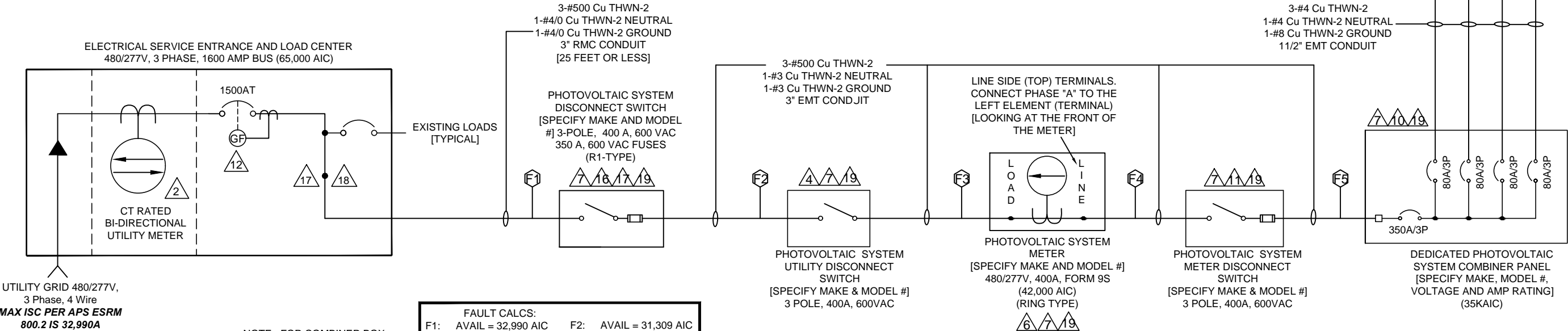
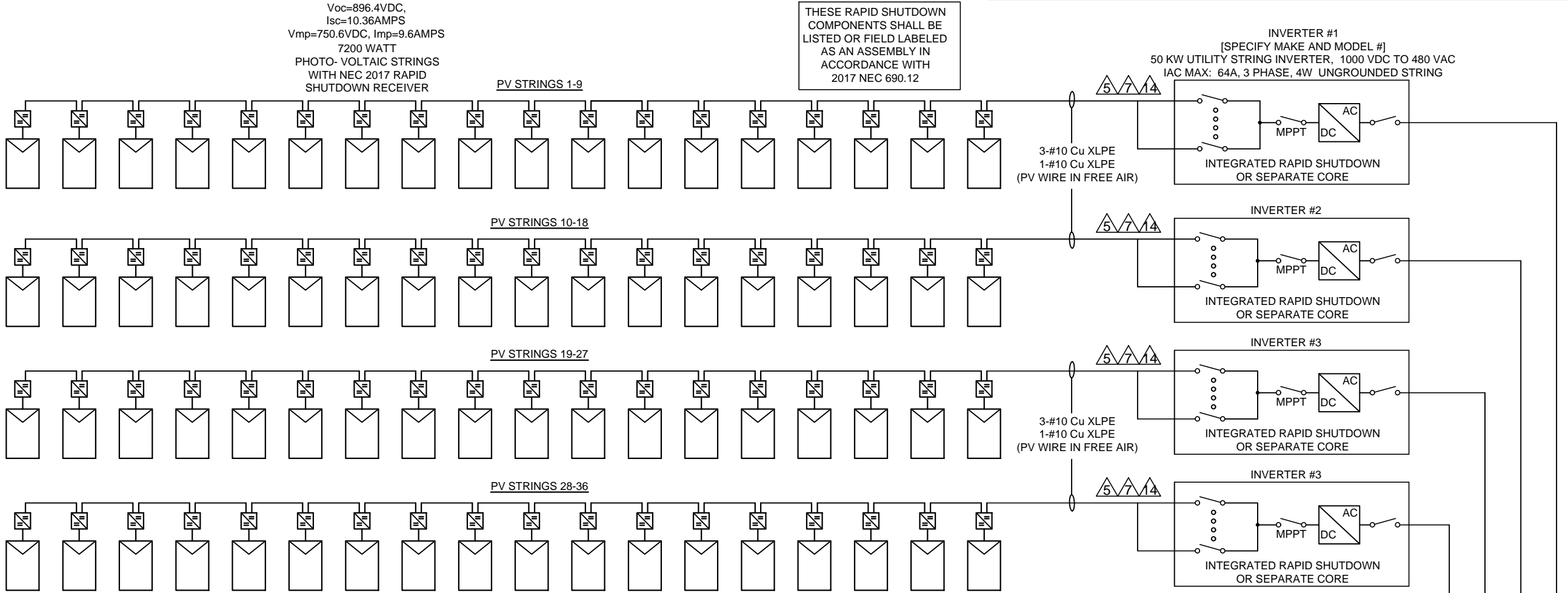


REV.	DESCRIPTION	DATE
A	NEW DRAWING - LST	12-19-14
B	REVISED PER 2017 NEC REQUIREMENTS	03-18-20



NOTE: FOR COMBINER BOX  
TO BE RATED PROPERLY  
FOR THE AVAILABLE FAULT  
CURRENT, TAKE F4 ISC AND  
ADD TO THE FULL LOAD  
INVERTER FAULT AT 120%.  
IN THIS CASE SINCE WE  
HAVE FOUR INVERTERS, THE  
FAULT CONTRIBUTION FROM  
THE PV SYSTEM WILL BE THE  
TOTAL FAULT CONTRIBUTION  
FROM INVERTERS.

I.E. 4 X (64A X 120%) = 307A +  
27,163A = 27,470A

FAULT CALCS:			
F1:	AVAIL = 32,990 AIC d = 10 feet f = 0.0537 m = 0.949 Isc = 31,309 AIC	F2:	AVAIL = 31,309 AIC d = 10 feet f = 0.0509 m = 0.9515 Isc = 29,790 AIC
F3:	AVAIL = 29,790 AIC d = 10 feet f = 0.0485 m = 0.954 Isc = 28,419 AIC	F4:	AVAIL = 28,419 AIC d = 10 feet f = 0.0462 m = 0.9558 Isc = 27,163 AIC
F5:	AVAIL = 27,163 AIC d = 200 feet f = 5.146 m = 0.163 Isc = 4,420 AIC		

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

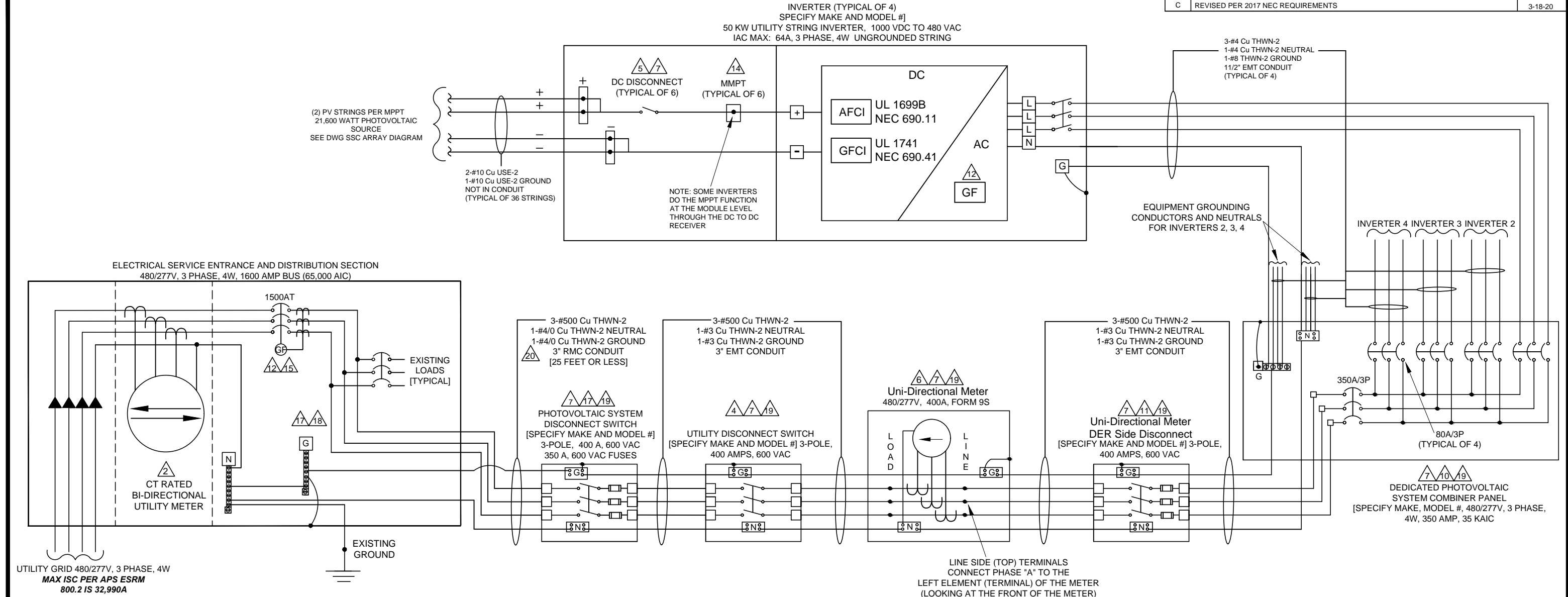
NOTE: All equipment must be utilized in accordance with the  
manufacturer's intended use and design specifications.

