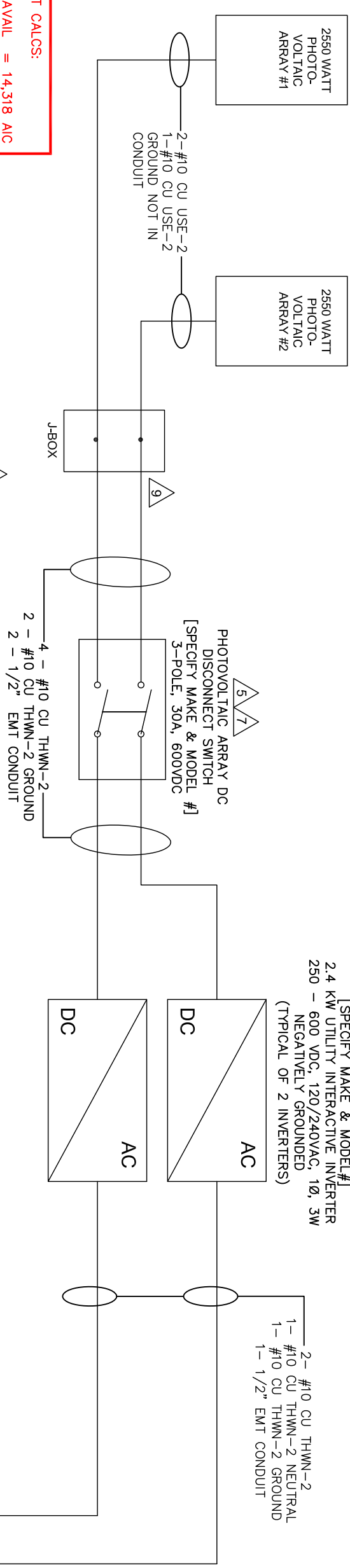


REV.	DESCRIPTION	DATE
C	FUSED DISCONNECT	1-26-17

Voc=457VDC, Isc=7.28AMP
Vmp=376VDC, Imp=6.78AMPS

Voc=457VDC, Isc=7.28AMP
Vmp=376VDC, Imp=6.78AMPS



FAULT CALCS:

