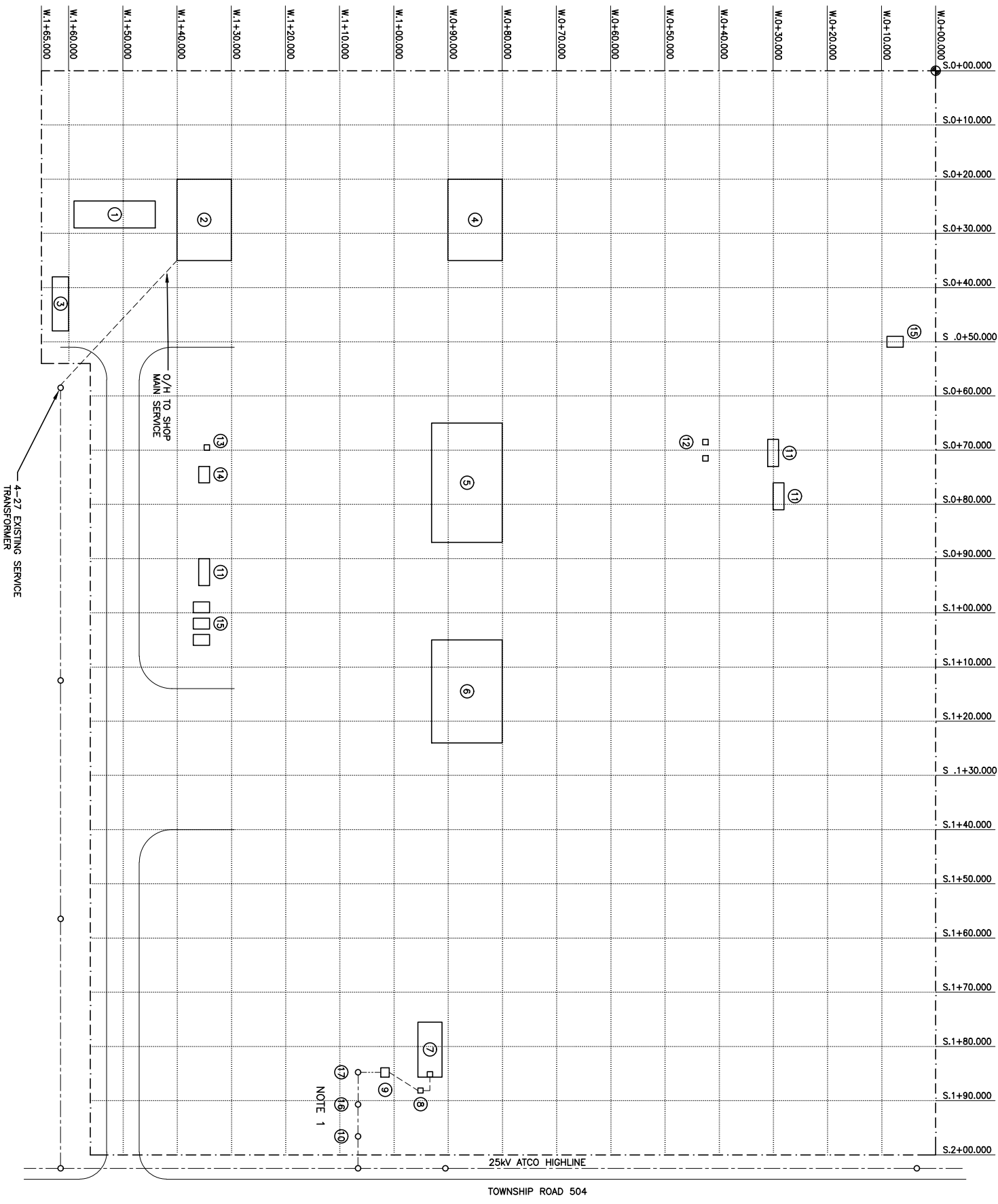




BUILDING/EQUIPMENT LIST		
NO.	EQUIPMENT	SIZE
①	SITE OFFICE	5000mm x 15000mm
②	CONTROL ROOM/SHOP	15000mm x 10000mm
③	OPERATIONS SHACK	10000mm x 3000mm
④	DEHY	15000mm x 10000mm
⑤	COMPRESSOR BLDG #1	22000mm x 13000mm
⑥	COMPRESSOR BLDG #2	19000mm x 13000mm
⑦	BU-100 GENERATOR	10144mm x 5750mm
⑧	CB-100 480V BREAKER	1118mm x 1118mm
⑨	STEP UP TRANSFORMER (ATCO)	3000mm x 3000mm
⑩	OVR BREAKER (ATCO)	
⑪	BARREL DOCK	5000mm x 2000mm
⑫	YARD LIGHT	
⑬	YARD LIGHT	
⑭	FIRE SHACK	
⑮	FUEL TANKS	2000mm x 3000mm
⑯	UTILITY METERING (ATCO)	
⑰	UTILITY LOAD BREAK SWITCH (ATCO)	

LEGEND:

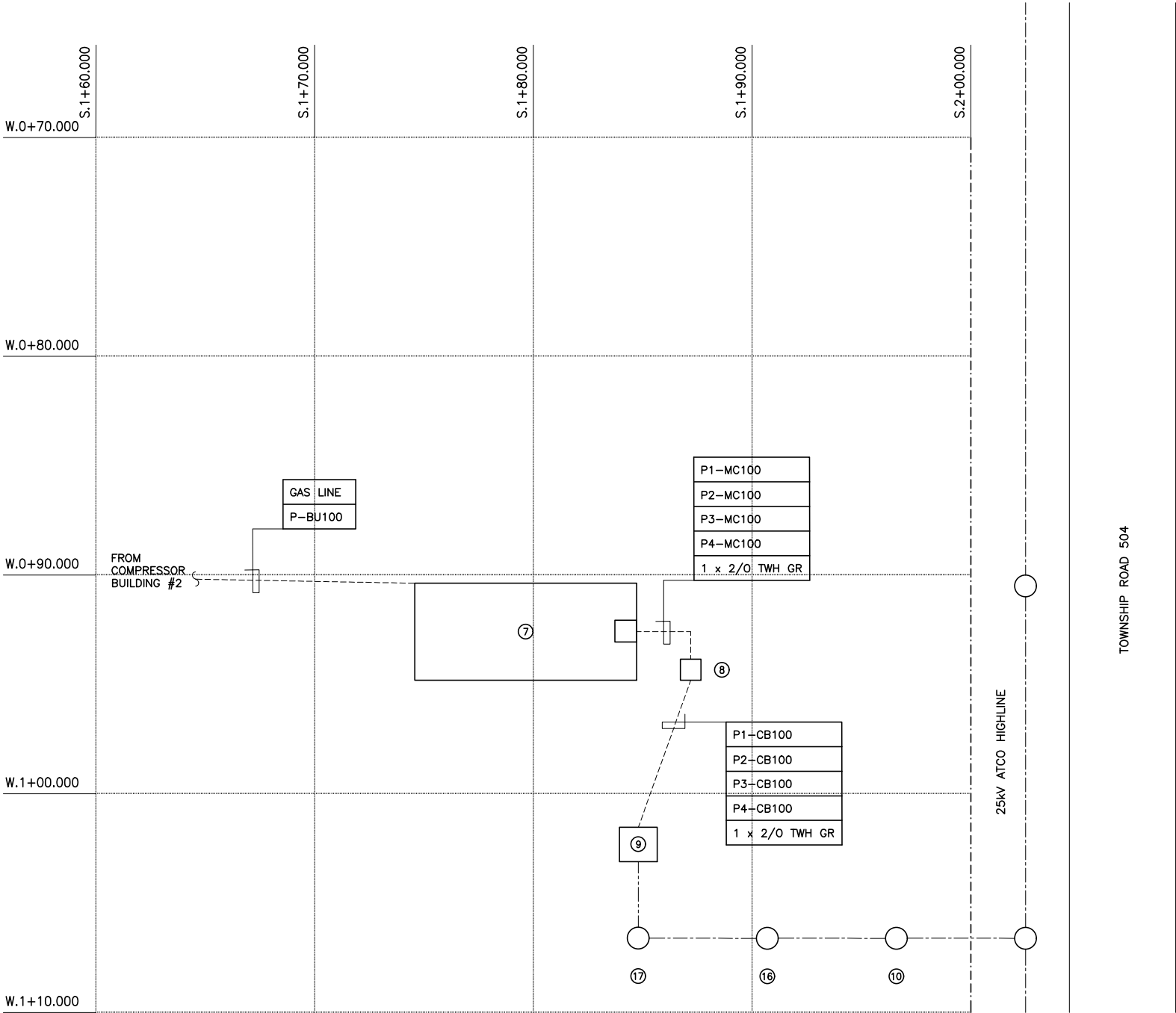
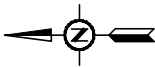
LOW VOLTAGE UNDERGROUND-----
25kv UNDERGROUND (ATCO) -----
25kv OVERHEAD (ATCO) -----

NOTES:

1. FOR DETAIL OF GENERATOR AREA SEE DRAWING 0427MCS-E-0101.

PERPETUAL ENERGY INC									
04-27-50-09-W4									
MANVILLE GAS PLANT									
ELECTRICAL SITE PLAN									
DRAWING NUMBER: 0427MCS-E-0100									
REV: 0									

FILE NAME: t:\projects\pei - perpetual energy, inc\pei-1802-001 c1000 capstone relocation\0900 - dw\01 - working\0427mcs-e-0101.dwg



BUILDING/EQUIPMENT LIST		
NO.	EQUIPMENT	SIZE
①	SITE OFFICE	5000mm x 15000mm
②	CONTROL ROOM/SHOP	15000mm x 10000mm
③	OPERATIONS SHACK	10000mm x 3000mm
④	DEHY	15000mm x 10000mm
⑤	COMPRESSOR BLDG #1	22000mm x 13000mm
⑥	COMPRESSOR BLDG #2	19000mm x 13000mm
⑦	BU-100 GENERATOR	10144mm x 5750mm
⑧	CB-100 480V BREAKER	1118mm x 1118mm
⑨	STEP UP TRANSFORMER (ATCO)	3000mm x 3000mm
⑩	OVR BREAKER (ATCO)	
⑪	BARREL DOCK	5000mm x 2000mm
⑫	YARD LIGHT	
⑬	YARD LIGHT	
⑭	FIRE SHACK	
⑮	FUEL TANKS	2000mm x 3000mm
⑯	UTILITY METERING (ATCO)	
⑰	UTILITY LOAD BREAK SWITCH (ATCO)	

LEGEND:

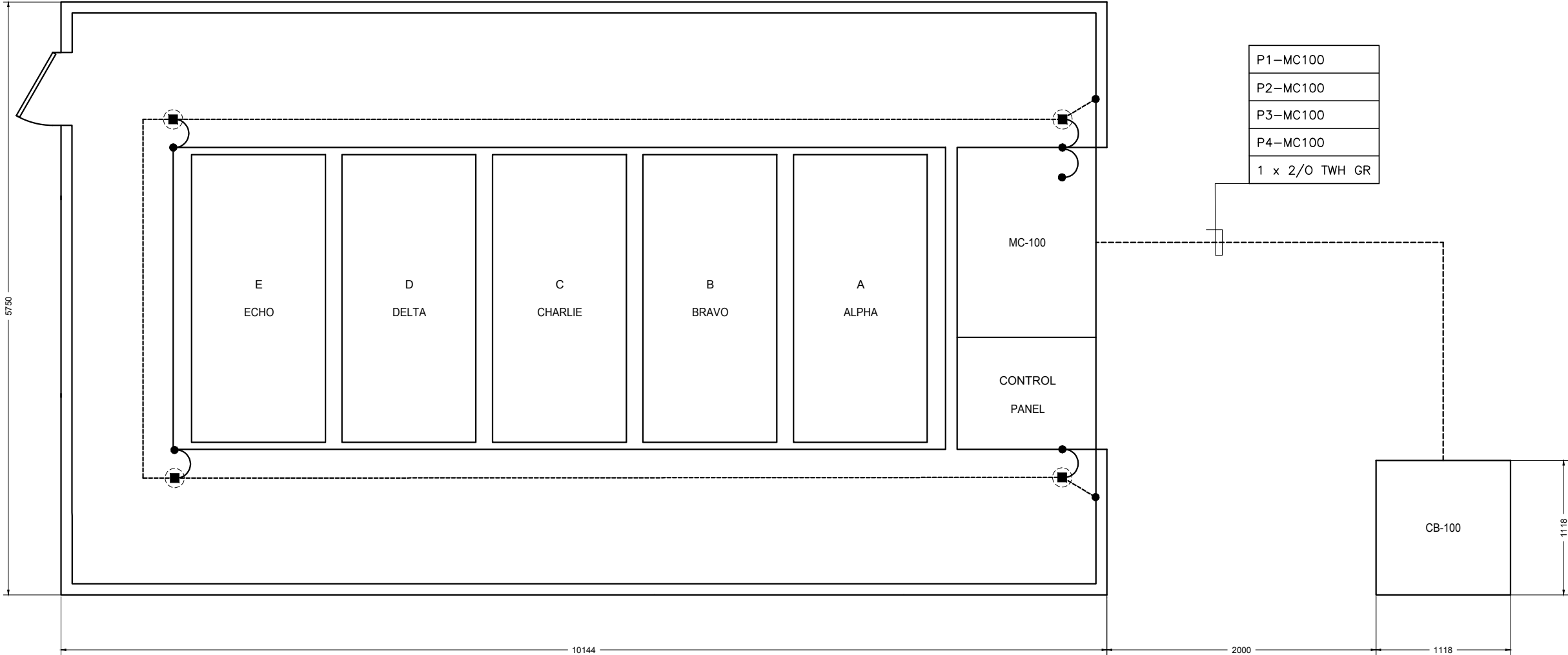
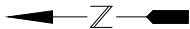
- LOW VOLTAGE UNDERGROUND -----
- 25kV UNDERGROUND (ATCO) - - - - -
- 25kV OVERHEAD (ATCO) -----

ELECTRICAL CONSTRUCTION NOTES:

1. INSTALLATION OF GENERATOR SKID AND BUILDING BY CLIENT.
2. INSTALLATION OF CB-100 BREAKER PLATFORM BY CLIENT.
3. INSTALLATION OF TRANSFORMER AND ALL 25KV EQUIPMENT, CABLES AND WIRE BY ATCO.
4. ALL CABLE AND GAS LINE TRENCHING AND BACKFILL BY CLIENT.
5. INSTALL CB-100 (LOOSE SHIPPED) ON 44" X 44" PLATFORM, BOLT TO PLATFORM.
6. SUPPLY, INSTALL AND TERMINATE TECK CABLES FROM GENERATOR TO CB-100.
7. SUPPLY, INSTALL AND TERMINATE TECK CABLES FROM CB-100 TO TRANSFORMER.
8. REFER TO DRAWING "0427MCS-E-8103 DETAIL 4" FOR CABLE BURIAL DETAILS.
9. GENERATOR SKID AND CB-100 ARE REPURPOSED FROM ANOTHER SITE SO ALL KNOCKOUTS FOR TECK CABLES ARE EXISTING. 4 KNOCKOUTS IN THE GENERATOR AND 8 KNOCKOUTS IN THE CB-100 BREAKER.
10. CABLE ENTRY IN TO TRANSFORMER WILL BE THROUGH EAST AND NORTH VAULT CUTOUTS.
11. GENERATOR SKID AND BUILDING SHALL BE GROUNDED AS SHOWN ON DRAWING "0427MCS-E-0400". 3/4" COPPER GROUND RODS AND 2/0 GROUND WIRE.
12. NO WELDING ON GENERATOR SKID. ALL CONNECTIONS TO STEEL SHALL BE DRILLED AND TAPPED.
13. GENERATOR, CB-100 AND TRANSFORMER 480V XO SHALL BE BONDED TOGETHER WITH 2/0 INSULATED GREEN.
14. MEGGER TEST ALL 480V TECK CABLES TO 1000V PRIOR TO BACKFILLING TRENCHES.
15. LUGS FOR TERMINATING 500MCM CONDUCTORS ARE EXISTING ON THE GENERATOR AND CB-100. SUPPLY AND INSTALL LUGS AS REQUIRED ON 480V PADDLES IN UTILITY TRANSFORMER.
16. SUPPLY AND INSTALL A 6C/10 TECK CABLE BETWEEN THE GENERATOR BUILDING AND COMP BUILDING #2. THIS IS FOR AUXILIARY POWER FOR LIGHTS AND RECEPTACLE INDEPENDENT OF THE GENERATOR POWER SUPPLY.
17. CABLE LENGTHS ON DRAWING "0427MCS-E-3200" ARE ESTIMATED. VERIFY LENGTHS ON SITE AFTER EQUIPMENT IS INSTALLED PRIOR TO ORDERING.
18. GENERATOR COMMISSIONING, TESTING AND STARTUP BY VENDOR REPRESENTATIVE.

