

CABLE SCHEDULE							
CIRCUIT ID	VOLTAGE RATING	CONDUCTOR QUANTITY, SIZE AND MATERIAL.	WIRE TYPE	QUANTITY OF CONDUITS	SIZE OF CONDUITS	CONDUIT TYPE	NOTES
A	25KV	(3) #1/0 AWG AL, (1) #1/0 AWG AL N	COVERED	--	--	--	
A1	25KV	(1) #1/0 AWG AL	COVERED	--	--	--	
B	25KV	(3) #1/0 AWG AL	XLP/133%	1	4"	PVC	TYPE JCN
C	600V	(2) #10 AWG, (1) #12 AWG G	XHHW-2	1	1"	PVC	
D	600V	CAT 5	-	1	1.5"	PVC	
E	600V	(6) #12 AWG AL	XHHW-2	1	1"	PVC	
F	600V	(2) #12 AWG AL, (1) #12 AWG AL G	XHHW-2	1	1"	PVC	
G	25KV	(1) #1/0 AWG AL N	XLP/133%	1	2"	PVC	
H	600V	(3) #10 AWG, (1) #10 AWG N (1) #12 AWG G	XHHW-2	1	1"	PVC	
I	600V	(12) 500 KCMIL AL, (4) 250 KCMIL AL G	XHHW-2	4	4"	PVC	
J	600V	(2) #10 AWG, (1) 10 AWG G	XHHW-2	1	1"	PVC	
K	600V	(2) #10 AWG	XHHW-2	1	1"	PVC	
L	600V	(3) 300 KCMIL AL, (1) 300 KCMIL AL N, (1) #4 AWG AL G	RHW-2	1	2.5"	PVC	
M	480V	5 SETS OF [(3) 600 KCMIL AL, (1) 350 KCMIL G]	XHHW-2	5	4"	PVC	

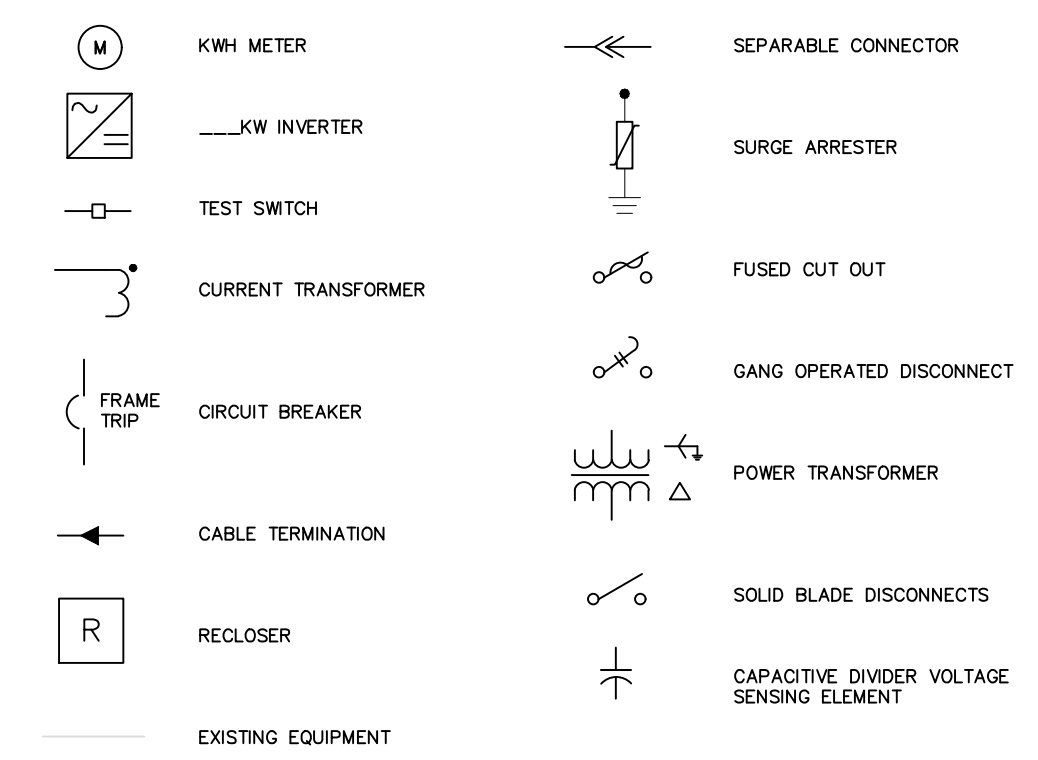
* ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE NOTED.

