PER NEC 705.12(D)(2)" & " MAX____AMPS"
13. OPTIONAL CRITICAL LOAD SUB-PANEL ON THE OUTPUT OF THE INVERTER IN USE [NOTE: A SEPARATE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH (2 OF 2) WILL BE REQUIRED ON THE INVERTER OUTPUT FEEDING THE CRITICAL LOAD SUB-PANEL. WHERE THE UTILITY DOES NOT HAVE 24-HR UNRESTRICTED ACCESS TO THE CRITICAL LOAD SUB-PANEL]
14. EQUIPMENT SHALL BE TESTED, LISTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
15. INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM CUSTOMER FUSED DISCONNECT". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22
16. LABEL"PHOTOVOLTAIC SYSTEM METER". METER ENCLOSURE & SOCKET PROVIDED & INSTALLED BY CUSTOMER PER APS ESRM. ELECTRO-MECHANICAL METER PROVIDED BY CUSTOMER.
17. CUSTOMER TO PROVIDE & INSTALL RING-TYPE METER SOCKET WITH NON-DETENTED FORM 12S ELECTROMECHANICAL METER WITH TERMINAL CONNECTIONS AS SHOWN UNTIL SUCH TIME THAT APS INSTALLS THE PRODUCTION METERS. LABEL METER SOCKET "CRITICAL LOAD SUB-PANEL METER " AND INCLUDE "UNI-DIRECTIONAL METER" LABEL ON THE METER SOCKET.
18. OPTIONAL INVERTER GENERATOR INPUT (GEN IN) NOT USED [NOTE: IF A BACKUP GENERATOR IS CONNECTED TO THE INVERTER, THEN A SEPARATE DISCONNECT SWITCH AND METER/METER SOCKET WILL BE REQUIRED ON THE GENERATOR OUTPUT SUBJECT TO APS REVIEW/APPROVAL.]
19. LABEL SES "WARNING: MULTI POWER PRODUCTION SOURCES INTERCONNECTED TO THIS ELECTRICAL SERVICE."
20. LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH (2 OF 2)".SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISIBLE OPEN & ACCESSIBILITY PER UTILITY REQUIREMENTS AND CONFIRM TO NEC 705.22.
21. PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH (2 OF 2)"IS REQUIRED IF CRITICAL LOAD SUB-PANEL IS NOT ACCESSIBLE BY APS.
22. A PERMANENT PLAQUE OR DIRECTORY DENOTING LOCATION OF PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH (2 OF 2), OR LOCATION OF ACCESSIBLE CRITICAL LOAD SUBPANEL SHALL BE REQUIRED AT CRITICAL LOAD SUBPANEL METER.

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2011 N.E.C.

GENERAL NOTE:

A. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE 2011 NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
B. DC ARRAY PANEL GROUND WIRES MUST BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690-4 (C).
C. FOLLOW MANUFACTURERS' SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS FOR ALL EQUIPMENT.
D. ARRAY DC WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
E. DC EQUIPMENT SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL DESIGN SHALL BE IN ACCORDANCE WITH THE NEC AND MANUFACTURER'S SPECIFICATIONS AND INSTALLATION SHALL BE IN ACCORDANCE WITH AHJ REQUIREMENTS.
F. PER 705.10 A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES ON OR IN THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED.

