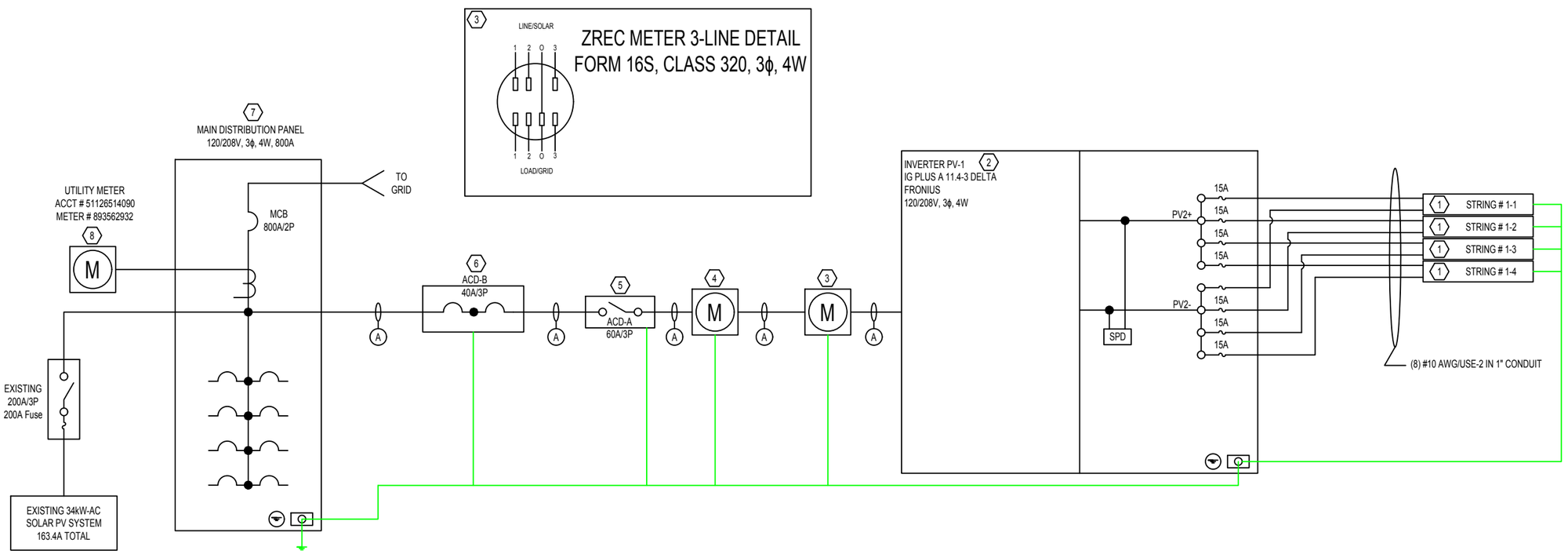

ELECTRICAL CALCULATIONS AND SCHEDULES:

INVERTER DC INPUT CONFIGURATION			INVERTER DC INPUT CONFIGURATION			
INVERTER 1	MPPT - 1	4		STRING HOME RUN WIRE SIZE	LONGEST STRING LENGTH (ft)	STRING VOLTAGE DROP (%)
			INVERTER 1	#10 AWG	100	0.6

AC WIRE AND CONDUIT SCHEDULE

CONDUIT ID	MINIMUM WIRE SIZE	WIRE SIZE AND TYPE	MINIMUM CONDUIT	CONDUCTOR LENGTH	VOLTAGE DROP (%)
Ⓐ	#6 AWG	(4) # 6 CU THWN-2 +#6 GND	1.5" EMT	<100'	1.05%

ARRAY CONFIGUARTION

INVERTER NUMBER	MODULE TYPE	# OF MODULES	TILT	AZIMUTH	kW
INVERTER 1	JAP6 60-255/3BB	60	4°	80°	15.3
TOTAL		60			15.3

GENERAL NOTES:

