INSTALLATION OF (2) NEW ROOF MOUNTED PV SYSTEM SYSTEM #1 - 3.42kW SYSTEM #2 - 4.845kW

124 MAPLE AVENUE SOUTH BOUND BROOK, NJ 08880

MAPLE AVENUE





GENERAL NOTES

- 1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THE DRAWING PACKAGE AND INFORMATION RECEIVED FROM TRINITY.
- 2. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTION CONTAINED IN THE COMPLETE MANUAL
- 3. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND LINDERSTANDING ALL DRAWINGS COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION. THE INSTALLATION CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSES BEARING SYSTEM COMPONENTS.
- 4. ONCE THE PHOTOVOLTAIC MODULES ARE MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE ON SITE
- 5. FOR SAFETY, IT IS RECOMMENDED BY THE MANUFACTURE THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED IN FIRST AID AND
- 6. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRIC CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL GOVERN
- 7. ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE "UL" LISTED ALL FOUIPMENT WILL BE NEMA 3R OUTDOOR RATED UNLESS INDOORS.

GENERAL NOTES CONTINUED

- THE DC VOLTAGE FROM THE PANELS IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS ALL PERSONS WORKING ON OR INVOLVED WITH THE PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE **ENERGIZED WHENEVER THEY ARE**
- ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE
- PRIOR TO THE INSTALLATION OF THIS PHOTOVOLTAIC SYSTEM THE INSTALLATION CONTRACTOR SHALL ATTEND A PRE-INSTALLTION MEETING FOR THE REVIEW OF THE INSTALLATION PROCEDURES, SCHEDULES, SAFETY AND
- PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS.
- FOR THE PROPER MAINTENANCE AND ISOLATION OF THE INVERTS REFER TO THE ISOLATION PROCEDURES IN THE
- THE LOCATION OF PROPOSED ELECTRIC AND TELEPHONE UTILITIES ARE SUBJECT APPROPRIATE UTILITY COMPANIES AND OWNERS.
- ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL
 - A) CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS STANDARDS AND REQUIREMENTS

GENERAL NOTES CONTINUED

- B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS. STANDARDS, AND REQUIREMENTS THIS SET OF PLANS HAVE BEEN
- PREPARED FOR THE PURPOSE OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DRAWINGS UNTIL REVISED TO INDICATE
- ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES

ABBREVIATIONS

AMPERE

ALTERNATING CURRENT AMP FRAME ABOVE FINISHED FLOOR

ABOVE FINISHED GRADE AMERICAN WIRE GAUGE CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS

COMBINER BOX CIRCUIT CURRENT TRANSFORMER

COPPER DIRECT CURRENT DISCONNECT SWITCH DWG DRAWING ELECTRICAL SYSTEM INSTALLER

ELECTRICAL METALLIC TUBING FUSIBLE SWITCH FUSE

GFI GROUND FAULT INTERRUPTER FREQUENCY (CYCLES PER

ABBREVIATIONS CONTINUED

JUNCTION BOX THOUSAND CIRCULAR MILS KILO-VOLT AMPERE kVA KILO-WATT kWH KILO-WATT HOUR

MCB MAIN CIRCUIT BREAKER MDP MAIN DISTRIBUTION PANEL MLO MAIN LUG ONLY MOUNTED

MTG MOUNTING NEUTRAL NATIONAL ELECTRICAL CODE NIC NO# NOT IN CONTRACT

NUMBER OVER CURRENT PROTECTION

POLF. PULL BOX PHASE

PVC POLY-VINYL CHLORIDE CONDUIT QTY QUANTITY

RGS RIGID GALVANIZED STEEL SOLID NEUTRAL JSWBD SWITCHBOARD TYPICAL

UNLESS OTHERWISE INDICATED WEATHERPROOF TRANSFORMER

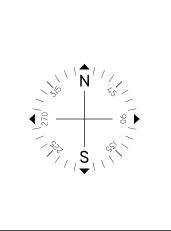
MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR

SHEET INDEX

- COVER SHEET W/ SITE INFO & NOTES
- PV-2 ROOF PLAN W/ MODULE LOCATIONS
- PV-3 ELECTRICAL 3 LINE DIAGRAM (SYSTEM #1)
- ELECTRICAL 3 LINE DIAGRAM (SYSTEM #2)
- PV-5 DATA SHEET
- PV-6 DATA SHEET PV-7 DATA SHEET
- PV-8 DATA SHEET

PV-9

DATA SHEET



	Issued / Revisions	
P1	ISSUED TO TOWNSHIP FOR PERMIT	9/22/2016
NO.	DESCRIPTION	DATE

PITMAN, THERESA (SYSTEMS #1 & #2) TRINITY ACCT #: 2016-165248

Project Address:

Project Title:

124 MAPLE AVENUE SOUTH BOUND BROOK, NJ 08880

Drawing Title: PROPOSED 8.265kW SOLAR SYSTEM

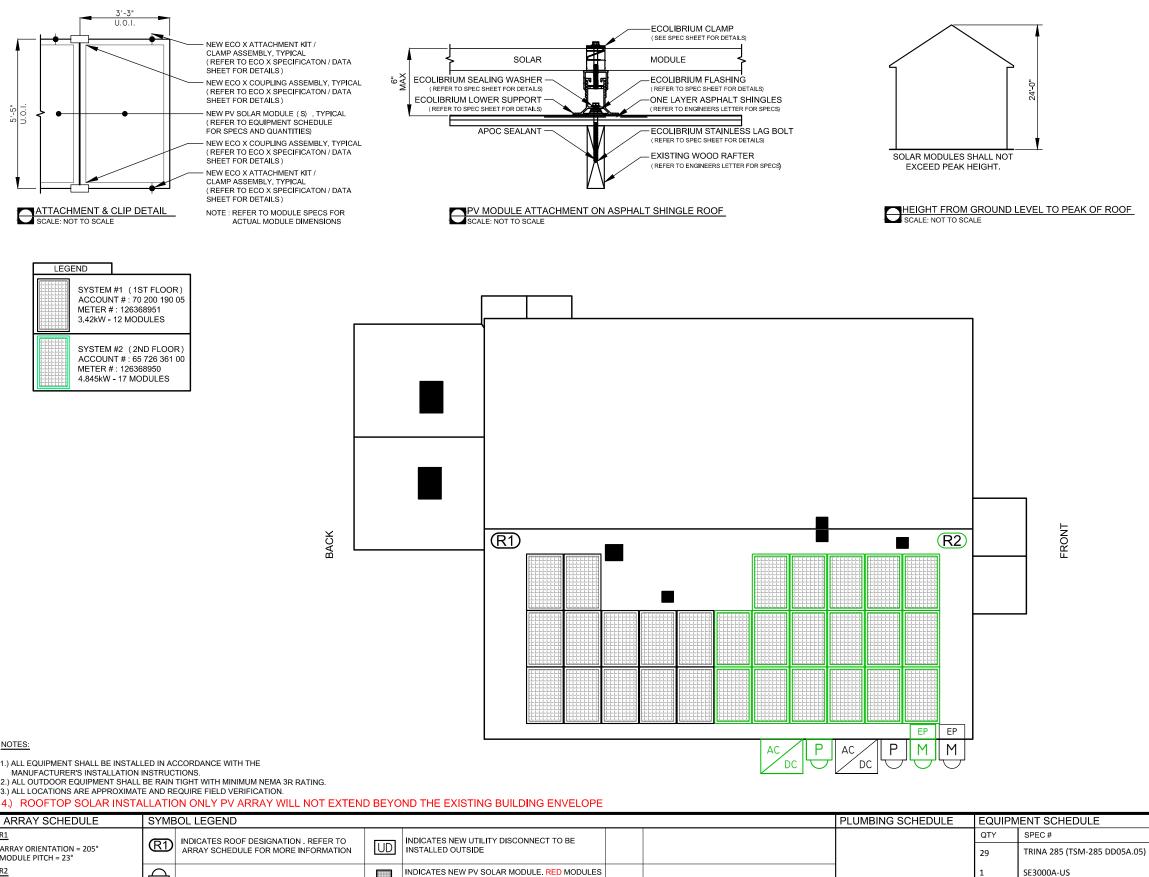
Drawing Inform	ation
DRAWING DATE:	9/22/2016
DRAWN BY:	JC
REVISED BY:	
1	1