1234 South Main Street
Any City, Arizona 85123
Tel: 602-555-5555

APPROVALS	DATE
DRAWN ABC	11-4-2016
CHECKED	
ENGINEER	
REV. A	

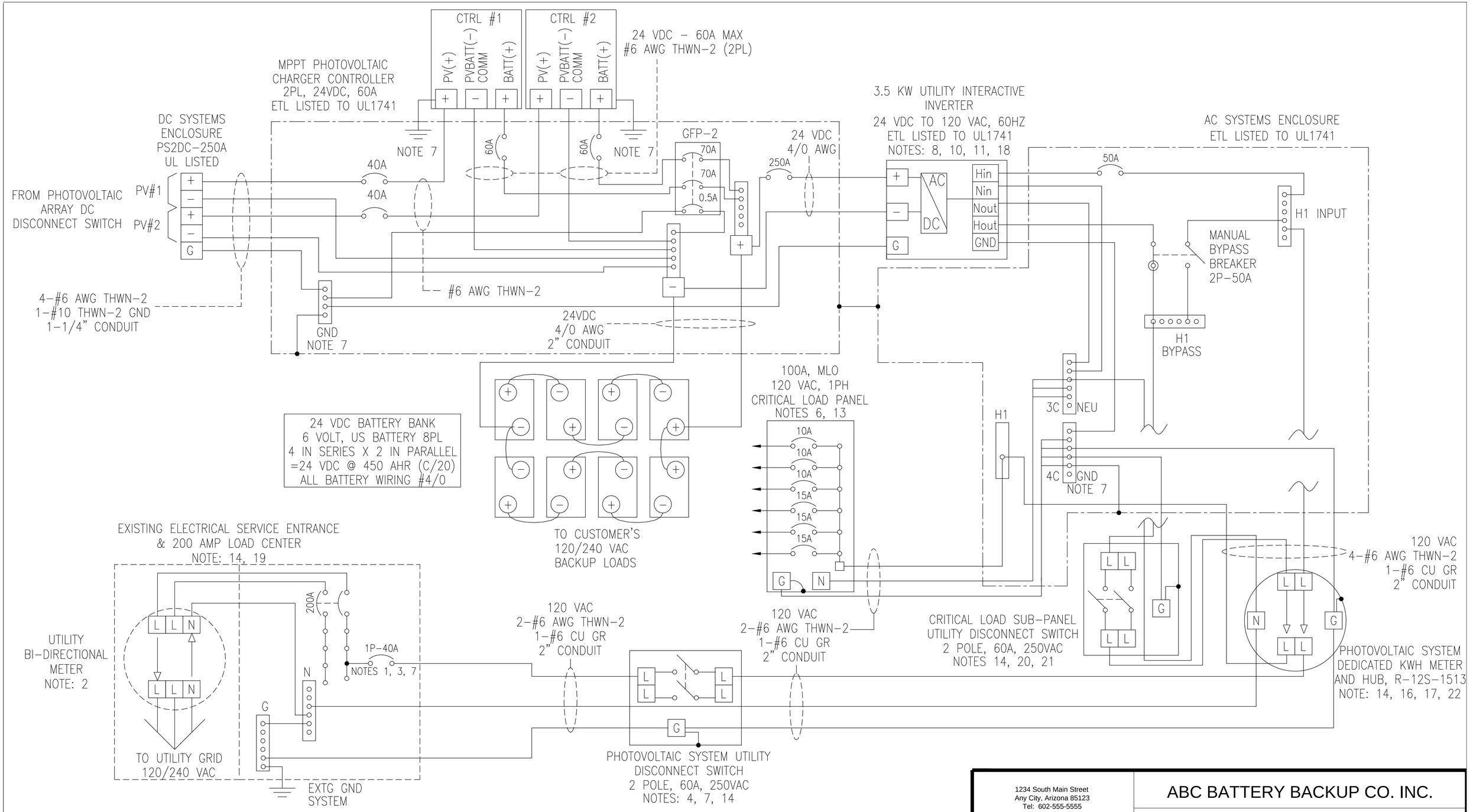
PROJECT
120V BATTERY SYSTEM

ABC BATTERY BACKUP CO. INC.

ONE-LINE ELECTRICAL DIAGRAM
3.5 KW AC PV/BATTERY SYSTEM
12345 W. OUTBACK WAY
ANY CITY, AZ 85123

SIZE	CODE INTENT NO.	DRAWING NO.
B		100-0001

SCALE NA | REV. A | SHEET 1 OF 5



REFER TO 1–LINE NOTES ON SHEET 1 OF 5

1234 South Main Street
Any City, Arizona 85123
Tel: 602-555-5555

APPROVALS	DATE
DRAWN ABC	11-4-2016
CHECKED	
ENGINEER	
REV. A	

PROJECT
120V BATTERY SYSTEM

ABC BATTERY BACKUP CO. INC.