1. THE INSTALLATION CONTRACTOR WILL BE REQUIRED TO INSTALL WEATHERPROOF STRAIN RELIEFS FOR ALL WIRES ENTERING OR EXITING THE COMBINER BOX THAT ARE NOT PULLED THROUGH CONDUIT.
2. THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE NEMA RATING OF THE INVERTER AND ENCLOSURES. ALL CUNDUIT MUST ENTER THE EQUIPMENT AND BE PROPERLY GASKETED.
3. ELECTRICAL CONTRACTOR SHALL COLOR CODE SOURCE WIRING AS POSITIVE-RED AND NEGATIVE-WHITE. IF THE REQUIRED INSULATION COLOR IS NOT AVAILABLE, TAPING WITH CORRECT COLOR SHALL SUFFICE
4. PROVIDE COMPRESSION LUGS AT BUS TERMINATIONS

KEY NOTES:

1. 10 JA SOLAR JAP6 60-255/3BB SOLAR PANELS WIRED IN SERIES. EACH MODULE INCLUDES 1 #10 AWG OUTDOOR RATED QUICK CONNECT FOR MODULE INTERCONNECTION. DO NOT REMOVE QUICK CONNECTS. OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED. QUICK CONNECTS WILL COMPLY WITH NEC 690.33
2. FRONIUS IG PLUS A 11.4-3 DELTA, 3ϕ, SOLAR PV INVERTER. 11.4KW-AC EACH.
3. NEW FORM 16S, CLASS 320 ZREC METER. TO BE REVIEWED AND APPROVED BY UTILITY.
4. NEW LOCUS LGATE-320, REVENUE GRADE SOLAR PV GENERATION METER
5. NEW SQUARE D DU322RB, 60A, 3P, NON-FUSIBLE DISCONNECT MOUNTED ADJACENT TO UTILITY REVENUE METER
6. NEW 70A SINGLE SPACE CIRCUIT BREAKER ENCLOSURE LOCATED WITHIN IN 10' OF POINT OF COMMON COUPLING. INSTALL 40A BREAKER TO MATCH MANUFACTURER AIC RATING.
7. EXISTING 800A MAIN DISTRIBUTION PANEL. CONTRACTOR WILL VERIFY UTILITY FEEDERS ARE SUITABLE FOR MAXIMUM CURRENT BEFORE INSTALLATION. INADEQUATE FEEDERS WILL NEED TO BE REPLACED PRIOR TO INSTALLATION OF SOLAR PV SYSTEM. SOLAR PV WILL COUPLE VIA CUSTOMER LINE (UTILITY LOAD) SIDE TAP USING INSULATED SPLICE BLOCKS.
8. EXISTING UTILITY REVENUE METER

PV MODULE - JAP6 60-255/3BB	
MAX POWER (W)	255w
OPEN CIRCUIT VOLTAGE (Voc)	37.82
MAX POWER VOLTAGE (Vmp)	30.29
MAX POWER CURRENT (Imp)	8.98
SHORT CIRCUIT CURRENT (Isc)	8.42
STRING SIZING CALCULATIONS	
# PANELS PER STRING	10
MIN TEMPERATURE (°C)	-19
TEMP. COEFF. OF VOLT (%/°C)	-0.33%
TEMPERATURE CORR FAC. =(25°C - MIN TEMP) x TEMP COEFF	14.52%
MAX SYSTEM VOLTAGE (NEC690.7) =Voc x TEMP CORR FAC x PANELS/STRING	433.11V
PV SOURCE CIRCUIT CURRENT (NEC690.8(A)(A)) =Isc x 1.25	10.53V
PV SHORT CIRCUIT CURRENT (NEC690.8(A1))	13.14A

