



NOTES:

1. THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!
2. ALL TESTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL, WITH PROPER PERSONAL PROTECTIVE EQUIPMENT
3. THE PRODUCTION METER AND AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER
4. 24/7 UNESCORTED KEYLESS ACCESS SHALL BE PROVIDED FOR THE METERS AND AC DISCONNECT
5. UTILITY AC DISCONNECT SHOULD BE LOCATED WITHIN 10 FEET OF THE MAIN SERVICE METER
6. NOTE ALL THE APPLICABLE NEC CODES
7. SHOW ALL THE SYSTEMS INCLUDING STORAGE, EXISTING AND NEW (IF APPLICABLE)

PV SYSTEM:

ROOF SLOPE: 20°
 AZIMUTH: 180°
 PV MODULES: 320W
 TOTAL: 14
 MODULES PER STRING: 14

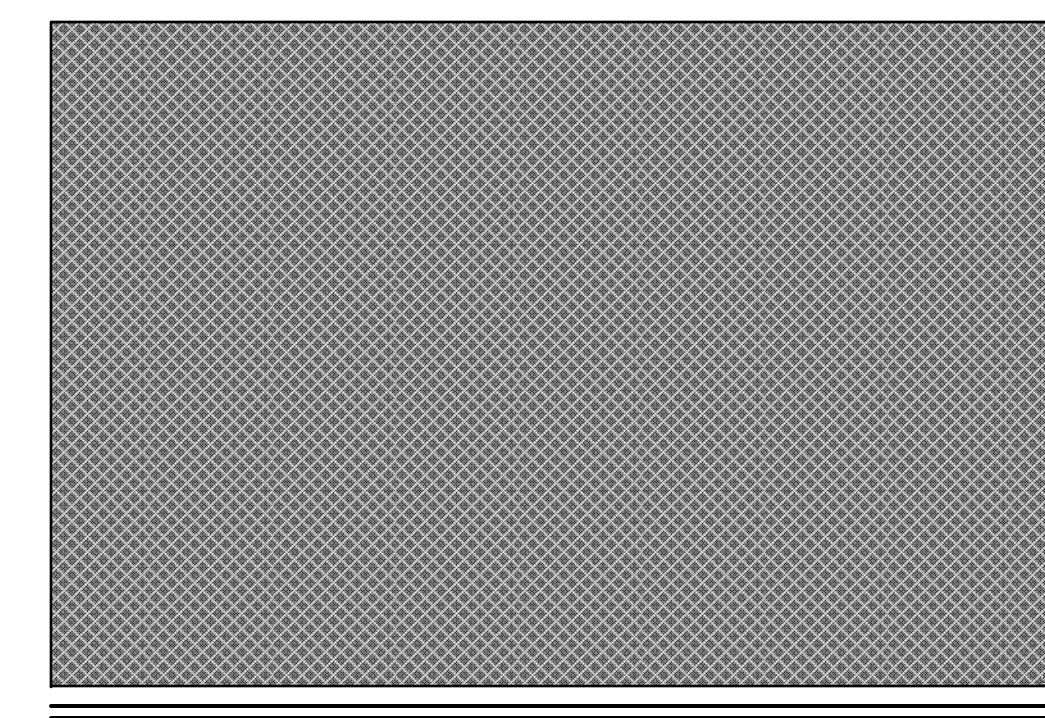
RACK CONFIGURATION:

INVERTER INFORMATION:

3.8 KW UL CERTIFIED INTVERTER, (1)
 DC/AC RATIO: 1.179

ABBREVIATIONS:

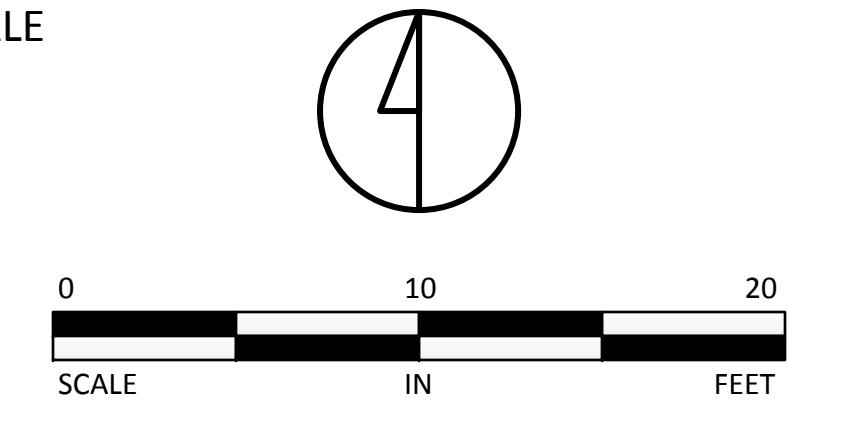
1. FOH: FRONT OF HOUSE
2. FSB: FIRE SET BACKS
3. (E): EXISTING
4. (N): NEW
5. PV: PHOTOVOLTAIC
6. MAX: MAXIMUM
7. OCPD: OVERCURRENT PROTECTION DEVICE
8. PCC: POINT OF COMMON COUPLING
9. PoC: POINT OF DER CONNECTION
10. RPA: REFERENCE POINT OF APPLICABILITY