PROTECTIVE RELAY SETTINGS						
SEL-651R PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING (PRI) PU	FREQUENCY SETTING HZ	CLEAR TIME CYC.	CURRENT SETTING PU	
27P1 - UNDERVOLTAGE	X	0.758 (68%)		9.6		
27P2 - UNDERVOLTAGE	X	1.329 (118%)		120		
59P1 - OVERVOLTAGE	X	1.66 (146%)		60		
59P2 - OVERVOLTAGE	X	1.81 (159%)		9.6		
81UP1 - UNDERFREQUENCY	X		57.0	9.6		
81UP2 - UNDERFREQUENCY	X		58	1920		
81OP1 - OVERFREQUENCY	X		60.5	9.6		
51 - OVERCURRENT	X	1.04		0.7	6.7 (70A)	
51C - OVERCURRENT	X	1.329 (118%)		9.6	6.22 (22A)	
51CG - GROUND OVERCURRENT	X	1.329 (118%)		0.5	0.11 (11A)	
79 - RECLOSER	X			5 MINUTES		
ALARM	X			< 120		

PROTECTIVE RELAY SETTINGS			
SEL-651R PROTECTIVE FUNCTIONS	TRIP OUTPUT	SETTING PU (PRI)	TOTAL CLEARING TIME CYC. (SEC.)
32 - DIRECTIONAL POWER	X	199 (1990KW)	300(5)

- VOLTAGE VALUES ARE L-L
- TOTAL CLEARING TIME = DELAY TIME + CLEARING TIME OF 3 CYCLES
- THIS SETTING WOULD BE ADDED TO THE EXISTING TAVRIDA RECLOSER ON SITE
- THE CLEARING TIME WILL BE SET ACCORDING TO UTILITY REQUIREMENT
- THE 32 FUNCTION IS A DIRECTIONAL ELEMENT AND WOULD TRIP THE SITE IF POWER SUPPLIED TO THE GRID EXCEEDS 1.9MW