THREE-LINE ELECTRICAL DIAGRAM
3.5 KW AC PV/BATTERY SYSTEM
12345 W. OUTBACK WAY
ANY CITY, AZ 85123

SIZE	CODE INTENT NO.	DRAWING NO.
B		100-0002

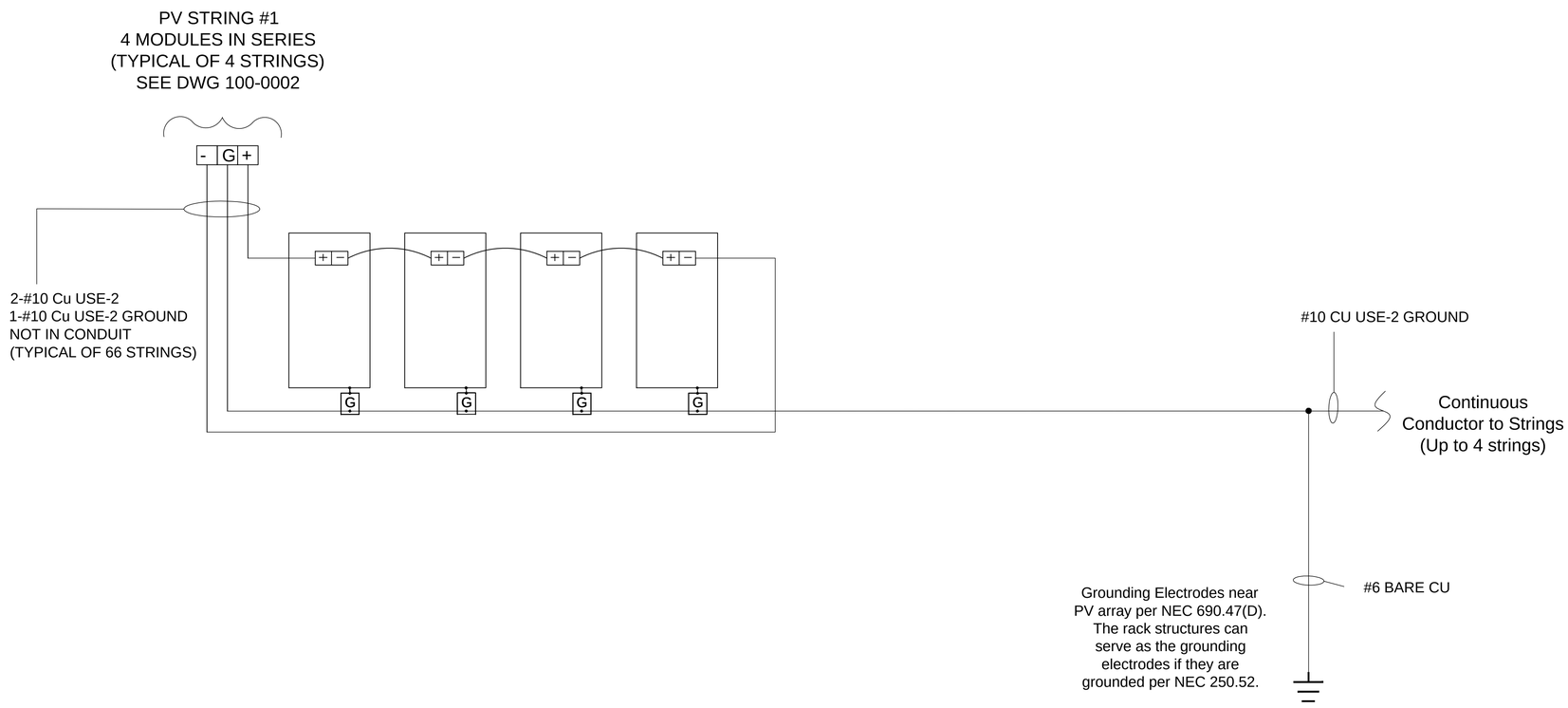
SCALE	REV.	SHEET
NA	REV. A	2 OF 5

REV.	DESCRIPTION	DATE
A	PRELIMINARY DRAWING SET	01/08/14

PHOTOVOLTAIC MODULE SPECIFICATIONS
[SPECIFY MAKE & MODEL] 165 WATTS Voc=21.6 VDC, Isc=10.10 AMPS Vmp=17.4 VDC, Imp=9.48 AMPS

ONE PHOTOVOLTAIC STRING
660 WATTS 4 MODULES IN SERIES PER STRING Voc=86.4 VDC, Isc=10.10 AMPS Vmp=69.6 VDC, Imp=9.48 AMPS (TYPICAL OF 4 STRINGS)

COMPLETE PHOTOVOLTAIC ARRAY
2640 WATTS Voc = 86.4 VDC, Isc = 40.4 AMPS Vmp = 69.6 VDC, Imp = 37.92 AMPS



This Sample Drawing is for illustration purposes only and is not to be used for design or construction. This drawing and its suitability for end use is not implied. The intent is to only illustrate typical minimum information required at time of application to APS. Additional information may be required.

