

- 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 BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
- 3 INSTALL A PLACARD AT THE SERVICE ENTRANCE WITH EXPLICIT DIRECTIONS TO THE LOCATION OF THE UTILITY DISCONNECT AND VICE-VERSA, WHEN NOT ADJACENT AS REQUIRED BY APS.
- 4 LABEL "UTILITY DISCONNECT": SWITCH COVER TO BE LOCKED AT ALL TIMES BY UTILITY. SWITCH IS TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENT AND CONFORM TO NFPA 70E 120.5(3) AND NEC 705.20, AND IS RATED FOR THE AVAILABLE FAULT CURRENT.
- 5 LABEL "WARNING - A GENERATION SOURCE IS CONNECTED BETWEEN APS BILLING METER AND THE MAIN SERVICE DISCONNECTING MEANS VIA METER SOCKET ADAPTER. FOLLOW PROPER LOCKOUT/TAGOUT PROCEDURES TO ENSURE UTILITY DISCONNECT IS OPEN PRIOR TO PERFORMING WORK ON THIS DEVICE".
- 6 UTILITY SIDE CONNECTION. ANY CONNECTIONS TO UTILITY EQUIPMENT MADE WITHIN UTILITY-SEALED COMPARTMENTS NEEDS TO BE MADE BY QUALIFIED APS PERSONNEL.
- 7 PROVIDE WARNING SIGN PER NEC 690.13(B) READING "WARNING-ELECTRIC SHOCK HAZARD-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION".
- 8 EQUIPMENT SHALL BE TESTED, LISTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
- 9 LABEL "UNIDIRECTIONAL METER". METER SOCKET ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED AND INSTALLED BY APS.
- 10 LISTING AGENCY NAMES AND NUMBERS TO BE INDICATED ON POWER INVERTER AND SOLAR MODULES PER NEC 110.3(B).
- 11 DC ARC FAULT PROTECTION TO BE INCLUDED IN THE INVERTER PER NEC 690.11 AS REQUIRED BY MUNICIPALITY.
- 12 LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE 1/X PER NEC. LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC. SWITCH TO BE LOCKED PER NEC.
- 13 LABEL, "WARNING DO NOT OPEN FUSES UNDER LOAD."
- 14 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31.
- 15 GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 250.
- 16 LABEL "PHOTOVOLTAIC SERVICE DISCONNECT". SWITCH COVER TO BE LOCKED AT ALL TIMES BY CUSTOMER. SWITCH CONFORMS TO NEC 230 AND IS RATED FOR THE AVAILABLE FAULT CURRENT. LOCATE ADJACENT TO SES.
- 17 A PERMANENT PLACARD OR DIRECTORY IS INSTALLED PER NEC 705.10.
- 18 LABEL "METER SOCKET ADAPTER DISCONNECT - NOT SERVICE EQUIPMENT". SIMILAR TO NEC 230.82(3) LABEL FOR METER DISCONNECT. SWITCH COVER TO BE LOCKED AT ALL TIMES BY CUSTOMER. THE METER SOCKET ADAPTER DISCONNECT IS NOT LISTED, TESTED OR MARKED (REFER TO UL1414) AS A SERVICE DISCONNECT. THEREFORE, THE CONDUCTORS BETWEEN THE LOAD SIDE OF THE MSA DISCONNECT AND THE FUSED SERVICE DISCONNECT ARE CONSIDERED SERVICE CONDUCTORS.
- 19 A PLACARD WITH EXPRESS DIRECTIONS TO THE LOCATION OF THE OTHER IS REQUIRED AT BOTH THE UTILITY DISCONNECT AND MAIN SES WHEN THE UTILITY DISCONNECT IS NOT LOCATED WITHIN 10' OF THE SES. REFER TO APS STANDARD EQUIPMENT LABELS AT [aps.com/dg](#) FOR EXAMPLES.

FAULT CALCULATIONS	
11	<p>AVAILABLE = $\frac{xx,xxx.xx}{AIC}$ $D = x'$ $M = x,xxx$ $F = x,xxx$ $Isc = xx,xxx.xx \text{ AIC}$</p>
12	<p>AVAILABLE = $\frac{xx,xxx.xx}{AIC}$ $D = x'$ $F = x,xxx$ $M = x,xxx$ $Isc = x,xxx.xx \text{ AIC}$</p>
13	<p>AVAILABLE = $\frac{x,xxx.xx}{AIC}$ $D = x'$ $F = x,xxx$ $M = x,xxx$ $Isc = x,xxx.xx \text{ AIC}$</p>
14	<p>AVAILABLE = $\frac{x,xxx.xx}{AIC}$ $D = x'$ $F = x,xxx$ $M = x,xxx$ $Isc = x,xxx.xx \text{ AIC}$</p>