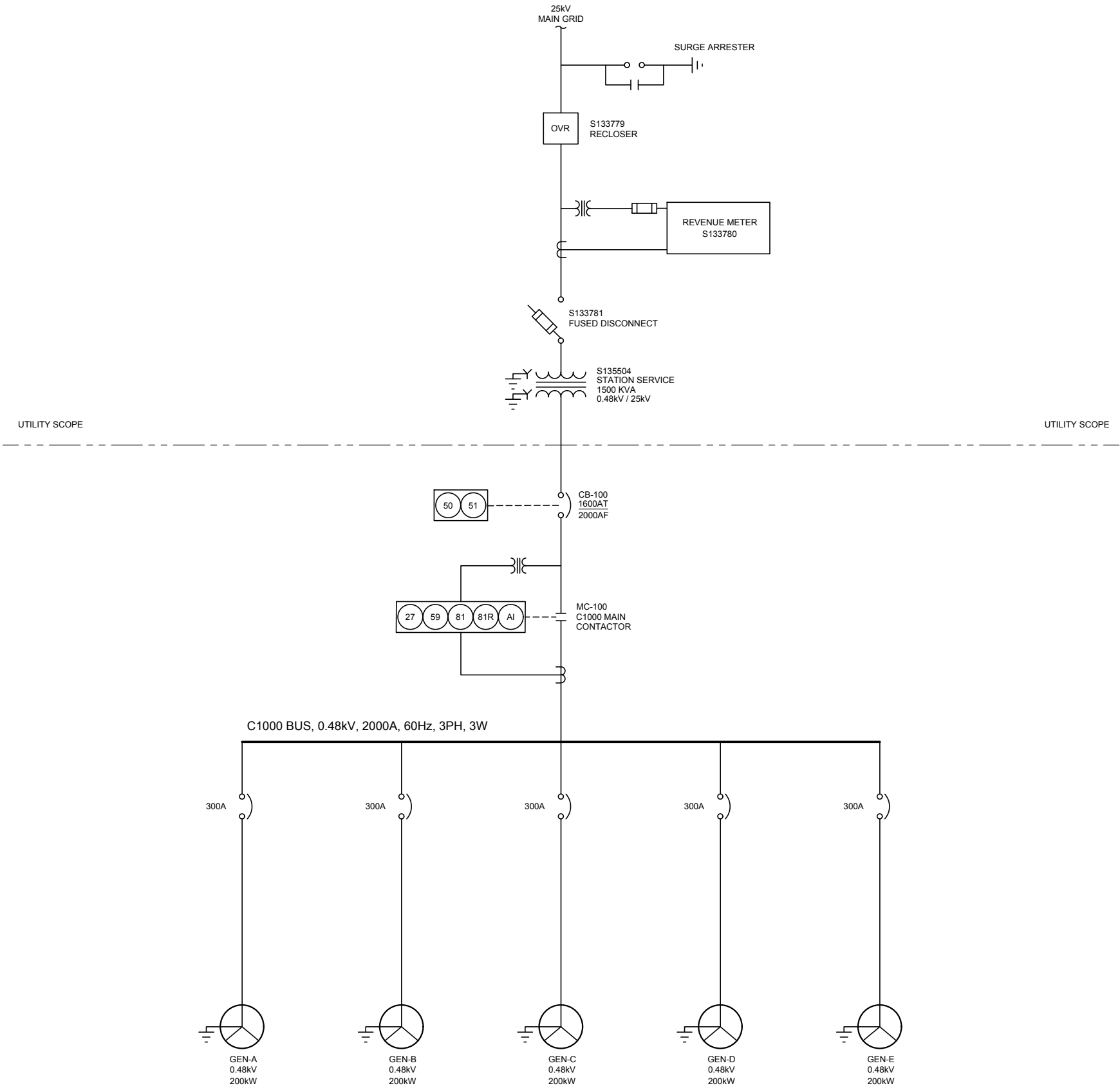
									 Beta-Tech Inc ENGINEERED SOLUTIONS	PERPETUAL ENERGY INC			
										04-27-50-09-W4			
										MANVILLE GAS PLANT			
										GENERATOR EQUIPMENT AREA LAYOUT			
										DRAWING NUMBER:		REV:	
										0427MCS-E-0101		0	
REF DWG	REFERENCE DRAWING TITLE			REV	REVISION DESCRIPTION			DATE (YYYY-MM-DD)	DESIGN	ENGINEER	PM	CONTACT INFO: 1-403-265-0023	SCALE: AS SHOWN
				0	ISSUED FOR CONSTRUCTION			2018-09-06	MB	JB	TB		
				A	ISSUED FOR INFORMATION (ATCO APPLICATION)			2018-03-09	TB	JB	MD		

FILE NAME: t:\projects\perpetual energy inc\pei-1802-001 c1000 capstone relocation\0900 - dwg\01 - working\0427mcs-e-0400.dwg