CUSTOMER NAME

JOHN DOE

SCALE



PROJECT

EXAMPLE DRAWINGS FOR SMALL SOLAR INTERCONNECTIONS

INSTALLATION ADDRESS

INSTALLER NAME AND CONTACT

SHEET

SITE PLAN

SUBMITTAL

EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY
JANE DOE

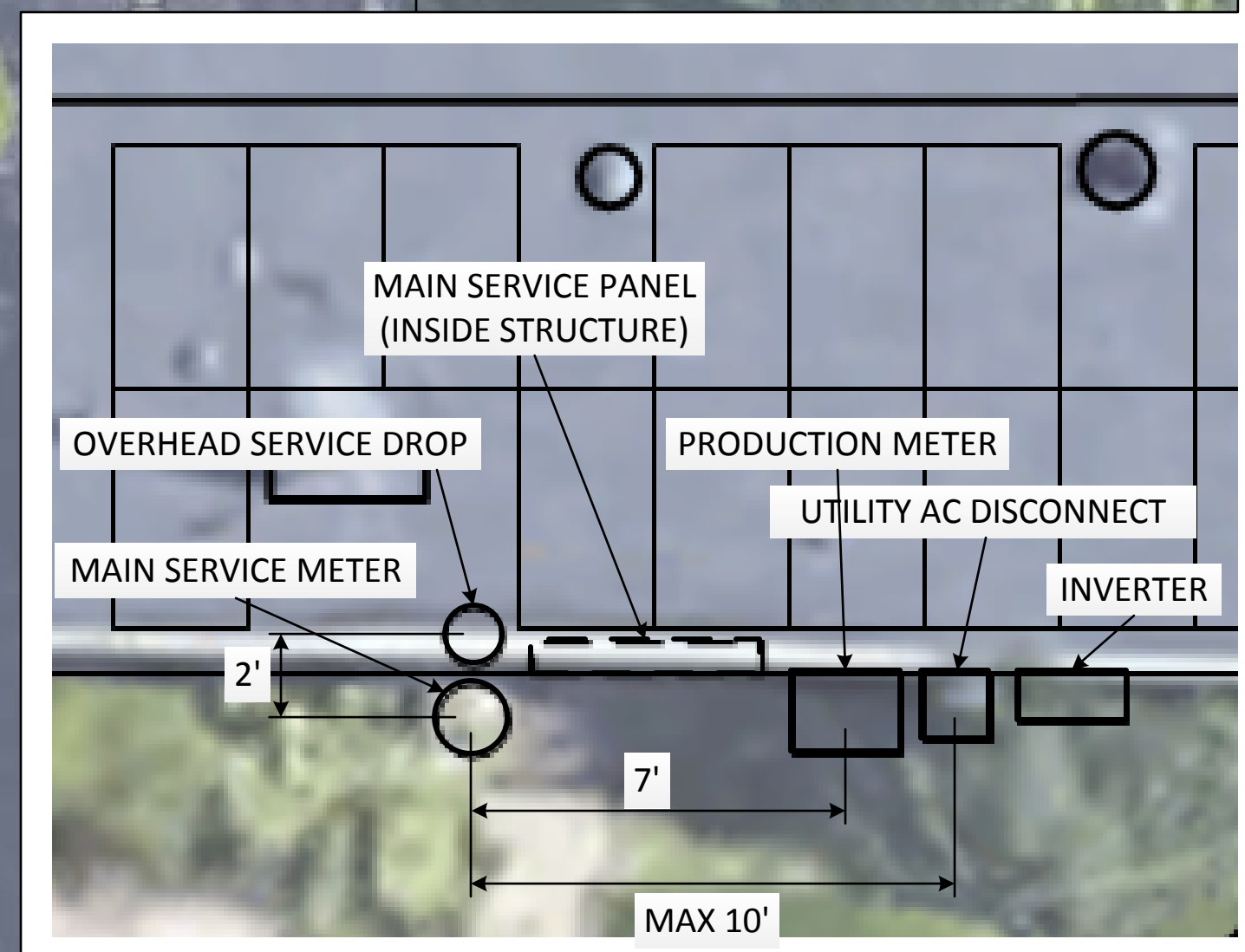
CHECKED BY
UTE I. LITTY

DATE
6/17/2019

PROJECT NUMBER
2019-100.01

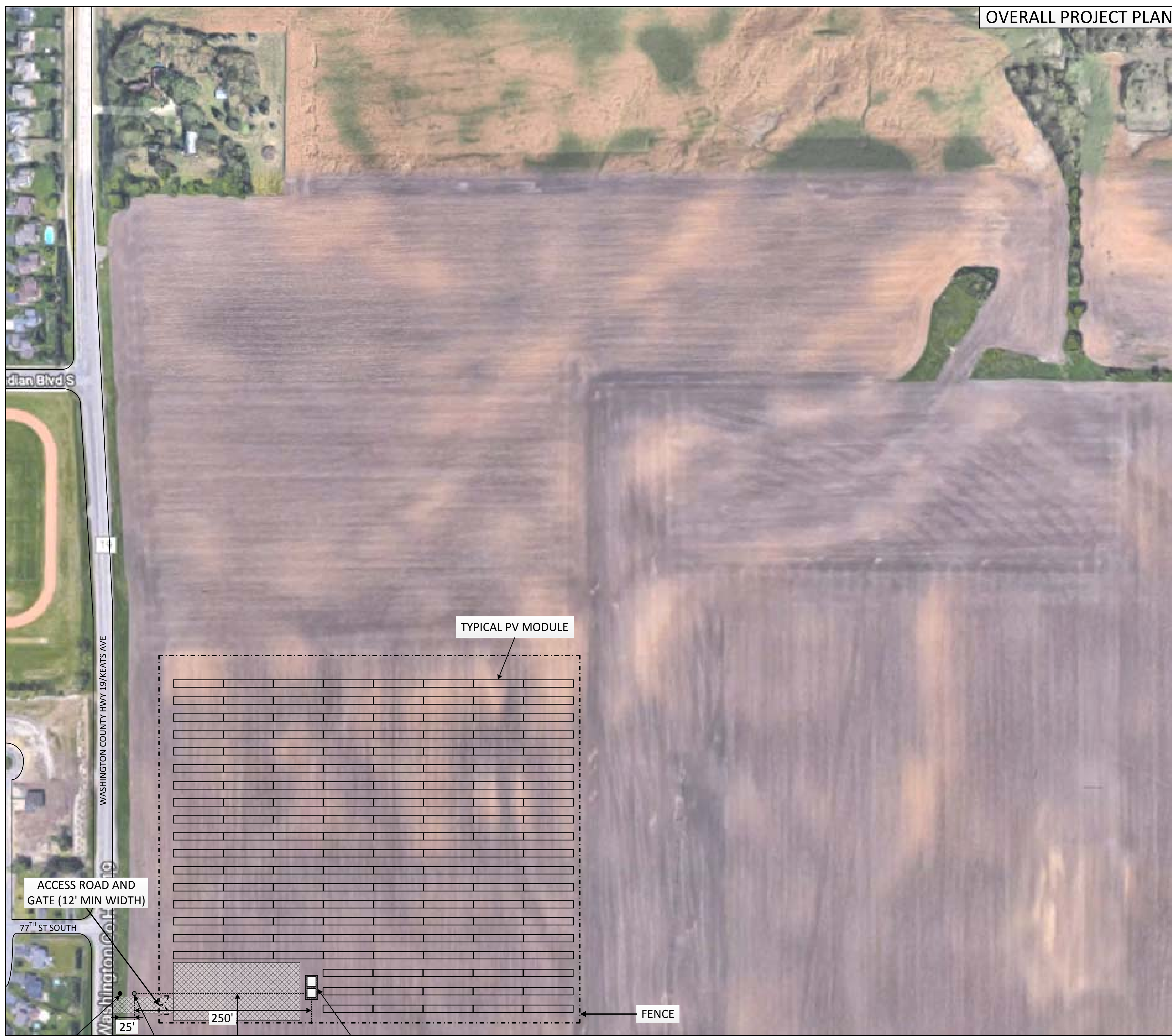
SYSTEM SIZE:
3.8kW AC/4.48kW DC

SHEET NUMBER
E-101-01A



1 EQUIPMENT LAYOUT
 SCALE:

OVERALL PROJECT PLAN

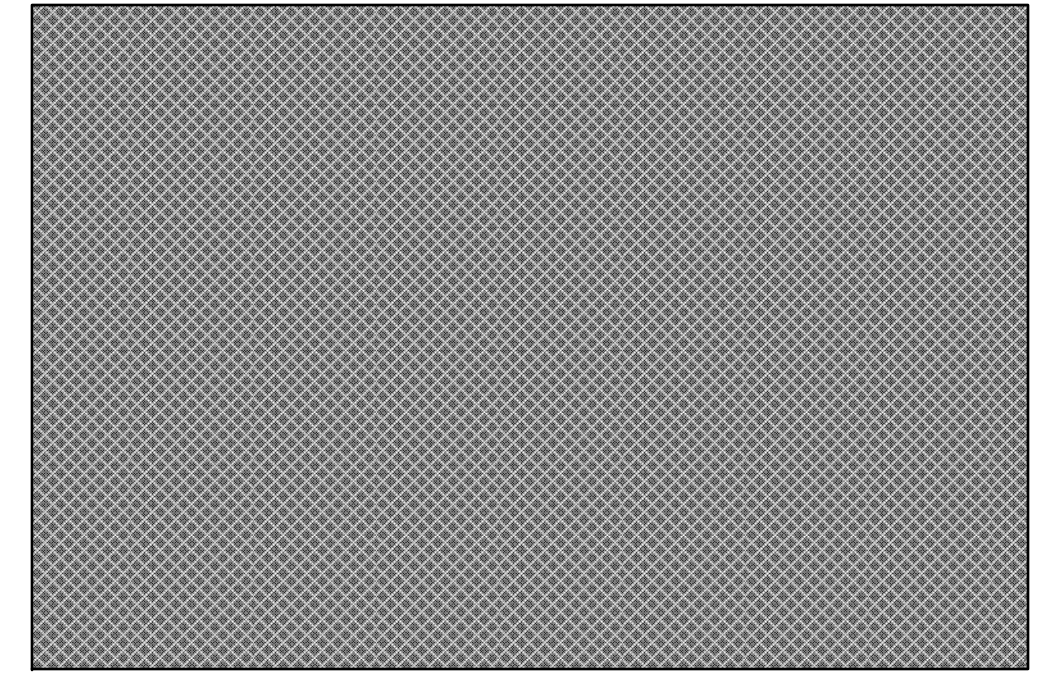


NOTES:

1. THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!
2. ALL TESTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL, WITH PROPER PERSONAL PROTECTIVE EQUIPMENT
3. INSTALLATION SHALL COMPLY WITH NEC 690 AND ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND STANDARDS
4. EQUIPMENT LABELS SHALL BE IN ACCORDANCE WITH NEC 690 AND XCEL ENERGY STANDARDS
5. 24/7 UNESCORTED KEYLESS ACCESS SHALL BE PROVIDED FOR THE METERS AND AC DISCONNECT
6. EQUIPMENT PAD SHALL CONTAIN INVERTER, GROUNDING TRANSFORMER, AND STEP-UP TRANSFORMER PER PROJECT SINGLE LINE DIAGRAM
7. SHOW ALL THE SYSTEMS INCLUDING STORAGE, EXISTING AND NEW (IF APPLICABLE)
8. PROVIDE FUSED, VISIBLE, LOCKABLE DISCONNECT MOUNTED ON DISCONNECT POLE. CLEARLY LABEL DISCONNECT PER XCEL ENERGY GUIDELINES.

ABBREVIATIONS:

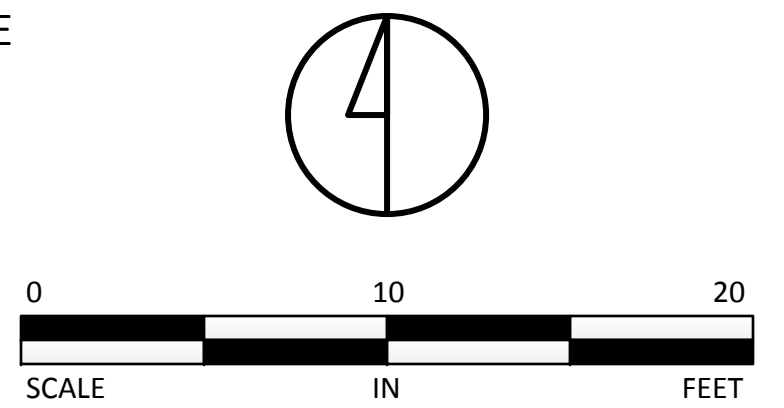
1. FOH: FRONT OF HOUSE
2. FSB: FIRE SET BACKS
3. (E): EXISTING
4. (N): NEW
5. PV: PHOTOVOLTAIC
6. MAX: MAXIMUM
7. OCPD: OVERCURRENT PROTECTION DEVICE
8. PCC: POINT OF COMMON COUPLING
9. PoC: POINT OF DER CONNECTION
10. RPA: REFERENCE POINT OF APPLICABILITY



CUSTOMER NAME

JOHN DOE

SCALE



PROJECT

EXAMPLE DRAWINGS FOR DEDICATED POWER PRODUCTION FACILITY INTERCONNECTION (STAND ALONE DER)

INSTALLATION ADDRESS:

7726 COUNTY ROAD 19, COTTAGE GROVE, MN

GPS: 44.836166, -92.903365

INSTALLER NAME AND CONTACT

SHEET

SITE PLAN

SUBMITTAL

EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY

JANE DOE

CHECKED BY

UTE I. LITTY

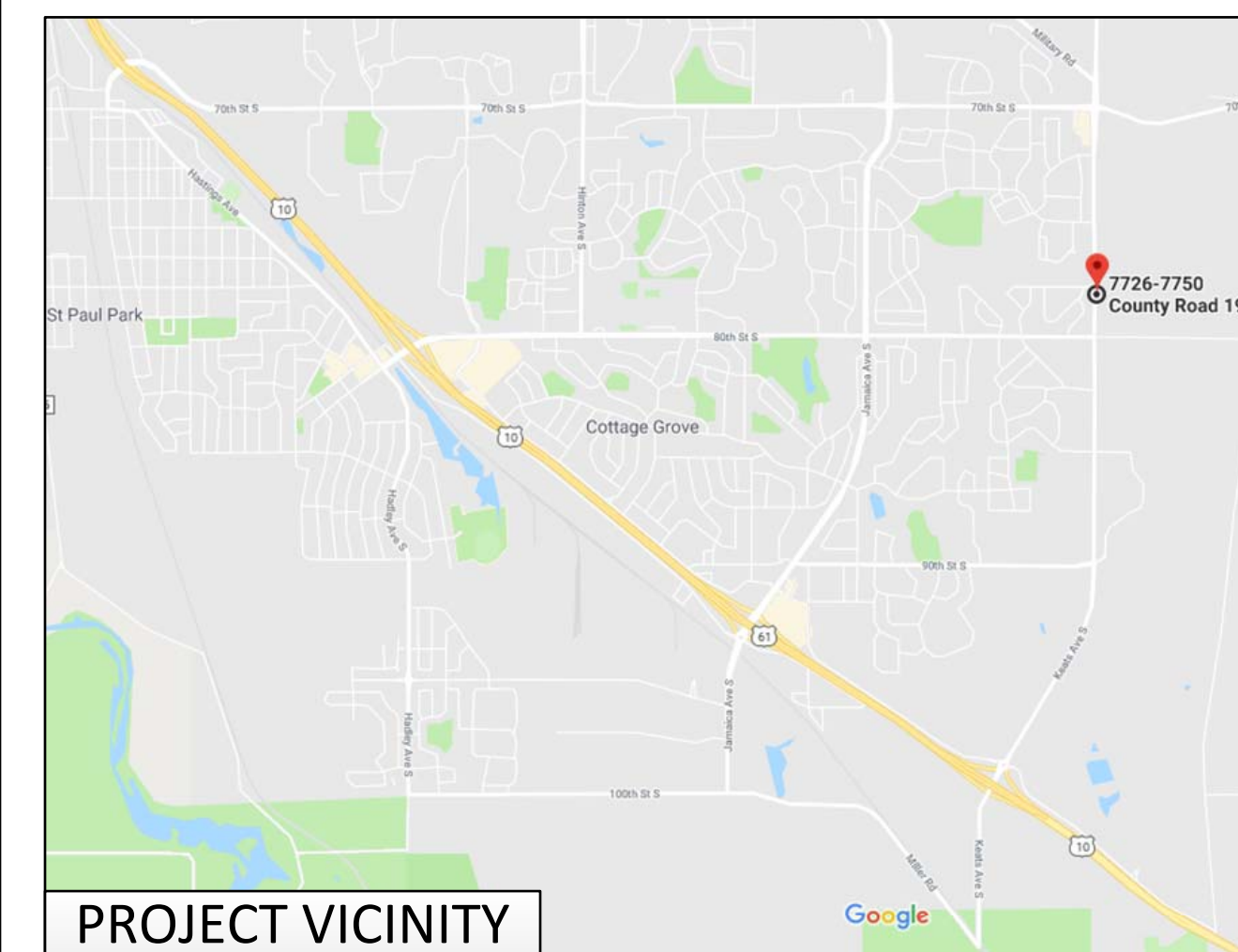
DATE

6/17/2019

PROJECT NUMBER

2019-100.01

SHEET NUMBER
E-101-01B



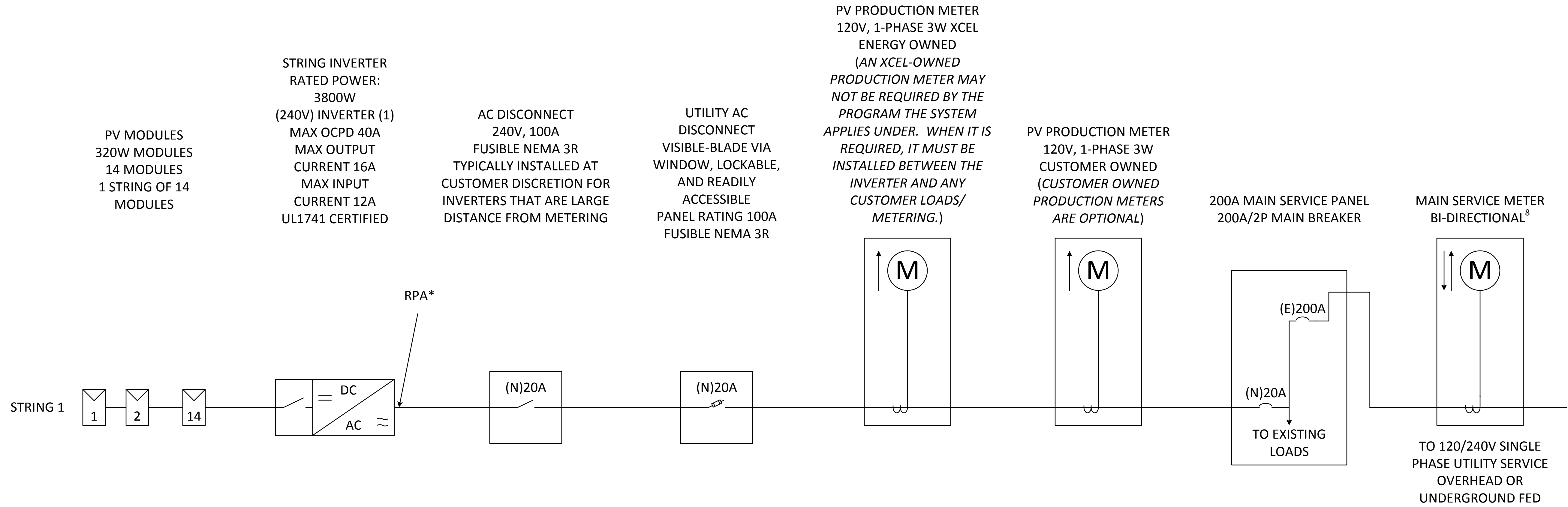
PROJECT VICINITY

	SERVICE METER	UTILITY DISCONNECT	CUSTOMER DISCONNECT
Location:			
Distance:			