INVERTER MODEL # XXXXX-XX-XX
211 TO 600VDC TO 240VAC, 1 PHASE
DC DISCONNECT ON INVERTER
MAX AC OUTPUT 32 AMPS

(N) 7680 WATT TRANSFORMERLESS INVERTER

DC
MPP1
MPP2
MPP3

AC
AFCI
GROUND FAULT GFCI

3-#8 AWG Cu XHHW-2 POSITIVE
3-#8 AWG Cu XHHW-2 NEGATIVE
1-#10 AWG Cu XHHW-2 GROUND
3/4" EMT CONDUIT

(N) 3 - PHOTOVOLTAIC STRINGS
33 PANELS AT 250 WATTS EACH
11 IN SERIES BY 3 IN PARALLEL
TOTALS = 8,250 WATTS
Voc = 405.9 VDC, Isc = 9.09 AMPS
Vmp = 327.8 VDC, Imp = 8.39 AMPS
PER STRING
[SPECIFY MAKE AND MODEL #]

NOTE TO CONTRACTOR:
LABEL: "METER SOCKET ADAPTER DISCONNECT - NOT SERVICE EQUIPMENT".

(N) 200A, 22K ISC METER SOCKET ADAPTER
60A/2P BREAKER
(LOCATED ON THE INSIDE BOTTOM OF ADAPTER)

IRREVERSIBLE CONNECTION

(N) 2-#8 AWG Cu XHHW-2
1-#8 AWG Cu XHHW-2 NEUTRAL
1-#10 AWG Cu XHHW-2 GROUND
3/4" EMT CONDUIT FOR ABOVE GROUND
3/4" PVC CONDUIT FOR UNDERGROUND

DANGER: POTENTIAL NEC VIOLATION AND SHOCK HAZARD.
UNLIKE BILLING METERS, PRODUCTION METER NEUTRAL SHALL NOT BE BONDED TO GROUND SINCE IT IS CONNECTED ON THE LOAD SIDE OF THE SERVICE.

(N) UTILITY DISCONNECT
[SPECIFY MAKE AND MODEL #]
60AMP, 2 POLE, 240Vac, 10k ISC

(N) PHOTOVOLTAIC SERVICE DISCONNECT
[SPECIFY MAKE AND MODEL #]
60AMP, 2 POLE, 240Vac
40A, 240Vac, RK FUSES

2-#8 AWG Cu XHHW-2
1-#8 AWG Cu XHHW-2 NEUTRAL
1-#10 AWG Cu XHHW-2 GROUND
3/4" EMT CONDUIT FOR ABOVE GROUND
3/4" PVC CONDUIT FOR UNDERGROUND

2-#6 AWG Cu XHHW-2
1-#6 AWG Cu XHHW-2 NEUTRAL
1" RMC / LFMC CONDUIT

NOTE TO CONTRACTOR:
USE LFMC BETWEEN CUSTOMER-OWNED METER SOCKET ADAPTER AND THE WALL, THEN TRANSITION TO RMC.

NOTE TO APS:
"APPROVED" METER ADAPTER PROVIDED BY INSTALLER AND INSTALLED BY APS.

NOTE TO INSTALLER:
THIS ARRANGEMENT APPLIES TO SINGLE FAMILY DETACHED DWELLINGS.

NOTE TO APS:
OPTION 2: IF THERE IS AN EXISTING CHAIR LUG AND IT IS FEASIBLE TO EXTEND THE NEUTRAL FROM THE METER TO THE "MAIN" SECTION THIS METHOD COULD BE APPLIED

NOTE TO APS:
OPTION 1 (PREFERRED METHOD): "PIERCING TAP" TO BE INSTALLED ON UNDERGROUND SERVICES ONLY

NOTE TO APS:
AT THE TIME OF INSTALLATION, DETERMINE THE OPTIMUM METHOD OF EXTENDING AND CONNECTING THE NEUTRAL FROM THE METER ADAPTER TO THE APS NEUTRAL - THERE ARE SESSs THAT HAVE EXISTING CHAIR LUGS THAT COULD BE UTILIZED.