NOTES:

1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. GROUND WIRE MUST BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690-4 (C).
3. FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.

SAMPLE ARRAY DRAWING

1234 South Main Street
Any City, Arizona 85123
Tel: 602-555-5555

APPROVALS	DATE
DRAWN ABC	11-4-2016
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ENGINEER	
REV. A	

ABC PROJECT #1111-9999

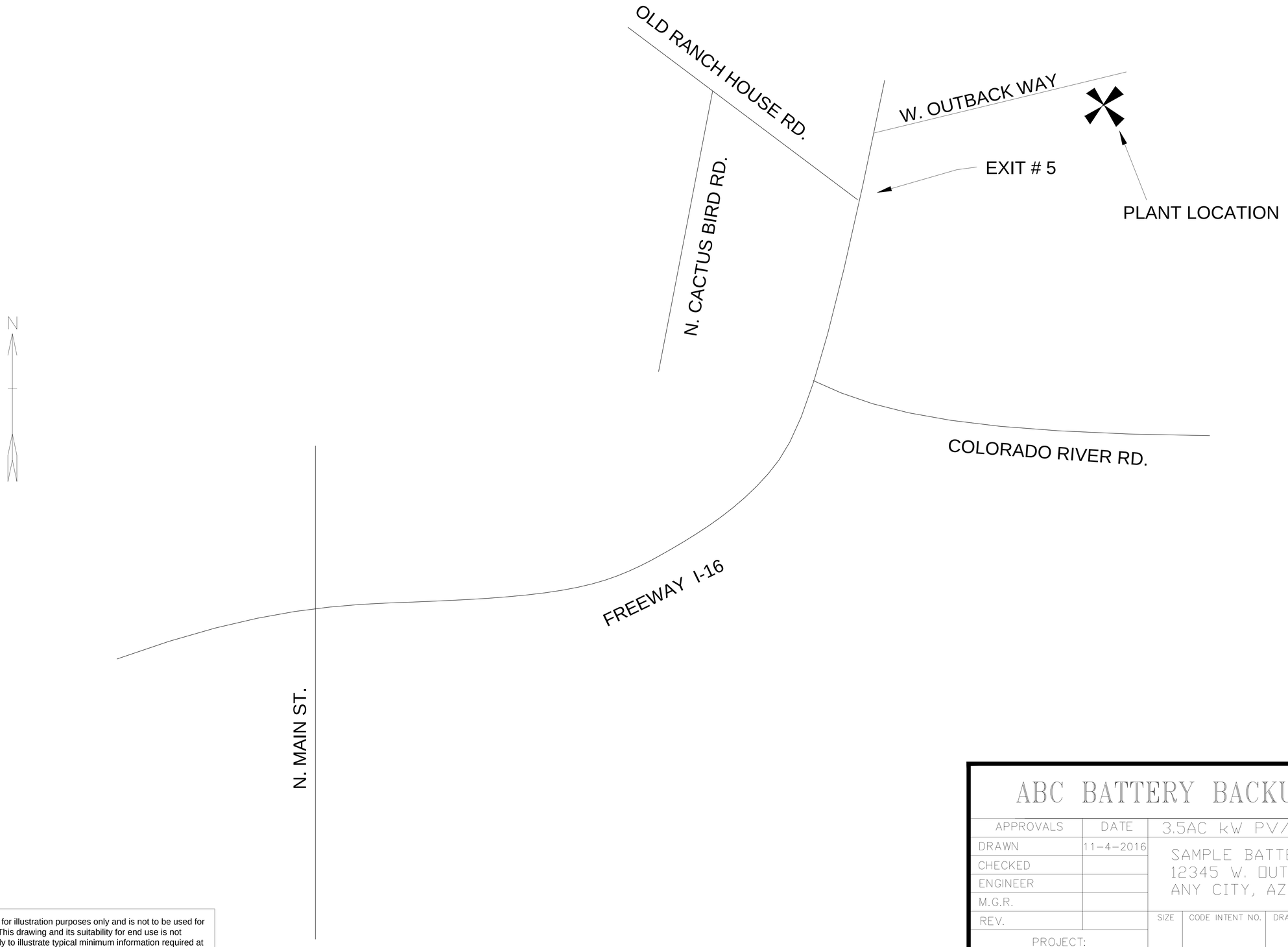
ABC BATTERY BACKUP CO. INC.