INVERTER - IG PLUS A 11.4-3 DELTA	
MAX DC VOLTAGE:	600V
MPP VOLTAGE RANGE:	230V -5000V
MIN. DC VOLTAGE/START VOLTAGE:	260V
MAX INPUT CURRENT/PER MPP TRACKER:	20A
# OF MPP TRACKERS/STRINGS PER:	1/1
AC NOMINAL POWER:	11,400W
MAX AC APPARENT POWER:	11,400VA
NOMINAL AC VOLTAGE:	208V
AC VOLTAGE RANGE:	183-229V
AC GRID FREQUENCY/RANGE:	60Hz/59.3-60.5Hz
MAX OUTPUT CURRENT:	31.6A
POWER FACTOR:	0.85-1 IND/CAP

INVERTER - IG PLUS A 11.4-3 DELTA TRIP SETTINGS	
VOLTAGE PICKUP (p.u)	CLEARING TIME (S)
VOLTAGE TRIP LIMIT ACCURACY - 1% OF NOMINAL	0.16 - 4.25
FREQUENCY PICKUP (Hz)	CLEARING TIME (S)
FREQUENCY TRIP LIMIT ACCURACY - 0.05Hz	0.016 - 300S

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REVISIONS:	REV. DATE:
REVISION 3	5.22.2015

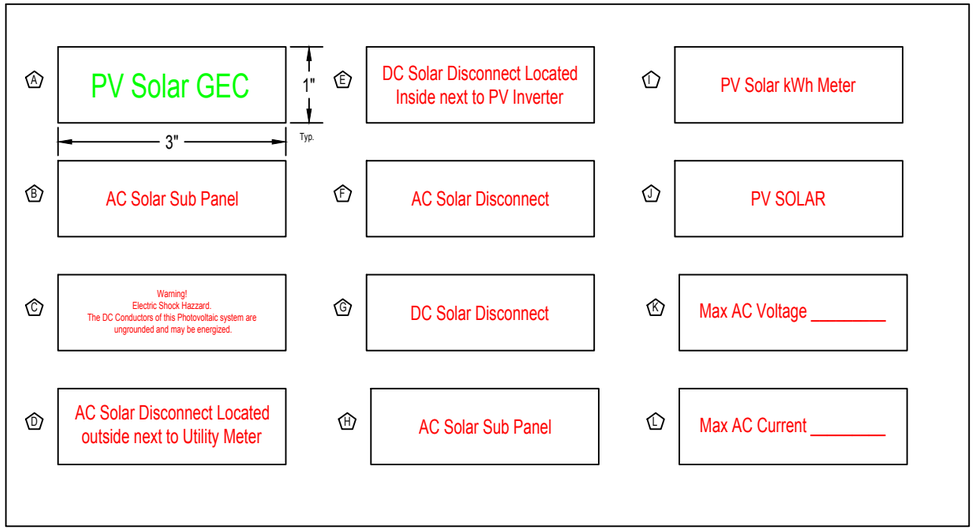
DC RATING:	15.3Kw
ARRAY PITCH:	4°
AZIMUTH:	80°
INVERTER:	IG PLUS 11.4-3
NO. OF MODULES:	60
RACKING SYSTEM:	UniRac RM
SCALE:	NTS
DRAWN:	AM