									 Beta-Tech inc ENGINEERED SOLUTIONS BTI PROJECT NUMBER: PEI-1802-001 CONTACT INFO: 1-403-265-0023 SCALE: AS SHOWN	PERPETUAL ENERGY INC		
										LSD 04-27-50-9 W4M		
										MANNVILLE GAS PLANT		
									C-1000 GENERATOR BUILDING LAYOUT			
			0	ISSUED FOR CONSTRUCTION			2018-09-06	MB	JB	TB	DRAWING NUMBER:	REV:
	REF DWG	REFERENCE DRAWING TITLE	REV	REVISION DESCRIPTION			DATE (YYYY-MM-DD)	DESIGN	ENGINEER	PM	0427MCS-E-0400	0

FILE NAME: t:\projects\pei - perpetual energy inc\pei-1802-001 c1000 capstone relocation\0900 - dwg\01 - working\0427mcs-e-1001.dwg

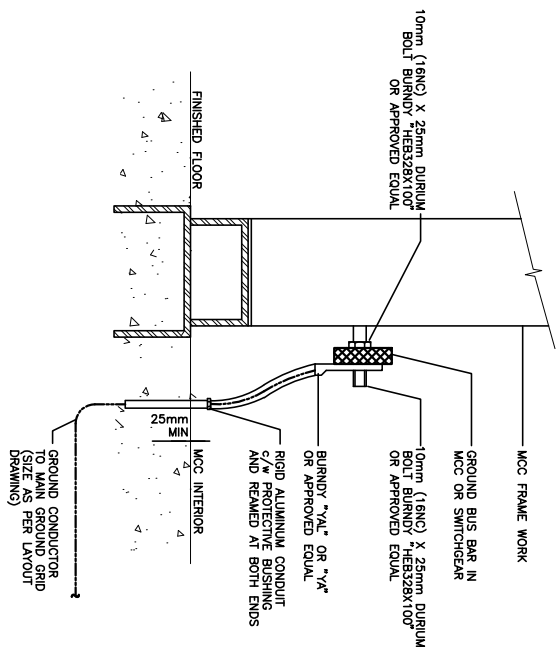


LEGEND

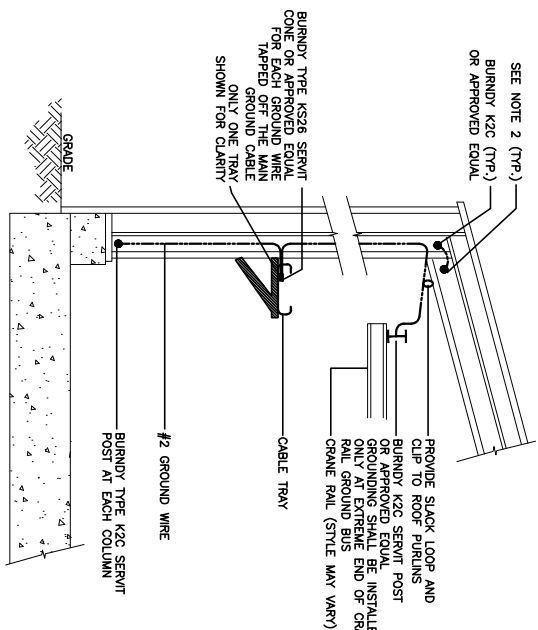
- TRANSFORMER
- HV CIRCUIT BREAKER
- GENERATOR
- SURGE ARRESTER AND SURGE CAPACITOR
- LV CIRCUIT BREAKER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- FUSED DISCONNECT
- 27 UNDERVOLTAGE RELAY
- 59 OVERVOLTAGE RELAY
- 81 FREQUENCY RELAY
- 81R FREQUENCY RATE OF CHANGE
- 50 INSTANTANEOUS OVERCURRENT RELAY
- 51 AC INVERSE TIME OVERCURRENT RELAY
- AI ANTI-ISLANDING PROTECTION

								 Beta-Tech Inc ENGINEERED SOLUTIONS	PERPETUAL ENERGY INC				
									04-27-50-09-W4				
									MANVILLE GAS PLANT				
									480V SINGLE LINE DIAGRAM				
									BTI PROJECT NUMBER: PEI-1802-001				
									CONTACT INFO: 1-403-265-0023	SCALE: NTS	DRAWING NUMBER: 0427MCS-E-1001	REV: 0	
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				0	ISSUED FOR CONSTRUCTION			2018-09-14	MB	GL	TB		
				0C	ISSUED FOR INFORMATION (JOA)			2018-09-05	MB	GL	TB		
				0B	ISSUED FOR INFORMATION (AESO + ATCO)			2018-08-23	MB	GL	TB		
				0A	ISSUED FOR REVIEW			-	TB	JB	TB		

[illegible]



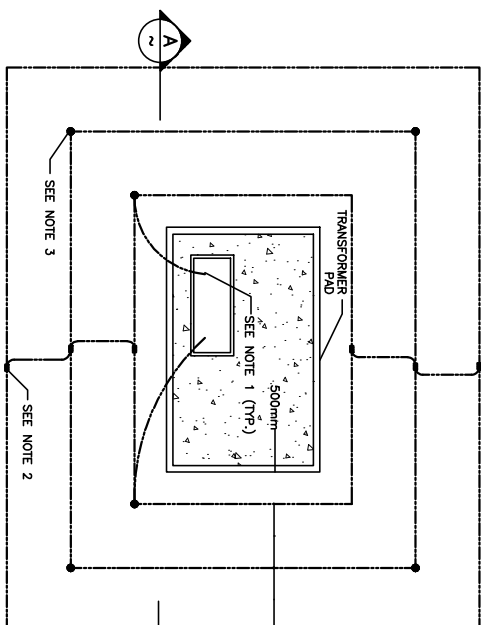
1	SWITCHGEAR/MCC GROUNDING
8103	MAIN GROUND RUN UNDERGROUND



- NOTES:**
1. ALL MATERIALS ARE CONTRACTOR SUPPLIED UNLESS OTHERWISE NOTED.
 2. INSTALL A #2 AWG BOND ACROSS ALL BOLTED COLUMNS AND/OR RAFTER CONNECTIONS.

