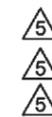


ITEM NO.	QTY.	MFG #	DESCRIPTION
1	1	6143-MA-101	Building Skid Assembly
2	1	6143-PB-102	26 X 17 X 12 BUILDING ENCLOSURE
3	1	E-1-9550	RADIATOR, NCS-300-SC28.5
4	1	6142-SA-200	Engine Skid Assembly
5	10	CPG-PB-003	SPRING MOUNT
6	1	6142-MA-200	Coolant Piping
7	1	6142-MA-300	EXHAUST PIPING ASSEMBLY
8	1	6142-SA-311	Exhaust Stack
9	1	6142-PM-111	WALL THIMBLE, 12-INCH
10	1	6142-PB-101	SILENCER, HOSPITAL GRADE
11	1	6143-PM-110	SILENCER STAND
12	2		Caloritech Electric Heater, 15-40kW Heater
13	1		GENERATOR CONTROL PANEL, MODEL GCS 2200
14	1	VFD, 30 hp	GE VFD, 30 hp
15	1		BATTERY CHARGER, 10 AMP (LA MARCH)
16	1	6142-PM-302	Lube Tank Stand
17	1	6142-SA-301	LUBE OIL TANK ASSEMBLY 90L TANK
18	3		JUNCTION BOX
19	1	6143-PB-005	600KW LOAD BANK - 480VAC, 3PH, 60 HZ
20	1	6143-PB-106	Waste Oil Tank, 1200L
21	2	CPG-PB-001	Fire Extinguisher, Wall Mount
22	1	CPG-PS-40	Pipe Stand, 40-Inch
23	1	CPG-PS-30	PIPE STAND, 30-INCH
24	2	S-7A-450-PP	PIPE CLAMP
25	4	S-7-2375-PP	PIPE CLAMP
26	1	S-7-350-PP	PIPE CLAMP
27	1	S-6-1900-PP	PIPE CLAMP
28	1	6143-MA-400	FUEL GAS PIPING ASSEMBLY
29	2	H-1-1000	Catalytic Heater
30	1		GENERATOR CONTROL PANEL 12X12X6
31	1		SUREPOINT GEN SYNC PANEL 36X48X12
32	3		Juntion Box, 30x30x6