**SYSTEM SIZE:
1000kW AC**

UNDERGROUND MEDIUM VOLTAGE AC CIRCUIT FROM EQUIPMENT PAD TO CUSTOMER DISCONNECT SWITCH

ONE LINE EXAMPLE A:
FOR SINGLE INVERTER SYSTEMS



	PV MODULE	INVERTER	UTILITY DISCONNECT	PV METER	MAIN SERVICE PANEL	INTERCONNECTION METHOD
Make:						
Model:						
Rating:						
Total:						

NOTES:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!
- ALL TESTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL, WITH PROPER PERSONAL PROTECTIVE EQUIPMENT
- THE PRODUCTION METER AND AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER
- 24/7 UNESCORTED KEYLESS ACCESS SHALL BE PROVIDED FOR THE METERS AND AC DISCONNECT
- UTILITY AC DISCONNECT SHOULD BE LOCATED WITHIN 10 FEET OF THE MAIN SERVICE METER
- NOTE ALL THE APPLICABLE NEC CODES
- SHOW ALL THE SYSTEMS INCLUDING STORAGE, EXISTING AND NEW (IF APPLICABLE)
- SERVICES <320A WILL USE SELF-CONTAINED MAIN SERVICE METERS. 320A SERVICES MUST INDICATE WHETHER THE METERING WILL BE SELF-CONTAINED OR TRANSFORMER METERED. ALL SERVICES 400A OR GREATER MUST BE TRANSFORMER METERED

PV SYSTEM:
ROOF SLOPE: 20°
AZIMUTH: 180°
PV MODULES: 320W
TOTAL: 14
MODULES PER STRING: 14

RACK CONFIGURATION:

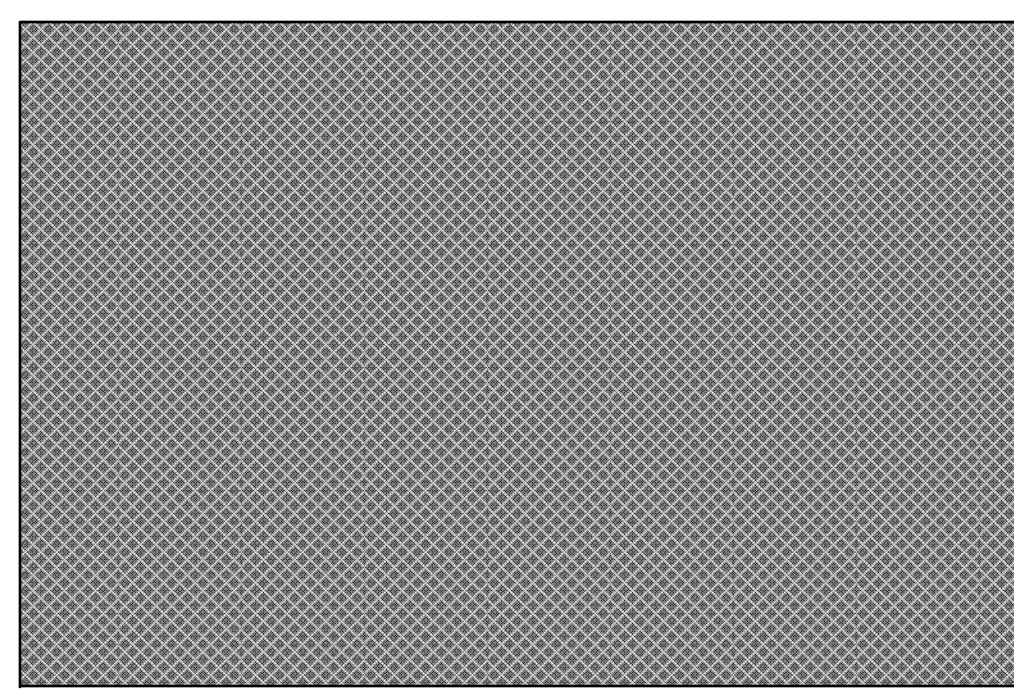
INVERTER INFORMATION:
3.8KW UL CERTIFIED INTVERTER, (1)
DC/AC RATIO: 1.179

ABBREVIATIONS:

- FOH: FRONT OF HOUSE
- FSB: FIRE SET BACKS
- (E): EXISTING
- (N): NEW
- PV: PHOTOVOLTAIC
- MAX: MAXIMUM
- OCPD: OVERCURRENT PROTECTION DEVICE
- PCC: POINT OF COMMON COUPLING
- PoC: POINT OF DER CONNECTION
- RPA: REFERENCE POINT OF APPLICABILITY