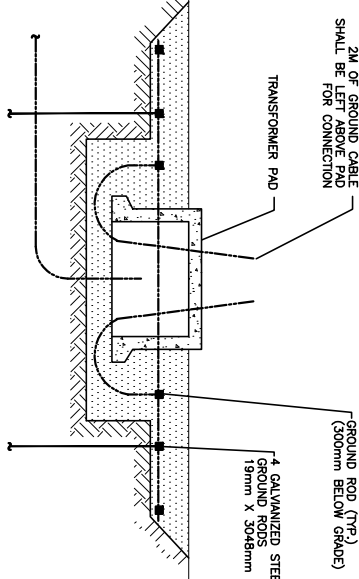
2
8103

COMPRESSOR BUILDING & CRANE RAIL GROUNDING

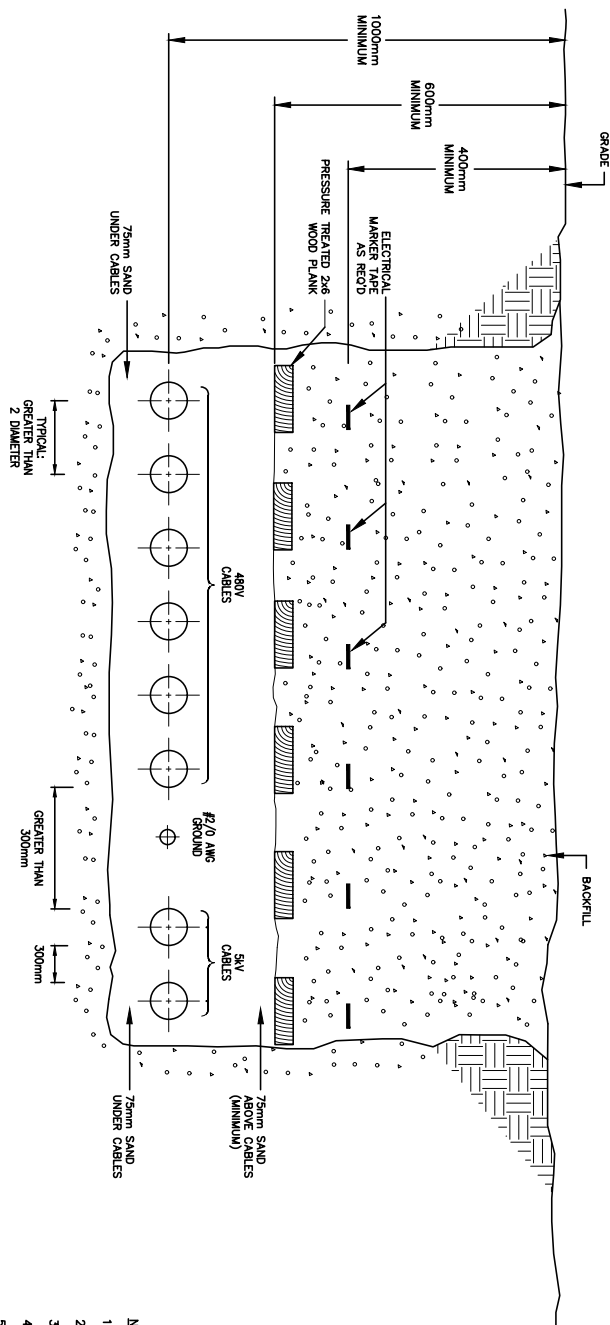


- NOTES:**
1. 2M OF EACH WIRE TO BE LEFT ABOVE PAD FOR CONNECTION TO PADMOUNT CASE.
 2. #2/0 AWG BARE STRANDED COPPER
 3. GALV. STEEL GROUND RODS 19mm x 3M (x4)

3 TRANSFORMER PAD GROUNDING
8103



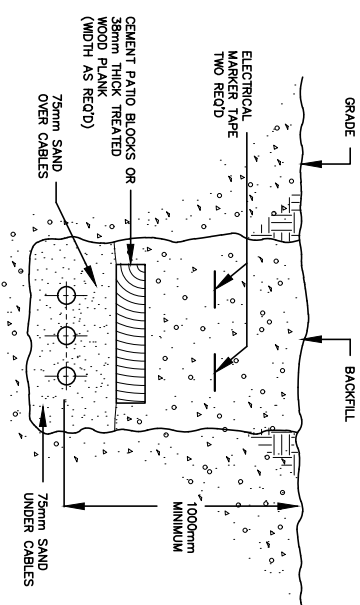
SECTION A



1. TRENCH TO BE CLEARED OF ALL ROCKS AND DIRT LUMPS BEFORE LAYING CABLES IN TRENCH.
2. PROVIDE EQUAL SPACING BETWEEN ALL CABLES IN TRENCH, CABLES TO BE EQUAL IN LENGTH.
3. CABLES TO BE Laid DOWN FIRST, THEN OTHER CABLES, OR LEAVING THE TRENCH.
4. CABLES CONTAINING 480V SYSTEMS SHALL BE SEPARATED BY AT LEAST 75mm FROM CABLES CONTAINING CONTROL WIRING.
5. CABLES CONTAINING 30V SYSTEMS SHALL BE SEPARATED BY AT LEAST 75mm FROM CABLES CONTAINING CONTROL WIRING.
6. GROUND WIRE IS TO BE CONNECTED BETWEEN GENERATOR CONTROL, CABINET EQUIPMENT GROUND, GS-100 EQUIPMENT GROUND AND UTILITY TRANSFORMER XO TAP.

4
8103

SERVICE CABLE INSTALLATION DETAIL



1. TRENCH TO BE CLEARED OF ALL ROCKS AND DIRT LUMPES BEFORE PLOUGHING SAND IN TRENCH.
2. PROVIDE EQUAL SPACING BETWEEN ALL CABLES IN TRENCH.
3. SPACE TO EQUAL CABLE DIAMETER.
3. CABLES MUST NOT CROSS OVER EACH OTHER WHEN ENTERING OR LEAVING THE TRENCH.
4. ALL ELECTRICAL SYSTEMS SHALL BE SEPARATED BY AT LEAST 75mm FROM CABLES CONTAINING CONTROL WIRING.
5. CABLES CONTAINING ANY SYSTEMS SHALL BE SEPARATED BY AT LEAST 300mm FROM ALL OTHER CABLE RUNS.

5
8103

UNDERGROUND CABLE

PERPETUAL ENERGY INC									
04-27-50-09-W4									
MANNVILLE GAS PLANT									
GENERAL ELECTRICAL DETAILS									
DRAWING NUMBER: 0427MCS-E-8103									
REV: 0									
									
ENGINEERED SOLUTIONS									
BTI PROJECT NUMBER: PEI--1802-001									
CONTACT INFO: 1-403-265-0023									
SCALE:									
DATE 2016-09-06									
MB									
JB									
TB									
PM									
ISSUED FOR CONSTRUCTION									
0									
REV									
REFERENCE DRAWING TITLE									
REF DWG									