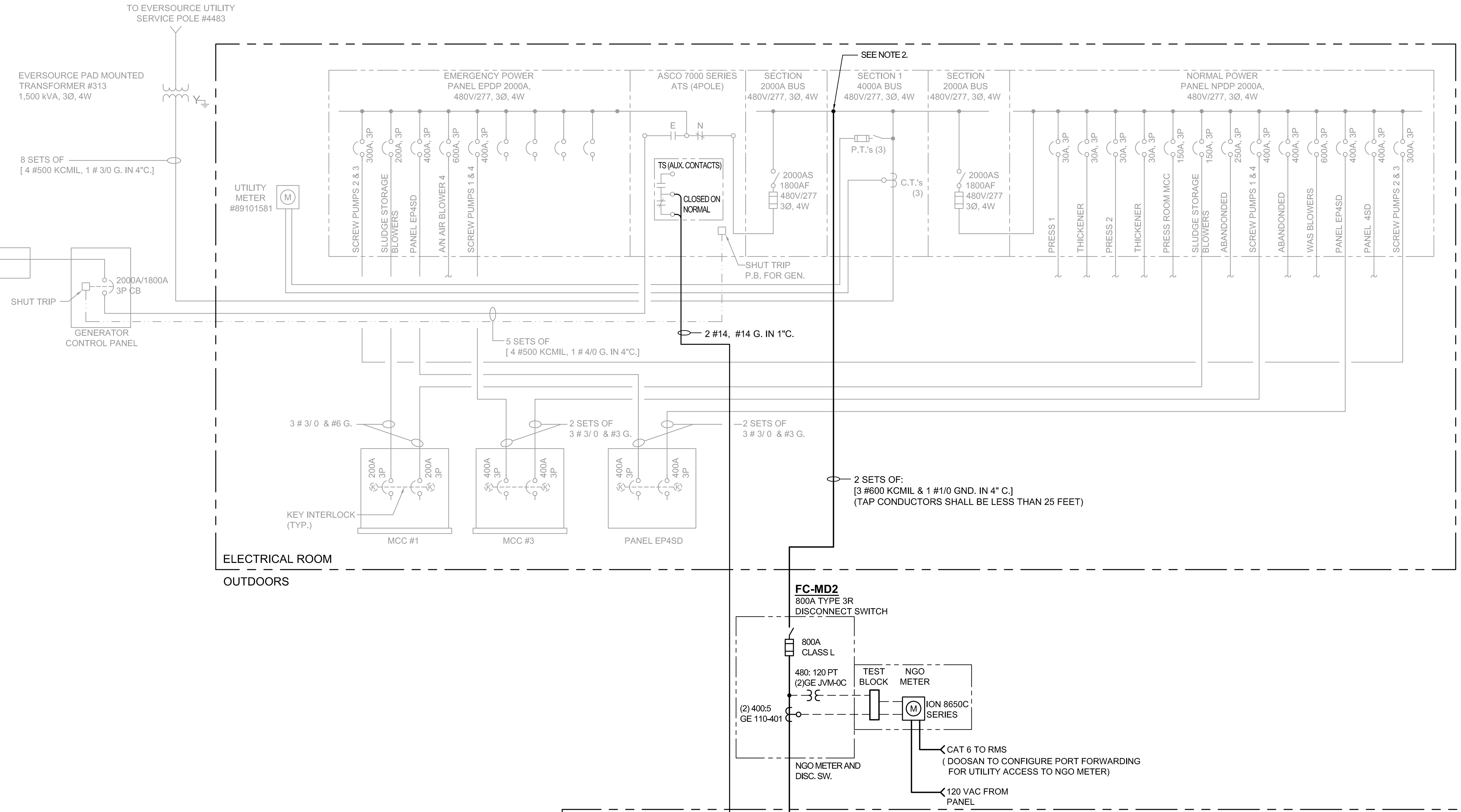

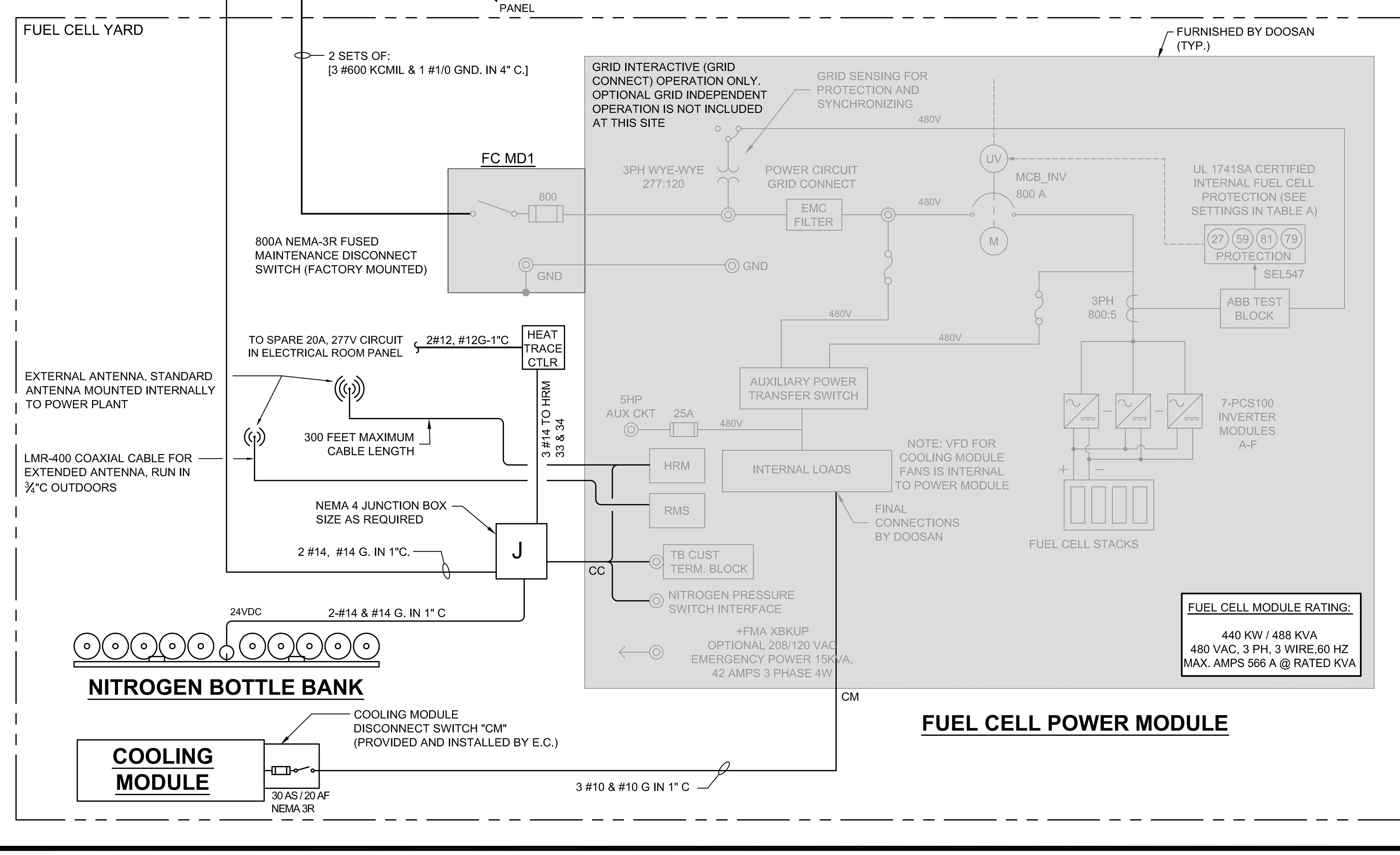

GENERAL NOTES

1. REFER TO DRAWING SP1.0 FOR SITE PLAN.
2. PROVIDE SIGNAGE AS REQUIRED BY CODE AND AS INDICATED ON DWG SP1.0.
3. CONSULT DOOSAN MODEL 400 INSTALLATION DESIGN GUIDE (FUEL CELL POWER PLANT) AND STANDARD INSTALLATION DRAWINGS FOR TECHNICAL REFERENCE.

CERTIFICATION:

POWER PLANT IS CERTIFIED TO: ANSI/CSA AMERICA FC 1 - 2014 (FORMALLY ANSI Z21.83) "AMERICAN NATIONAL STANDARD FOR STATIONARY FUEL CELL POWER SYSTEM" INCLUDING,

A. UL1741SA "INVERTERS, CONVERTERS, CONTROLLERS AND INTERCONNECTION SYSTEM EQUIPMENT FOR USE WITH DISTRIBUTED ENERGY RESOURCES."
B. IEEE 1547 "STANDARD FOR INTERCONNECTING DISTRIBUTED RESOURCES WITH ELECTRIC POWER SYSTEMS."
C. NFPA 70 NATIONAL ELECTRIC CODE (FOR INTERFACES TO CUSTOMER WIRING AND WIRING BETWEEN MODULES).