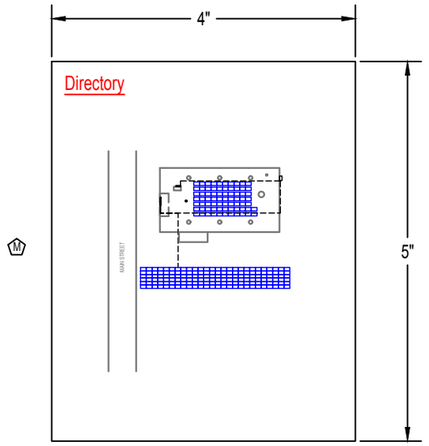
DRAWING TITLE: One-Line Schematic

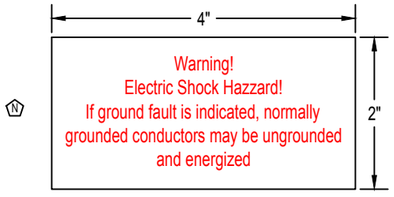
PROJECT: STAFFORD COMMUNITY CENTER 3 BUCKLEY HWY STAFFORD, CT

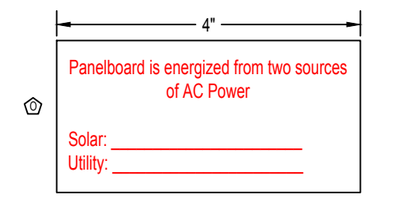
DRAWING NUMBER: PV-100

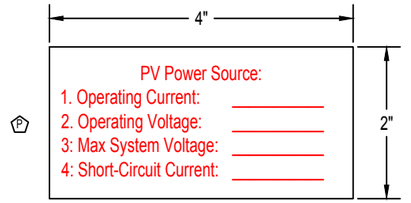
PROJECT NUMBER:

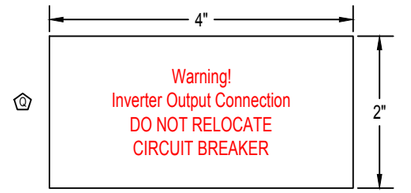


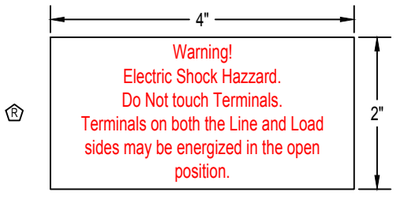












General Notes

1. LABELS AND MARKINGS SHALL BE APLIED TO THE APPROPRIATE COMPONENTS IN ACCORDANCE WITH NEC 2011
2. SOLAR MODULES ARE SUPPLIED FROM THE MANUFACTURER WITH MARKINGS PRE-APPLIED TO MEET THE REQUIREMENTS OF NEC 2011
3. THE INVERTERS ARE SUPPLIED FROM THE MANUFACTURER WITH THE APPROPRIATE LABELS AND MARKINGS
4. TEXT LABELS WILL BE ADHESIVE POLYVINAL STICKERS USING WHITE BACKGROUND AND RED LETTERING
5. MASTER DIRECTORY, LABEL "L", WILL BE ETCHED WITH RED GRAPHICS ONTO RED PLASTIC PLACARD

A Grounding Electrode conductor will be identified	Label on Grounding Electrode Conductor	J PV Solar equipment label	Label on all PV equipment
B Inverter disconnect breaker label	Label inverter breaker enclosure	K AC Solar Disconnect - Max Voltage	Label on AC Disconnect
C Ungrounded System Label	Label on inverter	L AC Solar Disconnect - Max Current	Label on AC Disconnect
D AC Solar Disconnect location label	Label on DC Disconnect	M Master Directory	Label on Utility Meter
E DC Solar Disconnect location label	Label on AC Disconnect	N Gound Fault Warning Label - Applied to all inverters	Label on Inverter
F AC Solar Disconnect Label	Label on AC Solar Disconnect	O Warning Label for PV Electric Panel and Facilities Main Distribution Panel	Label on Solar and/or Main Distribution Panels
G DC Solar Disconnect Label	Label on DC Solar Disconnect	P PV Power Source Label - Located at Inverter	Label on Inverter
H AC Solar Sub Panel	Label on AC Sub Panel	Q Back-Fed Breaker warning label - located at Main Distribution Panel	Label at breaker location on MDP cover panel
I Solar kWh Meter Label	Label on kWh Meter	R AC Disconnect warning label	Label on AC Disconnect

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REVISIONS:	REV. DATE:
REVISION 3	5.22.2015

