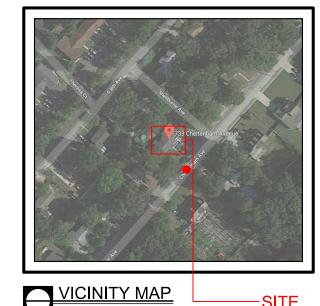
INSTALLATION OF NEW **ROOF MOUNTED PV SOLAR SYSTEM** 733 CHELTENHAM AVE GALLOWAY, NJ 08205

CHELTENHAM AVE



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 FUSE BEARING SYSTEM COMPONENTS.
- 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 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 CPR.
- . THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRICAL 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 EQUIPMENT 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 EXPOSED TO LIGHT.
- ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 690 & 705.
- 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 COORDINATION.
- 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 INVERTERS 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 BE IN ACCORDANCE WITH:
 - 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 "ISSUED FOR CONSTRUCTION".
- ALL INFORMATION SHOWN MUST BE CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES

ABBREVIATIONS

AMPERE

AC ALTERNATING CURRENT AMP FRAME ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AWG

AMP

AMERICAN WIRE GAUGE CONDUIT (GENERIC TERM OF RACEWAY, PROVIDE AS SPECIFIED) COMBINER BOX

CIRCUIT CURRENT TRANSFORMER COPPER

FUSE GND GROUND GFI GROUND FAULT INTERRUPTER

DIRECT CURRENT DISCONNECT SWITCH DWG DRAWING ELECTRICAL SYSTEM INSTALLER ELECTRICAL METALLIC TUBING FS FUSIBLE SWITCH

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

NTS OCP P PB OVER CURRENT PROTECTION POLF.

PULL BOX PHASE
POLY-VINYL CHLORIDE CONDUIT PVC

PWR QTY QUANTITY RIGID GALVANIZED STEEL

RGS 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

ROOF PLAN W/ MODULE LOCATIONS

ELECTRICAL 3 LINE DIAGRAM **APPENDIX**

Issued / Revisions		
A1	AS BUILT	9/19/2019
R1	MODULE TYPE CHANGE	8/30/2019
P1	ISSUED TO TOWNSHIP FOR PERMIT	8/23/2019
NO.	DESCRIPTION	DATE

Project Title:

LONDONO, CLAUDIA-TRINITY ACCT #: 2019-05-344160

Project Address:

733 CHELTENHAM AVE GALLOWAY, NJ 08205 39.442220,-74.519154

Drawing Title:

AS BUILT PV SOLAR SYSTEM

Drawing Information		
DRAWING DATE:	8/23/2019	
DRAWN BY:	KTD / DMR	
REVISED BY:	JMS	

System Information:		
DC SYSTEM SIZE:	5.9kW	
AC SYSTEM SIZE:	5kW	
TOTAL MODULE COUNT:	20	
MODULES USED:	TRINA 295	
MODULE SPEC #:	TSM-295 DD05A.05	
UTILITY COMPANY:	ACE	
UTILITY ACCT #:	55007485877	
UTILITY METER #:	1NF115901958	
DEAL TYPE:	SUNRUN	