POWER PLANT SPECIFICATIONS

RATED OUTPUT-BASELOAD POWER MODE	400 kW / 471 kVA
RATED OUTPUT-MAXIMUM POWER MODE	440 kW / 488 kVA
OUTPUT TYPE	480VAC, 60 HZ, 3 PHASE, 3 WIRE
RATED OUTPUT CURRENT	566 AMPS AT RATED kVA

LEGEND

LIGHT INDICATES EXISTING
BOLD INDICATES NEW

TABLE A - SEL547 RELAY
IEEE1547 / UL 1741 GRID PROTECTION PARAMETER SETTINGS

THE REQUIRED GRID PROTECTION FUNCTIONS AND SETTINGS PER UL1741SA/IEEE1547 RESIDE IN THE INTERNAL SEL547 RELAY WITH SETTING NAMES AS SHOWN BELOW.

SETTING NAME	DESCRIPTION	GROUP 1 - DUAL MODE (GC/GI DIRECT TRANSFER) 60 Hz SETTING 480Vac Tx RATIO 2.31 : 1	GROUP 2 GRID CONNECT ONLY 60 Hz SETTING 480Vac Tx RATIO 2.31 : 1	VOLTAGE P.U.	ANSI C37 DEVICE NUMBER
27P1P	FAST UNDER VOLTAGE LEVEL (V)	60	60	0.50	27
27P2P	SLOW UNDER VOLTAGE LEVEL (V)	106	106	0.88	27
SV7PU	FAST UNDER VOLTAGE CLEARING TIME (CYCLES)	61	61		
SV8PU	SLOW UNDER VOLTAGE CLEARING TIME (CYCLES)	120	120		
59P1P	SLOW OVER VOLTAGE LEVEL (V)	132	132	1.1	59
59P2P	FAST OVER VOLTAGE LEVEL (V)	144	144	1.2	59
SV9PU	SLOW OVER VOLTAGE CLEARING TIME (CYCLES)	120	120		
SV10PU	FAST OVER VOLTAGE CLEARING TIME (CYCLES)	5	5		
81D1P	FAST UNDER FREQUENCY LEVEL (Hz)	56.5	56.5		81U
81D2P	SLOW UNDER FREQUENCY LEVEL (Hz)	58.5	58.5		81U
81D3P	FAST OVER FREQUENCY LEVEL (Hz)	62	62		81O
81D4P	SLOW OVER FREQUENCY LEVEL (Hz)	61.2	61.2		81O
SV14PU	BREAKER CLEARING TIME (CYCLES)	2	2		
SV15PU	FAST UNDER FREQUENCY CLEARING TIME (CYCLES)	5	5		
SV4PU	SLOW UNDER FREQUENCY CLEARING TIME (CYCLES)	18,000	18,000		
SV11PU	FAST OVER FREQUENCY CLEARING TIME (CYCLES)	5	5		
SV12PU	FAST OVER FREQUENCY CLEARING TIME (CYCLES)	18,000	18,000		
SV3DO	RECONNECTION TIME DELAY (CYCLES)	18,000	18,000		

NOTE 1: SEL 547 RELAY CLEARING TIME FOR UL1741SA FAST PROTECTION COMPLIANCE EQUALS SETTING TIME PLUS 5 CYCLE BREAKER'S TRIPPING.

Rev.	Date	Description
0	04/23/19	ISSUED FOR UTILLITY INTERCONNECTION

STATE OF CONNECTICUT · SCOTT D FITCH · 0019780 · LICENSED · PROFESSIONAL ENGINEER

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CITY OF BRISTOL
WASTE WATER TREATMENT FACILITY
75 BATTISTO ROAD, BRISTOL, CT
FUEL CELL INSTALLATION

ELECRICAL ONE-LINE DIAGRAM

Project No.:	Drawn By: KFH
Date: 04/22/19	Design By: KFH
Scale: AS NOTED	Check By: DSF
Drawing No.: E1.0	