NOTE: SYSTEM DESIGNED IN  
ACCORDANCE WITH THE  
2017 N.E.C.

### SAMPLE LOAD SIDE TAP ONE-LINE DIAGRAM

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.	
APPROVALS		DATE	
DRAWN ABC		09-10-10	
CHECKED			
ENGINEER			
REV. B		03-18-20	
ABC PROJECT #1111-9999		SIZE B	CODE INTENT NO.
		SCALE NA	DRAWING NO.
			LST ONE-LINE
			REV. B
			SHEET 1 OF 5

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	09-10-10
B	APS CORRECTIONS	10-10-10
C	REVISED PER 2017 NEC REQUIREMENTS	3-18-20



NOTES:

- 1 ALL 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 CT-RATED BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.

3 -----

4 LABEL "UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN, ACCESSIBLE PER UTILITY REQUIREMENTS, CONFORM TO NEC 705.22, AND RATED FOR THE AVAILABLE FAULT CURRENT.

5 LABEL "PHOTOVOLTAIC SYSTEM DC DISCONNECT" PER NEC 690.13(B). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED. **[SWITCH IS INTERNAL TO INVERTER]**

6 LABEL "Uni-Directional Meter". METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER, CTs AND TEST SWITCHES PROVIDED BY UTILITY COMPANY WHEN REQUIRED. **NOTE: CUSTOMER TO SUBMIT SHOP DRAWINGS OF METERING CABINET TO APS METERSHOP FOR APPROVAL.**

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 -----

9 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(G).

10 LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL".
- 11 LABEL "Uni-Directional Meter DER Side Disconnect". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE ACCESSIBLE PER UTILITY REQUIREMENTS, CONFORM TO NEC 705.22, AND RATED FOR THE AVAILABLE FAULT CURRENT.

12 GROUND-FAULT PROTECTION ACCESSORY INTEGRAL TO THE INVERTER IN ACCORDANCE WITH NEC 705.32 SINCE THE EXISTING MAIN IS EQUIPPED WITH GROUND FAULT PROTECTION. DOCUMENTATION IS INCLUDED WITH THE DRAWINGS AND INTERCONNECTION APPLICATION SHOWING THE CALCULATIONS ON HOW TO PROPERLY SET THE GROUND FAULT TRIPS ON BOTH THE MAIN AND PV SYSTEM. DOCUMENTATION FROM THE MAIN BREAKER SUPPLIER CERTIFYING THAT GROUND FAULT ACCESSORY IS SUITABLE FOR BACK FEEDING.

13 IF DC FUSES ARE ADDED, LABEL: "WARNING, DO NOT OPEN FUSES UNDER LOAD."

14 THE STRING INVERTERS DEPICTED HAVE A MAXIMUM OF TWO STRINGS PER MPPT; THEREFORE, THE STRINGS DO NOT REQUIRE OVERCURRENT DEVICES. FOR STRING INVERTERS WITH THREE STRINGS OR MORE IN PARALLEL EACH SERIES STRING REQUIRES OVERCURRENT DEVICES.