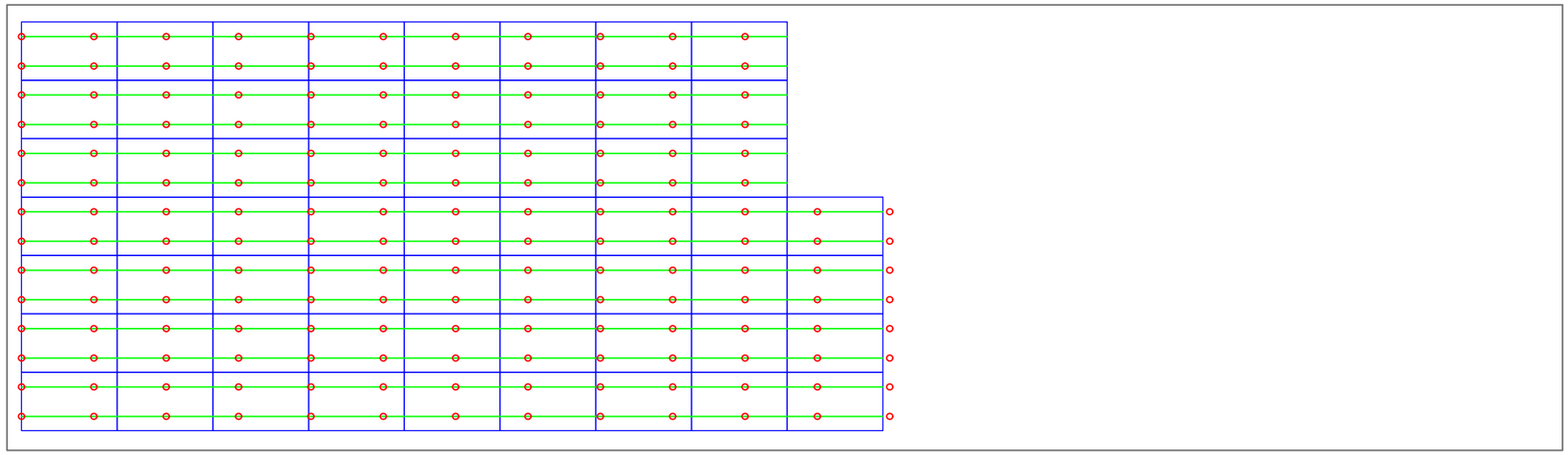
DC RATING:	15.3kW
ARRAY PITCH:	5°
AZIMUTH:	80°
INVERTER:	IG PLUS 11.4
NO. OF MODULES:	60
RACKING SYSTEM:	UniRac SM
SCALE:	N/A
DRAWN:	AM

DRAWING TITLE: Label Schedule

PROJECT: STAFFORD COMMUNITY CENTER 3 BUCKLEY HWY STAFFORD, CT

DRAWING NUMBER: PV-101

PROJECT NUMBER:



Panel Hold Down/Wind Speed – IronRidge	60 Modules 14 Rails 170 L Feet Square Footage Per Panel JA Solar JAP6 60–250/3BB 65" X 39" 5.42' X 3.25' 17.6 ft² per Panel	Distributed Dead Load System = 60 Panels Module Weight = 40.1 lbs Mounted Weight = 43.1 lbs Array Square Footage = 1,056 ft² Total Weight = 2,412 lbs Distributed Weight = 2.28 lbs/ft²
17.6 ft² per panel x 60 panels = 1,056 ft² array 205 lb/in withdraw res. (5/16 lag screw) 51 lb/ft² wind pressure uplift (Category C, 15' roof height, 120mph) 51 lb/ft x 1,056 ft² = 53,856 lb wind uplift potential 205 lb/in x 3/4" of contact lag x 5 lags per L Foot = 768.75 lb's of hold down/lag 615 lbs x 170 = 130,687 lb's hold down 53,856<130,687 Hold down strength exceed that required @ 51 lb/ft² wind uplift potential 2.4 SAFETY FACTOR CONSIDERED		