F1: AVAIL = 14,318 AIC
d = 5 feet
f = .383
m = 0.723
Isc = 10,355 AIC

F2: AVAIL = 10,355 AIC
d = 5 feet
f = .277
m = 0.783
Isc = 8,110 AIC

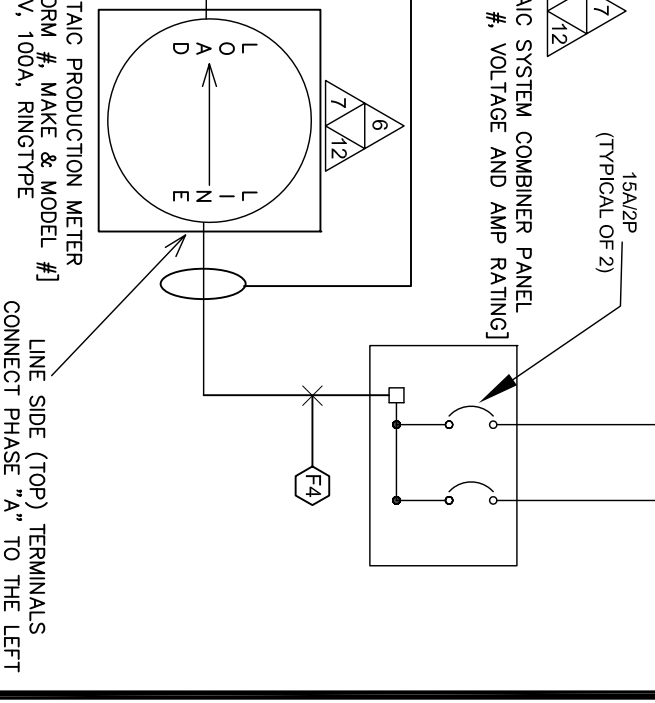
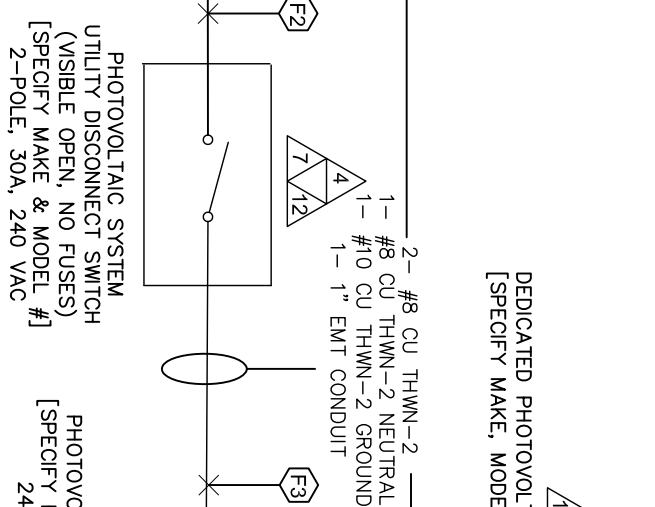
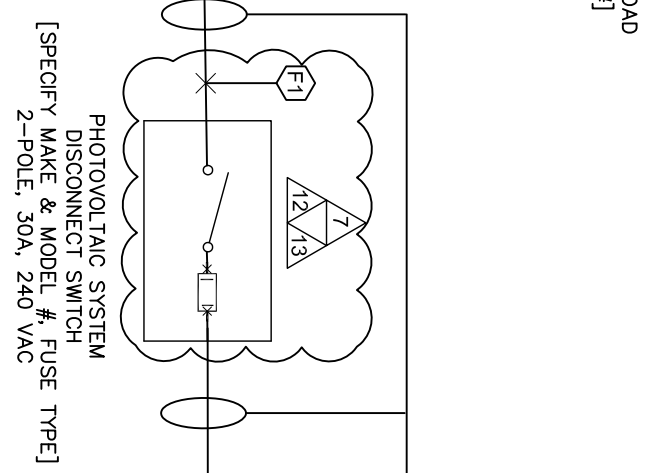
F3: AVAIL = 8,110 AIC
d = 5 feet
f = .217
m = 0.822
Isc = 6,665 AIC

F4: AVAIL = 6,665 AIC
d = 5 feet
f = .178
m = 0.849
Isc = 5,657 AIC

*SOURCE: COOPER BUSSMANN
SPD MANUAL, REV 2009
CALCULATIONS IN ACCORDANCE
WITH NEC ART 110.9 & 110.10.

NOTES:

- EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
- LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(3), AND "BREAKERS ARE BACKFED" PER NEC 705.12(B)(4). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
- LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH", SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
- LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE PER NEC 690.13(B)", LABEL WITH MAXIMUM VOLTAGE, MAXIMUM CIRCUIT CURRENT AND MAXIMUM RATED OUTPUT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED.
- SHOW SWITCH INTERNAL WIRING CONFIGURATION PER MANUFACTURER'S REQUIREMENTS.
- LABEL "PHOTOVOLTAIC PRODUCTION METER", METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER (AS REQUIRED).
- PROVIDE WARNING SIGN PER NEC 690.13(B) READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH
- TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION."
- LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(B)(2)(3)(b).
- METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E)
- LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL."
- GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
- EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
- INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND PRODUCTION METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22.



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.

SAMPLE LOAD SIDE CONNECTION ONE - LINE DIAGRAM

ABC SOLAR COMPANY, INC.
ONE-LINE ELECTRICAL DIAGRAM
4.8 KW AC PHOTOVOLTAIC SYSTEM
333 E. CACTUS BIRD RD.
ANY CITY, AZ 85123