15 A PLACARD OR DIRECTORY IS INSTALLED AT THE SERVICE ENTRANCE WITH EXPLICIT DIRECTIONS TO THE LOCATION OF THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AS REQUIRED BY APS.

16 -----

17 LOAD SIDE TAP IS INSTALLED PER NEC 240.21(B) AND LOCAL AHJ APPROVALS. LABEL "PHOTOVOLTAIC CUSTOMER DISCONNECT". SWITCH TO BE LOCKED AT ALL TIMES.

18 LOAD SIDE TAP IS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DOCUMENTATION IS INCLUDED WITH THE APS INTERCONNECTION APPLICATION.

19 EQUIPMENT SHALL BE TESTED, LISTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.

20 EGC IS INSTALLED IN ACCORDANCE WITH NEC ARTICLE 250.122(G).

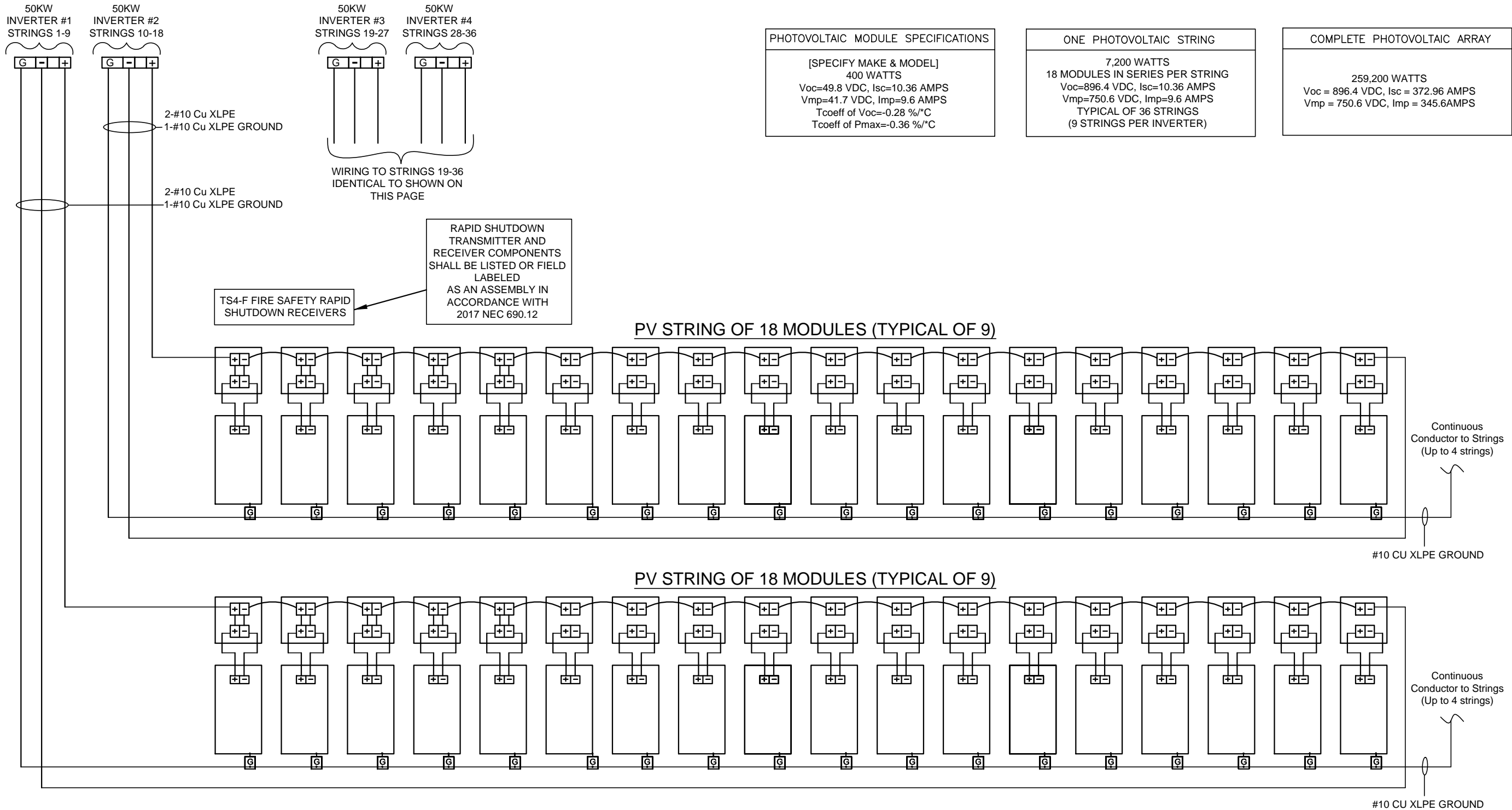
NOTE: All equipment must be utilized in accordance with the manufacturer's intended use and design specifications.