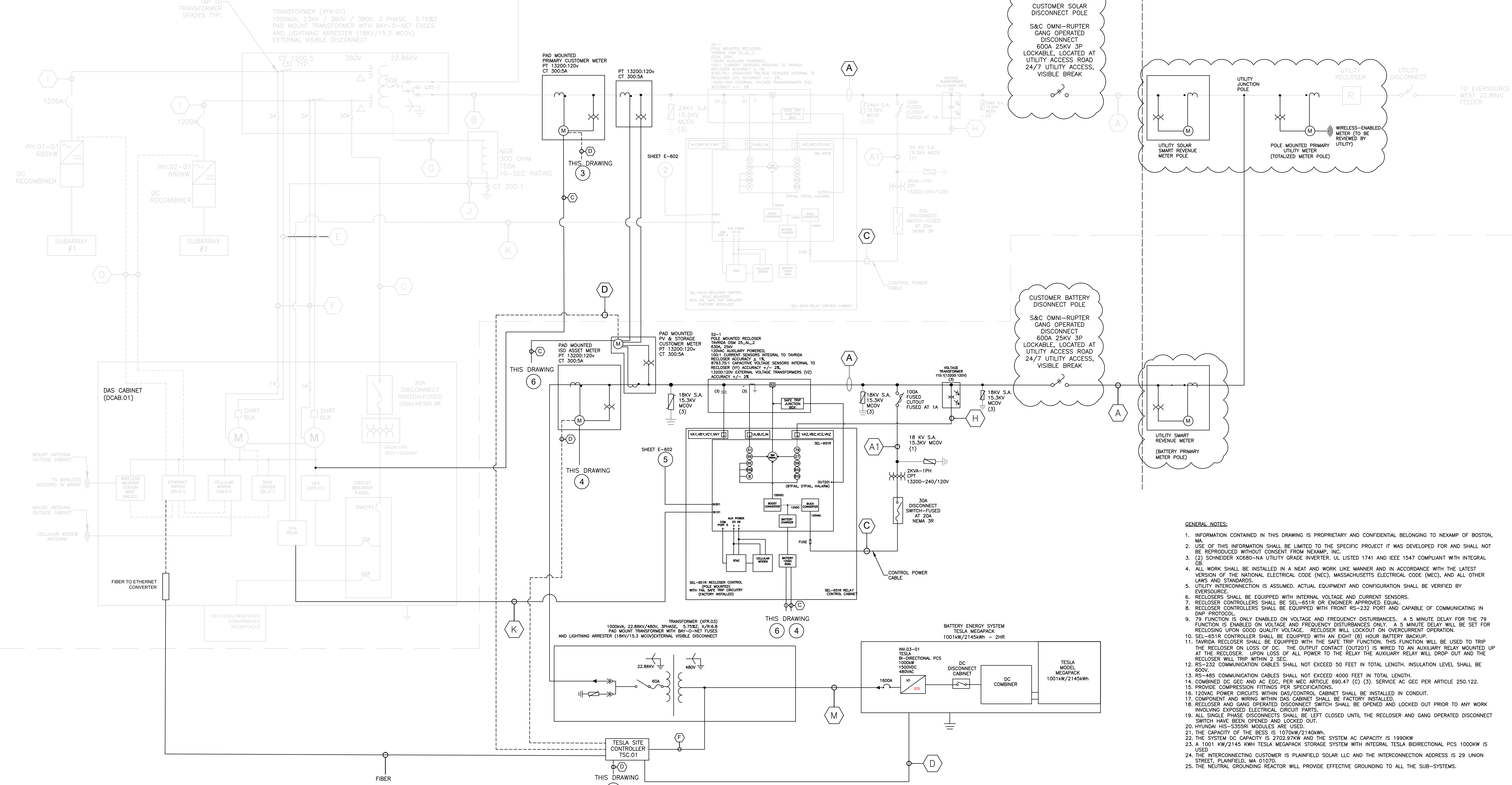
ONE LINE DIAGRAM LEGEND



INVERTER PROTECTION SETTINGS (CORRESPONDS TO ONLY TESLA INVERTER)			
INVERTER PROTECTIVE FUNCTIONS	VOLTAGE SETTING PU	FREQUENCY SETTING HZ	CLEARING TIME CYC. (SEC)
27 - FAST UNDERVOLTAGE	240 (50%)		66 (1.1)
27 - UNDERVOLTAGE	422 (88%)		120 (2)
59 - FAST OVERVOLTAGE	576 (120%)		9.6 (0.16)
59 - OVERVOLTAGE	528 (110%)		120 (2)
81UP1 - UNDERFREQUENCY		56.5	9.6 (0.16)
81UP2 - UNDERFREQUENCY		58.5	18000 (300)
81 - OVERFREQUENCY		61.2	18000 (300)
81 - OVERFREQUENCY		62	9.6 (0.16)

- VOLTAGE VALUES ARE L-L
- A THIRD UNDER VOLTAGE SETTING CAN BE ADDED AT THE REQUEST OF THE UTILITY.