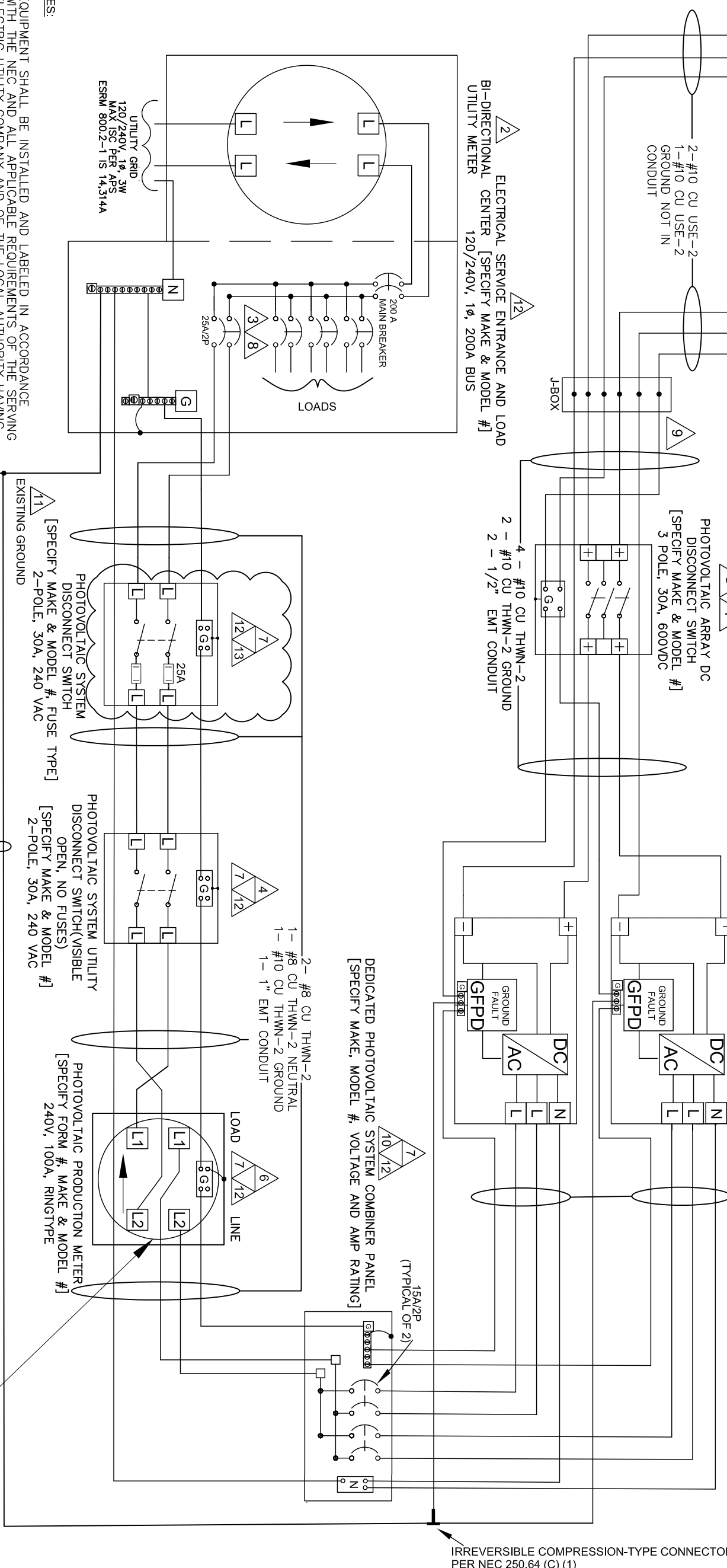
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC PROJECT #1111-9999	
APPROVALS	DATE	SIZE	DRAWING NO.
DRAWN ABC	06-29-05	B	0000-0001
CHECKED		SCALE	NA
ENGINEER		REV.	C
			SHEET 1 OF 5

PV ARRAY #1 2550 WATT PHOTOVOLTAIC ARRAY
SEE DWG# 0000-0003 FOR WIRING DETAIL

PV ARRAY #2 2550 WATT PHOTOVOLTAIC ARRAY
SEE DWG# 0000-0003 FOR WIRING DETAIL

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REV.	DESCRIPTION:	DATE
C	FUSED DISCONNECT	1-26-17
	[SPECIFY MAKE & MODEL #] 2.4 KW UTILITY INTERACTIVE INVERTER 250 - 600 VDC, 120/240VAC, 1Ø, 3W NEGATIVELY GROUNDED (TYPICAL OF 2 INVERTERS)	
	2 - #10 CU THWN-2 1 - #10 CU THWN-2 NEUTRAL 1 - 1/2" EMT CONDUIT	



BI-DIRECTIONAL ELECTRICAL SERVICE ENTRANCE AND LOAD UTILITY METER [SPECIFY MAKE & MODEL #]
120/240V, 1Ø, 200A BUS

PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH [SPECIFY MAKE & MODEL #]
3 POLE, 30A, 600VDC

4 - #10 CU THWN-2
2 - 1/2" EMT CONDUIT

GROUND FAULT GFFPD

DC AC

GROUND FAULT GFFPD

DC AC

GROUND FAULT GFFPD

DC AC

DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL [SPECIFY MAKE, MODEL #, VOLTAGE AND AMP RATING]

PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH [SPECIFY MAKE & MODEL #]
2-POLE, 30A, 240 VAC

PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH(VISIBLE OPEN, NO FUSES) [SPECIFY MAKE & MODEL #]
2-POLE, 30A, 240 VAC

PHOTOVOLTAIC PRODUCTION METER [SPECIFY FORM #, MAKE & MODEL #]
240V, 100A, RINGTYPE

LINE SIDE (TOP) TERMINALS CONNECT PHASE "A" TO THE LEFT ELEMENT (TERMINAL) OF THE METER [LOOKING AT THE FRONT OF THE METER]

NOTES:

- 1 EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- 2 BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
- 3 LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(3), AND "BREAKERS ARE BACKFEED" PER NEC 705.12(B)(4). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
- 4 LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH." SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
- 5 LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE PER NEC 690.13(B). LABEL WITH MAXIMUM VOLTAGE, MAXIMUM CIRCUIT CURRENT AND MAXIMUM RATED OUTPUT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED. [SHOW SWITCH INTERNAL WIRING CONFIGURATION PER MANUFACTURER'S REQUIREMENTS.]
- 6 LABEL "PHOTOVOLTAIC PRODUCTION METER." METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER (AS REQUIRED).
- 7 PROVIDE WARNING SIGN PER NEC 690.13(B) READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS--TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION."
- 8 LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(B)(2)(3)(b).
- 9 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E)
- 10 LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL."
- 11 GFC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
- 12 EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
- 13 INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND PRODUCTION METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES. AND COMPLY WITH NEC 705.22.

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2017 NEC.

SAMPLE LOAD SIDE CONNECTION THREE-LINE DIAGRAM

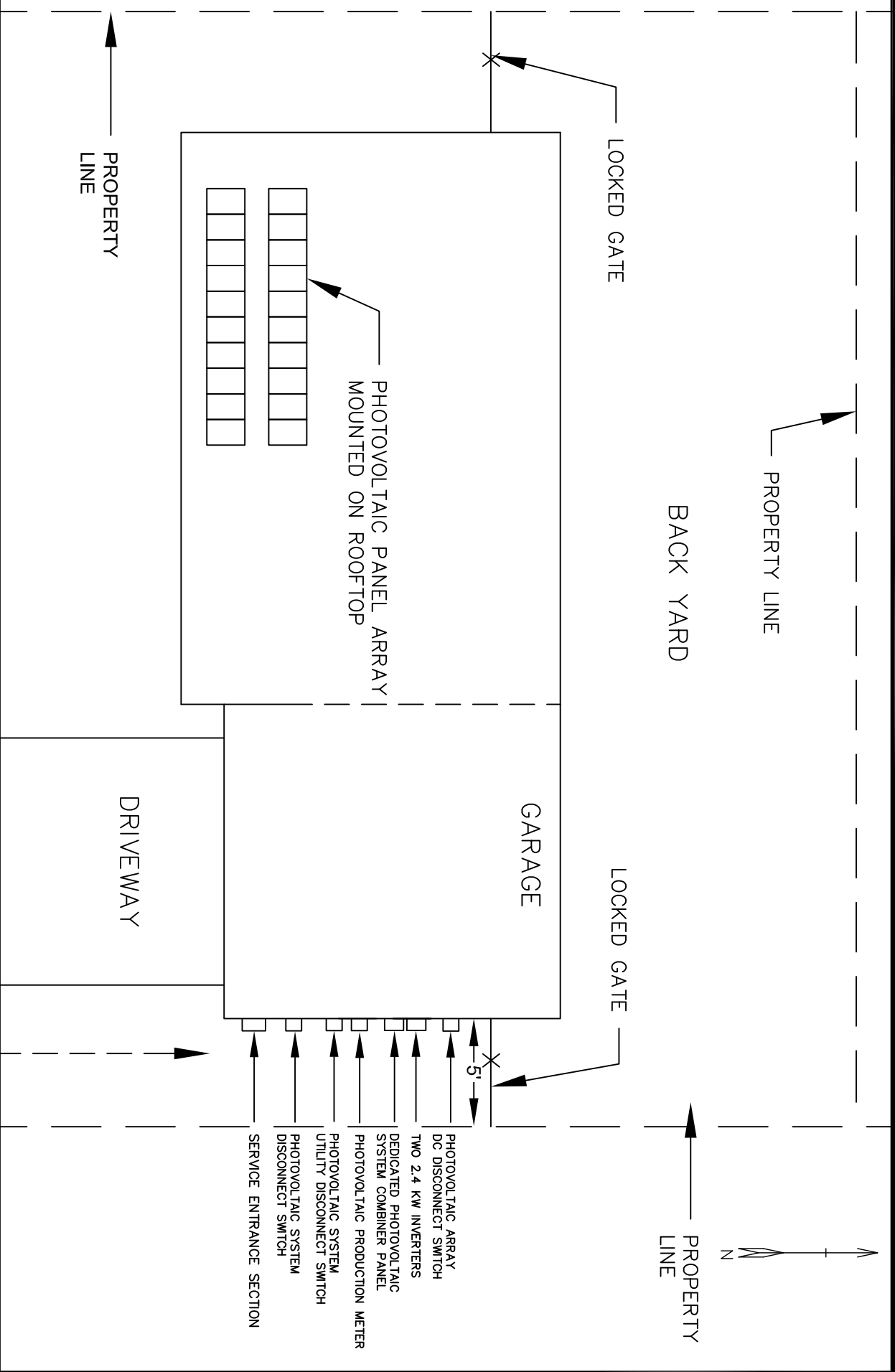
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS	DATE	THREE-LINE ELECTRICAL DIAGRAM	
DRAWN ABC	6-29-05	4.8 KW AC PHOTOVOLTAIC SYSTEM	
CHECKED		333 E. CACTUS BIRD RD.	
ENGINEER	1-26-17	ANY CITY, AZ 85123	
REV. C		SIZE	DRAWING NO.
		B	0000-0002
ABC PROJECT #11111-9999		SCALE	REV. C
		NA	SHEET 2 of 5

NOTE: UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS AND SERVICE ENTRANCE.

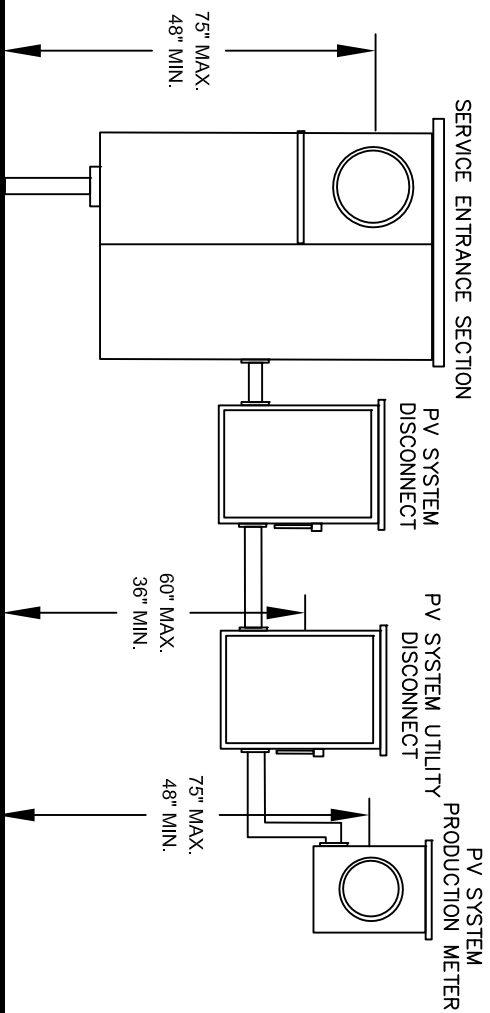
NOTE: REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER AND GAS.

NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM AND SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.

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ELEVATION VIEW



E. CACTUS BIRD RD.

SAMPLE LOAD SIDE CONNECTION SITE PLAN

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC. SITE PLAN	
APPROVALS	DATE	4.8 KW AC PHOTOVOLTAIC SYSTEM	
DRAWN ABC	1-26-17	333 E. CACTUS BIRD RD.	
CHECKED		ANY CITY, AZ 85123	
ENGINEER		SIZE	DRAWING NO.
REV.		B	0000-0005
ABC PROJECT #1111-9999		SCALE	REV.
		NA	REV.
			SHEET 5 OF 5