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 TAP 3-LINE DIAGRAM

1234 South Main Street   Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.	
APPROVALS		THREE-LINE ELECTRICAL DIAGRAM	
DRAWN ABC		200 KW AC PHOTOVOLTAIC SYSTEM	
CHECKED		999 N. CACTUS BIRD RD.	
ENGINEER		ANY CITY, AZ 85123	
REV. C		SIZE B	CODE INTENT NO.
ABC PROJECT #1111-9999		DRAWING NO.	LST THREE-LINE
		SCALE NA	REV. C
		SHEET 2 OF 5	

REV.	DESCRIPTION	DATE
A	PRELIMINARY DRAWING SET	09/10/10
B	REVISED PER 2011 NEC REQUIREMENTS	04/30/13
C	REVISED PER 2017 NEC REQUIREMENTS	09/13/19



NOTES:

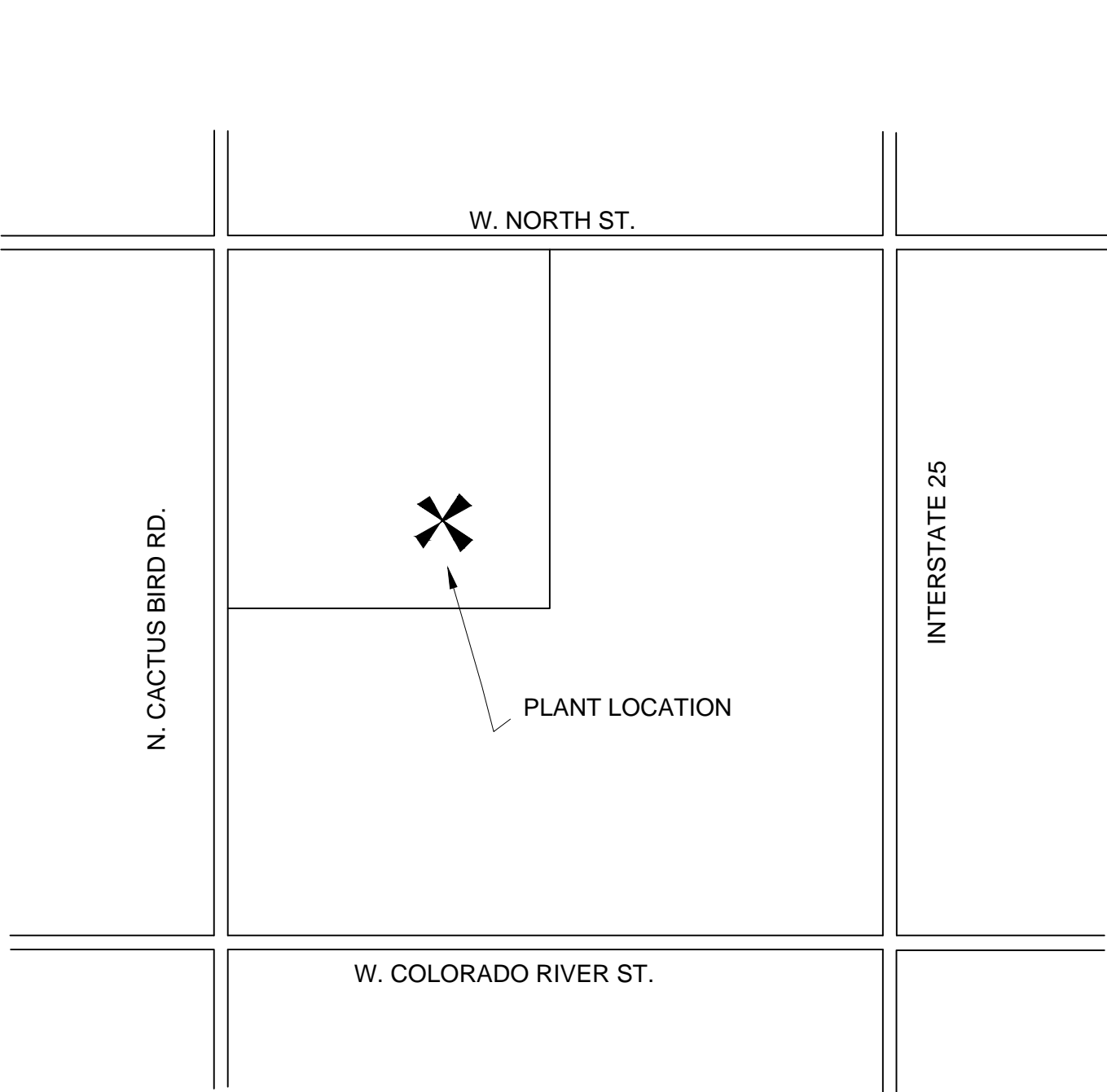
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
- WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.