EXISTING SYSTEM
6A1151-2015



- GENERAL NOTES:**
- INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP OF BOSTON, MA.
 - USE OF THIS INFORMATION SHALL BE LIMITED TO THE SPECIFIC PROJECT IT WAS DEVELOPED FOR AND SHALL NOT BE REPRODUCED WITHOUT CONSENT FROM NEXAMP, INC.
 - (2) SCHNEIDER XC680-NA UTILITY GRADE INVERTER, UL LISTED 1741 AND IEEE 1547 COMPLIANT WITH INTEGRAL GSI.
 - ALL WORK SHALL BE INSTALLED IN A NEAT AND WORK LIKE MANNER AND IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE (NEC), MASSACHUSETTS ELECTRICAL CODE (MEC), AND ALL OTHER LAWS AND STANDARDS.
 - UTILITY INTERCONNECTION IS ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY EVERSOURCE.
 - RECLOSERS SHALL BE EQUIPPED WITH INTERNAL VOLTAGE AND CURRENT SENSORS.
 - RECLOSER CONTROLLERS SHALL BE SEL-651R OR ENGINEER APPROVED EQUAL.
 - RECLOSER CONTROLLERS SHALL BE EQUIPPED WITH FRONT RS-232 PORT AND CAPABLE OF COMMUNICATING IN GNP PROTOCOL.
 - 79 FUNCTION IS ONLY ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES. A 5 MINUTE DELAY FOR THE 79 FUNCTION IS ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES ONLY. A 5 MINUTE DELAY WILL BE SET FOR RECLOSING UPON GOOD QUALITY VOLTAGE. RECLOSER WILL LOCKOUT ON OVERCURRENT OPERATION.
 - SEL-651R CONTROLLER SHALL BE EQUIPPED WITH AN EIGHT (8) HOUR BATTERY BACKUP.
 - TAVRIDA RECLOSER SHALL BE EQUIPPED WITH THE SAFE TRIP FUNCTION. THIS FUNCTION WILL BE USED TO TRIP THE RECLOSER ON LOSS OF DC. THE OUTPUT CONTACT (OUT201) IS WIRED TO AN AUXILIARY RELAY MOUNTED UP AT THE RECLOSER. UPON LOSS OF ALL POWER TO THE RELAY THE AUXILIARY RELAY WILL DROP OUT AND THE RECLOSER WILL TRIP WITHIN 2 SEC.
 - RS-232 COMMUNICATION CABLES SHALL NOT EXCEED 50 FEET IN TOTAL LENGTH. INSULATION LEVEL SHALL BE 600V.
 - RS-485 COMMUNICATION CABLES SHALL NOT EXCEED 4000 FEET IN TOTAL LENGTH.
 - COMBINED DC GEC AND AC GEC, PER MEC ARTICLE 690.47 (C) (3). SERVICE AC GEC PER ARTICLE 250.122.
 - PROVIDE COMPRESSION FITTINGS PER SPECIFICATIONS.
 - 120VAC POWER CIRCUITS WITHIN DAS/CONTROL CABINET SHALL BE INSTALLED IN CONDUIT.
 - COMPONENT AND WIRING WITHIN GAS CABINET SHALL BE FACTORY INSTALLED.
 - RECLOSER AND GANG OPERATED DISCONNECT SWITCH SHALL BE OPENED AND LOCKED OUT PRIOR TO ANY WORK INVOLVING EXPOSED ELECTRICAL CIRCUIT PARTS.
 - ALL SINGLE PHASE DISCONNECTS SHALL BE LEFT CLOSED UNTIL THE RECLOSER AND GANG OPERATED DISCONNECT SWITCH HAVE BEEN OPENED AND LOCKED OUT.
 - HYDROX HSE-555SR MODULES ARE USED.
 - THE CAPACITY OF THE BESS IS 1070KW/2140kWh.
 - THE SYSTEM DC CAPACITY IS 2702.97KW AND THE SYSTEM AC CAPACITY IS 1900KW.
 - A 1001 KW/2145 KWH TESLA MEGAPACK STORAGE SYSTEM WITH INTEGRAL TESLA BIDIRECTIONAL PCS 1000KW IS USED.
 - THE INTERCONNECTING CUSTOMER IS PLAINFIELD SOLAR LLC AND THE INTERCONNECTION ADDRESS IS 29 UNION STREET, PLAINFIELD, MA 01070.
 - THE NEUTRAL GROUNDING REACTOR WILL PROVIDE EFFECTIVE GROUNDING TO ALL THE SUB-SYSTEMS.



Rev	Issued For	Date
A	Draft Construction Set	01JUN2021
A	Construction Set	16SEP2021
B	Construction Set	21FEB2022

P.E. seal/consultant:

Project:
09171 Plainfield BESS Addition
 75 North Central Street
 Plainfield, MA 01070

Drawing Title:
AC 1-Line Electrical Diagram (XFR.01)
 Scale: N.T.S. Approved by: S.Petrarca
 Drawn by: L.Kangula

Dwg No: **E-601** Size: D Sheet Rev: **B**

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