EXISTING ELECTRICAL SERVICE ENTRANCE AND LOAD CENTER
120/240V, 1 PHASE, 200 AMP BUS (22,000 ISC)

EXISTING 200A/2P MCB

TO EXISTING LOADS

WHITE

UTILITY GRID
120/240V, 1 PHASE, 3 WIRE
MAX ISC PER APS ESRM 800.2 IS 14,318A

#6 Cu BARE GROUNDING ELECTRODE CONDUCTOR (GEC)
Run independently of other conductors, in its own PVC conduit, and tie directly into AC grounding electrode


EXISTING MAIN BONDING JUMPER

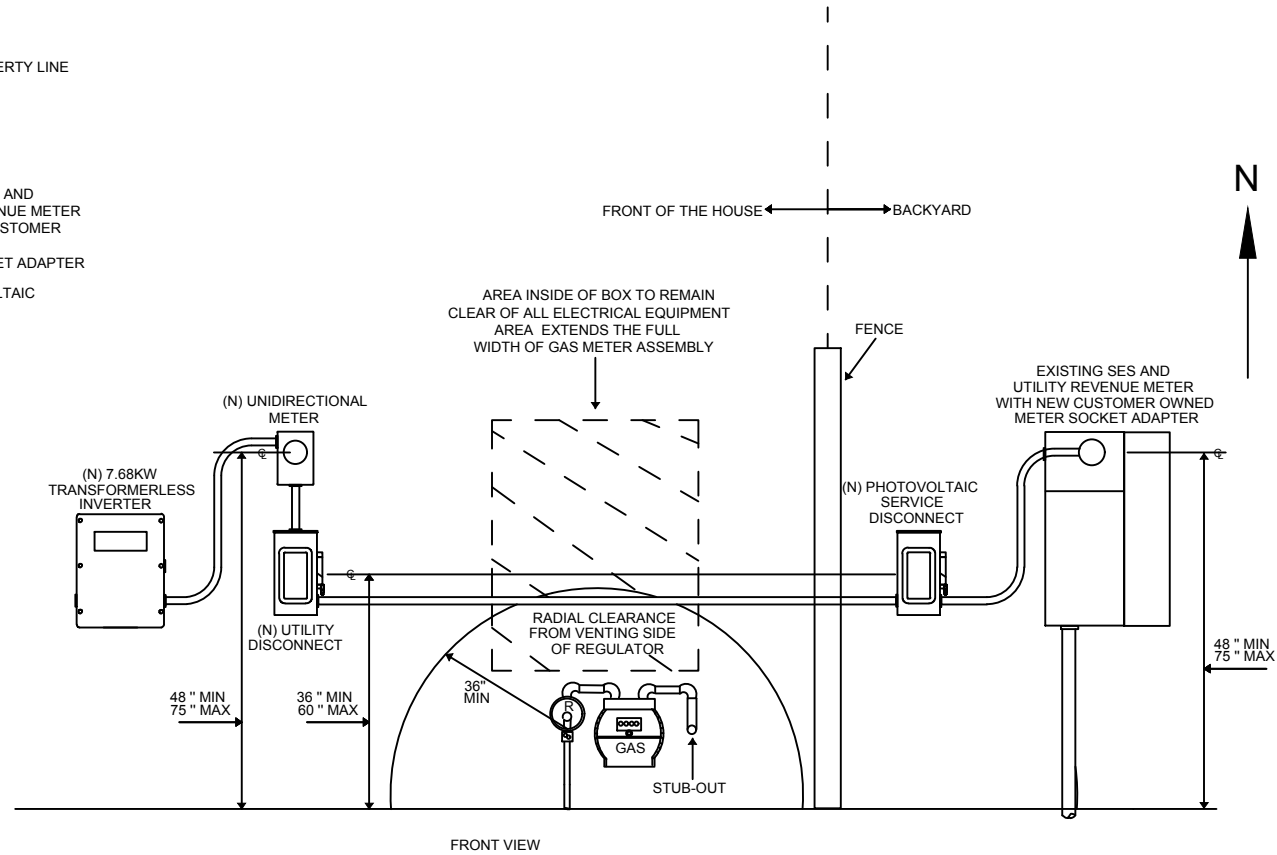
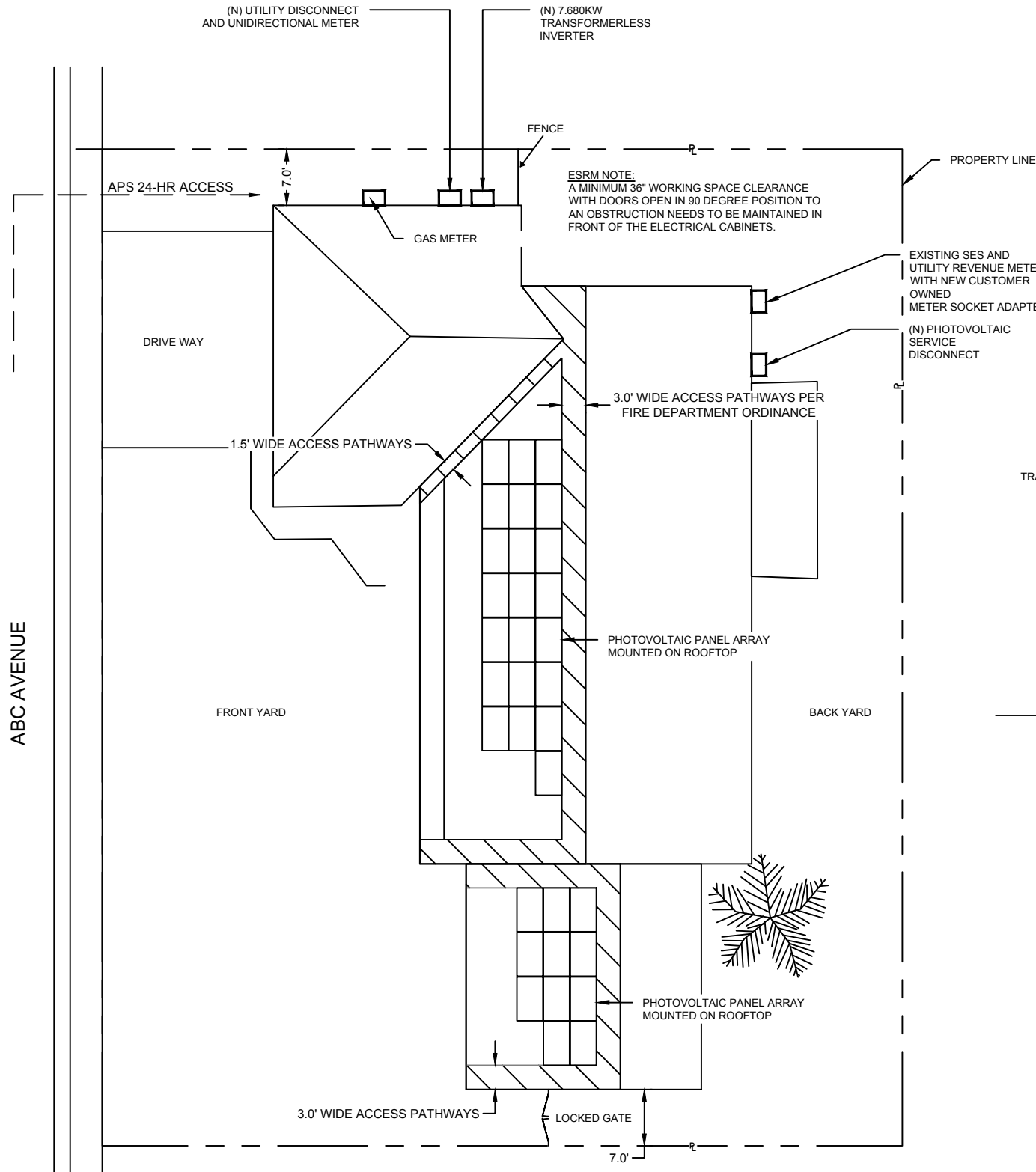
EXISTING GROUNDING ELECTRODE CONDUCTOR (GEC)