System Information	1:
TOTAL SYSTEM SIZE:	8.265kW
TOTAL MODULE COUNT:	29
MODULES USED:	TRINA 285
MODULE SPEC #:	TSM-285 DD05A.05
UTILITY COMPANY:	PSE&G
UTILITY ACCT #:	SEE LAYOUT
UTILITY METER #:	SEE LAYOUT
DEAL TYPE:	SUNNOVA





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INDICATE PANELS THAT USE MICRO INVERTERS.

REFER TO EQUIPMENT SCHEDULE FOR SPECS.

INDICATES NEW PRODUCTION METER TO BE

REFER TO EQUIPMENT SCHEDULE FOR SPECS.

INDICATES NEW INVERTER TO BE

INSTALLED OUTSIDE.

INSTALLED OUTSIDE

М

D

ARRAY ORIENTATION = 250° MODULE PITCH = 23°

INDICATES EXISTING METER LOCATION

INDICATES EXISTING ELECTRICAL PANEL

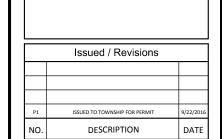
INDICATES NEW MAIN DISCONNECT

LOCATION: IN BASEMENT

SE3000A-US

SE3800A-US

OTHER OBSTRUCTIONS



Project Title:

PITMAN, THERESA (SYSTEMS #1 & #2) TRINITY ACCT #: 2016-165248

Project Address:

124 MAPLE AVENUE SOUTH BOUND BROOK, NJ 08880

Drawing Title:

PROPOSED 8.265kW SOLAR SYSTEM

Drawing Information	n
DRAWING DATE:	9/22/2016
DRAWN BY:	1C
REVISED BY:	

System Information: TOTAL SYSTEM SIZE: 8.265kW TOTAL MODULE COUNT: MODULES USED: TRINA 285 MODULE SPEC #: TSM-285 DD05A.05 UTILITY COMPANY: UTILITY ACCT #: SEE LAYOUT UTILITY METER #: SEE LAYOUT SUNNOVA DEAL TYPE:

Rev. No.

Sheet



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SOLAR MODULES MOUNTED TO ROOF ON 1 ARRAY 12 - 285W MODULES W/ 1 SOLAR EDGE P300 PER MODULE 18.75 ADC MAX PER STRING

1 STRING OF 12 MODULES IN SERIES - 350 Vmax (F) *TERMINATED INSIDE INVERTER 1

JUNCTION BOX

PV MODULE SPECIFICATIONS

TRINA 285 (TSM-285 DD05A.05)

8.97

31.8 39.3

9.45

Imax

INVERTER #1 - SE3000A-US

9.77

350

500

ARRAY CIRCUIT WIRING NOTES 1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND EXECUTING INSTALLATION IN ACCORDANCE WITH NEC 2014

- 2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT
- 3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP =
- 4.) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS
- 5.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35
- 6.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING
- 7.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR
- 8.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THROUGH (5)

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS REQUIRED CONDUCTOR AMPACITY PER STRING [NEC 690.8(B)(1)]: (15.00*1.25)1 = 18.75A

AWG #10, DERATED AMPACITY AMBIENT TEMP: 55°C, TEMP DERATING FACTOR: .76
RACEWAY DERATING = 2 CCC: 1.00 (40*.76)1.00 = 30.40A

30.40A [>] 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 14.00A*1.25 = 17.50A