*AS DETERMINED BY IEEE 1547

SYSTEM SIZE:
3.8kW AC/4.48kW DC



CUSTOMER NAME
JOHN DOE

SCALE

PROJECT
EXAMPLE DRAWINGS FOR SMALL SOLAR INTERCONNECTIONS
INSTALLATION ADDRESS

INSTALLER NAME AND CONTACT

SHEET
ONE LINE DIAGRAM
SUBMITTAL
EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY
JANE DOE

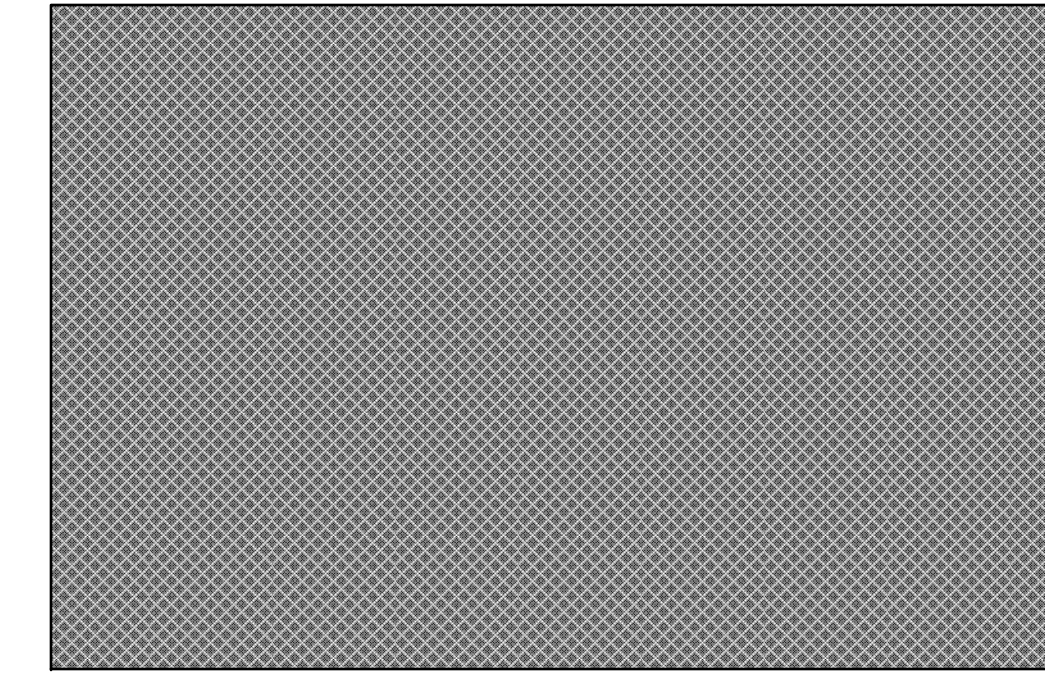
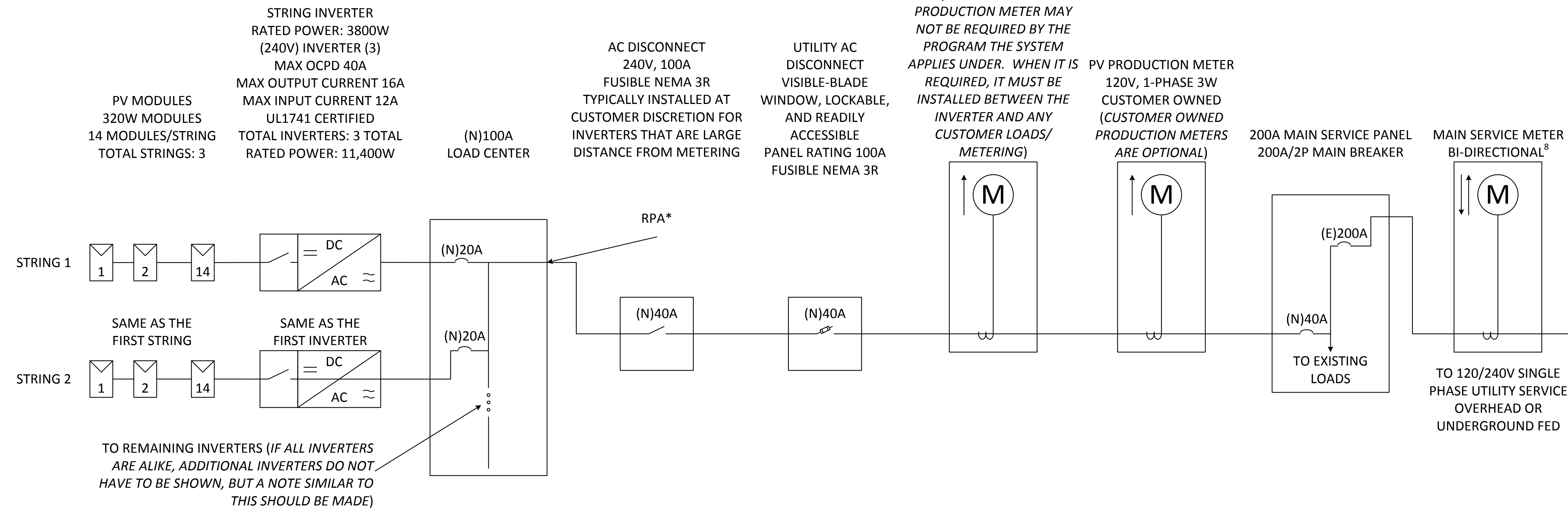
CHECKED BY
UTE I. LITTY

DATE
6/17/2019

PROJECT NUMBER
2019-100.01

SHEET NUMBER
E-101-02A

ONE LINE EXAMPLE B:
FOR MULTIPLE INVERTER SYSTEMS



CUSTOMER NAME
JOHN DOE

SCALE

PROJECT
EXAMPLE DRAWINGS FOR SMALL SOLAR INTERCONNECTIONS
INSTALLATION ADDRESS

INSTALLER NAME AND CONTACT

	PV MODULE	INVERTER	UTILITY DISCONNECT	PV METER	MAIN SERVICE PANEL	INTERCONNECTION METHOD
Make:						
Model:						
Rating:						
Total:						

SHEET
ONE LINE DIAGRAM
SUBMITTAL
EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY
JANE DOE

CHECKED BY
UTE I. LITTY

DATE
6/17/2019

PROJECT NUMBER
2019-100.01

SHEET NUMBER
E-101-02B

SYSTEM SIZE:
11.4kW AC/13.44kW DC

NOTES:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!
- ALL TESTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL, WITH PROPER PERSONAL PROTECTIVE EQUIPMENT
- THE PRODUCTION METER AND AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER
- 24/7 UNESCORTED KEYLESS ACCESS SHALL BE PROVIDED FOR THE METERS AND AC DISCONNECT
- UTILITY AC DISCONNECT SHOULD BE LOCATED WITHIN 10 FEET OF THE MAIN SERVICE METER
- NOTE ALL THE APPLICABLE NEC CODES
- SHOW ALL THE SYSTEMS INCLUDING STORAGE, EXISTING AND NEW (IF APPLICABLE)
- SERVICES <320A WILL USE SELF-CONTAINED MAIN SERVICE METERS. 320A SERVICES MUST INDICATE WHETEHR THE METERING WILL BE SELF-CONTAINED OR TRANSFORMER METERED. ALL SERVICES 400A OR GREATER MUST BE TRANSFORMER METERED