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SAMPLE LOAD SIDE TAP ARRAY DRAWING

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.		
APPROVALS		THREE-LINE ELECTRICAL ARRAY DIAGRAM		
DRAWN	ABC	200 KW AC PHOTOVOLTAIC SYSTEM		
CHECKED		999 N. CACTUS BIRD RD.		
ENGINEER		ANY CITY, AZ 85123		
REV. C	09-13-19	SIZE	CODE INTENT NO.	DRAWING NO.
ABC PROJECT #1111-9999		B		LST ARRAY DIAGRAM
		SCALE	NA	REV. C
		SHEET 3 OF 5		

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	09/10/10

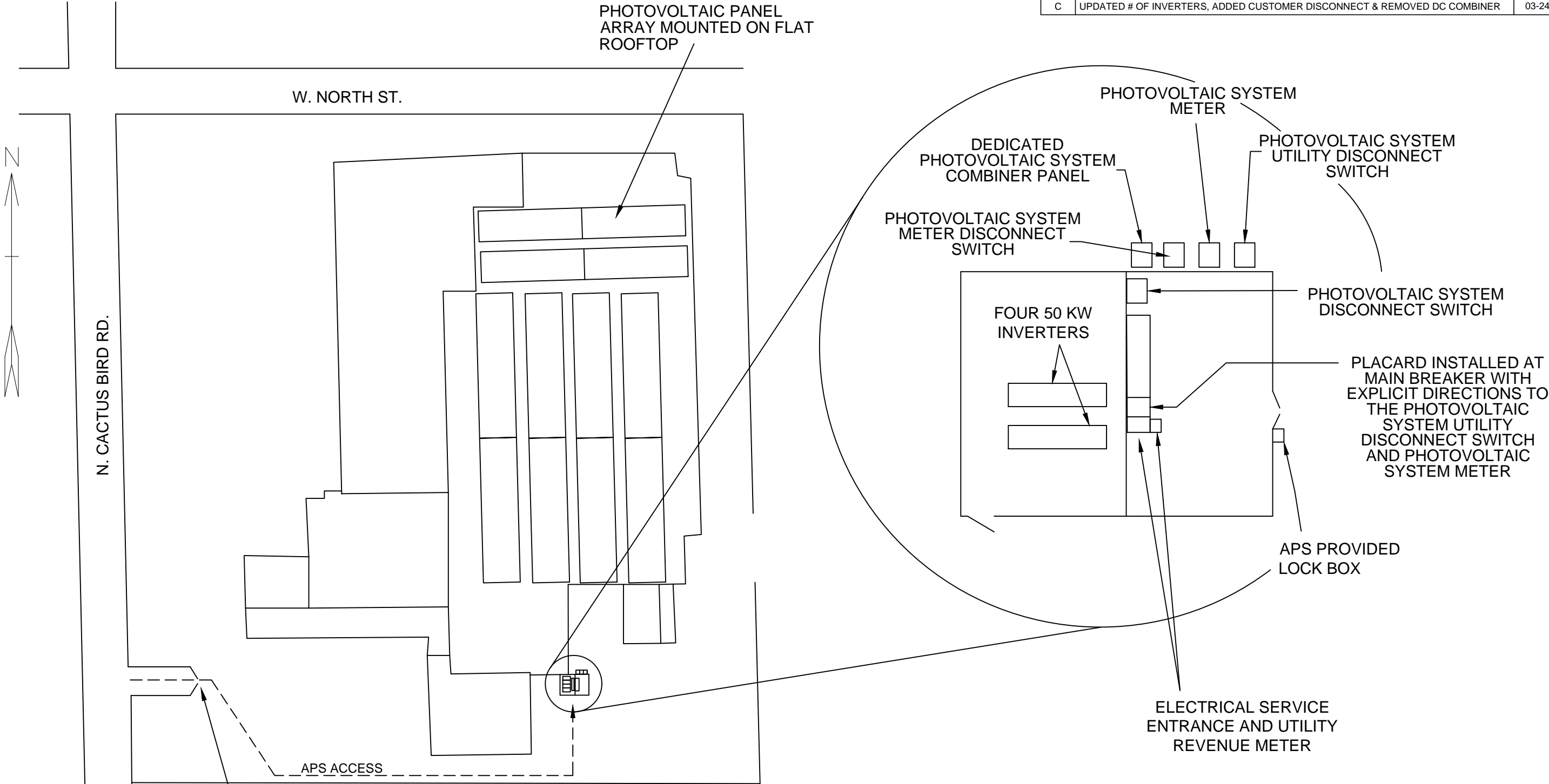


SAMPLE LOAD SIDE TAP PLANT LOCATION

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.

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY INC.				
APPROVALS		DATE		PLANT LOCATION 200 KW AC PHOTOVOLTAIC SYSTEM 999 N. CACTUS BIRD RD. ANY CITY, AZ 85123		
DRAWN    ABC		09-10-10				
CHECKED						
ENGINEER						
REV. A		09-10-10		SIZE A	CODE INTENT NO.	DRAWING NO.
ABC PROJECT #1111-9999				LST PLANT LOCATION		
				SCALE    NA	REV. A	SHEET    4 OF 5

REV.	DESCRIPTION:	DATE
A	PRELIMINARY DRAWING SET	09-10-10
B	ADDED METER DISCONNECT SWITCH	02-24-20
C	UPDATED # OF INVERTERS, ADDED CUSTOMER DISCONNECT & REMOVED DC COMBINER	03-24-20



DRIVEWAY WITH GATE & KEY  
CODE SECURITY IN APS  
PROVIDED LOCKBOX

**ACCESS CODE: 12345#**

**NOTE: UTILITY HAS 24-HR UNRESTRICTED  
ACCESS TO THE PHOTOVOLTAIC SYSTEM  
METER AND PHOTOVOLTAIC SYSTEM  
UTILITY DISCONNECT SWITCH THROUGH  
THE SECURITY GATE**

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SAMPLE LOAD SIDE TAP SITE PLAN									
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555				ABC SOLAR COMPANY INC.					
APPROVALS				SITE PLAN					
DRAWN ABC				200 KW AC PHOTOVOLTAIC SYSTEM					
CHECKED				999 N. CACTUS BIRD RD.					
ENGINEER				ANY CITY, AZ 85123					
REV.C				LST SITE PLAN					
ABC PROJECT #1111-9999				SIZE B	CODE INTENT NO.	DRAWING NO.			
				SCALE NA	REV. C				SHEET 5 OF 5