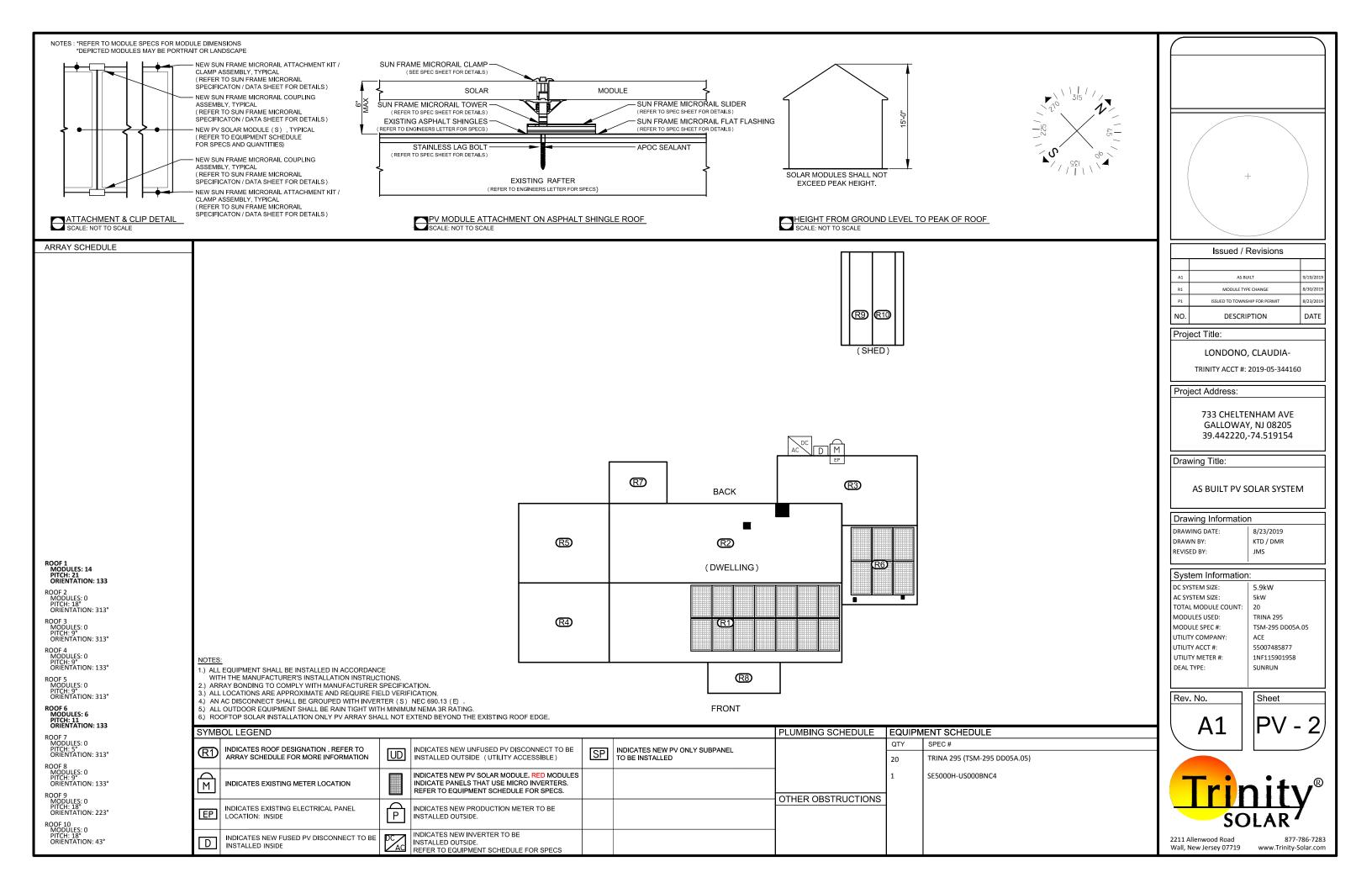


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GENERAL NOTES



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 = 33°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 UNITED STATES)
- 5.) 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)
- 6.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TO OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35
- 7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH: POSITIVE CONDUCTORS = RED NEGATIVE CONDUCTORS = BLACK NEC 210.5(C)(2)
- 8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN \leq 20 CURRENT CARYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN \leq 9 CURRENT CARRYING CONDUCTORS.
- 9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED
- 10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS
- 11.)OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION NEC 705 31
- 12.) WHERE TWO SOURCES FEED A BUSSBAR, ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY NEC 705.12(D)(2)(3)(b)
- 13.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR LOADS
- 14.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

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: 33°C, TEMP DERATING FACTOR: .96
RACEWAY DERATING = 4 CCC: 0.80
(40*.96)0.80 = 30.72A

30.72A - 18.75A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 21.00A*1.25 = 26.25A

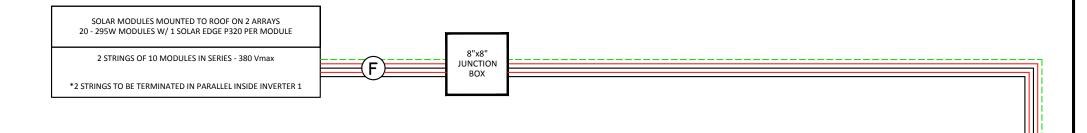
AWG #10, DERATED AMPACITY AMBIENT TEMP: 30°C, TEMP DERATING: 1.0 RACEWAY DERATING 5 CCC: N/A 40A*1.0 = 40A