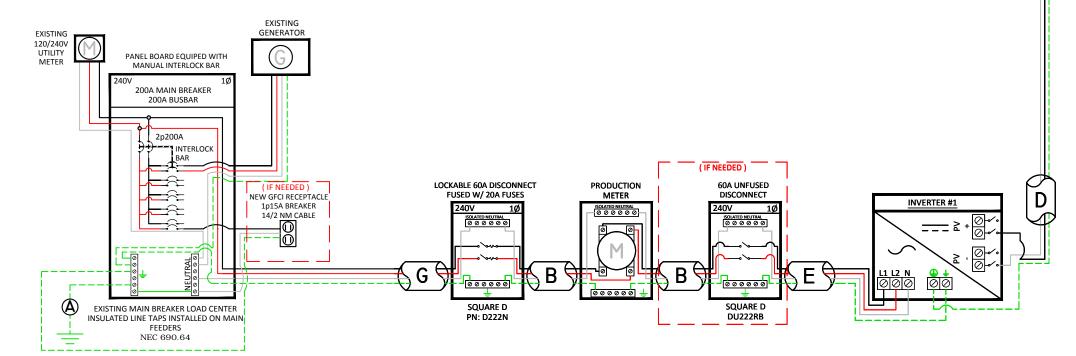
AWG #10, DERATED AMPACITY AMBIENT TEMP: 30°C, TEMP DERATING: 1.0 RACEWAY DERATING 5 3 CCC: N/A 40A*1.0 = 40A

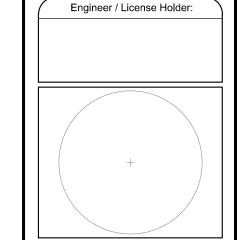
40A - 17.50A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 14.00A

14.00A*1.25 = 17.50A

--> 20A OVERCURRENT PROTECTION IS VALID





	Issued / Revisions	
P1	ISSUED TO TOWNSHIP FOR PERMIT	9/22/2016
NO.	DESCRIPTION	DATE

Project Title:

PITMAN, THERESA (SYSTEM #1) TRINITY ACCT #: 2016-165248

Project Address:

124 MAPLE AVENUE SOUTH BOUND BROOK, NJ 08880

Drawing Litle:
PROPOSED 3.42kW OF 8.265kW
SOLAR SYSTEM

	Drawing Informatio	n
	DRAWING DATE:	9/22/2016
	DRAWN BY:	JC
	REVISED BY:	

TOTAL SYSTEM SIZE:	3.42kW
TOTAL MODULE COUNT:	12
MODULES USED:	TRINA 285
MODULE SPEC #:	TSM-285 DD05A.05
UTILITY COMPANY:	PSE&G
UTILITY ACCT #:	70 200 190 05
UTILITY METER #:	126368951
DEAL TYPE:	SUNNOVA



NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

3/4" CONDUIT W/ 3-#10 THWN-2. 1-#10 THWN-2 GROUND 3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 3-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 3-#6 THWN-2, 1-#8 THWN-2 GROUND

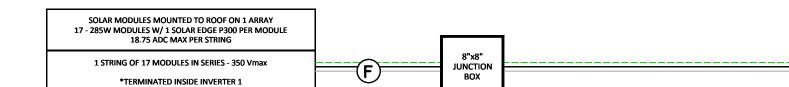
#12 PV WIRE W/ #6 BARE COPPER BOND TO ARRAY

#6 THWN-2 GEC TO EXISTING GROUND ROD

Sheet



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PV MODULE SPECIFICATIONS

TRINA 285 (TSM-285 DD05A.05)

8.97

31.8 39.3

9.45

Imax

INVERTER #1 - SE3800A-US

13 350

500

ARRAY CIRCUIT WIRING NOTES 1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND EXECUTING INSTALLATION IN ACCORDANCE WITH NEC 2014