THREE-LINE ELECTRICAL ARRAY DIAGRAM
3.5 KW AC PV/BATTERY SYSTEM
12345 W. OUTBACK WAY
ANY CITY, AZ 85123

SIZE	CODE INTENT NO.	DRAWING NO.
B		100-0003

SCALE NA | REV. A | SHEET 3 OF 5

REV.	DESCRIPTION	DATE
A	NOT FOR CONSTRUCTION	01-08-14



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ABC BATTERY BACKUP CO. INC.

APPROVALS	DATE
DRAWN	11-4-2016
CHECKED	
ENGINEER	
M.G.R.	
REV.	

PROJECT:
120V BATTERY SYSTEM

3.5AC kW PV/BATTERY SYSTEM PLAN

SAMPLE BATTERY SYSTEM
12345 W. OUTBACK WAY
ANY CITY, AZ 85123

SIZE	CODE INTENT NO.	DRAWING NO.

SCALE NTS | REV. 0 | SHEET 4 OF 5

PROPERTY LINE

(NEW INSIDE GARAGE)
6 VOLT, US BATTERY
24 VDC BATTERY BANK

YARD

PROPERTY LINE

PITCHED ROOF

YARD

(NEW INSIDE GARAGE)
CHARGE CONTROLLERS(2)

(NEW INSIDE GARAGE)
3.5kW BATTERY
BACKUP INVERTER

GARAGE

(EXISTING)
ELECTRICAL SERVICE
(SES) 200A

PITCHED ROOF

(NEW) PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH
NONFUSE (1 OF 2)

PITCHED ROOF

CRITICAL LOAD PANEL

(NEW) PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH
NONFUSE (2 OF 2)

YARD

(NEW) DEDICATED
PHOTOVOLTAIC SYSTEM
KWH METER FORM 2S

PHOTOVOLTAIC MODULES
(APPROXIMATE PLACEMENT,
ORIENTED AS CLOSE TO
TRUE SOUTH AS POSSIBLE)
(QTY 16)

ROOF MOUNTED ARRAYS
ON PICHED STANDING
SEAMED STEEL ROOF.

YARD

N

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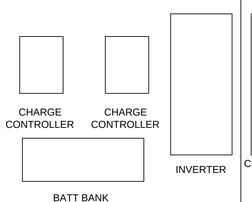
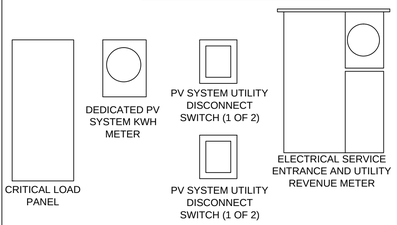
INTERNAL EQUIPMENT LAYOUT



EXTERNAL EQUIPMENT LAYOUT



NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS.

PROPERTY LINE

NOTE: UTILITY HAS 24 HOUR UNRESTRICTED ACCESS TO ALL PV SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.

ABC BATTERY BACKUP CO. INC.

APPROVALS	DATE
DRAWN	11-4-2016
CHECKED	
ENGINEER	
M.G.R.	
REV.	

PROJECT:
120V BATTERY SYSTEM

3.5 KW AC PV/BATTERY SYSTEM SITE PLAN

SAMPLE BATTERY SYSTEM
12345 W. OUTBACK WAY
ANY CITY, AZ 85123

SIZE	CODE INTENT NO.	DRAWING NO.

SCALE NTS | REV. 0 | SHEET 5 OF 5