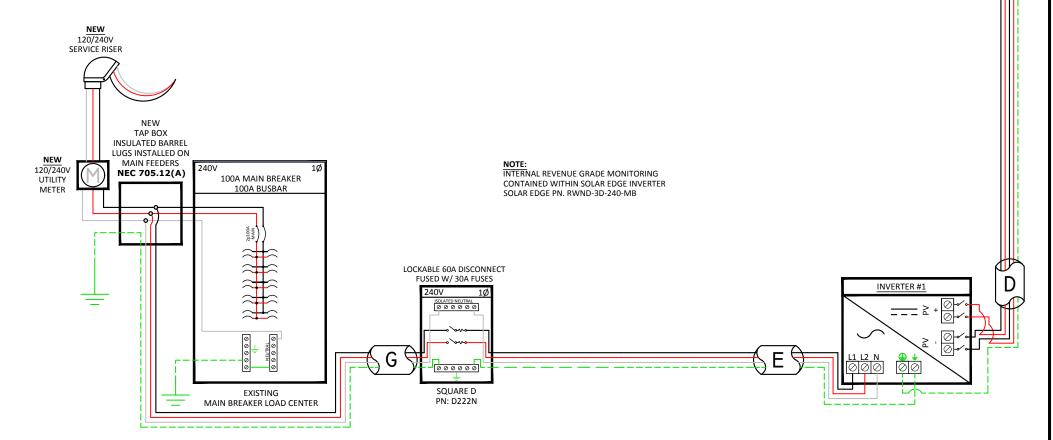
40A [>] 26.25A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 21.00A

21.00A*1.25 = 26.25A

--> 30A OVERCURRENT PROTECTION IS VALID





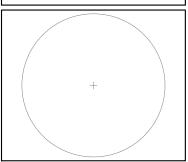
PV MODULE SPECIFICATIONS		
TRINA 295 (TSM-295 DD05A.05)		
Imp		9.08
Vmp		32.5
Voc		39.7
Isc		9.55

INVERTER #1 - SE5000H-US000BNC4			
DC		, i	AC .
Imp	13.5	Pout	5000
Vmp	380	Imax	21
Voc	480	OCPDmin	26.25
Isc	30	Vnom	240

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

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





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UTILITY ACCT #:	55007485877	
UTILITY METER #:	1NF115901958	
DEAL TYPE:	SUNRUN	
DEAL TYPE:	SUNRUN	



PV - S

Sheet



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APPLICATIONS CHANGE (FOR INTERNAL USE ONLY)

UPDATE REVISION	ZONING REQUIRED)? UPDATE REVISION
BUILDING	YES NO	ELECTRICAL
REVISED LAYOUT	☐ s ^v	YSTEM SIZE INCREASE
REVISED ENGINEER LETTER	S	YSTEM SIZE DECREASE
ADDPANELS	X AI	DD TAP BOX \$100
REMOVE PANELS	AI	DD SUBPANEL \$150
RELOCATING PANELS	⋈ NI	EW METER PAN \$100
CHANGE RACKING	⋈ NI	EW RISER \$100
		EW MAIN PANEL \$800 ncludes meter pan and riser)
BUILDING NOTE:	AI	DD INVERTER \$150
-SLIGHT LAYOUT CHANGE	AI	DD AMP FUSED DISCONNECT \$50
	AI	DD AMP BREAKER
	AI	DD BREAKER ENCLOSURE \$100
	AI	DD UNFUSED DISCONNECT \$100
	X RI	EMOVE UNFUSED DISCONNECT
ELECTRICAL NOTE: -REMOVED UNFUSED DISCO	RI	EMOVE FUSED DISCONNECT
-LINE TAPS IN TAP BOX -NEW METER PAN AND RISER	X CI	HANGE POINT OF INTERCONNECTION
-HANWHA 295 TO TRINA 295	CI	HANGE METHOD OF INTERCONNECTION
	RI	EMOVE PRODUCTION METER
	AI	DD PRODUCTION METER
ZONING NOTE:	☐ DI	ECREASE FUSE SIZE
	IN	CREASE FUSE SIZE
	IN	VERTER SIZE DECREASE
	☐ IN	VERTER SIZE INCREASE