- 2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP = -16°C
- 3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP = 32°C
- 4.) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF LINITED STATES)
- 5.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER **NEC 690.35**
- 6.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING
- 7.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS
- 8.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THROUGH (5)

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS REQUIRED CONDUCTOR AMPACITY PER STRING [NEC 690.8(B)(1)]: (15.00*1.25)1 = 18.75A

AWG #10, DERATED AMPACITY
AMBIENT TEMP: 55°C, TEMP DERATING FACTOR: .76
RACEWAY DERATING = 2 CCC: 1.00
(40*.76)1.00 = 30.40A

30.40A - 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 16.00A*1.25 = 20.00A

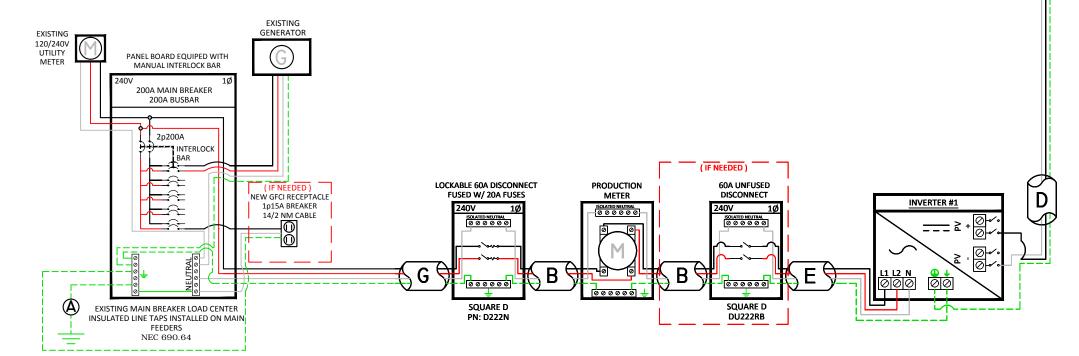
AWG #10, DERATED AMPACITY AMBIENT TEMP: 30°C, TEMP DERATING: 1.0 RACEWAY DERATING S CC: N/A 40A*1.0 = 40A

40A [>] 20.00A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 16.00A

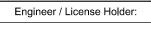
16.00A*1.25 = 20.00A

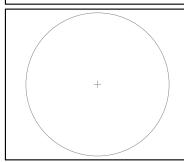
l6.00A*1.25 = 20.00A
--> 20A OVERCURRENT PROTECTION IS VALID



NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHID REQUIREMENTS

Α	#6 THWN-2 GEC TO EXISTING GROUND ROD
В	3/4" CONDUIT W/ 3-#10 THWN-2, 1-#10 THWN-2 GROUND
С	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND
D	3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND
Е	3/4" CONDUIT W/ 3-#10 THWN-2, 1-#10 THWN-2 GROUND
F	#12 PV WIRE W/ #6 BARE COPPER BOND TO ARRAY
G	3/4" CONDUIT W/ 3-#6 THWN-2, 1-#8 THWN-2 GROUND





	Issued / Revisions	
P1	ISSUED TO TOWNSHIP FOR PERMIT	9/22/2016
NO.	DESCRIPTION	DATE

Project Title:

PITMAN, THERESA (SYSTEM #2) TRINITY ACCT #: 2016-165248

Project Address:

124 MAPLE AVENUE SOUTH BOUND BROOK, NJ 08880

Drawing Title:

PROPOSED 4.845kW OF 8.265kW
SOLAR SYSTEM

Drawing Information	n
DRAWING DATE:	9/22/2016
DRAWN BY:	JC
REVISED BY:	

System Information	ı:
TOTAL SYSTEM SIZE:	4.845kW
TOTAL MODULE COUNT:	17
MODULES USED:	TRINA 285
MODULE SPEC #:	TSM-285 DD05A.05
UTILITY COMPANY:	PSE&G
UTILITY ACCT #:	65 726 361 00
UTILITY METER #:	126368950
DEAL TYPE:	SUNNOVA





Sheet



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