IRREVERSIBLE CONNECTION PER NEC 250.64(C)(1)

EXISTING GROUND ROD

BONDED

									JOHN DOE RESIDENCE 1234 W. ABC AVENUE, PHOENIX 7.68KW(AC) & 8.25KW(DC) THREE-LINE DIAGRAM		<div>  <div> <div>SCALE</div> <div>N.T.S.</div> </div> <div>DATE 5-19-23</div> </div>							
											DWN JRL		EXD		APPROVED			
											CHD SRB		RVWD					
															DRAWING APPROVED BY			
											DWG 123456		UNIT	DISC	TYPE	SYS	NUMBER	
NO.	DATE	REVISION			DWN	CHD	EXD	RVWD	APVD	W A								




- NOTE:**
- UTILITY HAS 24-HR UNRESTRICTED ACCESS TO UTILITY DISCONNECT, APS METERS, AND METER DISCONNECTS
 - WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS ESRM AND NEC REQUIREMENTS.

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2023 NEC

SAMPLE METER SOCKET ADAPTER SITE PLAN

NO.	DATE	REVISION	DWN	CHD	EXD	RVWD	APVD	W A

JOHN DOE RESIDENCE
1234 W. ABC AVENUE
7.68KW(AC) & 8.25KW(DC)
SITE PLAN

<div></div>							
SCALE		N.T.S.		DATE 5-19-23			
DWN	JRL	EXD		APPROVED			
CHD	SRB	RVWD					
				DRAWING APPROVED BY			
DWG		UNIT	DISC	TYPE	SYS	NUMBER	SHEET
123456							
							4 OF 5