PV SYSTEM:
ROOF SLOPE: 20°
AZIMUTH: 180°
PV MODULES: 320W
TOTAL: 32
MODULES PER STRING: 14

RACK CONFIGURATION:

INVERTER INFORMATION:
3.8KW UL CERTIFIED INTVERTER, (3)
DC/AC RATIO: 1.179

ABBREVIATIONS:

- FOH: FRONT OF HOUSE
- FSB: FIRE SET BACKS
- (E): EXISTING
- (N): NEW
- PV: PHOTOVOLTAIC
- MAX: MAXIMUM
- OCPCD: OVERCURRENT PROTECTION DEVICE
- PCC: POINT OF COMMON COUPLING
- PoC: POINT OF DER CONNECTION
- RPA: REFERENCE POINT OF APPLICABILITY

*AS DETERMINED BY IEEE 1547

ONE LINE EXAMPLE C:

FOR SINGLE OR MULTIPLE INVERTER SYSTEMS – DEDICATED POWER PRODUCTION FACILITY
(STAND ALONE DER)

PV MODULES:
MODULE RATING
MODULES/STRING
TOTAL STRINGS

INVERTER:
RATED POWER
RATED VOLTAGE
MAX OCPD
MAX OUTPUT CURRENT
MAX INPUT CURRENT
UL1741 CERTIFIED
TOTAL INVERTERS
TOTAL RATED POWER

COMBINER PANEL:
INVERTER, LOAD CENTER:
AC KW RATING
VOLTAGE
UL1741 CERTIFIED

GROUND REFERENCING EQUIPMENT:
VARIOUS CONFIGURATIONS
AVAILABLE, SHALL MEET
XCEL ENERGY
REQUIREMENTS

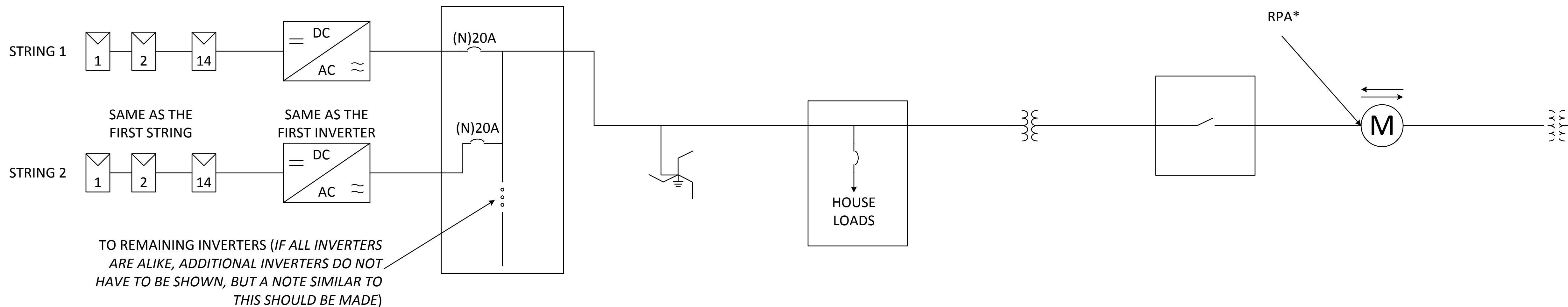
SERVICE PANEL:
PANEL RATING
BREAKER RATINGS

TRANSFORMER:
TRANSFORMER RATINGS
(TRANSFORMER LOCATION
FOR PRIMARY SERVICE
SHOWN)

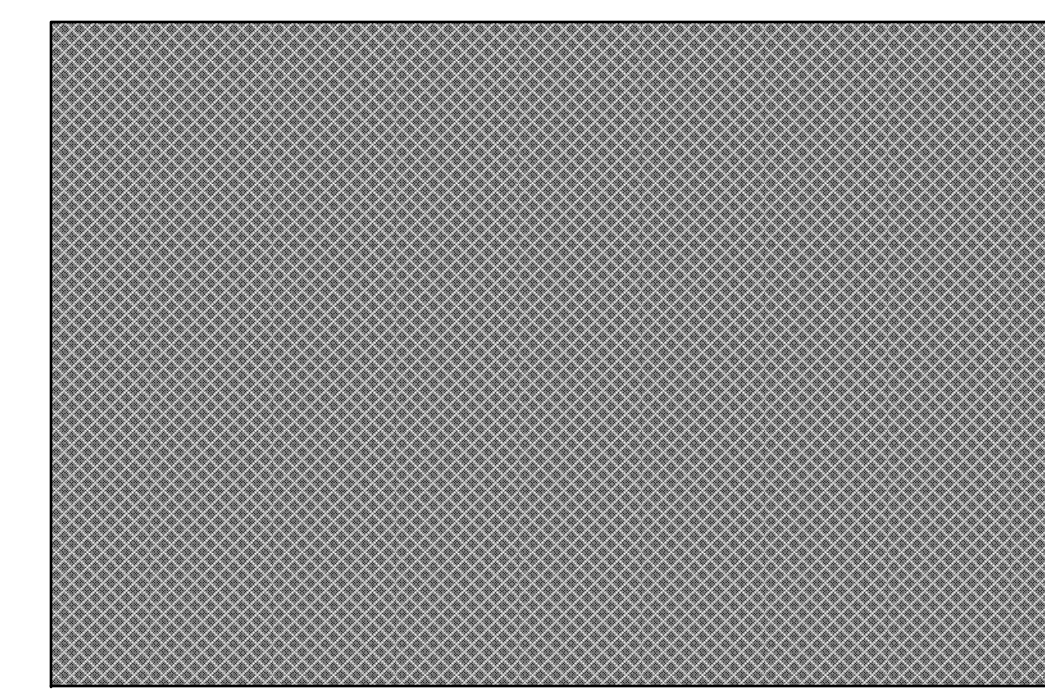
PROTECTION EQUIPMENT:
PROTECTION RATINGS
PROTECTION DETAILS

METER:
SHALL MEET XCEL ENERGY
REQUIREMENTS

TRANSFORMER:
TRANSFORMER RATINGS
(TRANSFORMER LOCATION
FOR SECONDARY SERVICE
SHOWN)



	PV MODULE	INVERTER	UTILITY DISCONNECT	PV METER	MAIN SERVICE PANEL	INTERCONNECTION METHOD
Make:						
Model:						
Rating:						
Total:						



CUSTOMER NAME
JOHN DOE

SCALE

PROJECT
EXAMPLE DRAWINGS FOR DEDICATED POWER PRODUCTION FACILITY INTERCONNECTION (STAND ALONE DER)
INSTALLATION ADDRESS

INSTALLER NAME AND CONTACT

SHEET
ONE LINE DIAGRAM
SUBMITTAL
EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY
JANE DOE
CHECKED BY
UTE I. LITTY

DATE
6/17/2019
PROJECT NUMBER
2019-100.01

SYSTEM SIZE:
1000 kW AC/1344.00kW DC

SHEET NUMBER
E-101-02C

NOTES:

- THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!
- ALL TESTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL, WITH PROPER PERSONAL PROTECTIVE EQUIPMENT
- THE PRODUCTION METER AND AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER
- 24/7 UNESCORTED KEYLESS ACCESS SHALL BE PROVIDED FOR THE METERS AND AC DISCONNECT
- UTILITY AC DISCONNECT SHOULD BE LOCATED WITHIN 10 FEET OF THE MAIN SERVICE METER
- NOTE ALL THE APPLICABLE NEC CODES
- SHOW ALL THE SYSTEMS INCLUDING STORAGE, EXISTING AND NEW (IF APPLICABLE)
- SERVICES <320A WILL USE SELF-CONTAINED MAIN SERVICE METERS. 320A SERVICES MUST INDICATE WHETHER THE METERING WILL BE SELF-CONTAINED OR TRANSFORMER METERED. ALL SERVICES 400A OR GREATER MUST BE TRANSFORMER METERED

PV SYSTEM:

ROOF SLOPE: 20°
AZIMUTH: 180°
PV MODULES: 320W
TOTAL: 32
MODULES PER STRING: 14

RACK CONFIGURATION:

*AS DETERMINED BY IEEE 1547

INVERTER INFORMATION:

3.8KW UL CERTIFIED INTVERTER, (3)
DC/AC RATIO: 1.179

ABBREVIATIONS:

- FOH: FRONT OF HOUSE
- FSB: FIRE SET BACKS
- (E): EXISTING
- (N): NEW
- PV: PHOTOVOLTAIC
- MAX: MAXIMUM
- OCPD: OVERCURRENT PROTECTION DEVICE
- PCC: POINT OF COMMON COUPLING
- PoC: POINT OF DER CONNECTION
- RPA: REFERENCE POINT OF APPLICABILITY

1 PRODUCTION METER

2 Photovoltaic Power Source

WARNING
ELECTRIC SHOCK HAZARD

3 THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

WARNING
ELECTRIC SHOCK HAZARD

4 DO NOT TOUCH THESE TERMINALS, TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

WARNING
ELECTRIC SHOCK HAZARD

5 WHEN A GROUND FAULT IS ACTIVE CONDUCTORS THAT ARE NORMALLY GROUNDED MAY BE UNGROUNDED AND ENERGIZED

6 **CAUTION**
PHOTOVOLTAIC SYSTEM IS BACKFED

WARNING
Turn off AC disconnect prior to working inside panel

7 DO NOT DISCONNECT UNDER LOAD

9 PV SYSTEM DC DISCONNECT

10 UTILITY PV SYSTEM AC DISCONNECT

11 UTILITY ENERGY STORAGE SYSTEM AC DISCONNECT

12 **CAUTION**
PHOTOVOLTAIC ENERGY IS BEING FED INTO THIS SYSTEM

13 **CAUTION**
DUAL POWER SOURCE SECOND SOURCE IS A PV SYSTEM

CAUTION
MAXIMUM OPERATING CURRENT 16A
MAXIMUM OPERATING AC VOLTS 240V

CAUTION
NOMINAL OPERATING AC VOLTAGE 240V
NOMINAL OPERATING AC FREQUENCY 60Hz
MAXIMUM AC POWER 3.8kW
MAXIMUM AC CURRENT 16A
OVERCURRENT PROTECTION RATING 20A

NOTES:

1. ALL PLAQUES AND SIGNAGE REQUIRED BY 2014 NEC 690 WILL BE INSTALLED AS REQUIRED
2. LABELS, WARNING(S), AND MARKING(S) SHALL COMPLY WITH ANSI Z535.4
3. A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS IF NOT IN THE SAME LOCATION IN COMPLIANCE WITH NEC 690.56(B)
4. WHEN ENERGY STORAGE SYSTEMS (ESS) ARE PRESENT, LABELLING INDICATING THIS SHOULD BE INCLUDED. IF ADDITIONAL DISCONNECTS ARE REQUIRED, THESE SHOULD ALSO BE LABELLED FOR THE ESS AS WELL.

CUSTOMER NAME

JOHN DOE

SCALE

PROJECT

EXAMPLE DRAWINGS FOR SMALL SOLAR INTERCONNECTIONS

INSTALLATION ADDRESS

INSTALLER NAME AND CONTACT

SHEET

LABELS

SUBMITTAL

EXAMPLE

#	DATE	REVISION
1	12/1/2018	INITIAL SUBMITTAL
2	12/15/2018	UTILITY COMMENTS
3	6/17/2019	CORRECTED SUBMITTAL

APPLICATION OID, SRC, OR CASE NUMBER

PROFESSIONAL CERTIFICATION

DRAWN BY

JANE DOE

CHECKED BY

UTE I. LITTY

DATE

6/17/2019

PROJECT NUMBER

2019-100.01

Label Locations/Details	
1	Production Meter
2	PV System Utility AC Disconnect, Main Service Disconnect
3	DC BUS, DC Disconnect, Inverter(s)
4	PV System Utility AC Disconnect, Main Service Disconnect
5	DC BUS, DC Disconnect, Inverter(s)
6	PV System Utility AC Disconnect, PV-AC Disconnect load side and line side
7	PV-AC Disconnect
8	PV System Utility AC Disconnect
9	PV System DC Disconnect
10	PV System Utility AC Disconnect
11	Main Service Panel (House/Area Panel), Production meter
12	Main Service Panel (House/Area Panel), Production meter
13	PV-AC Disconnect, AC Panel combiner, Production meter
14	PV-AC Disconnect, AC Panel combiner, Production meter

SYSTEM SIZE:
3.8kW AC/4.48kW DC

SHEET NUMBER
E-101-03