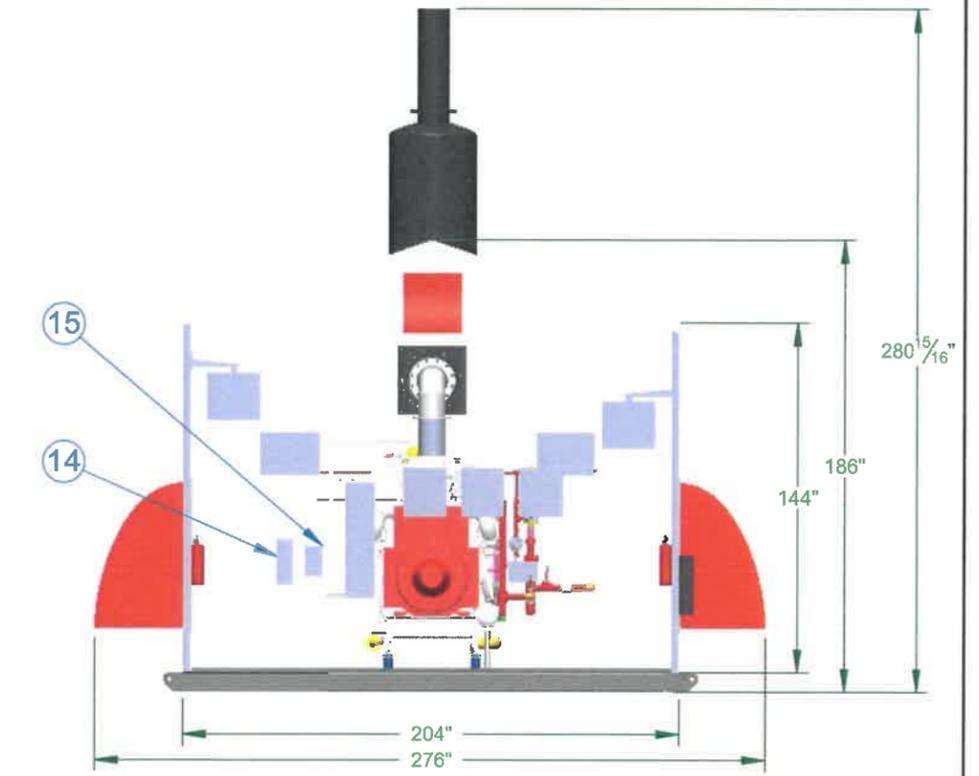
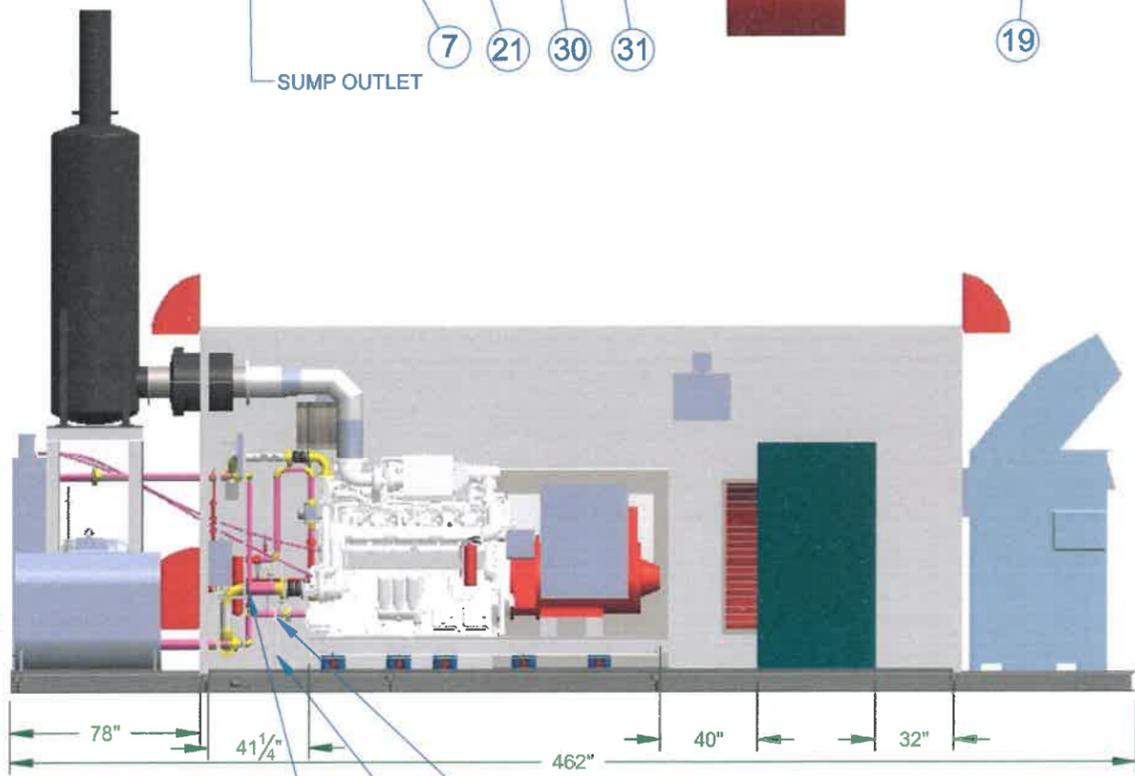
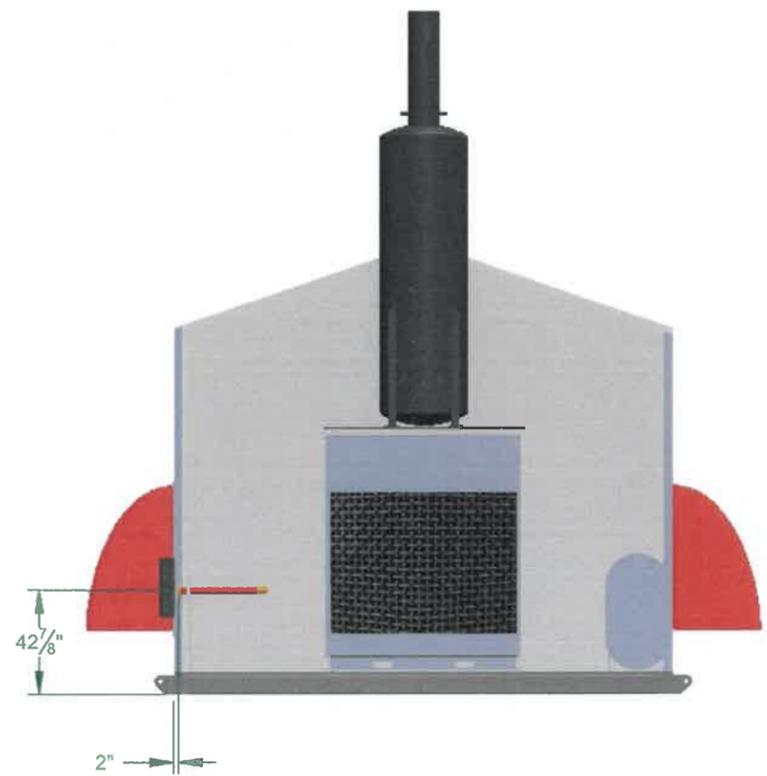
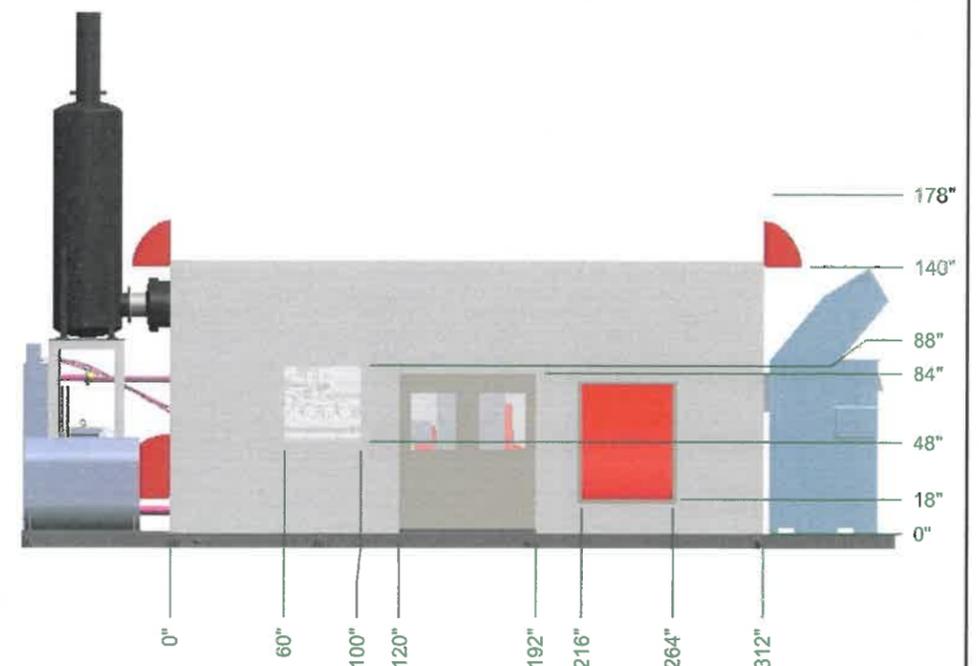
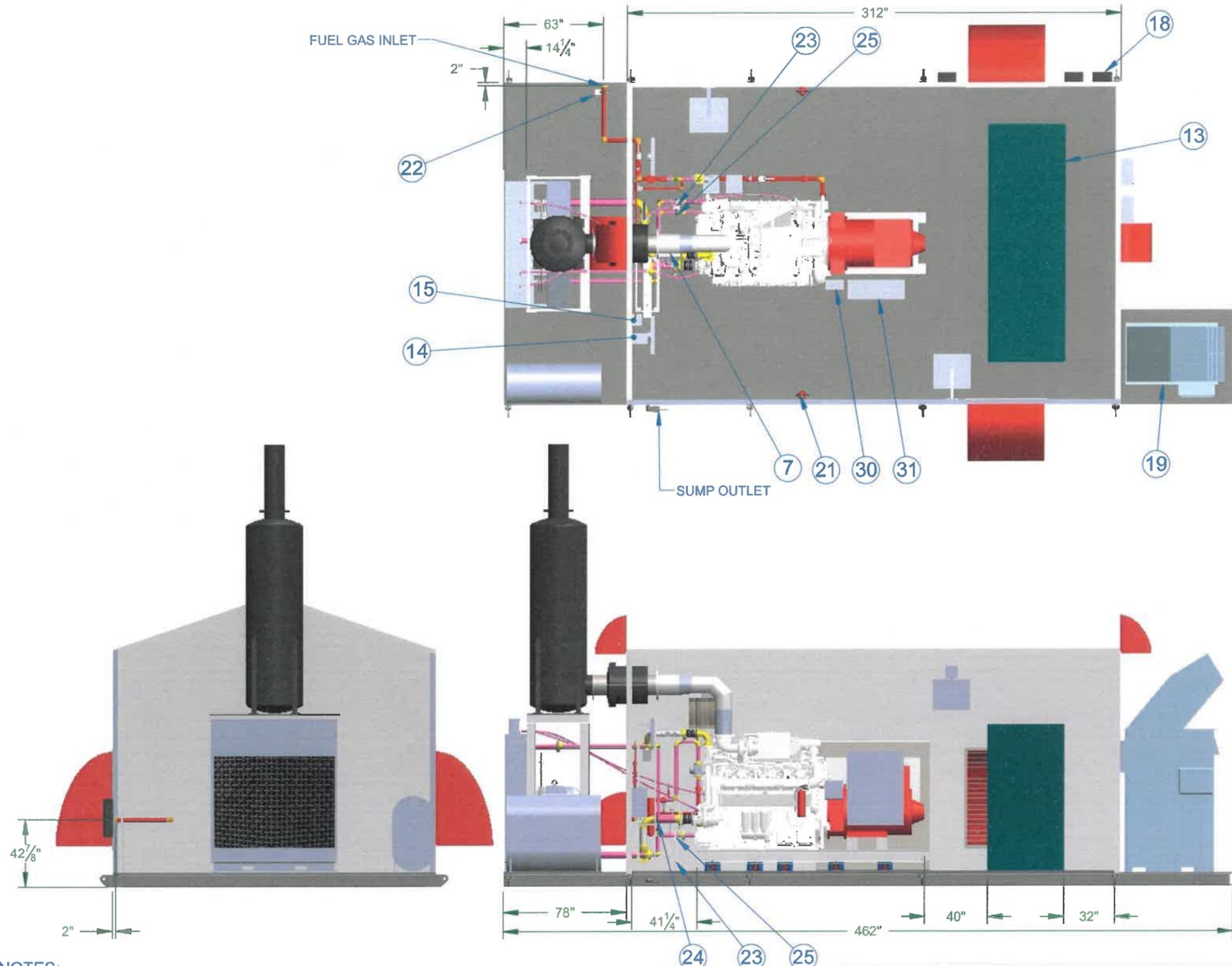


19

REVISIONS			
REV.	DESCRIPTION	DATE	Rev. By
1	ADDED EXHAUST STACK	25/04/2017	SG
2	CHANGED EXHAUST	10/05/2017	SG
3	ADDED FUEL GAS PIPING & UPDATED SWITCHGEAR LOCATION	2018-07-09	SG
4	UPDATED DESCRIPTIONS	2018-07-23	SG
5	AS-BUILT	1/15/2019	TSA

- NOTES:
- STRUCTURAL STEEL SHALL BE OF NEW STOCK AND CONFORM TO CSA G40.21.
 - WELDING SHALL CONFORM TO CSA W59 & CSA 47.1 (LATEST EDITION).
 - DESIGN TO BE IN COMPLIANCE WITH CSA S16 AND CISC HAND BOOK OF STEEL CONSTRUCTION.
 - WELDING SHALL CONFORM TO WELD PROCEDURE FCAW-WPS or SMAW-WPS.
 - SKID SHALL BE INSULATED UNDERNEATH WITH 50mm OF FIRE RETARDANT FOAM INSULATION.
 - PAINTING: SURFACE PREPARATION SHALL CONFORM TO SSPC-SP6
-ONE (1) COAT PRIMER;
-ONE (1) COAT GREY WITH BLACK PERIMETER;
 - LIFTING LUGS REQUIRE 100% MPI.

CUSTOM POWER GENERATION SUITE 311 160 QUARRY PARK BLVD S.E. CALGARY, ALBERTA, T2C 3G3		53026 RR 264 Acheson, AB T7X 5A5	Telephone: Ph: (780) 948-8810 Fax: (780) 948-8825
		600 KW SKID PACKAGE	
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CW MANUFACTURING LTD. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CW MANUFACTURING LTD. IS PROHIBITED.	TOLERANCES UNLESS NOTED OTHERWISE X +/- 0.060" X.X +/- 0.030" X.XX +/- 0.015" X.XXX +/- 0.005" Angles +/- 0.5 Deg.	Title: 600 KW SKID PACKAGE Date: 2017-02-08 Dwn By: SG Appr. By:	Project: DAWSON 4 Dwg. No.: 6143-MA-001 Client: ARC Resources Ltd.
		Weight: 70,000 lbs. Sheet: 1 of 2 Appr. Date:	Equipment Tag: G-0-9560 Rev.: 5



NOTE: REAR WALL, SWITCHBOARD, AND LOADBANK HIDDEN FOR CLARITY.

NOTES:

1. STRUCTURAL STEEL SHALL BE OF NEW STOCK AND CONFORM TO CSA G40.21.
2. WELDING SHALL CONFORM TO CSA W59 & CSA 47.1 (LATEST EDITION).
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7. LIFTING LUGS REQUIRE 100% MPI.

CUSTOM POWER GENERATION

SUITE 311
160 QUARRY PARK BLVD S.E.
CALGARY, ALBERTA, T2C 3G3

PROPRIETARY AND CONFIDENTIAL
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TOLERANCES UNLESS NOTED OTHERWISE

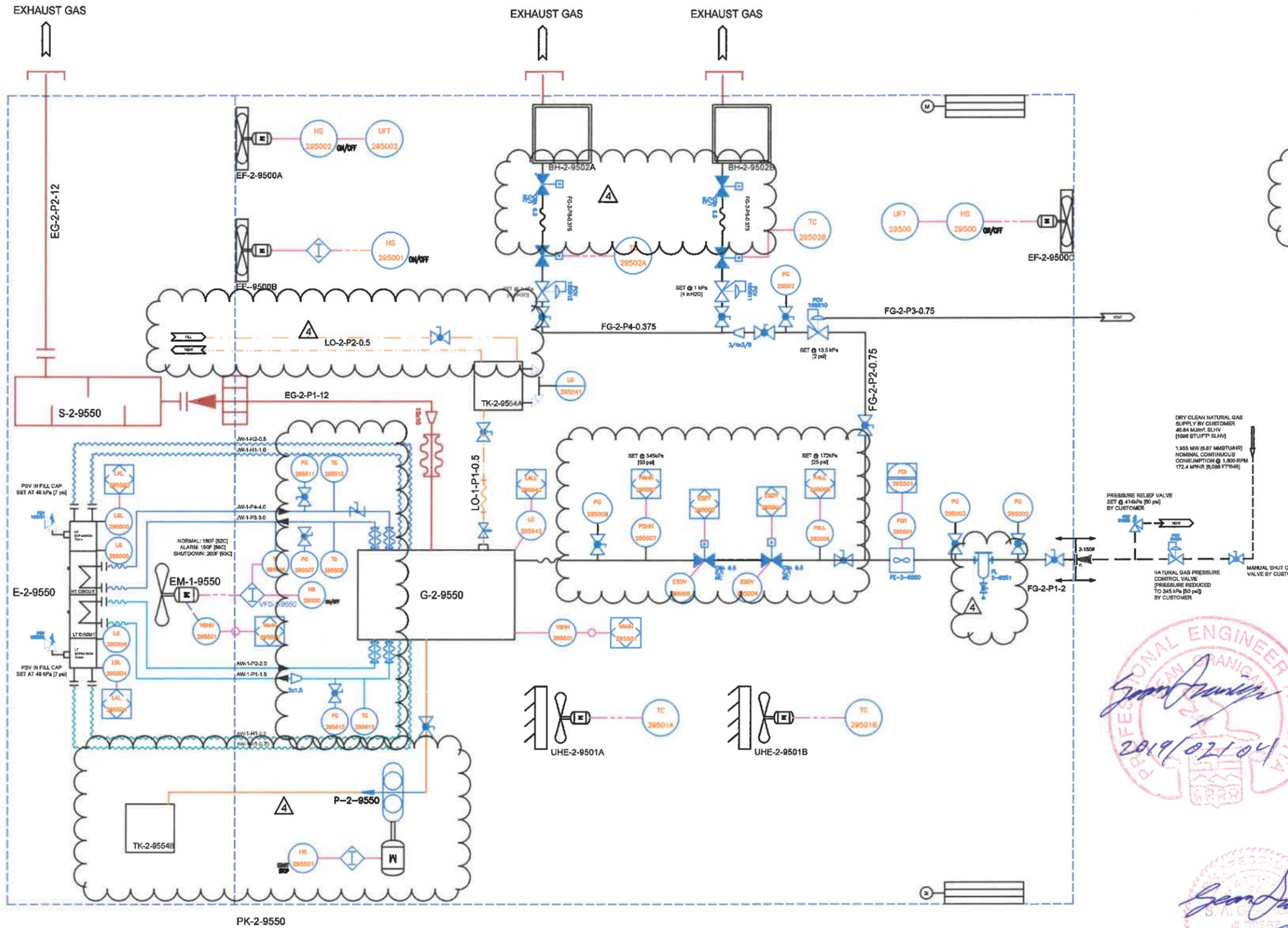
X	+/- 0.060"
X.X	+/- 0.030"
X.XX	+/- 0.015"
X.XXX	+/- 0.005"
Angles	+/- 0.5 Deg.

CW MANUFACTURING LTD

53026 RR 264
Acheson, AB
T7X 5A5

Telephone:
Ph: (780) 948-8810
Fax: (780) 948-8825

Title: 600 KW SKID PACKAGE		Project: DAWSON 4		Equipment Tag: G-0-9560	
Date: 2017-02-08	Weight: 70,000 lbs.	Dwg. No: 6143-MA-001		Rev.: 5	
Dwn By: SG	Sheet: 2 of 2	Client: ARC Resources Ltd.			
Appr. By:	Appr. Date:				



EQUIPMENT LIST		
TAG	ITEM	DESCRIPTION
G-2-9550	GAS GENERATOR	WAUKESHA L36GL, STAMFORD HCI634G
H-2-95002A H-2-95002B	HEATER, GAS	HA18.24 CATALYTIC HEATER
UHE-2-95001A UHE-2-95001B	HEATER, ELECTRIC	20 kW ELECTRIC HEATER
TK-2-9554A	TANK, LUBE OIL	DAY TANK, 90L
TK-2-9554B	TANK, WASTE OIL	OIL TANK, 1200L
S-2-9550	SILENCER	HOSPITAL GRADE
EF-2-9550C	ENGINE EXHAUST FAN	30", 12ACHR 208 VAC ¼ HP, 1PH
EF-2-9500A EF-2-9500B	BUILDING EXHAUST FAN	18", 12ACHR 120 VAC ¼ HP, 1PH
FE-2-9550	FLOW METER	2", ROMET RM3000, ROTARY GAS METER
FL-2-9551	FILTER	HEADLINE, COALESCING TYPE
E-2-9550	VERTICAL RADIATOR	2-CIRCUIT w/EXPANSION TANKS, VFD CONTROLLED
EM-2-9550	RADIATOR FAN MOTOR	30HP, 460 VAC, 3PH, XXX RMP

- NOTES:**
- EQUIPMENT AND INSTRUMENTS INSTALLED BY OEM ARE NOT SHOWN.
 - CUSTOMER RESPONSIBLE FOR THE INSTALLATION OF GAS SUPPLY, REGULATOR, AND PRV.
 - THE FUEL GAS LINE TO BUILDING, REGULATOR AND MANUAL VALVE SHALL BE INSTALLED AS PER CSA B149.
 - WELD PROCEDURES SHALL BE QUALIFIED IN ACCORDANCE WITH ASME SECTION IX.
 - REFER TO LINE AND TAG LISTS FOR DETAILS.
 - FUEL GAS FITTINGS SHALL COMPLY WITH ASME B16.3 OR ANSI LC-A/CSA 6.32.
 - PIPE NPS 2.5 AND LARGER SHALL BE WELDED.
 - JOINT SEALANT SHALL COMPLY WITH CAN/ULC 5642 AND SHALL BE APPLIED TO MALE THREADS.
 - TAPE SHALL BE APPLIED IN A CLOCKWISE DIRECTION, WITH 50% OVERLAP, LEAVING FIRST TWO THREADS BARE.
 - BUSHINGS SHALL NOT BE NESTED.
 - VENT LINES REQUIRE 1/4" ORIFICE.
 - CLOSE NIPPLES, STREET ELBOWS, AND STREET TEES ARE PROHIBITED.
 - LUBE OIL TANK TO BE CLEANED, PICKLED, AND OILED. PIPING TO BE STAINLESS WITH SWAGELock FITTINGS.
 - VENT LINES REQUIRE 1/4" ORIFICE AND MUST SLOPE UPWARDS TOWARDS EXPANSION TANK.
 - COOLANT VENT LINES TO BE SLOPED UPWARDS TOWARDS RADIATOR.
 - COOLANT PSV LOCATED IN PRESSURE CAP.
 - EXHAUST STACK TO BE A MINIMUM OF 1.5 TIMES PEAK HEIGHT. RAIN CAP ON EXHAUST SHALL BE INCLUDED.
 - ENGINE AIR INTAKE FILTERS, INSTRUMENTS, AND OTHER PARTS INSTALLED BY OEM ARE NOT SHOWN.
 - HEATER AND EXHAUST FANS ARE CONTROLLED BY LOCAL THERMOSTAT.
 - ALL EXTERIOR PIPING TERMINATIONS TO BE PROTECTED FROM ENTRY OF WATER, INSECTS, OR FOREIGN MATTER, AS REQUIRED.



**APEGA PERMIT
P12610**

LINE TYPES	LINE DESCRIPTIONS
	SOFTWARE / DATA LINK
	WELDED / THREADED PIPE
	SAE 150 PSI HOSE
	STAINLESS STEEL TUBING
	ELECTRICAL LINK
	FLEXIBLE CONNECTOR
	FG - FUEL GAS PIPING
	LO - LUBE OIL PIPING
	EG - EXHAUST GAS PIPING
	JW - JACKET WATER PIPING
	AW - AUXILLIARY WATER PIPING

REV. DATE	REVISION
2019/01/29	4 AS-BUILT
2018/09/06	3 UPDATED TAG NUMBERS
2018/07/24	2 UPDATED GAS HEATERS
2018/07/05	1 UPDATED GAS METER SIZE
2018/03/28	0 ISSUED FOR CONSTRUCTION

CUSTOM POWER GENERATION

SUITE 311
160 Quarry Park BLVD S.E.
Calgary, Alberta, T2C 3G3

PH (403) 570-8508

CW MANUFACTURING LTD

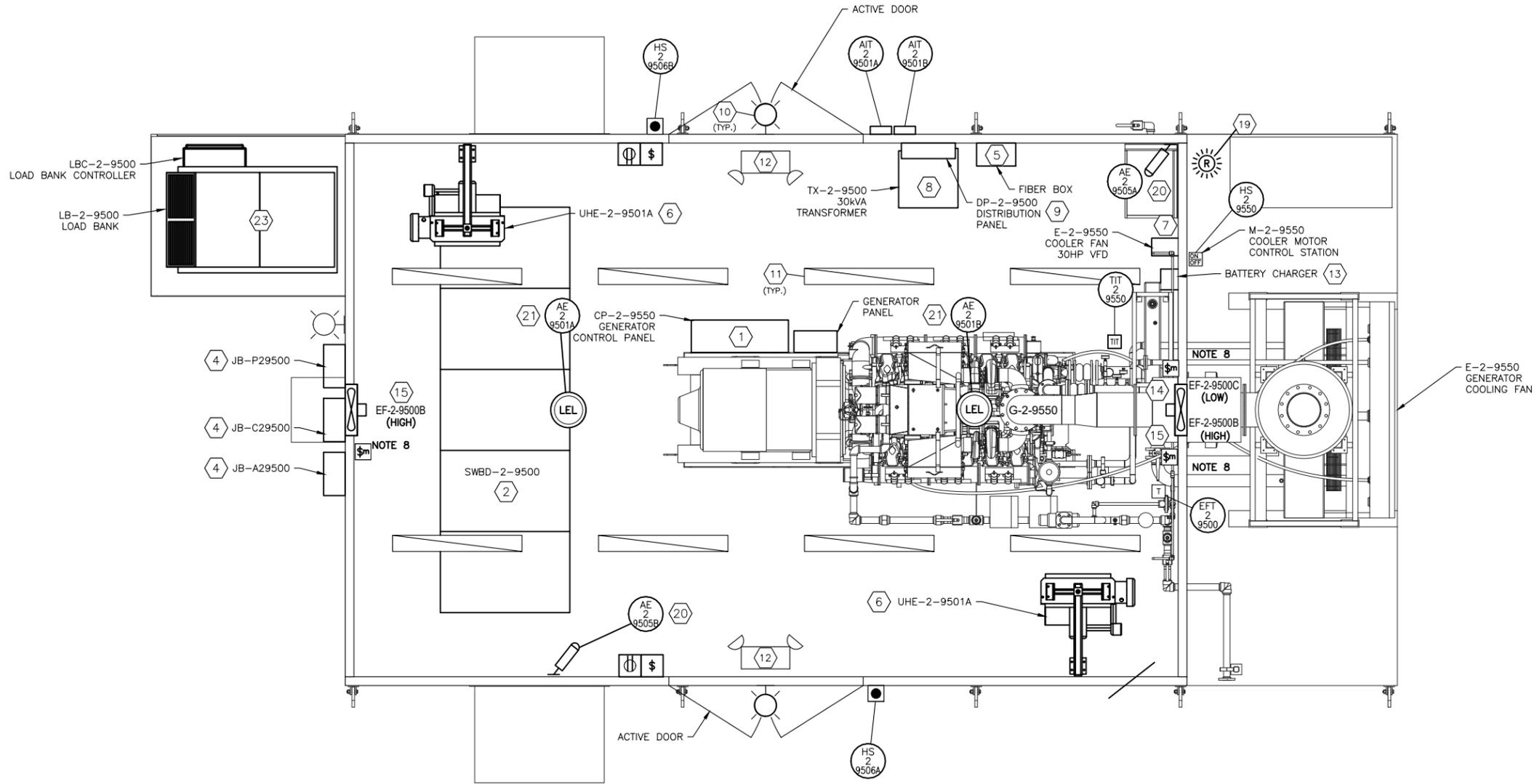
53026 RR264
Acheson, Alberta
Canada T7X 5A5

PH (780) 948-8810
FAX (780) 948-8825

P.O. 16-256-001	EQUIPMENT TAG G-2-9560	PROJECT DAWSON 4
TITLE WAUKESHA L36GL - P&ID		
CUSTOMER ARC RESOURCES LTD.	APPROVED BY	FILE CODE 1 OF 1
SCALE NTS	DATE 2019/01/29	DWN. BY SG
REV. No. 6143-PID-1001	REV. 4	

MATERIAL LIST

ITEM	QTY	DESCRIPTION	MANUFACTURER/ CATALOGUE NO.	SUPPLIER
1	1	GENERATOR CONTROL PANEL	SUREPOINT GEN CONTROLLER	CUSTOM POWER
2	1	GENERATOR SWITCH BOARD	THOMSON GCS 2200	CUSTOM POWER
3	2	CATADYNE HEATER, 12VDC START	-	CUSTOM POWER
4	3	JUNCTION BOX 18"x16"x8"	HAMMOND #PJ18168RT	CUSTOM POWER
5	1	FIBER JUNCTION BOX	CORNING #EDC-06P-NH	CUSTOM POWER
6	2	UNIT HEATER c/w THERMOSTAT, 20kW, 480VAC	-	CUSTOM POWER
7	1	30HP, 60VAC VFD	GE AF-650	CUSTOM POWER
8	1	30kVA, 480-208/120VAC, 3Ø TRANSFORMER	BEMAG #423-2194-000	CUSTOM POWER
9	1	42CCT, 225A, 208/120VAC, 3Ø LIGHTING PANEL	SQUARE D #NQ442L2C	CUSTOM POWER
10	3	OUTDOOR LED LIGHT C/W PHOTO CELL	LUMARK #LDWP-CL-3B-120V-FE	CUSTOM POWER
11	8	4' LED FIXTURE	PHILLIPS #LF4FR394OULAG	CUSTOM POWER
12	2	EMERGENCY LIGHT	-	CUSTOM POWER
13	1	BATTERY CHARGER	-	CUSTOM POWER
14	1	ENGINE EXHAUST FAN, 3/4HP, 208VAC, 1Ø	-	CUSTOM POWER
15	2	BLDG EXHAUST FAN, 1/4HP, 120VAC, 1Ø	-	CUSTOM POWER
16	1	EXHAUST FAN THERMOSTAT	-	CUSTOM POWER
17	3	EXHAUST FAN MOTOR RATED SWITCH C/W O/L'S	-	CUSTOM POWER
18	2	ESD BUTTON c/w SHROUD	STAHL #8040/124-C150	CUSTOM POWER
19	1	RED STROBE LIGHT	FEDERAL SIGNAL #225XST-012-024R	OWNER
20	2	UV/IR FLAME DETECTOR	ROSEMOUNT #975UR	OWNER
21	2	COMBUSTIBLE GAS DETECTOR	NET SAFETY #M21-A	OWNER
22	1	ON/OFF CONTROL STATION	-	CUSTOM POWER
23	1	600KW LOAD BANK	-	CUSTOM POWER



NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- BEFORE ANY CONDUIT IS INSTALLED, CONTRACTOR SHALL CONFIRM ALL CLEARANCES OF EQUIPMENT AND DETERMINE BEST LOCATION FOR CONDUIT TO AVOID WALKING AREAS & MECHANICAL INTERFERENCES.
- BUILDING IS CLASSIFIED AS GENERAL PURPOSE.
- CONDUITS & FITTINGS ARE TO BE EMT & SIZED TO CANADIAN ELECTRICAL CODE PART I. MINIMUM SIZE TO BE 3/4".
- ALL JUNCTION BOX ENTRIES TO UTILIZE MYERS HUB.
- ALL POWER CABLING/WIRING SHALL HAVE MINIMUM RATING OF 600V, TW-90 XLPE INSULATION, RATED FOR -40°C MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED.
- AFTER CABLES/CONDUIT ARE INSTALLED, BUILDING ELECTRICAL CONTRACTOR SHALL SEAL ALL PENETRATIONS (ON APPROVAL BY COMPANY SITE REPRESENTATIVE) TO ENSURE A VAPOR TIGHT BARRIER.
- EACH EXHAUST FAN TO HAVE A MOTOR RATED SWITCH c/w OL'S MOUNTED NEXT TO IT.
- CATADYNE HEATERS TO INCLUDE 7.5m LENGTH OF SOW CABLE c/w BATTERY CLAMPS AND WALL HOOK.
- SKID ELECTRICAL CONTRACTOR TO RUN 1/4" SS TUBING FROM LEL SENSOR TO ITS CONTROLLER FOR CALIBRATION.
- LIGHTS WILL BE INSTALLED AND TESTED, THEN TAKEN DOWN FOR SHIPMENT. LIGHTS WILL BE PROPERLY SECURED TO EQUIPMENT AND PACKAGED INTO THEIR ORIGINAL CONTAINERS.



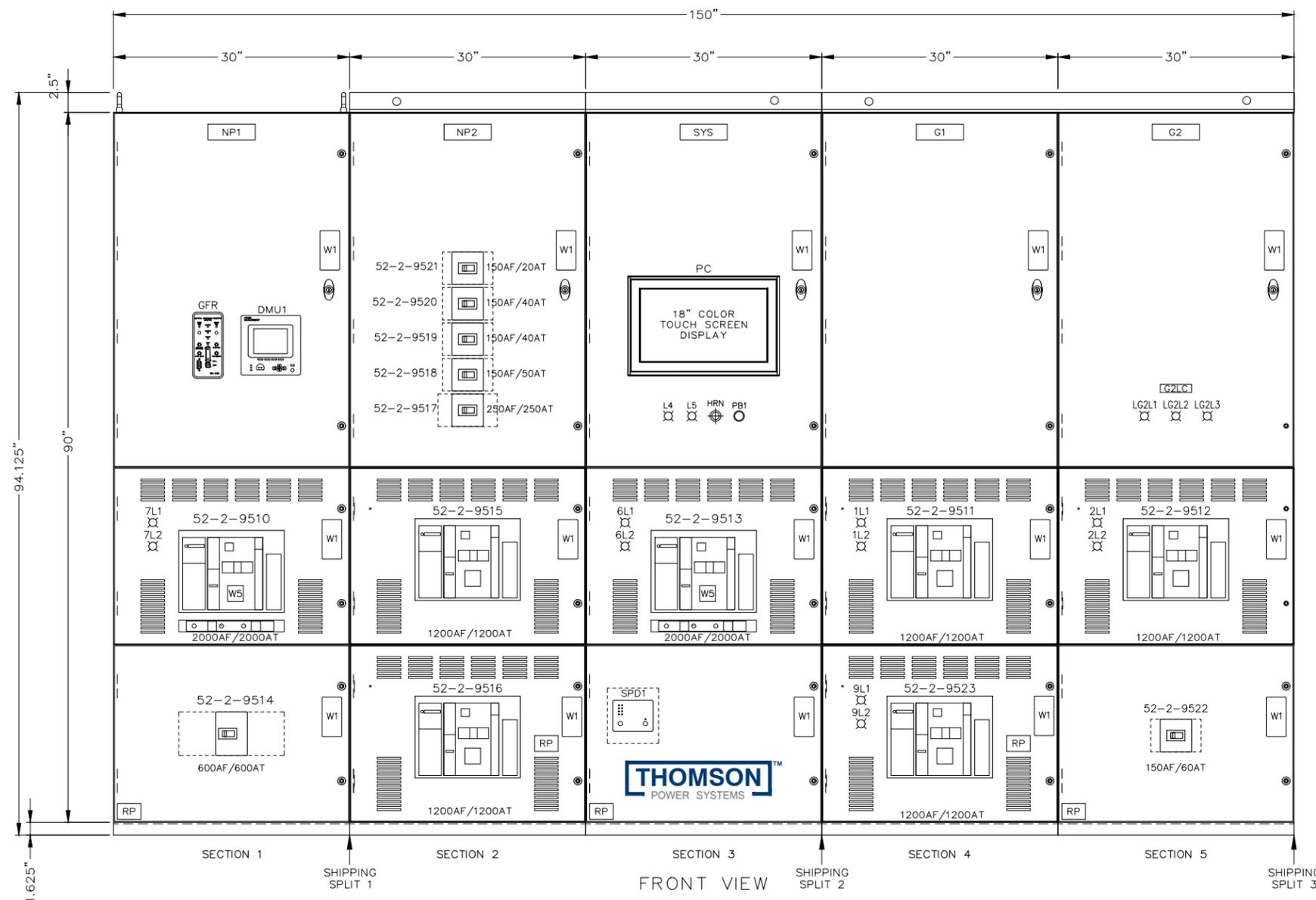
CUSTOM POWER GENERATION

#7, 415 - 60 AVE SE.
CALGARY, ALBERTA, T2H 2J5

CW MANUFACTURING LTD

53026 RR 264 Telephone:
Acheson, AB Ph: (780) 948-8810
T7X 5A5 Fax: (780) 948-8825

19/02/19	1	AS BUILT	P.O.	-	EQUIPMENT TAG	BU-2-9500	PROJECT	DAWSON 4 GAS PLANT
18/10/22	0	ISSUED FOR CONSTRUCTION	TITLE	BU-2-9500 ELECTRICAL LAYOUT				
18/09/18	A	ISSUED FOR CLIENT APPROVAL	CUSTOMER	ARC RESOURCES LTD.		APPROVED BY	ddPage 36 of 72	
REV. DATE	REV.	DESCRIPTION	SCALE	1:25	DATE	18/08/01	DWN. BY	BJ
			DRWS. No.	6143-ELE-LAY-001		REV.	1	



DEVICE LEGEND	
DMU	DIGITAL METERING UNIT
GFR	SE330 STARTCO MONITOR
HRN	ALARM HORN
*L1	BREAKER OPEN LIGHT
*L2	BREAKER CLOSED LIGHT
*L3	GEN CONTROL READY LIGHT
L4	SYSTEM CONTROLLER STATUS LIGHT
L5	SYSTEM COMMON ALARM LIGHT
PB1	ALARM SILENCE PUSHBUTTON
PC	COMAP DISPLAY
RP	RATING PLATE
SPD1	SURGE PROTECTION DEVICE
W1	WARNING LABELS

DEVICE LEGEND	
52-2-9517 to 21	DISTRIBUTION FEEDER CIRCUIT BREAKERS
52-2-9515	ESSENTIAL SERVICE CIRCUIT BREAKER
52-2-9511	GENERATOR CIRCUIT BREAKER
52-2-9512	GENERATOR CIRCUIT BREAKER
52-2-9513	GENERATOR MASTER CIRCUIT BREAKER
52-2-9523	LOAD BANK CIRCUIT BREAKER
52-2-9510	UTILITY MAINS CIRCUIT BREAKER

DRAWING LEGEND	
10A	PHYSICAL LAYOUT
10B,C	SECTIONAL LAYOUT
10D	BASE PLAN LAYOUT
20A	NAMEPLATE DETAILS
30A	SINGLE LINE DIAGRAM
30B	COMMUNICATION BLOCK DIAGRAM
30C	FIELD CONNECTION BLOCK DIAGRAM
40A	COMMON DC SUPPLY SCHEMATIC
50A	SYSTEM/COMMON DC CONTROL SCHEMATIC
70A	UTILITY MAINS AC SCHEMATIC
70B	UTILITY MAINS DC CONTROL SCHEMATIC
70C	MAINS SYSTEM DC CONTROL SCHEMATIC
80A	DISTRIBUTION BREAKERS AC SCHEMATIC
80B	DISTRIBUTION BREAKERS CONTROL SCHEMATIC
90A	GEN MASTER BREAKER CONTROL SCHEMATIC
91A	GEN.1/RAD FAN BREAKER CONTROL SCHEMATIC
92A	GEN.2 BREAKER CONTROL SCHEMATIC
100A	LOAD BANK BREAKER CONTROL SCHEMATIC

NOTES	
1	FREESTANDING ENCLOSURE: NEMA 1, METAL ENCLOSED.
2	CERTIFIED TO: CSA C22.2 NO.31
3	FRONT & REAR ACCESS REQUIRED.
4	ENCLOSURE COLOUR: ASA 61 GREY. INTERIOR MOUNTING PANS PAINTED WHITE.
5	WIRE TYPE: ALL CONNECTIONS TO BUS & BREAKERS TO BE #14AWG SIS. CT SECONDARY #10AWG SIS. WIRING THAT IS TO BE PROVIDED AS A PART OF OR IN AN INTEGRAL PART OF SUPERVISORY CONTROL EQUIPMENT SHALL BE #14AWG SIS. EXCEPT, PGC, PLC DIGITAL & ANALOG I/O WIRING #18AWG SIS.
6	COLOR CODE: NONE, ALL WIRING IS GREY, EXCEPT SAFETY GROUND WIRES ARE GREEN.
7	WIRE MARKERS: HEAT SHRINK TYPE C/W INDELIBLE INK MARKING.
8	WIRE NUMBERS TO MATCH TERMINAL NUMBERS, UNLESS NOTED.
9	FOR SPACE CRITICAL INSTALLATIONS VERIFY DIMENSIONS PRIOR TO INSTALLATION
10	ALL DIMENSIONS ARE TYPICAL AND SHOWN IN INCHES.

NOTES	
	POWER CABLE DATA: ALL TOP ENTRY/EXIT ** CABLE SIZE TO BE CONFIRMED BY CUSTOMER **
	GEN BREAKERS 52-2-9511, 52-2-9512, LOAD BANK BREAKER 52-2-9523 & ESSENTIAL BREAKERS 52-2-9515 & 52-2-9516 CABLE LUGS: (4) #2-600MCM CU/AL PER PHASE (4) #6-250MCM GROUND
	UTILITY BREAKER 52-2-9510 CABLE LUGS: (6) #2-600MCM CU/AL PER PHASE (6) #6-250MCM GROUND
11	TURBINE GEN BREAKER 52-2-9514 CABLE LUGS: (2) #4/0-500MCM CU/AL PER PHASE (2) #14-2/0AWG CU/AL GROUND
	DISTRIBUTION BREAKERS 52-2-9517 CABLE LUGS: (1) 2/0-250MCM CU/AL PER PHASE (1)#14-2/0AWG CU/AL GROUND
	DISTRIBUTION BREAKERS 52-2-9518, 52-2-9519, 52-2-9520, 52-2-9521 & 52-2-9522 CABLE LUGS: (1) #14-3/0AWG CU/AL PER PHASE (1) #14-2/0AWG CU/AL GROUND

AS BUILT

DRAWINGS AND/OR OTHER TECHNICAL INFORMATION SUPPLIED BY THOMSON POWER SYSTEMS AS A PART OF A SALE OF EQUIPMENT ARE FOR THE PURCHASER'S USE SOLELY IN CONJUNCTION WITH THAT EQUIPMENT, UNLESS SPECIFICALLY AGREED TO OTHERWISE AS A PART OF THE TERMS OF SALE.

APPROVED FOR CONSTRUCTION
 MASTER COPY REFERENCE COPY OF _____
 MULTIPLE UNIT WORK ORDER
 RELEASED FOR INFORMATION
 AUTH. BY: _____ DATE: _____

CROSS REFERENCE LEGEND	
SOC-C-1	GRID COORDINATE
	SHEET No.
	DRAWING No.
	REFERENCE DRAWINGS

REVISIONS	
6	AS BUILT
5	PRE PRODUCTION MOD'S INCORPORATED
4	CUSTOMER APPROVAL COMMENTS INCORPORATED
3	CUSTOMER APPROVAL COMMENTS INCORPORATED
2	CUSTOMER APPROVAL INCORPORATED

LR	IK	DATE
		18-10-02
		18-08-16
		18-08-02
		18-04-25
		18-03-26



GENERATOR CONTROL PANEL
 MODEL GCS 2200
 PHYSICAL LAYOUT
 ARC RESOURCES - DAWSON 4

CUSTOMER CW MANUFACTURING			
CUSTOMER ORDER No.	WORK ORDER No.		
C-057620	W-100727		
DRAWN BY	AUTH BY	DATE	REV
LR	RR	17-12-07	6
DRAWING/FILE No.	SHEET		
W-100727-019A	10A		