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REVISIONS:	REV. DATE:
REVISION 1	5.22.2015

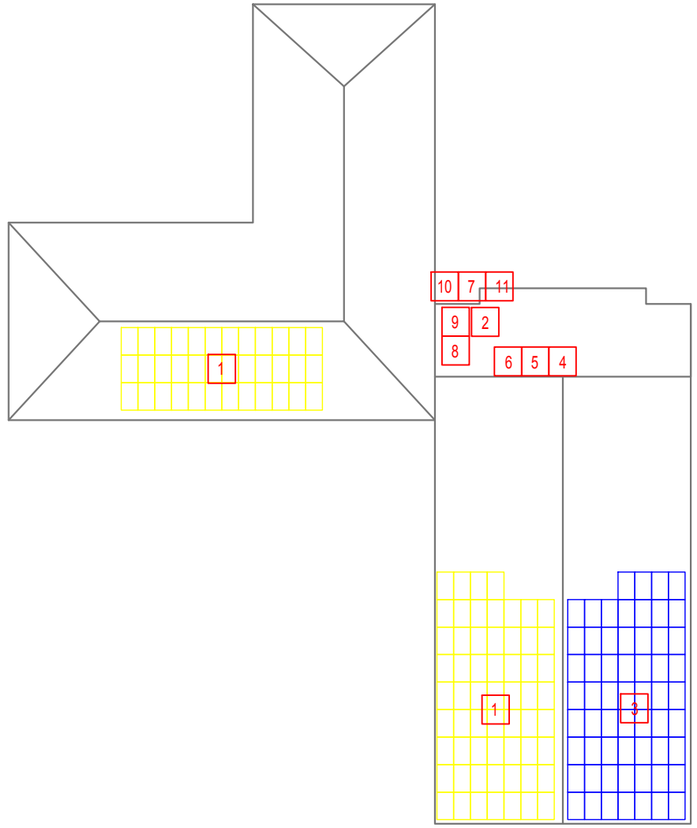
DC RATING:	15.3kW
ARRAY PITCH:	5°
AZIMUTH:	80°
INVERTER:	IG PLUS 11.4
NO. OF MODULES:	60
RACKING SYSTEM:	UniRac SM
SCALE:	3/16" = 1'
DRAWN:	AM

DRAWING TITLE: Array Layout

PROJECT: STAFFORD COMMUNITY CENTER 3 BUCKLEY HWY STAFFORD, CT

DRAWING NUMBER: PV-200

PROJECT NUMBER:



Legend

1) Existing Solar Modules
2) Existing Solar Inverter
3) New Solar Modules – (56) Canadian Solar PV modules mounted on roof
4) New Solar Inverter – Mounted on North facing wall (access from roof)
5) ZREC Meter – Mounted on North facing wall adjacent to new inverter
6) Locus Meter – Mounted on North facing wall adjacent to ZREC meter
7) AC Disconnect 1 – Mounted on West facing wall adjacent to Utility Revenue Meter
8) AC Disconnect 2 – mounted adjacent to main service panel in electrical room in the NE corner of building
9) Main Service Panel – Mounted in NE corner of building
10) Utility Revenue Meter – Mounted on West facing exterior wall in NE corner of building
11) Existing PV Disconnect – Mounted adjacent to Utility Revenue Meter

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REV. DATE:	5.22.2015
REVISIONS:	REVISION 1
DC RATING:	15.3kW
ARRAY PITCH:	5°
AZIMUTH:	80°
INVERTER:	IG PLUS A 11.4-3
NO. OF MODULES:	60
RACKING SYSTEM:	UniRac U-LA
SCALE:	NTS
DRAWN:	AM

DRAWING TITLE: Site Layout

PROJECT: STAFFORD COMMUNITY CENTER
3 BUCKLEY HWY
STAFFORD, CT

DRAWING NUMBER: PV-300

PROJECT NUMBER: