

DRAWING LIST - DRAWING DETAILS

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND / OCT 2, 2015

DWG PREFIX	DWG NO.	DESCRIPTION	REVISION
PFBC-P-002114.001	6-01-1	CONTROL IO LOCATIONS - EXTERIOR	0
PFBC-P-002114.001	6-01-2	CONTROL IO LOCATIONS - GROUND LEVEL	0
PFBC-P-002114.001	6-01-3	CONTROL IO LOCATIONS - GROUND LEVEL GARAGE	0
PFBC-P-002114.001	6-01-4	CONTROL IO LOCATIONS - SECOND LEVEL	0
PFBC-P-002114.001	6-01-5	CONTROL IO LOCATIONS - THIRD LEVEL	0
E-PFBC-BCC4	001	INSTRUMENT I/O LIST	0
E-PFBC-BCC4	020	CONTROL CABINET ASSEMBLY LAYOUT DRAWING	0
E-PFBC-BCC4	021	DCS NETWORK DIAGRAM	0
E-PFBC-BCC4	022	PROFIBUS COMMUNICATIONS SCHEMATIC	0
E-PFBC-BCC4	023	CABINET WALL LAYOUT - GROUND FLOOR	0
E-PFBC-BCC4	024	ANALOG JUNCTION BOX EXTERIOR LAYOUT	0
E-PFBC-BCC4	025	DIGITAL JUNCTION BOX EXTERIOR LAYOUT	0
E-PFBC-BCC4	026	THERMOCOUPLE JUNCTION BOX EXTERIOR LAYOUT	0
E-PFBC-BCC4	027	ANALOG JUNCTION BOX INTERIOR LAYOUT	0
E-PFBC-BCC4	028	DIGITAL JUNCTION BOX INTERIOR LAYOUT	0
E-PFBC-BCC4	029	THERMOCOUPLE JUNCTION BOX INTERIOR LAYOUT	0
E-PFBC-BCC4	030	ANALOG JUNCTION BOX TERMINAL BLOCK LAYOUT	0
E-PFBC-BCC4	031	DIGITAL JUNCTION BOX TERMINAL BLOCK LAYOUT	0
E-PFBC-BCC4	032	THERMOCOUPLE JUNCTION BOX TERMINAL BLOCK LAYOUT	0
E-PFBC-BCC4	033	VSD CABINET ASSEMBLY LAYOUT	0
E-PFBC-BCC4	035	SOLENOID CABINET 1 LAYOUT	0
E-PFBC-BCC4	036	SOLENOID CABINET 2 LAYOUT	0
E-PFBC-BCC4	037	SOLENOID CABINET 3 LAYOUT	0
E-PFBC-BCC4	038	SOLENOID CABINET 4 LAYOUT	0
E-PFBC-BCC4	039	SOLENOID CABINET 4B LAYOUT	0
E-PFBC-BCC4	040	SOLENOID CABINET 5 LAYOUT	0
E-PFBC-BCC4	041	SOLENOID CABINET 5B LAYOUT	0
E-PFBC-BCC4	042	SOLENOID CABINET 6 LAYOUT	0
E-PFBC-BCC4	043	SOLENOID CABINET 7 LAYOUT	0
E-PFBC-BCC4	044	SOLENOID CABINET 7B LAYOUT	0
E-PFBC-BCC4	046	ANALOG FIELD WIRING SPARE CABINET	0
E-PFBC-BCC4	047	DIGITAL FIELD WIRING SPARE CABINET	0
E-PFBC-BCC4	049	TCJB - UPS POWER DISTRIBUTION WIRING DIAGRAM	0
E-PFBC-BCC4	050	CONTROL CABINET AC POWER DISTRIBUTION	0
E-PFBC-BCC4	051	CONTROL CABINET DC POWER DISTRIBUTION	0
E-PFBC-BCC4	053	ANALOG JUNCTION BOX AC POWER DISTRIBUTION	0
E-PFBC-BCC4	054	ANALOG JUNCTION BOX DC POWER DISTRIBUTION	0
E-PFBC-BCC4	055	DIGITAL JUNCTION BOX AC POWER DISTRIBUTION	0
E-PFBC-BCC4	056	DIGITAL JUNCTION BOX DC POWER DISTRIBUTION	0
E-PFBC-BCC4	057	THERMOCOUPLE JUNCTION BOX AC POWER DISTRIBUTION	0
E-PFBC-BCC4	058	THERMOCOUPLE JUNCTION BOX DC POWER DISTRIBUTION	0
E-PFBC-BCC4	059	COMMUNICATION ADAPTER BUS POWER WIRING	0
E-PFBC-BCC4	075	SOLENOID CABINET 1 WIRING	0
E-PFBC-BCC4	076	SOLENOID CABINET 2 WIRING	0
E-PFBC-BCC4	077	SOLENOID CABINET 3 WIRING	0
E-PFBC-BCC4	078	SOLENOID CABINET 4 WIRING	0
E-PFBC-BCC4	079	SOLENOID CABINET 4B WIRING	0
E-PFBC-BCC4	080	SOLENOID CABINET 5 WIRING	0
E-PFBC-BCC4	081	SOLENOID CABINET 5B WIRING	0
E-PFBC-BCC4	082	SOLENOID CABINET 6 WIRING	0
E-PFBC-BCC4	083	SOLENOID CABINET 7 WIRING	0
E-PFBC-BCC4	084	SOLENOID CABINET 7B WIRING	0
E-PFBC-BCC4	101	AJB - ANALOG INPUT WIRING NODE ADDRESS 2-MODULE 1	0
E-PFBC-BCC4	102	AJB - ANALOG INPUT WIRING NODE ADDRESS 2-MODULE 2 & 3	0
E-PFBC-BCC4	103	AJB - ANALOG INPUT WIRING NODE ADDRESS 2-MODULE 4 & 6	0
E-PFBC-BCC4	104	AJB - ANALOG INPUT WIRING NODE ADDRESS 2-MODULE 5 & 7	0
E-PFBC-BCC4	105	AJB - ANALOG INPUT WIRING NODE 2-MODULE 8 & NODE 3 - MODULE 8	0
E-PFBC-BCC4	106	AJB - ANALOG INPUT WIRING NODE ADDRESS 6-MODULE 1	0
E-PFBC-BCC4	107	AJB - ANALOG INPUT WIRING NODE ADDRESS 6-MODULE 2	0

DRAWING LIST - DRAWING DETAILS

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SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
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JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND / OCT 2, 2015

DWG PREFIX	DWG NO.	DESCRIPTION	REVISION
E-PFBC-BCC4	108	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULE 1	0
E-PFBC-BCC4	109	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULE 2	0
E-PFBC-BCC4	110	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULE 3	0
E-PFBC-BCC4	111	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULES 4 & 5	0
E-PFBC-BCC4	112	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULES 6 & 7	0
E-PFBC-BCC4	113	AJB - ANALOG INPUT WIRING NODE ADDRESS 11-MODULES 8 & 9	0
E-PFBC-BCC4	120	DJB - ANALOG OUTPUT WIRING NODE ADDRESS 3-MODULES 1 & 2	0
E-PFBC-BCC4	121	DJB - ANALOG OUTPUT WIRING NODE ADDRESS 3-MODULES 3 & 4	0
E-PFBC-BCC4	122	DJB - ANALOG OUTPUT WIRING NODE ADDRESS 3-MODULES 6 & 7	0
E-PFBC-BCC4	123	DJB - ANALOG OUTPUT WIRING NODE 3-MODULE 5 & NODE 6 MODULE 8	0
E-PFBC-BCC4	124	DJB - ANALOG OUTUT WIRING NODE 6-MODULES 3 & 4	0
E-PFBC-BCC4	125	DJB - ANALOG OUTUT WIRING NODE 12-MODULES 1 & 2	0
E-PFBC-BCC4	201	DJB - DIGITAL INPUT WIRING NODE ADDRESS 4-MODULE 1	0
E-PFBC-BCC4	202	DJB - DIGITAL INPUT WIRING NODE ADDRESS 4-MODULE 2	0
E-PFBC-BCC4	203	DJB - DIGITAL INPUT WIRING NODE ADDRESS 4-MODULE 3	0
E-PFBC-BCC4	204	DJB - DIGITAL INPUT WIRING NODE ADDRESS 4-MODULE 7	0
E-PFBC-BCC4	205	DJB - DIGITAL INPUT WIRING NODE ADDRESS 6-MODULE 5	0
E-PFBC-BCC4	220	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4-MODULE 4	0
E-PFBC-BCC4	221	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4-MODULE 5	0
E-PFBC-BCC4	222	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4-MODULE 6	0
E-PFBC-BCC4	223	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4-MODULE 8	0
E-PFBC-BCC4	224	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 6-MODULE 6	0
E-PFBC-BCC4	225	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 6-MODULES 7	0
E-PFBC-BCC4	226	DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 12-MODULE 3	0
E-PFBC-BCC4	301	THERMOCOUPLE - JACK PANEL A NODE ADDRESS 5 - MODULE 1	0
E-PFBC-BCC4	302	THERMOCOUPLE - JACK PANEL B NODE ADDRESS 5 - MODULE 2	0
E-PFBC-BCC4	303	THERMOCOUPLE - JACK PANEL C NODE ADDRESS 5 - MODULES 3 & 4	0
E-PFBC-BCC4	304	THERMOCOUPLE - JACK PANEL D NODE ADDRESS 5 - MODULES 5	0
E-PFBC-BCC4	305	THERMOCOUPLE - JACK PANEL E N5-M6 & N7-M1&M2	0
E-PFBC-BCC4	306	THERMOCOUPLE - JACK PANEL F NODE ADDRESS 7 - MODULE 3, 4 & 5	0
E-PFBC-BCC4	307	THERMOCOUPLE - JACK PANEL G N7-M6 & N8-M2	0
E-PFBC-BCC4	308	THERMOCOUPLE - JACK PANEL H NODE ADDRESS 8 - MODULE 3, 4 & 5	0
E-PFBC-BCC4	309	THERMOCOUPLE - JACK PANEL J NODE ADDRESS 8 - MODULE 6, 7 & 8	0
E-PFBC-BCC4	310	THERMOCOUPLE - JACK PANEL K NODE ADDRESS 9 - MODULE 1, 2 & 3	0
E-PFBC-BCC4	311	THERMOCOUPLE - JACK PANEL L NODE ADDRESS 9 - MODULE 4, 5 & 6	0
E-PFBC-BCC4	312	THERMOCOUPLE - JACK PANEL M NODE ADDRESS 9 - MODULE 7 & 8	0
E-PFBC-BCC4	313	THERMOCOUPLE WIRING NODE ADDRESS 8 - MODULE 1	0
E-PFBC-BCC4	350	SINGLE LINE DIAGRAM 1	0
E-PFBC-BCC4	351	VSD CABINET SINGLE LINE DIAGRAM	0
E-PFBC-BCC4	352	2 X 100HP COMPRESSORS SINGLE LINE DIAGRAM	0
E-PFBC-BCC4	401	HP WATER PUMP MO-105-001	0
E-PFBC-BCC4	402	FUEL/SORBENT MIXER MO-205-001	0
E-PFBC-BCC4	403	BED MATERIAL VESSEL PRESSURE MOTOR MO-109-001	0
E-PFBC-BCC4	404	RECYCLE GAS COMPRESSOR MO-303-001	0
E-PFBC-BCC4	405	POSITIVE DISPLACEMENT BLOWER MO-304-001	0
E-PFBC-BCC4	406	ROTARY AIRLOCK VALVE MO-304-002	0
E-PFBC-BCC4	407	ROTARY AIRLOCK VALVE MO-304-003	0
E-PFBC-BCC4	408	SOLID FUEL BULK BAG UNLOADER INTERNAL AGITATOR AG-106-001	0
E-PFBC-BCC4	409	SOLID FUEL BULK BAG UNLOADER DUST COLLECTOR MO-106-001	0
E-PFBC-BCC4	410	SOLID SORBENT BULK BAG UNLOADER INTERNAL AGITATOR AG-107-001	0
E-PFBC-BCC4	411	INJECTION FEEDER MO-205-003	0
E-PFBC-BCC4	500	GROUND AND 2ND LEVEL CABLE TRAY LAYOUT	0
E-PFBC-BCC4	501	3RD LEVEL CABLE TRAY LAYOUT AND SECTIONS	0
E-PFBC-BCC4	502	CABLE TRAY BILL OF MATERIALS	0
E-PFBC-BCC4	510	POWER CABLE SCHEDULE	0
E-PFBC-BCC4	511	FIELD ANALOG JUNCTION BOX CABLE SCHEDULE	0
E-PFBC-BCC4	512	FIELD DIGITAL JUNCTION BOX CABLE SCHEDULE	0
E-PFBC-BCC4	513	FIELD THERMOCOUPLE JUNCTION BOX CABLE SCHEDULE	0
E-PFBC-BCC4	514	FIELD CABLE SCHEDULE	0

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Notes:			

REV.	DESCRIPTION	DATE	BY
0	Updated to reflect process changes	NOV 2014	RS

DRAWN BY:	R. Symonds	Dec. 2014
APPROVED BY:		
ISSUED:		
SCALE:	NONE	

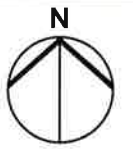
Control IO Locations - Exterior				
DRAWING NO PFBC - P-002114.001 - 2-04 - 1	JOB NO PFBC - P-002114.001	BLOCK NO 6-01	SHEET NO 1	REV NO 0

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

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GROUND LEVEL



**P&ID
BLOCK 2-03 SHT 2
PT-2321**

SOLENOID ENCLOSURE 1
DWG# E-PFBC-BCC4-221
DWG# E-PFBC-BCC4-035
VALVES (8)
YV-3201
YV-3202
YV-2191
YV-2192
YV-3203
YV-3204
YV-3205
YV-4201

**P&ID
Block No. 3-02 Sheet 1
PT-3210, DPT-3202, LSH-3210, LSL-3210, DPT-3203**

TC JACK PANEL A
DWG# E-PFBC-BC4-?
DWG# E-PFBC-BCC4-?
TC (8)
TE-1501
TE-1502
TE-1503
TE-3206
TE-3207
TE-3208
TE-3209
(SPARE)

**P&ID BLOCK
1-05 SHT 1
MO-105-001**

**P&ID BLOCK 1-05 SHT 1
FT-1501, PT-1501, PT-1502, PT-1503**

**P&ID BLOCK 2-01 SHT 1
FT-2101, FCV-2101, PT-2101**

**P&ID BLOCK 2-01 SHT 2
FT-2123, PCV-3151; FT-2124, PT-2124, FCV-2124; FT-2126,
PCV-1901; FT-2127, PCV-3111; FT-2129, PT-2129, PCV-2129**

SOLENOID ENCLOSURE 2 **7478**
DWG# E-PFBC-BCC4-?
DWG# E-PFBC-BCC4-?
VALVES (12)
YV-2123
YV-2124
YV-2126
YV-2127
YV-2129
YV-3151
YV-3152
YV-3153
YV-3154
YV-3155
YV-2101
YV-2102

**P&ID
Block No. 3-01
Sheet 1
PT-3151, DPT-3153**

TC JACK PANEL C
DWG# E-PFBC-BC4-?
DWG# E-PFBC-BCC4-?
TC (12)
TE-2129
TE-3151
TE-3152
TE-3153
TE-3154
TE-3100E
TE-3100W
TE-3130
TE-2101
TE-2102
(SPARE)
(SPARE)

**P&ID
Block No. 4-02 Sheet 1
PT-4201, PT-4202**

*TTC - 4201
TCV - 4203*

**P&ID BLOCK 402 SHT 1
MO-402-001**

TC JACK PANEL B
DWG# E-PFBC-BC4-?
DWG# E-PFBC-BCC4-?
TC (8)
TE-2300
TE-4201
TE-4202
TE-4203
TE-4204
TE-4284
TE-3221
(SPARE)

SOLENOID ENCLOSURE 2
DWG# E-PFBC-BCC4-221
DWG# E-PFBC-BCC4-036
VALVES (8)
YV-2301
YV-2302
YV-2303
YV-5101
YV-5102
YV-5103
YV-5104
YV-5105

**P&ID
BLOCK 1-04 SHT 2
PT-1420**

**P&ID BLOCK 2-03 SHT 1
PT-2301, PSL-2301, FT-2301, FCV-2301, PT-2302; FT-2302,
FCV-2302, PT-2303; FT-2303, FCV-2303, PT-2304**

**P&ID
BLOCK 4-01 SHT 1
PT-4101**

**P&ID BLOCK 1-04 SHT 2
MO-104-020, MO-104-021**

**P&ID BLOCK 3-04 SHT 1
ALL IO FOR V-304-001**

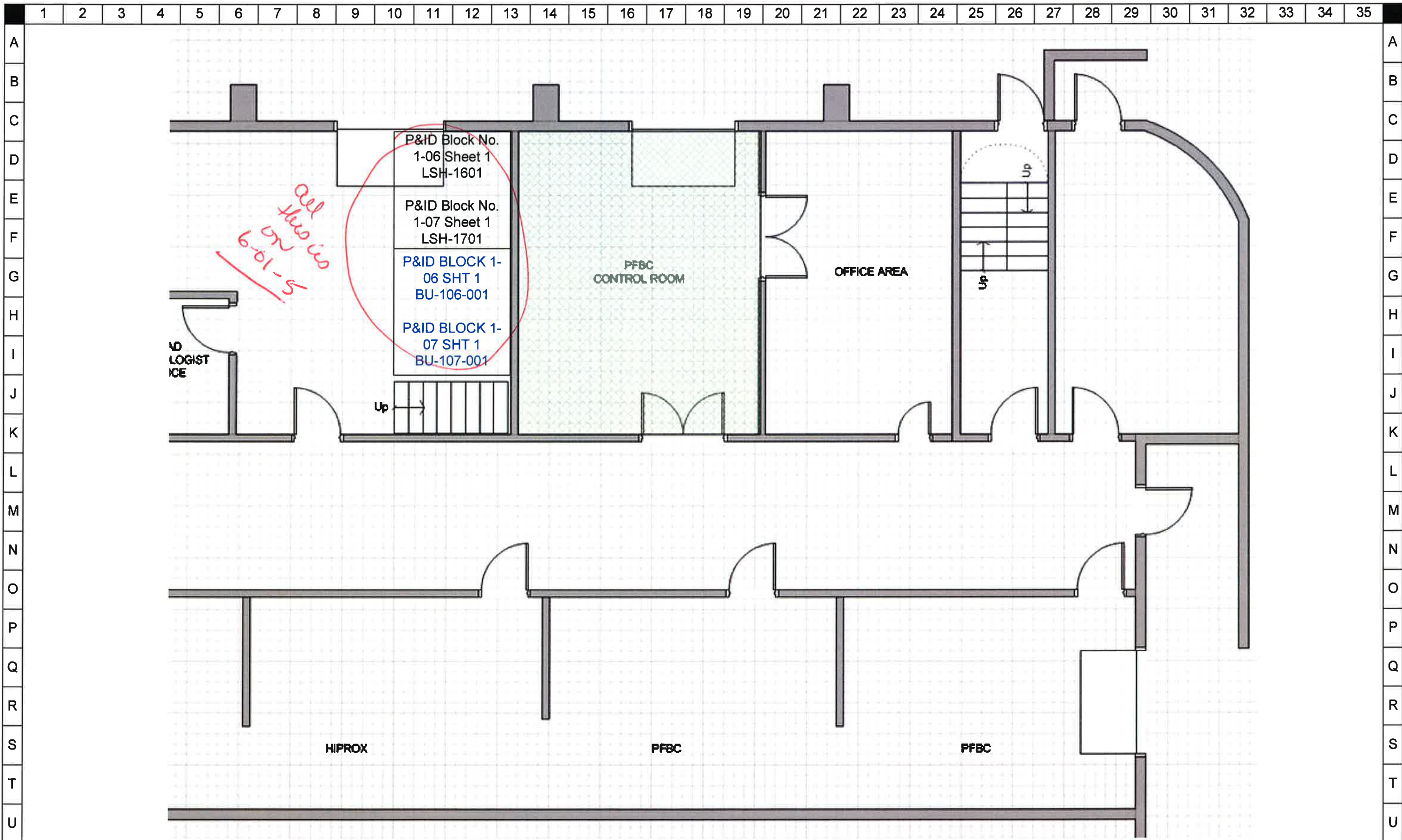
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Notes:

REV.	DESCRIPTION	DATE	BY
0	Updated to reflect process changes	NOV 2014	RS

DRAWN BY: R. Symonds
APPROVED BY:
ISSUED:
SCALE: NONE

Control IO Locations – Ground level				
DRAWING NO PFBC - P-002114.001 - 2-04 - 1	JOB NO PFBC - P-002114.001	BLOCK NO 6-01	SHEET NO 2	REV NO 0



LOGIST ICE

all this is on 6-01-5

P&ID Block No.
1-06 Sheet 1
LSH-1601

P&ID Block No.
1-07 Sheet 1
LSH-1701

P&ID BLOCK 1-
06 SHT 1
BU-106-001

P&ID BLOCK 1-
07 SHT 1
BU-107-001

PFBC
CONTROL ROOM

OFFICE AREA

Up

Up

HIPROX

PFBC

PFBC

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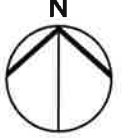
Notes:

REV.	DESCRIPTION	DATE	BY
0	Updated to reflect process changes	NOV 2014	RS

DRAWN BY:	R. Symonds	Dec. 2014
APPROVED BY:		
ISSUED:		
SCALE:	NONE	

Control IO Locations – Ground level - Garage				
DRAWING NO	JOB NO	BLOCK NO	SHEET NO	REV NO
PFBC - P-002114.001 - 2-04 - 1	PFBC - P-002114.001	6-01	3	0

SECOND LEVEL



P&ID BLOCK 3-02 SHT 2
ALL SIGNAL IN/OUT

P&ID BLOCK 2-01 SHT 2
FT-2121, PT2121, FCV-2121; FT-2122, PCV-3211; FT-2125, PT2125,
PCV-2502; FT-2128, PCV-3210

SOLENOID ENCLOSURE 3
DWG# E-PFBC-BC4-222
DWG# E-PFBC-BCC4-038
VALVES (8)
YV-2501
YV-2502 (TV-2502)
YV-2503
YV-2504
YV-2121
YV-2122
YV-2125
YV-2128

PT-2120

TC JACK PANEL D
DWG# E-PFBC-BC4-?
DWG# E-PFBC-BCC4-?
TC (8)
TE-2120
TE-2502
TE-3301
TE-3302
(SPARE)
(SPARE)
(SPARE)
(SPARE)

P&ID BLOCK 2-05 SHT 1
MO-205-003

P&ID
Block No. 2-05
Sheet 1
FSL-2501, ZSO-2501, ZSC-
2501, LSH-2502, LSL-2502, PT-
2502, DPT-2502, PT-2503, ~~TE-
2502~~, WIC-2503, PCV-2501

P&ID BLOCK 3-03 SHT 1
MO-303-001

P&ID Block No. 4-02 Sheet 1
FT-4211, FCV-4211, PT-4211, FT-4212, FCV-4212, PT-
4212, FT-4213, FCV-4213, PT-4213

SOLENOID ENCLOSURE 3
DWG# E-PFBC-BCC4-223
DWG# E-PFBC-BCC4-039
VALVES (11)
YV-2331
YV-2332
YV-2333
YV-2334
YV-2335
YV-2336
YV-2510
YV-5204
YV-5205
YV-5210
YV-5211
(SPARE)

4.48

TC JACK PANEL E DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3121N TE-3121E TE-3121S TE-3121W TE-3122N TE-3122E TE-3122S TE-3122W	TC JACK PANEL E DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3101N TE-3101E TE-3101S TE-3101W TE-3102N TE-3102E TE-3102S TE-3131 TE-3132	TC JACK PANEL E DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3141 TE-3181 TE-5201 TE-5202 TE-5203 TE-5204 TE-5205 TE-2110
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P&ID Block No. 3-01
Sheet 1
BE-3101, DPT-3154

P&ID Block No. 3-01
Sheet 2
ALL IO POINTS

TC JACK PANEL G DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-2330 TE-2331 TE-2332 TE-2333 TE-2334 TE-2335 TE-2336 (SPARE)	TC JACK PANEL G DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE)	TC JACK PANEL G DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE) (SPARE)
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TC JACK PANEL F DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3123N TE-3123E TE-3123S TE-3123W TE-3124N TE-3124E TE-3124S TE-3124W	TC JACK PANEL F DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3104N TE-3104E TE-3133 TE-3105N TE-3105E TE-3105W TE-3134 TE-3135	TC JACK PANEL F DWG# E-PFBC-BC4-? DWG# E-PFBC-BCC4-? TC (8) TE-3106N TE-3106E TE-3106S TE-3106W TE-3107E TE-3107S TE-3107W TE-3136
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Notes:

REV.	DESCRIPTION	DATE	BY
0	Updated to reflect process changes	NOV 2014	RS

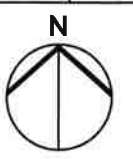
DRAWN BY:	R. Symonds	Dec. 2014
APPROVED BY:		
ISSUED:		
SCALE:	NONE	

Control IO Locations – Second level

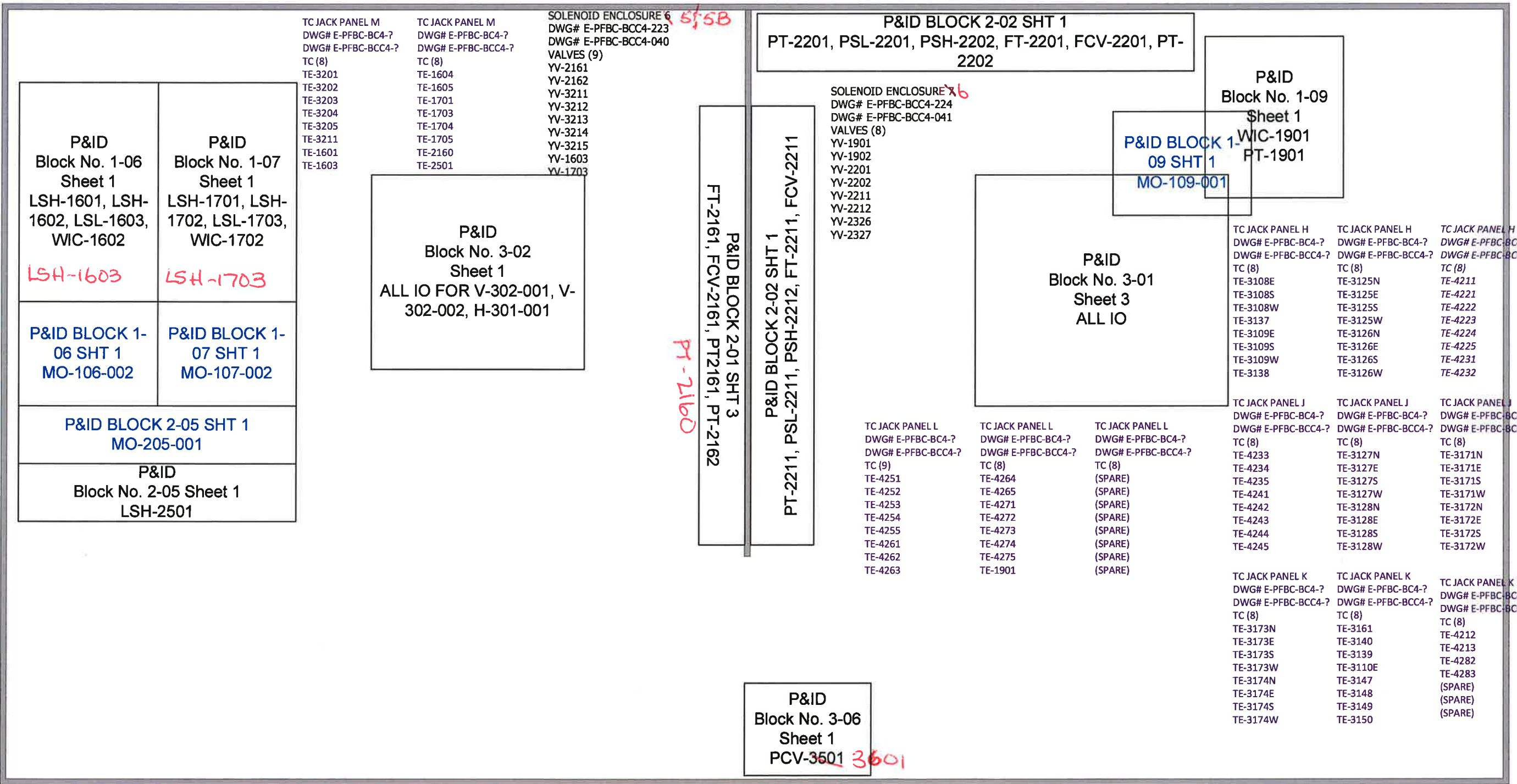
DRAWING NO	JOB NO	BLOCK NO	SHEET NO	REV NO
PFBC - P-002114.001 - 2-04 - 1	PFBC - P-002114.001	6-01	4	0

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THIRD LEVEL



CONFIDENTIAL

REV.	DESCRIPTION	DATE	BY	DRAWN BY:	R.	Dec. 2014
0	Updated to reflect process changes	NOV 2014	RS		Symonds	
APPROVED BY:						
ISSUED:						
SCALE:				NONE		

Control IO Locations – Third level				
DRAWING NO	JOB NO	BLOCK NO	SHEET NO	REV NO
PFBC - P-002114.001 - 2-04 - 1	PFBC - P-002114.001	6-01	5	0

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
ANALOG INPUT (4-20 mA)														
NG TO G2 SYSTEM FLOW	FT-1303	AI	1-03	1	2	1	0	0	405	CA-25	PFBC-AJB-01	AI1	1006	E-PFBC-BBC4-101
NG TO OTHER USERS FLOW	FT-1304	AI	1-03	1	2	1	1	2	408	CA-25	PFBC-AJB-01	AI1	1010	E-PFBC-BBC4-101
NG DISTRIBUTION SYSTEM FLOW	FT-1305	AI	1-03	1	2	1	2	4	411	CA-25	PFBC-AJB-01	AI1	1014	E-PFBC-BBC4-101
WATER TO DISTRIBUTION SYSTEM FLOW	FT-1501	AI	1-05	1	2	1	3	6	414	CA-25	PFBC-AJB-01	AI1	1018	E-PFBC-BBC4-101
PRIMARY O2 SUPPLY FLOW	FT-2101	AI	2-01	1	2	1	4	8	417	CA-25	PFBC-AJB-01	AI1	1022	E-PFBC-BBC4-101
SECONDARY O2 SUPPLY FLOW	FT-2102	AI	2-01	1	2	1	5	10	420	CA-25	PFBC-AJB-01	AI1	1026	E-PFBC-BBC4-101
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC FLOW	FT-2110	AI	2-01	1	2	1	6	12	423	CA-25	PFBC-AJB-01	AI1	1030	E-PFBC-BBC4-101
SPARE O2 AND RECYCLE FLUE GAS FLOW	FT-2111	AI	2-01	1	2	1	7	14	426	CA-25	PFBC-AJB-01	AI1	1034	E-PFBC-BBC4-101
BULK O2 SMALL TANK LEVEL TEST	LT-1101	AI	1-01	1	2	2	0	0	429	CA-26	PFBC-AJB-01	AI1	1072	E-PFBC-BBC4-102
BULK O2 SMALL TANK PRESSURE	PT-1101	AI	1-01	1	2	2	1	2	430	CA-26	PFBC-AJB-01	AI1	1074	E-PFBC-BBC4-102
BULK O2 LARGE TANK LEVEL	LT-1102	AI	1-01	1	2	2	2	4	431	CA-26	PFBC-AJB-01	AI1	1076	E-PFBC-BBC4-102
BULK O2 LARGE TANK PRESSURE	PT-1102	AI	1-01	1	2	2	3	6	432	CA-26	PFBC-AJB-01	AI1	1078	E-PFBC-BBC4-102
O2 SUPPLY PRESSURE	PT-1103	AI	1-01	1	2	2	4	8	433	CA-26	PFBC-AJB-01	AI1	1080	E-PFBC-BBC4-102
BULK CO2 TANK LEVEL	LT-1201	AI	1-02	1	2	2	5	10	434	CA-26	PFBC-AJB-01	AI1	1082	E-PFBC-BBC4-102
BULK CO2 TANK PRESSURE	PT-1201	AI	1-02	1	2	2	6	12	435	CA-26	PFBC-AJB-01	AI1	1084	E-PFBC-BBC4-102
CO2 SUPPLY PRESSURE	PT-1202	AI	1-02	1	2	2	7	14	436	CA-26	PFBC-AJB-01	AI1	1086	E-PFBC-BBC4-102
NG COMPRESSOR RECEIVER PRESSURE	PT-1301	AI	1-03	2	2	3	0	0	439	CA-27	PFBC-AJB-01	AI1	1090	E-PFBC-BBC4-102
NG DISTRIBUTION SYSTEM PRESSURE	PT-1302	AI	1-03	2	2	3	1	2	440	CA-27	PFBC-AJB-01	AI1	1092	E-PFBC-BBC4-102
NG COMPRESSOR MOTOR CURRENT	IT-1320	AI	1-03	2	2	3	2	4	441	CA-27	PFBC-AJB-01	AI1	1094	E-PFBC-BBC4-102
HP AIR COMPRESSOR 1 MOTOR CURRENT	IT-1420	AI	1-04	2	2	3	3	6	442	CA-27	PFBC-AJB-01	AI1	1096	E-PFBC-BBC4-102
HP AIR DISTRIBUTION SYSTEM PRESSURE	PT-1420	AI	1-04	2	2	3	4	8	443	CA-27	PFBC-AJB-01	AI1	1098	E-PFBC-BBC4-102
HP AIR COMPRESSOR 2 MOTOR CURRENT	IT-1421	AI	1-04	2	2	3	5	10	444	CA-27	PFBC-AJB-01	AI1	1100	E-PFBC-BBC4-102
SOLID FUEL FEEDER MOTOR SPEED	ST-1602	AI	1-06	1	2	3	6	12	445	CA-27	PFBC-AJB-01	AI1	1102	E-PFBC-BBC4-102
SOLID SORBENT FEEDER MOTOR SPEED	ST-1702	AI	1-07	1	2	3	7	14	446	CA-27	PFBC-AJB-01	AI1	1104	E-PFBC-BBC4-102
HIGH PRESSURE SUPPLY WATER PUMP MOTOR CURRENT	IT-1501	AI	1-05	1	2	4	0	0	449	CA-28	PFBC-AJB-01	AI1	1108	E-PFBC-BBC4-103
WATER TO DISTRIBUTION SYSTEM PRESSURE	PT-1501	AI	1-05	1	2	4	1	2	450	CA-28	PFBC-AJB-01	AI1	1110	E-PFBC-BBC4-103
HP WATER TO DISTRIBUTION SYSTEM PRESSURE	PT-1502	AI	1-05	1	2	4	2	4	451	CA-28	PFBC-AJB-01	AI1	1112	E-PFBC-BBC4-103
BULK N2 TANK LEVEL	LT-1801	AI	1-08	1	2	4	3	6	452	CA-28	PFBC-AJB-01	AI1	1114	E-PFBC-BBC4-103
BULK N2 TANK PRESSURE	PT-1801	AI	1-08	1	2	4	4	8	453	CA-28	PFBC-AJB-01	AI1	1116	E-PFBC-BBC4-103
N2 TO GAS DISTRIBUTION SYSTEM PRESSURE	PT-1802	AI	1-08	1	2	4	5	10	454	CA-28	PFBC-AJB-01	AI1	1118	E-PFBC-BBC4-103
BED MATERIAL FEEDER VESSEL PRESSURE	PT-1901	AI	1-09	1	2	4	6	12	455	CA-28	PFBC-AJB-01	AI1	1120	E-PFBC-BBC4-103

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(2)-S1	AI	X-XX	X	2	4	7	14	456	CA-28	PFBC-AJB-01	AI1	1122	E-PFBC-BBC4-103
MAIN AIR TO PFBC BED SECTION COOLANT PRESSURE	PT-2303	AI	2-03	1	2	5	0	0	479	CA-29	PFBC-AJB-01	AI2	1230	E-PFBC-BBC4-104
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS PRESSURE	PT-2304	AI	2-03	1	2	5	1	2	480	CA-29	PFBC-AJB-01	AI2	1232	E-PFBC-BBC4-104
LP AIR TO SOLID FUEL SUPPLY INSTRUMENT AIR PRESSURE	PT-2321	AI	2-03	2	2	5	2	4	481	CA-29	PFBC-AJB-01	AI2	1234	E-PFBC-BBC4-104
FUEL / SORBENT MIXER MOTOR CURRENT	IT-2501	AI	2-05	1	2	5	3	6	482	CA-29	PFBC-AJB-01	AI2	1236	E-PFBC-BBC4-104
PRESSURIZATION TO INJECTION VESSEL DIFFERENTIAL PRESSURE	DPT-2502	AI	2-05	1	2	5	4	8	483	CA-29	PFBC-AJB-01	AI2	1238	E-PFBC-BBC4-104
PRESSURIZATION VESSEL PRESSURE	PT-2502	AI	2-05	1	2	5	5	10	484	CA-29	PFBC-AJB-01	AI2	1240	E-PFBC-BBC4-104
INJECTION VESSEL PRESSURE	PT-2503	AI	2-05	1	2	5	6	12	485	CA-29	PFBC-AJB-01	AI2	1242	E-PFBC-BBC4-104
INJECTION FEEDER MOTOR SPEED	ST-2503	AI	2-05	1	2	5	7	14	486	CA-29	PFBC-AJB-01	AI2	1244	E-PFBC-BBC4-104
PRIMARY O2 SUPPLY PRESSURE	PT-2101	AI	2-01	1	2	6	0	0	459	CA-30	PFBC-AJB-01	AI2	1194	E-PFBC-BBC4-103
SECONDARY O2 SUPPLY PRESSURE	PT-2102	AI	2-01	1	2	6	1	2	460	CA-30	PFBC-AJB-01	AI2	1196	E-PFBC-BBC4-103
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC PRESSURE	PT-2110	AI	2-01	1	2	6	2	4	461	CA-30	PFBC-AJB-01	AI2	1198	E-PFBC-BBC4-103
CO2 SUPPLY HEADER PRESSURE	PT-2120	AI	2-01	2	2	6	3	6	462	CA-30	PFBC-AJB-01	AI2	1200	E-PFBC-BBC4-103
CO2 TO INJECTION SYSTEM PRESSURE	PT-2121	AI	2-01	2	2	6	4	8	463	CA-30	PFBC-AJB-01	AI2	1202	E-PFBC-BBC4-103
CO2 TO SOLIDS COOLING PRESSURE	PT-2124	AI	2-01	2	2	6	5	10	464	CA-30	PFBC-AJB-01	AI2	1204	E-PFBC-BBC4-103
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM PRESSURE	PT-2125	AI	2-01	2	2	6	6	12	465	CA-30	PFBC-AJB-01	AI2	1206	E-PFBC-BBC4-103
CO2 TO SOLIDS SAMPLING SYSTEM PRESSURE	PT-2129	AI	2-01	2B	2	6	7	14	466	CA-30	PFBC-AJB-01	AI2	1208	E-PFBC-BBC4-103
N2 SUPPLY HEADER PRESSURE	PT-2160	AI	2-01	3	2	7	0	0	469	CA-31	PFBC-AJB-01	AI2	1212	E-PFBC-BBC4-104
N2 TO LINDE SKID - DILUTION PRESSURE	PT-2161	AI	2-01	3	2	7	1	2	470	CA-31	PFBC-AJB-01	AI2	1214	E-PFBC-BBC4-104
N2 TO PRESSURE TESTING PRESSURE	PT-2162	AI	2-01	3	2	7	2	4	471	CA-31	PFBC-AJB-01	AI2	1216	E-PFBC-BBC4-104
HP NG AUXILIARY LINE PRESSURE	PT-2201	AI	2-02	1	2	7	3	6	472	CA-31	PFBC-AJB-01	AI2	1218	E-PFBC-BBC4-104
NG TO LINDE SKID PRESSURE	PT-2202	AI	2-02	1	2	7	4	8	473	CA-31	PFBC-AJB-01	AI2	1220	E-PFBC-BBC4-104
LP NG TO PFBC BURNER PRESSURE	PT-2211	AI	2-02	1	2	7	5	10	474	CA-31	PFBC-AJB-01	AI2	1222	E-PFBC-BBC4-104
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE 1	PT-2301	AI	2-03	1	2	7	6	12	475	CA-31	PFBC-AJB-01	AI2	1224	E-PFBC-BBC4-104
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE 2	PT-2302	AI	2-03	1	2	7	7	14	476	CA-31	PFBC-AJB-01	AI2	1226	E-PFBC-BBC4-104
CO2 FROM GAS DISTRIBUTION SYSTEM DIFFERENTIAL PRESSURE	DPT-3151	AI	3-01	1	2	8	0	0	502	CA-32	PFBC-AJB-01	AI3	1280	E-PFBC-BBC4-105
CO2 TO SOLIDS LETDOWN PRESSURE	PT-3151	AI	3-01	1	2	8	1	2	503	CA-32	PFBC-AJB-01	AI3	1282	E-PFBC-BBC4-105
BED ASH TO SOLID WASTE HANDLING DIFFERENTIAL PRESSURE	DPT-3153	AI	3-01	1	2	8	2	4	504	CA-32	PFBC-AJB-01	AI3	1284	E-PFBC-BBC4-105
PRIMARY O2 AND RECYCLE FLUE GAS DIFFERENTIAL PRESSURE	DPT-3154	AI	3-01	1	2	8	3	6	505	CA-32	PFBC-AJB-01	AI3	1288	E-PFBC-BBC4-105
COOLING AIR OUTLET PRESSURE	PT-2330	AI	3-01	2	2	8	4	8	506	CA-32	PFBC-AJB-01	AI3	1290	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 1	DPT-3101	AI	3-01	2	2	8	5	10	507	CA-32	PFBC-AJB-01	AI3	1292	E-PFBC-BBC4-105
BED REDUNDANT 1 PRESSURE	PT-3101A	AI	3-01	2	2	8	6	12	508	CA-32	PFBC-AJB-01	AI3	1294	E-PFBC-BBC4-105

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
BED REDUNDANT 2 PRESSURE	PT-3101B	AI	3-01	2	2	8	7	14	509	CA-32	PFBC-AJB-01	AI3	1296	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 2	DPT-3102	AI	3-01	2	3	8	0	0	520	CA-24	PFBC-AJB-01	AI3	1300	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 3	DPT-3103	AI	3-01	2	3	8	1	2	521	CA-24	PFBC-AJB-01	AI3	1302	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 4	DPT-3104	AI	3-01	2	3	8	2	4	522	CA-24	PFBC-AJB-01	AI3	1304	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 5	DPT-3105	AI	3-01	2	3	8	3	6	523	CA-24	PFBC-AJB-01	AI3	1306	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 6	DPT-3106	AI	3-01	2	3	8	4	8	524	CA-24	PFBC-AJB-01	AI3	1308	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 7	DPT-3107	AI	3-01	2	3	8	5	10	525	CA-24	PFBC-AJB-01	AI3	1310	E-PFBC-BBC4-105
FREEBOARD PRESSURE	PT-3107	AI	3-01	2	3	8	6	12	526	CA-24	PFBC-AJB-01	AI3	1312	E-PFBC-BBC4-105
TO PFBC CONVECTIVE SECTION HV-3109 AND HV-3108 DIFFERENTIAL PRESSURE	DPT-3108	AI	3-01	2	3	8	7	14	527	CA-24	PFBC-AJB-01	AI3	1314	E-PFBC-BBC4-105
CO2 TO INJECTION SYSTEM FLOW	FT-2121	AI	2-01	2	6	1	0	0			PFBC-AJB-01	AI2	1128	E-PFBC-BBC4-106
CO2 TO SOOT BLOWERS FLOW	FT-2122	AI	2-01	2	6	1	1	2			PFBC-AJB-01	AI2	1132	E-PFBC-BBC4-106
CO2 TO SOLIDS LETDOWN FLOW	FT-2123	AI	2-01	2	6	1	2	4			PFBC-AJB-01	AI2	1136	E-PFBC-BBC4-106
CO2 TO SOLIDS COOLING FLOW	FT-2124	AI	2-01	2	6	1	3	6			PFBC-AJB-01	AI2	1140	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM FLOW	FT-2125	AI	2-01	2	6	1	4	8			PFBC-AJB-01	AI2	1144	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO BED MATERIAL FLOW	FT-2126	AI	2-01	2	6	1	5	10			PFBC-AJB-01	AI2	1148	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO INTERSTITIAL FLOW	FT-2127	AI	2-01	2	6	1	6	12			PFBC-AJB-01	AI2	1152	E-PFBC-BBC4-106
CO2 TO PGT LOCK HOPPER FLOW	FT-2128	AI	2-01	2	6	1	7	14			PFBC-AJB-01	AI2	1156	E-PFBC-BBC4-106
CO2 TO SOLIDS SAMPLING SYSTEM FLOW	FT-2129	AI	2-01	2B	6	2	0	17			PFBC-AJB-01	AI2	1162	E-PFBC-BBC4-107
N2 TO LINDE SKID - DILUTION FLOW	FT-2161	AI	2-01	3	6	2	1	2			PFBC-AJB-01	AI2	1166	E-PFBC-BBC4-107
HP NG AUXILIARY LINE FLOW	FT-2201	AI	2-02	1	6	2	2	4			PFBC-AJB-01	AI2	1170	E-PFBC-BBC4-107
LP NG TO PFBC BURNER FLOW	FT-2211	AI	2-02	1	6	2	3	6			PFBC-AJB-01	AI2	1174	E-PFBC-BBC4-107
MAIN AIR TO PFBC PRE-HEAT BURNER FLOW	FT-2301	AI	2-03	1	6	2	4	8			PFBC-AJB-01	AI2	1178	E-PFBC-BBC4-107
MAIN AIR TO PFBC BED SECTION COOLANT FLOW	FT-2302	AI	2-03	1	6	2	5	10			PFBC-AJB-01	AI2	1182	E-PFBC-BBC4-107
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS FLOW	FT-2303	AI	2-03	1	6	2	6	12			PFBC-AJB-01	AI2	1186	E-PFBC-BBC4-107
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(4)-S2	AI	X-XX	X	6	2	7	B7			PFBC-AJB-01	AI2	1190	E-PFBC-BBC4-107
COOLING TO PFBC BED SECTION PFBC FLOW	FT-4211	AI	4-02	1	11	1	1	B1			PFBC-AJB-01	AI1	1040	E-PFBC-BBC4-108
COOLING TO PFBC CONVECTIVE SECTION 1 FLOW	FT-4212	AI	4-02	1	11	1	2	B2			PFBC-AJB-01	AI1	1044	E-PFBC-BBC4-108
COOLING TO PFBC CONVECTIVE SECTION 2 FLOW	FT-4213	AI	4-02	1	11	1	3	B3			PFBC-AJB-01	AI1	1048	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-S3	AI	X-XX	X	11	1	4	B4			PFBC-AJB-01	AI1	1052	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-S4	AI	X-XX	X	11	1	5	B5			PFBC-AJB-01	AI1	1056	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-S5	AI	X-XX	X	11	1	6	B6			PFBC-AJB-01	AI1	1060	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-S6	AI	X-XX	X	11	1	7	B7			PFBC-AJB-01	AI1	1064	E-PFBC-BBC4-108

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-S7	AI	X-XX	X	11	1	8	B8			PFBC-AJB-01	AI1	1068	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S8	AI	X-XX	X	11	2	1	B1			PFBC-AJB-01	AI3	1250	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S9	AI	X-XX	X	11	2	2	B2			PFBC-AJB-01	AI3	1254	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S10	AI	X-XX	X	11	2	3	B3			PFBC-AJB-01	AI3	1258	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S11	AI	X-XX	X	11	2	4	B4			PFBC-AJB-01	AI3	1262	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S12	AI	X-XX	X	11	2	5	B5			PFBC-AJB-01	AI3	1266	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S13	AI	X-XX	X	11	2	6	B6			PFBC-AJB-01	AI3	1270	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S14	AI	X-XX	X	11	2	7	B7			PFBC-AJB-01	AI3	1274	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-S15	AI	X-XX	X	11	2	8	B8			PFBC-AJB-01	AI3	1278	E-PFBC-BBC4-109
INTERSTITIAL SPACE PRESSURE	PT-3111	AI	3-01	2	11	3	1	B1			PFBC-AJB-01	AI3	1318	E-PFBC-BBC4-110
THERMAL FLUID RETURN PRESSURE	PT-4281	AI	3-01	2	11	3	2	B2			PFBC-AJB-01	AI3	1320	E-PFBC-BBC4-110
CONVECTIVE HEAT EXCHANGER FLUE GAS DIFFERENTIAL PRESSURE	DPT-3161	AI	3-01	3	11	3	3	B3			PFBC-AJB-01	AI3	1322	E-PFBC-BBC4-110
PFBC FLUE GAS EXIT PRESSURE	PT-3161	AI	3-01	3	11	3	4	B4			PFBC-AJB-01	AI3	1324	E-PFBC-BBC4-110
FLUE GAS TO PROCESS GAS TREATMENT PRESSURE	PT-3162	AI	3-01	3	11	3	5	B5			PFBC-AJB-01	AI3	1326	E-PFBC-BBC4-110
FLUE GAS FILTER DIFFERENTIAL PRESSURE	DPT-3201	AI	3-02	1	11	3	6	B6			PFBC-AJB-01	AI3	1328	E-PFBC-BBC4-110
FILTER FLUE GAS PRESSURE	PT-3201	AI	3-02	1	11	3	7	B7			PFBC-AJB-01	AI3	1330	E-PFBC-BBC4-110
FLY ASH RECEIVER DIFFERENTIAL PRESSURE	DPT-3202	AI	3-02	1	11	3	8	B8			PFBC-AJB-01	AI3	1332	E-PFBC-BBC4-110
FLY ASH TO SOLID WASTE HANDLING DIFFERENTIAL PRESSURE	DPT-3203	AI	3-02	1	11	4	1	B1			PFBC-AJB-01	AI3	1336	E-PFBC-BBC4-111
CO2 TO LOCK HOPPER PRESSURE	PT-3210	AI	3-02	1	11	4	2	B2			PFBC-AJB-01	AI3	1338	E-PFBC-BBC4-111
CO2 TO FILTER PULSE RECEIVER PRESSURE	PT-3211	AI	3-02	1	11	4	3	B3			PFBC-AJB-01	AI3	1340	E-PFBC-BBC4-111
RECYCLE GAS COMPRESSOR MOTOR CURRENT	IT-3301	AI	3-03	1	11	4	4	B4			PFBC-AJB-01	AI3	1342	E-PFBC-BBC4-113
FLUE GAS TO RECYCLE GAS COMPRESSOR PRESSURE	PT-3301	AI	3-03	1	11	4	5	B5			PFBC-AJB-01	AI4	1344	E-PFBC-BBC4-113
GLYCOL PUMP 1 MOTOR CURRENT	IT-4101	AI	4-01	1	11	4	6	B6			PFBC-AJB-01	AI3	1346	E-PFBC-BBC4-111
GLYCOL TO PFBC COOLING SYSTEM PRESSURE	PT-4101	AI	4-01	1	11	4	7	B7			PFBC-AJB-01	AI3	1348	E-PFBC-BBC4-111
GLYCOL PUMP 2 MOTOR CURRENT	IT-4102	AI	4-01	1	11	4	8	B8			PFBC-AJB-01	AI3	1350	E-PFBC-BBC4-111
WATER RESERVOIR PRESSURE	PT-4201	AI	4-02	1	11	5	1	B1			PFBC-AJB-01	AI4	1354	E-PFBC-BBC4-111
HEAT EXCHANGER PUMP OUTLET PRESSURE	PT-4202	AI	4-02	1	11	5	2	B2			PFBC-AJB-01	AI4	1356	E-PFBC-BBC4-111
COOLING TO PFBC BED SECTION PFBC PRESSURE	PT-4211	AI	4-02	1	11	5	3	B3			PFBC-AJB-01	AI4	1358	E-PFBC-BBC4-111
COOLING TO PFBC CONVECTIVE SECTION 1 PRESSURE	PT-4212	AI	4-02	1	11	5	4	B4			PFBC-AJB-01	AI4	1360	E-PFBC-BBC4-111
COOLING TO PFBC CONVECTIVE SECTION 2 PRESSURE	PT-4213	AI	4-02	1	11	5	5	B5			PFBC-AJB-01	AI4	1362	E-PFBC-BBC4-111
N2 DILUTION FLOWRATE SET POINT	FY-3221	AI	3-02	2	11	5	6	B6			PFBC-AJB-01	AI4	1364	E-PFBC-BBC4-111
SPARE 4-WIRE ANALOG INPUT INSTRUMENT	AI(2)-S16	AI	X-XX	X	11	5	7	B7			PFBC-AJB-01	AI4	1366	E-PFBC-BBC4-111

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(2)-S17	AI	X-XX	X	11	5	8	B8			PFBC-AJB-01	AI4	1368	E-PFBC-BBC4-111
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC O2 ANALYZER	AT-2110	AI	2-01	1	11	6	1	B1			PFBC-AJB-01	AI4	1371	E-PFBC-BBC4-112
SPARE O2 AND RECYCLE FLUE GAS FLOW O2 ANALYZER	AT-2111	AI	2-01	1	11	6	2	B2			PFBC-AJB-01	AI4	1373	E-PFBC-BBC4-112
PFBC PRODUCT GAS / SOLID ACID DEW POINT	AT-3201	AI	3-02	1	11	6	3	B3			PFBC-AJB-01	AI4	1375	E-PFBC-BBC4-112
FILTER FLUE GAS ACID DEW POINT	AT-3202	AI	3-02	1	11	6	4	B4			PFBC-AJB-01	AI3	1377	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER O2 ANALYZER	AT-5101A	AI	5-01	1	11	6	5	B5			PFBC-AJB-01	AI4	1379	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER CO2 ANALYZER	AT-5101B	AI	5-01	1	11	6	6	B6			PFBC-AJB-01	AI4	1381	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER CO ANALYZER	AT-5101C	AI	5-01	1	11	6	7	B7			PFBC-AJB-01	AI4	1383	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER SO2 ANALYZER	AT-5101D	AI	5-01	1	11	6	8	B8			PFBC-AJB-01	AI4	1385	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER NOx ANALYZER	AT-5101E	AI	5-01	1	11	7	1	B1			PFBC-AJB-01	AI4	1389	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER O2 ANALYZER	AT-5102A	AI	5-01	1	11	7	2	B2			PFBC-AJB-01	AI4	1391	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER CO2 ANALYZER	AT-5102B	AI	5-01	1	11	7	3	B3			PFBC-AJB-01	AI4	1393	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER CO ANALYZER	AT-5102C	AI	5-01	1	11	7	4	B4			PFBC-AJB-01	AI4	1395	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER SO2 ANALYZER	AT-5102D	AI	5-01	1	11	7	5	B5			PFBC-AJB-01	AI4	1397	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER NOx ANALYZER	AT-5102E	AI	5-01	1	11	7	6	B6			PFBC-AJB-01	AI4	1399	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC O2 ANALYZER	AT-5103A	AI	5-01	1	11	7	7	B7			PFBC-AJB-01	AI4	1401	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC CO2 ANALYZER	AT-5103B	AI	5-01	1	11	7	8	B8			PFBC-AJB-01	AI4	1403	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC CO ANALYZER	AT-5103C	AI	5-01	1	11	8	1	B1			PFBC-AJB-01	AI4	1407	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DCC SO2 ANALYZER	AT-5103D	AI	5-01	1	11	8	2	B2			PFBC-AJB-01	AI4	1409	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DCC NOx ANALYZER	AT-5103E	AI	5-01	1	11	8	3	B3			PFBC-AJB-01	AI4	1411	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX O2 ANALYZER	AT-5104A	AI	5-01	1	11	8	4	B4			PFBC-AJB-01	AI4	1413	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX CO2 ANALYZER	AT-5104B	AI	5-01	1	11	8	5	B5			PFBC-AJB-01	AI4	1415	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX CO ANALYZER	AT-5104C	AI	5-01	1	11	8	6	B6			PFBC-AJB-01	AI4	1417	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX SO2 ANALYZER	AT-5104D	AI	5-01	1	11	8	7	B7			PFBC-AJB-01	AI4	1419	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX NOx ANALYZER	AT-5104E	AI	5-01	1	11	8	8	B8			PFBC-AJB-01	AI4	1421	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX O2 ANALYZER	AT-5105A	AI	5-01	1	11	9	1	B1			PFBC-AJB-01	AI4	1425	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX THC ANALYZER	AT-5105B	AI	5-01	1	11	9	2	B2			PFBC-AJB-01	AI4	1427	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX SO2 ANALYZER	AT-5105C	AI	5-01	1	11	9	3	B3			PFBC-AJB-01	AI4	1429	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX NOx ANALYZER	AT-5105D	AI	5-01	1	11	9	4	B4			PFBC-AJB-01	AI4	1431	E-PFBC-BBC4-113
SOLID FUEL FEEDER WEIGHT	WT-1602	AI	1-06	1	11	9	5	B5			PFBC-AJB-01	AI4	1434	E-PFBC-BBC4-113
SOLID SORBENT FEEDER WEIGHT	WT-1702	AI	1-07	1	11	9	6	B6			PFBC-AJB-01	AI4	1436	E-PFBC-BBC4-113
BED MATERIAL FEEDER WEIGHT	WT-1901	AI	1-09	1	11	9	7	B7			PFBC-AJB-01	AI4	1434	E-PFBC-BBC4-113

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
INJECTION FEEDER WEIGHT	WT-2503	AI	2-05	1	11	9	8	B8			PFBC-AJB-01	A14	1439	E-PFBC-BBC4-113
ANALOG OUTPUT (4-20 mA)														
SOLID FUEL FEEDER MOTOR FLOW CONTROL	FC-1602	AO	1-06	1	3	1	1	0	703	CA-17	PFBC-DJB-01	AO1	1750	E-PFBC-BBC4-120
SOLID SORBENT FEEDER MOTOR FLOW CONTROL	FC-1702	AO	1-07	1	3	1	2	4	705	CA-17	PFBC-DJB-01	AO1	1752	E-PFBC-BBC4-120
BED MATERIAL FEEDER MOTOR FLOW CONTROL	FC-1901	AO	1-09	1	3	1	3	8	707	CA-17	PFBC-DJB-01	AO1	1754	E-PFBC-BBC4-120
PRIMARY O2 SUPPLY FLOW CONTROL VALVE	FCV-2101	AO	2-01	1	3	1	4	12	709	CA-17	PFBC-DJB-01	AO1	1756	E-PFBC-BBC4-120
SECONDARY O2 SUPPLY FLOW CONTROL VALVE	FCV-2102	AO	2-01	1	3	2	1	0	713	CA-18	PFBC-DJB-01	AO1	1758	E-PFBC-BBC4-120
BED MATERIAL FEEDER VESSEL PRESSURE CONTROL VALVE	PCV-1901	AO	2-01	2	3	2	2	4	715	CA-18	PFBC-DJB-01	AO1	1760	E-PFBC-BBC4-120
CO2 TO INJECTION SYSTEM FLOW CONTROL VALVE	FCV-2121	AO	2-01	2	3	2	3	8	717	CA-18	PFBC-DJB-01	AO1	1762	E-PFBC-BBC4-120
CO2 TO SOLIDS COOLING FLOW CONTROL VALVE	FCV-2124	AO	2-01	2	3	2	4	12	719	CA-18	PFBC-DJB-01	AO1	1764	E-PFBC-BBC4-120
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM PRESSURE CONTROL VALVE	PCV-2502	AO	2-01	2	3	3	1	0	723	CA-19	PFBC-DJB-01	AO1	1766	E-PFBC-BBC4-121
CO2 PRESSURIZING GAS TO INTERSTITIAL PRESSURE CONTROL VALVE	PCV-3111	AO	2-01	2	3	3	2	4	725	CA-19	PFBC-DJB-01	AO1	1768	E-PFBC-BBC4-121
CO2 TO SOLIDS LETDOWN PRESSURE CONTROL VALVE	PCV-3151	AO	2-01	2	3	3	3	8	727	CA-19	PFBC-DJB-01	AO1	1770	E-PFBC-BBC4-121
CO2 TO LOCK HOPPER PRESSURE CONTROL VALVE	PCV-3210	AO	2-01	2	3	3	4	12	729	CA-19	PFBC-DJB-01	AO1	1772	E-PFBC-BBC4-121
FILTER PULSE VESSEL PRESSURE CONTROL VALVE	PCV-3211	AO	2-01	2	3	4	1	0	733	CA-20	PFBC-DJB-01	AO1	1774	E-PFBC-BBC4-121
CO2 TO SOLIDS SAMPLING SYSTEM FLOW CONTROL VALVE	FCV-2129	AO	2-01	2B	3	4	2	4	735	CA-20	PFBC-DJB-01	AO1	1776	E-PFBC-BBC4-121
N2 TO LINDE SKID - DILUTION FLOW CONTROL VALVE	FCV-2161	AO	2-01	3	3	4	3	8	737	CA-20	PFBC-DJB-01	AO1	1778	E-PFBC-BBC4-121
SPARE ANALOG OUTPUT INSTRUMENT	AO-S1	AO	X-XX	X	3	4	4	12	739	CA-20	PFBC-DJB-01	AO1	1780	E-PFBC-BBC4-121
N2 FLOWRATE FROM GAS DISTRIBUTION SYSTEM	AO-32X1	AO	3-02	2	3	5	1	0	773	CA-21	PFBC-DJB-01	AO1	1798	E-PFBC-BBC4-123
PFBC PRESSURE CONTROL SP	AO-32X2	AO	3-02	2	3	5	2	4	775	CA-21	PFBC-DJB-01	AO1	1800	E-PFBC-BBC4-123
LINDE SKID AO 3	PY-3221	AO	3-02	2	3	5	3	8	777	CA-21	PFBC-DJB-01	AO1	1802	E-PFBC-BBC4-123
Q-1010 ANALYSIS NOx	AO-32X3	AO	3-02	2	3	5	4	12	779	CA-21	PFBC-DJB-01	AO1	1804	E-PFBC-BBC4-123
HP NG AUXILIARY LINE FLOW CONTROL VALVE	FCV-2201	AO	2-02	1	3	6	1	0	743	CA-22	PFBC-DJB-01	AO1	1782	E-PFBC-BBC4-122
LP NG TO PFBC BURNER FLOW CONTROL VALVE	FCV-2211	AO	2-02	1	3	6	2	4	745	CA-22	PFBC-DJB-01	AO1	1784	E-PFBC-BBC4-122
MAIN AIR TO PFBC PRE-HEAT BURNER FLOW CONTROL VALVE	FCV-2301	AO	2-03	1	3	6	3	8	747	CA-22	PFBC-DJB-01	AO1	1786	E-PFBC-BBC4-122
MAIN AIR TO PFBC BED SECTION COOLANT FLOW CONTROL VALVE	FCV-2302	AO	2-03	1	3	6	4	12	749	CA-22	PFBC-DJB-01	AO1	1788	E-PFBC-BBC4-122
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS FLOW CONTROL VALVE	FCV-2303	AO	2-03	1	3	7	1	0	753	CA-23	PFBC-DJB-01	AO1	1790	E-PFBC-BBC4-122
PRESSURIZATION VESSEL VENT PRESSURE CONTROL VALVE	PCV-2501	AO	2-05	1	3	7	2	4	755	CA-23	PFBC-DJB-01	AO1	1792	E-PFBC-BBC4-122
INJECTION VESSEL FEED CONTROL	FC-2503	AO	2-05	1	3	7	3	8	757	CA-23	PFBC-DJB-01	AO1	1794	E-PFBC-BBC4-122
CONVECTIVE HEAT EXCHANGER FLUE GAS PRESSURE CONTROL VALVE	PCV-3161	AO	3-01	3	3	7	4	12	759	CA-23	PFBC-DJB-01	AO1	1796	E-PFBC-BBC4-122
FLUE GAS ANALYSIS CO	AO-32X1	AO	3-02	2	6	3	1	0			PFBC-DJB-01	AO1	1814	E-PFBC-BBC4-124
FLUE GAS ANALYSIS NOx	AO-32X2	AO	3-02	2	6	3	2	4			PFBC-DJB-01	AO1	1816	E-PFBC-BBC4-124

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
FLUE GAS ANALYSIS SOx	AO-32X3	AO	3-02	2	6	3	3	8			PFBC-DJB-01	AO1	1818	E-PFBC-BBC4-124
FLUE GAS ANALYSIS H2O	AO-32X4	AO	3-02	2	6	3	4	12			PFBC-DJB-01	AO1	1820	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 1	AO-32X5	AO	3-02	2	6	4	1	0			PFBC-DJB-01	AO1	1822	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 2	AO-32X6	AO	3-02	2	6	4	2	4			PFBC-DJB-01	AO1	1824	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 3	AO-32X7	AO	3-02	2	6	4	3	8			PFBC-DJB-01	AO1	1826	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 4	AO-32X8	AO	3-02	2	6	4	4	12			PFBC-DJB-01	AO1	1828	E-PFBC-BBC4-124
Q-1010 ANALYSIS SOx	AO-32X9	AO	3-02	2	6	8	1	0	783	CA-43	PFBC-DJB-01	AO1	1806	E-PFBC-BBC4-123
Q-1010 ANALYSIS CO	AO-32X10	AO	3-02	2	6	8	2	4	785	CA-43	PFBC-DJB-01	AO1	1808	E-PFBC-BBC4-123
FLUE GAS ANALYSIS O2	AO-32X11	AO	3-02	2	6	8	3	8	787	CA-43	PFBC-DJB-01	AO1	1810	E-PFBC-BBC4-123
FLUE GAS ANALYSIS CO2	AO-32X12	AO	3-02	2	6	8	4	12	789	CA-43	PFBC-DJB-01	AO1	1812	E-PFBC-BBC4-123
LINDE SKID AO 17	AO-32X13	AO	3-02	2	12	1	1	C1			PFBC-DJB-01	AO1	1830	E-PFBC-BBC4-125
LINDE SKID AO 18	AO-32X14	AO	3-02	2	12	1	2	C2			PFBC-DJB-01	AO1	1832	E-PFBC-BBC4-125
LINDE SKID AO 19	AO-32X15	AO	3-02	2	12	1	3	C3			PFBC-DJB-01	AO1	1834	E-PFBC-BBC4-125
RECYCLE GAS COMPRESSOR SPEED CONTROL	SC-3301	AO	3-03	1	12	1	4	C4			PFBC-DJB-01	AO1	1836	E-PFBC-BBC4-125
VENT STACK PRESSURE CONTROL VALVE	PCV-3601	AO	3-06	1	12	1	5	C5			PFBC-DJB-01	AO1	1838	E-PFBC-BBC4-125
GLYCOL TEMPERATURE CONTROL	TIC-4112	AO	4-01	1	12	1	6	C6			PFBC-DJB-01	AO1	1840	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S2	AO	X-XX	X	12	1	7	C7			PFBC-DJB-01	AO1	1842	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S3	AO	X-XX	X	12	1	8	C8			PFBC-DJB-01	AO1	1844	E-PFBC-BBC4-125
THERMAL FLUID HEAT EXCHANGER TEMPERATURE CONTROL VALVE	TCV-4203	AO	4-02	1	12	2	1	C1			PFBC-DJB-01	AO1	1846	E-PFBC-BBC4-125
COOLING TO PFBC BED SECTION PFBC FLOW CONTROL	FCV-4211	AO	4-02	1	12	2	2	C2			PFBC-DJB-01	AO1	1848	E-PFBC-BBC4-125
COOLING TO PFBC CONVECTIVE SECTION 1 FLOW CONTROL	FCV-4212	AO	4-02	1	12	2	3	C3			PFBC-DJB-01	AO1	1850	E-PFBC-BBC4-125
COOLING TO PFBC CONVECTIVE SECTION 2 FLOW CONTROL	FCV-4213	AO	4-02	1	12	2	4	C4			PFBC-DJB-01	AO1	1852	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S4	AO	X-XX	X	12	2	5	C5			PFBC-DJB-01	AO1	1854	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S5	AO	X-XX	X	12	2	6	C6			PFBC-DJB-01	AO1	1856	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S6	AO	X-XX	X	12	2	7	C7			PFBC-DJB-01	AO1	1858	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S7	AO	X-XX	X	12	2	8	C8			PFBC-DJB-01	AO1	1860	E-PFBC-BBC4-125
DIGITAL INPUT (24 VDC)														
NG COMPRESSOR MOTOR RUNNING SIGNAL	XC-1320	DI	1-03	2	4	1	0	0	103	CA-1	PFBC-DJB-01	DI1	2003	E-PFBC-BBC4-201
NG COMPRESSOR MOTOR FAULT	XF-1320	DI	1-03	2	4	1	1	1	104	CA-1	PFBC-DJB-01	DI1	2005	E-PFBC-BBC4-201
LP AIR COMPRESSOR 1 MOTOR FAULT	XF-1401	DI	1-04	1	4	1	2	2	105	CA-1	PFBC-DJB-01	DI1	2007	E-PFBC-BBC4-201
LP AIR COMPRESSOR 2 MOTOR FAULT	XF-1402	DI	1-04	1	4	1	3	3	106	CA-1	PFBC-DJB-01	DI1	2009	E-PFBC-BBC4-201
HP AIR COMPRESSOR 1 MOTOR RUNNING SIGNAL	XC-1420	DI	1-04	2	4	1	4	4	107	CA-1	PFBC-DJB-01	DI1	2011	E-PFBC-BBC4-201

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
HP AIR COMPRESSOR 1 MOTOR FAULT	XF-1420	DI	1-04	2	4	1	5	5	108	CA-1	PFBC-DJB-01	DI1	2013	E-PFBC-BBC4-201
HP AIR COMPRESSOR 2 MOTOR RUNNING SIGNAL	XC-1421	DI	1-04	2	4	1	6	6	109	CA-1	PFBC-DJB-01	DI1	2015	E-PFBC-BBC4-201
HP AIR COMPRESSOR 2 MOTOR FAULT	XF-1421	DI	1-04	2	4	1	7	7	110	CA-1	PFBC-DJB-01	DI1	2017	E-PFBC-BBC4-201
HP AIR DRYER 1 FAULT	XF-1422	DI	1-04	2	4	1	8	8	111	CA-2	PFBC-DJB-01	DI1	2019	E-PFBC-BBC4-201
HP AIR DRYER 2 FAULT	XF-1423	DI	1-04	2	4	1	9	9	112	CA-2	PFBC-DJB-01	DI1	2021	E-PFBC-BBC4-201
HP PRESSURE SUPPLY WATER PUMP MOTOR RUNNING SIGNAL	XC-1501	DI	1-05	1	4	1	10	10	113	CA-2	PFBC-DJB-01	DI1	2023	E-PFBC-BBC4-201
HP PRESSURE SUPPLY WATER PUMP MOTOR FAULT	XF-1501	DI	1-05	1	4	1	11	11	114	CA-2	PFBC-DJB-01	DI1	2025	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S1	DI	X-XX	X	4	1	12	12	115	CA-2	PFBC-DJB-01	DI1	2027	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S2	DI	X-XX	X	4	1	13	13	116	CA-2	PFBC-DJB-01	DI1	2029	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S3	DI	X-XX	X	4	1	14	14	117	CA-2	PFBC-DJB-01	DI1	2031	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S4	DI	X-XX	X	4	1	15	15	118	CA-2	PFBC-DJB-01	DI1	2033	E-PFBC-BBC4-201
SOLID FUEL BAG UNLOADER HIGH LEVEL	LSH-1601	DI	1-06	1	4	2	0	0	121	CA-3	PFBC-DJB-01	DI1	2037	E-PFBC-BBC4-202
SOLID FUEL CYCLONE HIGH LEVEL	LSH-1602	DI	1-06	1	4	2	1	1	122	CA-3	PFBC-DJB-01	DI1	2039	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR ALARM	XA-1602	DI	1-06	1	4	2	2	2	123	CA-3	PFBC-DJB-01	DI1	2041	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR RUNNING SIGNAL	XC-1602	DI	1-06	1	4	2	3	3	124	CA-3	PFBC-DJB-01	DI1	2043	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR FAULT	XF-1602	DI	1-06	1	4	2	4	4	125	CA-3	PFBC-DJB-01	DI1	2045	E-PFBC-BBC4-202
SOLID FUEL STORAGE VESSEL HIGH LEVEL	LSH-1603	DI	1-06	1	4	2	5	5	126	CA-3	PFBC-DJB-01	DI1	2047	E-PFBC-BBC4-202
SOLID FUEL STORAGE VESSEL LOW LEVEL	LSL-1603	DI	1-06	1	4	2	6	6	127	CA-3	PFBC-DJB-01	DI1	2049	E-PFBC-BBC4-202
SOLID SORBENT BAG UNLOADER HIGH LEVEL	LSH-1701	DI	1-07	1	4	2	7	7	128	CA-3	PFBC-DJB-01	DI1	2051	E-PFBC-BBC4-202
SOLID SORBENT CYCLONE HIGH LEVEL	LSH-1702	DI	1-07	1	4	2	8	8	129	CA-4	PFBC-DJB-01	DI1	2053	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR ALARM	XA-1702	DI	1-07	1	4	2	9	9	130	CA-4	PFBC-DJB-01	DI1	2055	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR RUNNING SIGNAL	XC-1702	DI	1-07	1	4	2	10	10	131	CA-4	PFBC-DJB-01	DI1	2057	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR FAULT	XF-1702	DI	1-07	1	4	2	11	11	132	CA-4	PFBC-DJB-01	DI1	2059	E-PFBC-BBC4-202
SOLID SORBENT STORAGE VESSEL HIGH LEVEL	LSH-1703	DI	1-07	1	4	2	12	12	133	CA-4	PFBC-DJB-01	DI1	2061	E-PFBC-BBC4-202
SOLID SORBENT STORAGE VESSEL LOW LEVEL	LSL-1703	DI	1-07	1	4	2	13	13	134	CA-4	PFBC-DJB-01	DI1	2063	E-PFBC-BBC4-202
BED MATERIAL FEEDER MOTOR RUNNING SIGNAL	XC-1901	DI	1-09	1	4	2	14	14	135	CA-4	PFBC-DJB-01	DI1	2065	E-PFBC-BBC4-202
BED MATERIAL FEEDER MOTOR FAULT	XF-1901	DI	1-09	1	4	2	15	15	136	CA-4	PFBC-DJB-01	DI1	2067	E-PFBC-BBC4-202
HP NG AUXILIARY LINE PRESSURE LOW	PSL-2201	DI	2-02	1	4	3	0	0	139	CA-5	PFBC-DJB-01	DI1	2071	E-PFBC-BBC4-203
HP NG AUXILIARY LINE PRESSURE HIGH	PSH-2202	DI	2-02	1	4	3	1	1	140	CA-5	PFBC-DJB-01	DI1	2073	E-PFBC-BBC4-203
LP NG TO PFBC BURNER PRESSURE LOW	PSL-2211	DI	2-02	1	4	3	2	2	141	CA-5	PFBC-DJB-01	DI1	2075	E-PFBC-BBC4-203
LP NG TO PFBC BURNER PRESSURE HIGH	PSH-2212	DI	2-02	1	4	3	3	3	142	CA-5	PFBC-DJB-01	DI1	2077	E-PFBC-BBC4-203
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE LOW	PSL-2301	DI	2-03	1	4	3	4	4	143	CA-5	PFBC-DJB-01	DI1	2079	E-PFBC-BBC4-203

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
FUEL / SORBENT MIXER LOW FLOW	FSL-2501	DI	2-05	1	4	3	5	5	144	CA-5	PFBC-DJB-01	DI1	2081	E-PFBC-BBC4-203
MIXER STORAGE VESSEL HIGH LEVEL	LSH-2501	DI	2-05	1	4	3	6	6	145	CA-5	PFBC-DJB-01	DI1	2083	E-PFBC-BBC4-203
FUEL / SORBENT MIXER FEEDER MOTOR RUNNING SIGNAL	XC-2501	DI	2-05	1	4	3	7	7	146	CA-5	PFBC-DJB-01	DI1	2085	E-PFBC-BBC4-203
FUEL / SORBENT MIXER FEEDER MOTOR FAULT	XF-2501	DI	2-05	1	4	3	8	8	147	CA-6	PFBC-DJB-01	DI1	2087	E-PFBC-BBC4-203
PRESSURIZATION VESSEL INLET VALVE CLOSED	ZSC-2501	DI	2-05	1	4	3	9	9	148	CA-6	PFBC-DJB-01	DI1	2089	E-PFBC-BBC4-203
PRESSURIZATION VESSEL INLET VALVE OPEN	ZSO-2501	DI	2-05	1	4	3	10	10	149	CA-6	PFBC-DJB-01	DI1	2091	E-PFBC-BBC4-203
PRESSURIZATION VESSEL HIGH LEVEL	LSH-2502	DI	2-05	1	4	3	11	11	150	CA-6	PFBC-DJB-01	DI1	2093	E-PFBC-BBC4-203
PRESSURIZATION VESSEL LOW LEVEL	LSL-2502	DI	2-05	1	4	3	12	12	151	CA-6	PFBC-DJB-01	DI1	2095	E-PFBC-BBC4-203
INJECTION FEEDER MOTOR RUNNING SIGNAL	XC-2503	DI	2-05	1	4	3	13	13	152	CA-6	PFBC-DJB-01	DI1	2097	E-PFBC-BBC4-203
INJECTION FEEDER MOTOR FAULT	XF-2503	DI	2-05	1	4	3	14	14	153	CA-6	PFBC-DJB-01	DI1	2099	E-PFBC-BBC4-203
SPARE DIGITAL INPUT INSTRUMENT	DI-S5	DI	X-XX	X	4	3	15	15	154	CA-6	PFBC-DJB-01	DI1	2101	E-PFBC-BBC4-203
PFBC CONVECTIVE SECTION VENT HIGH FLOW SWITCH	FSH-3101	DI	3-01	3	4	7	0	0	173	CA-13	PFBC-DJB-01	DI1	2105	E-PFBC-BBC4-204
CONVECTIVE HEAT EXCHANGER VENT HIGH FLOW SWITCH	FSH-3102	DI	3-01	3	4	7	1	1	174	CA-13	PFBC-DJB-01	DI1	2107	E-PFBC-BBC4-204
FILTER LEVEL SWITCH HIGH	LSH-3201	DI	3-02	1	4	7	2	2	175	CA-13	PFBC-DJB-01	DI1	2109	E-PFBC-BBC4-204
FLY ASH VESSEL SWITCH HIGH	LSH-3210	DI	3-02	1	4	7	3	3	176	CA-13	PFBC-DJB-01	DI1	2111	E-PFBC-BBC4-204
FLY ASH VESSEL SWITCH LOW	LSL-3210	DI	3-02	1	4	7	4	4	177	CA-13	PFBC-DJB-01	DI1	2113	E-PFBC-BBC4-204
CO2 PRE-HEATER TEMPERATURE SWITCH HIGH	TSH-3211	DI	3-02	1	4	7	5	5	178	CA-13	PFBC-DJB-01	DI1	2115	E-PFBC-BBC4-204
TOTAL SULFUR HIGH HIGH LEVEL	AAL-3221	DI	3-02	2	4	7	6	6	179	CA-13	PFBC-DJB-01	DI1	2117	E-PFBC-BBC4-204
Q-1010 LOW LOW LEVEL	LAL-3221	DI	3-02	2	4	7	7	7	180	CA-13	PFBC-DJB-01	DI1	2119	E-PFBC-BBC4-204
PLANT SHUTDOWN SIGNAL	XO-3221	DI	3-02	2	4	7	8	8	181	CA-14	PFBC-DJB-01	DI1	2121	E-PFBC-BBC4-204
RECYCLE GAS COMPRESSOR MOTOR RUNNING SIGNAL	XC-3301	DI	3-03	1	4	7	9	9	182	CA-14	PFBC-DJB-01	DI1	2123	E-PFBC-BBC4-204
RECYCLE GAS COMPRESSOR MOTOR FAULT	XF-3301	DI	3-03	1	4	7	10	10	183	CA-14	PFBC-DJB-01	DI1	2125	E-PFBC-BBC4-204
SOLID WASTE VESSEL LEVEL SWITCH HIGH	LSH-3401	DI	3-04	1	4	7	11	11	184	CA-14	PFBC-DJB-01	DI1	2127	E-PFBC-BBC4-204
SOLID WASTE VESSEL LEVEL SWITCH LOW	LSL-3401	DI	3-04	1	4	7	12	12	185	CA-14	PFBC-DJB-01	DI1	2129	E-PFBC-BBC4-204
SOLID WASTE HANDLING VENT BLOWER MOTOR RUNNING SIGNAL	XC-3401	DI	3-04	1	4	7	13	13	186	CA-14	PFBC-DJB-01	DI1	2131	E-PFBC-BBC4-204
SOLID WASTE HANDLING VENT BLOWER MOTOR FAULT	XF-3401	DI	3-04	1	4	7	14	14	187	CA-14	PFBC-DJB-01	DI1	2133	E-PFBC-BBC4-204
SPARE DIGITAL INPUT INSTRUMENT	DI-S6	DI	X-XX	X	4	7	15	15	188	CA-14	PFBC-DJB-01	DI1	2135	E-PFBC-BBC4-204
GLYCOL TO GLYCOL PUMPS FLOW SWITCH LOW	FSL-4101	DI	4-01	1	6	5	0	0			PFBC-DJB-01	DI1	2139	E-PFBC-BBC4-205
GLYCOL PUMP 1 MOTOR RUNNING SIGNAL	XC-4101	DI	4-01	1	6	5	1	1			PFBC-DJB-01	DI1	2141	E-PFBC-BBC4-205
GLYCOL PUMP 1 MOTOR FAULT	XF-4101	DI	4-01	1	6	5	2	2			PFBC-DJB-01	DI1	2143	E-PFBC-BBC4-205
GLYCOL PUMP 1 FLOW SWITCH	FS-4102	DI	4-01	1	6	5	3	3			PFBC-DJB-01	DI1	2145	E-PFBC-BBC4-205
GLYCOL PUMP 2 MOTOR RUNNING SIGNAL	XC-4102	DI	4-01	1	6	5	4	4			PFBC-DJB-01	DI1	2147	E-PFBC-BBC4-205

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
GLYCOL PUMP 2 MOTOR FAULT	XF-4102	DI	4-01	1	6	5	5	5			PFBC-DJB-01	DI1	2149	E-PFBC-BBC4-205
GLYCOL PUMP 2 FLOW SWITCH	FS-4103	DI	4-01	1	6	5	6	6			PFBC-DJB-01	DI1	2151	E-PFBC-BBC4-205
COOLING SYSTEM FEED PUMP MOTOR RUNNING SIGNAL	XC-4201	DI	4-02	1	6	5	7	7			PFBC-DJB-01	DI1	2153	E-PFBC-BBC4-205
COOLING SYSTEM FEED PUMP MOTOR FAULT	XF-4201	DI	4-02	1	6	5	8	8			PFBC-DJB-01	DI1	2155	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S7	DI	X-XX	X	6	5	9	9			PFBC-DJB-01	DI1	2157	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S8	DI	X-XX	X	6	5	10	10			PFBC-DJB-01	DI1	2159	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S9	DI	X-XX	X	6	5	11	11			PFBC-DJB-01	DI1	2161	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S10	DI	X-XX	X	6	5	12	12			PFBC-DJB-01	DI1	2163	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S11	DI	X-XX	X	6	5	13	13			PFBC-DJB-01	DI1	2165	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S12	DI	X-XX	X	6	5	14	14			PFBC-DJB-01	DI1	2167	E-PFBC-BBC4-205
SPARE DIGITAL INPUT INSTRUMENT	DI-S13	DI	X-XX	X	6	5	15	15			PFBC-DJB-01	DI1	2169	E-PFBC-BBC4-205
DIGITAL OUTPUT (24 VDC)														
NG COMPRESSOR MOTOR POWER RUN/STOP	XO-1320	DO	1-03	2	4	4	0	0	253	CA-7	PFBC-DJB-01	DO1	2503	E-PFBC-BBC4-220
HP AIR COMPRESSOR 1 MOTOR POWER RUN/STOP	XO-1420	DO	1-04	2	4	4	1	1	254	CA-7	PFBC-DJB-01	DO1	2505	E-PFBC-BBC4-220
HP AIR COMPRESSOR 2 MOTOR POWER RUN/STOP	XO-1421	DO	1-04	2	4	4	2	2	255	CA-7	PFBC-DJB-01	DO1	2507	E-PFBC-BBC4-220
HP PRESSURE SUPPLY WATER PUMP MOTOR POWER RUN/STOP	XO-1501	DO	1-05	1	4	4	3	3	256	CA-7	PFBC-DJB-01	DO1	2509	E-PFBC-BBC4-220
SOLID FUEL FEEDER MOTOR RUN/STOP	XO-1602	DO	1-06	1	4	4	4	4	257	CA-7	PFBC-DJB-01	DO1	2511	E-PFBC-BBC4-220
SOLID SORBENT FEEDER VESSEL MOTOR RUN/STOP	XO-1702	DO	1-07	1	4	4	5	5	258	CA-7	PFBC-DJB-01	DO1	2513	E-PFBC-BBC4-220
BED MATERIAL FEEDER MOTOR RUN/STOP	XO-1901	DO	1-09	1	4	4	6	6	259	CA-7	PFBC-DJB-01	DO1	2515	E-PFBC-BBC4-220
FUEL / SORBENT MIXER FEEDER RUN/STOP	XO-2501	DO	2-05	1	4	4	7	7	260	CA-7	PFBC-DJB-01	DO1	2517	E-PFBC-BBC4-220
INJECTION FEEDER RUN/STOP	XO-2503	DO	2-05	1	4	4	8	8	261	CA-8	PFBC-DJB-01	DO1	2519	E-PFBC-BBC4-220
RECYCLE GAS COMPRESSOR RUN/STOP	XO-3301	DO	3-03	1	4	4	9	9	262	CA-8	PFBC-DJB-01	DO1	2521	E-PFBC-BBC4-220
SOLID WASTE HANDLING VENT BLOWER MOTOR RUN/STOP	XO-3401	DO	3-04	1	4	4	10	10	263	CA-8	PFBC-DJB-01	DO1	2523	E-PFBC-BBC4-220
GLYCOL PUMP 1 MOTOR RUN/STOP	XO-4101	DO	4-01	1	4	4	11	11	264	CA-8	PFBC-DJB-01	DO1	2525	E-PFBC-BBC4-220
GLYCOL PUMP 2 MOTOR RUN/STOP	XO-4102	DO	4-01	1	4	4	12	12	265	CA-8	PFBC-DJB-01	DO1	2527	E-PFBC-BBC4-220
COOLING SYSTEM FEED PUMP MOTOR RUN/STOP	XO-4201	DO	4-02	1	4	4	13	13	266	CA-8	PFBC-DJB-01	DO1	2529	E-PFBC-BBC4-220
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S1	DO	X-XX	X	4	4	14	14	267	CA-8	PFBC-DJB-01	DO1	2531	E-PFBC-BBC4-220
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S2	DO	X-XX	X	4	4	15	15	268	CA-8	PFBC-DJB-01	DO1	2533	E-PFBC-BBC4-220
FILTER TO FLY ASH VESSEL SHUT-OFF VALVE 1	YV-3201	DO	3-02	1	4	5	0	0	271	CA-9	PFBC-DJB-01	DO1	2537	E-PFBC-BBC4-221
FILTER TO FLY ASH VESSEL SHUT-OFF VALVE 2	YV-3202	DO	3-02	1	4	5	1	1	272	CA-9	PFBC-DJB-01	DO1	2539	E-PFBC-BBC4-221
CO2 TO FLY ASH VESSEL SHUT-OFF VALVE	YV-2191	DO	3-02	1	4	5	2	2	273	CA-9	PFBC-DJB-01	DO1	2541	E-PFBC-BBC4-221
CO2 TO SOLID WASTE HANDLING SHUT-OFF VALVE	YV-2192	DO	3-02	1	4	5	3	3	274	CA-9	PFBC-DJB-01	DO1	2543	E-PFBC-BBC4-221

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
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INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
FLY ASH TO SOLID WASTE HANDLING SHUT-OFF VALVE 1	YV-3203	DO	3-02	1	4	5	4	4	275	CA-9	PFBC-DJB-01	DO1	2545	E-PFBC-BBC4-221
FLY ASH TO SOLID WASTE HANDLING SHUT-OFF VALVE 2	YV-3204	DO	3-02	1	4	5	5	5	276	CA-9	PFBC-DJB-01	DO1	2547	E-PFBC-BBC4-221
FLY ASH VESSEL VENT SHUT-OFF VALVE	YV-3205	DO	3-02	1	4	5	6	6	277	CA-9	PFBC-DJB-01	DO1	2549	E-PFBC-BBC4-221
COOLING SYSTEM FEED SHUT-OFF VALVE	YV-4201	DO	4-02	1	4	5	7	7	278	CA-9	PFBC-DJB-01	DO1	2551	E-PFBC-BBC4-221
MAIN AIR TO PFBC PRE-HEAT BURNER SHUT-OFF VALVE	YV-2301	DO	2-03	1	4	5	8	8	279	CA-10	PFBC-DJB-01	DO1	2553	E-PFBC-BBC4-221
MAIN AIR TO PFBC BED SECTION COOLANT SHUT-OFF VALVE	YV-2302	DO	2-03	1	4	5	9	9	280	CA-10	PFBC-DJB-01	DO1	2555	E-PFBC-BBC4-221
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS SHUT-OFF VALVE	YV-2303	DO	2-03	1	4	5	10	10	281	CA-10	PFBC-DJB-01	DO1	2557	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER FILTER SHUT-OFF VALVE	YV-5101	DO	5-01	1	4	5	11	11	282	CA-10	PFBC-DJB-01	DO1	2559	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM BEFORE FILTER SHUT-OFF VALVE	YV-5102	DO	5-01	1	4	5	12	12	283	CA-10	PFBC-DJB-01	DO1	2561	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER DCC SHUT-OFF VALVE	YV-5103	DO	5-01	1	4	5	13	13	284	CA-10	PFBC-DJB-01	DO1	2563	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER LICONOX SHUT-OFF VALVE	YV-5104	DO	5-01	1	4	5	14	14	285	CA-10	PFBC-DJB-01	DO1	2565	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER DEOX SHUT-OFF VALVE	YV-5105	DO	5-01	1	4	5	15	15	286	CA-10	PFBC-DJB-01	DO1	2567	E-PFBC-BBC4-221
PRESSURIZATION VESSEL INLET SHUT-OFF VALVE	YV-2501	DO	2-05	1	4	6	0	0	289	CA-11	PFBC-DJB-01	DO1	2571	E-PFBC-BBC4-222
INJECTION VESSEL INLET SHUT-OFF VALVE (TV-2502)	YV-2502	DO	2-05	1	4	6	1	1	290	CA-11	PFBC-DJB-01	DO1	2573	E-PFBC-BBC4-222
INJECTION VESSEL TO PRESSURIZATION VESSEL RECIRCULATION VALVE	YV-2503	DO	2-05	1	4	6	2	2	291	CA-11	PFBC-DJB-01	DO1	2575	E-PFBC-BBC4-222
INJECTION VESSEL TO VENT SHUT-OFF VALVE	YV-2504	DO	2-05	1	4	6	3	3	292	CA-11	PFBC-DJB-01	DO1	2577	E-PFBC-BBC4-222
CO2 TO INJECTION SYSTEM SHUT-OFF VALVE	YV-2121	DO	2-01	2	4	6	4	4	293	CA-11	PFBC-DJB-01	DO1	2579	E-PFBC-BBC4-222
CO2 TO SOOT BLOWERS SHUT-OFF VALVE	YV-2122	DO	2-01	2	4	6	5	5	294	CA-11	PFBC-DJB-01	DO1	2581	E-PFBC-BBC4-222
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM SHUT-OFF VALVE	YV-2125	DO	2-01	2	4	6	6	6	295	CA-11	PFBC-DJB-01	DO1	2583	E-PFBC-BBC4-222
CO2 TO PGT LOCK HOPPER SHUT-OFF VALVE	YV-2128	DO	2-01	2	4	6	7	7	296	CA-11	PFBC-DJB-01	DO1	2585	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER TOP SHUT-OFF VALVE	YV-2331	DO	3-01	2	4	6	8	8	297	CA-12	PFBC-DJB-01	DO1	2587	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER MIDDLE SHUT-OFF VALVE	YV-2332	DO	3-01	2	4	6	9	9	298	CA-12	PFBC-DJB-01	DO1	2589	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER BOTTOM SHUT-OFF VALVE	YV-2333	DO	3-01	2	4	6	10	10	299	CA-12	PFBC-DJB-01	DO1	2591	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER TOP SHUT-OFF VALVE	YV-2334	DO	3-01	2	4	6	11	11	300	CA-12	PFBC-DJB-01	DO1	2593	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER MIDDLE SHUT-OFF VALVE	YV-2335	DO	3-01	2	4	6	12	12	301	CA-12	PFBC-DJB-01	DO1	2595	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER BOTTOM SHUT-OFF VALVE	YV-2336	DO	3-01	2	4	6	13	13	302	CA-12	PFBC-DJB-01	DO1	2597	E-PFBC-BBC4-222
CONVEYING CO2 TO PFBC COAL / SORBENT FEED SHUT-OFF VALVE	YV-2510	DO	2-05	1	4	6	14	14	303	CA-12	PFBC-DJB-01	DO1	2599	E-PFBC-BBC4-222
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S1	DO	X-XX	X	4	6	15	15	304	CA-12	PFBC-DJB-01	DO1	2601	E-PFBC-BBC4-222
SOLIDS SAMPLING CYCLONE INLET VALVE	YV-5204	DO	5-02	1	4	8	0	0	323	CA-15	PFBC-DJB-01	DO1	2605	E-PFBC-BBC4-223
SOLIDS SAMPLING CYCLONE VENT VALVE	YV-5205	DO	5-02	1	4	8	1	1	324	CA-15	PFBC-DJB-01	DO1	2607	E-PFBC-BBC4-223
CO2 SAMPLING SHUT-OFF VALVE 1	YV-5210	DO	5-02	1	4	8	2	2	325	CA-15	PFBC-DJB-01	DO1	2609	E-PFBC-BBC4-223
CO2 SAMPLING SHUT-OFF VALVE 2	YV-5211	DO	5-02	1	4	8	3	3	326	CA-15	PFBC-DJB-01	DO1	2611	E-PFBC-BBC4-223

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S2	DO	X-XX	X	4	8	4	4	327	CA-15	PFBC-DJB-01	DO1	2613	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S3	DO	X-XX	X	4	8	5	5	328	CA-15	PFBC-DJB-01	DO1	2615	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S4	DO	X-XX	X	4	8	6	6	329	CA-15	PFBC-DJB-01	DO1	2617	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S5	DO	X-XX	X	4	8	7	7	330	CA-15	PFBC-DJB-01	DO1	2619	E-PFBC-BBC4-223
N2 TO LINDE SKID - DILUTION SHUT-OFF VALVE	YV-2161	DO	2-01	3	4	8	8	8	331	CA-16	PFBC-DJB-01	DO1	2621	E-PFBC-BBC4-223
N2 TO PRESSURE TESTING SHUT-OFF VALVE	YV-2162	DO	2-01	3	4	8	9	9	332	CA-16	PFBC-DJB-01	DO1	2623	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 1	YV-3211	DO	3-02	1	4	8	10	10	333	CA-16	PFBC-DJB-01	DO1	2625	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 2	YV-3212	DO	3-02	1	4	8	11	11	334	CA-16	PFBC-DJB-01	DO1	2627	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 3	YV-3213	DO	3-02	1	4	8	12	12	335	CA-16	PFBC-DJB-01	DO1	2629	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 4	YV-3214	DO	3-02	1	4	8	13	13	336	CA-16	PFBC-DJB-01	DO1	2631	E-PFBC-BBC4-223
CO2 TO FILTER OUTLET SHUT-OFF VALVE	YV-3215	DO	3-02	1	4	8	14	14	337	CA-16	PFBC-DJB-01	DO1	2633	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S6	DO	X-XX	X	4	8	15	15	338	CA-16	PFBC-DJB-01	DO1	2635	E-PFBC-BBC4-223
SOLID FUEL FEEDER VESSEL SHUT-OFF VALVE	YV-1603	DO	1-06	1	6	6	0	0			PFBC-DJB-01	DO1	2639	E-PFBC-BBC4-224
SOLID SORBENT FEEDER VESSEL SHUT-OFF VALVE	YV-1703	DO	1-07	1	6	6	1	1			PFBC-DJB-01	DO1	2641	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S7	DO	X-XX	X	6	6	2	2			PFBC-DJB-01	DO1	2643	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S8	DO	X-XX	X	6	6	3	3			PFBC-DJB-01	DO1	2645	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S9	DO	X-XX	X	6	6	4	4			PFBC-DJB-01	DO1	2647	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S10	DO	X-XX	X	6	6	5	5			PFBC-DJB-01	DO1	2649	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S11	DO	X-XX	X	6	6	6	6			PFBC-DJB-01	DO1	2651	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S12	DO	X-XX	X	6	6	7	7			PFBC-DJB-01	DO1	2653	E-PFBC-BBC4-224
BED MATERIAL TO PFBC SHUT-OFF VALVE	YV-1901	DO	1-09	1	6	6	8	8			PFBC-DJB-01	DO1	2655	E-PFBC-BBC4-224
BED MATERIAL FEEDER VESSEL VENT SHUT-OFF VALVE	YV-1902	DO	1-09	1	6	6	9	9			PFBC-DJB-01	DO1	2657	E-PFBC-BBC4-224
HP NG AUXILIARY LINE SHUT-OFF VALVE 1	YV-2201	DO	2-02	1	6	6	10	10			PFBC-DJB-01	DO1	2659	E-PFBC-BBC4-224
HP NG AUXILIARY LINE SHUT-OFF VALVE 2	YV-2202	DO	2-02	1	6	6	11	11			PFBC-DJB-01	DO1	2661	E-PFBC-BBC4-224
LP NG TO PFBC BURNER SHUT-OFF VALVE 1	YV-2211	DO	2-02	1	6	6	12	12			PFBC-DJB-01	DO1	2663	E-PFBC-BBC4-224
LP NG TO PFBC BURNER SHUT-OFF VALVE 2	YV-2212	DO	2-02	1	6	6	13	13			PFBC-DJB-01	DO1	2665	E-PFBC-BBC4-224
SOOT BLOWER RECEIVER CO2 TO CONVECTIVE SECTION SOOT BLOWER SHUT-OFF VALVE	YV-2326	DO	3-01	3	6	6	14	14			PFBC-DJB-01	DO1	2667	E-PFBC-BBC4-224
SOOT BLOWER RECEIVER CO2 TO CONVECTIVE HEAT EXCHANGER SHUT-OFF VALVE	YV-2327	DO	3-01	3	6	6	15	15			PFBC-DJB-01	DO1	2669	E-PFBC-BBC4-224
CO2 TO SOLIDS LETDOWN SHUT-OFF VALVE	YV-2123	DO	2-01	2	6	7	0	0			PFBC-DJB-01	DO2	2673	E-PFBC-BBC4-225
CO2 TO SOLIDS COOLING SHUT-OFF VALVE	YV-2124	DO	2-01	2	6	7	1	1			PFBC-DJB-01	DO2	2675	E-PFBC-BBC4-225
CO2 PRESSURIZING GAS TO BED MATERIAL SHUT-OFF VALVE	YV-2126	DO	2-01	2	6	7	2	2			PFBC-DJB-01	DO2	2677	E-PFBC-BBC4-225
CO2 PRESSURIZING GAS TO INTERSTITIAL SHUT-OFF VALVE	YV-2127	DO	2-01	2	6	7	3	3			PFBC-DJB-01	DO2	2679	E-PFBC-BBC4-225

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
CO2 TO SOLIDS SAMPLING SYSTEM SHUT-OFF VALVE	YV-2129	DO	2-01	2B	6	7	4	4			PFBC-DJB-01	DO2	2681	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S13	DO	X-XX	X	6	7	5	5			PFBC-DJB-01	DO2	2683	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S14	DO	X-XX	X	6	7	6	6			PFBC-DJB-01	DO2	2685	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S15	DO	X-XX	X	6	7	7	7			PFBC-DJB-01	DO2	2687	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN OUTLET VALVE 1	YV-3151	DO	3-01	1	6	7	8	8			PFBC-DJB-01	DO2	2689	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN OUTLET VALVE 2	YV-3152	DO	3-01	1	6	7	9	9			PFBC-DJB-01	DO2	2691	E-PFBC-BBC4-225
CO2 TO SOLID WASTE HANDLING BED ASH SHUT-OFF VALVE 1	YV-3153	DO	3-01	1	6	7	10	10			PFBC-DJB-01	DO2	2693	E-PFBC-BBC4-225
CO2 TO SOLID WASTE HANDLING BED ASH SHUT-OFF VALVE 2	YV-3154	DO	3-01	1	6	7	11	11			PFBC-DJB-01	DO2	2695	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN VENT SHUT-OFF VALVE	YV-3155	DO	3-01	1	6	7	12	12			PFBC-DJB-01	DO2	2697	E-PFBC-BBC4-225
PRIMARY O2 SUPPLY SHUT-OFF VALVE 1	YV-2101	DO	2-01	1	6	7	13	13			PFBC-DJB-01	DO2	2699	E-PFBC-BBC4-225
PRIMARY O2 SUPPLY SHUT-OFF VALVE 2	YV-2102	DO	2-01	1	6	7	14	14			PFBC-DJB-01	DO2	2701	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S16	DO	X-XX	X	6	7	15	15			PFBC-DJB-01	DO2	2703	E-PFBC-BBC4-225
GLYCOL AIR COOLER 1 TEMPERATURE CONTROL	TC-4101	DO	4-01	1	12	3	1	C1			PFBC-DJB-01	DO2	2707	E-PFBC-BBC4-226
GLYCOL AIR COOLER 2 TEMPERATURE CONTROL	TC-4102	DO	4-01	1	12	3	2	B1			PFBC-DJB-01	DO2	2709	E-PFBC-BBC4-226
CO2 TO FILTER PULSE RECEIVER TEMPERATURE CONTROLLER	TIC-3211	DO	3-02	1	12	3	3	C2			PFBC-DJB-01	DO2	2711	E-PFBC-BBC4-226
WATER PRE-HEATER TEMPERATURE CONTROL	TIC-4201	DO	4-02	1	12	3	4	B2			PFBC-DJB-01	DO2	2713	E-PFBC-BBC4-226
AIR TO FLY ASH BLOWER 1 SHUT-OFF VALVE	YV-3401	DO	3-04	1	12	3	5	C3			PFBC-DJB-01	DO2	2715	E-PFBC-BBC4-226
AIR TO FLY ASH BLOWER 2 SHUT-OFF VALVE	YV-3402	DO	3-04	1	12	3	6	B3			PFBC-DJB-01	DO2	2717	E-PFBC-BBC4-226
AIR TO SOLID WASTE COLLECTION VESSEL SHUT-OFF VALVE	YV-3403	DO	3-04	1	12	3	7	C4			PFBC-DJB-01	DO2	2719	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S3	DO	X-XX	X	12	3	8	B4			PFBC-DJB-01	DO2	2721	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S4	DO	X-XX	X	12	3	9	C5			PFBC-DJB-01	DO2	2723	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S5	DO	X-XX	X	12	3	10	B5			PFBC-DJB-01	DO2	2725	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S6	DO	X-XX	X	12	3	11	C6			PFBC-DJB-01	DO2	2727	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S7	DO	X-XX	X	12	3	12	B6			PFBC-DJB-01	DO2	2729	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S8	DO	X-XX	X	12	3	13	C7			PFBC-DJB-01	DO2	2731	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S9	DO	X-XX	X	12	3	14	B7			PFBC-DJB-01	DO2	2733	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S10	DO	X-XX	X	12	3	15	C8			PFBC-DJB-01	DO2	2735	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S11	DO	X-XX	X	12	3	16	B8			PFBC-DJB-01	DO2	2737	E-PFBC-BBC4-226
THERMOCOUPLE (mV)														
WATER TO DISTRIBUTION SYSTEM TEMPERATURE	TE-1501	TE	1-05	TE	5	1	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
HP WATER PUMP INLET TEMPERATURE	TE-1502	TE	1-05	TE	5	1	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
HP WATER PUMP DISCHARGE TEMPERATURE	TE-1503	TE	1-05	TE	5	1	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
FLY ASH VESSEL INLET TEMPERATURE	TE-3206	TE	3-02	TE	5	1	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
FLY ASH VESSEL SKIN TEMPERATURE	TE-3207	TE	3-02	TE	5	1	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
FLY ASH VESSEL OUTLET TEMPERATURE	TE-3208	TE	3-02	TE	5	1	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
FLY ASH TO WASTE HANDLING TEMPERATURE	TE-3209	TE	3-02	TE	5	1	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
SPARE THERMOCOUPLE TEMPERATURE	TE-S1	TE	X-XX	TE	5	1	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
MAIN AIR SUPPLY HEADER TEMPERATURE	TE-2300	TE	2-03	TE	5	2	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
COOLING SYSTEM WATER RESERVOIR TEMPERATURE	TE-4201	TE	4-02	TE	5	2	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
COOLING SYSTEM WATER RESERVOIR EXIT TEMPERATURE	TE-4202	TE	4-02	TE	5	2	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
HEAT EXCHANGER EXIT TEMPERATURE	TE-4203	TE	4-02	TE	5	2	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
COOLING SUPPLY TEMPERATURE	TE-4204	TE	4-02	TE	5	2	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
COOLING SYSTEM RETURN TEMPERATURE	TE-4284	TE	4-02	TE	5	2	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
GLYCOL TO LINDE SKID TEMPERATURE	TE-3221	TE	3-02	TE	5	2	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-301
SPARE THERMOCOUPLE TEMPERATURE	TE-S2	TE	X-XX	TE	5	2	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-302
CO2 TO SOLIDS SAMPLING SYSTEM TEMPERATURE	TE-2129	TE	2-01	TE	5	3	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
BED ASH OUTLET TEMPERATURE	TE-3151	TE	3-01	TE	5	3	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
BED ASH AFTER COOLING TEMPERATURE	TE-3152	TE	3-01	TE	5	3	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
BED ASH RECEIVER TEMPERATURE	TE-3153	TE	3-01	TE	5	3	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
BED ASH LP DISCHARGE TEMPERATURE	TE-3154	TE	3-01	TE	5	3	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL BOTTOM TEMPERATURE - EAST	TE-3100-E	TE	3-01	TE	5	3	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL BOTTOM TEMPERATURE - WEST	TE-3100-W	TE	3-01	TE	5	3	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL THERMOWELL BOTTOM TEMPERATURE	TE-3130	TE	3-01	TE	5	3	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
PRIMARY O2 SUPPLY TEMPERATURE	TE-2101	TE	2-01	TE	5	4	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SECONDARY O2 SUPPLY TEMPERATURE	TE-2102	TE	2-01	TE	5	4	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S3	TE	X-XX	TE	5	4	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S4	TE	X-XX	TE	5	4	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S5	TE	X-XX	TE	5	4	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S6	TE	X-XX	TE	5	4	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S7	TE	X-XX	TE	5	4	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S8	TE	X-XX	TE	5	4	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-303
CO2 SUPPLY HEADER TEMPERATURE	TE-2120	TE	2-01	TE	5	5	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
INJECTION FEEDER TEMPERATURE	TE-2502	TE	2-05	TE	5	5	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
FLUE GAS TO RECYCLE GAS COMPRESSOR TEMPERATURE	TE-3301	TE	3-03	TE	5	5	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
RECYCLE GAS COMPRESSOR FLUE GAS EXIT TEMPERATURE	TE-3302	TE	3-03	TE	5	5	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S9	TE	X-XX	TE	5	5	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S10	TE	X-XX	TE	5	5	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S11	TE	X-XX	TE	5	5	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S12	TE	X-XX	TE	5	5	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-304
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - NORTH	TE-3121-N	TE	3-01	TE	5	6	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - EAST	TE-3121-E	TE	3-01	TE	5	6	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - SOUTH	TE-3121-S	TE	3-01	TE	5	6	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - WEST	TE-3121-W	TE	3-01	TE	5	6	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - NORTH	TE-3122-N	TE	3-01	TE	5	6	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - EAST	TE-3122-E	TE	3-01	TE	5	6	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - SOUTH	TE-3122-S	TE	3-01	TE	5	6	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - WEST	TE-3122-W	TE	3-01	TE	5	6	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - NORTH	TE-3101-N	TE	3-01	TE	7	1	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - EAST	TE-3101-E	TE	3-01	TE	7	1	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - SOUTH	TE-3101-S	TE	3-01	TE	7	1	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - NORTH	TE-3103-N	TE	3-01	TE	7	1	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - EAST	TE-3103-E	TE	3-01	TE	7	1	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - SOUTH	TE-3103-S	TE	3-01	TE	7	1	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL THERMOWELL MIDDLE TEMPERATURE	TE-3131	TE	3-01	TE	7	1	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL THERMOWELL TOP TEMPERATURE	TE-3132	TE	3-01	TE	7	1	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM REFRACTORY TEMPERATURE	TE-3141	TE	3-01	TE	7	2	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
LOWER BED SECTION TEMPERATURE	TE-3181	TE	3-01	TE	7	2	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC BED SOLIDS SAMPLE 1 TEMPERATURE	TE-5201	TE	5-02	TE	7	2	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PFBC BED SOLIDS SAMPLE 2 TEMPERATURE	TE-5202	TE	5-02	TE	7	2	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
CONVECTIVE SECTION SOLIDS SAMPLE TEMPERATURE	TE-5203	TE	5-02	TE	7	2	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
SOLIDS SAMPLING COLLECTION VESSEL TEMPERATURE	TE-5204	TE	5-02	TE	7	2	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
SOLIDS SAMPLING CYCLONE VENT TEMPERATURE	TE-5205	TE	5-02	TE	7	2	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC TEMPERATURE	TE-2110	TE	2-01	TE	7	2	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-305
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3123-N	TE	3-01	TE	7	3	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3123-E	TE	3-01	TE	7	3	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3123-S	TE	3-01	TE	7	3	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3123-W	TE	3-01	TE	7	3	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3124-N	TE	3-01	TE	7	3	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3124-E	TE	3-01	TE	7	3	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3124-S	TE	3-01	TE	7	3	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3124-W	TE	3-01	TE	7	3	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - NORTH	TE-3104-N	TE	3-01	TE	7	4	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - EAST	TE-3104-E	TE	3-01	TE	7	4	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM THERMOWELL TEMPERATURE	TE-3133	TE	3-01	TE	7	4	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - NORTH	TE-3105-N	TE	3-01	TE	7	4	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - EAST	TE-3105-E	TE	3-01	TE	7	4	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - WEST	TE-3105-W	TE	3-01	TE	7	4	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE THERMOWELL TEMPERATURE	TE-3134	TE	3-01	TE	7	4	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP THERMOWELL TEMPERATURE	TE-3135	TE	3-01	TE	7	4	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - NORTH	TE-3106-N	TE	3-01	TE	7	5	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - EAST	TE-3106-E	TE	3-01	TE	7	5	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - SOUTH	TE-3106-S	TE	3-01	TE	7	5	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - WEST	TE-3106-W	TE	3-01	TE	7	5	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - EAST	TE-3107-E	TE	3-01	TE	7	5	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - SOUTH	TE-3107-S	TE	3-01	TE	7	5	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - WEST	TE-3107-W	TE	3-01	TE	7	5	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM THERMOWELL TEMPERATURE	TE-3136	TE	3-01	TE	7	5	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-306
HP AIR SUPPLY INLET TEMPERATURE	TE-2330	TE	3-01	TE	7	6	0	0	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER TOP TEMPERATURE	TE-2331	TE	3-01	TE	7	6	1	2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER MIDDLE TEMPERATURE	TE-2332	TE	3-01	TE	7	6	2	4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER BOTTOM TEMPERATURE	TE-2333	TE	3-01	TE	7	6	3	6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER TOP TEMPERATURE	TE-2334	TE	3-01	TE	7	6	4	8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER MIDDLE TEMPERATURE	TE-2335	TE	3-01	TE	7	6	5	10	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER BOTTOM TEMPERATURE	TE-2336	TE	3-01	TE	7	6	6	12	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S13	TE	X-XX	TE	7	6	7	14	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
GAS SAMPLING SYSTEM AFTER FILTER SAMPLE CONDITIONER INLET TEMPERATURE	TE-5111	TE	5-01	TE	8	1	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM BEFORE FILTER SAMPLE CONDITIONER INLET TEMPERATURE	TE-5112	TE	5-01	TE	8	1	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM AFTER DCC SAMPLE CONDITIONER INLET TEMPERATURE	TE-5113	TE	5-01	TE	8	1	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
GAS SAMPLING SYSTEM AFTER LICONOX SAMPLE CONDITIONER INLET TEMPERATURE	TE-5114	TE	5-01	TE	8	1	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM AFTER DEOX SAMPLE CONDITIONER INLET TEMPERATURE	TE-5115	TE	5-01	TE	8	1	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
FLUE GAS TO PROCESS GAS TREATMENT TEMPERATURE	TE-3162	TE	3-01	TE	8	1	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S14	TE	X-XX	TE	8	1	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S15	TE	X-XX	TE	8	1	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S16	TE	X-XX	TE	8	2	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S17	TE	X-XX	TE	8	2	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S18	TE	X-XX	TE	8	2	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S19	TE	X-XX	TE	8	2	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S20	TE	X-XX	TE	8	2	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S21	TE	X-XX	TE	8	2	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S22	TE	X-XX	TE	8	2	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S23	TE	X-XX	TE	8	2	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-307
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - EAST	TE-3108-E	TE	3-01	TE	8	3	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - SOUTH	TE-3108-S	TE	3-01	TE	8	3	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - WEST	TE-3108-W	TE	3-01	TE	8	3	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE THERMOWELL TEMPERATURE	TE-3137	TE	3-01	TE	8	3	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - EAST	TE-3109-E	TE	3-01	TE	8	3	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - SOUTH	TE-3109-S	TE	3-01	TE	8	3	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - WEST	TE-3109-W	TE	3-01	TE	8	3	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP THERMOWELL TEMPERATURE	TE-3138	TE	3-01	TE	8	3	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3125-N	TE	3-01	TE	8	4	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3125-E	TE	3-01	TE	8	4	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3125-S	TE	3-01	TE	8	4	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3125-W	TE	3-01	TE	8	4	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3126-N	TE	3-01	TE	8	4	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3126-E	TE	3-01	TE	8	4	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3126-S	TE	3-01	TE	8	4	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3126-W	TE	3-01	TE	8	4	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO PFBC BED SECTION TEMPERATURE	TE-4211	TE	3-01	TE	8	5	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 1	TE-4221	TE	3-01	TE	8	5	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 2	TE-4222	TE	3-01	TE	8	5	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
COOLING TO UPPER BED - UPPER TEMPERATURE 3	TE-4223	TE	3-01	TE	8	5	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 4	TE-4224	TE	3-01	TE	8	5	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 5	TE-4225	TE	3-01	TE	8	5	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - MIDDLE TEMPERATURE 1	TE-4231	TE	3-01	TE	8	5	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - MIDDLE TEMPERATURE 2	TE-4232	TE	3-01	TE	8	5	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-308
COOLING TO UPPER BED - MIDDLE TEMPERATURE 3	TE-4233	TE	3-01	TE	8	6	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - MIDDLE TEMPERATURE 4	TE-4234	TE	3-01	TE	8	6	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - MIDDLE TEMPERATURE 5	TE-4235	TE	3-01	TE	8	6	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 1	TE-4241	TE	3-01	TE	8	6	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 2	TE-4242	TE	3-01	TE	8	6	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 3	TE-4243	TE	3-01	TE	8	6	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 4	TE-4244	TE	3-01	TE	8	6	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 5	TE-4245	TE	3-01	TE	8	6	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3127-N	TE	3-01	TE	8	7	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3127-E	TE	3-01	TE	8	7	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3127-S	TE	3-01	TE	8	7	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3127-W	TE	3-01	TE	8	7	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3128-N	TE	3-01	TE	8	7	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3128-E	TE	3-01	TE	8	7	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3128-S	TE	3-01	TE	8	7	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3128-W	TE	3-01	TE	8	7	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - NORTH	TE-3171-N	TE	3-01	TE	8	8	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - EAST	TE-3171-E	TE	3-01	TE	8	8	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - SOUTH	TE-3171-S	TE	3-01	TE	8	8	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - WEST	TE-3171-W	TE	3-01	TE	8	8	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - NORTH	TE-3172-N	TE	3-01	TE	8	8	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - EAST	TE-3172-E	TE	3-01	TE	8	8	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - SOUTH	TE-3172-S	TE	3-01	TE	8	8	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - WEST	TE-3172-W	TE	3-01	TE	8	8	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - NORTH	TE-3173-N	TE	3-01	TE	9	1	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - EAST	TE-3173-E	TE	3-01	TE	9	1	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - SOUTH	TE-3173-S	TE	3-01	TE	9	1	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310

INSTRUMENTATION I/O LIST

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - WEST	TE-3173-W	TE	3-01	TE	9	1	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - NORTH	TE-3174-N	TE	3-01	TE	9	1	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - EAST	TE-3174-E	TE	3-01	TE	9	1	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - SOUTH	TE-3174-S	TE	3-01	TE	9	1	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - WEST	TE-3174-W	TE	3-01	TE	9	1	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
PFBC FLUE GAS EXIT TEMPERATURE	TE-3161	TE	3-01	TE	9	2	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION UPPER THERMOWELL TEMPERATURE	TE-3140	TE	3-01	TE	9	2	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION LOWER THERMOWELL TEMPERATURE	TE-3139	TE	3-01	TE	9	2	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION LOWER COMBUSTOR SKIN TEMPERATURE - EAST	TE-3110-E	TE	3-01	TE	9	2	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION BOTTOM REFRACTORY TEMPERATURE	TE-3147	TE	3-01	TE	9	2	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION MIDDLE LOWER REFRACTORY TEMPERATURE	TE-3148	TE	3-01	TE	9	2	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION MIDDLE UPPER REFRACTORY TEMPERATURE	TE-3149	TE	3-01	TE	9	2	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION TOP REFRACTORY TEMPERATURE	TE-3150	TE	3-01	TE	9	2	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
COOLING TO PFBC CONVECTIVE SECTION TEMPERATURE	TE-4212	TE	3-01	TE	9	3	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
COOLING TO PFBC CONVECTIVE HEAT EXCHANGER TEMPERATURE	TE-4213	TE	3-01	TE	9	3	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE SECTION COOLING SYSTEM OUTLET TEMPERATURE	TE-4282	TE	3-01	TE	9	3	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER TO PFBC COOLING SYSTEM OUTLET TEMPERATURE	TE-4283	TE	3-01	TE	9	3	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S24	TE	X-XX	TE	9	3	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S25	TE	X-XX	TE	9	3	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S26	TE	X-XX	TE	9	3	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S27	TE	X-XX	TE	9	3	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-310
COOLING TO LOWER BED - UPPER TEMPERATURE 1	TE-4251	TE	3-01	TE	9	4	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 2	TE-4252	TE	3-01	TE	9	4	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 3	TE-4253	TE	3-01	TE	9	4	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 4	TE-4254	TE	3-01	TE	9	4	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 5	TE-4255	TE	3-01	TE	9	4	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 1	TE-4261	TE	3-01	TE	9	4	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 2	TE-4262	TE	3-01	TE	9	4	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 3	TE-4263	TE	3-01	TE	9	4	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 4	TE-4264	TE	3-01	TE	9	5	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 5	TE-4265	TE	3-01	TE	9	5	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 1	TE-4271	TE	3-01	TE	9	5	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311

INSTRUMENTATION I/O LIST

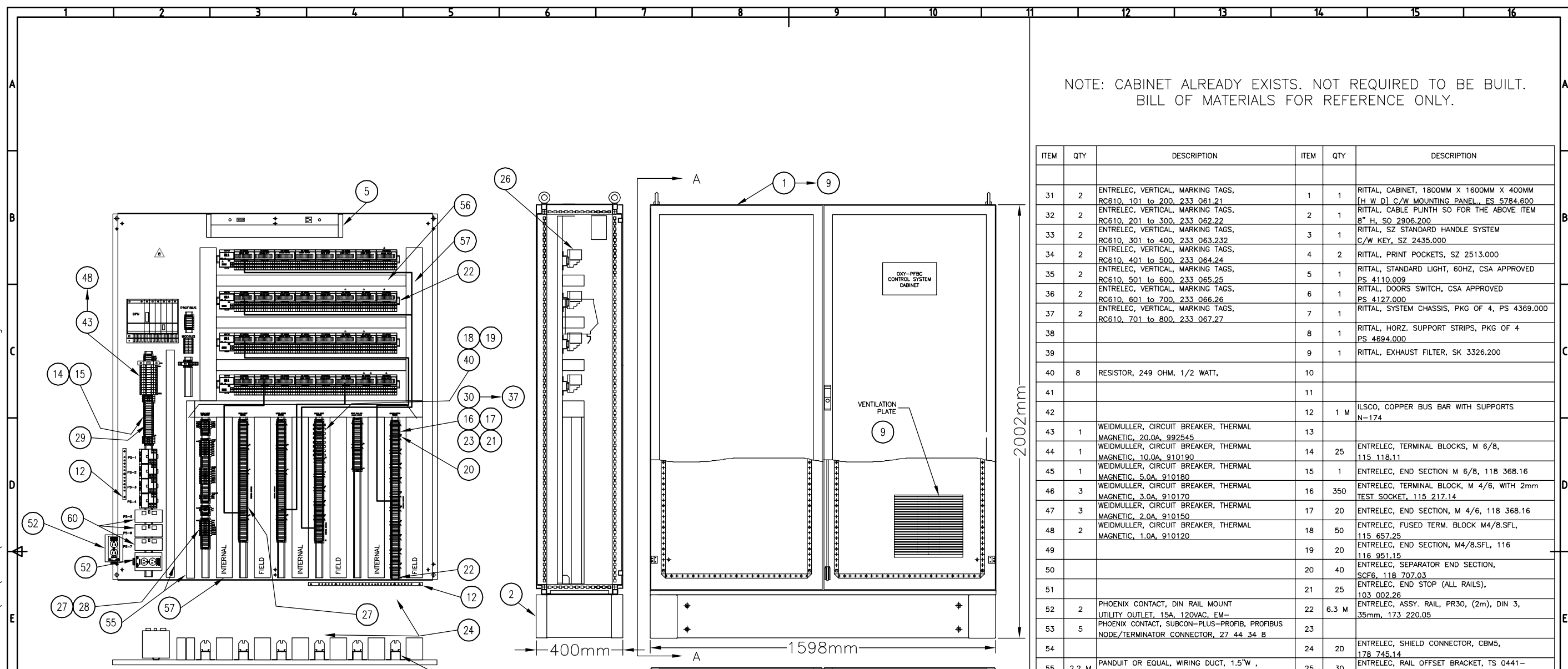
NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-001
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 2, 2015
CHECKED / DATE	D. RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	NODE	MODULE	I/O CARD NO	I/O CARD TERMINAL	CTRL CAB TB	CTRL CAB CABLE TO TB	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	REFERENCE DWG
COOLING TO LOWER BED - BOTTOM TEMPERATURE 2	TE-4272	TE	3-01	TE	9	5	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 3	TE-4273	TE	3-01	TE	9	5	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 4	TE-4274	TE	3-01	TE	9	5	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 5	TE-4275	TE	3-01	TE	9	5	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
BED MATERIAL TO PFBC TEMPERATURE	TE-1901	TE	1-09	TE	9	5	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S28	TE	X-XX	TE	9	6	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S29	TE	X-XX	TE	9	6	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S30	TE	X-XX	TE	9	6	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S31	TE	X-XX	TE	9	6	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S32	TE	X-XX	TE	9	6	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S33	TE	X-XX	TE	9	6	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S34	TE	X-XX	TE	9	6	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S35	TE	X-XX	TE	9	6	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-311
FILTER TEMPERATURE	TE-3201	TE	3-02	TE	9	7	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
FILTER FLUE GAS TEMPERATURE	TE-3202	TE	3-02	TE	9	7	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLIDS FILTER TOP SKIN TEMPERATURE	TE-3203	TE	3-02	TE	9	7	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLIDS FILTER LOWER SKIN TEMPERATURE	TE-3204	TE	3-02	TE	9	7	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLIDS FILTER OUTLET TEMPERATURE	TE-3205	TE	3-02	TE	9	7	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
CO2 TO FILTER PULSE RECEIVER TEMPERATURE	TE-3211	TE	3-02	TE	9	7	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID FUEL CYCLONE TEMPERATURE	TE-1601	TE	1-06	TE	9	7	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID FUEL STORAGE VESSEL TEMPERATURE	TE-1603	TE	1-06	TE	9	7	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID FUEL FEEDER VESSEL TEMPERATURE	TE-1604	TE	1-06	TE	9	8	0	C1	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID FUEL FEEDER TEMPERATURE	TE-1605	TE	1-06	TE	9	8	1	C2	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID SORBENT CYCLONE TEMPERATURE	TE-1701	TE	1-07	TE	9	8	2	C3	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID SORBENT STORAGE VESSEL TEMPERATURE	TE-1703	TE	1-07	TE	9	8	3	C4	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID SORBENT FEEDER VESSEL TEMPERATURE	TE-1704	TE	1-07	TE	9	8	4	C5	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
SOLID SORBENT FEEDER TEMPERATURE	TE-1705	TE	1-07	TE	9	8	5	C6	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
N2 SUPPLY HEADER TEMPERATURE	TE-2160	TE	2-01	TE	9	8	6	C7	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312
FUEL / SORBENT MIXER FEEDER TEMPERATURE	TE-2501	TE	2-05	TE	9	8	7	C8	N/A	N/A	PFBC-TJB-01	N/A	N/A	E-PFBC-BBC4-312

LAST SAVE: 2015/10/03 - 3:11pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-020 CC ASSEMBLY REV 0.dwg



NOTE: CABINET ALREADY EXISTS. NOT REQUIRED TO BE BUILT.
BILL OF MATERIALS FOR REFERENCE ONLY.

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
31	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 101 to 200, 233 061.21	1	1	RITTAL, CABINET, 1800MM X 1600MM X 400MM [H W D] C/W MOUNTING PANEL, ES 5784.600
32	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 201 to 300, 233 062.22	2	1	RITTAL, CABLE PLINTH SO FOR THE ABOVE ITEM 8" H, SO 2906.200
33	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 301 to 400, 233 063.232	3	1	RITTAL, SZ STANDARD HANDLE SYSTEM C/W KEY, SZ 2435.000
34	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 401 to 500, 233 064.24	4	2	RITTAL, PRINT POCKETS, SZ 2513.000
35	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 501 to 600, 233 065.25	5	1	RITTAL, STANDARD LIGHT, 60HZ, CSA APPROVED PS 4110.009
36	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 601 to 700, 233 066.26	6	1	RITTAL, DOORS SWITCH, CSA APPROVED PS 4127.000
37	2	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 701 to 800, 233 067.27	7	1	RITTAL, SYSTEM CHASSIS, PKG OF 4, PS 4369.000
38			8	1	RITTAL, HORZ. SUPPORT STRIPS, PKG OF 4 PS 4694.000
39			9	1	RITTAL, EXHAUST FILTER, SK 3326.200
40	8	RESISTOR, 249 OHM, 1/2 WATT,	10		
41			11		
42			12	1 M	ILSCO, COPPER BUS BAR WITH SUPPORTS N-174
43	1	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 20.0A, 992545	13		
44	1	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 10.0A, 910190	14	25	ENTRELEC, TERMINAL BLOCKS, M 6/8, 115 118.11
45	1	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 5.0A, 910180	15	1	ENTRELEC, END SECTION M 6/8, 118 368.16
46	3	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 3.0A, 910170	16	350	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET, 115 217.14
47	3	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 2.0A, 910150	17	20	ENTRELEC, END SECTION, M 4/6, 118 368.16
48	2	WEIDMULLER, CIRCUIT BREAKER, THERMAL MAGNETIC, 1.0A, 910120	18	50	ENTRELEC, FUSED TERM. BLOCK M4/8.SFL, 115 657.25
49			19	20	ENTRELEC, END SECTION, M4/8.SFL, 116 116 951.15
50			20	40	ENTRELEC, SEPARATOR END SECTION, SCF6, 118 707.03
51			21	25	ENTRELEC, END STOP (ALL RAILS), 103 002.26
52	2	PHOENIX CONTACT, DIN RAIL MOUNT UTILITY OUTLET, 15A, 120VAC, EM-	22	6.3 M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm, 173 220.05
53	5	PHOENIX CONTACT, SUBCON-PLUS-PROFIB, PROFIBUS NODE/TERMINATOR CONNECTOR, 27 44 34 B	23		
54			24	20	ENTRELEC, SHIELD CONNECTOR, CBM5, 178 745.14
55	2.2 M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 4"H, WITH COVER, WHITE	25	30	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH, 0101 655.06
56	2.7 M	PANDUIT OR EQUAL, WIRING DUCT, 2"W, 4"H, WITH COVER, WHITE	26	30	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 20mm HIGH, 0101 653.04
57	6.8 M	PANDUIT OR EQUAL, WIRING DUCT, 3"W, 4"H, WITH COVER, WHITE	27	10	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6), 113 548.26
58			28	10	ENTRELEC, COMB-TYPE JUMPER BAR, PC8, 10 POLE, 35A, (M 4/8.SF), 173 523.11
59			29	2	ENTRELEC, COMB-TYPE JUMPER BAR, PC8, 10 POLE, 50A, (M 6/8), 163 313.24
60	3	WEIDMULLER, DC POWER SUPPLY, CP-SNT 160W, 6.5A, 992534 0024	30	4	ENTRELEC, VERTICAL, MARKING TAGS, RC610, 1 to 200, 233 060.04

NOTES:
1. CABINET ASSEMBLY RE-USED FROM PREVIOUS GASIFIER PROJECT AND IS USED WITHOUT MODIFICATION.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
021	DCS NETWORK DIAGRAM	No			

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
021	DCS NETWORK DIAGRAM	No			

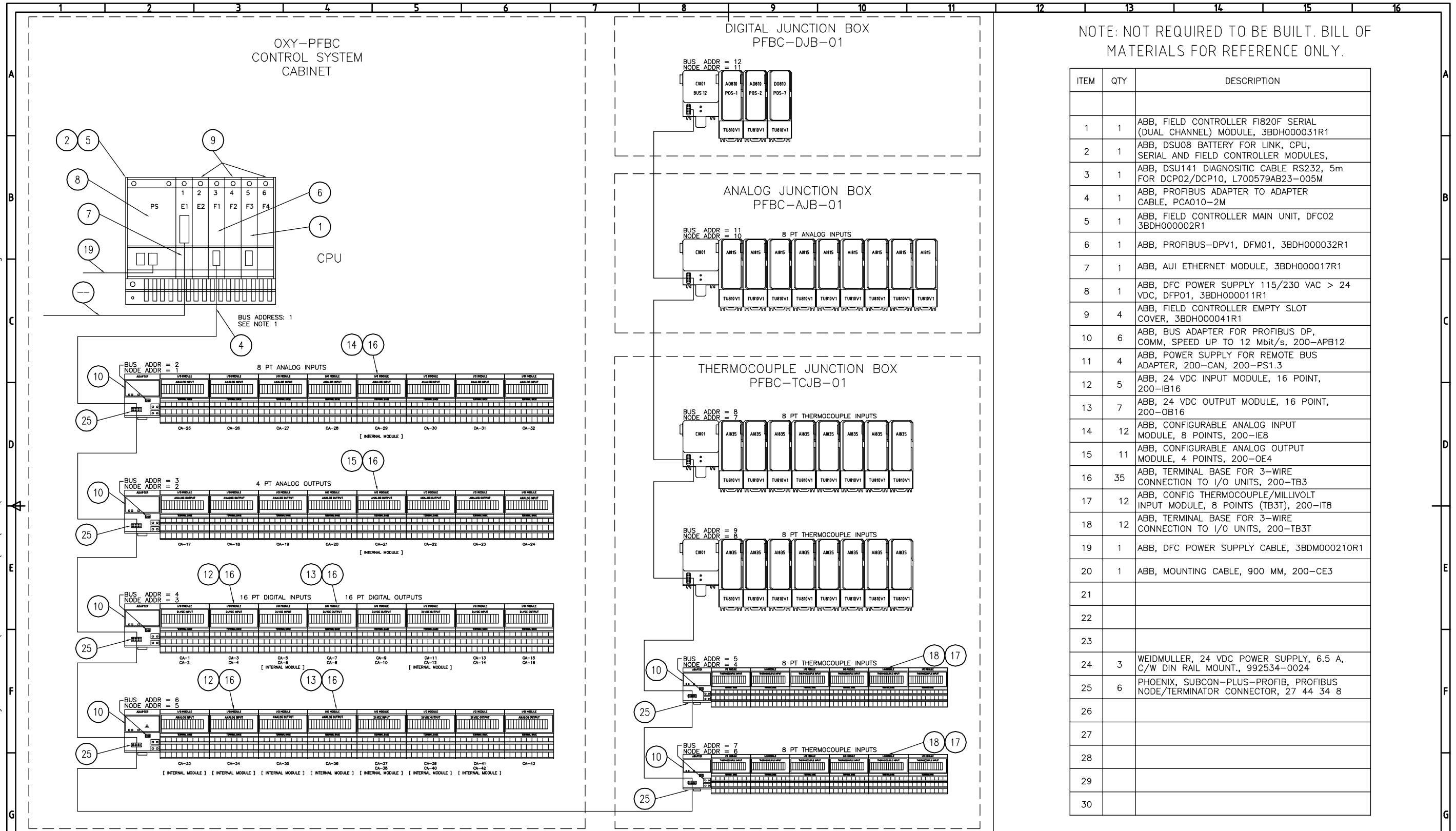
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 PHONE: 613-342-8300 FAX: 613-342-9400
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 PROJECT # 151-07049-00

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DESIGNED S. BETHUNE	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC CONTROL CABINET ASSEMBLY LAYOUT DRAWING
CHECKED D. RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 020
	REV. 0

LAST SAVE: 2015/10/03 - 3:17pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-021 DCS NETWORK DIAGRAM REV 0.dwg



NOTE: NOT REQUIRED TO BE BUILT. BILL OF MATERIALS FOR REFERENCE ONLY.

ITEM	QTY	DESCRIPTION
1	1	ABB, FIELD CONTROLLER F1820F SERIAL (DUAL CHANNEL) MODULE, 3BDH000031R1
2	1	ABB, DSU08 BATTERY FOR LINK, CPU, SERIAL AND FIELD CONTROLLER MODULES,
3	1	ABB, DSU141 DIAGNOSTIC CABLE RS232, 5m FOR DCP02/DCP10, L700579AB23-005M
4	1	ABB, PROFIBUS ADAPTER TO ADAPTER CABLE, PCA010-2M
5	1	ABB, FIELD CONTROLLER MAIN UNIT, DFC02 3BDH000002R1
6	1	ABB, PROFIBUS-DPV1, DFM01, 3BDH000032R1
7	1	ABB, AUI ETHERNET MODULE, 3BDH000017R1
8	1	ABB, DFC POWER SUPPLY 115/230 VAC > 24 VDC, DFP01, 3BDH000011R1
9	4	ABB, FIELD CONTROLLER EMPTY SLOT COVER, 3BDH000041R1
10	6	ABB, BUS ADAPTER FOR PROFIBUS DP, COMM, SPEED UP TO 12 Mbit/s, 200-APB12
11	4	ABB, POWER SUPPLY FOR REMOTE BUS ADAPTER, 200-CAN, 200-PS1.3
12	5	ABB, 24 VDC INPUT MODULE, 16 POINT, 200-IB16
13	7	ABB, 24 VDC OUTPUT MODULE, 16 POINT, 200-OB16
14	12	ABB, CONFIGURABLE ANALOG INPUT MODULE, 8 POINTS, 200-IE8
15	11	ABB, CONFIGURABLE ANALOG OUTPUT MODULE, 4 POINTS, 200-OE4
16	35	ABB, TERMINAL BASE FOR 3-WIRE CONNECTION TO I/O UNITS, 200-TB3
17	12	ABB, CONFIG THERMOCOUPLE/MILLIVOLT INPUT MODULE, 8 POINTS (TB3T), 200-IT8
18	12	ABB, TERMINAL BASE FOR 3-WIRE CONNECTION TO I/O UNITS, 200-TB3T
19	1	ABB, DFC POWER SUPPLY CABLE, 3BDM000210R1
20	1	ABB, MOUNTING CABLE, 900 MM, 200-CE3
21		
22		
23		
24	3	WEIDMULLER, 24 VDC POWER SUPPLY, 6.5 A, C/W DIN RAIL MOUNT., 992534-0024
25	6	PHOENIX, SUBCON-PLUS-PROFIB, PROFIBUS NODE/TERMINATOR CONNECTOR, 27 44 34 8
26		
27		
28		
29		
30		

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS	REVISION REGISTER				
NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CHKD	APPD
029	THERMOCOUPLE JUNCTION BOX INTERIOR LAYOUT				
028	DIGITAL JUNCTION BOX INTERIOR LAYOUT				
027	ANALOG JUNCTION BOX INTERIOR LAYOUT	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY DER
022	PROFIBUS COMMUNICATIONS SCHEMATIC	A	INTERNAL REVIEW	2015/09/11	BBY DER
020	CONTROL CABINET ASSEMBLY	No	REVISION DESCRIPTION		

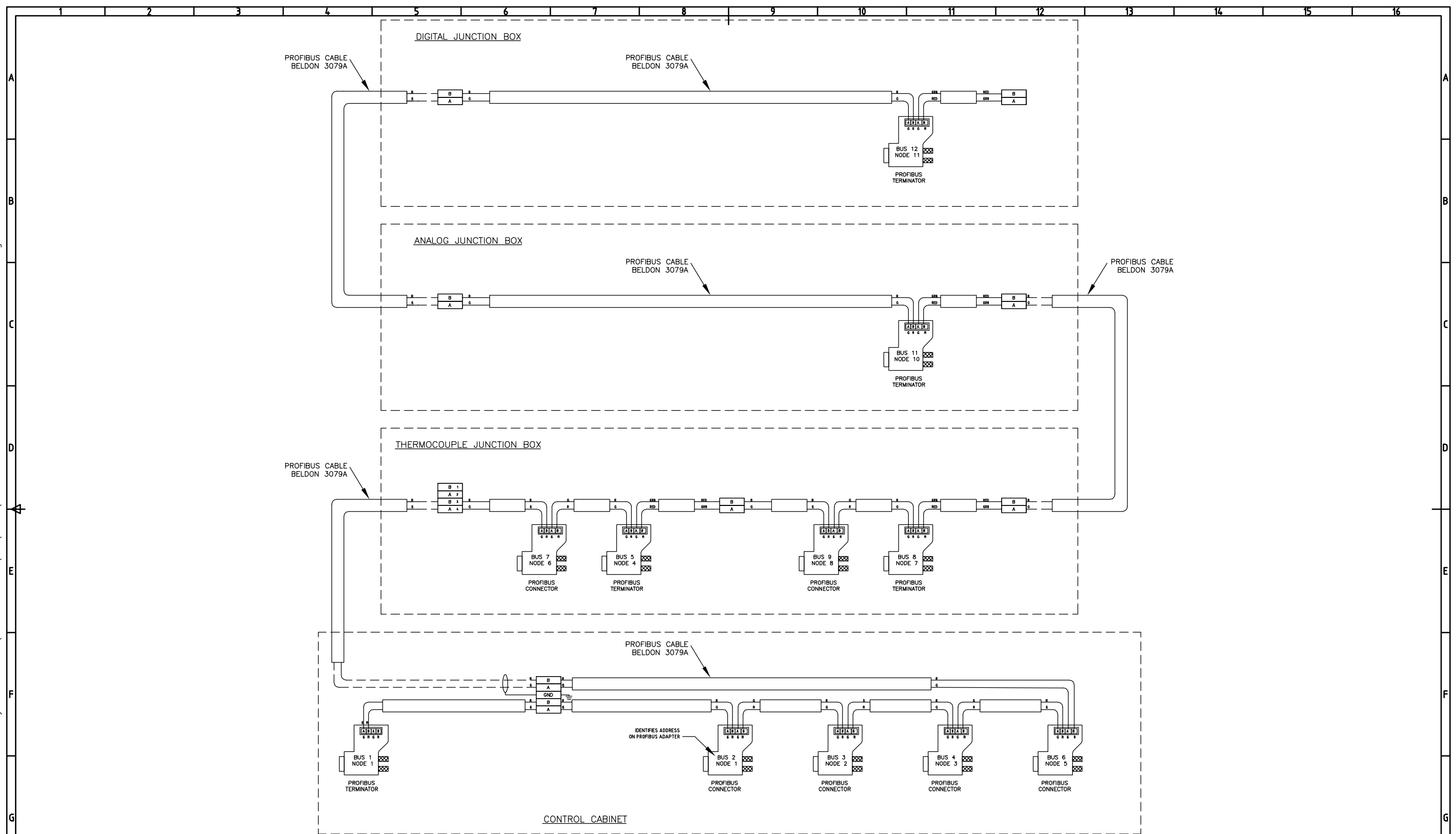
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 CANADA K6T 1A9
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 PROJECT # 151-07049-00

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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DCS NETWORK DIAGRAM				
CHECKED D. RICHMOND	DEPARTMENT E				
APPROVED	PROJECT PFBC				
DATE 2015/06/30	BUILDING BCC4				
SCALE NONE	DRAWING 021				
	REV. 0				

LAST SAVE: 2015/10/03 - 3:16pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
A	2015/09/11	BBY	DER		INTERNAL REVIEW
021					DCS NETWORK DIAGRAM

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION

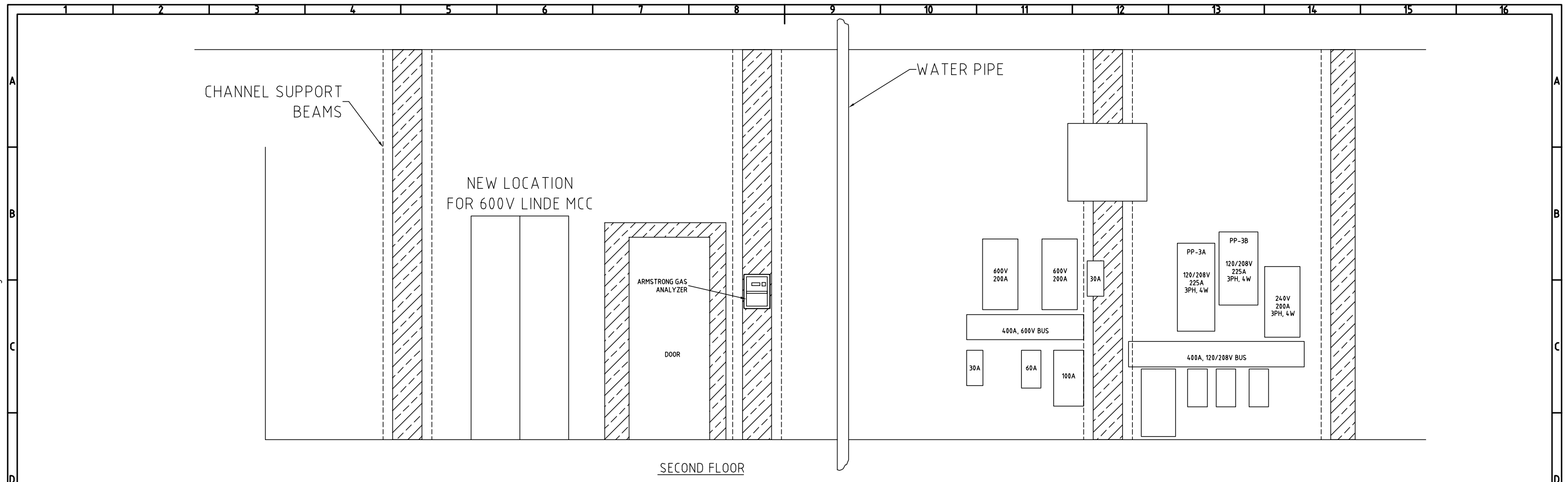
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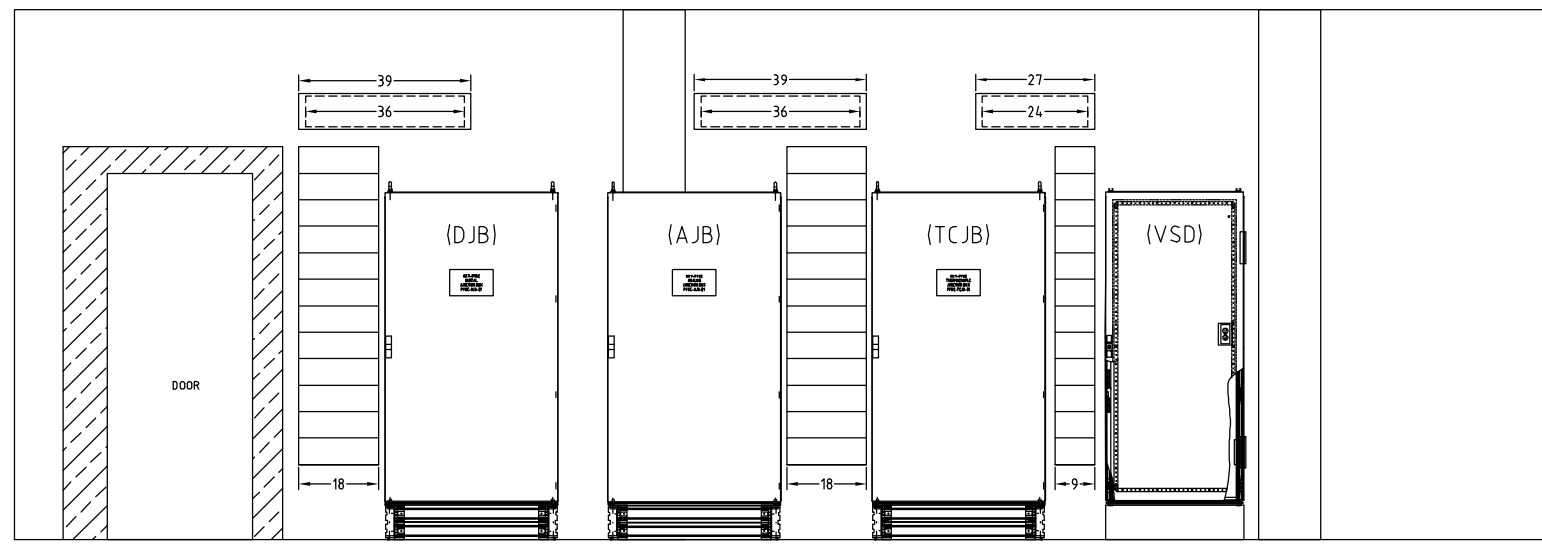
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC PROFIBUS COMMUNICATIONS SCHEMATIC				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 022	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 3:14pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-023 CABINET WALL LAYOUTS REV 0.dwg



SECOND FLOOR



GROUND FLOOR

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REFERENCE DRAWINGS	REVISION REGISTER	DATE (Y/M/D)	DRAWN	CKD	APPD
033	VSD CABINET ASSEMBLY LAYOUT					
026	THERMOCOUPLE JUNCTION BOX EXTERIOR LAYOUT	0	2015/10/02	BBY	WDF	
025	DIGITAL JUNCTION BOX EXTERIOR LAYOUT	A	2015/09/11	BBY	WDF	
024	ANALOG JUNCTION BOX EXTERIOR LAYOUT	No				

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CONSTRUCTION**

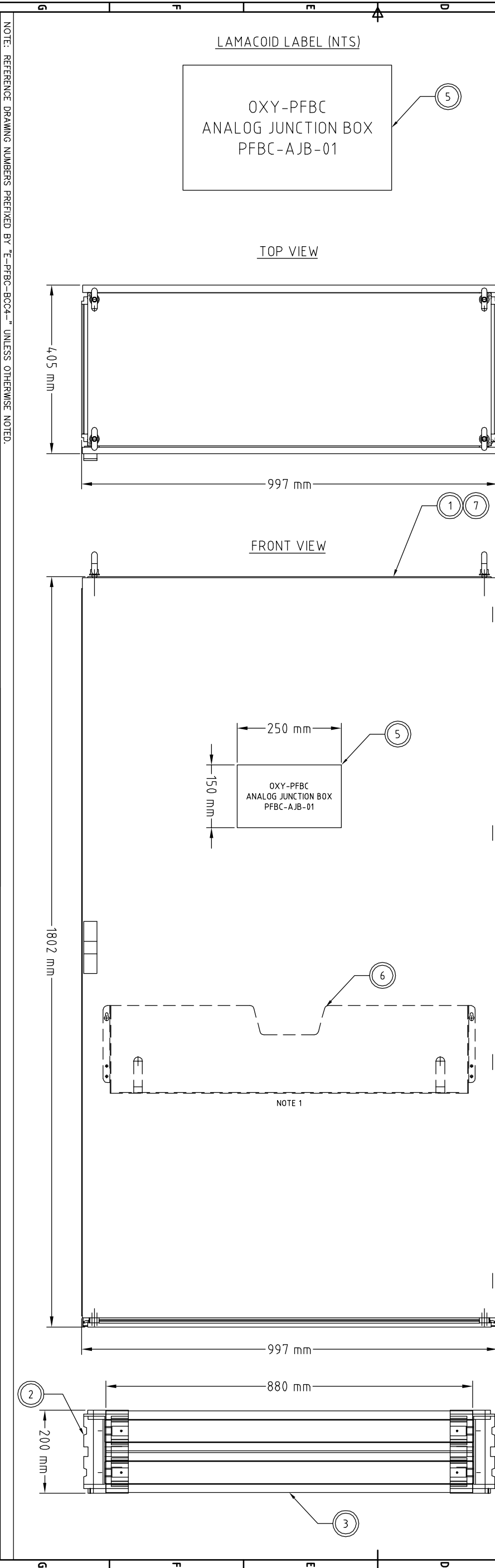
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 www.wspgroup.com
 PROJECT # 151-07049-00

CLIENT
Canada
 Natural Resources Canada
 Ressources naturelles Canada
 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

DESIGNED W. FEENSTRA
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC CABINET WALL LAYOUT GROUND FLOOR				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 023	REV. 0

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.	
030	ANALOG JUNCTION BOX TERMINAL BLOCK LAYOUT
027	ANALOG JUNCTION BOX INTERIOR LAYOUT
023	CABINET WALL LAYOUT - GROUND FLOOR
REFERENCE DRAWINGS	
REVISION REGISTER	
No	REVISION DESCRIPTION
0	ISSUE FOR CLIENT REVIEW
A	INTERNAL REVIEW
DATE (Y/M/D)	DATE (Y/M/D)
2015/10/02	2015/09/11
BBY	BBY
DER	DER
APPD	APPD



BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL	8084.500	ENCLOSURE, 997mm X 1805mm X 405mm (W X H X D), SINGLE-DOOR, C/W REAR DETACHABLE PANEL, MOUNTING PLATE
2	1	RITTAL	8200.000	FLEX-BLOCK CORNER PIECES, BASE/PLINTH SYSTEM, FIBREGLASS-REINFORCED PLASTIC
3	1	RITTAL	8200.010	FLEX-BLOCK TRIM PANELS, FOR 1000mm X 200mm (W X H), SOLID
4	1	RITTAL	8200.400	FLEX-BLOCK TRIM PANELS, FOR 400mm X 200mm (D X H), SOLID
5	1			LAMACOID LABEL, 250mm X 150mm (W X H), ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE
6	1	RITTAL	4124.000	SHEET STEEL WIRING PLAN POCKETS, 855mm X 210mm (W X H), 90mm DEEP
7	1	RITTAL	8184.235	SIDE PANELS, SCREW FASTENED, SHEET STEEL, 400mm X 1800mm (W X H), PACKAGE OF 2

NOTES:

1. SHEET STEEL WIRING PLAN POCKET TO BE MOUNTED ON THE INTERIOR OF THE CABINET DOOR, AT AN APPROPRIATE HEIGHT, ENSURING SUFFICIENT CLEARANCE OF THE INTERNAL CABINET COMPONENTS.

FOR REVIEW
NOT FOR
CONSTRUCTION



DESIGNED BY: YACH
 DRAWN BY: YACH
 CHECKED BY: YACH
 APPROVED BY: RICHMOND

DATE: 2015/06/30
 SCALE: NONE

PROJECT: NRCAN CANMET OXY-PFBC

TITLE: ELECTRICAL OXY-PFBC ANALOG JUNCTION BOX EXTERIOR LAYOUT


DEPARTMENT: E

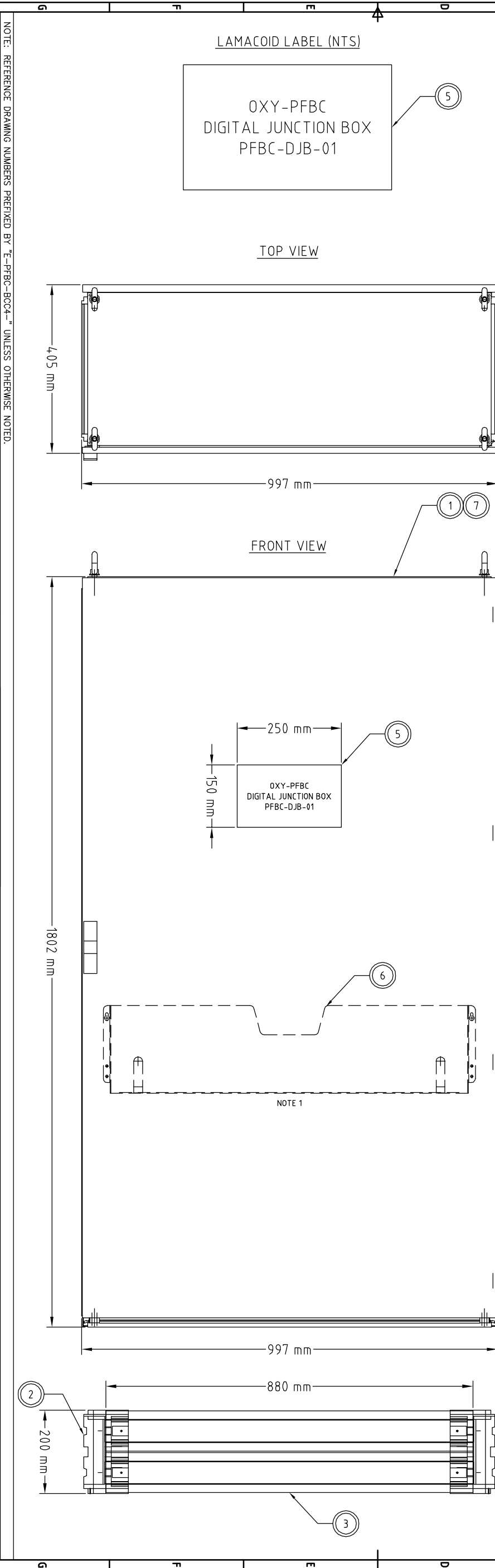
PROJECT: PFBC

BUILDING: BCC4

DRAWING: 024

REV: 0

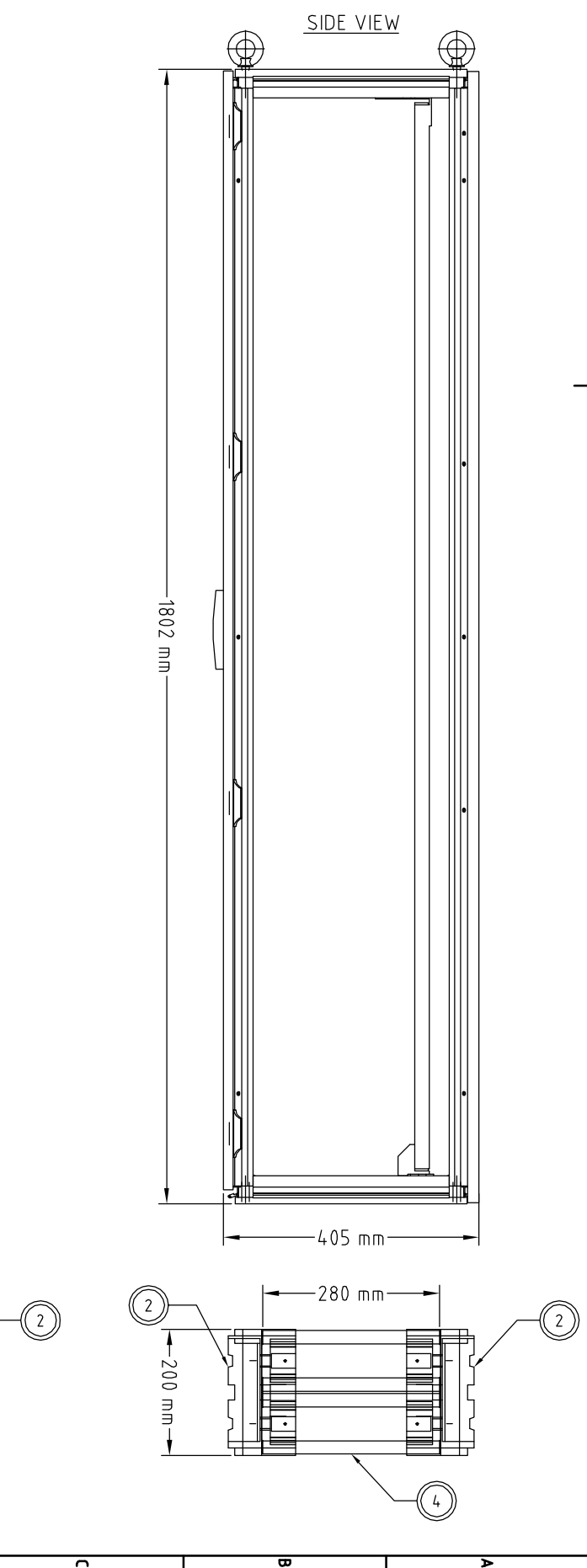
NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.	
031	DIGITAL JUNCTION BOX TERMINAL BLOCK LAYOUT
028	DIGITAL JUNCTION BOX INTERIOR LAYOUT
023	CABINET WALL LAYOUT - GROUND FLOOR
REFERENCE DRAWINGS	
REVISION REGISTER	
No	REVISION DESCRIPTION
0	ISSUE FOR CLIENT REVIEW
A	INTERNAL REVIEW
2015/10/02	BBY DER
2015/09/11	BBY DER
DATE (Y/M/D)	DRWN (K/D)
APPD	
<p>FOR REVIEW NOT FOR CONSTRUCTION</p>	
<p>CLIENT</p>  <p>4022 JAMN, 98th ELIZABETH AVENUE CANADA K6T 1R8 PHONE: 813-342-8300 FAX: 813-342-9400 www.wspgroup.com PROJECT # 151-07049-00</p> <p>DESIGNED B. YACH</p> <p>DRAWN B. YACH</p> <p>CHECKED D. RICHMOND</p> <p>APPROVED</p> <p>DATE 2015/06/30</p> <p>SCALE NONE</p>	
<p>PROJECT NRCAN CANMET OXY-PFBC</p> <p>TITLE ELECTRICAL OXY-PFBC DIGITAL JUNCTION BOX EXTERIOR LAYOUT</p> <p>DEPARTMENT E</p> <p>PROJECT PFBC</p> <p>BUILDING BCC4</p> <p>DRAWING 025</p> <p>REV. 0</p>	




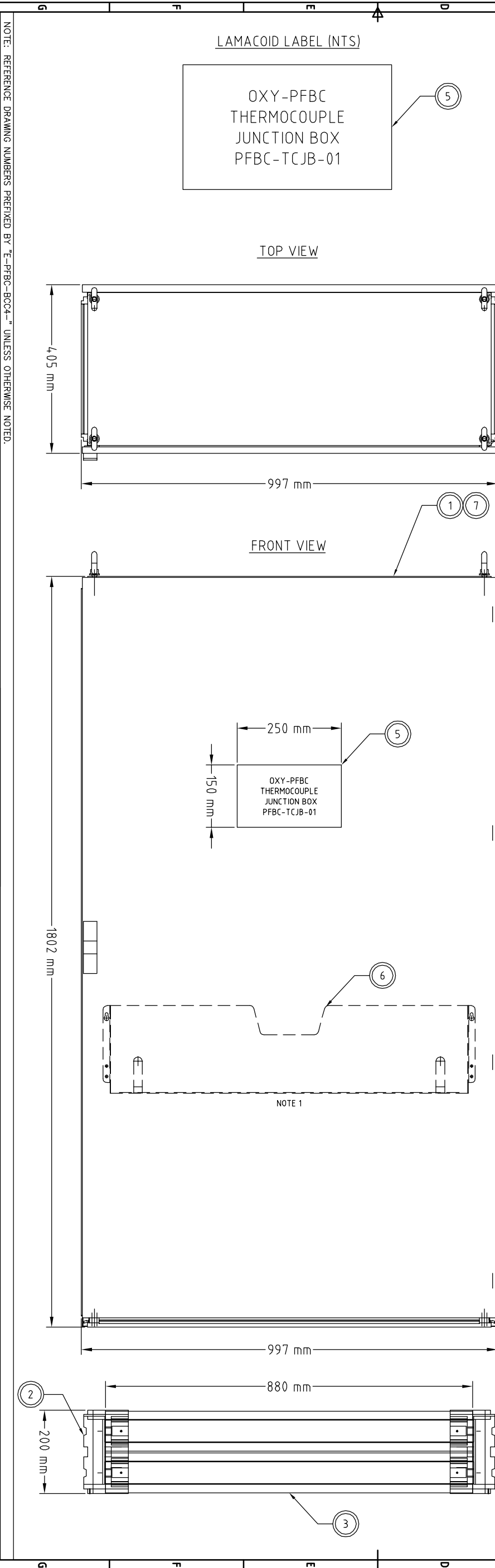
BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL	8084.500	ENCLOSURE, 997mm X 1805mm X 405mm (W X H X D), SINGLE-DOOR, C/W REAR DETACHABLE PANEL, MOUNTING PLATE
2	1	RITTAL	8200.000	FLEX-BLOCK CORNER PIECES, BASE/PLINTH SYSTEM, FIBREGLASS-REINFORCED PLASTIC
3	1	RITTAL	8200.010	FLEX-BLOCK TRIM PANELS, FOR 1000mm X 200mm (W X H), SOLID
4	1	RITTAL	8200.400	FLEX-BLOCK TRIM PANELS, FOR 400mm X 200mm (D X H), SOLID
5	1			LAMACOID LABEL, 250mm X 150mm (W X H), ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE
6	1	RITTAL	4124.000	SHEET STEEL WIRING PLAN POCKETS, 855mm X 210mm (W X H), 90mm DEEP
7	1	RITTAL	8184.235	SIDE PANELS, SCREW FASTENED, SHEET STEEL, 400mm X 1800mm (W X H), PACKAGE OF 2

NOTES:

1. SHEET STEEL WIRING PLAN POCKET TO BE MOUNTED ON THE INTERIOR OF THE CABINET DOOR, AT AN APPROPRIATE HEIGHT, ENSURING SUFFICIENT CLEARANCE OF THE INTERNAL CABINET COMPONENTS.



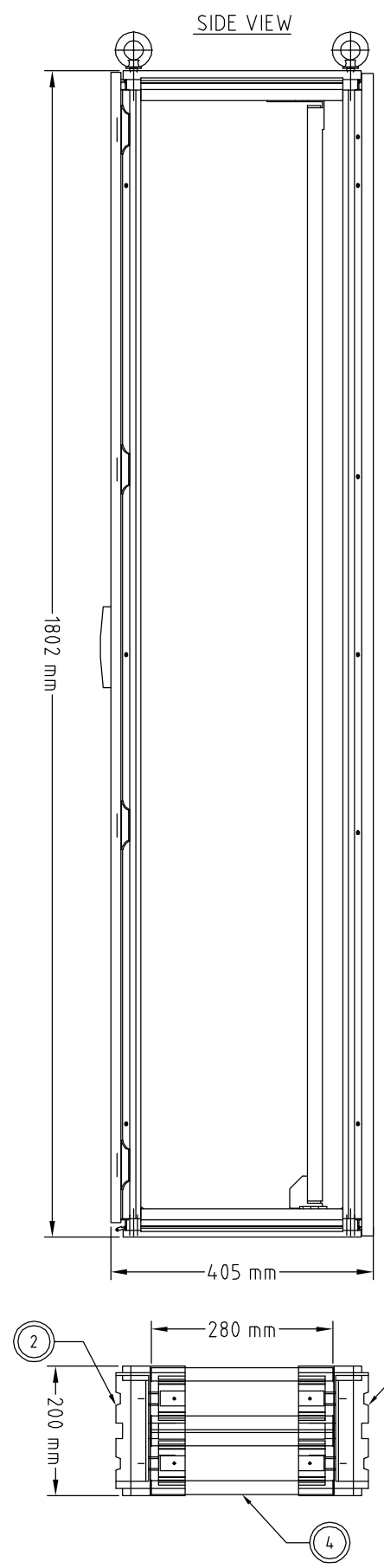
NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.	
032	THERMOCOUPLE JB TERMINAL BLOCK LAYOUT
029	THERMOCOUPLE JUNCTION BOX INTERIOR LAYOUT
023	CABINET WALL LAYOUT - GROUND FLOOR
REFERENCE DRAWINGS	
REVISION REGISTER	
No	REVISION DESCRIPTION
0	ISSUE FOR CLIENT REVIEW
A	INTERNAL REVIEW
2015/10/02	BBY DER
2015/09/11	BBY DER
DATE (Y/M/D)	DRWN (K/D)
APPD	
<p>FOR REVIEW NOT FOR CONSTRUCTION</p>	
<p>CLIENT</p>  <p>4022 JAMN, 98th ELIZABETH AVENUE CANADA K6T 1R8 PHONE: 813-342-8300 FAX: 813-342-9400 www.wspgroup.com</p> <p>Canada Ressources naturelles Canada Centre de la technologie de l'énergie de CANMET</p>	
DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE
PROJECT	
NRCAN CANMET OXY-PFBC	
TITLE	
ELECTRICAL OXY-PFBC THERMOCOUPLE JUNCTION BOX EXTERIOR LAYOUT	
DEPARTMENT	E
PROJECT	PFBC
BUILDING	BCC4
DRAWING	026
REV.	0




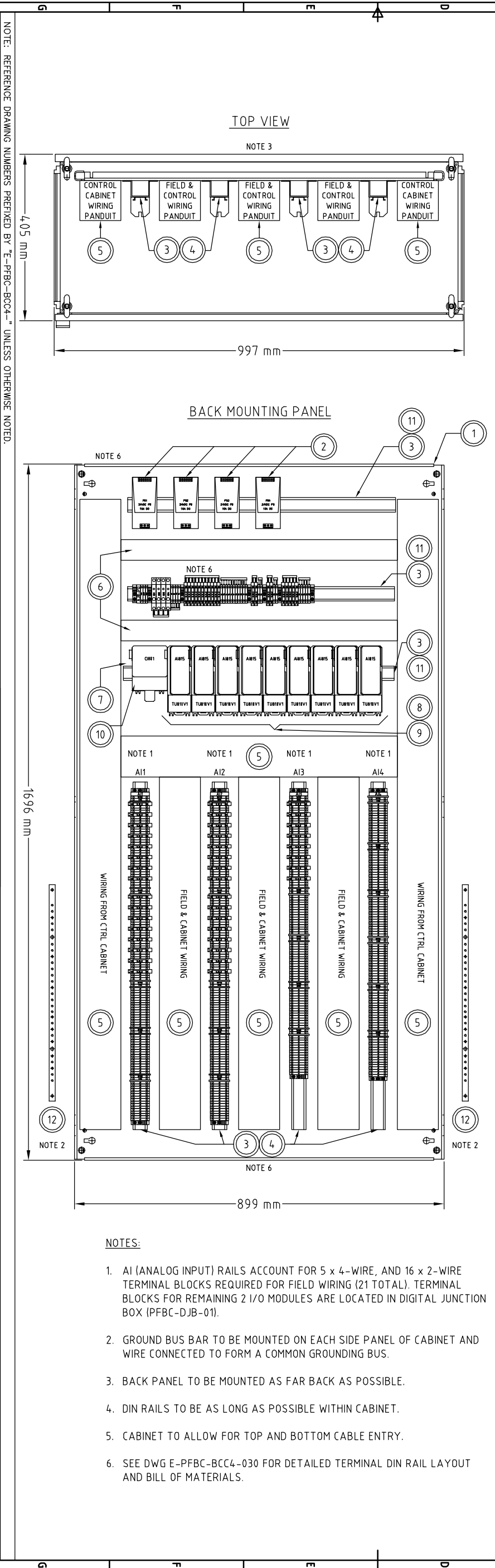
BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL	8084.500	ENCLOSURE, 997mm X 1805mm X 405mm (W X H X D), SINGLE-DOOR, C/W REAR DETACHABLE PANEL, MOUNTING PLATE
2	1	RITTAL	8200.000	FLEX-BLOCK CORNER PIECES, BASE/PLINTH SYSTEM, FIBREGLASS-REINFORCED PLASTIC
3	1	RITTAL	8200.010	FLEX-BLOCK TRIM PANELS, FOR 1000mm X 200mm (W X H), SOLID
4	1	RITTAL	8200.400	FLEX-BLOCK TRIM PANELS, FOR 400mm X 200mm (D X H), SOLID
5	1			LAMACOID LABEL, 250mm X 150mm (W X H), ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE
6	1	RITTAL	4124.000	SHEET STEEL WIRING PLAN POCKETS, 855mm X 210mm (W X H), 90mm DEEP
7	1	RITTAL	8184.235	SIDE PANELS, SCREW FASTENED, SHEET STEEL, 400mm X 1800mm (W X H), PACKAGE OF 2

NOTES:

- SHEET STEEL WIRING PLAN POCKET TO BE MOUNTED ON THE INTERIOR OF THE CABINET DOOR, AT AN APPROPRIATE HEIGHT, ENSURING SUFFICIENT CLEARANCE OF THE INTERNAL CABINET COMPONENTS.



054	ANALOG JUNCTION BOX DC POWER DIST.								
053	ANALOG JUNCTION BOX AC POWER DIST.								
030	ANALOG JUNCTION BOX TERMINAL BLOCK LAYOUT	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER			
024	ANALOG JUNCTION BOX EXTERIOR LAYOUT	A	INTERNAL REVIEW	2015/09/11	BBY	DER			
REFERENCE DRAWINGS		No	REVISION DESCRIPTION	DATE (Y/M/D)	DRWN	CHKD	APPD		
REVISION REGISTER									
FOR REVIEW NOT FOR CONSTRUCTION									
CLIENT		 <p>4425 JAMN DRIVE ELSTONVILLE ONTARIO CANADA K6T 1A6 PHONE: 613-342-8300 FAX: 613-342-9400 www.wspgroup.com</p> <p>PROJECT # 151-07049-00</p>							
DESIGNED	B. YACH	PROJECT	NRCAN CANMET OXY-PFBC						
DRAWN	B. YACH	TITLE	ELECTRICAL OXY-PFBC ANALOG JUNCTION BOX INTERIOR LAYOUT						
CHECKED	D. RICHMOND	DEPARTMENT	E						
APPROVED		PROJECT	PFBC	BUILDING	BCC4	DRAWING	027	REV.	0
DATE	2015/06/30								
SCALE	NONE								



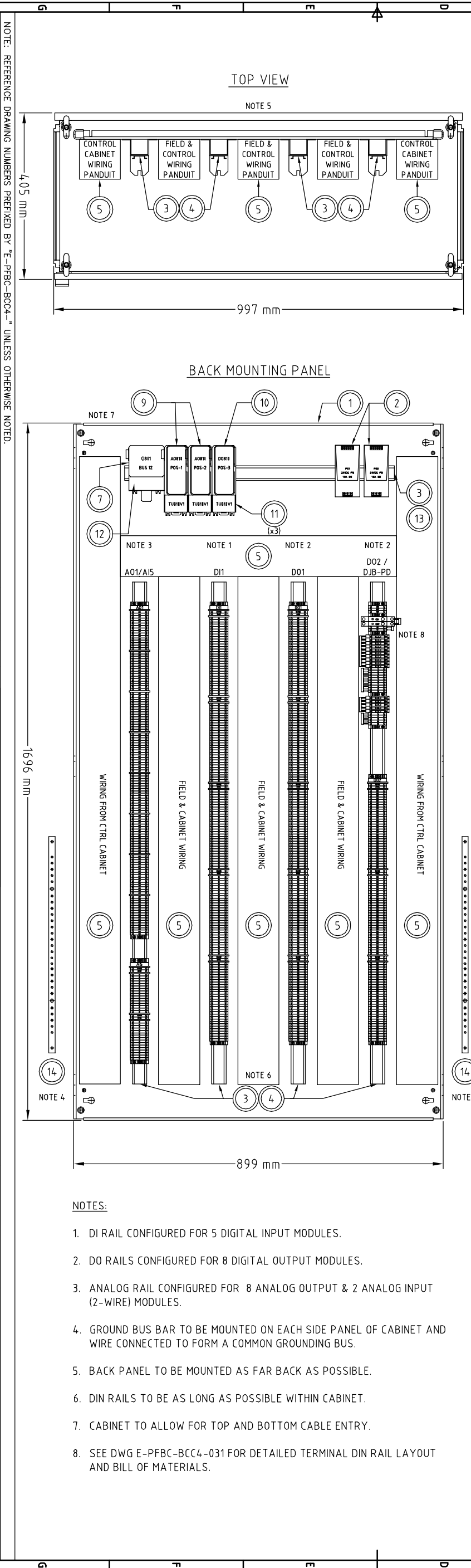
BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL		REAR MOUNTING PLATE, 1696mm X 899mm (H X W), C/W RITTAL ENCLOSURE 8084.500
2	4	WEIDMULLER	1469490000	PRO ECO 24.0W, 24V, 10A POWER SUPPLY UNIT
3	AS REQ'D	ENTRELEC	173 220.05	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm
4	AS REQ'D	ABB	010165506	RAIL OFFSET MTG BRACKET, TS0441-SM6, 4.0mm HIGH
5	AS REQ'D	PANDUIT	NNC100X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 100mm X 100mm (W X D)
6	AS REQ'D	PANDUIT	NNC50X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 50mm X 100mm (W X D)
7	1	ABB	3BSE022366R2	C1801-eA PROFIBUS DP-V1 COMMUNICATION INTERFACE INCLUDING: POWER SUPPLY CONNECTOR, TB807 MODULEBUS TERMINATOR
8	9	ABB	3BSE052604R2	AI815-eA ANALOG INPUT 1X8 CHANNEL WITH HART 0(4)...20mA, 0(1)...5V, 12 BIT, SINGLE ENDED, 0.1%, RATED ISOL. 50V
9	9	ABB	3BSE013230R1	TU810V1 COMPACT MODULE TERMINATION UNIT, MTU, 50V 2X8 SIGNAL TERMINALS, RATED ISOL. 50V
10	1	ABB	VIPA972-0DP01	VIPA EASYCONN PB PROFIBUS CONNECTOR 90 DEGREES
11	AS REQ'D	ABB	0101653.04	RAIL OFFSET MTG BRACKET, TS0441-SM6, 20mm HIGH
12	AS REQ'D	ILSCO	N-174	6-14AWG COPPER BUS BAR WITH SUPPORTS

- NOTES:**
- AI (ANALOG INPUT) RAILS ACCOUNT FOR 5 x 4-WIRE, AND 16 x 2-WIRE TERMINAL BLOCKS REQUIRED FOR FIELD WIRING (21 TOTAL). TERMINAL BLOCKS FOR REMAINING 2 I/O MODULES ARE LOCATED IN DIGITAL JUNCTION BOX (PFBC-DJB-01).
 - GROUND BUS BAR TO BE MOUNTED ON EACH SIDE PANEL OF CABINET AND WIRE CONNECTED TO FORM A COMMON GROUNDING BUS.
 - BACK PANEL TO BE MOUNTED AS FAR BACK AS POSSIBLE.
 - DIN RAILS TO BE AS LONG AS POSSIBLE WITHIN CABINET.
 - CABINET TO ALLOW FOR TOP AND BOTTOM CABLE ENTRY.
 - SEE DWG E-PFBC-BCC4-030 FOR DETAILED TERMINAL DIN RAIL LAYOUT AND BILL OF MATERIALS.

025	DIGITAL JUNCTION BOX EXTERIOR LAYOUT	No	REVISION DESCRIPTION	DATE (Y/M/D)	DRWN	CHKD	APPD
031	DIGITAL JUNCTION BOX TERMINAL BLOCK LAYOUT	A	INTERNAL REVIEW	2015/09/11	BBY	DER	
055	DIGITAL JUNCTION BOX AC POWER DIST.	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
056	DIGITAL JUNCTION BOX DC POWER DIST.						

DESIGNED	B. YACH
DRWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT	NRCAN CANMET OXY-PFBC
TITLE	ELECTRICAL OXY-PFBC DIGITAL JUNCTION BOX INTERIOR LAYOUT
DEPARTMENT	E
PROJECT	PFBC
BUILDING	BCC4
DRAWING	028
REV.	0



- NOTES:**
- DI RAIL CONFIGURED FOR 5 DIGITAL INPUT MODULES.
 - DO RAILS CONFIGURED FOR 8 DIGITAL OUTPUT MODULES.
 - ANALOG RAIL CONFIGURED FOR 8 ANALOG OUTPUT & 2 ANALOG INPUT (2-WIRE) MODULES.
 - GROUND BUS BAR TO BE MOUNTED ON EACH SIDE PANEL OF CABINET AND WIRE CONNECTED TO FORM A COMMON GROUNDING BUS.
 - BACK PANEL TO BE MOUNTED AS FAR BACK AS POSSIBLE.
 - DIN RAILS TO BE AS LONG AS POSSIBLE WITHIN CABINET.
 - CABINET TO ALLOW FOR TOP AND BOTTOM CABLE ENTRY.
 - SEE DWG E-PFBC-BCC4-031 FOR DETAILED TERMINAL DIN RAIL LAYOUT AND BILL OF MATERIALS.

BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL		REAR MOUNTING PLATE, 1696mm X 899mm (H X W), C/W RITTAL ENCLOSURE 8084.500
2	2	WEIDMULLER	1469490000	PRO ECO 240W, 24V, 10A POWER SUPPLY UNIT
3	AS REQ'D	ENTRELEC	173 220.05	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm
4	16	ABB	010165506	RAIL OFFSET MTG BRACKET, TS0441-SM6, 40mm HIGH
5	AS REQ'D	PANDUIT	NNC100X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 100mm X 100mm (W X D)
6	0	PANDUIT	NNC50X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 50mm X 100mm (W X D)
7	1	ABB	3BSE022366R2	CI801-eA PROFIBUS DP-V1 COMMUNICATION INTERFACE INCLUDING: POWER SUPPLY CONNECTOR, TB807 MODULEBUS TERMINATOR
8	0	ABB	3BSE052604R2	AI815-eA ANALOG INPUT 1X8 CHANNEL WITH HART 0(4)...20mA, 0(1)...5V, 12 BIT, SINGLE ENDED, 0.1%, RATED ISOL. 50V
9	2	ABB	3BSE038415R2	A0810V2-eA ANALOG OUTPUT 1X8 CHANNELS, 0(4)...20mA, 14 BIT RLMAX 500/850 OHMS, RATED ISOLATION 50V
10	1	ABB	3BSE008510R2	DO810-eA DIGITAL OUTPUT 24VDC, 2X8 CHANNEL, 0.5A
11	3	ABB	3BSE013230R1	TU810V1 COMPACT MODULE TERMINATION UNIT, MTU, 50V 2X8 SIGNAL TERMINALS, RATED ISOL. 50V
12	1	ABB	VIPA972-0DP01	VIPA EASYCONN PB PROFIBUS CONNECTOR 90 DEGREES
13	AS REQ'D	ABB	0101653.04	RAIL OFFSET MTG BRACKET, TS0441-SM6, 20mm HIGH
14	AS REQ'D	ILSCO	N-174	6-14AWG COPPER BUS BAR WITH SUPPORTS

**FOR REVIEW
NOT FOR
CONSTRUCTION**

CLIENT

4025 JAMN DRIVE
 ELECTRONIC SYSTEMS
 CANADA K1R 1A8
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com

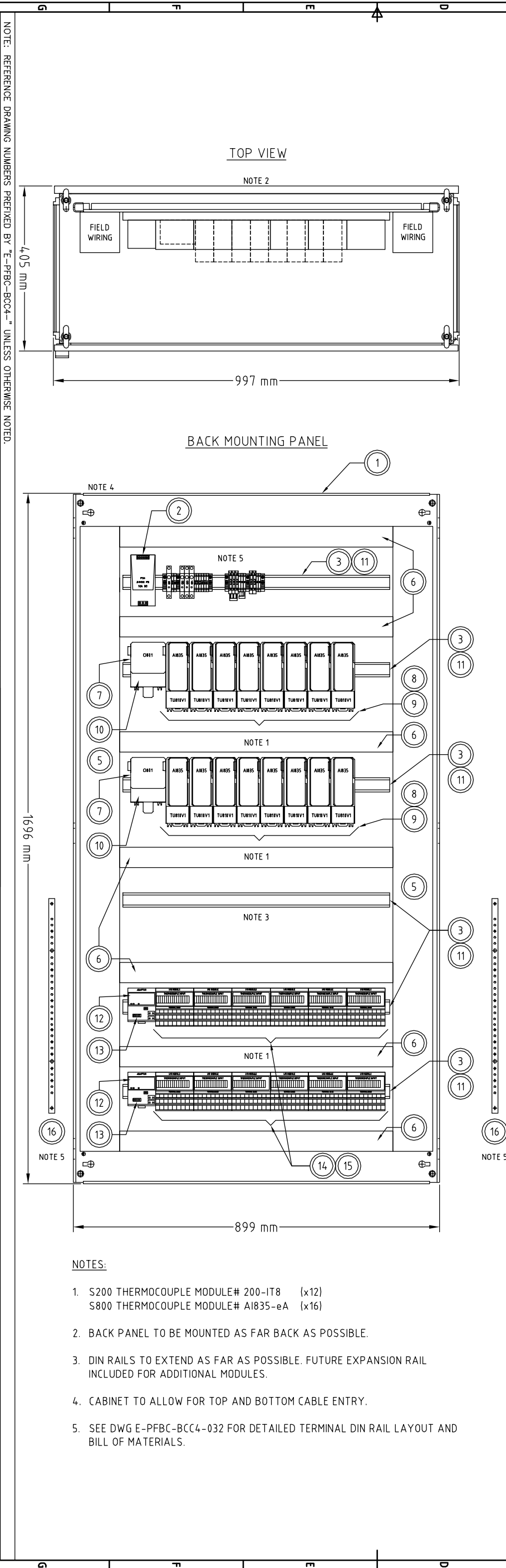
PROJECT # 151-07049-00

CLIENT
 Natural Resources Canada
 CANMET Energy Technology Center
 Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

026	THERMOCOUPLE JUNCTION EXTERIOR LAYOUT	No	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHK	APPD
032	THERMOCOUPLE JIB TERMINAL BLOCK LAYOUT	A	INTERNAL REVIEW	2015/09/11	BBY	DER	
057	THERMOCOUPLE JUNCTION BOX AC POWER DIST.	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
058	THERMOCOUPLE JUNCTION BOX DC POWER DIST.						

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

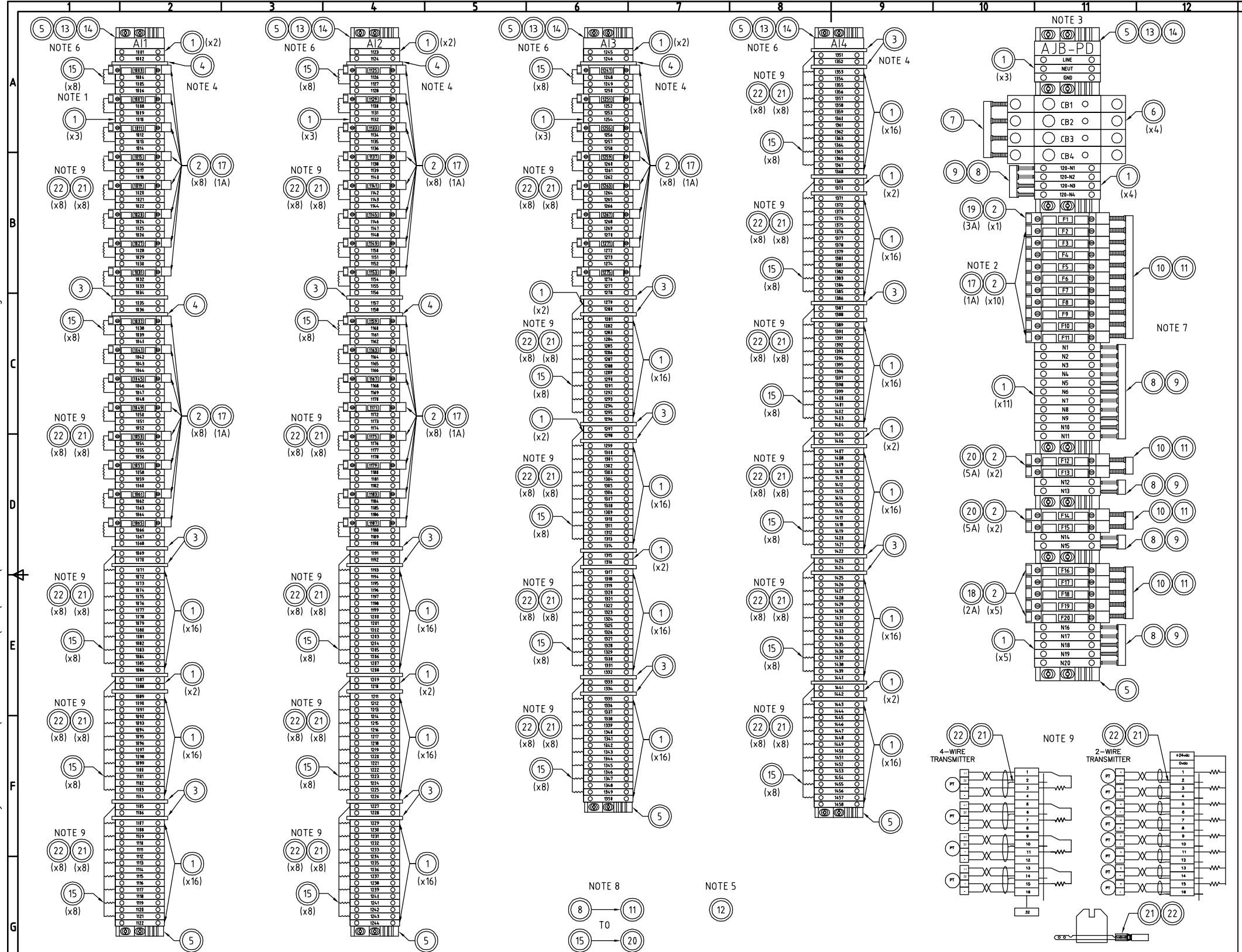
PROJECT	NRCAN CANMET OXY-PFBC
TITLE	ELECTRICAL OXY-PFBC THERMOCOUPLE JUNCTION BOX INTERIOR LAYOUT
DEPARTMENT	E
PROJECT	PFBC
BUILDING	BCC4
DRAWING	029
REV.	0



- NOTES:**
- S200 THERMOCOUPLE MODULE# 200-IT8 (x12)
S800 THERMOCOUPLE MODULE# AI835-eA (x16)
 - BACK PANEL TO BE MOUNTED AS FAR BACK AS POSSIBLE.
 - DIN RAILS TO EXTEND AS FAR AS POSSIBLE. FUTURE EXPANSION RAIL INCLUDED FOR ADDITIONAL MODULES.
 - CABINET TO ALLOW FOR TOP AND BOTTOM CABLE ENTRY.
 - SEE DWG E-PFBC-BCC4-032 FOR DETAILED TERMINAL DIN RAIL LAYOUT AND BILL OF MATERIALS.

ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL		REAR MOUNTING PLATE, 1696mm X 899mm (H X W), C/W RITTAL ENCLOSURE 8084.500
2	1	WEIDMULLER	1469490000	PRO ECO 240W, 24V, 10A POWER SUPPLY UNIT
3	AS REQ'D	ENTRELEC	173 220.05	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm
4	0	ABB	010165506	RAIL OFFSET MTG BRACKET, TS0441-SM6, 40mm HIGH
5	AS REQ'D	PANDUIT	NNC100X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 100mm X 100mm (W X D)
6	5	PANDUIT	NNC50X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 50mm X 100mm (W X D), LENGTH REQUIRED: APPROX. 5m
7	2	ABB	3BSE022366R2	CI801-eA PROFIBUS DP-V1 COMMUNICATION INTERFACE INCLUDING: POWER SUPPLY CONNECTOR, TB807 MODULEBUS TERMINATOR
8	16	ABB	3BSE051306R2	AI835-eA ANALOG INPUT 8 CHANNEL, THERMOCOUPLE/mV, RATED ISOL. 50V
9	16	ABB	3BSE013230R1	TU810V1 COMPACT MODULE TERMINATION UNIT, MTU, 50V 2X8 SIGNAL TERMINALS, RATED ISOL. 50V
10	2	ABB	VIPA972-ODP01	VIPA EASYCONN PB PROFIBUS CONNECTOR 90 DEGREES
11	AS REQ'D	ABB	0101653.04	RAIL OFFSET MTG BRACKET, TS0441-SM6, 20mm HIGH
12	2	ABB	200-APB12	BUS ADAPTER FOR PROFIBUS DP, COMM, SPEED UP TO 12Mbit/s TO BE RE-USED FROM EXISTING T/C JUNCTION BOX
13	2	PHOENIX CONTACT	2744348	SUBCON-PLUS-PROFIB, PROFIBUS NODE/TERMINATOR CONNECTOR, TO BE RE-USED FROM EXISTING T/C JUNCTION BOX
14	12	ABB	200-IT8	CONFIG THERMOCOUPLE/MILLIVOLT INPUT MODULE, 8 POINTS (TB3T), TO BE RE-USED FROM EXISTING T/C JUNCTION BOX
15	12	ABB	200-TB3T	TERMINAL BASE FOR 3-WIRE CONNECTION TO I/O UNITS, TO BE RE-USED FROM EXISTING T/C JUNCTION BOX
16	AS REQ'D	ILSCO	N-174	6-14AWG COPPER BUS BAR WITH SUPPORTS

LAST SAVE: 2015/10/03 - 3:29pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 01-E-PFBC-BCC4-030 AJB DIN RAIL DETAILS REV 0.dwg



BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	445	ENTRELEC	115 217.14	STANDARD TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET
2	60	ENTRELEC	115 657.25	FUSED TERMINAL BLOCK M 4/8.SF
3	34	ENTRELEC	118 368.16	END SECTION, M 4/6
4	5	ENTRELEC	116 951.15	END SECTION, M 4/8.SF
5	15	ENTRELEC	103 002.26	END STOP (ALL RAILS)
6	4	WEIDMULLER	9101903500	CB4200 SERIES, THERMAL MAGNETIC, SINGLE-POLE CIRCUIT BREAKER, 10A, CHARACTERISTIC B
7	1	WEIDMULLER	9970580000	STRAIGHT COB 4 INSULATED JUMPER FOR CB4200 SERIES CIRCUIT BREAKER
8	30	ENTRELEC	168 604.16	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/6), EV6
9	3	ENTRELEC	174 784.20	PERFORATED JUMPER BAR, (M 4/6) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 32A, BJS6
10	30	ENTRELEC	163 394.26	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/8 SF), VJS11
11	3	ENTRELEC	174 789.05	PERFORATED JUMPER BAR, (M 4/8.SF) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 41A, BJS8
12	AS REQ'D	ENTRELEC	233 000.01	OR EQUIVALENT, TERMINAL BLOCK & CIRCUIT BREAKER, VERTICAL PRINTED MARKING TAGS AS INDICATED (NOTE 5)
13	1	ENTRELEC	163 211.26	OR EQUIVALENT, HORIZONTAL MARKER HOLDER, ATTACHED ACROSS END-STOP, 10 PCS
14	1	ENTRELEC	163 007.26	OR EQUIVALENT, CARD WITH 120 BLANK PRE-CUT MARKERS FOR PEH, AMS 500 COMPATIBLE
15	200			RESISTOR, 249 OHM, 1/2 WATT
16	0	ENTRELEC	008 288.15	FUSES 5 X 20mm, 250V, 0.5A
17	75	ENTRELEC	008 290.13	FUSES 5 X 20mm, 250V, 1A
18	10	ENTRELEC	008 291.00	FUSES 5 X 20mm, 250V, 2A
19	5	ENTRELEC	008 289.16	FUSES 5 X 20mm, 250V, 3A
20	10	ENTRELEC	008 292.01	FUSES 5 X 20mm, 250V, 5A
21	168	ENTRELEC	178 745.14	SHIELD CONNECTOR, CBM5
22	168	FASTON	8-61060-1	AMP, PIDG TERMINALS RECEPTACLE OR EQUAL

- NOTES:**
- ALL RESISTORS TO BE 249 OHM, 1/2 WATT (ITEM 15).
 - SEE DWG E-PFBC-BCC4-054 TO CONFIRM FUSE SIZING OF POWER DISTRIBUTION FUSED TERMINAL BLOCK (ITEM 2).
 - POWER DISTRIBUTION RAIL MARKING TAGS TO BE PROVIDED AS INDICATED.
 - ENTRELEC END SECTIONS (ITEMS 3 AND 4) TO MATCH THE SIZING OF TERMINAL BLOCK (ITEMS 1 AND 2) IT COVERS.
 - TERMINAL STRIPS TAG MARKING (ITEM 12):
 A11 TAG RANGE: 1001 TO 1122
 A12 TAG RANGE: 1123 TO 1244
 A13 TAG RANGE: 1245 TO 1350
 A14 TAG RANGE: 1351 TO 1458
 ALL TERMINAL TAGS TO APPEAR ON BOTH SIDES OF THE TERMINAL BLOCK.
 - DIN RAILS TO BE TAGGED AS: A11, A12, A13, A14, & AJB-PD RESPECTIVELY AS INDICATED.
 - ALL DC POWER DISTRIBUTION JUMPERS TO BE CUT TO REQUIRED SIZE.
 - SPARE PARTS (FUSES, RESISTORS, JUMPERS, ETC.) TO BE PROVIDED WITH CABINET.
 - TYPICAL WIRING DETAIL SHOWN FOR SHIELD BUS CONNECTIONS; 4-WIRE AND 2-WIRE INSTRUMENT GROUPS RESPECTIVELY. SOLDER JUMPER ALL SHIELD CONNECTORS TOGETHER, THEN CONNECT TRUNK CABLE SHIELDS TO SHIELD.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO.	DESCRIPTION	REV.	DATE	BY	CHKD	APPD
054	ANALOG JUNCTION BOX DC POWER DIST.	0	2015/10/02	BBY	DER	
053	ANALOG JUNCTION BOX AC POWER DIST.	A	2015/09/11	BBY	DER	
027	ANALOG JUNCTION BOX INTERIOR LAYOUT	No				

**FOR REVIEW
NOT FOR
CONSTRUCTION**

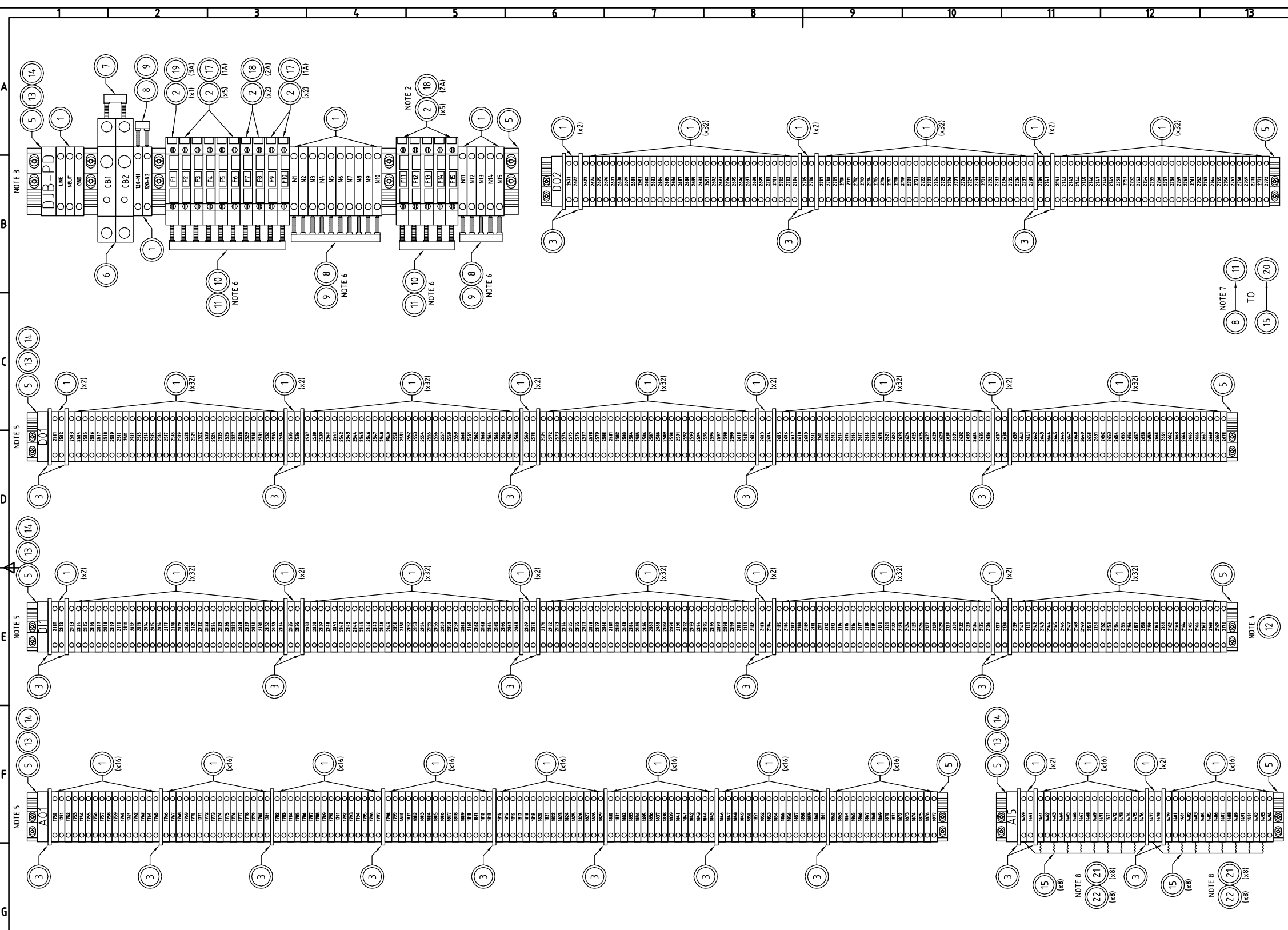
WSP
4502 HANNA DRIVE,
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www.wspgroup.com

PROJECT # 151-07049-00

Natural Resources Canada
CANMET Energy Technology Center

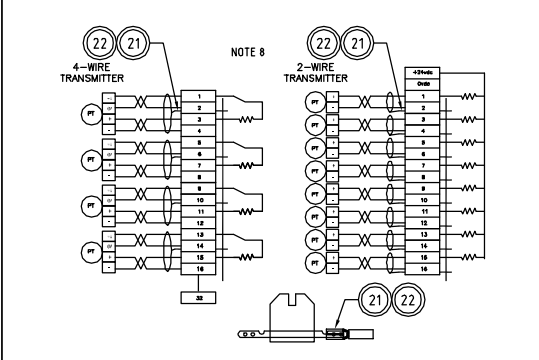
DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC ANALOG JUNCTION BOX TERMINAL BLOCK LAYOUT			
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 030
APPROVED				REV. 0
DATE 2015/06/30				
SCALE NONE				

LAST SAVE: 2015/10/03 - 3:34pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-031 DJB DIN RAIL DETAILS REV 0.dwg



BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	626	ENTRELEC	115 217.14	STANDARD TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET
2	15	ENTRELEC	115 657.25	FUSED TERMINAL BLOCK M 4/8.SF
3	38	ENTRELEC	118 368.16	END SECTION, M 4/6
4	0	ENTRELEC	116 951.15	END SECTION, M 4/8.SF
5	15	ENTRELEC	103 002.26	END STOP (ALL RAILS)
6	2	WEIDMULLER	9101903500	CB4200 SERIES, THERMAL MAGNETIC, SINGLE-POLE CIRCUIT BREAKER, 10A, CHARACTERISTIC B
7	1	WEIDMULLER	9970560000	STRAIGHT CQB 2 INSULATED JUMPER FOR CB4200 SERIES CIRCUIT BREAKER
8	20	ENTRELEC	168 604.16	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/6), EV6
9	2	ENTRELEC	174 784.20	PERFORATED JUMPER BAR, (M 4/6) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 32A, BJS6
10	20	ENTRELEC	163 394.26	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/8.SF), VJS11
11	2	ENTRELEC	174 789.05	PERFORATED JUMPER BAR, (M 4/8.SF) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 41A, BJS8
12	AS REQ'D	ENTRELEC	233 000.01	OR EQUIVALENT, TERMINAL BLOCK & CIRCUIT BREAKER, VERTICAL PRINTED MARKING TAGS AS INDICATED (NOTE 4)
13	1	ENTRELEC	163 211.26	HORIZONTAL MARKER HOLDER, ATTACHED ACROSS END-STOP, 10 PCS
14	1	ENTRELEC	163 007.26	CARD WITH 120 BLANK PRE-CUT MARKERS FOR PEH, AMS 500 COMPATIBLE
15	30			RESISTOR, 249 OHM, 1/2 WATT
16	0	ENTRELEC	008 288.15	FUSES 5 X 20mm, 250V, 0.5A
17	15	ENTRELEC	008 290.13	FUSES 5 X 20mm, 250V, 1A
18	15	ENTRELEC	008 291.00	FUSES 5 X 20mm, 250V, 2A
19	5	ENTRELEC	008 289.16	FUSES 5 X 20mm, 250V, 3A
20	10	ENTRELEC	008 292.01	FUSES 5 X 20mm, 250V, 5A
21	16	ENTRELEC	178 745.14	SHIELD CONNECTOR, CBMS
22	16	FASTON	8-61060-1	AMP, PIDG TERMINALS RECEPTACLE OR EQUAL

- NOTES:**
- ALL RESISTORS TO BE 249 OHM, 1/2 WATT (ITEM 15).
 - SEE DWG E-PFBC-BCC4-056 TO CONFIRM FUSE SIZING POWER DISTRIBUTION FUSED TERMINAL BLOCK (ITEM 2).
 - POWER DISTRIBUTION RAIL MARKING TAGS TO BE PROVIDED AS INDICATED.
 - TERMINAL STRIPS TAG MARKING (ITEM 12):
 A01 TAG RANGE: 1750 TO 1877
 A15 TAG RANGE: 1459 TO 1494
 D01 TAG RANGE: 2001 TO 2170
 D02 TAG RANGE: 2501 TO 2670
 D07 TAG RANGE: 2671 TO 2772
 ALL TERMINAL TAGS TO APPEAR ON BOTH SIDES OF THE TERMINAL BLOCK.
 - DIN RAILS TO BE TAGGED AS: A01, A15, D1, D01, D02, & DJB-PD AS INDICATED.
 - ALL DC POWER DISTRIBUTION JUMPERS TO BE CUT TO REQUIRED SIZE.
 - SPARE PARTS (FUSES, RESISTORS, JUMPERS, ETC.) TO BE PROVIDED WITH CABINET.
 - TYPICAL WIRING DETAIL SHOWN FOR SHIELD BUS CONNECTIONS; 4-WIRE AND 2-WIRE INSTRUMENT GROUPS RESPECTIVELY. SOLDER JUMPER ALL SHIELD CONNECTORS TOGETHER, THEN CONNECT TRUNK CABLE SHIELDS TO SHIELD.



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO.	REFERENCE DRAWINGS	REVISION REGISTER
056	DIGITAL JUNCTION BOX DC POWER DIST.	0 ISSUE FOR CLIENT REVIEW 2015/10/02 BBY DER
055	DIGITAL JUNCTION BOX AC POWER DIST.	A INTERNAL REVIEW 2015/09/11 BBY DER
028	DIGITAL JUNCTION BOX INTERIOR LAYOUT	No REVISION DESCRIPTION DATE (Y/M/D) DRAWN CKD APPD

**FOR REVIEW
NOT FOR
CONSTRUCTION**

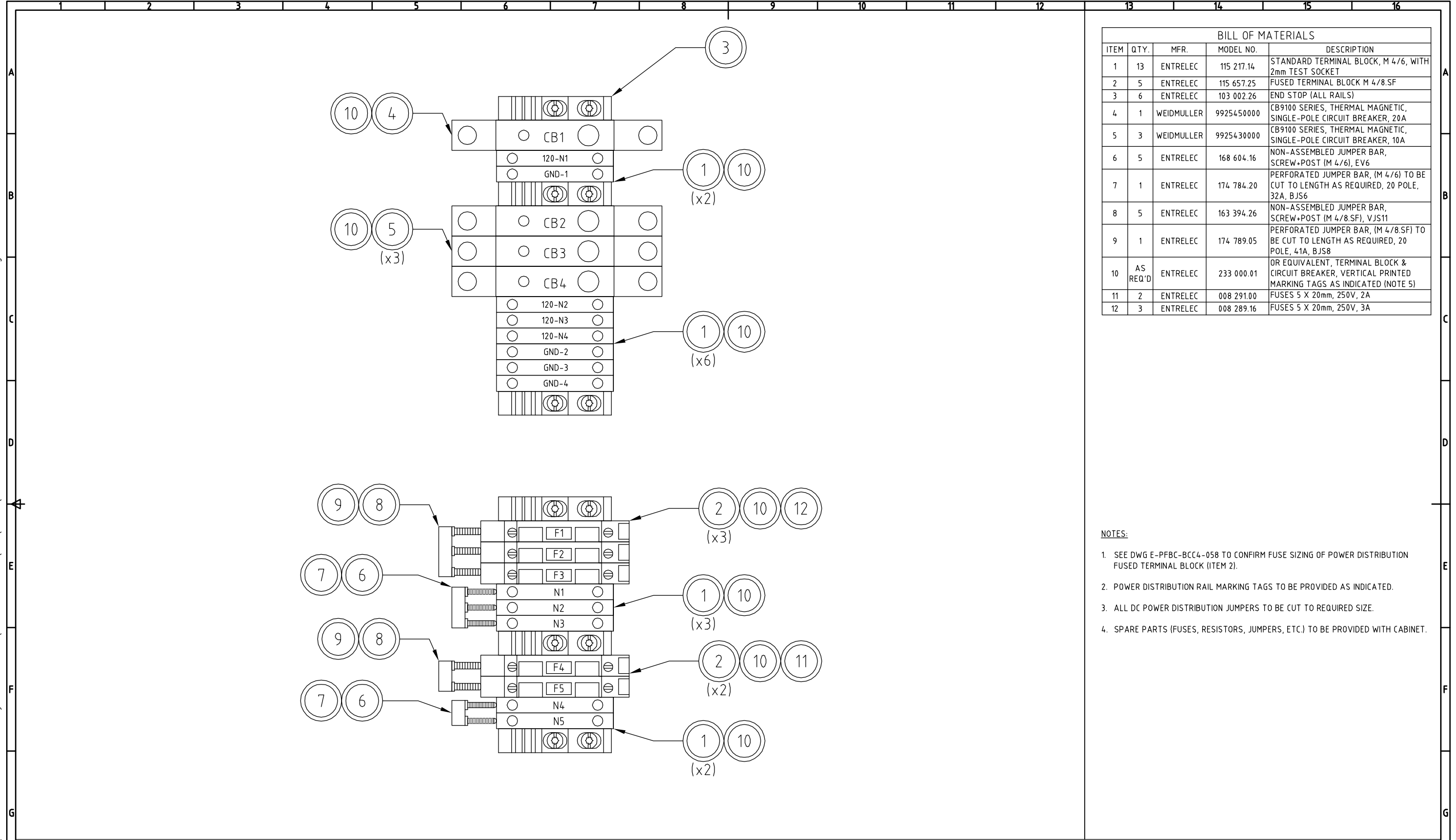
WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

CLIENT
Canada
 Natural Resources Canada
 CANMET Energy Technology Center
 Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DIGITAL JUNCTION BOX TERMINAL BLOCK LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 031	REV. 0

LAST SAVE: 2015/10/03 - 3:33pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-032 TCJB DIN RAIL DETAILS REV 0.dwg




BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	13	ENTRELEC	115 217.14	STANDARD TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET
2	5	ENTRELEC	115 657.25	FUSED TERMINAL BLOCK M 4/8.SF
3	6	ENTRELEC	103 002.26	END STOP (ALL RAILS)
4	1	WEIDMULLER	9925450000	CB9100 SERIES, THERMAL MAGNETIC, SINGLE-POLE CIRCUIT BREAKER, 20A
5	3	WEIDMULLER	9925430000	CB9100 SERIES, THERMAL MAGNETIC, SINGLE-POLE CIRCUIT BREAKER, 10A
6	5	ENTRELEC	168 604.16	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/6), EV6
7	1	ENTRELEC	174 784.20	PERFORATED JUMPER BAR, (M 4/6) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 32A, BJS6
8	5	ENTRELEC	163 394.26	NON-ASSEMBLED JUMPER BAR, SCREW+POST (M 4/8.SF), VJS11
9	1	ENTRELEC	174 789.05	PERFORATED JUMPER BAR, (M 4/8.SF) TO BE CUT TO LENGTH AS REQUIRED, 20 POLE, 41A, BJS8
10	AS REQ'D	ENTRELEC	233 000.01	OR EQUIVALENT, TERMINAL BLOCK & CIRCUIT BREAKER, VERTICAL PRINTED MARKING TAGS AS INDICATED (NOTE 5)
11	2	ENTRELEC	008 291.00	FUSES 5 X 20mm, 250V, 2A
12	3	ENTRELEC	008 289.16	FUSES 5 X 20mm, 250V, 3A


- NOTES:**
- SEE DWG E-PFBC-BCC4-058 TO CONFIRM FUSE SIZING OF POWER DISTRIBUTION FUSED TERMINAL BLOCK (ITEM 2).
 - POWER DISTRIBUTION RAIL MARKING TAGS TO BE PROVIDED AS INDICATED.
 - ALL DC POWER DISTRIBUTION JUMPERS TO BE CUT TO REQUIRED SIZE.
 - SPARE PARTS (FUSES, RESISTORS, JUMPERS, ETC.) TO BE PROVIDED WITH CABINET.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

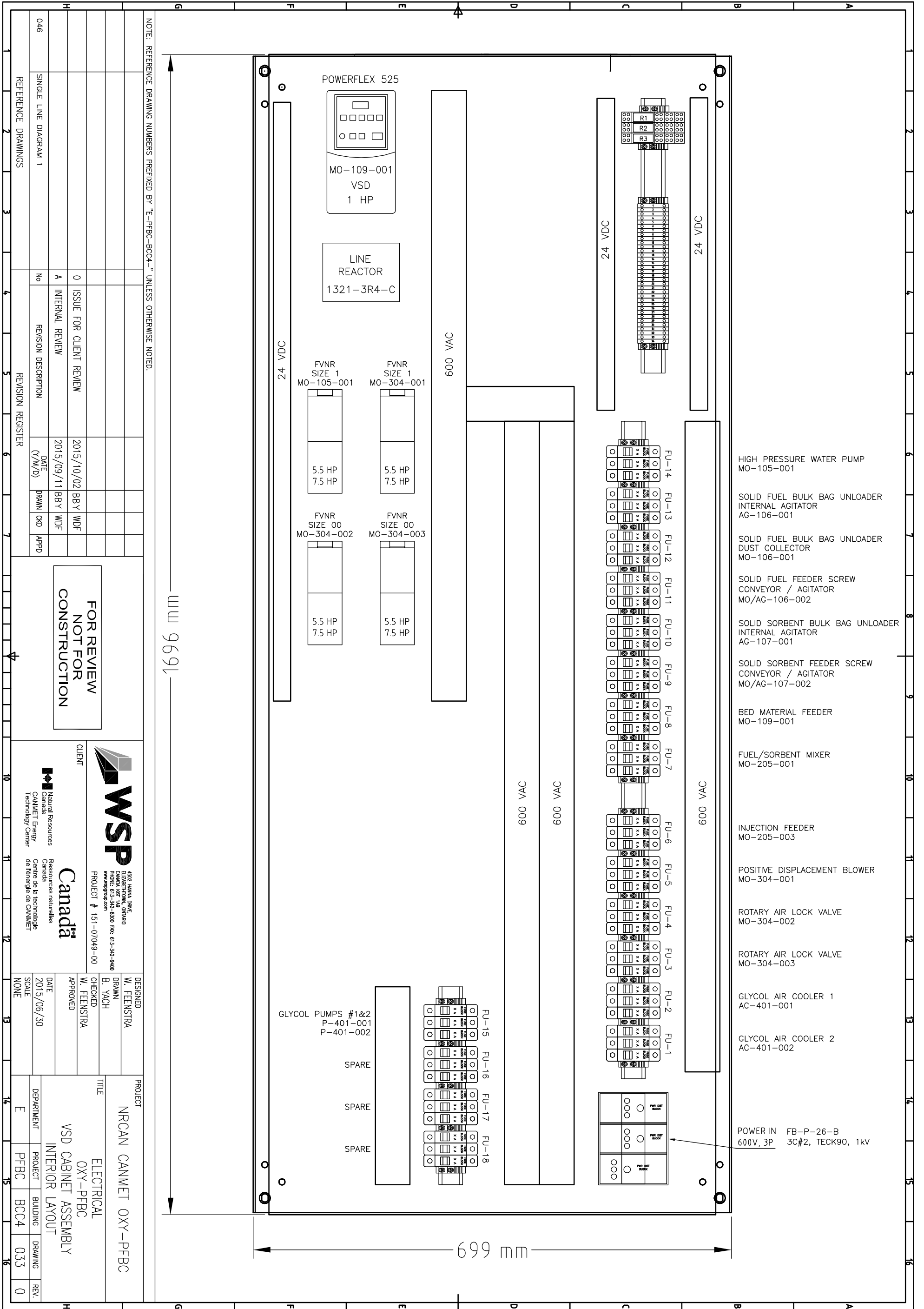
NO.	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
029	THERMOCOUPLE JUNCTION BOX INTERIOR LAYOUT				

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 CANADA K0T 1A9
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 PROJECT # 151-07049-00


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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE JUNCTION BOX TERMINAL BLOCK LAYOUT				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 032	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					



- HIGH PRESSURE WATER PUMP
MO-105-001
- SOLID FUEL BULK BAG UNLOADER
INTERNAL AGITATOR
AG-106-001
- SOLID FUEL BULK BAG UNLOADER
DUST COLLECTOR
MO-106-001
- SOLID FUEL FEEDER SCREW
CONVEYOR / AGITATOR
MO/AG-106-002
- SOLID SORBENT BULK BAG UNLOADER
INTERNAL AGITATOR
AG-107-001
- SOLID SORBENT FEEDER SCREW
CONVEYOR / AGITATOR
MO/AG-107-002
- BED MATERIAL FEEDER
MO-109-001
- FUEL/SORBENT MIXER
MO-205-001
- INJECTION FEEDER
MO-205-003
- POSITIVE DISPLACEMENT BLOWER
MO-304-001
- ROTARY AIR LOCK VALVE
MO-304-002
- ROTARY AIR LOCK VALVE
MO-304-003
- GLYCOL AIR COOLER 1
AC-401-001
- GLYCOL AIR COOLER 2
AC-401-002
- POWER IN FB-P-26-B
600V, 3P 3C#2, TECK90, 1kV

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS		REVISION REGISTER		
046	SINGLE LINE DIAGRAM 1	No		
		0	ISSUE FOR CLIENT REVIEW	WDF
		A	INTERNAL REVIEW	WDF
			REVISION DESCRIPTION	APPD
			DATE (Y/M/D)	DATE (Y/M/D)
			BY	BY
			CHKD	CHKD

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NOT FOR
CONSTRUCTION**

CLIENT

4029 JANA DRIVE
 ELECTRONIC SYSTEMS
 CANADA, RT 19
 PHONE: 813-342-8300 FAX: 813-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

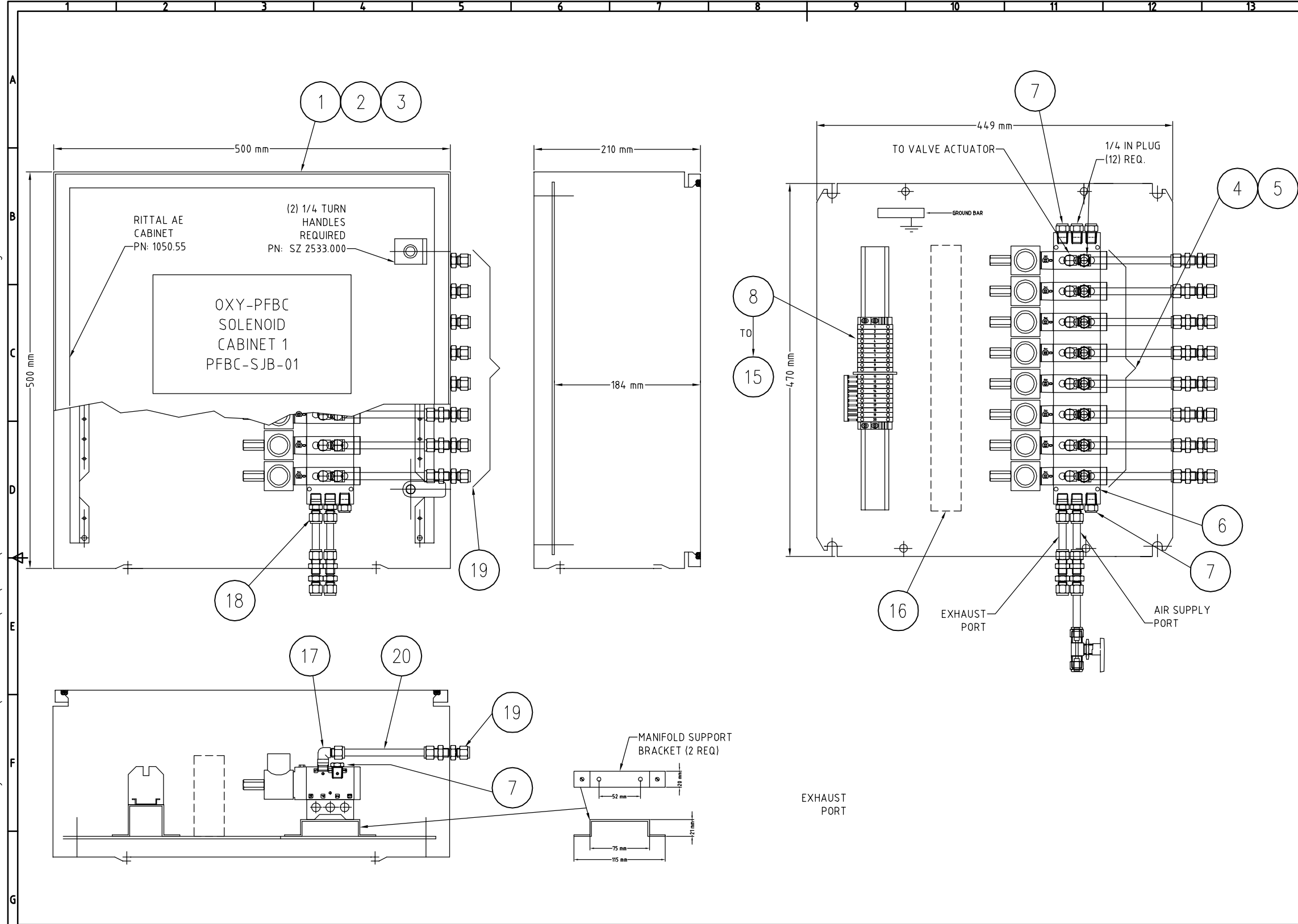
Canada

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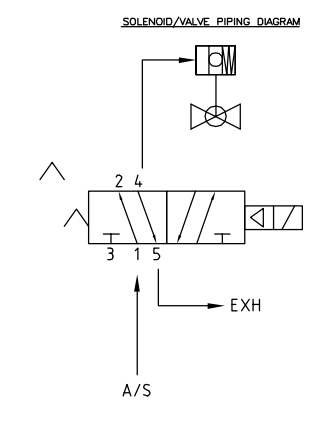
Ressources naturelles
 Canada
 Centre de la technologie
 de l'énergie de CANMET

DESIGNED		PROJECT	
W. FEENSTRA	DRAWN	NRCAN CANMET OXY-PFBC	
B. YACH	CHECKED	ELECTRICAL	
W. FEENSTRA	APPROVED	OXY-PFBC	
DATE	SCALE	VSD CABINET ASSEMBLY	
2015/06/30	NONE	INTERIOR LAYOUT	
		DEPARTMENT	PROJECT
		E	PFBC
			BCC4
			BCC4
			033
			0

LAST SAVE: 2015/10/03 - 3:32pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-035 SOLENOID CABINET 1 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
075	SOLENOID CABINET 1 WIRING				

NO	REFERENCE DRAWINGS
1	
2	
3	
4	
5	
6	
7	

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CONSTRUCTION**

4502 HANNA DRIVE,
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 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com

PROJECT # 151-07049-00

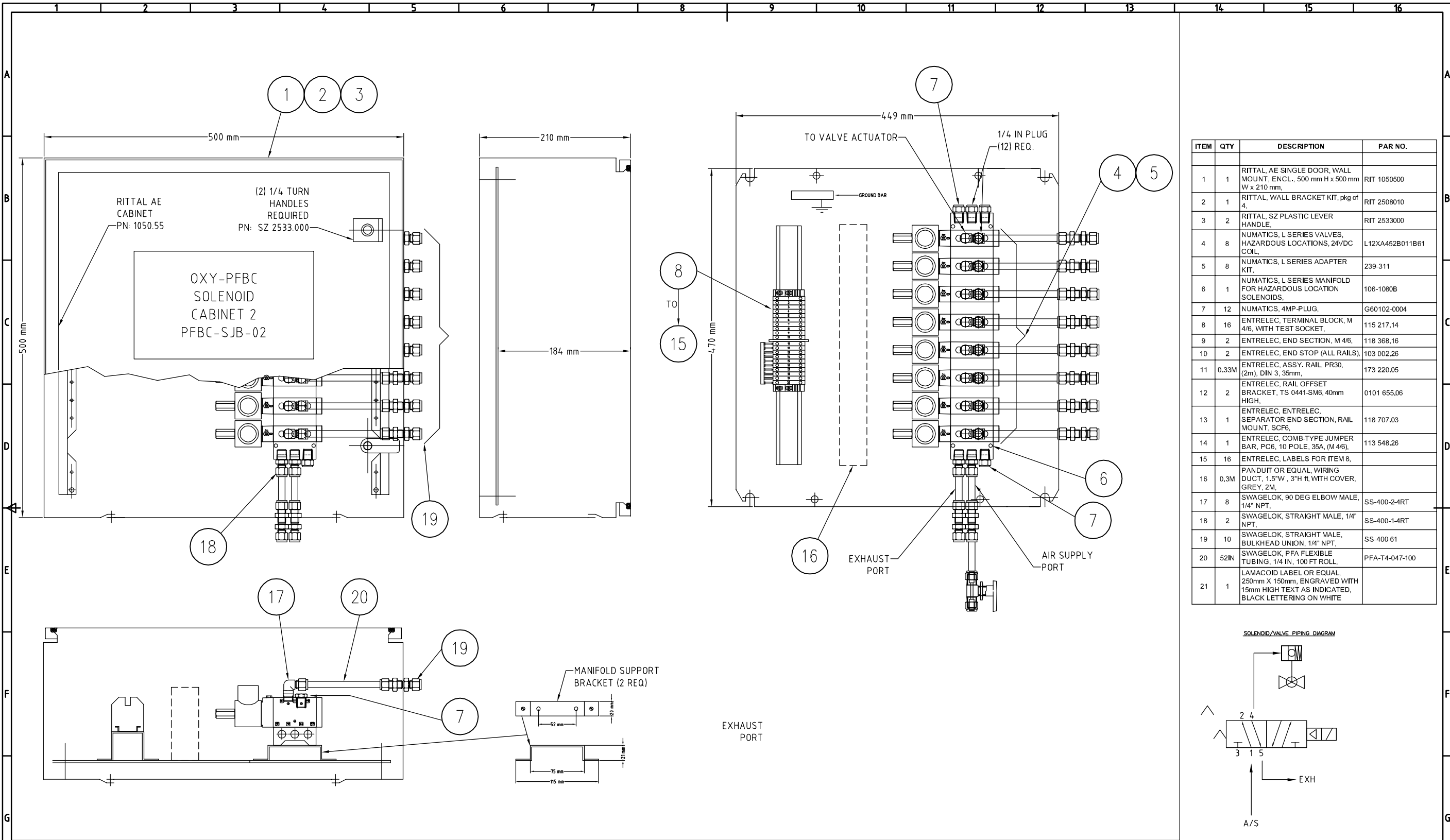
Natural Resources
 Canada
 CANMET Energy
 Technology Center

Ressources naturelles
 Canada
 Centre de la technologie
 de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 1 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 035	REV. 0

LAST SAVE: 2015/10/03 - 3:31pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-036 SOLENOID CABINET 2 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W x 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN., 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
076	SOLENOID CABINET 2 WIRING				

NO	REFERENCE DRAWINGS
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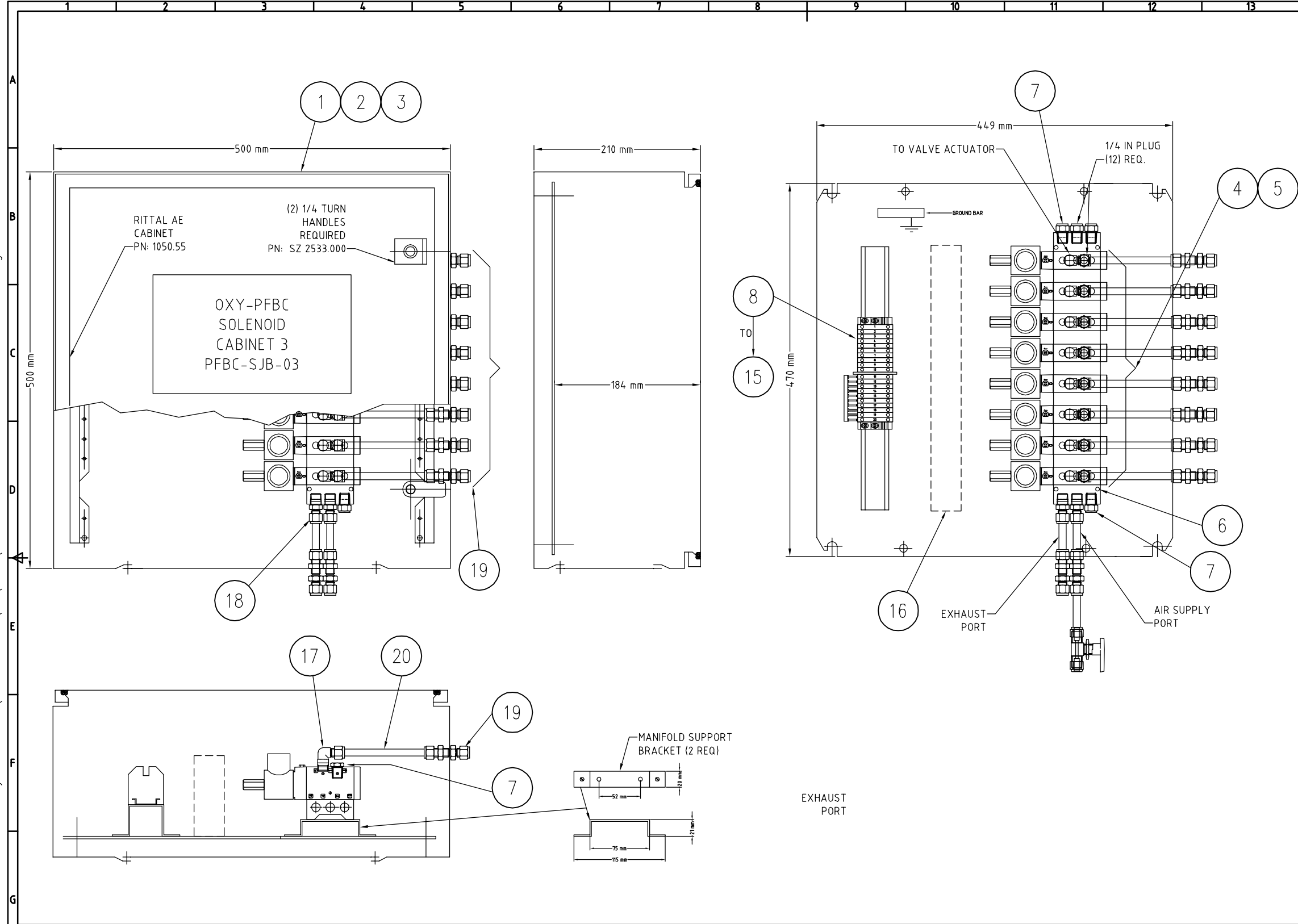
WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

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 CANMET Energy Technology Center
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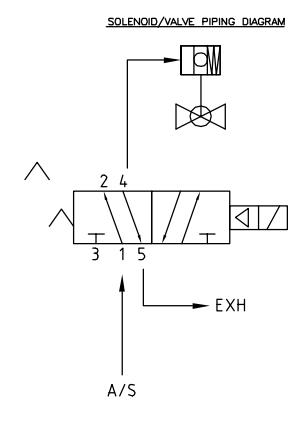
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 2 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 036	REV. 0

LAST SAVE: 2015/10/03 - 3:31pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-037 SOLENOID CABINET 3 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
077	SOLENOID CABINET 3 WIRING				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	INTERNAL REVIEW	2015/09/11	BBY	DER	

**FOR REVIEW
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CONSTRUCTION**

4502 HANNA DRIVE,
ELIZABETHTOWN, ONTARIO
CANADA K6T 1A9
PHONE: 613-342-8300 FAX: 613-342-9400
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PROJECT # 151-07049-00

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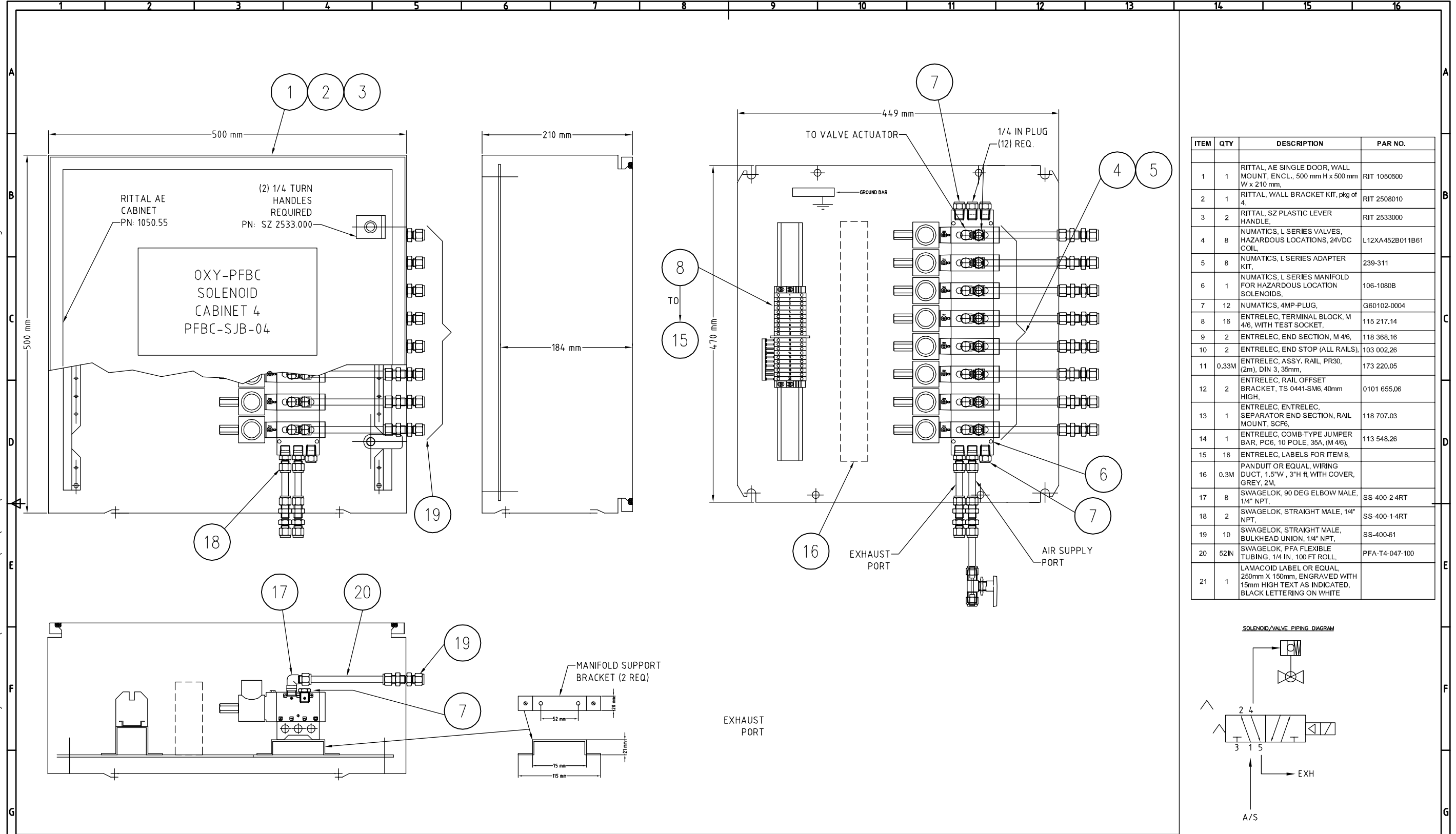
Natural Resources Canada
CANMET Energy Technology Center

Ressources naturelles Canada
Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 3 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 037	REV. 0

LAST SAVE: 2015/10/03 - 3:30pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-038 SOLENOID CABINET 4 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
078	SOLENOID CABINET 4 WIRING				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
078	SOLENOID CABINET 4 WIRING				

**FOR REVIEW
NOT FOR
CONSTRUCTION**

4502 HANNA DRIVE,
ELIZABETHTOWN, ONTARIO
CANADA K6T 1A9
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PROJECT # 151-07049-00

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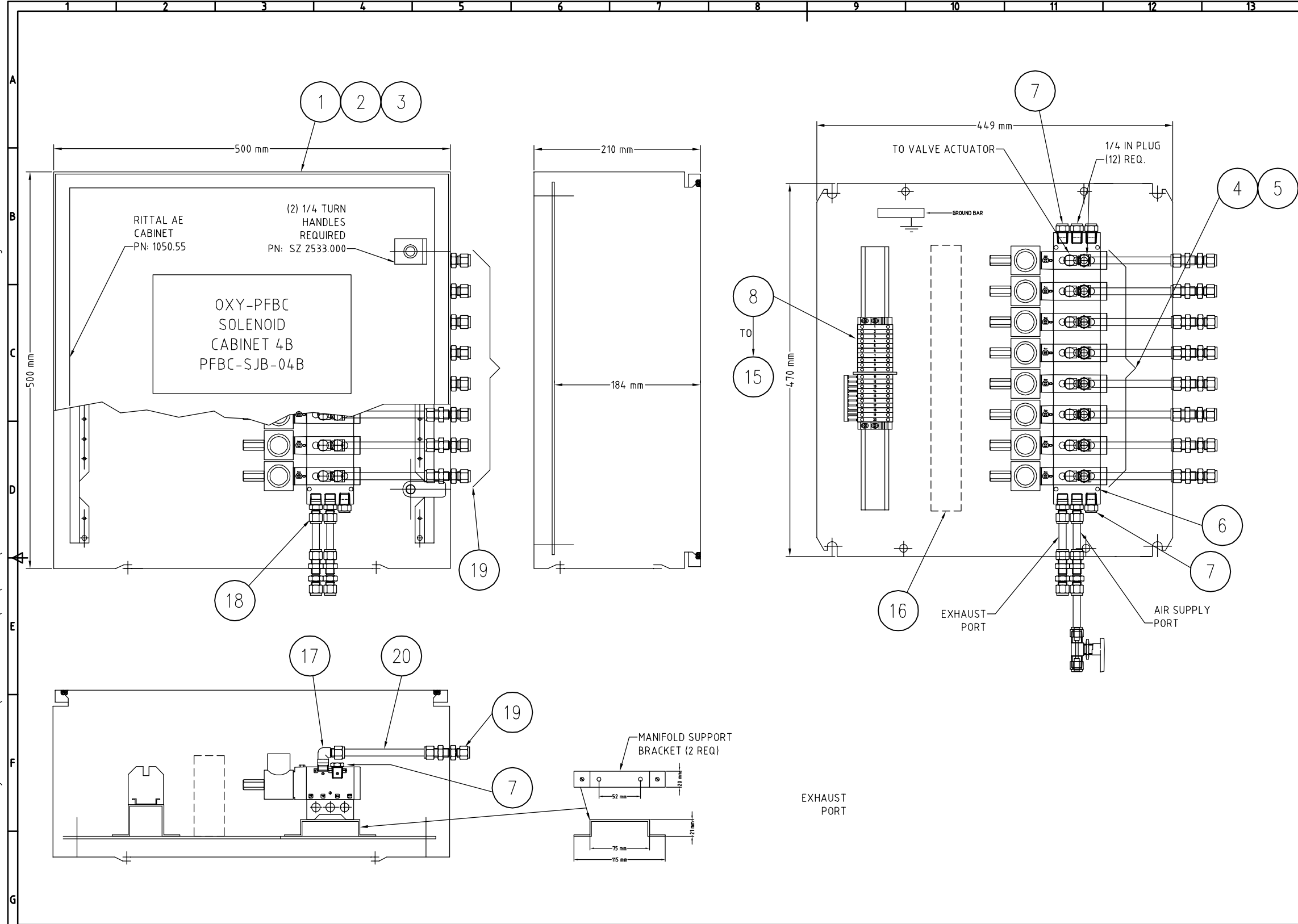
Natural Resources Canada
CANMET Energy Technology Center

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Centre de la technologie de l'énergie de CANMET

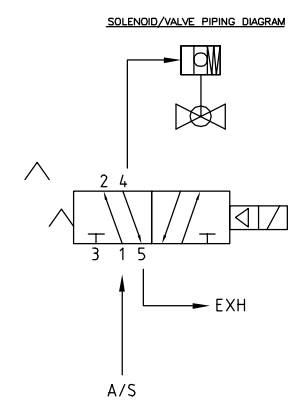
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 4 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 038	REV. 0

LAST SAVE: 2015/10/03 - 3:30pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-039 SOLENOID CABINET 4B LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	ENTRELEC, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
223	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 8	2015/09/11	BBY	DER	
079	SOLENOID CABINET 4B WIRING				

NO	REFERENCE DRAWINGS
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**FOR REVIEW
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CONSTRUCTION**

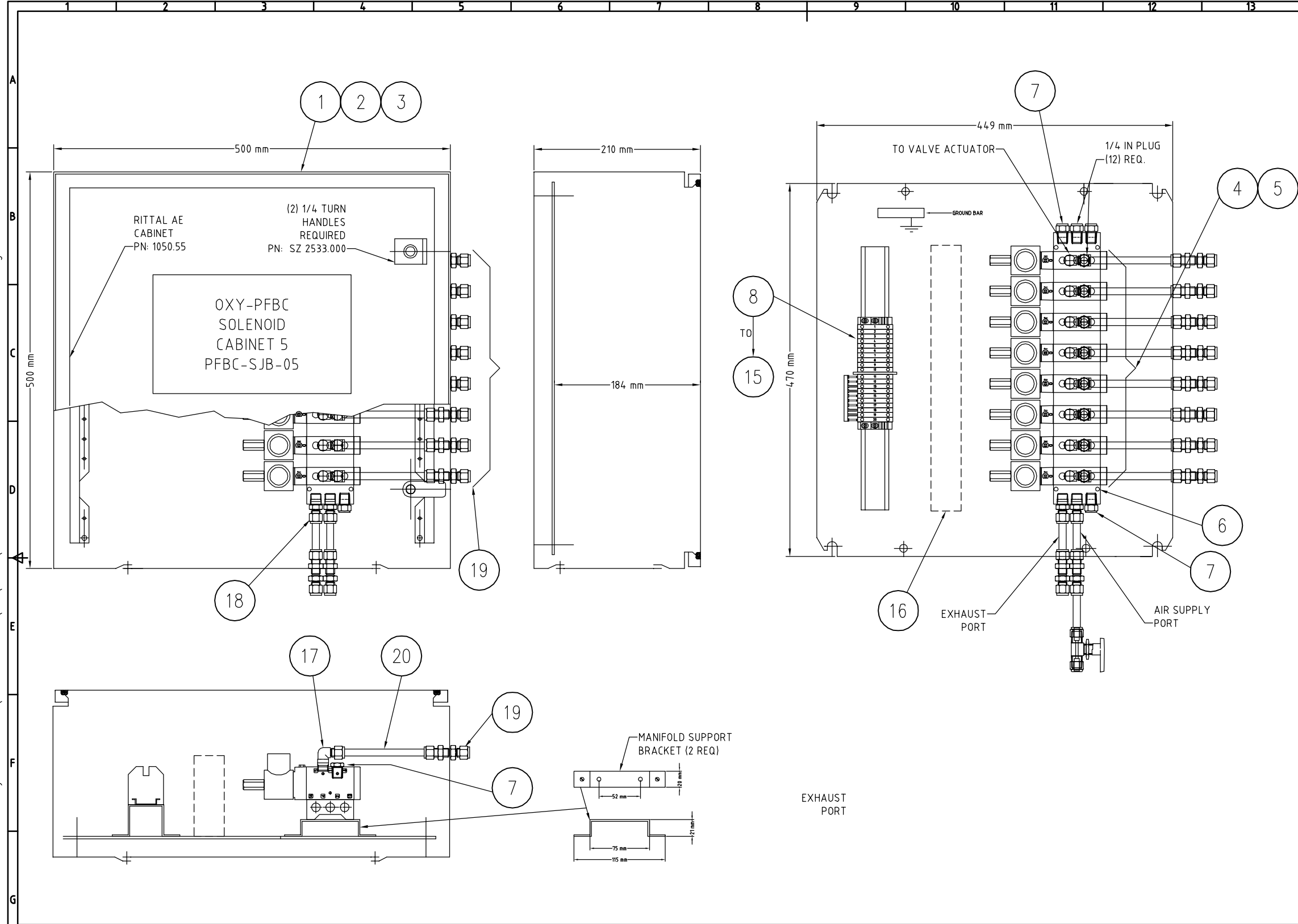
WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

CLIENT
Canada
 Natural Resources Canada
 Ressources naturelles Canada
 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 4B LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 039	REV. 0

LAST SAVE: 2015/10/03 - 3:39pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-040 SOLENOID CABINET 5 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
080	SOLENOID CABINET 5 WIRING				

NO	REFERENCE DRAWINGS
1	
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**FOR REVIEW
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CONSTRUCTION**

4502 HANNA DRIVE,
ELIZABETHTOWN, ONTARIO
CANADA K6T 1A9
PHONE: 613-342-8300 FAX: 613-342-9400
www.wspgroup.com

PROJECT # 151-07049-00

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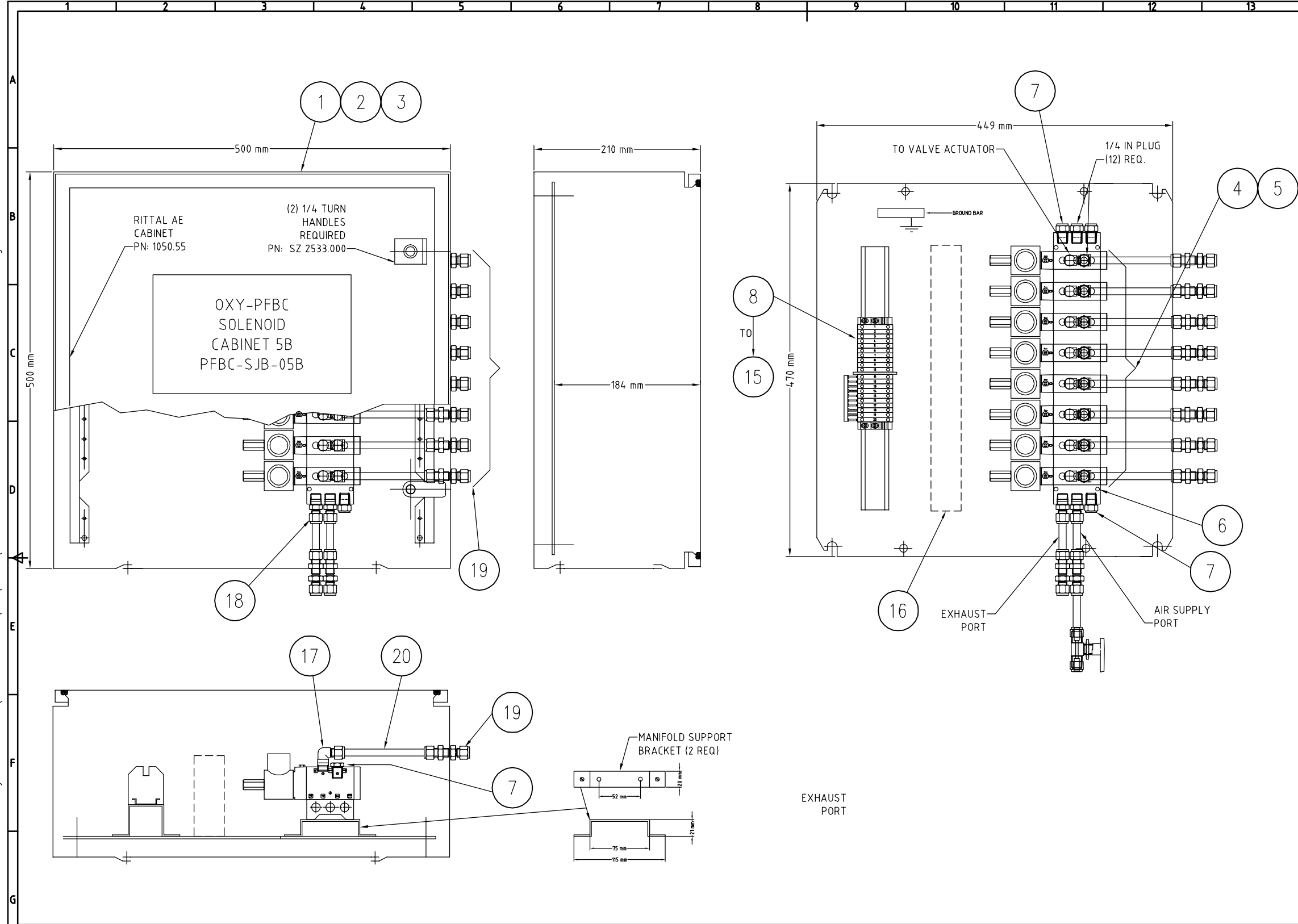
Natural Resources Canada
CANMET Energy Technology Center

Ressources naturelles Canada
Centre de la technologie de l'énergie de CANMET

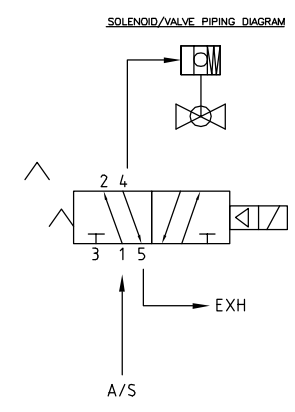
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 5 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 040	REV. 0

LAST SAVE: 2015/10/03 - 3:39pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-041 SOLENOID CABINET 5B LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	ENTRELEC, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
224	DIGITAL OUTPUT WIRING - NODE 6 - MODULE 6	2015/09/11	BBY	DER	
081	SOLENOID CABINET 5B WIRING				

NO	REFERENCE DRAWINGS
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**FOR REVIEW
NOT FOR
CONSTRUCTION**

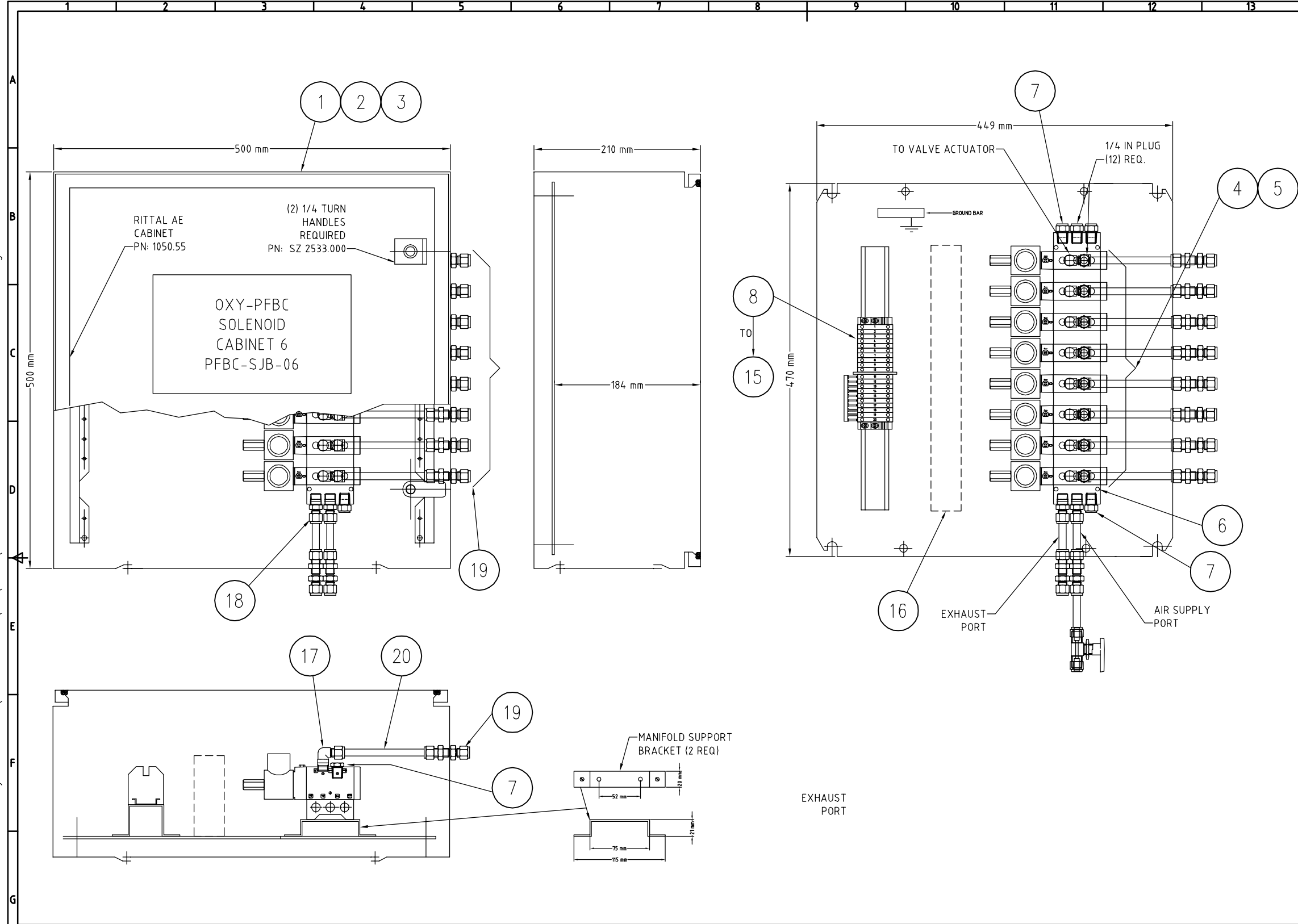
WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
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 PROJECT # 151-07049-00

CLIENT
Canada
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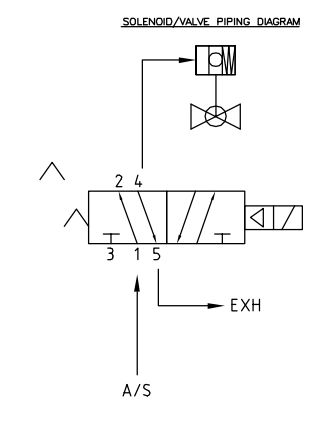
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 5B LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 041	REV. 0

LAST SAVE: 2015/10/03 - 3:40pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-042 SOLENOID CABINET 6 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
224	2015/09/11	BBY	DER		INTERNAL REVIEW
082					SOLENOID CABINET 6 WIRING

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
224	2015/09/11	BBY	DER		INTERNAL REVIEW
082					SOLENOID CABINET 6 WIRING

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4502 HANNA DRIVE,
ELIZABETHTOWN, ONTARIO
CANADA K6T 1A9
PHONE: 613-342-8300 FAX: 613-342-9400
www.wspgroup.com

PROJECT # 151-07049-00

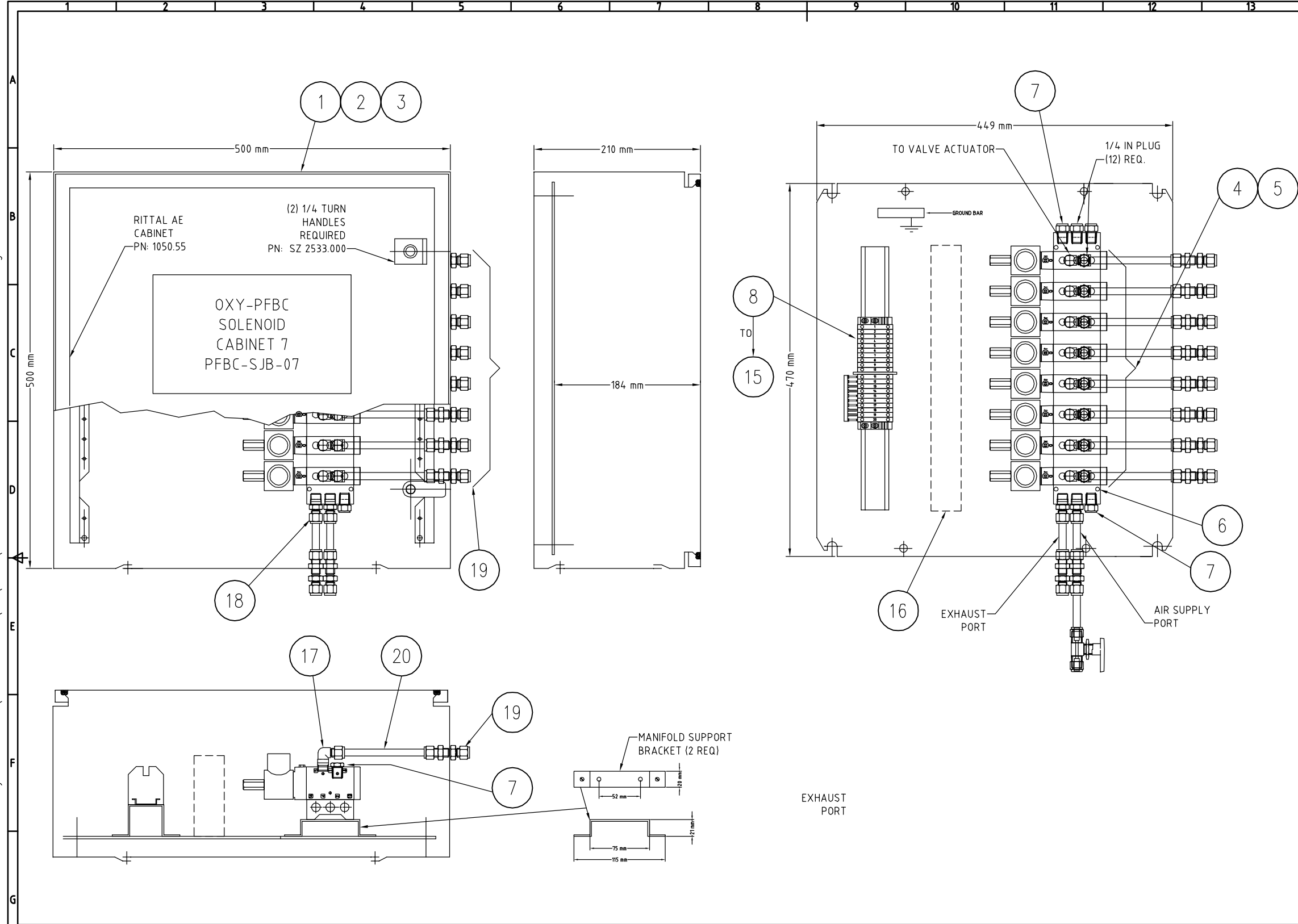
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CANMET Energy Technology Center
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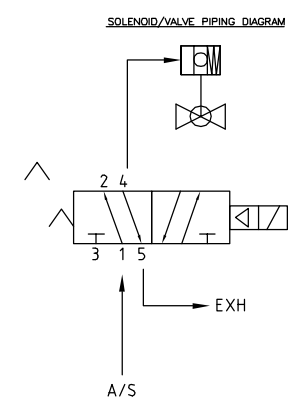
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 6 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 042	REV. 0

LAST SAVE: 2015/10/03 - 3:40pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-043 SOLENOID CABINET 7 LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
A	2015/09/11	BBY	DER		INTERNAL REVIEW
083					SOLENOID CABINET 7 WIRING

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
A	2015/09/11	BBY	DER		INTERNAL REVIEW
083					SOLENOID CABINET 7 WIRING

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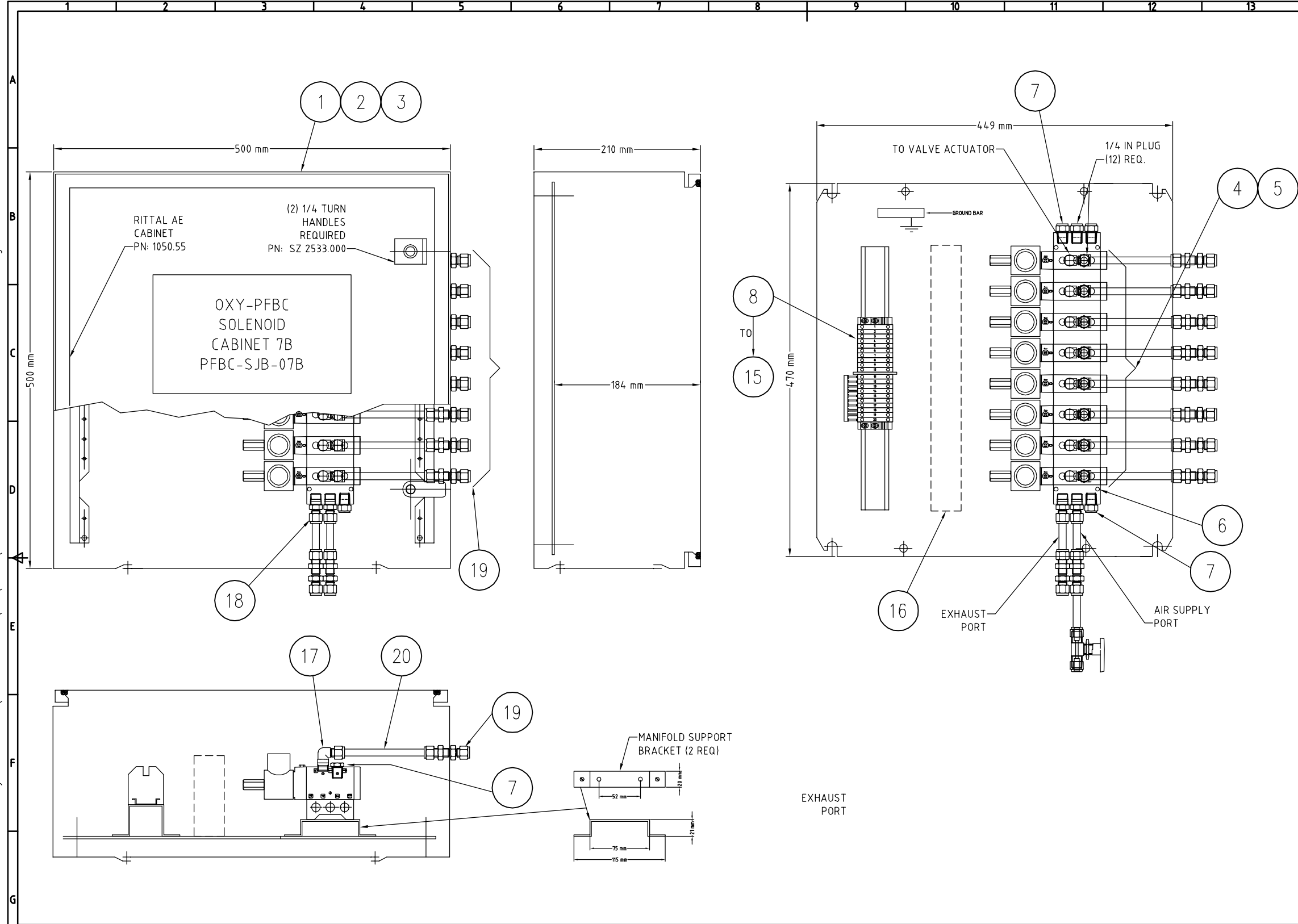
WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

CLIENT
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 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

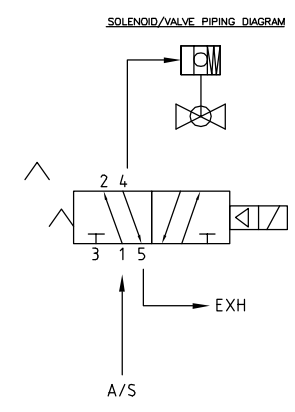
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 7 LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 043	REV. 0

LAST SAVE: 2015/10/03 - 3:41pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-044 SOLENOID CABINET 7B LAYOUT REV 0.dwg



ITEM	QTY	DESCRIPTION	PAR NO.
1	1	RITTAL AE SINGLE DOOR, WALL MOUNT, ENCL., 500 mm H x 500 mm W x 210 mm.	RIT 1050500
2	1	RITTAL, WALL BRACKET KIT, pkg of 4.	RIT 2508010
3	2	RITTAL, SZ PLASTIC LEVER HANDLE.	RIT 2533000
4	8	NUMATICS, L SERIES VALVES, HAZARDOUS LOCATIONS, 24VDC COIL.	L12XA452B011B61
5	8	NUMATICS, L SERIES ADAPTER KIT.	239-311
6	1	NUMATICS, L SERIES MANIFOLD FOR HAZARDOUS LOCATION SOLENOIDS.	106-10808
7	12	NUMATICS, 4MP-PLUG.	G60102-0004
8	16	ENTRELEC, TERMINAL BLOCK, M 4/6, WITH TEST SOCKET.	115 217.14
9	2	ENTRELEC, END SECTION, M 4/6.	118 368.16
10	2	ENTRELEC, END STOP (ALL RAILS).	103 002.26
11	0.33M	ENTRELEC, ASSY. RAIL, PR30, (2m), DIN 3, 35mm.	173 220.05
12	2	ENTRELEC, RAIL OFFSET BRACKET, TS 0441-SM6, 40mm HIGH.	0101 655.06
13	1	ENTRELEC, ENTRELEC, SEPARATOR END SECTION, RAIL MOUNT, SCF6.	118 707.03
14	1	ENTRELEC, COMB-TYPE JUMPER BAR, PC6, 10 POLE, 35A, (M 4/6).	113 548.26
15	16	ENTRELEC, LABELS FOR ITEM 8.	
16	0.3M	PANDUIT OR EQUAL, WIRING DUCT, 1.5"W, 3"H R, WITH COVER, GREY, 2M.	
17	8	SWAGELOK, 90 DEG ELBOW MALE, 1/4" NPT.	SS-400-2-4RT
18	2	SWAGELOK, STRAIGHT MALE, 1/4" NPT.	SS-400-1-4RT
19	10	SWAGELOK, STRAIGHT MALE, BULKHEAD UNION, 1/4" NPT.	SS-400-61
20	52IN	SWAGELOK, PFA FLEXIBLE TUBING, 1/4 IN, 100 FT ROLL.	PFA-T4-047-100
21	1	LAMACOID LABEL OR EQUAL, 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE	



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
225	DIGITAL OUTPUT WIRING - NODE 6 - MODULE 7	2015/09/11	BBY	DER	
084	SOLENOID CABINET 7B WIRING				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
225	DIGITAL OUTPUT WIRING - NODE 6 - MODULE 7	2015/09/11	BBY	DER	
084	SOLENOID CABINET 7B WIRING				

**FOR REVIEW
NOT FOR
CONSTRUCTION**

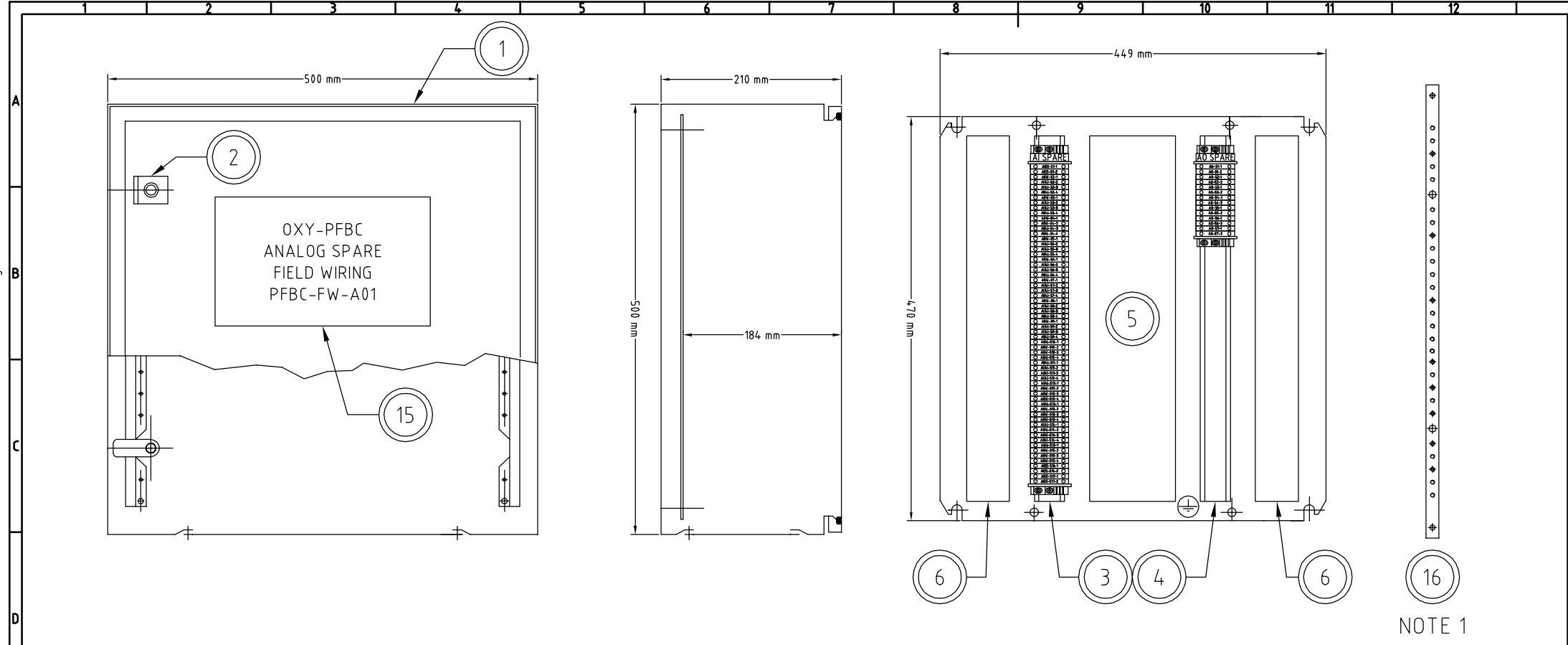
WSP
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 PROJECT # 151-07049-00

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 Ressources naturelles Canada
 CANMET Energy Technology Center
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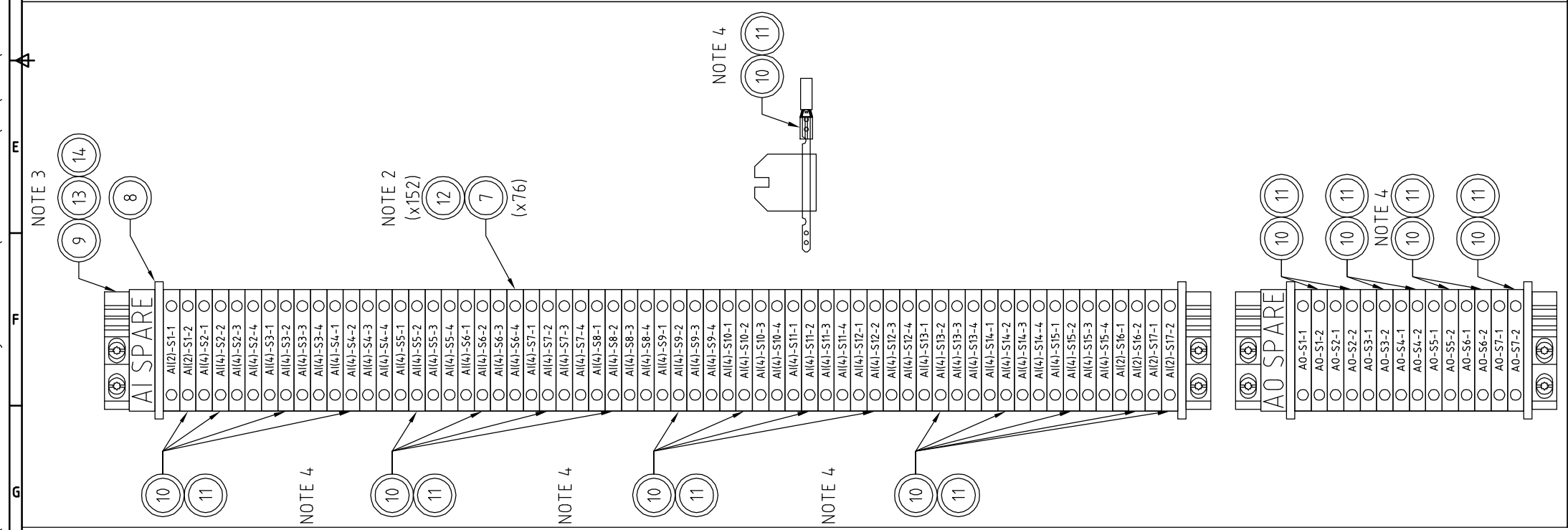
DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 7B LAYOUT				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 044	REV. 0

LAST SAVE: 2015/10/03 - 8:43pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-046 ANALOG SPARE FIELD WIRING CABINET REV 0.dwg



BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL	1050.500	COMPACT ENCLOSURE, 500mm X 500mm, 210mm (W X H X D), C/W REAR MOUNTING PLATE
2	2	RITTAL	2533.000	1/4 TURN PLASTIC HANDLES - SZ 2533.00
3	AS REQ'D	ENTRELEC	173 220.05	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm
4	AS REQ'D	ABB	010165506	RAIL OFFSET MTG BRACKET, TS0441-SM6, 40mm HIGH
5	AS REQ'D	PANDUIT	NNC100X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 100mm X 100mm (W X D)
6	AS REQ'D	PANDUIT	NNC50X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 50mm X 100mm (W X D)
7	76	ENTRELEC	115 217.14	STANDARD TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET
8	4	ENTRELEC	118 368.16	END SECTION, M 4/6
9	4	ENTRELEC	103 002.26	END STOP (ALL RAILS)
10	24	ENTRELEC	178 745.14	SHIELD CONNECTOR, CBMS
11	24	FASTON	8-61060-1	AMP, PIDG TERMINALS RECEPTACLE OR EQUAL
12	AS REQ'D	ENTRELEC	233 000.01	OR EQUIVALENT, TERMINAL BLOCK & CIRCUIT BREAKER, VERTICAL PRINTED MARKING TAGS AS INDICATED (NOTE 5)
13	1	ENTRELEC	163 211.26	OR EQUIVALENT, HORIZONTAL MARKER HOLDER, ATTACHED ACROSS END-STOP, 10 PCS
14	1	ENTRELEC	163 007.26	OR EQUIVALENT, CARD WITH 120 BLANK PRE-CUT MARKERS FOR PEH, AMS 500 COMPATIBLE
15	1			LAMACOID LABEL OR EQUAL 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE
16	AS REQ'D	ILSCO	N-174	6-14AWG COPPER BUS BAR WITH SUPPORTS



- NOTES:**
- GROUNDING BUS BAR TO BE MOUNTED IN CABINET AS REQUIRED.
 - TERMINAL STRIPS TAGGED AS INDICATED. ALL TERMINAL TAGS TO APPEAR ON BOTH SIDES OF THE TERMINAL BLOCK.
 - DIN RAILS TO BE TAGGED AS INDICATED.
 - ANALOG SHIELD BUS CONNECTOR (ITEM 10) AND FASTON TERMINALS RECEPTACLE (ITEM 11) TO BE LOCATED ON EACH TERMINAL BLOCK SUFFIXED BY A "-2".

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY		
A	INTERNAL REVIEW	2015/09/11	BBY		
No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

**FOR REVIEW
NOT FOR
CONSTRUCTION**

4502 HANNA DRIVE,
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 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
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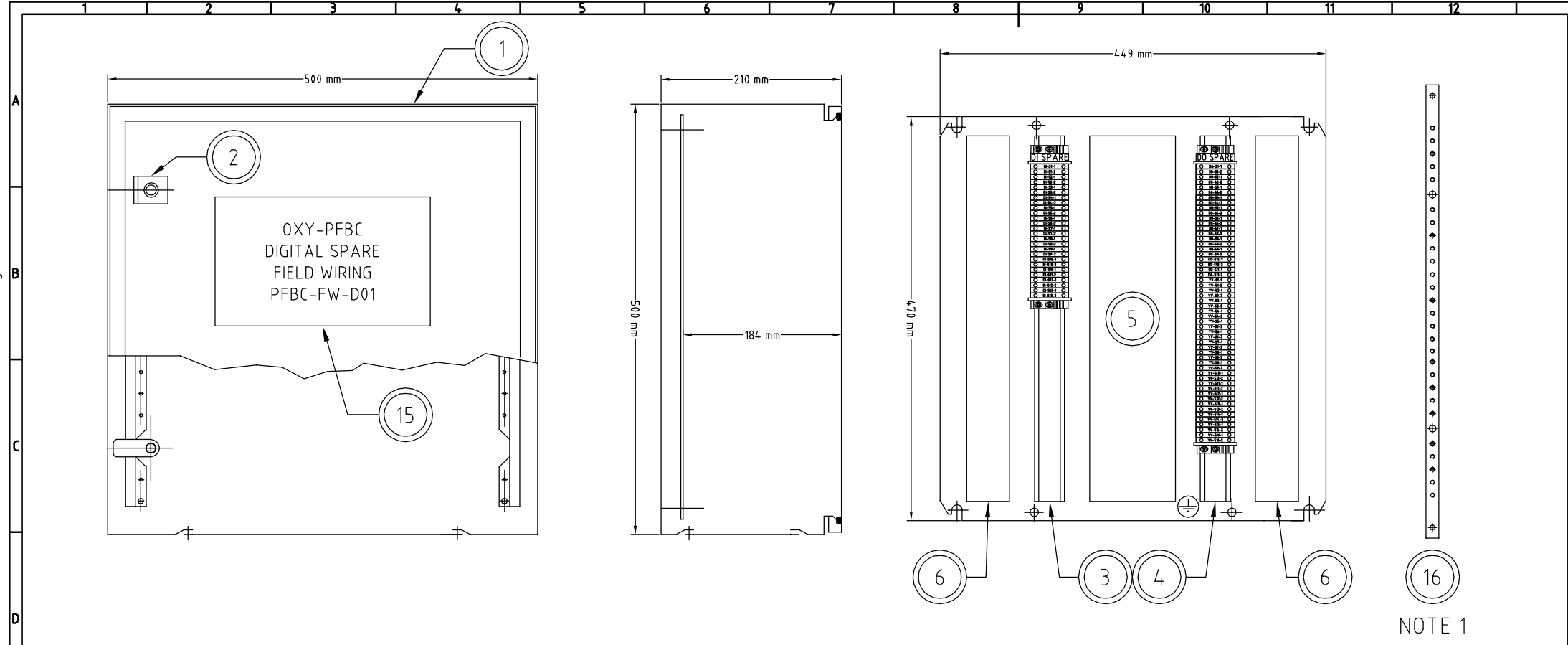
PROJECT # 151-07049-00

Natural Resources
 Canada
 CANMET Energy
 Technology Center

Resources naturelles
Canada
Centre de la technologie
de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC ANALOG FIELD WIRING SPARE CABINET ASSEMBLY LAYOUT				
CHECKED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 046	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 8:44pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-047 DIGITAL SPARE FIELD WIRING CABINET REV 0.dwg

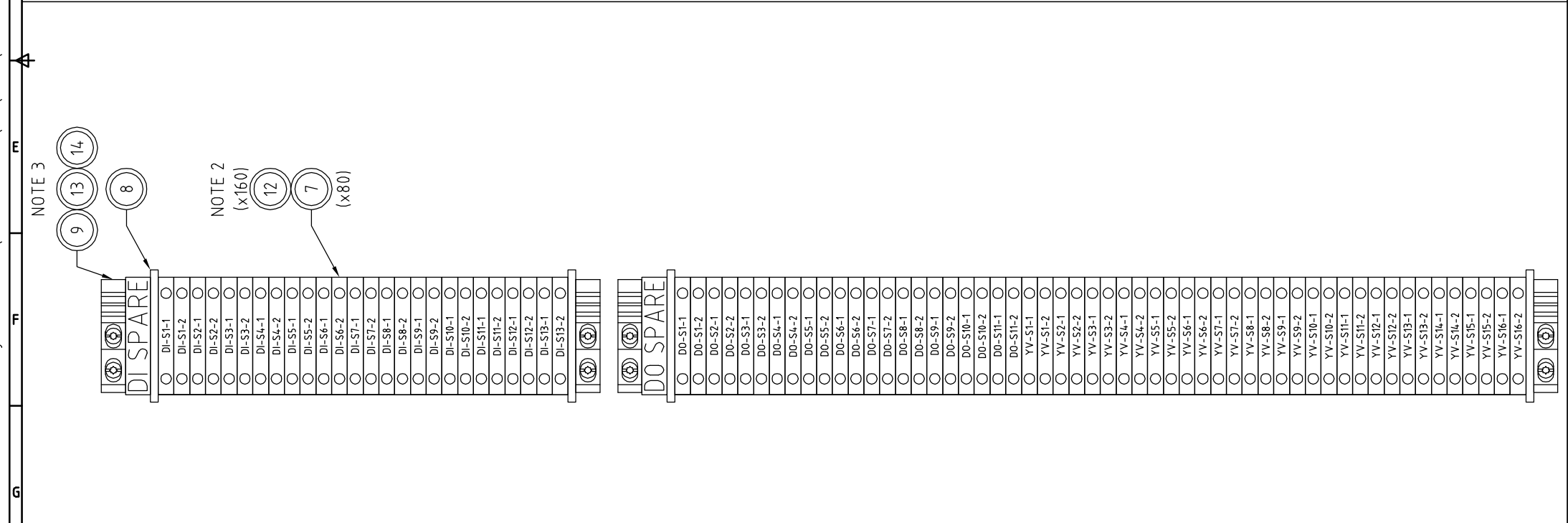


BILL OF MATERIALS				
ITEM	QTY.	MFR.	MODEL NO.	DESCRIPTION
1	1	RITTAL	1050.500	COMPACT ENCLOSURE, 500mm X 500mm, 210mm (W X H X D), C/W REAR MOUNTING PLATE
2	2	RITTAL	2533.000	1/4 TURN PLASTIC HANDLES - SZ 2533.00
3	AS REQ'D	ENTRELEC	173 220.05	ASSEMBLY RAIL, PR30 (TS 35/F6), DIN 3, 35mm
4	AS REQ'D	ABB	010165506	RAIL OFFSET MTG BRACKET, TS0441-SM6, 40mm HIGH
5	AS REQ'D	PANDUIT	NNC100X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 100mm X 100mm (W X D)
6	AS REQ'D	PANDUIT	NNC50X100LG2	TYPE NNC HALOGEN-FREE METRIC WIRING DUCT, WITH COVER, 50mm X 100mm (W X D)
7	80	ENTRELEC	115 217.14	STANDARD TERMINAL BLOCK, M 4/6, WITH 2mm TEST SOCKET
8	4	ENTRELEC	118 368.16	END SECTION, M 4/6
9	4	ENTRELEC	103 002.26	END STOP (ALL RAILS)
10	0	ENTRELEC	178 745.14	SHIELD CONNECTOR, CBMS
11	0	FASTON	8-61060-1	AMP, PIDG TERMINALS RECEPTACLE OR EQUAL
12	AS REQ'D	ENTRELEC	233 000.01	OR EQUIVALENT, TERMINAL BLOCK & CIRCUIT BREAKER, VERTICAL PRINTED MARKING TAGS AS INDICATED (NOTE 5)
13	1	ENTRELEC	163 211.26	OR EQUIVALENT, HORIZONTAL MARKER HOLDER, ATTACHED ACROSS END-STOP, 10 PCS
14	1	ENTRELEC	163 007.26	OR EQUIVALENT, CARD WITH 120 BLANK PRE-CUT MARKERS FOR PEH, AMS 500 COMPATIBLE
15	1			LAMACOID LABEL OR EQUAL 250mm X 150mm, ENGRAVED WITH 15mm HIGH TEXT AS INDICATED, BLACK LETTERING ON WHITE
16	AS REQ'D	ILSCO	N-174	6-14AWG COPPER BUS BAR WITH SUPPORTS

NOTE 1

NOTES:

- GROUNDING BUS BAR TO BE MOUNTED IN CABINET AS REQUIRED.
- TERMINAL STRIPS TAGGED AS INDICATED. ALL TERMINAL TAGS TO APPEAR ON BOTH SIDES OF THE TERMINAL BLOCK.
- DIN RAILS TO BE TAGGED AS INDICATED.



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY		
A	INTERNAL REVIEW	2015/09/11	BBY		

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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4502 HANNA DRIVE,
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CANADA K0T 1A9
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PROJECT # 151-07049-00

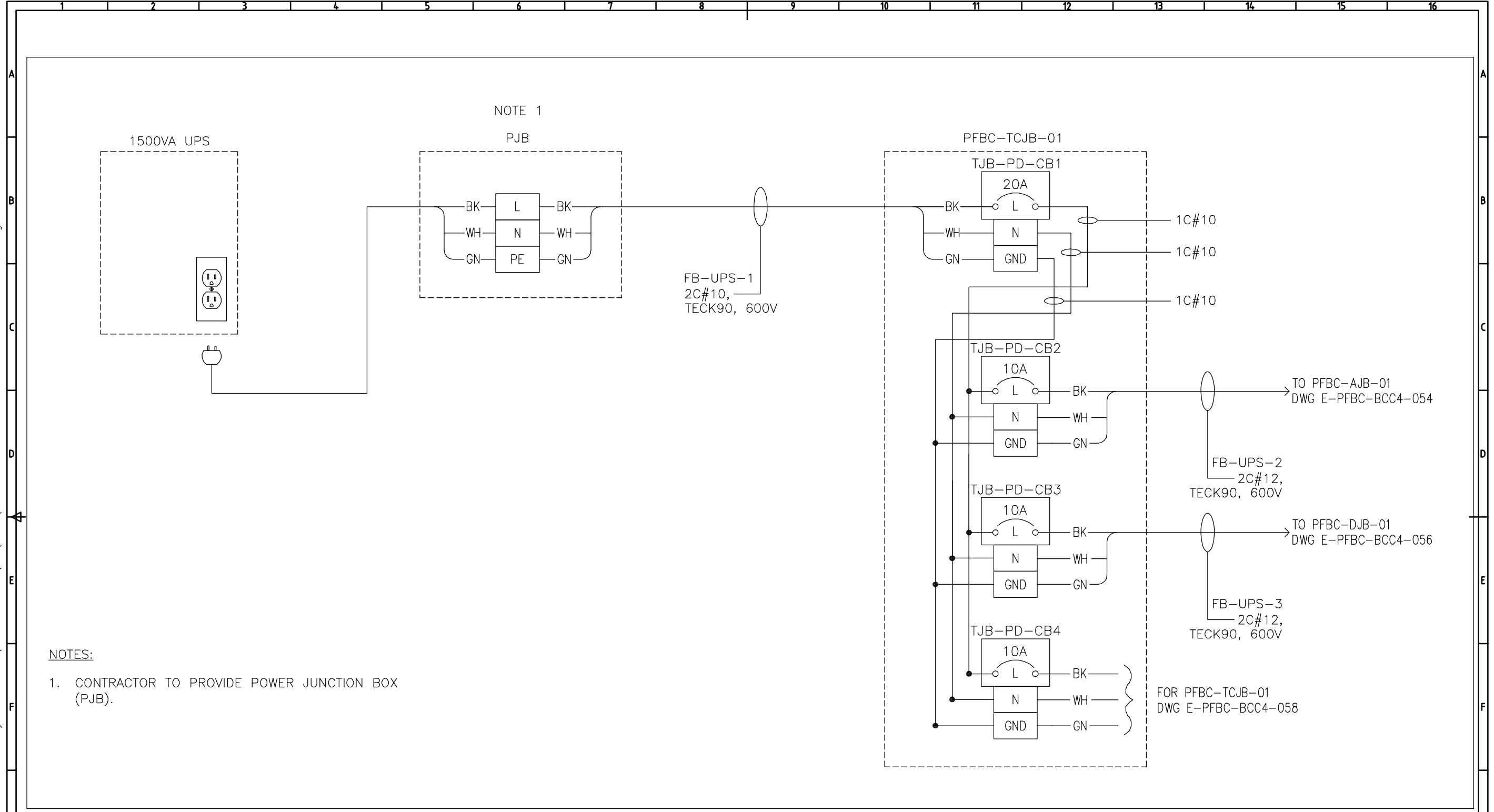
CLIENT

Natural Resources Canada
CANMET Energy Technology Center

Ressources naturelles Canada
Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DIGITAL FIELD WIRING SPARE CABINET ASSEMBLY LAYOUT				
CHECKED	DEPARTMENT E				
APPROVED	PROJECT PFBC				
DATE 2015/06/30	BUILDING BCC4				
SCALE NONE	DRAWING 047				
	REV. 0				

LAST SAVE: 2015/10/03 - 3:39pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-049 TCJB UPS POWER DISTRIBUTION REV 0.dwg



NOTES:

- CONTRACTOR TO PROVIDE POWER JUNCTION BOX (PJB).

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REFERENCE DRAWINGS	REVISION REGISTER	DATE (Y/M/D)	DRAWN	CKD	APPD
058	THERMOCOUPLE JUNCTION BOX DC POWER DIST.					
057	THERMOCOUPLE JUNCTION BOX AC POWER DIST.	0	2015/10/02	BBY	WDF	
056	DIGITAL JUNCTION BOX DC POWER DIST.	A	2015/09/11	BBY	WDF	
054	ANALOG JUNCTION BOX DC POWER DIST.	No				

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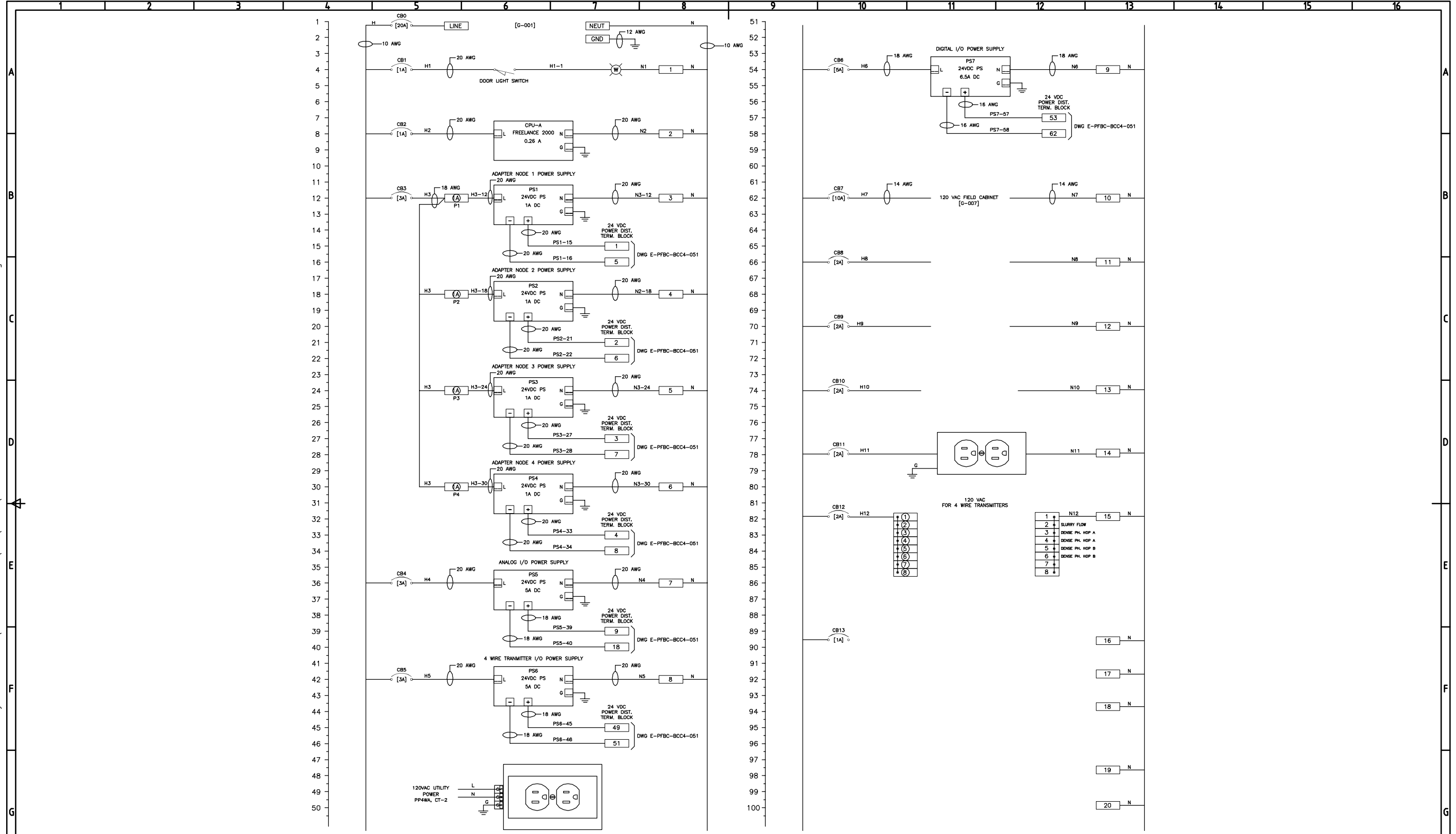
WSP
 4502 HANNA DRIVE,
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 PROJECT # 151-07049-00

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 Canada
 Centre de la technologie
 de l'énergie de CANMET

DESIGNED W. FEENSTRA
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC TCJB - UPS POWER DISTRIBUTION WIRING DIAGRAM				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	049	0

LAST SAVE: 2015/10/03 - 3:53pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-050 CC AC POWER REV A REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

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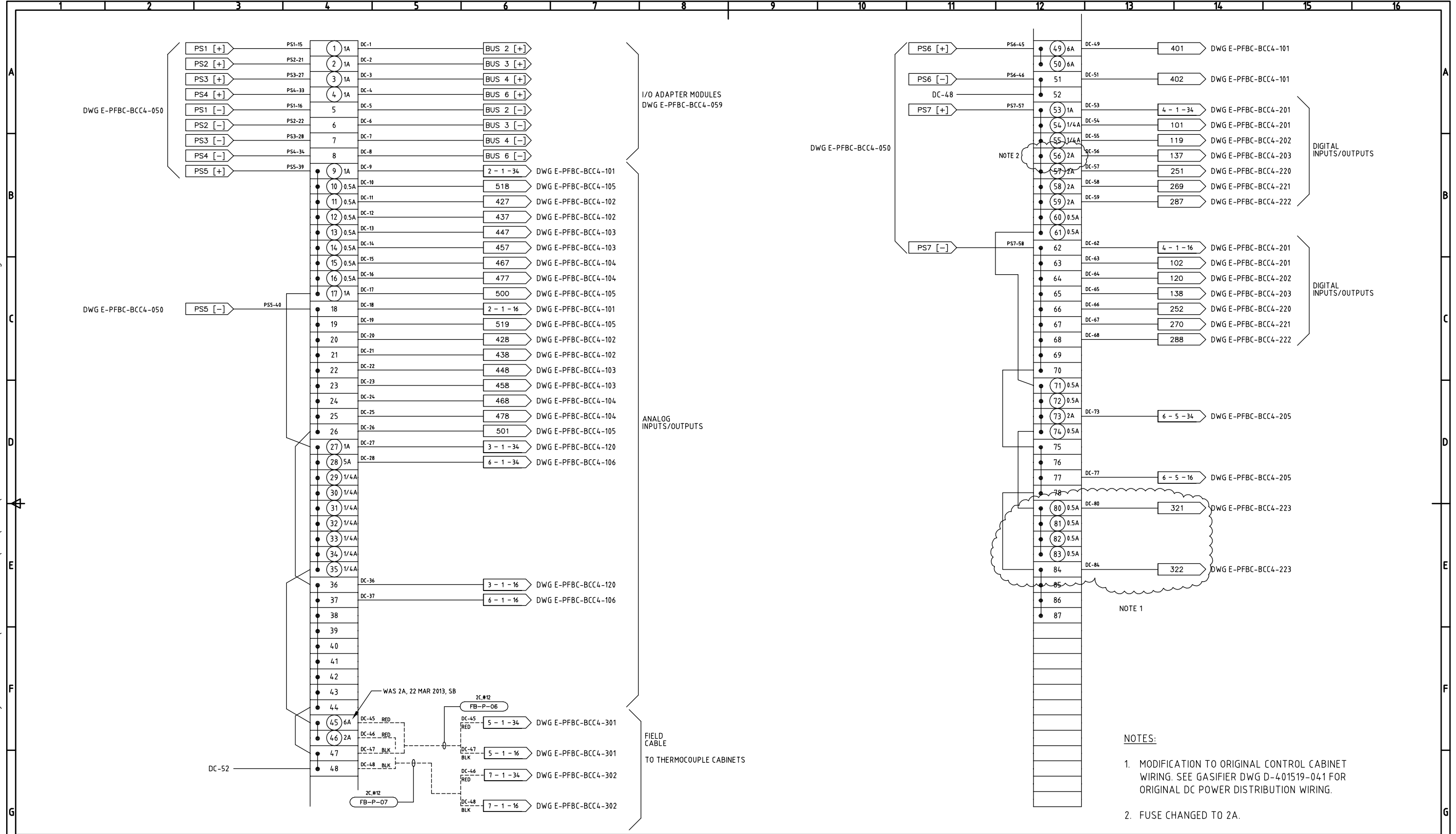
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 4502 HANNA DRIVE,
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 PROJECT # 151-07049-00

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DESIGNED S. BETHUNE
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC CONTROL CABINET AC POWER DISTRIBUTION SCHEMATIC				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 050	REV. 0

LAST SAVE: 2015/10/03 - 3:54pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-051 CC DC POWER REV A REV 0.dwg



- NOTES:**
1. MODIFICATION TO ORIGINAL CONTROL CABINET WIRING. SEE GASIFIER DWG D-401519-041 FOR ORIGINAL DC POWER DISTRIBUTION WIRING.
 2. FUSE CHANGED TO 2A.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
050	CONTROL CABINET AC POWER DISTRIBUTION				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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 PROJECT # 151-07049-00

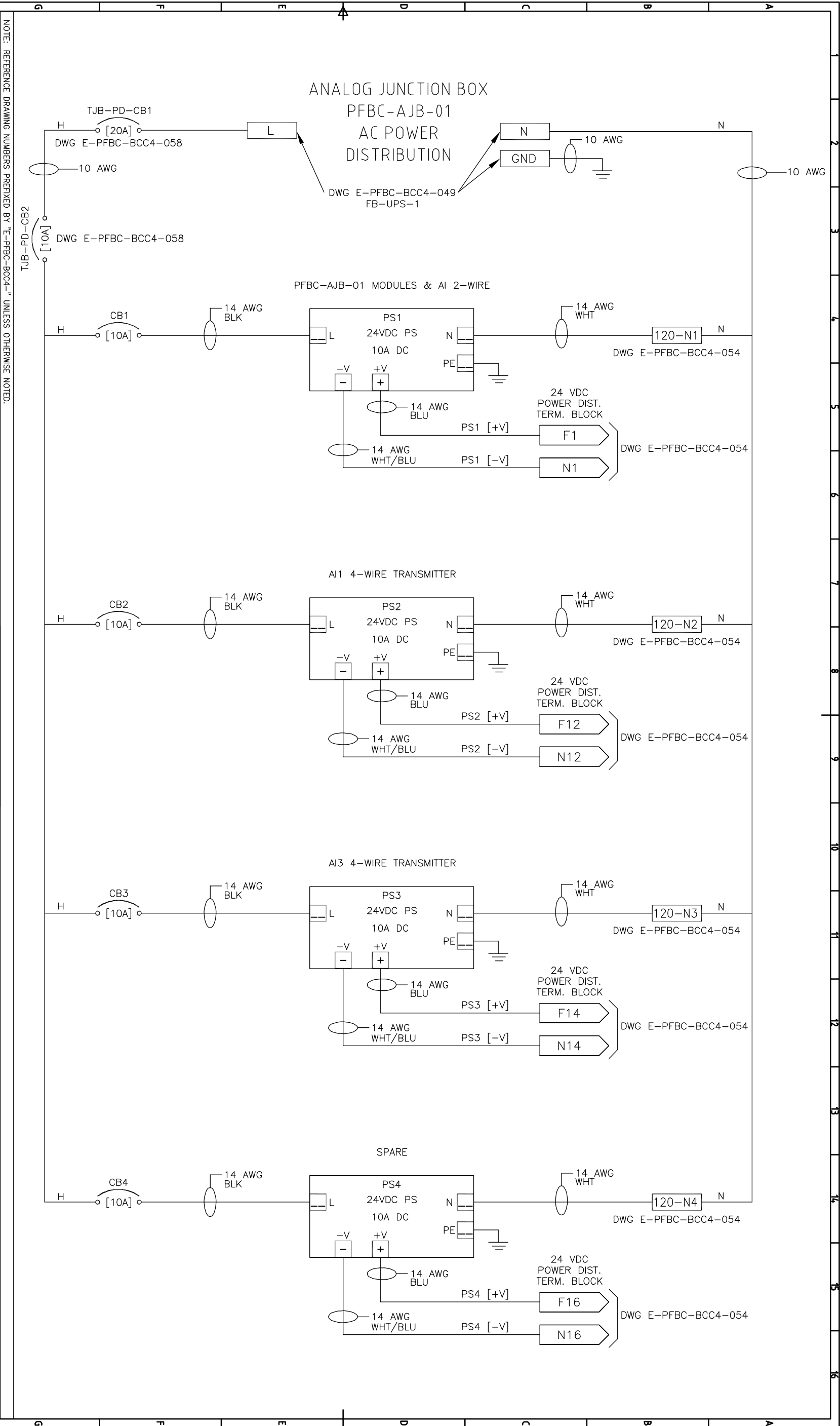
Canada
 CLIENT
 Natural Resources Canada
 CANMET Energy Technology Center
 Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC CONTROL CABINET DC POWER DISTRIBUTION WIRING				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 051	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

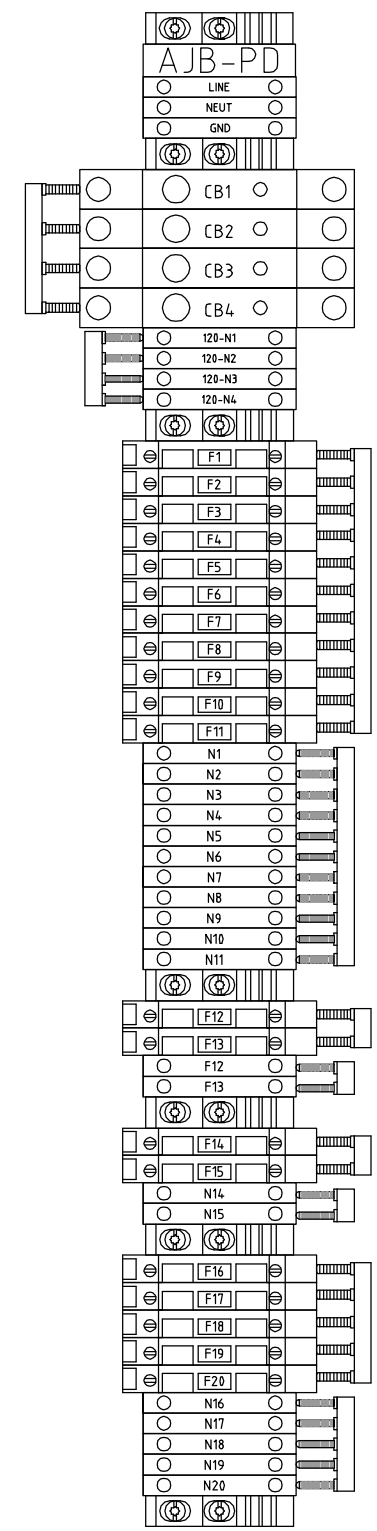
NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.					
058	THERMOCOUPLE JUNCTION BOX DC POWER DIST.				
054	ANALOG JUNCTION BOX DC POWER DIST.				
049	THERMOCOUPLE JUNCTION BOX UPS POWER DIST.				
027	ANALOG JUNCTION BOX INTERIOR LAYOUT				
REFERENCE DRAWINGS					
REVISION REGISTER					
No	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHK	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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CLIENT	
 WSP 4025 JANA DRIVE ELECTRONIC AVENUE CANADA R6T 1A6 PHONE: 613-342-8300 FAX: 613-342-9400 www.wspgroup.com PROJECT # 151-07049-00	Natural Resources Canada CANMET Energy Technology Center Ressources naturelles Canada Centre de la technologie de l'énergie de CANMET
DESIGNED B. YACH	DRAWN B. YACH
CHECKED D. RICHMOND	APPROVED
DATE 2015/06/30	SCALE NONE
PROJECT NRCAN CANMET OXY-PFBC	
TITLE ELECTRICAL ANALOG JUNCTION BOX AC POWER DISTRIBUTION SCHEMATIC	
DEPARTMENT E	PROJECT PFBC
BUILDING BCC4	DRAWING 053
REV. 0	

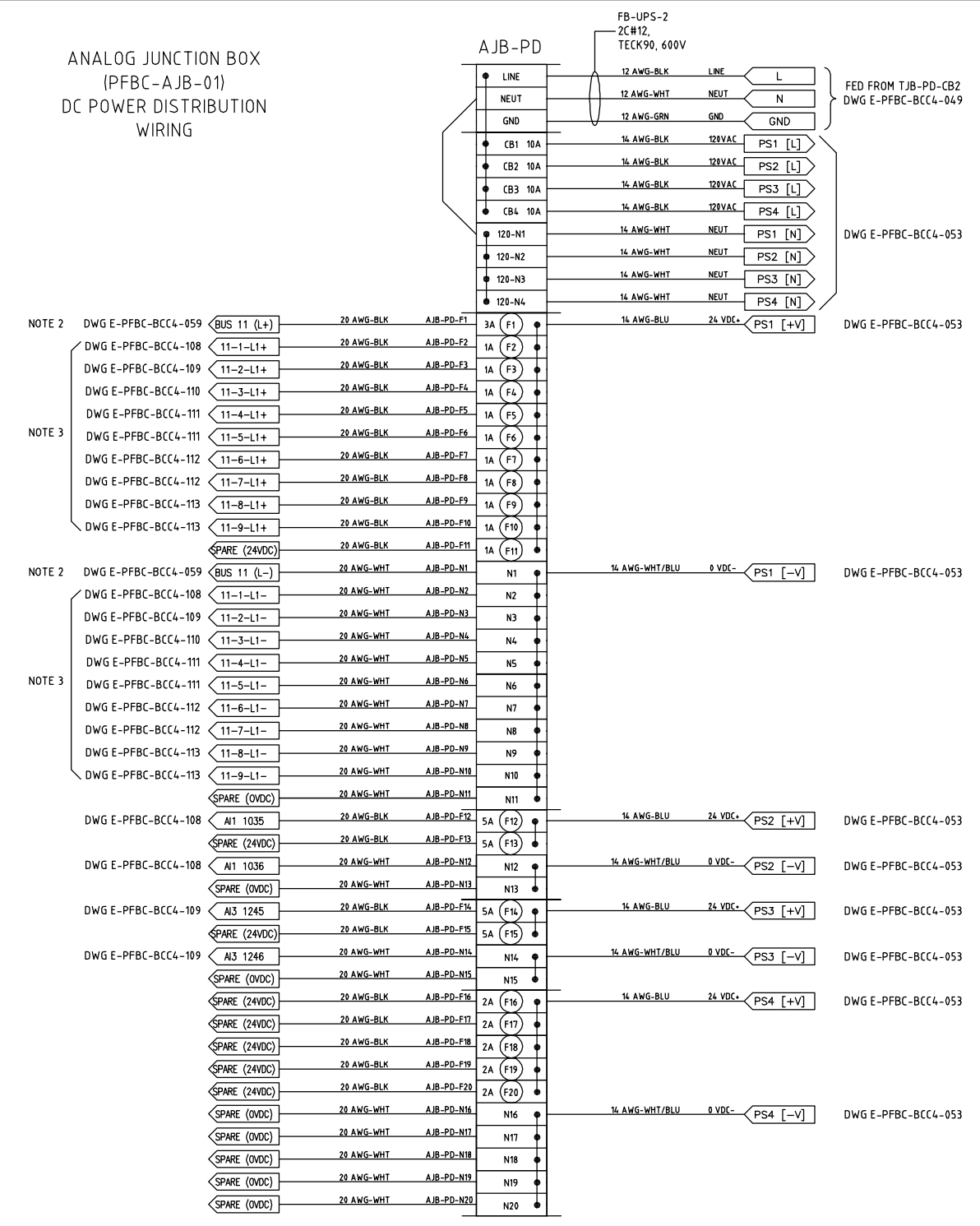


ANALOG JUNCTION BOX
(PFBC-AJB-01)
DC POWER DISTRIBUTION
LAYOUT
(SEE NOTE 1)



- NOTES:
1. ANALOG JUNCTION BOX DC POWER DISTRIBUTION LAYOUT DRAWING PROVIDED FOR REFERENCE ONLY. SEE DWG E-PFBC-BCC4-030 FOR DETAILS.
 2. REFER TO DWG E-PFBC-BCC4-059 FOR COMMUNICATION ADAPTER MODULE WIRING.
 3. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].

ANALOG JUNCTION BOX
(PFBC-AJB-01)
DC POWER DISTRIBUTION
WIRING



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
059	COMM. ADAPTER MODULE WIRING DIAGRAM				
053	ANALOG JUNCTION BOX AC POWER DIST.				
049	THERMOCOUPLE JUNCTION BOX UPS POWER DIST.	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY DER
030	ANALOG JUNCTION BOX TERMINAL BLOCK LAYOUT	A	INTERNAL REVIEW	2015/09/11	BBY DER
027	ANALOG JUNCTION BOX INTERIOR LAYOUT	No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN CKD APPD
REFERENCE DRAWINGS			REVISION REGISTER		

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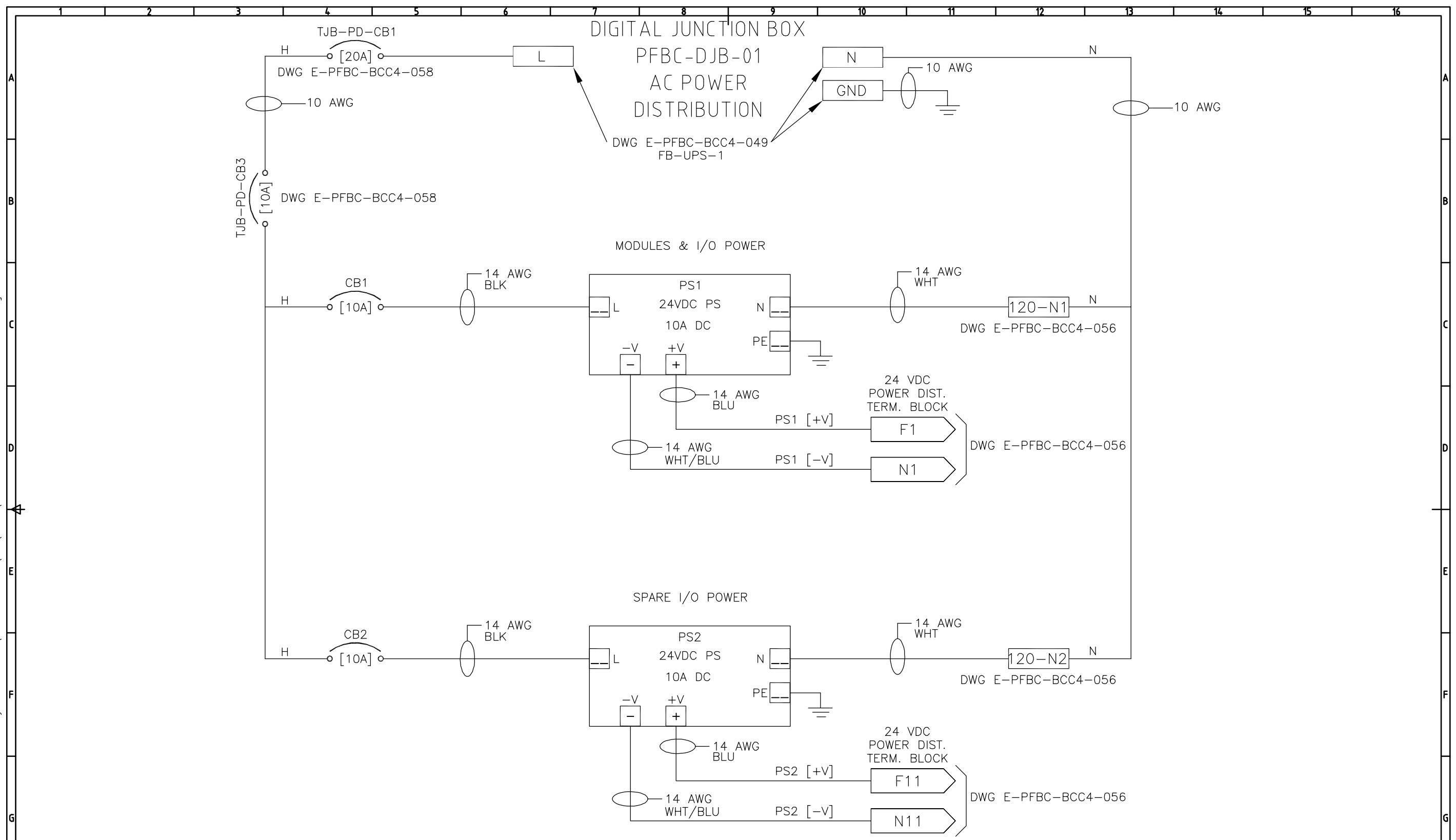
PROJECT # 151-07049-00

CLIENT
Canada
Natural Resources Canada
CANMET Energy Technology Center
Ressources naturelles Canada
Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC ANALOG JUNCTION BOX DC POWER DISTRIBUTION WIRING DIAGRAM				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 054	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 3:54pm
PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-054_AJB_DC_POWER_REV A REV 0.dwg

LAST SAVE: 2015/10/03 - 3:55pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
056	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
049	2015/09/11	BBY	DER		INTERNAL REVIEW
028					DIGITAL JUNCTION BOX INTERIOR LAYOUT

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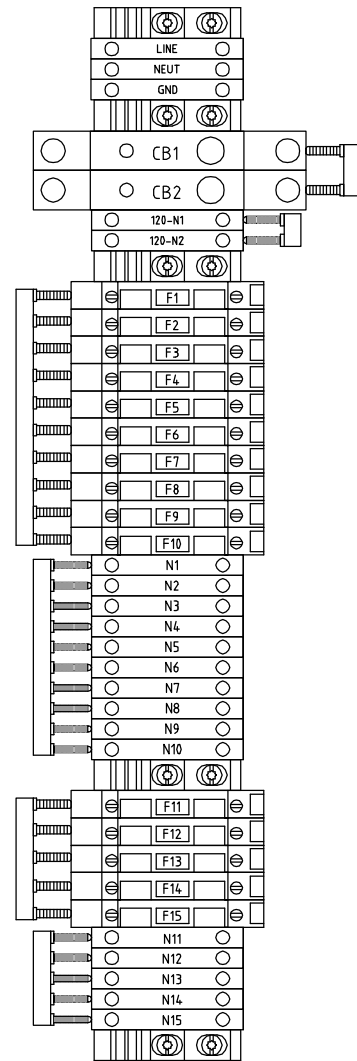
PROJECT # 151-07049-00

Natural Resources
 Canada
 CANMET Energy
 Technology Center

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT				
NRCAN CANMET OXY-PFBC				
TITLE				
ELECTRICAL OXY-PFBC DIGITAL JUNCTION BOX AC POWER DISTRIBUTION SCHEMATIC				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	055	0

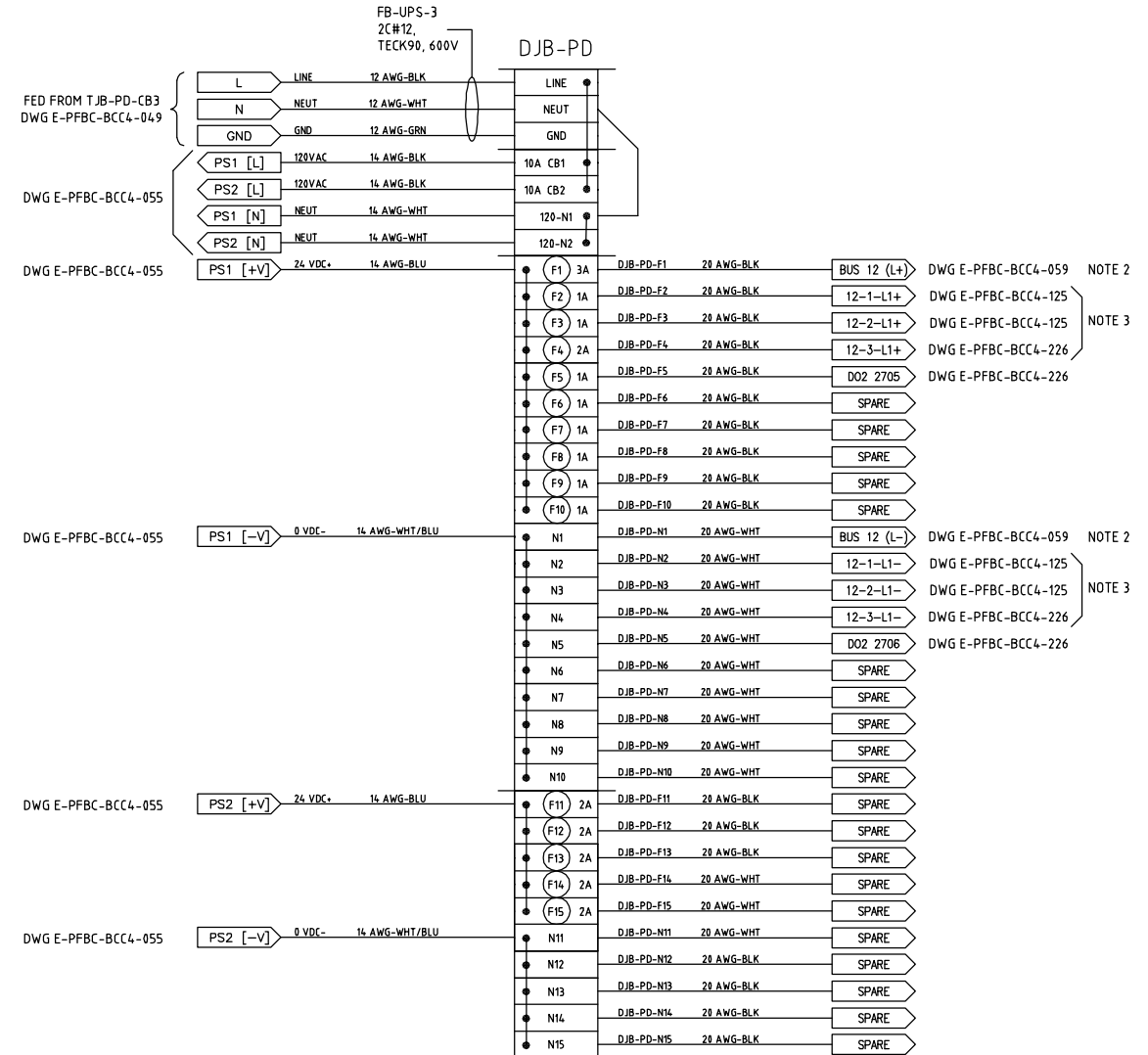
DIGITAL JUNCTION BOX
(PFBC-DJB-01)
DC POWER DISTRIBUTION
LAYOUT
(SEE NOTE 1)



NOTES:

- DIGITAL JUNCTION BOX DC POWER DISTRIBUTION LAYOUT DRAWING PROVIDED FOR REFERENCE ONLY. SEE DWG E-PFBC-BCC4-031 FOR DETAILS.
- REFER TO DWG E-PFBC-BCC4-059 FOR COMMUNICATION ADAPTER MODULE WIRING.
- TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].

DIGITAL JUNCTION BOX
(PFBC-DJB-01)
DC POWER DISTRIBUTION
WIRING



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
059	COMM. ADAPTER MODULE WIRING DIAGRAM				
055	DIGITAL JUNCTION BOX AC POWER DIST. SCH.				
049	THERMOCOUPLE JUNCTION BOX UPS POWER DIST.	2015/10/02	BBY	DER	
031	DIGITAL JUNCTION BOX TERMINAL BLOCK LAYOUT	2015/09/11	BBY	DER	
028	DIGITAL JUNCTION BOX INTERIOR LAYOUT				
REFERENCE DRAWINGS		REVISION REGISTER			

FOR REVIEW
NOT FOR
CONSTRUCTION

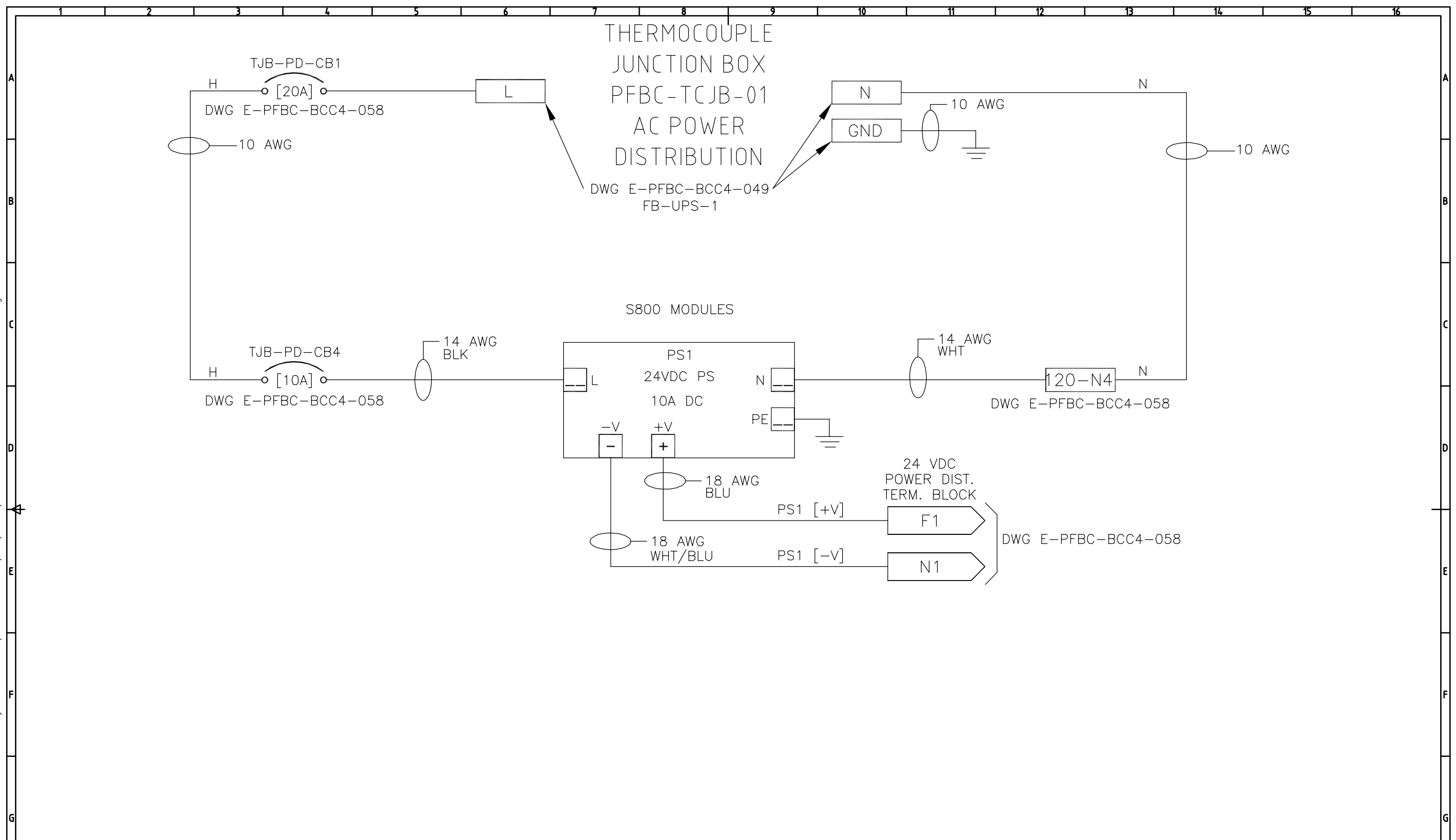


DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DIGITAL JUNCTION BOX DC POWER DISTRIBUTION WIRING DIAGRAM				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 056	REV. 0

LAST SAVE: 2015/10/03 - 3:56pm
PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-056 DJB DC POWER REV 0.dwg

LAST SAVE: 2015/10/03 - 3:57pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-057 TJB AC POWER REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
058	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
049	2015/09/11	BBY	DER		INTERNAL REVIEW
029					REVISION DESCRIPTION

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
058	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
049	2015/09/11	BBY	DER		INTERNAL REVIEW
029					REVISION DESCRIPTION

**FOR REVIEW
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CONSTRUCTION**

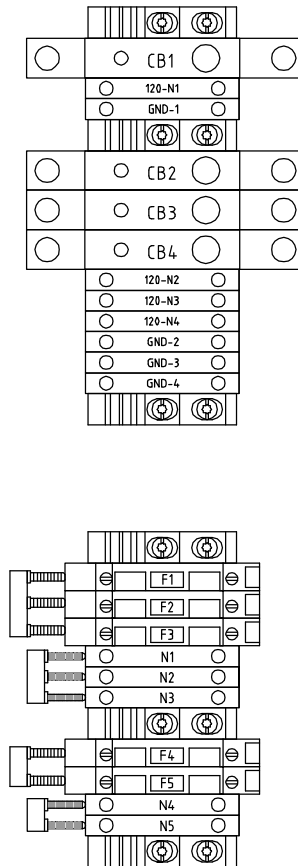
WSP
 4502 HANNA DRIVE,
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 CANADA K6T 1A9
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 www.wspgroup.com
 PROJECT # 151-07049-00

CLIENT
Canada
 Natural Resources Canada
 CANMET Energy Technology Center
 Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE JUNCTION BOX AC POWER DISTRIBUTION SCHEMATIC				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 057	REV. 0

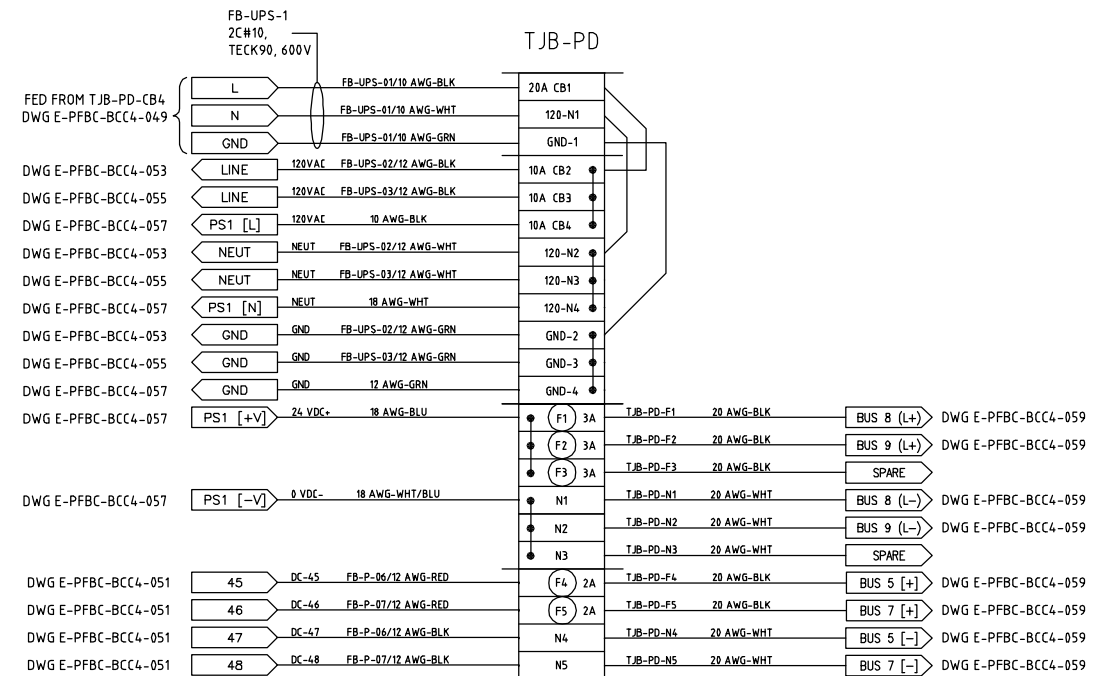
THERMOCOUPLE
JUNCTION BOX
(PFBC-TCJB-01)
DC POWER DISTRIBUTION
LAYOUT
(SEE NOTE 1)



NOTES:

1. THERMOCOUPLE JUNCTION BOX DC POWER DISTRIBUTION LAYOUT DRAWING PROVIDED FOR REFERENCE ONLY.
2. REFER TO DWG E-PFBC-BCC4-059 FOR COMMUNICATION ADAPTER MODULE WIRING.

THERMOCOUPLE
JUNCTION BOX
(PFBC-TCJB-01)
DC POWER DISTRIBUTION
WIRING



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
059	COMM. ADAPTER MODULE WIRING DIAGRAM				
057	THERMOCOUPLE JUNCTION BOX AC POWER DIST.				
055	DIGITAL JUNCTION BOX AC POWER DISTRIBUTION				
053	ANALOG JUNCTION BOX AC POWER DISTRIBUTION	0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY DER
051	CONTROL CABINET DC POWER DISTRIBUTION	A	INTERNAL REVIEW	2015/09/11	BBY DER
049	THERMOCOUPLE JUNCTION BOX UPS POWER DIST.	No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN CKD APPD
REFERENCE DRAWINGS		REVISION REGISTER			

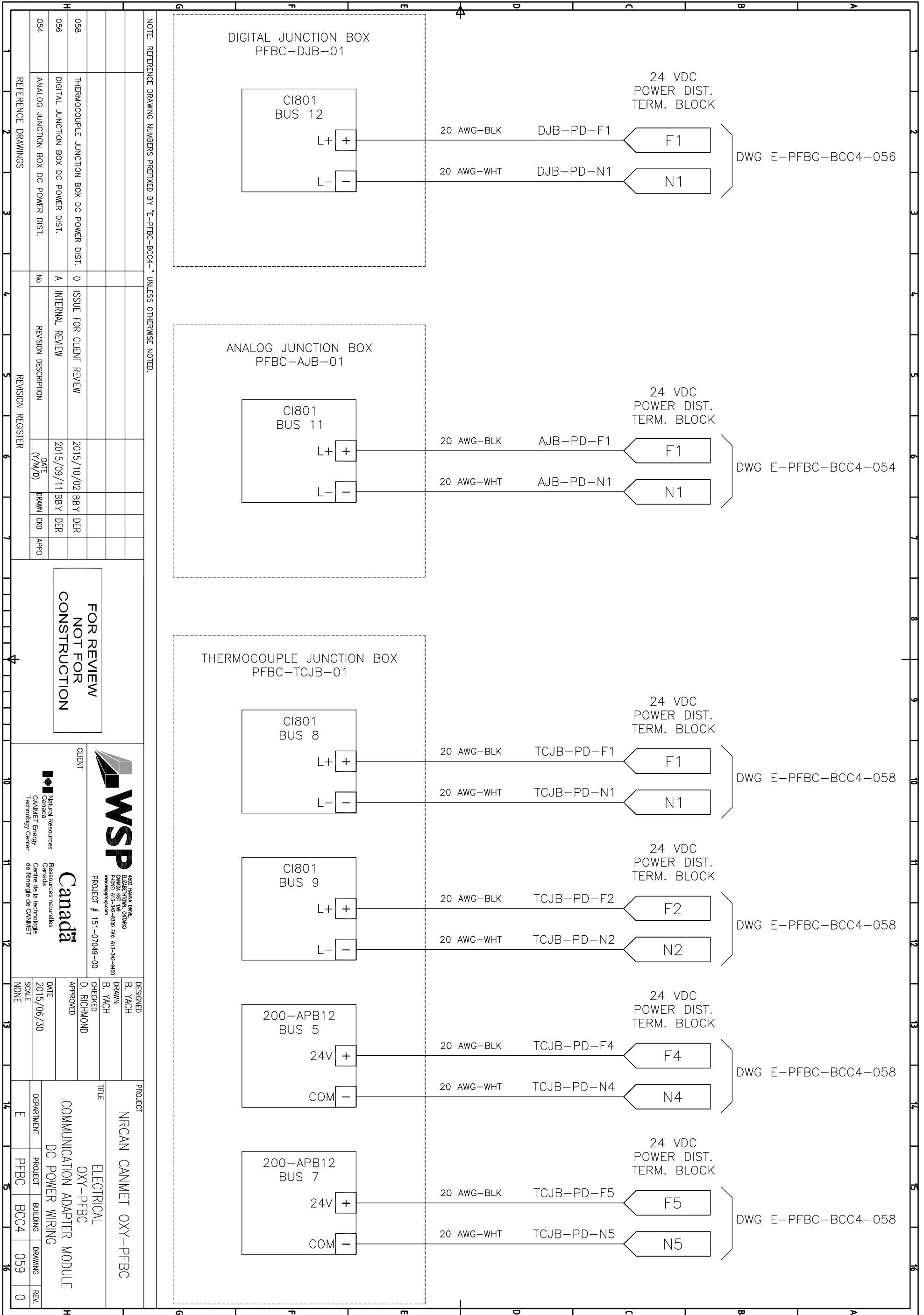
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE JUNCTION BOX DC POWER DISTRIBUTION SCHEMATIC				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 058	REV. 0

LAST SAVE: 2015/10/03 - 3:57pm
PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-058 TJB DC POWER REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHK	APPD
054	ANALOG JUNCTION BOX DC POWER DIST.				
056	DIGITAL JUNCTION BOX DC POWER DIST.	2015/09/11	BBY	DER	
058	THERMOCOUPLE JUNCTION BOX DC POWER DIST.	2015/10/02	BBY	DER	

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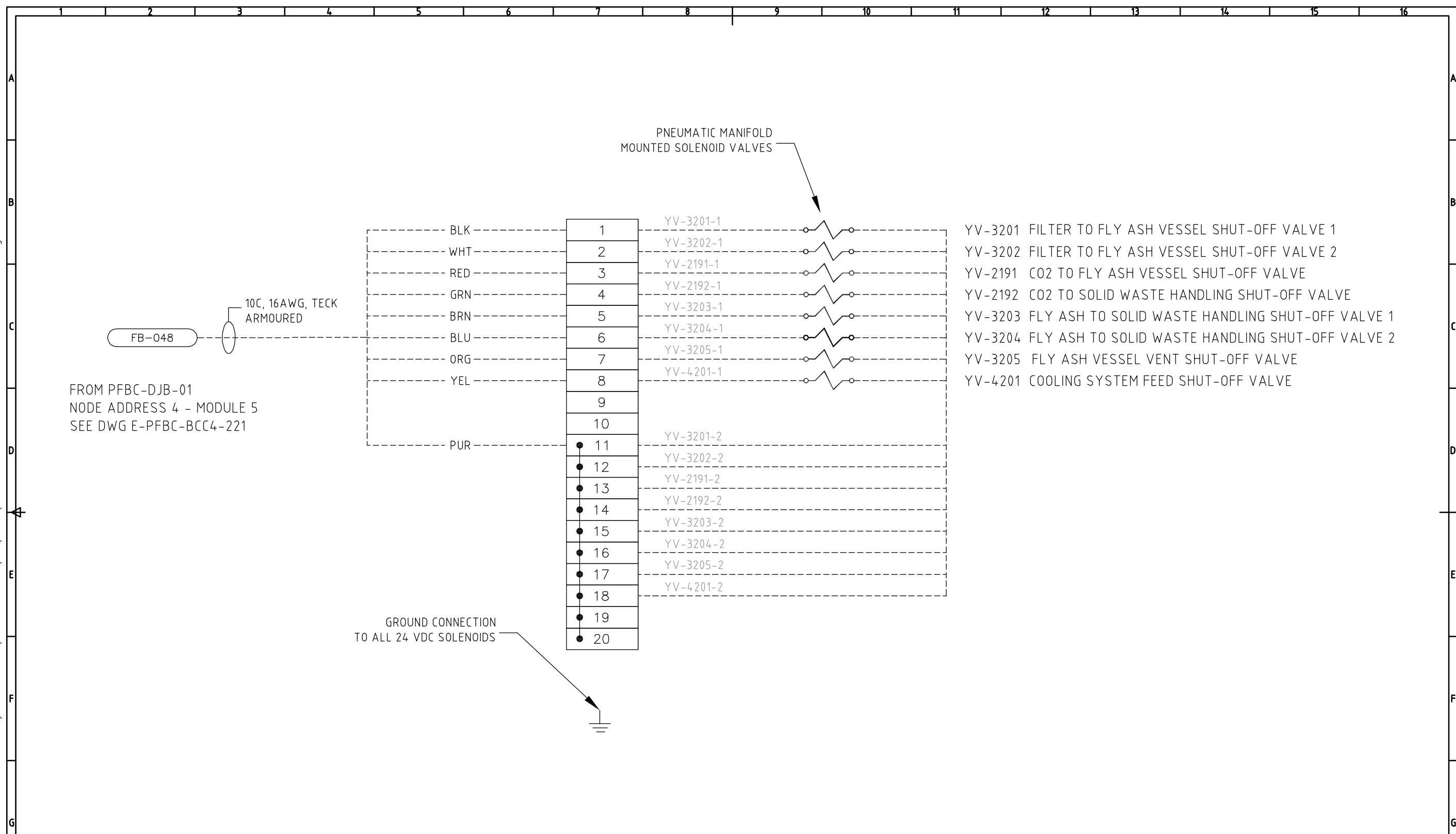
1422 JAMN PARK
 ELECTRONIC SQUARE
 CANADA R6T 1A6
 PHONE: 613-342-8300 FAX: 613-342-3400
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL
CHECKED D. RICHMOND	PROJECT OXY-PFBC
APPROVED	BUILDING BCC4
DATE 2015/06/30	DRAWING 059
SCALE NONE	REV. 0

LAST SAVE: 2015/10/03 - 4:08pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-075 SOLENOID CABINET 1 WIRING REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
221	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 5	2015/09/11	BBY	DER	
035	SOLENOID CABINET 1 LAYOUT				

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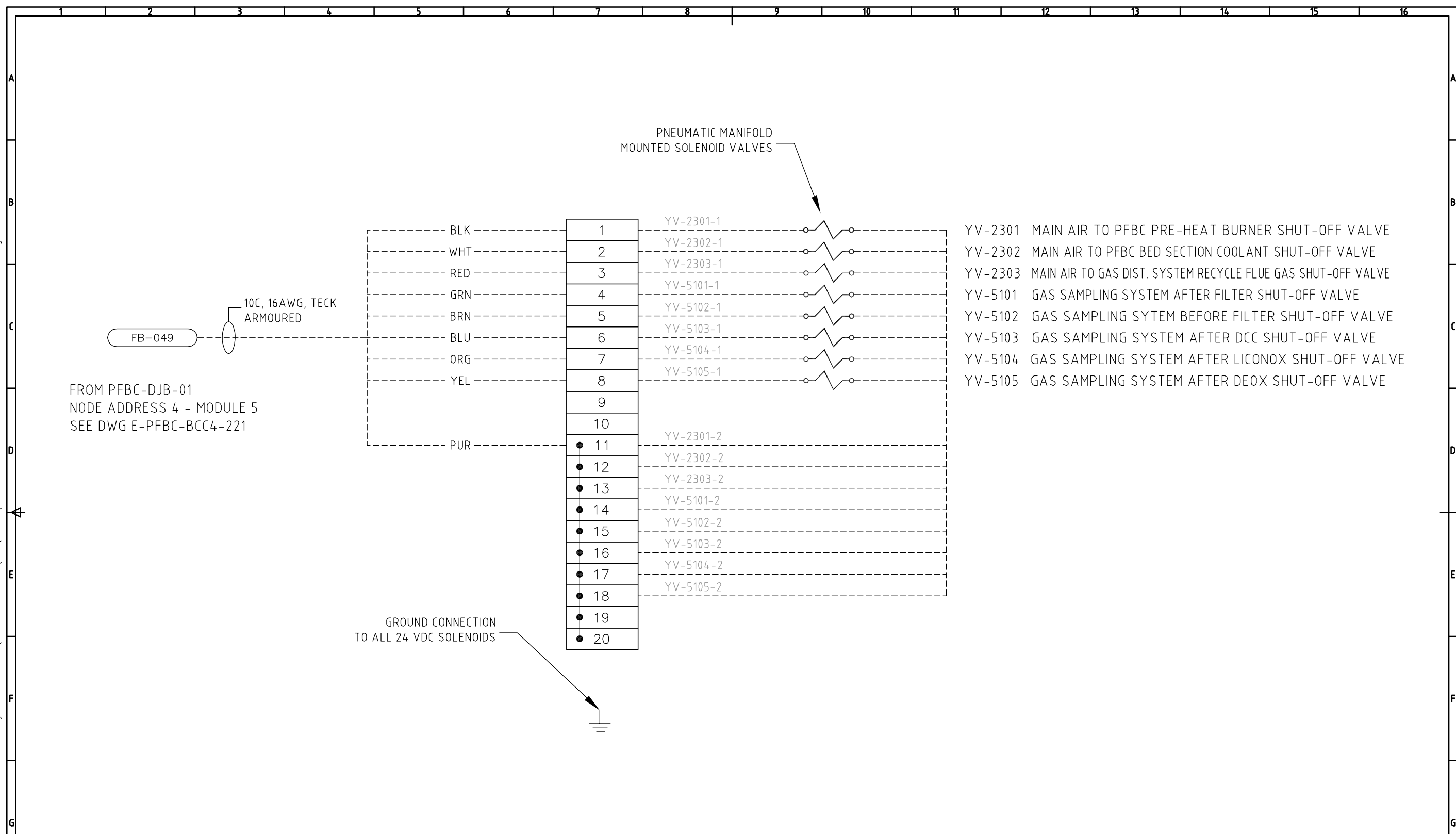
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 1 WIRING				
CHECKED D. RICHMOND					
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 075	REV. 0
DATE 2015/06/30					
SCALE NONE					

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LAST SAVE: 2015/10/03 - 4:13pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
221	DIGITAL OUTPUT WIRING -- NODE 4 -- MODULE 5	2015/09/11	BBY	DER	
036	SOLENOID CABINET 2 LAYOUT				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
221	DIGITAL OUTPUT WIRING -- NODE 4 -- MODULE 5	2015/09/11	BBY	DER	
036	SOLENOID CABINET 2 LAYOUT				

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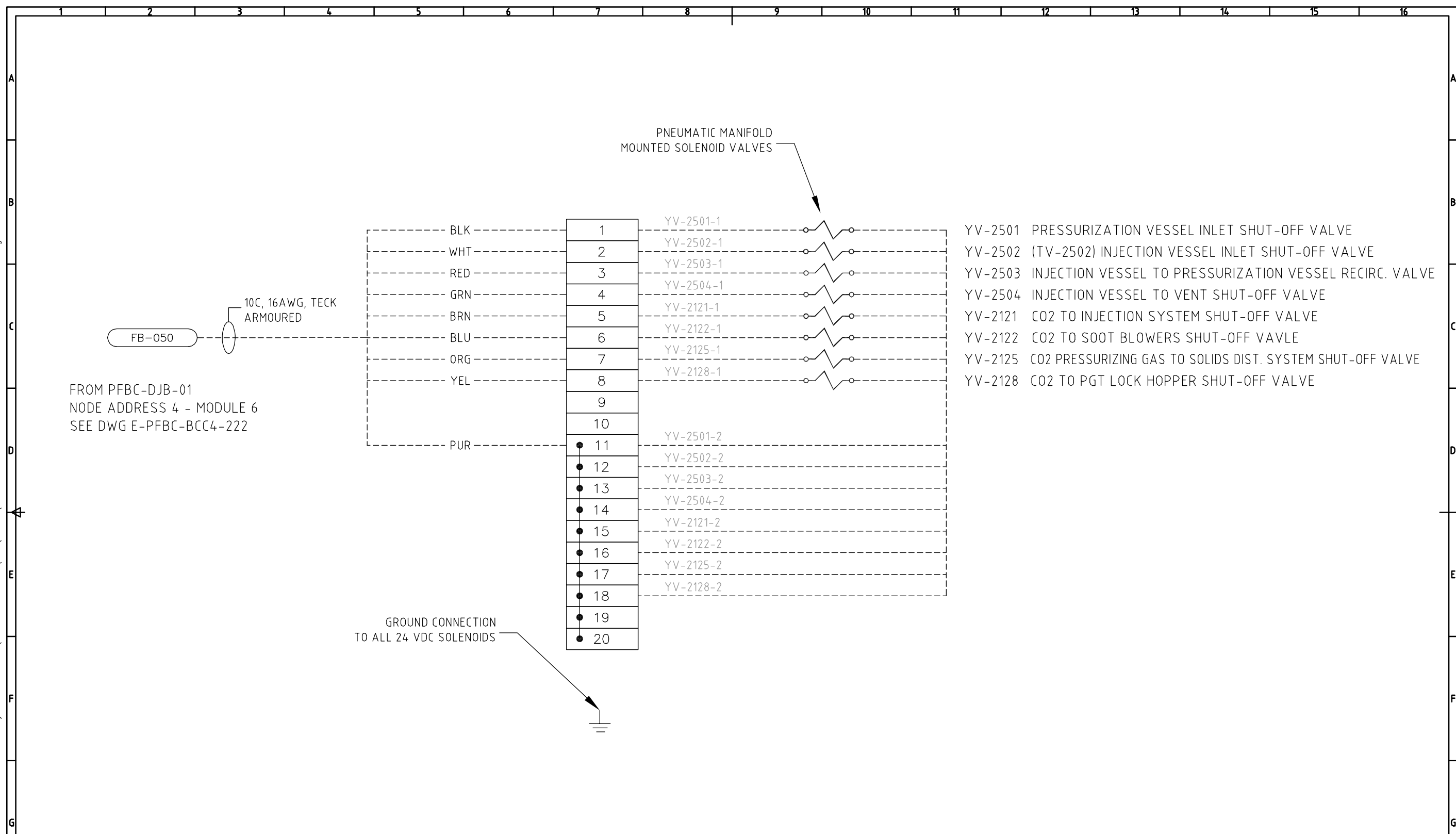
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DESIGNED B. YACH		PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH		TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 2 WIRING				
CHECKED D. RICHMOND						
APPROVED		DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
DATE 2015/06/30		E	PFBC	BCC4	076	0
SCALE NONE						

LAST SAVE: 2015/10/03 - 4:12pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
037	SOLENOID CABINET 3 LAYOUT				

REFERENCE DRAWINGS	REVISION REGISTER

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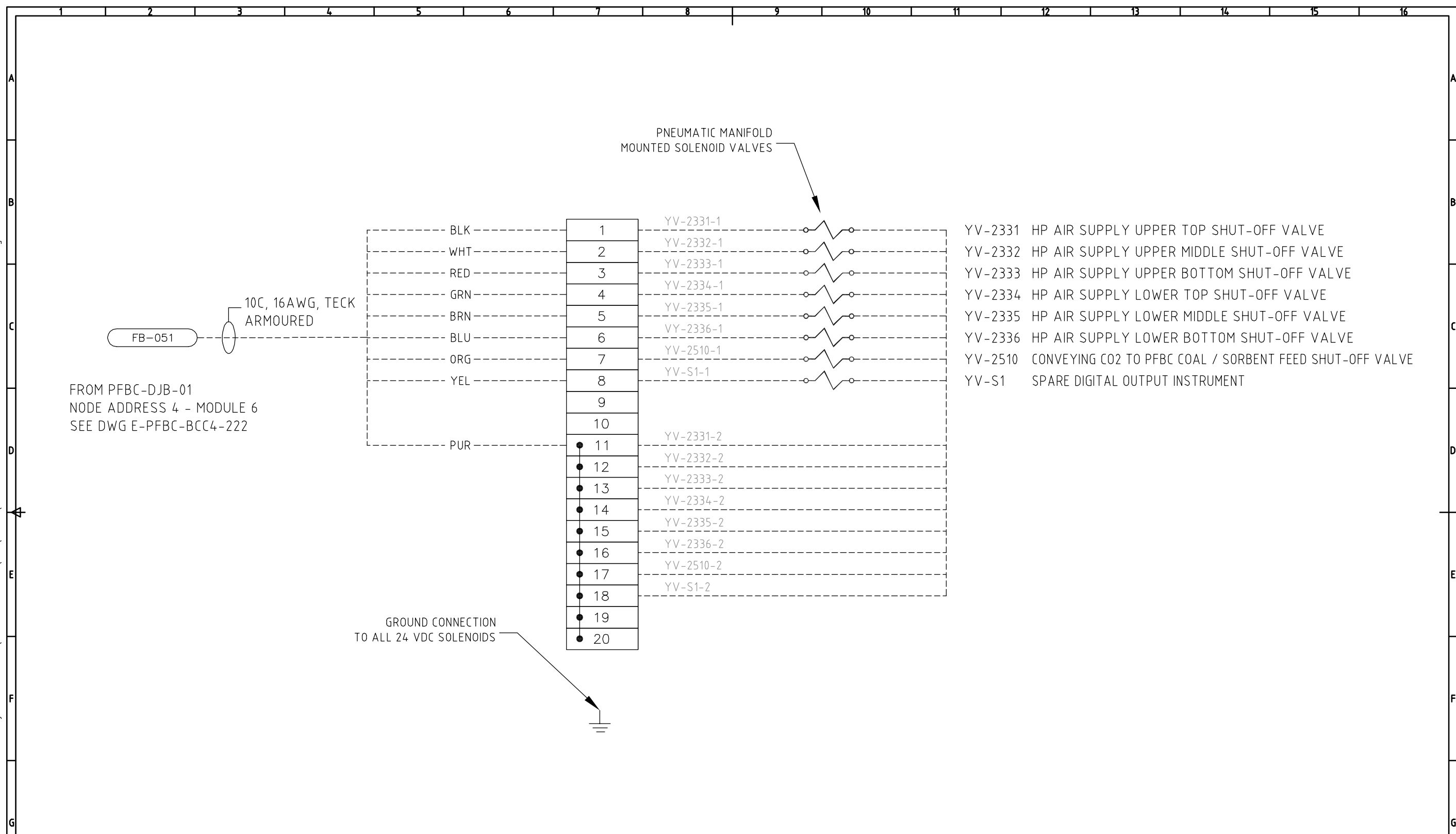
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 3 WIRING				
CHECKED D. RICHMOND					
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 077	REV. 0
DATE 2015/06/30					
SCALE NONE					

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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
038	SOLENOID CABINET 4 LAYOUT				

REV	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
222	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 6	2015/09/11	BBY	DER	
038	SOLENOID CABINET 4 LAYOUT				

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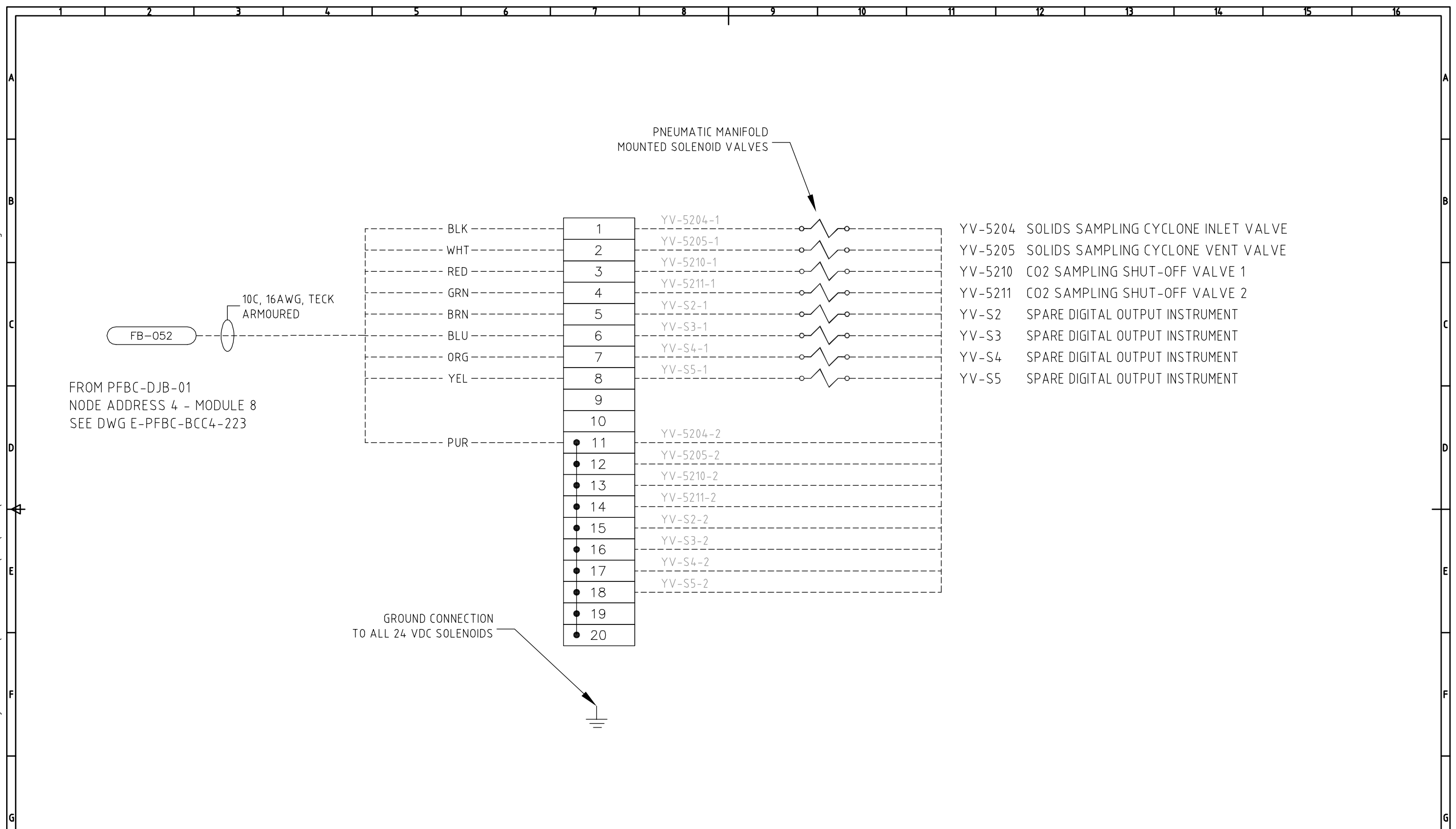
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 4 WIRING				
CHECKED D. RICHMOND					
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 078	REV. 0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:11pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DATE (Y/M/D)	BY	CHKD	APPD	DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
223	2015/09/11	BBY	DER		INTERNAL REVIEW
039					SOLENOID CABINET 4B LAYOUT

REV	DATE (Y/M/D)	BY	CHKD	APPD	DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
223	2015/09/11	BBY	DER		INTERNAL REVIEW
039					SOLENOID CABINET 4B LAYOUT

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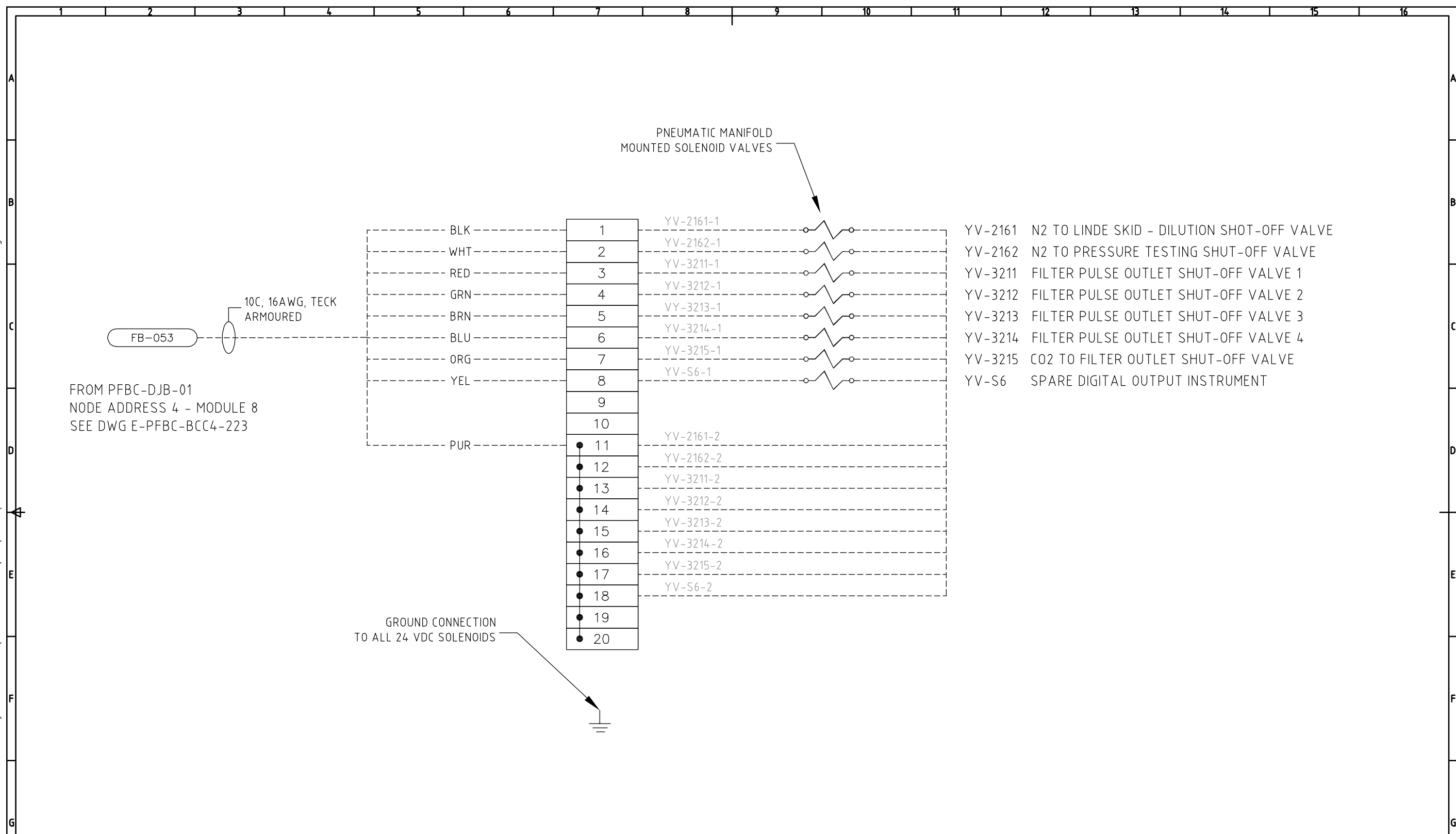
4502 HANNA DRIVE,
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 4B WIRING			
CHECKED D. RICHMOND				
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 079
DATE 2015/06/30				REV. 0
SCALE NONE				

LAST SAVE: 2015/10/03 - 4:09pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
223	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 8	2015/09/11	BBY	DER	
040	SOLENOID CABINET 5 LAYOUT				

REV	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
223	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 8	2015/09/11	BBY	DER	
040	SOLENOID CABINET 5 LAYOUT				

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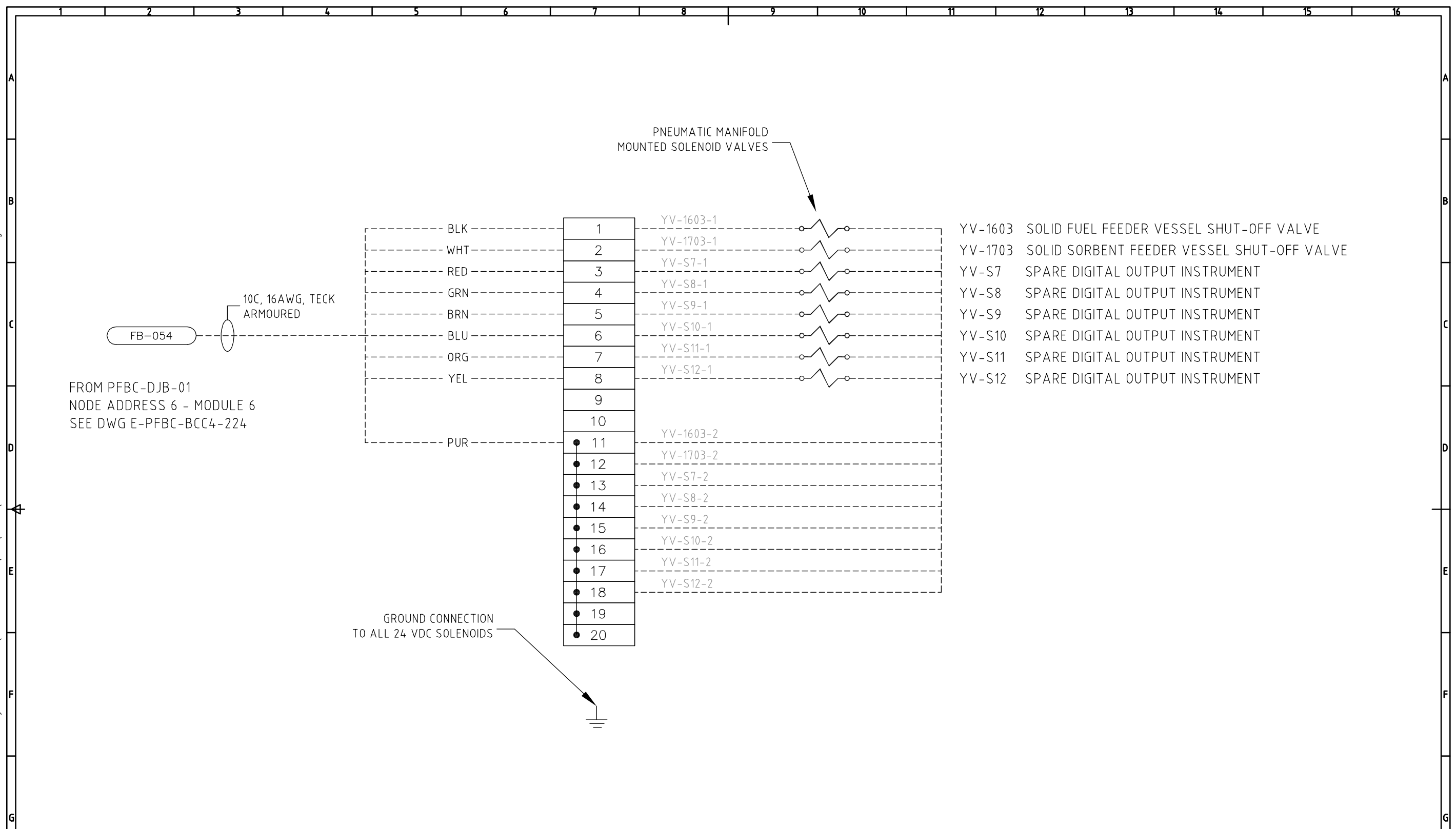
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 5 WIRING				
CHECKED D. RICHMOND					
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 080	REV. 0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:10pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
224	DIGITAL OUTPUT WIRING - NODE 6 - MODULE 6	2015/09/11	BBY	DER	
041	SOLENOID CABINET 5B LAYOUT				

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 PROJECT # 151-07049-00

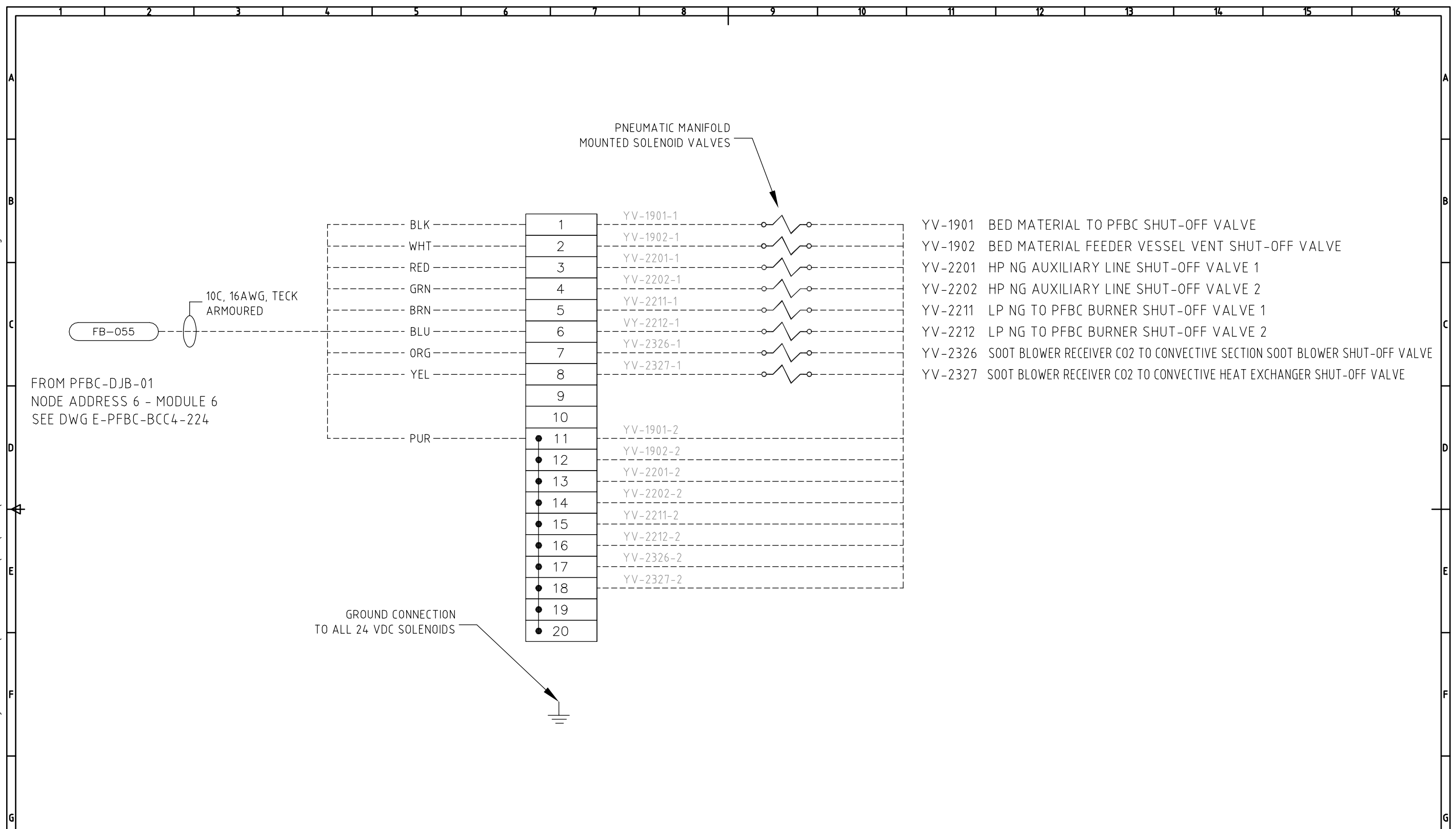
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 5B WIRING				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 081	REV. 0

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LAST SAVE: 2015/10/03 - 4:09pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
224	DIGITAL OUTPUT WIRING -- NODE 6 -- MODULE 6	2015/09/11	BBY	DER	
042	SOLENOID CABINET 6 LAYOUT				

REFERENCE DRAWINGS	REVISION REGISTER

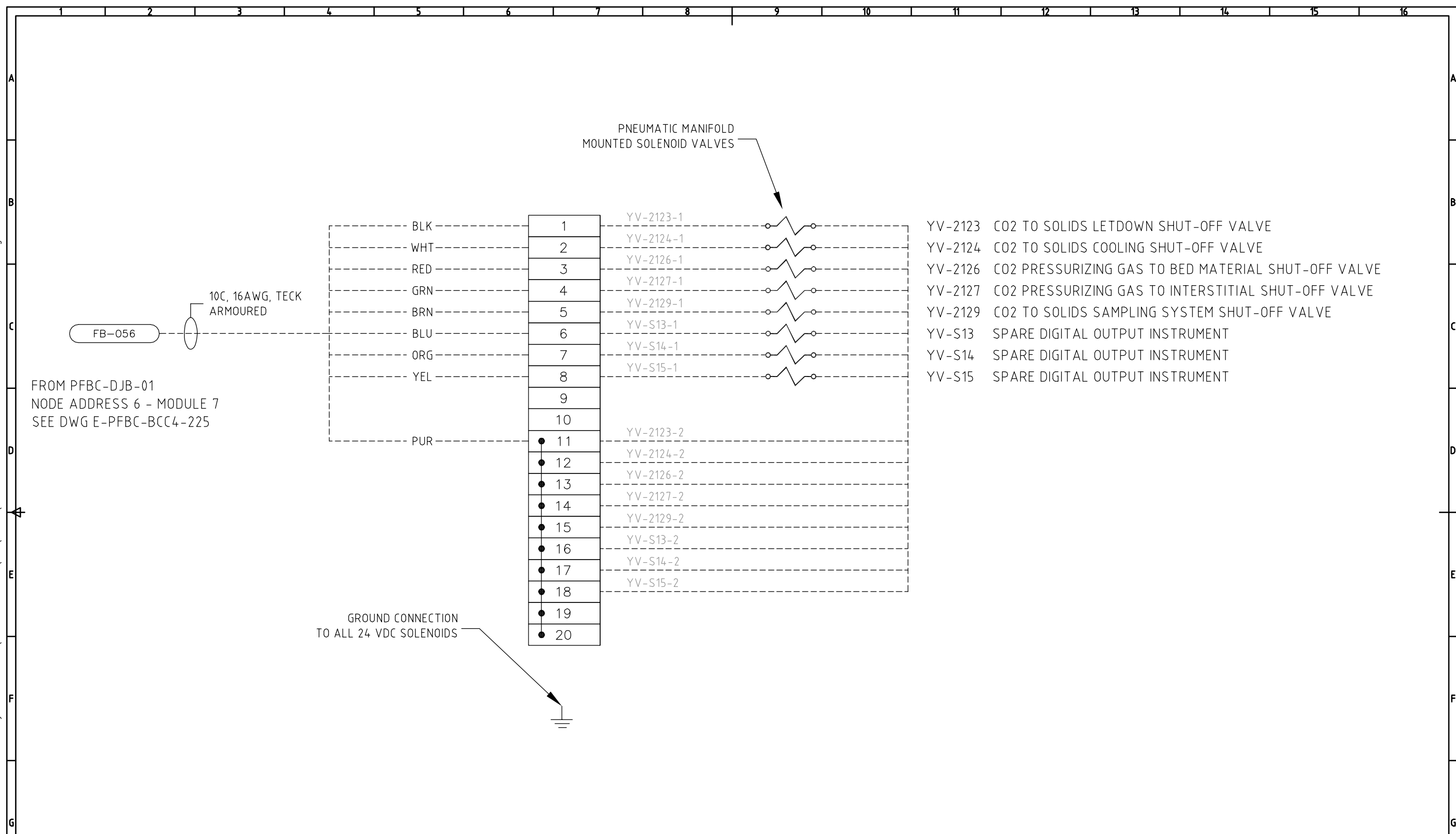
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 4502 HANNA DRIVE,
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 6 WIRING				
CHECKED D. RICHMOND	DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
APPROVED	E	PFBC	BCC4	082	0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:09pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-083 SOLENOID CABINET 7 WIRING REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
225	DIGITAL OUTPUT WIRING -- NODE 6 -- MODULE 7	2015/09/11	BBY	DER	
043	SOLENOID CABINET 7 LAYOUT				

REFERENCE DRAWINGS	REVISION REGISTER

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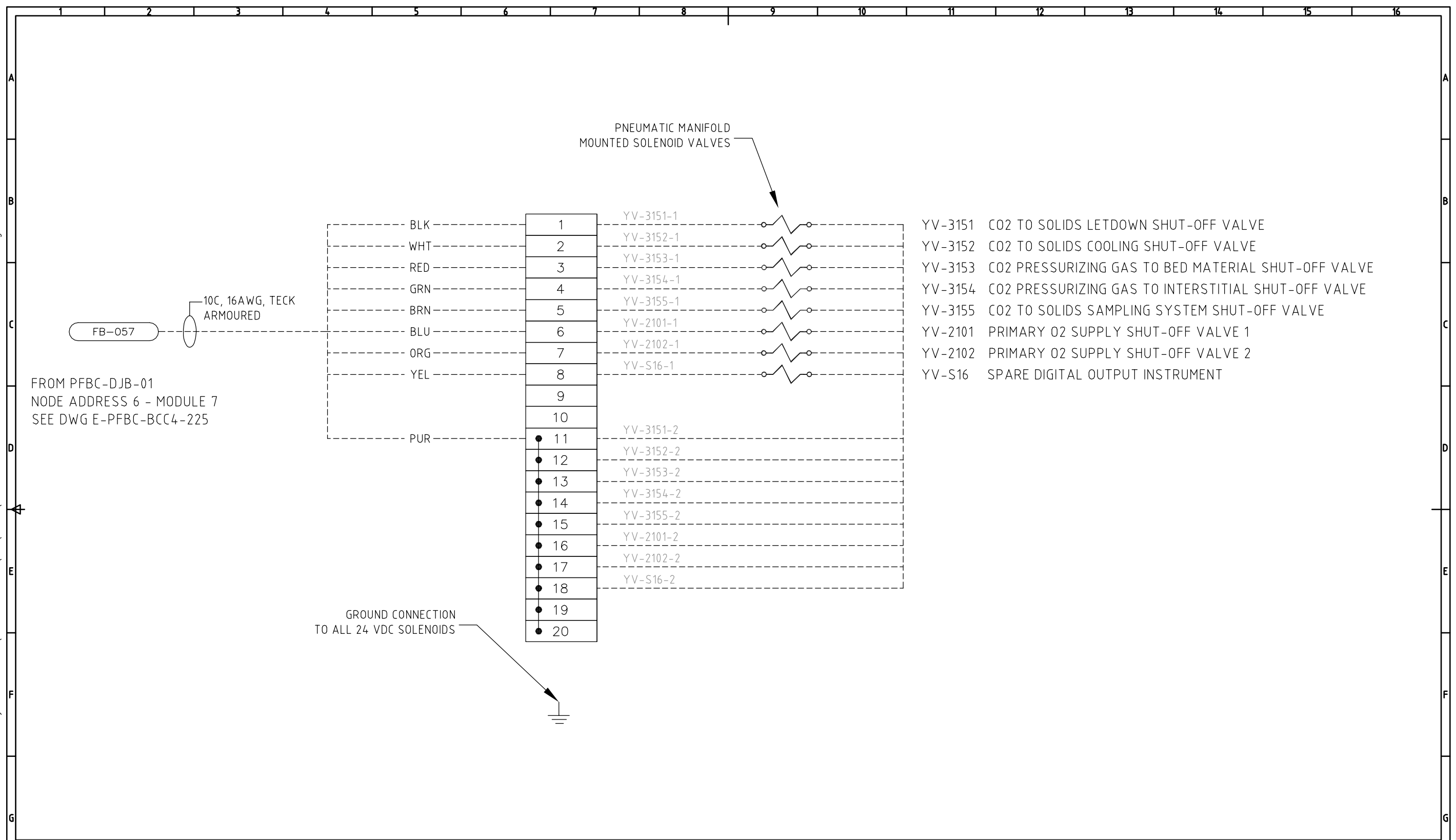
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH					
CHECKED D. RICHMOND	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 7 WIRING				
APPROVED					
DATE 2015/06/30	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 083	REV. 0
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:08pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW		2015/10/02	BBY	DER	
225	DIGITAL OUTPUT WIRING - NODE 6 - MODULE 7	A	2015/09/11	BBY	DER	
044	SOLENOID CABINET 7B LAYOUT	No				

REFERENCE DRAWINGS	REVISION REGISTER

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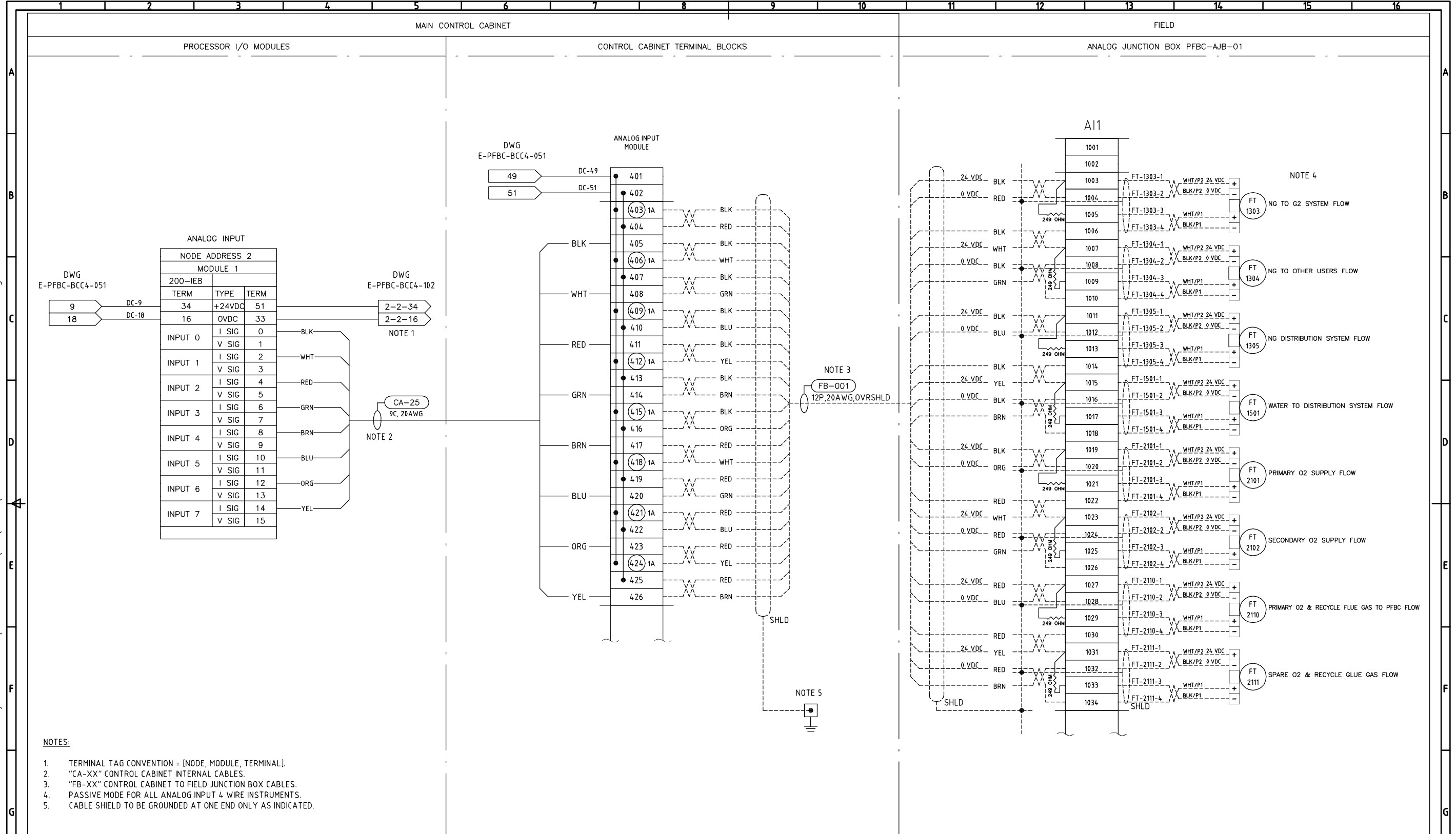
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH				
CHECKED D. RICHMOND	TITLE ELECTRICAL OXY-PFBC SOLENOID CABINET 7B WIRING			
APPROVED				
DATE 2015/06/30	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 084
SCALE NONE				REV. 0



- NOTES:
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. PASSIVE MODE FOR ALL ANALOG INPUT 4 WIRE INSTRUMENTS.
 5. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
102	ANALOG INPUT WIRING N2 - M2 & M3	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	2015/10/02	BBY	DER	

NO	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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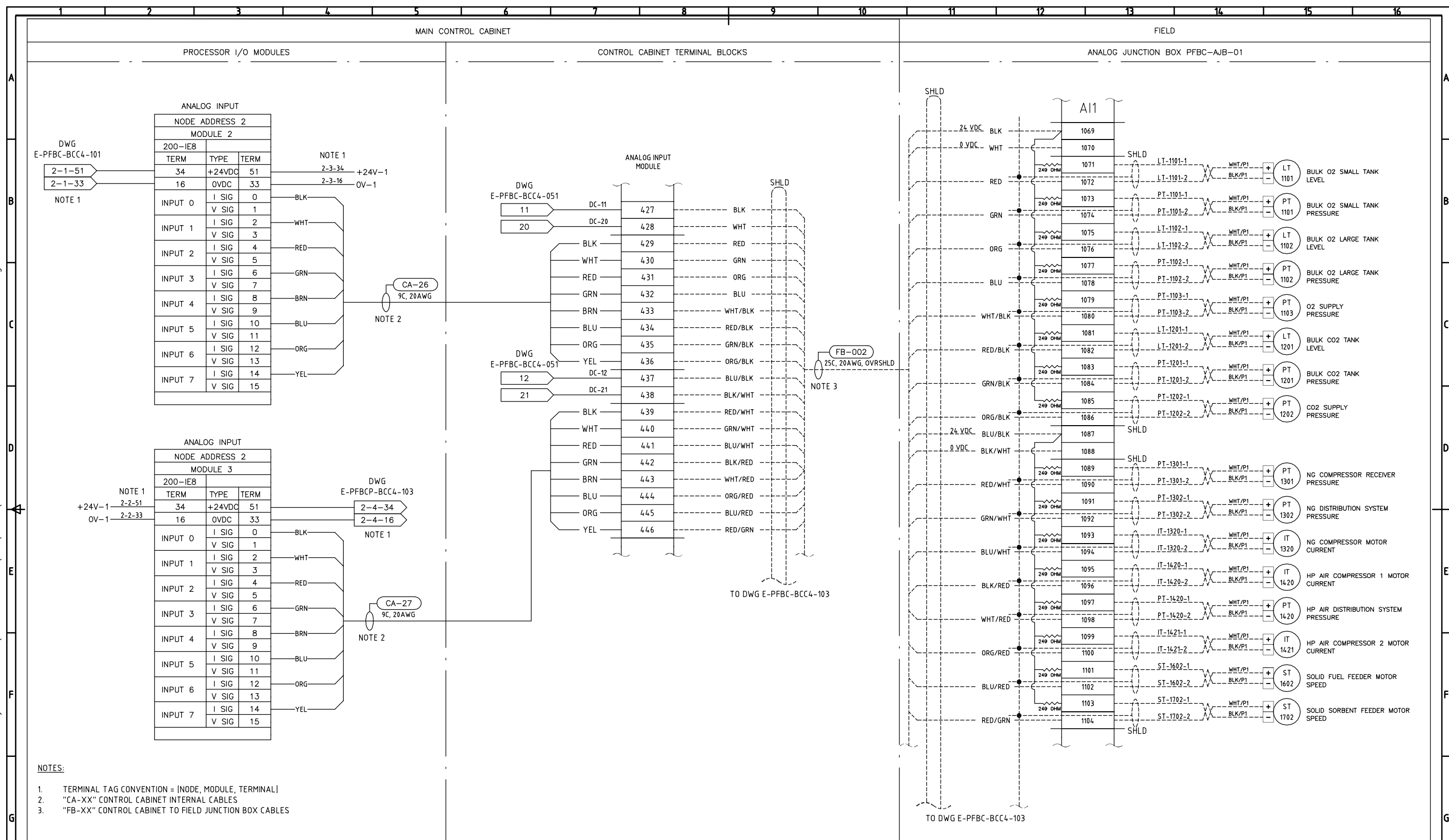
DESIGNED
B. YACH
DRAWN
B. YACH
CHECKED
D. RICHMOND
APPROVED

DATE
2015/06/30
SCALE
NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 2 - MODULE 1				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	101	0

LAST SAVE: 2015/10/03 - 4:19pm
PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-101 AI WIRING N2-M1 REV 0.dwg

LAST SAVE: 2015/10/03 - 4:20pm
 PATH: S:\01-ACTIVE PROJECTS\2015.151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-102 AI WIRING N2-M2-M3 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL]
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
103	ANALOG INPUT WIRING N2 - M4 & M6	2015/10/02	BBY	DER	
101	ANALOG INPUT WIRING N2 - M1	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

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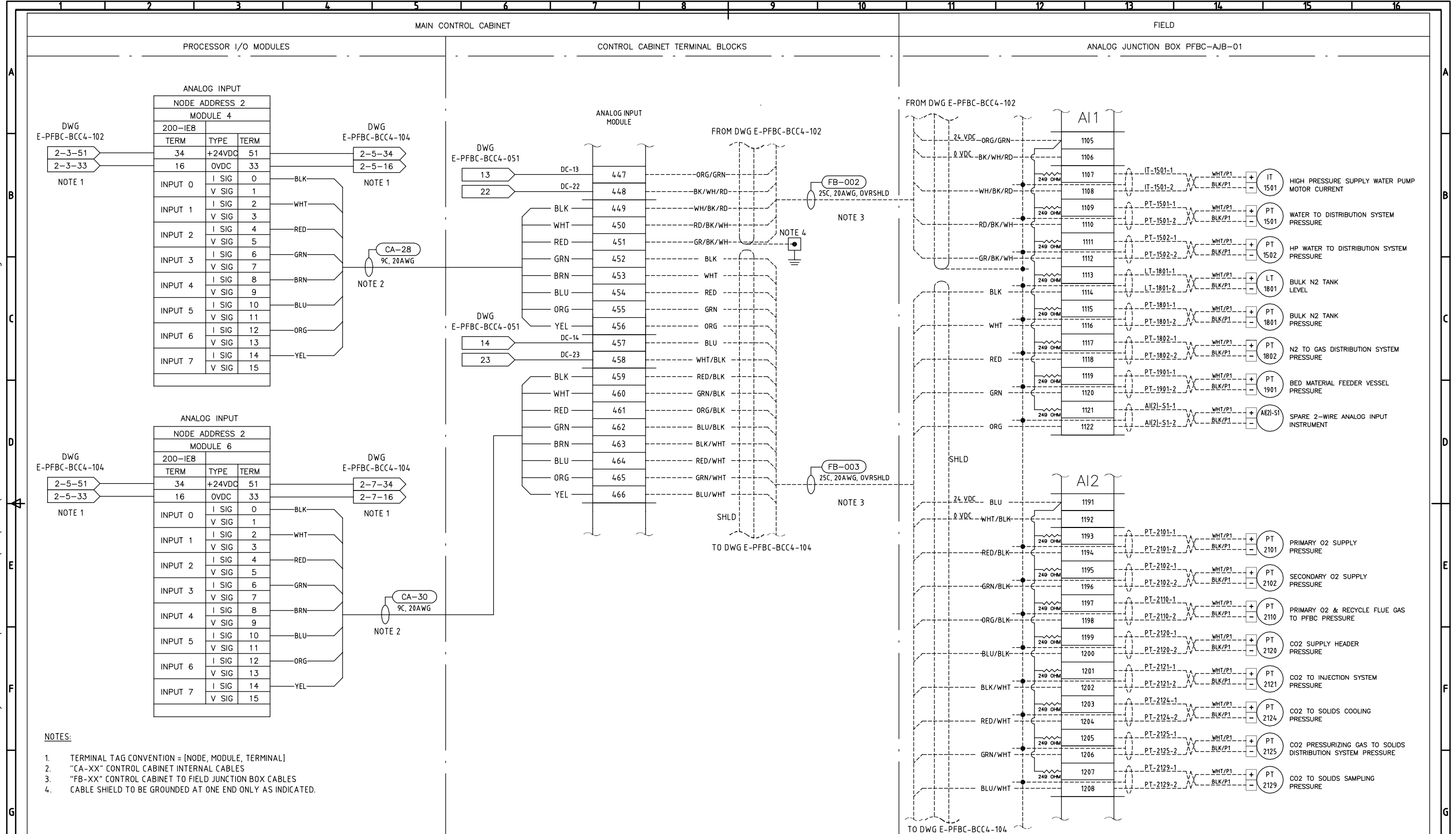
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PROJECT # 151-07049-00

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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC
CHECKED D. RICHMOND	AJB - ANALOG INPUT WIRING
APPROVED	NODE ADDRESS 2 - MODULE 2 & 3
DATE 2015/06/30	DEPARTMENT E
SCALE NONE	PROJECT PFBC
	BUILDING BCC4
	DRAWING 102
	REV. 0

LAST SAVE: 2015/10/03 - 4:20pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-103 AI WIRING N2-M4-M6 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL]
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
104	ANALOG INPUT WIRING N2 - M7 & M5	0	2015/10/02	BBY	DER	
102	ANALOG INPUT WIRING N2 - M2 & M3	A	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

REVISION REGISTER

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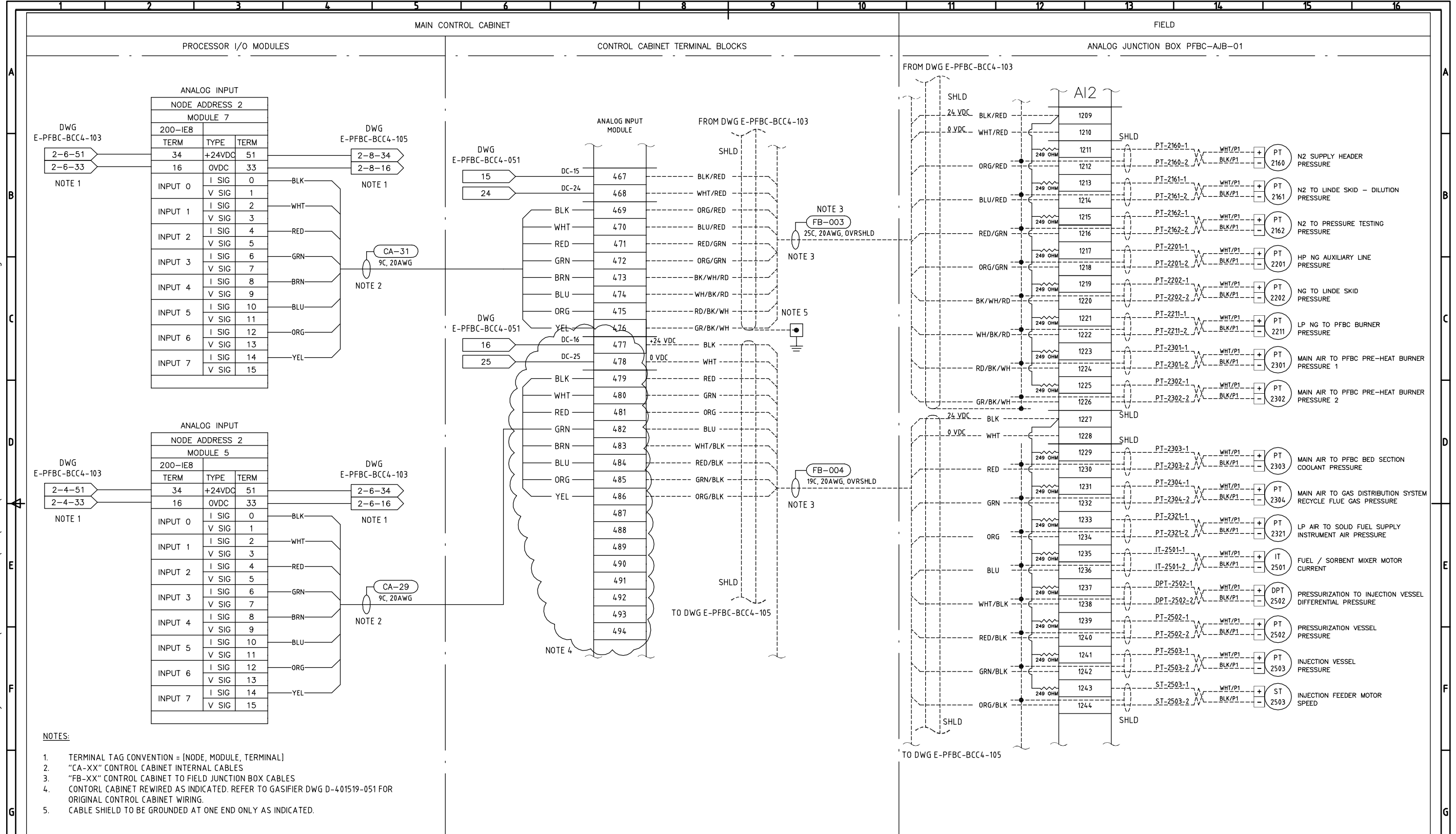
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PROJECT # 151-07049-00

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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 2 - MODULES 4 & 6
CHECKED D.RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 103
	REV. 0

LAST SAVE: 2015/10/03 - 4:21pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-104 AI WIRING N2-M7-M5 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
105	ANALOG INPUT WIRING N2 - M8 & N3 - M8	0	2015/10/02	BBY	DER	
103	ANALOG INPUT WIRING N2 - M4 & M6	A	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

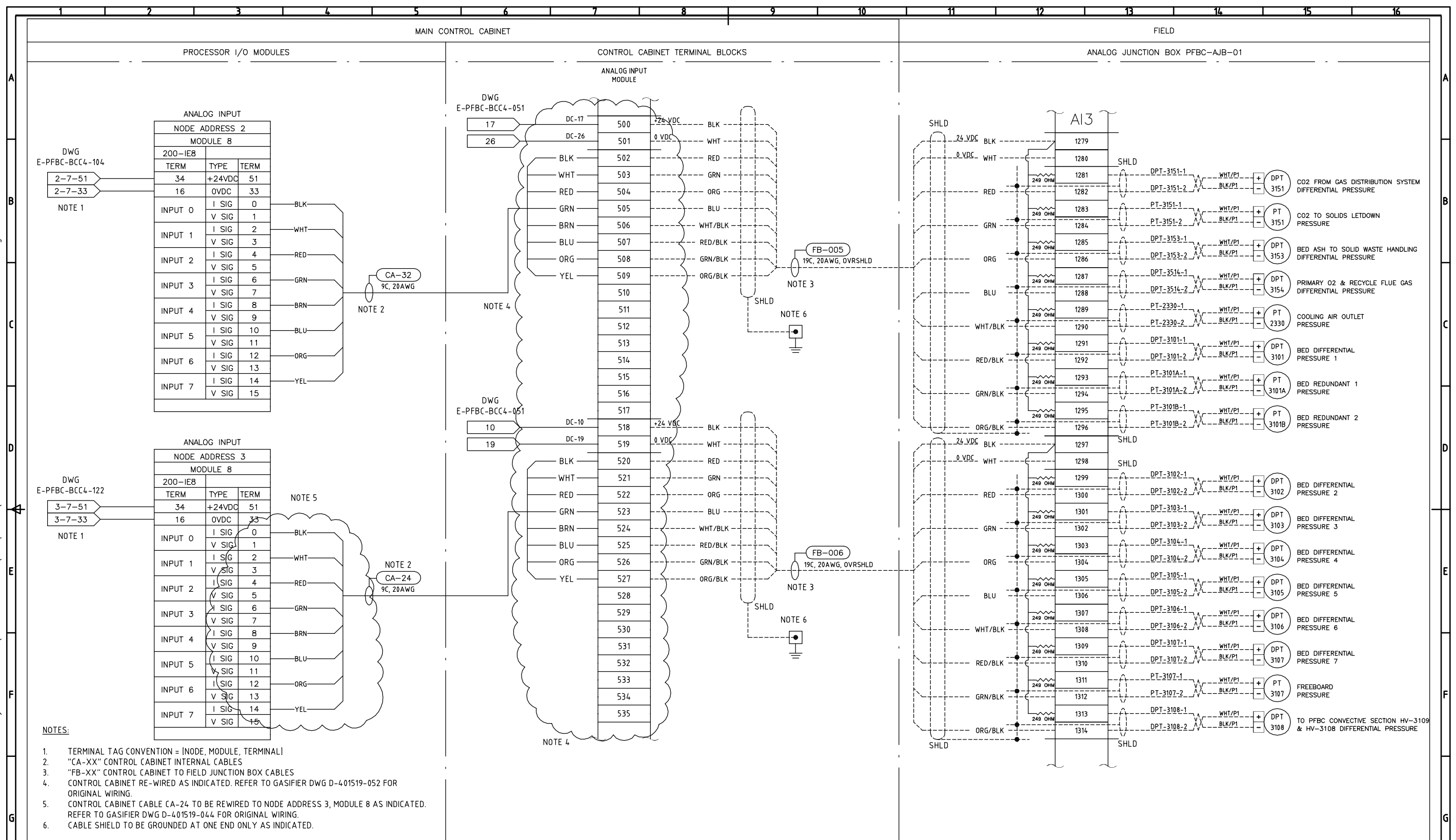
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 2 - MODULES 5 & 7				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 104	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:21pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-105 AI WIRING N2-M8 & N3-M8 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = (NODE, MODULE, TERMINAL)
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CONTROL CABINET RE-WIRED AS INDICATED. REFER TO GASIFIER DWG D-401519-052 FOR ORIGINAL WIRING.
 5. CONTROL CABINET CABLE CA-24 TO BE REWIRED TO NODE ADDRESS 3, MODULE 8 AS INDICATED. REFER TO GASIFIER DWG D-401519-044 FOR ORIGINAL WIRING.
 6. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
122	ANALOG OUTPUT WIRING N3 - M6 & M7	0	2015/10/02	BBY	DER	
104	ANALOG INPUT WIRING N2 - M7 & M5	A	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

REFERENCE DRAWINGS

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD

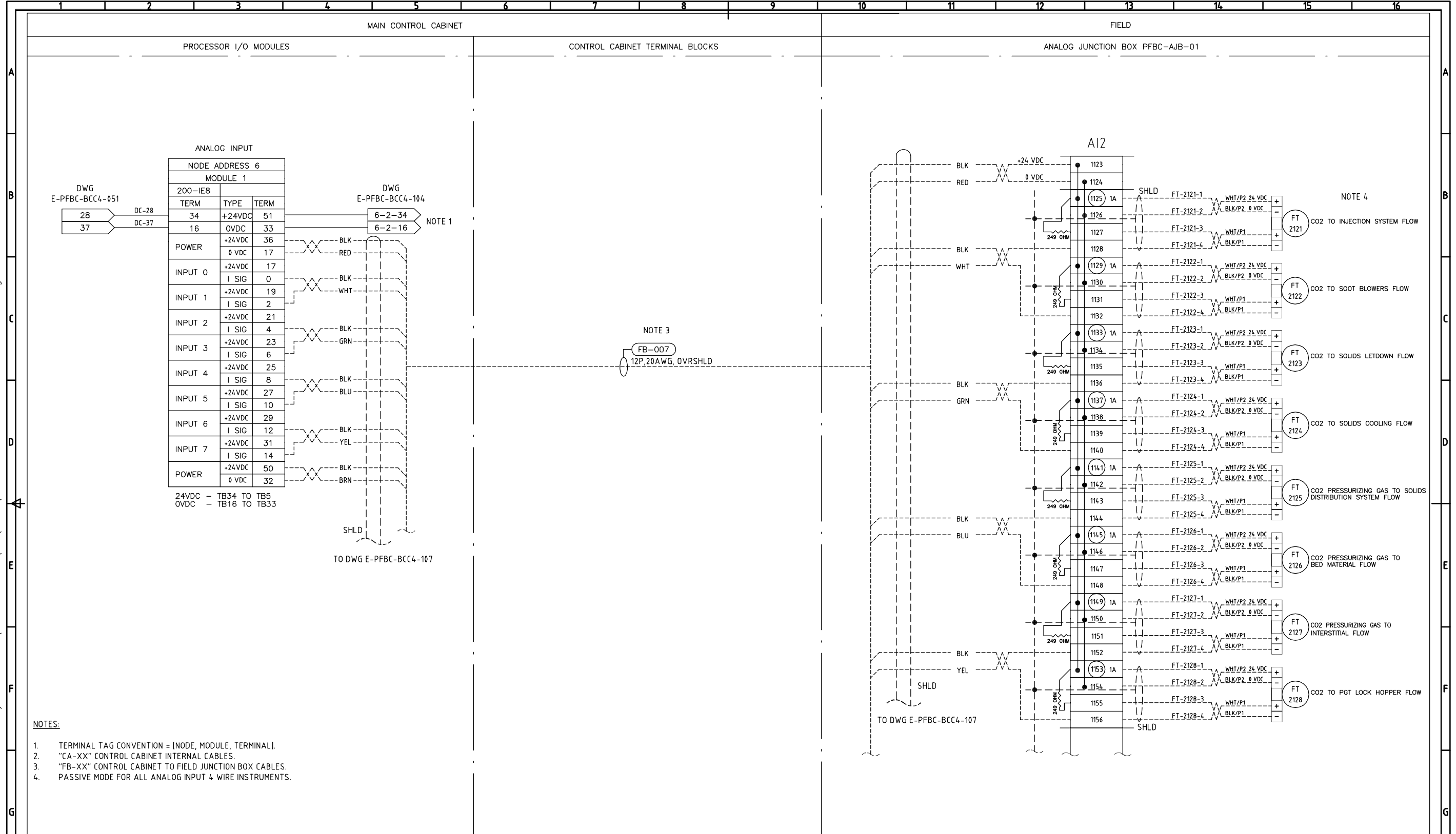
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC
CHECKED D. RICHMOND	AJB - ANALOG INPUT WIRING
APPROVED	NODE 2 - MODULE 8 & NODE 3 - MODULE 8
DATE 2015/06/30	DEPARTMENT E
SCALE NONE	PROJECT PFBC
	BUILDING BCC4
	DRAWING 105
	REV. 0



LAST SAVE: 2015/10/03 - 4:22pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-106 AI WIRING N6-M1 REV 0.dwg

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
107	ANALOG INPUT WIRING N6 - M2	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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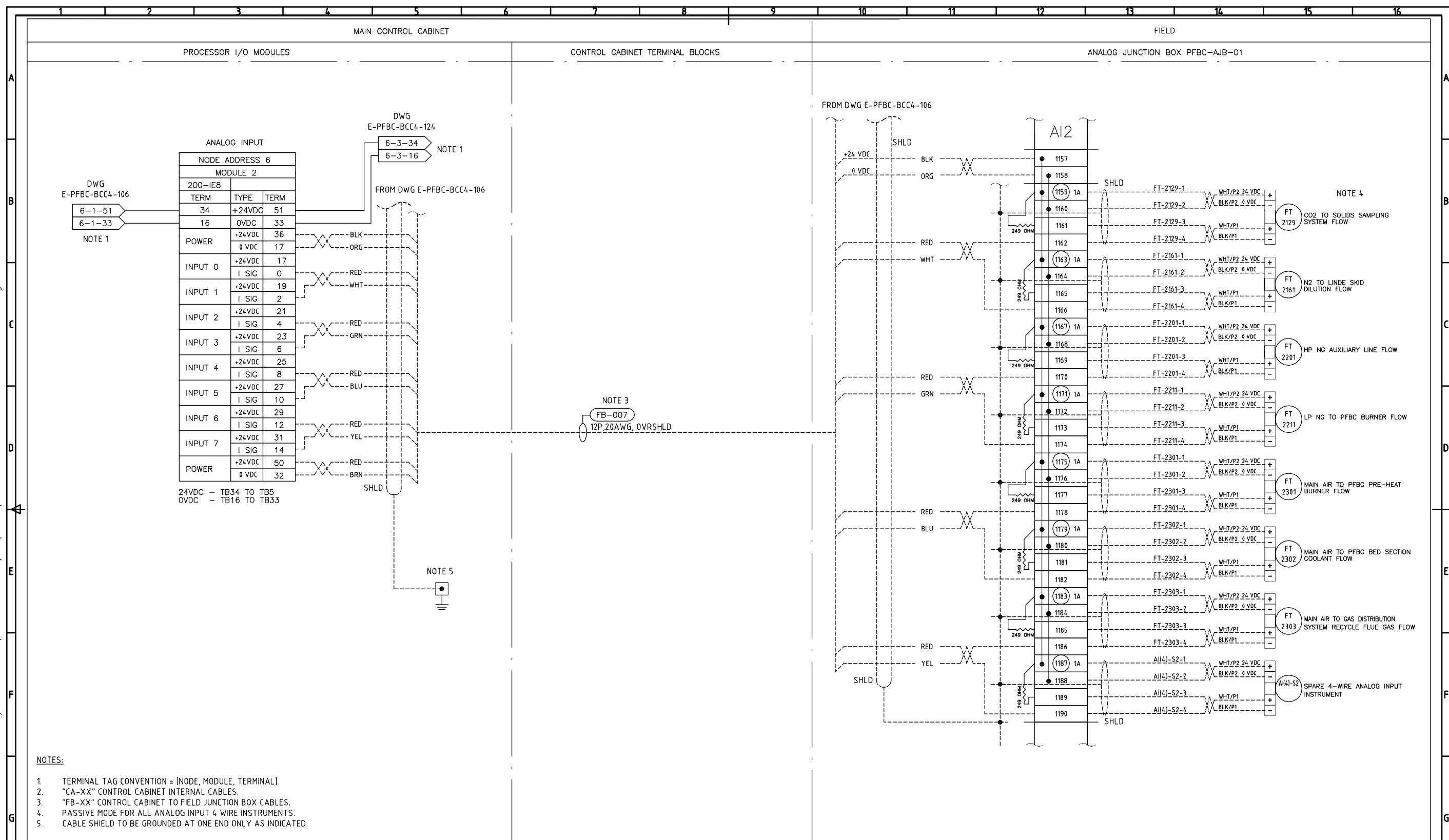
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 6 - MODULE 1				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 106	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:23pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-107 AI WIRING N6-M2 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
124	ANALOG OUTPUT WIRING N6 - M3 & M4	2015/10/02	BBY	DER	
106	ANALOG INPUT WIRING N6 - M1	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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DESIGNED
B. YACH

DRAWN
B. YACH

CHECKED
D. RICHMOND

APPROVED

DATE
2015/06/30

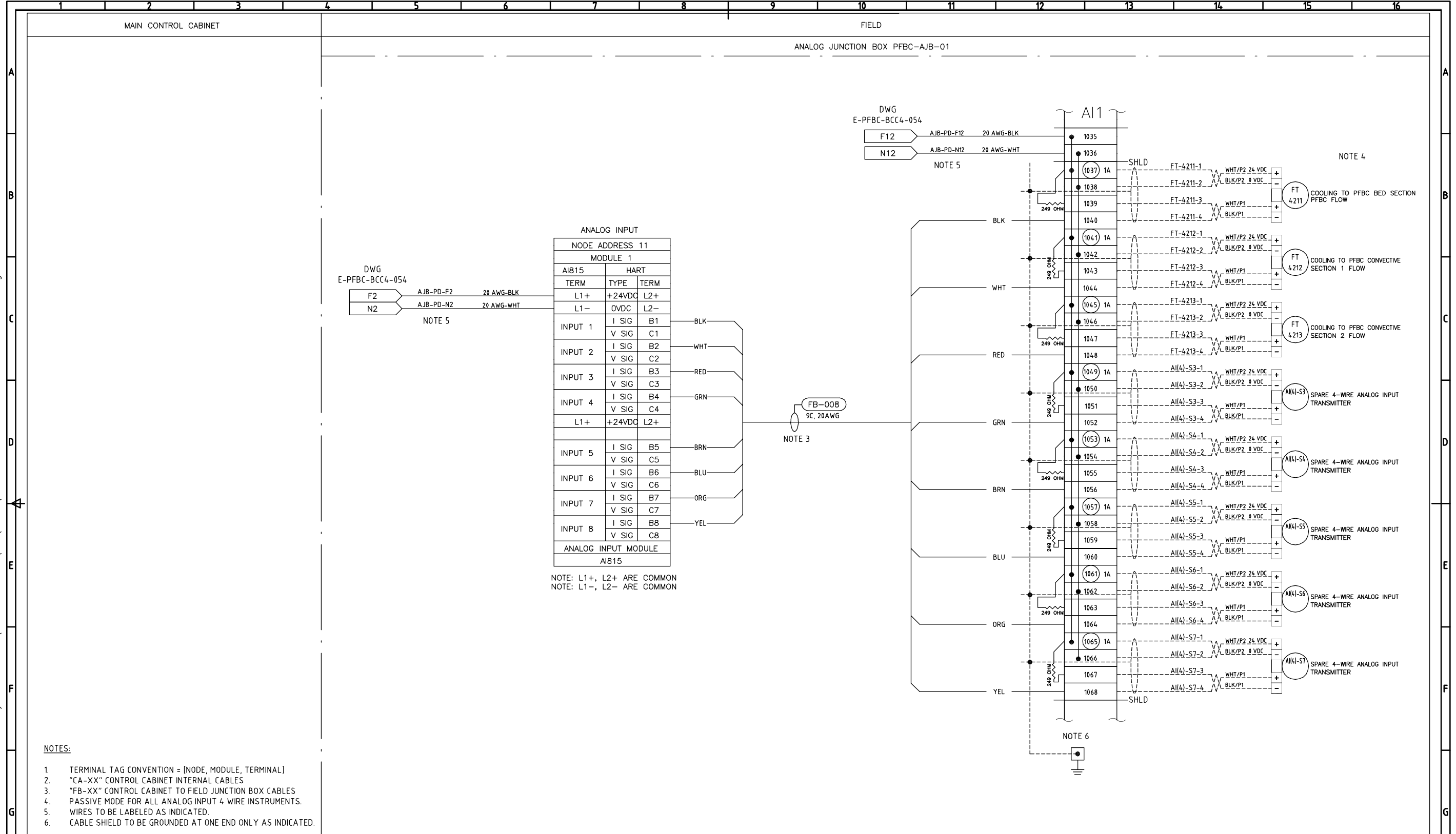
SCALE
NONE

PROJECT
NRCAN CANMET OXY-PFBC

TITLE
ELECTRICAL
OXY-PFBC
AJB - ANALOG INPUT WIRING
NODE ADDRESS 6 - MODULE 2

DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	107	0

LAST SAVE: 2015/10/03 - 4:23pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-108 AI WIRING N11-M1 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL]
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. PASSIVE MODE FOR ALL ANALOG INPUT 4 WIRE INSTRUMENTS.
 5. WIRES TO BE LABELED AS INDICATED.
 6. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

REFERENCE DRAWINGS

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DESIGNED
B. YACH

DRAWN
B. YACH

CHECKED
D. RICHMOND

APPROVED

DATE
2015/06/30

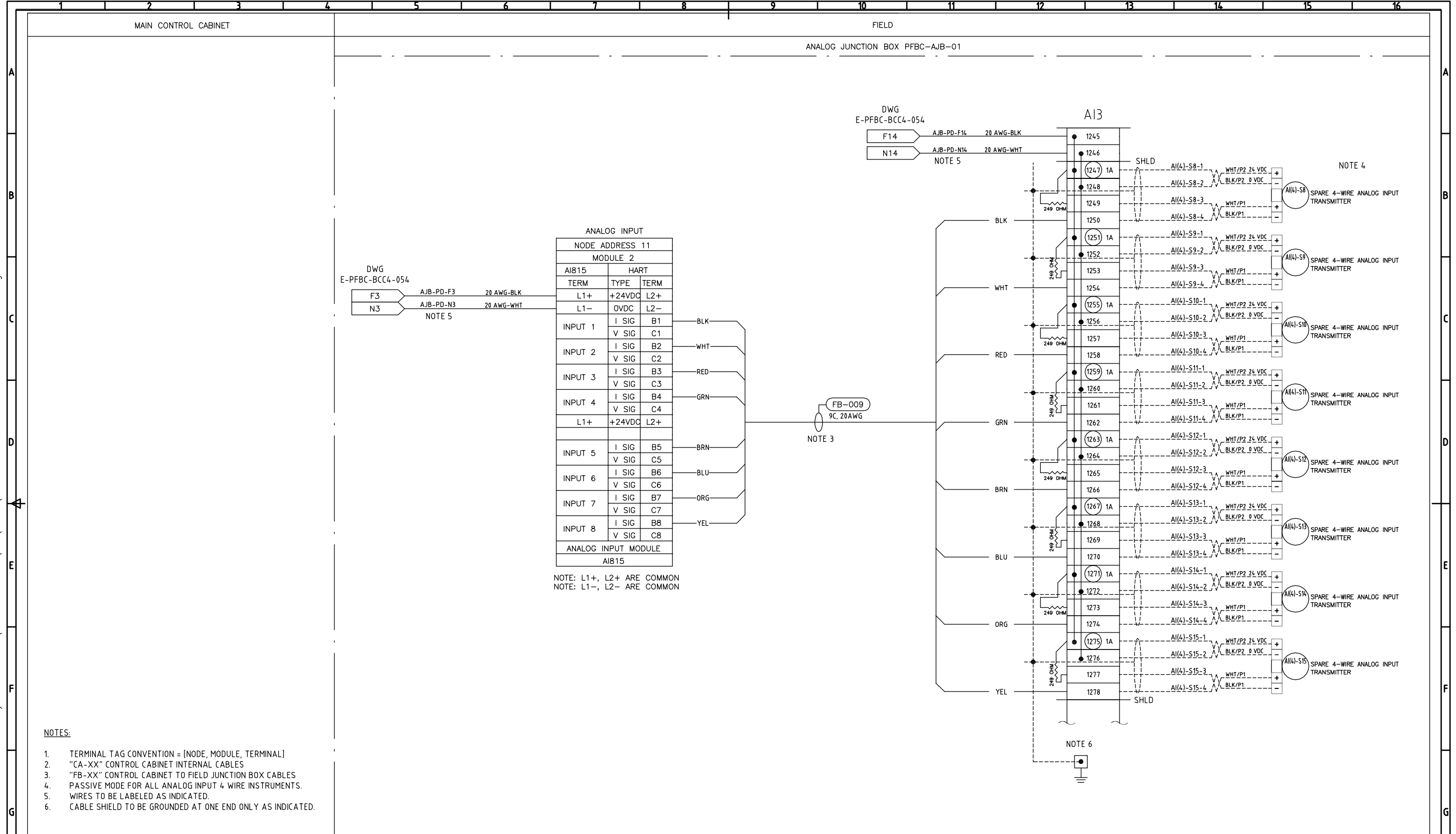
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NONE

PROJECT
NRCAN CANMET OXY-PFBC

TITLE
ELECTRICAL
OXY-PFBC
AJB - ANALOG INPUT WIRING
NODE ADDRESS 11 - MODULE 1

DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	108	0

LAST SAVE: 2015/10/03 - 4:23pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-109 AI WIRING N11-M2 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	215/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

REFERENCE DRAWINGS

NO	DESCRIPTION

REVISION REGISTER

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DESIGNED
B. YACH
DRAWN
B. YACH
CHECKED
D. RICHMOND
APPROVED

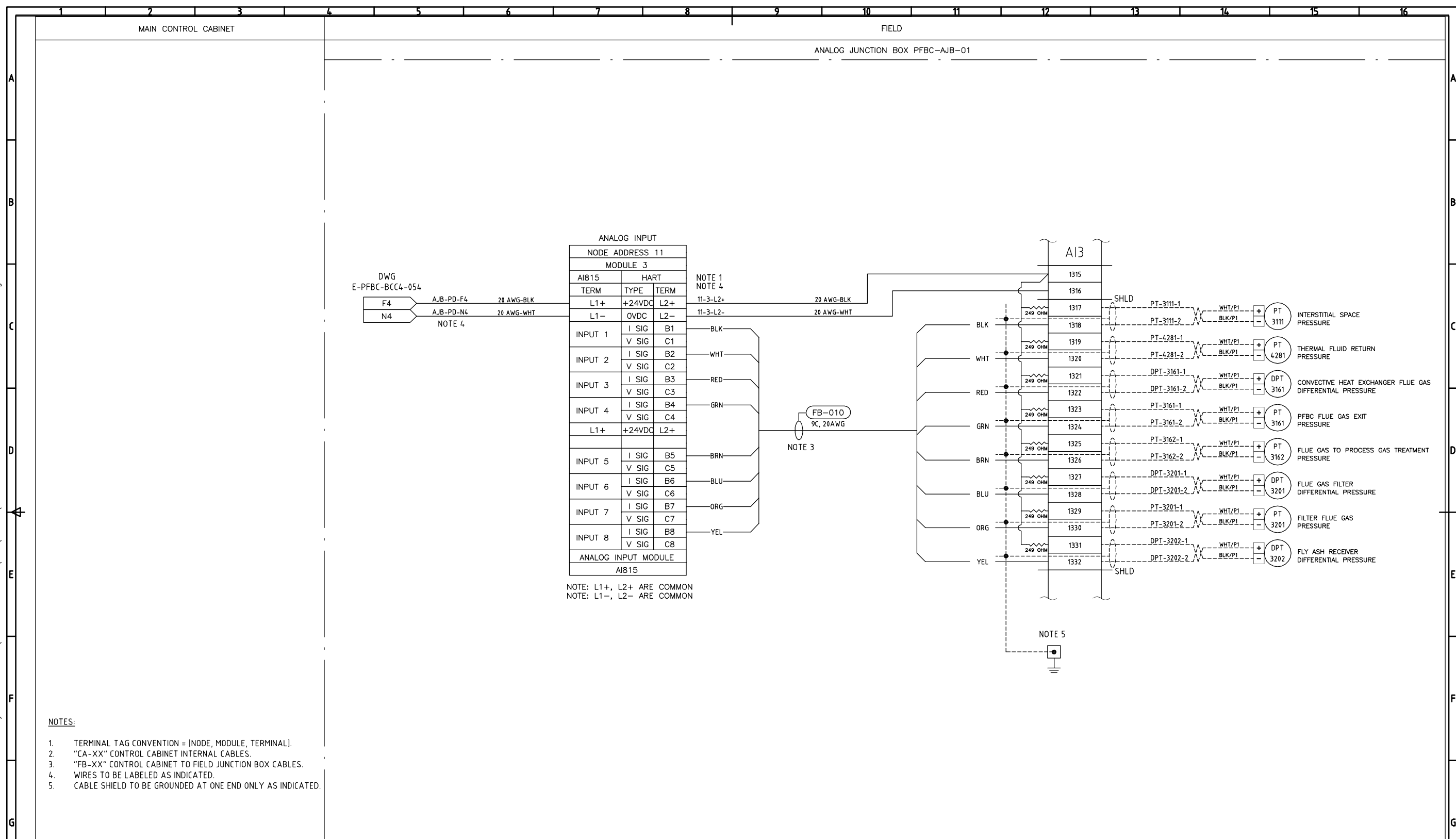
DATE
2015/06/30
SCALE
NONE

PROJECT
NRCAN CANMET OXY-PFBC

TITLE
ELECTRICAL
OXY-PFBC
AJB - ANALOG INPUT WIRING
NODE ADDRESS 11 - MODULE 2

DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	109	0

LAST SAVE: 2015/10/03 - 4:30pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-110 AI WIRING N11-M3 REV 0.dwg



DWG
 E-PFBC-BCC4-054
 F4 AJB-PD-F4 20 AWG-BLK
 N4 AJB-PD-N4 20 AWG-WHT
 NOTE 4

ANALOG INPUT		
NODE ADDRESS 11		
MODULE 3		
TERM	TYPE	TERM
L1+	+24VDC	L2+
L1-	0VDC	L2-
INPUT 1	I SIG	B1
INPUT 2	I SIG	B2
INPUT 3	I SIG	B3
INPUT 4	I SIG	B4
L1+	+24VDC	L2+
INPUT 5	I SIG	B5
INPUT 6	I SIG	B6
INPUT 7	I SIG	B7
INPUT 8	I SIG	B8
ANALOG INPUT MODULE		
A1815		

NOTE 1
NOTE 4

FB-010
 9C, 20AWG
 NOTE 3

NOTE: L1+, L2+ ARE COMMON
 NOTE: L1-, L2- ARE COMMON

NOTES:

1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
4. WIRES TO BE LABELED AS INDICATED.
5. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

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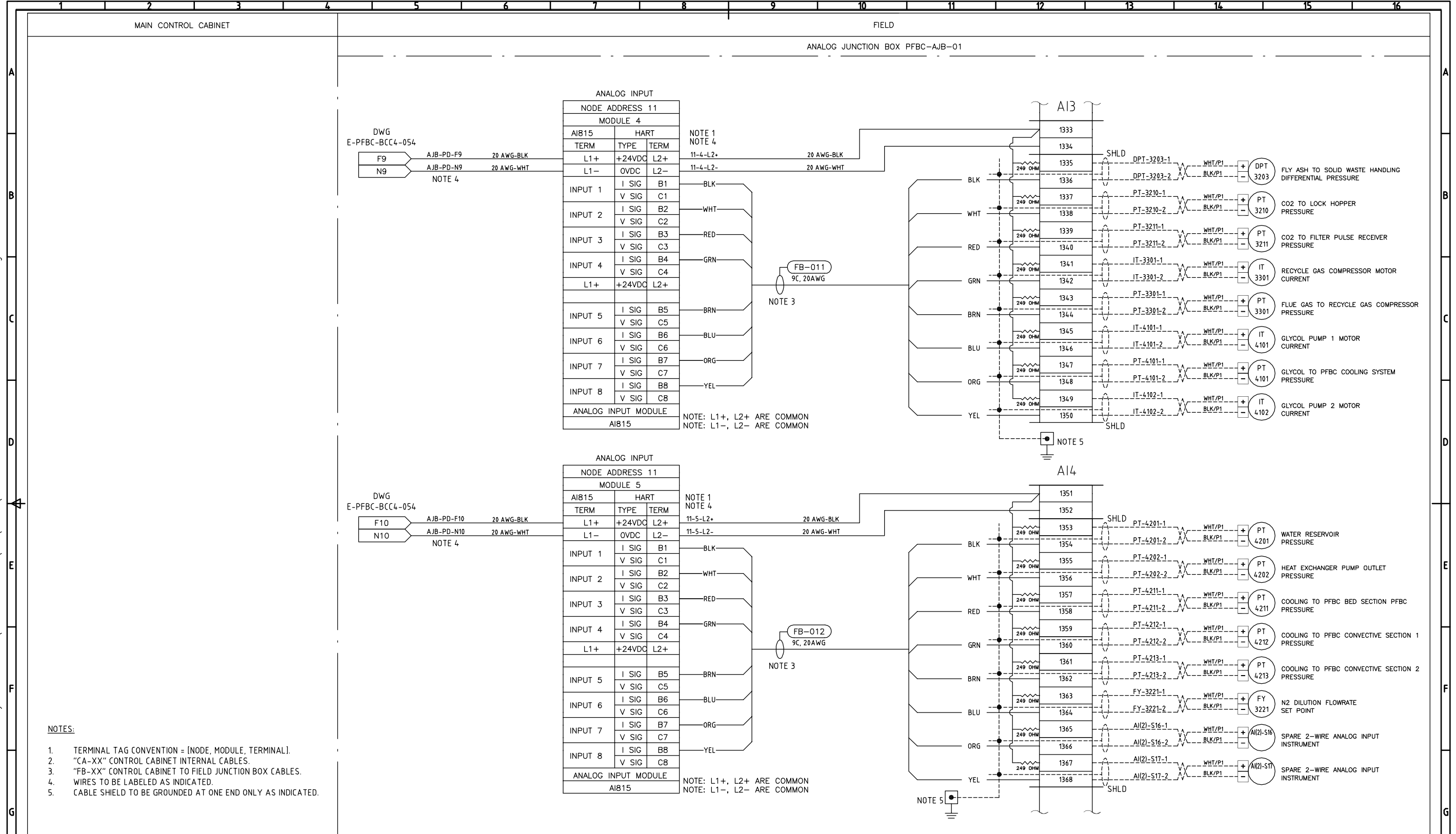
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 11 - MODULE 3				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 110	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:34pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-111 AI WIRING N11-M4-M5 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. WIRES TO BE LABELED AS INDICATED.
 5. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

REV	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

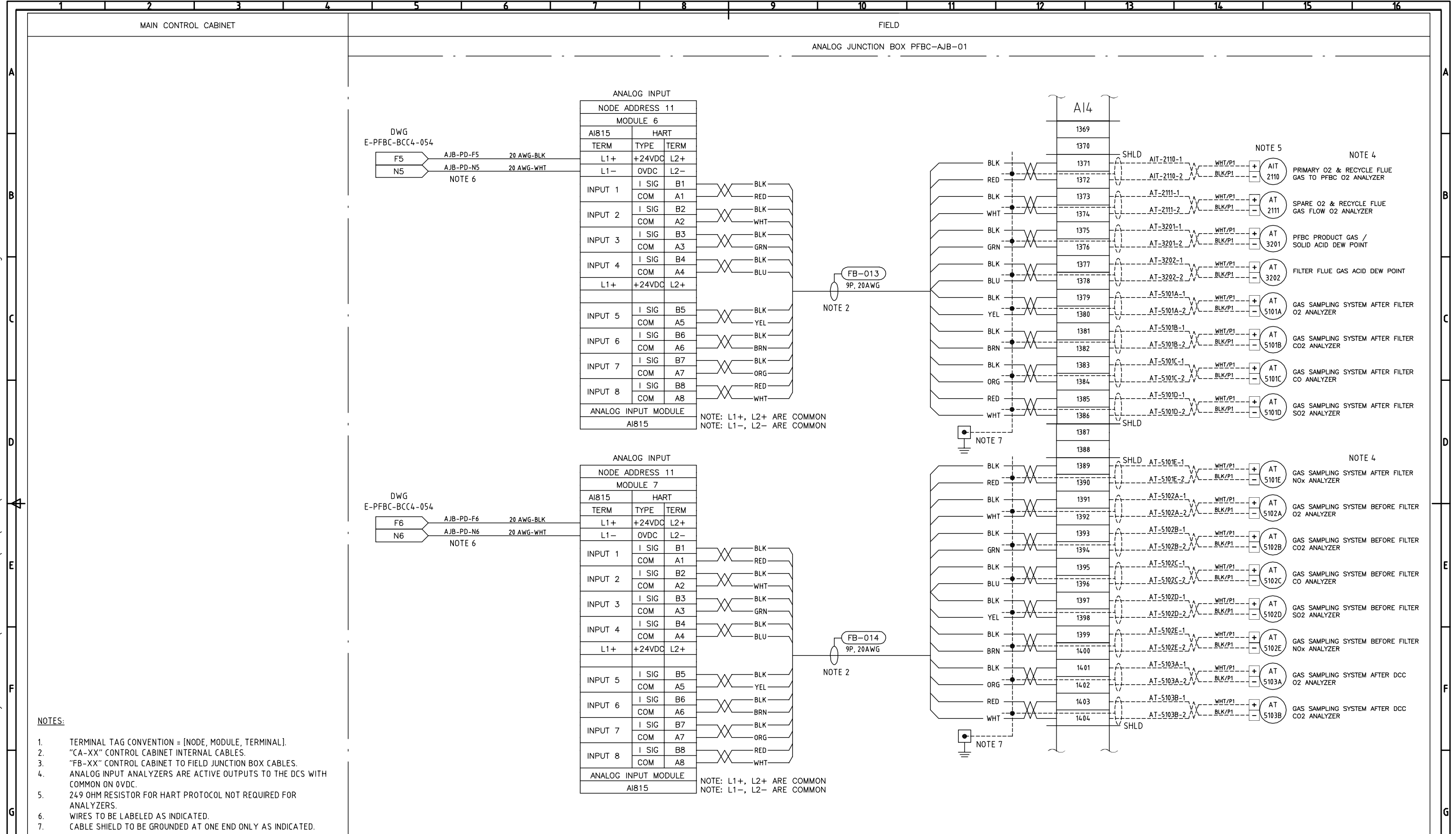
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 11 - MODULES 4 & 5				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 111	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:33pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-112 AI WIRING N11-M6-M7 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. ANALOG INPUT ANALYZERS ARE ACTIVE OUTPUTS TO THE DCS WITH COMMON ON 0VDC.
 5. 249 OHM RESISTOR FOR HART PROTOCOL NOT REQUIRED FOR ANALYZERS.
 6. WIRES TO BE LABELED AS INDICATED.
 7. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	ISSUE FOR CLIENT REVIEW	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

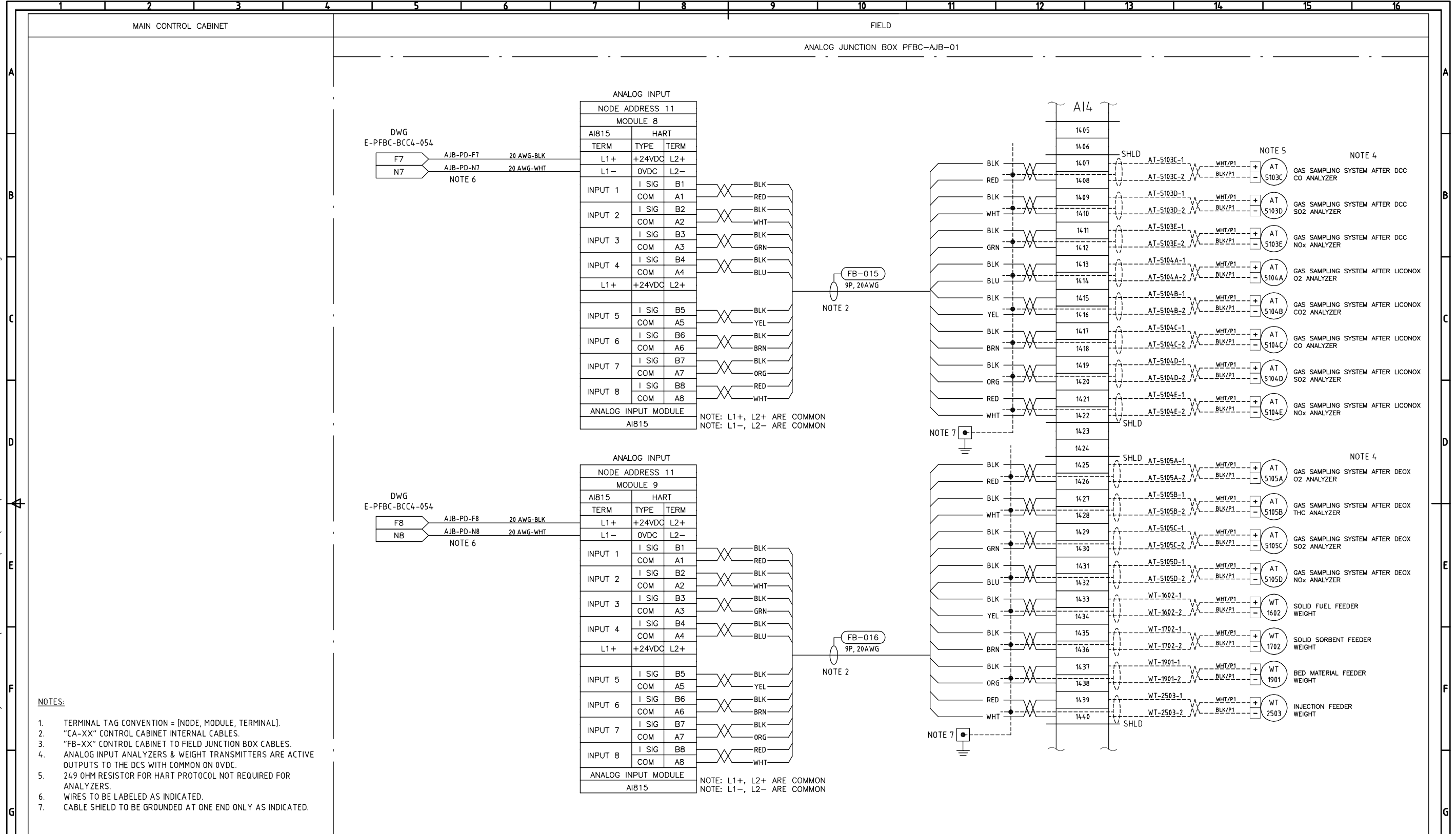
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 11 - MODULES 6 & 7				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 112	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:33pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-113 AI WIRING N11-M8-M9 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. ANALOG INPUT ANALYZERS & WEIGHT TRANSMITTERS ARE ACTIVE OUTPUTS TO THE DCS WITH COMMON ON 0VDC.
 5. 249 OHM RESISTOR FOR HART PROTOCOL NOT REQUIRED FOR ANALYZERS.
 6. WIRES TO BE LABELED AS INDICATED.
 7. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
054	ANALOG JUNCTION BOX DC POWER DIST.				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
054	ANALOG JUNCTION BOX DC POWER DIST.				

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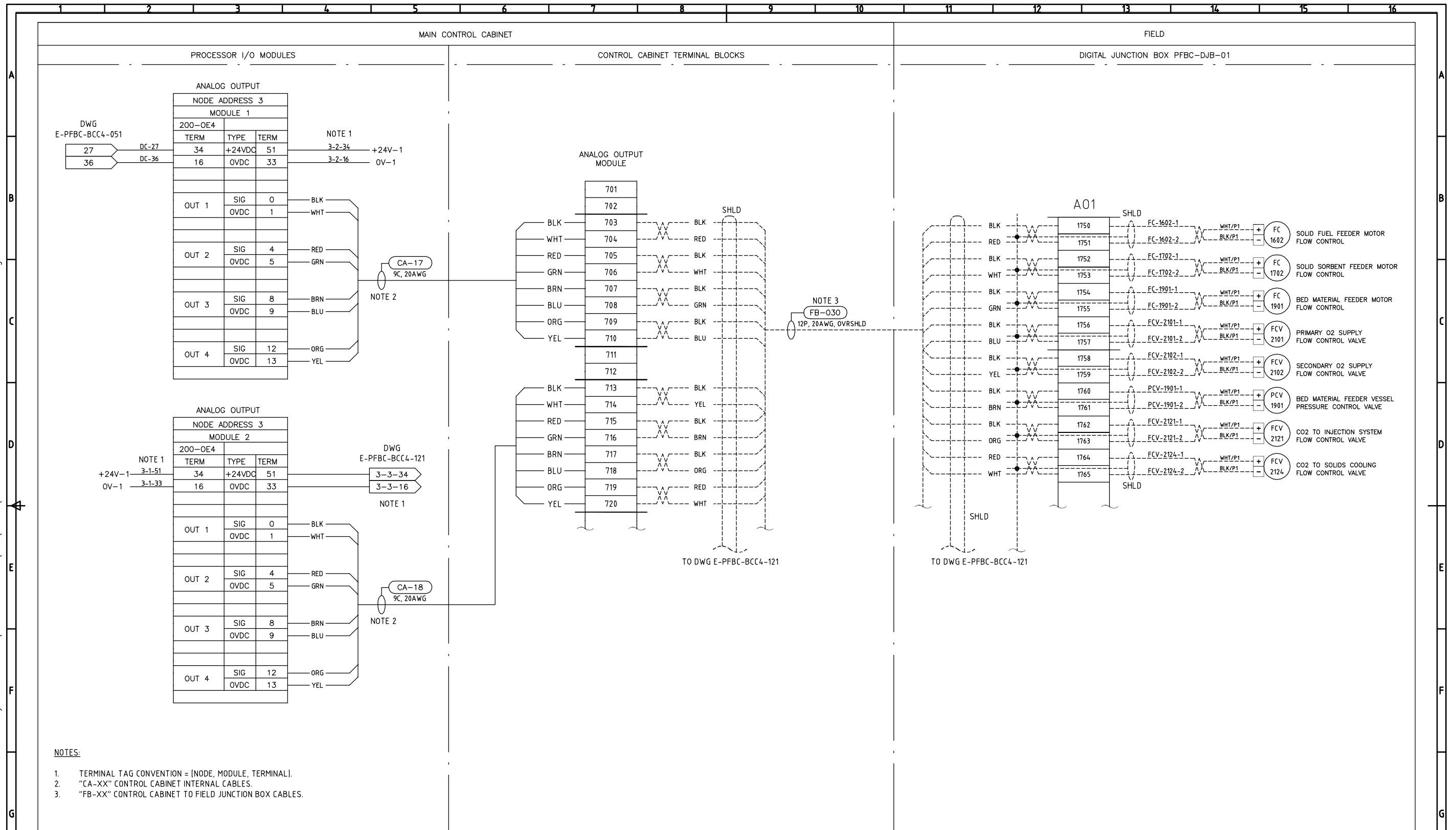
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PROJECT # 151-07049-00

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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC AJB - ANALOG INPUT WIRING NODE ADDRESS 11 - MODULES 8 & 9			
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 113
APPROVED			DRAWING 113	REV. 0
DATE 2015/06/30				
SCALE NONE				

LAST SAVE: 2015/10/03 - 4:32pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-120 AO WIRING N3-M1-M2 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	ISSUE FOR CLIENT REVIEW	DATE	BY	CHKD	APPD
121	INTERNAL REVIEW	2015/09/11	BBY	DER	
051	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
1	INTERNAL REVIEW	2015/09/11	BBY	DER	

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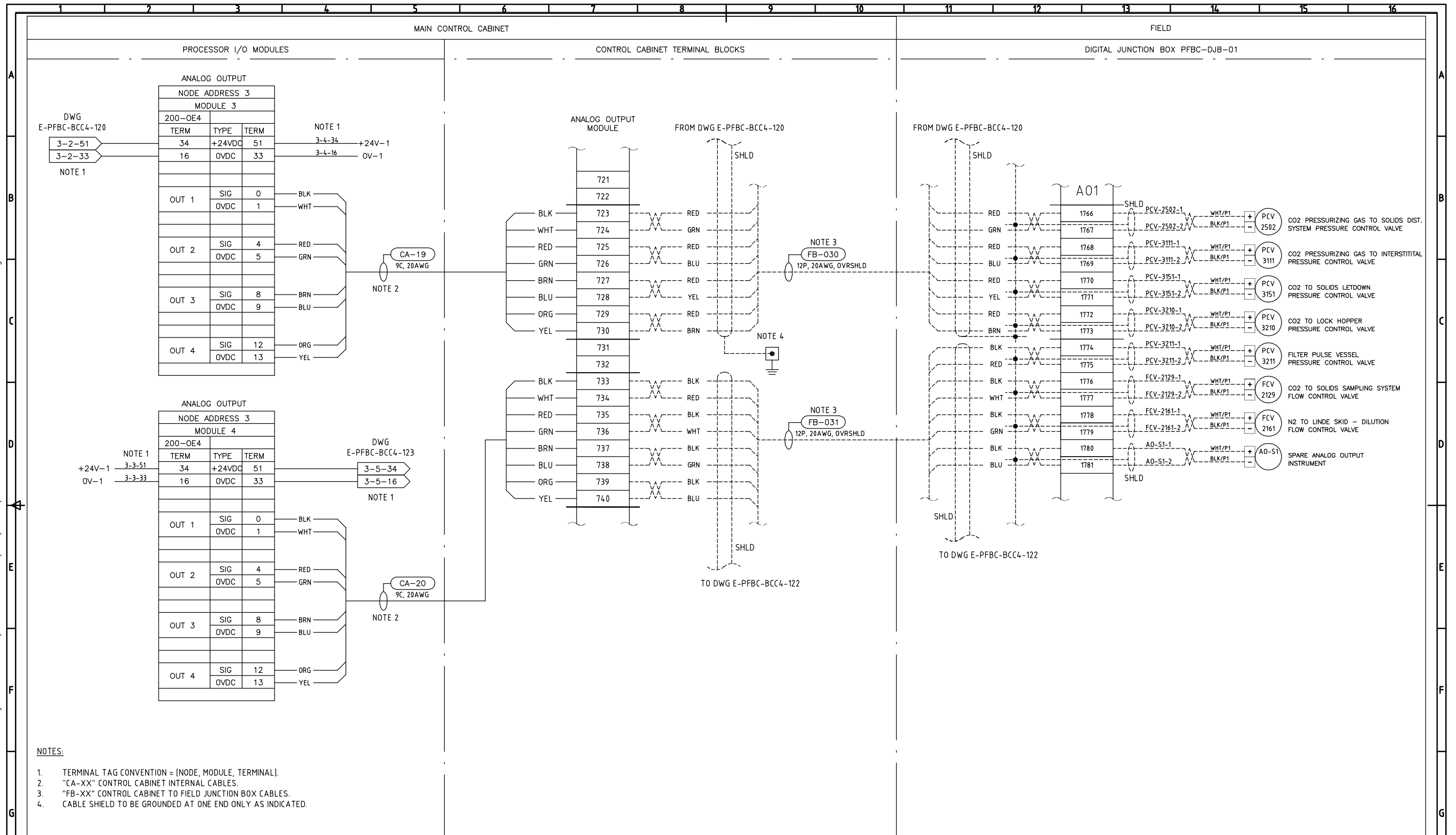
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DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT				
NRCAN CANMET OXY-PFBC				
TITLE				
ELECTRICAL OXY-PFBC				
DJB - ANALOG OUTPUT WIRING				
NODE ADDRESS 3 - MODULES 1 & 2				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	120	0

LAST SAVE: 2015/10/03 - 4:32pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-121 AO WIRING N3-M3-M4 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
123	ANALOG OUTPUT WIRING N3 - M5 & N6 - M8	2015/10/02	BBY	DER	
120	ANALOG OUTPUT WIRING N3 - M1 & M2	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	DESCRIPTION	DATE	BY	CHKD	APPD
	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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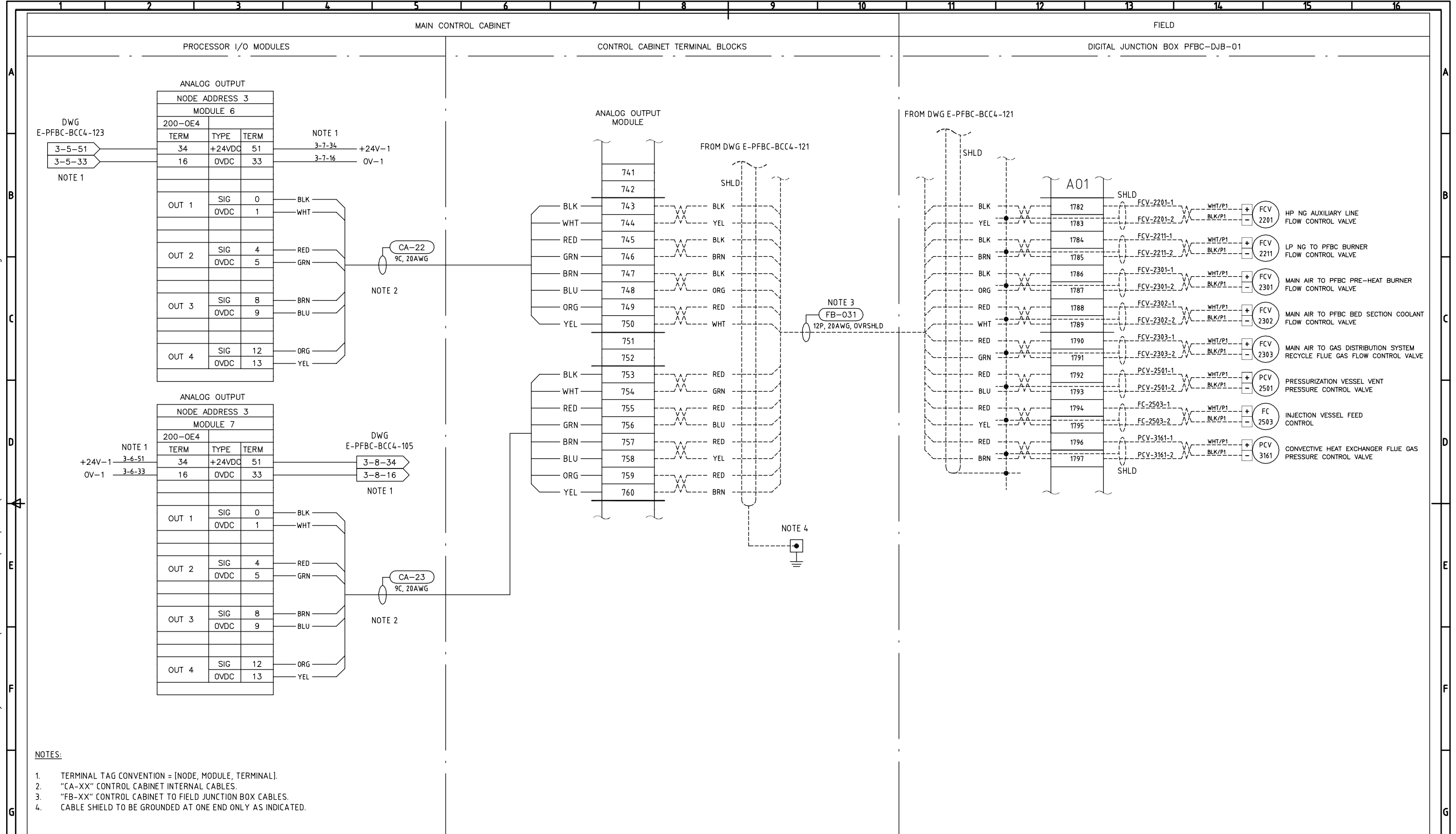
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC				
CHECKED D. RICHMOND	DJB - ANALOG OUTPUT WIRING				
APPROVED	NODE ADDRESS 3 - MODULES 3 & 4				
DATE 2015/06/30	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 121	REV. 0
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:31pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-122 AO WIRING N3-M6-M7 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
123	ANALOG OUTPUT WIRING N3 - M5 & N6 - M8	2015/10/02	BBY	DER	
105	ANALOG INPUT WIRING N2 - M8 & N3 - M8	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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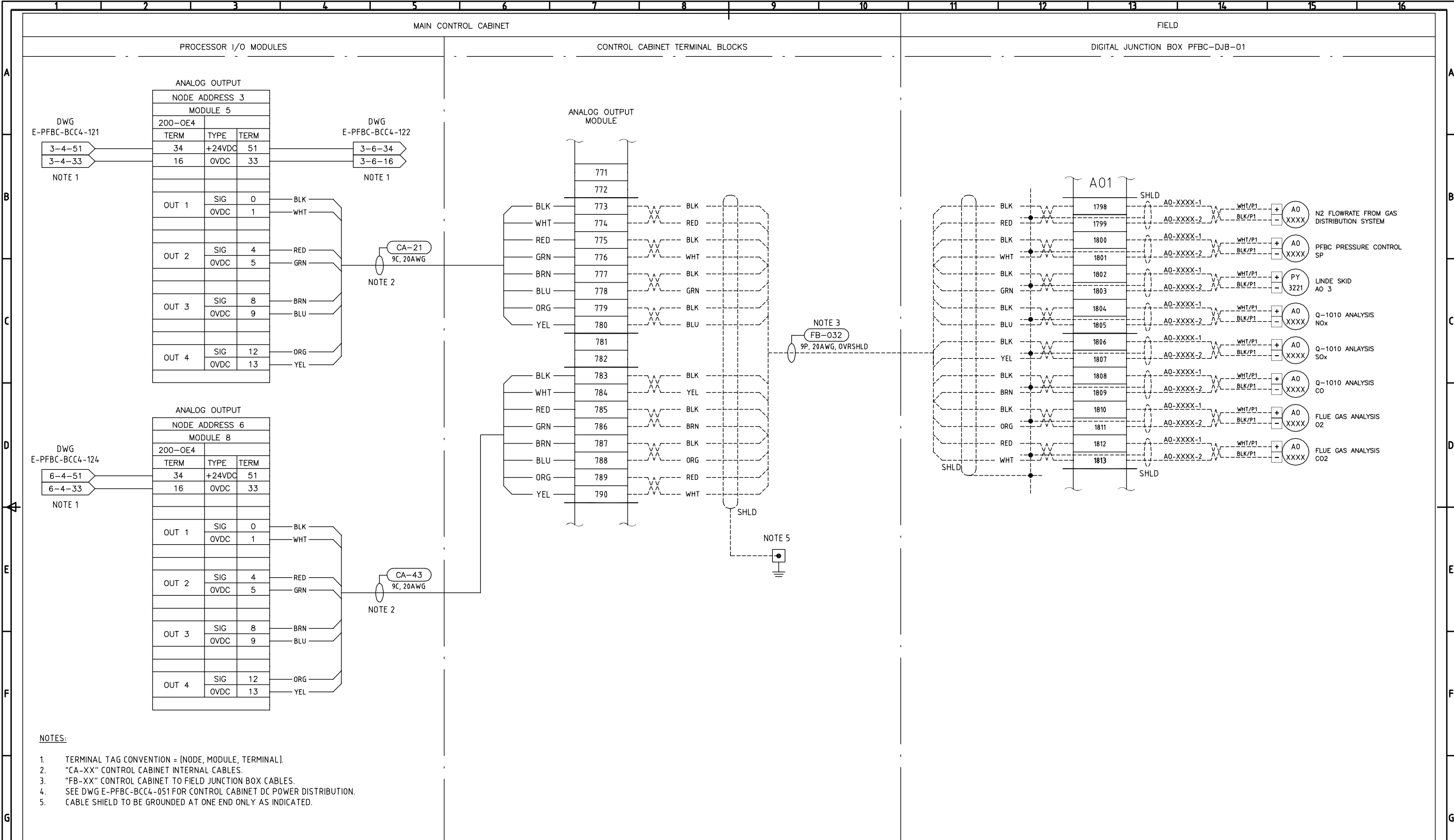
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DJB - ANALOG OUTPUT WIRING NODE ADDRESS 3 - MODULES 6 & 7				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 122	REV. 0

LAST SAVE: 2015/10/03 - 4:31pm
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- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. SEE DWG E-PFBC-BCC4-051 FOR CONTROL CABINET DC POWER DISTRIBUTION.
 5. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO.	DESCRIPTION	DATE	BY	CHKD	APPD
124	ANALOG OUTPUT WIRING N6 - M3 & M4				
122	ANALOG OUTPUT WIRING N3 - M6 & M7	2015/10/02	BBY	DER	
121	ANALOG OUTPUT WIRING N3 - M3 & M4	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

REVISION REGISTER

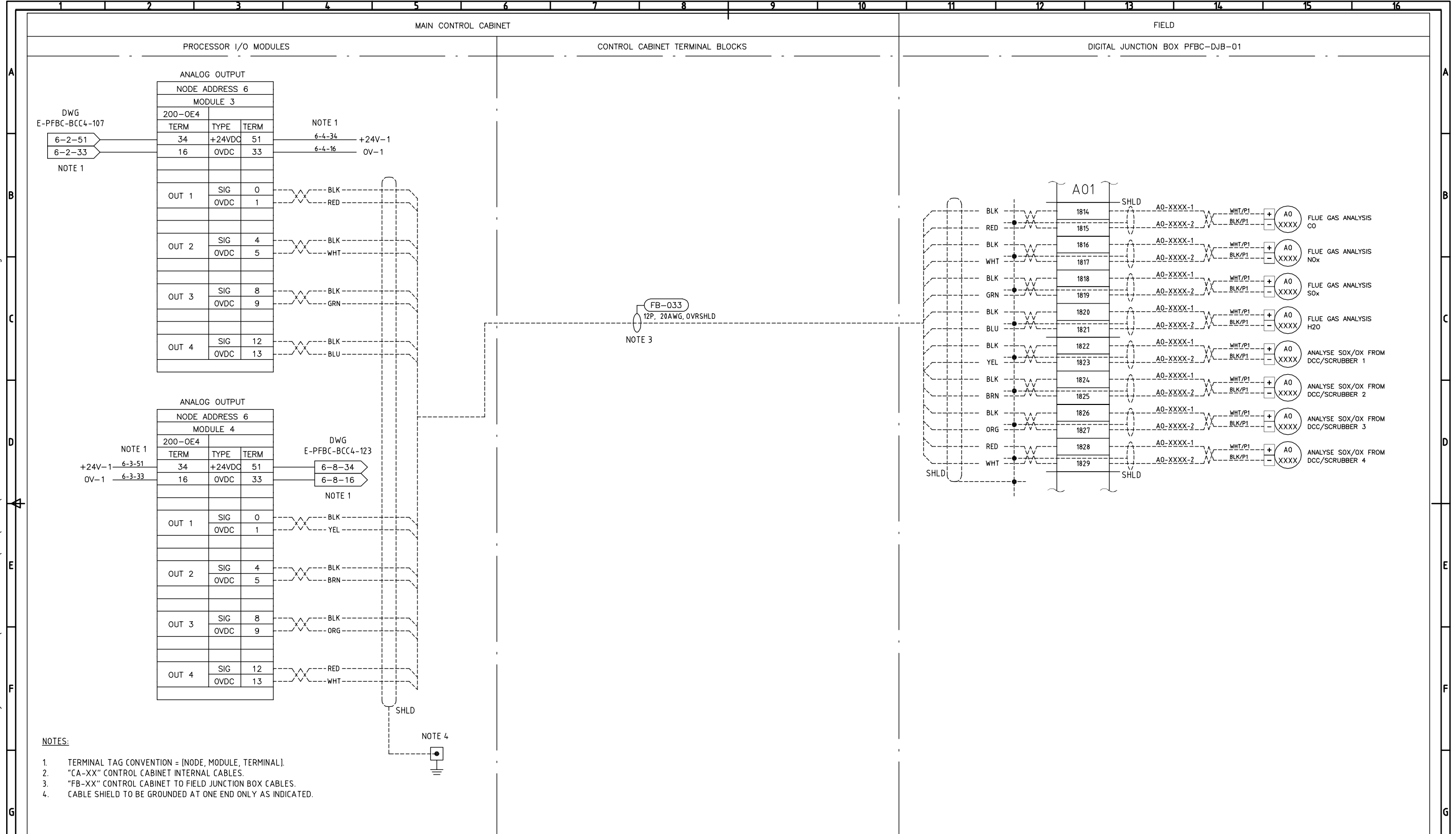
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC				
CHECKED D. RICHMOND	DJB - ANALOG OUTPUT WIRING				
APPROVED	NODE 3 - MODULE 5 & NODE 6 - MODULE 8				
DATE 2015/06/30	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 123	REV. 0
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:30pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-124 AO WIRING N6-M3-M4 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
123	ANALOG OUTPUT WIRING N3 - M5 & N6 - M8	2015/10/02	BBY	DER	
107	ANALOG INPUT WIRING N6 - M2	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	DESCRIPTION	DATE	BY	CHK	APPD
051	CONTROL CABINET DC POWER DISTRIBUTION				

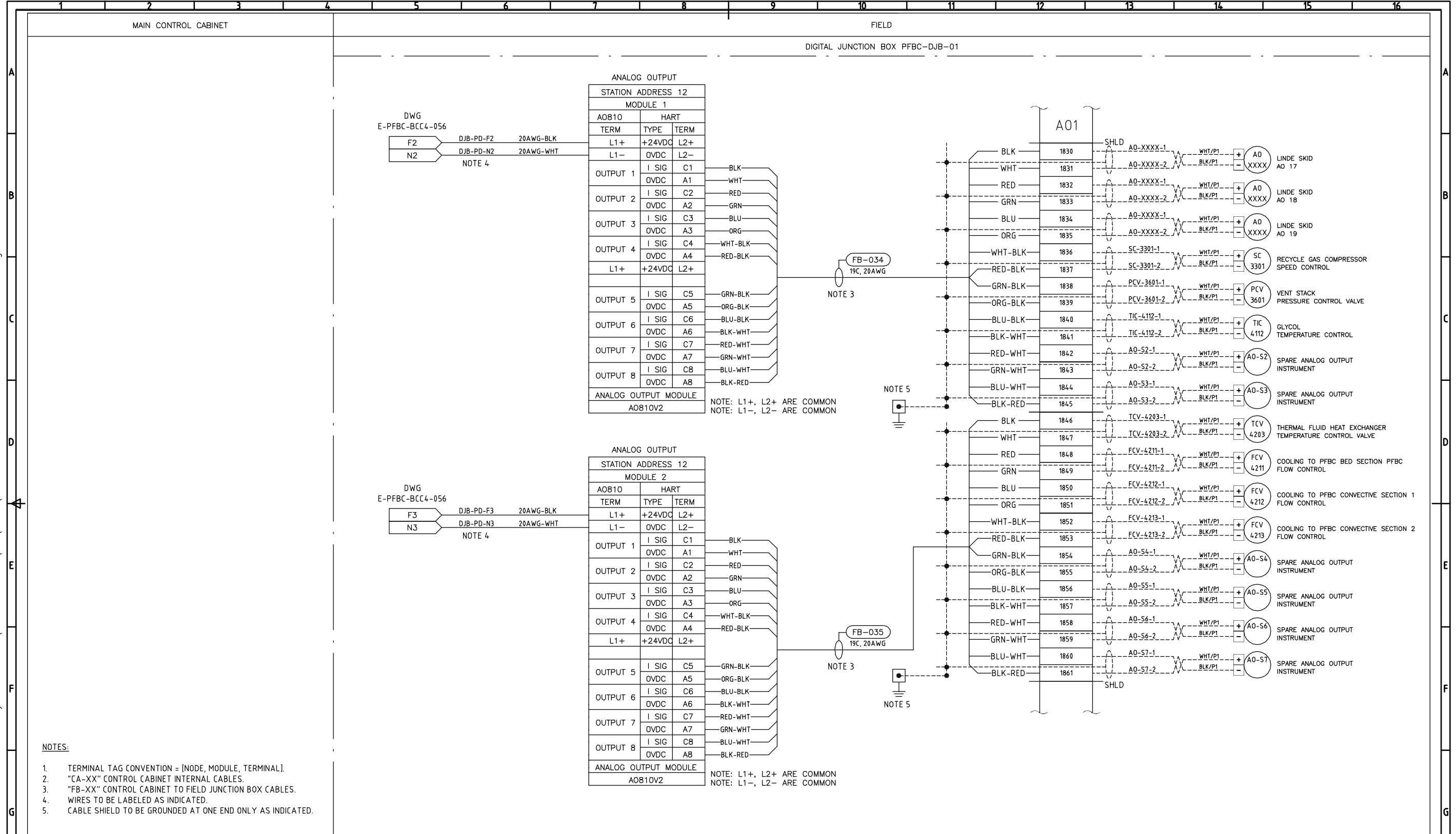
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - ANALOG OUTPUT WIRING NODE ADDRESS 6 - MODULES 3 & 4
CHECKED D. RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 124
	REV. 0

LAST SAVE: 2015/10/03 - 4:30pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-125 AO WIRING N12-M1-M2 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. WIRES TO BE LABELED AS INDICATED.
 5. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	ISSUE FOR CLIENT REVIEW	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
056	DIGITAL JUNCTION BOX DC POWER DIST.				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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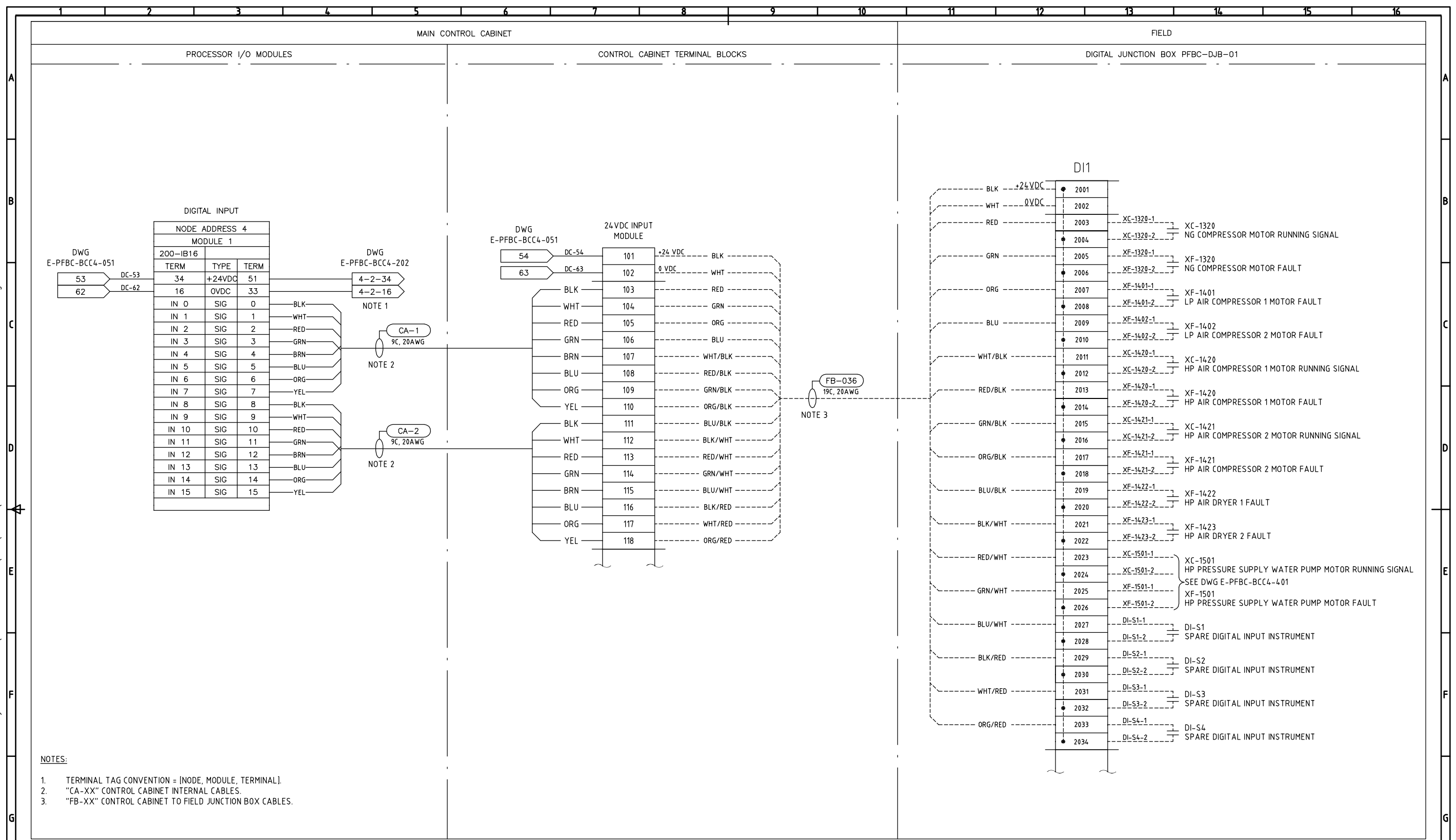
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - ANALOG OUTPUT WIRING NODE ADDRESS 12 - MODULES 1 & 2			
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 125
APPROVED			DRAWING 125	REV. 0
DATE 2015/06/30				
SCALE NONE				

LAST SAVE: 2015/10/03 - 4:40pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-201 DI WIRING N4-M1 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
202	DIGITAL INPUT WIRING N4 - M2	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	DESCRIPTION	DATE	BY	CHK	APPD
	REVISION REGISTER				

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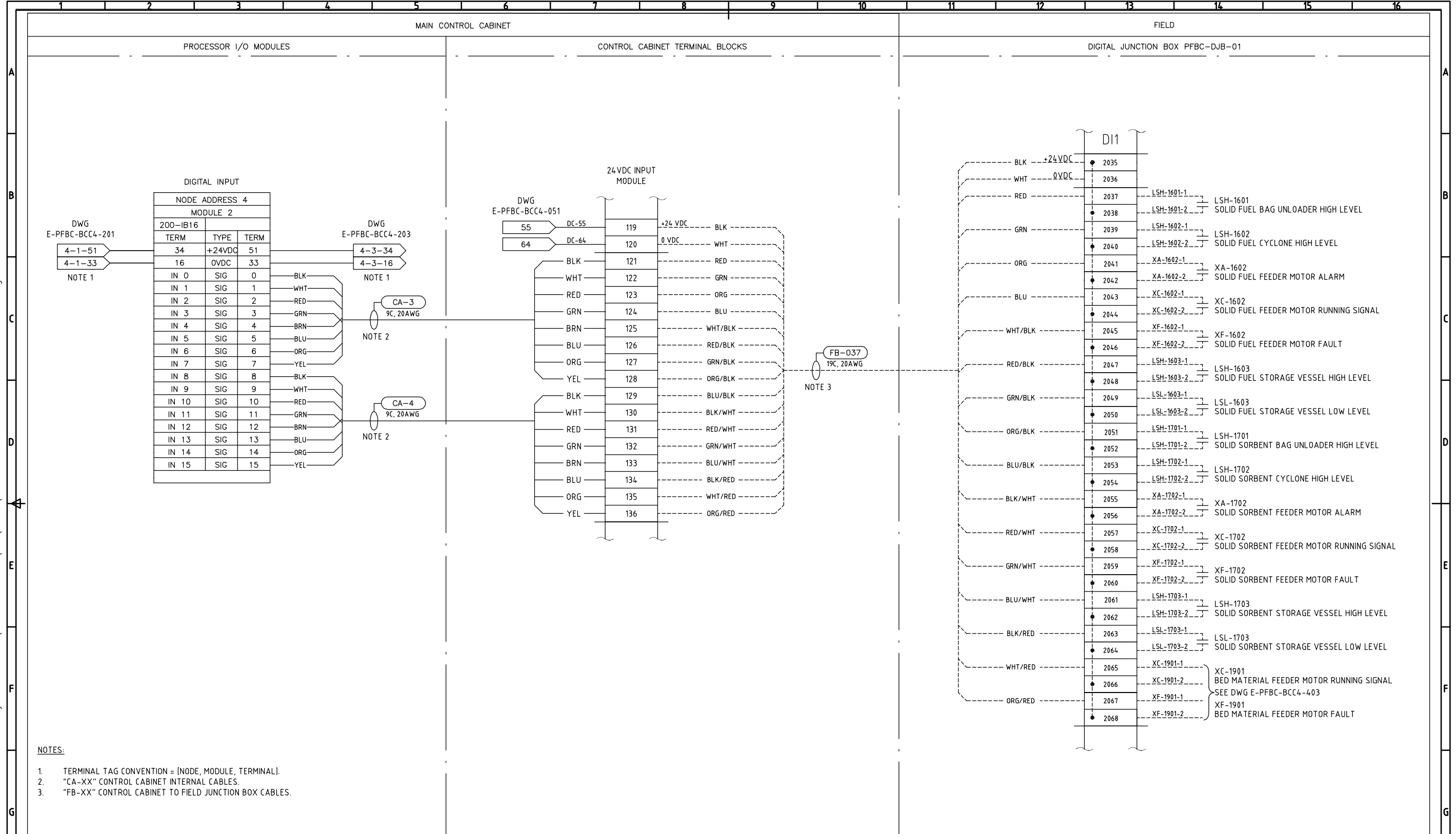
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL INPUT WIRING NODE ADDRESS 4 - MODULE 1				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 201	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:45pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-202 DI WIRING N4-M2 REV 0.dwg



- NOTES:
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
203	DIGITAL INPUT WIRING N4 - M3	0	2015/10/02	BBY	DER	
201	DIGITAL INPUT WIRING N4 - M1	A	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

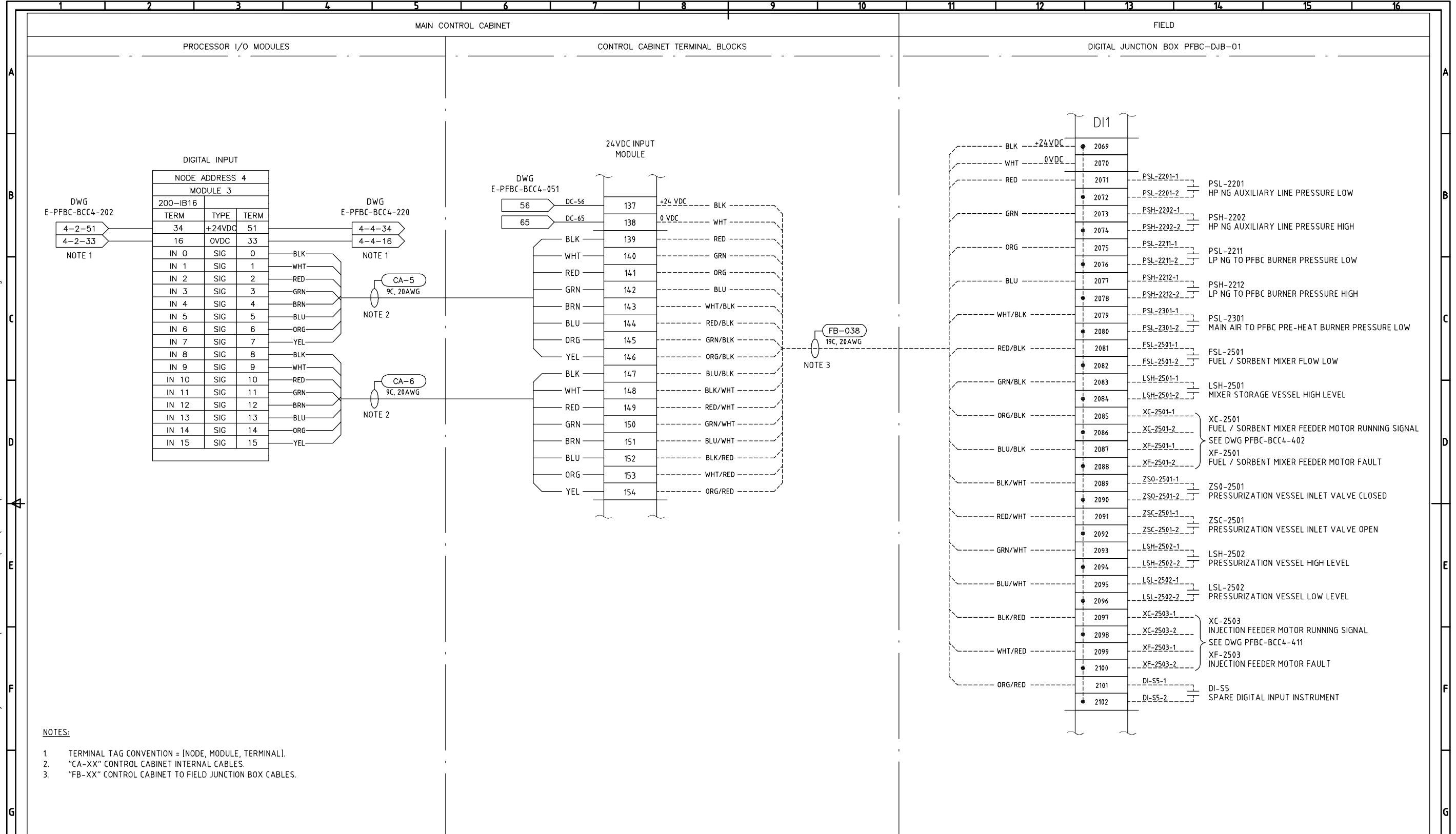
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL INPUT WIRING NODE ADDRESS 4 - MODULE 2				
CHECKED D. RICHMOND	DEPARTMENT E				
APPROVED	PROJECT PFBC		BUILDING BCC4	DRAWING 202	REV. 0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:44pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-203 DI WIRING N4-M3 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
220	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
202	2015/09/11	BBY	DER		INTERNAL REVIEW
051					CONTROL CABINET DC POWER DISTRIBUTION

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION

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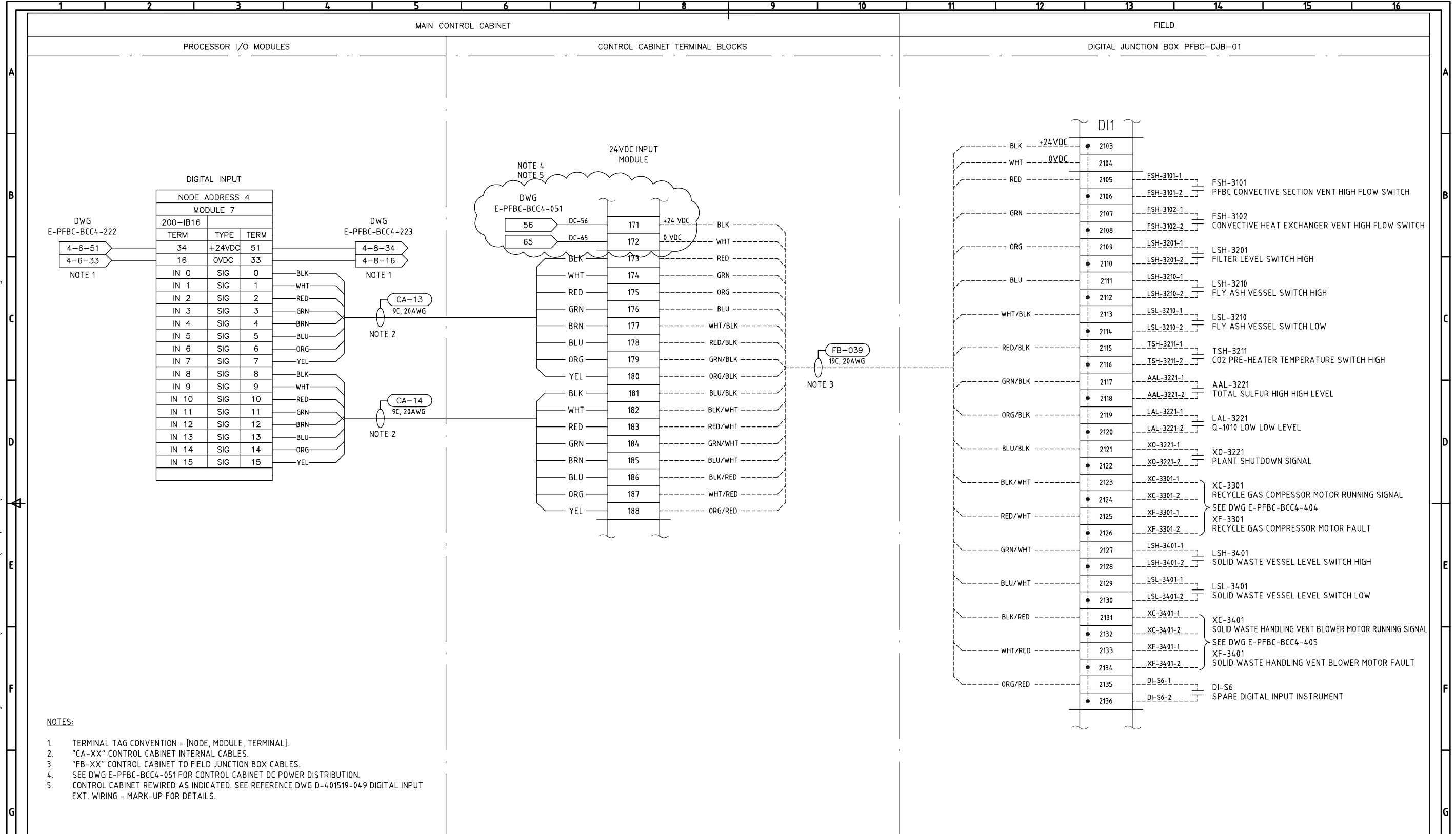
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL INPUT WIRING NODE ADDRESS 4 - MODULE 3				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 203	REV. 0



LAST SAVE: 2015/10/03 - 4:44pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-204 DI WIRING N4-M7 REV 0.dwg

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
223	DIGITAL OUTPUT WIRING N4 - M8				
222	DIGITAL OUTPUT WIRING N4 - M6	2015/10/02	BBY	DER	
064	DIGITAL INPUT EXT. WIRING	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD

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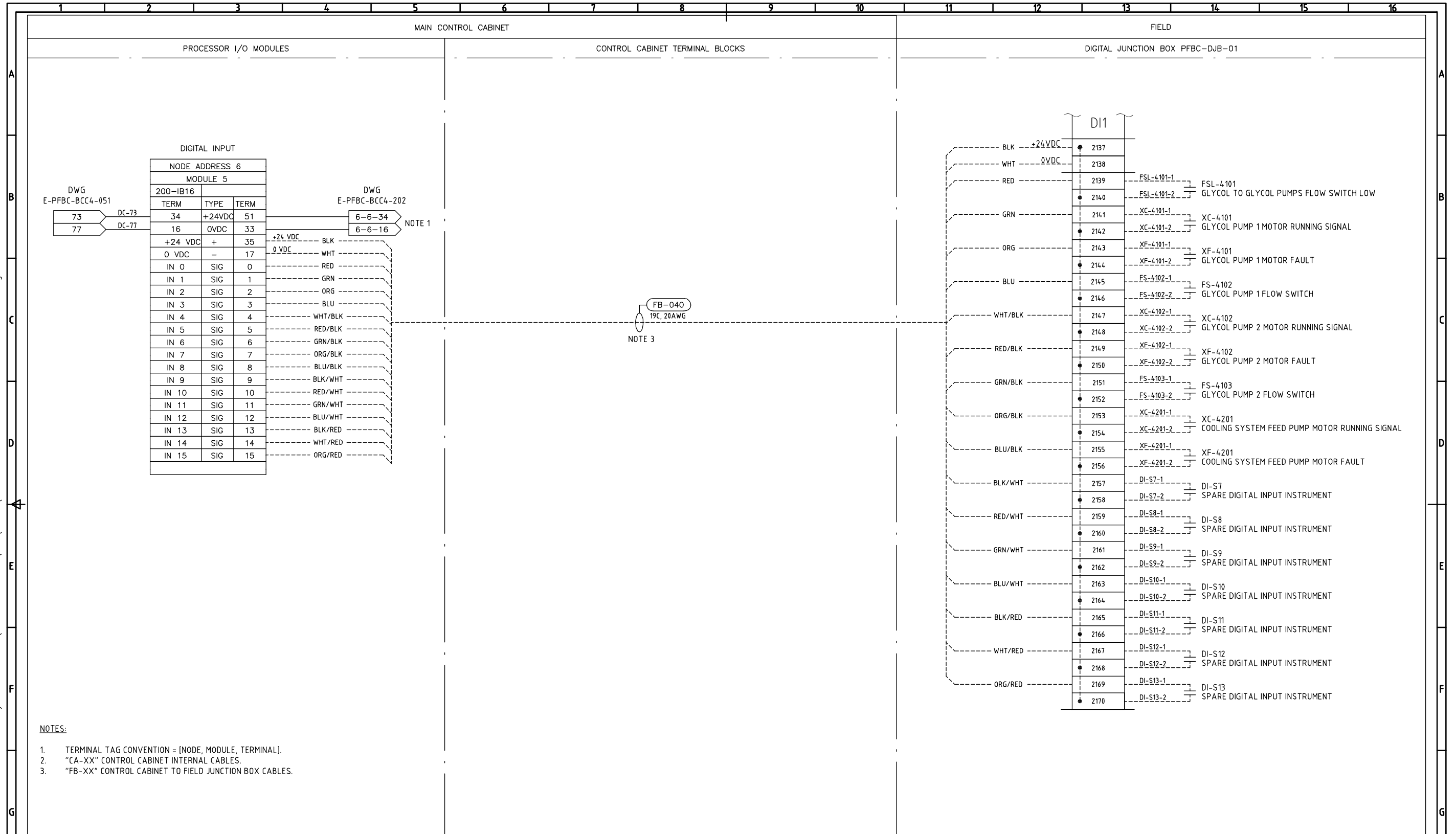
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL INPUT WIRING NODE ADDRESS 4 - MODULE 7
CHECKED D. RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 204
	REV. 0

LAST SAVE: 2015/10/03 - 4:43pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-205 DI WIRING N6-M5 REV 0.dwg



- NOTES:
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
224	DIGITAL OUTPUT WIRING N6 - M6	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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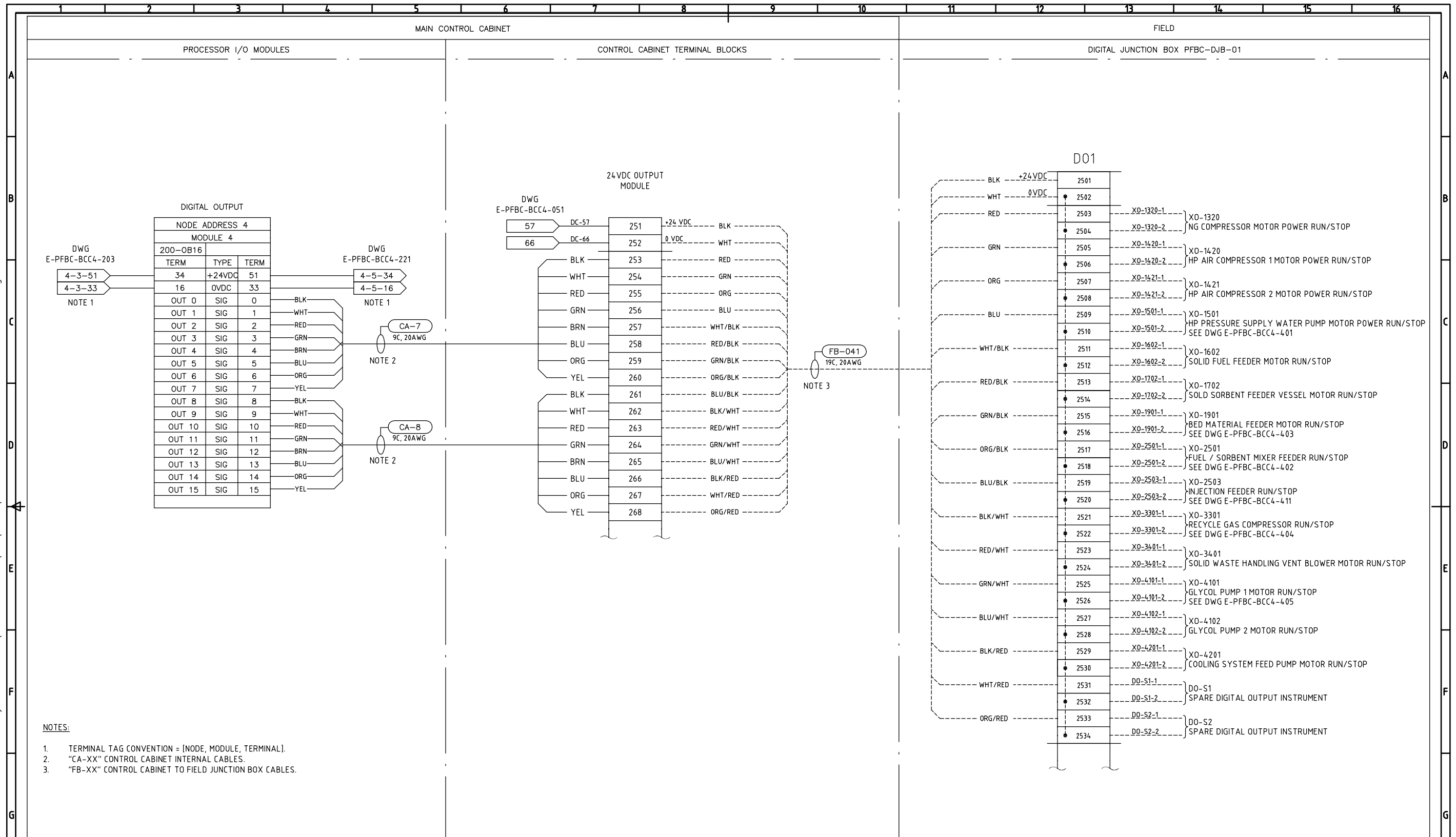
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL INPUT WIRING NODE ADDRESS 6 - MODULE 5				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 205	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
221	DIGITAL OUTPUT WIRING N4 - M5	2015/10/02	BBY	DER	
203	DIGITAL INPUT WIRING N4 - M3	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DIST				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

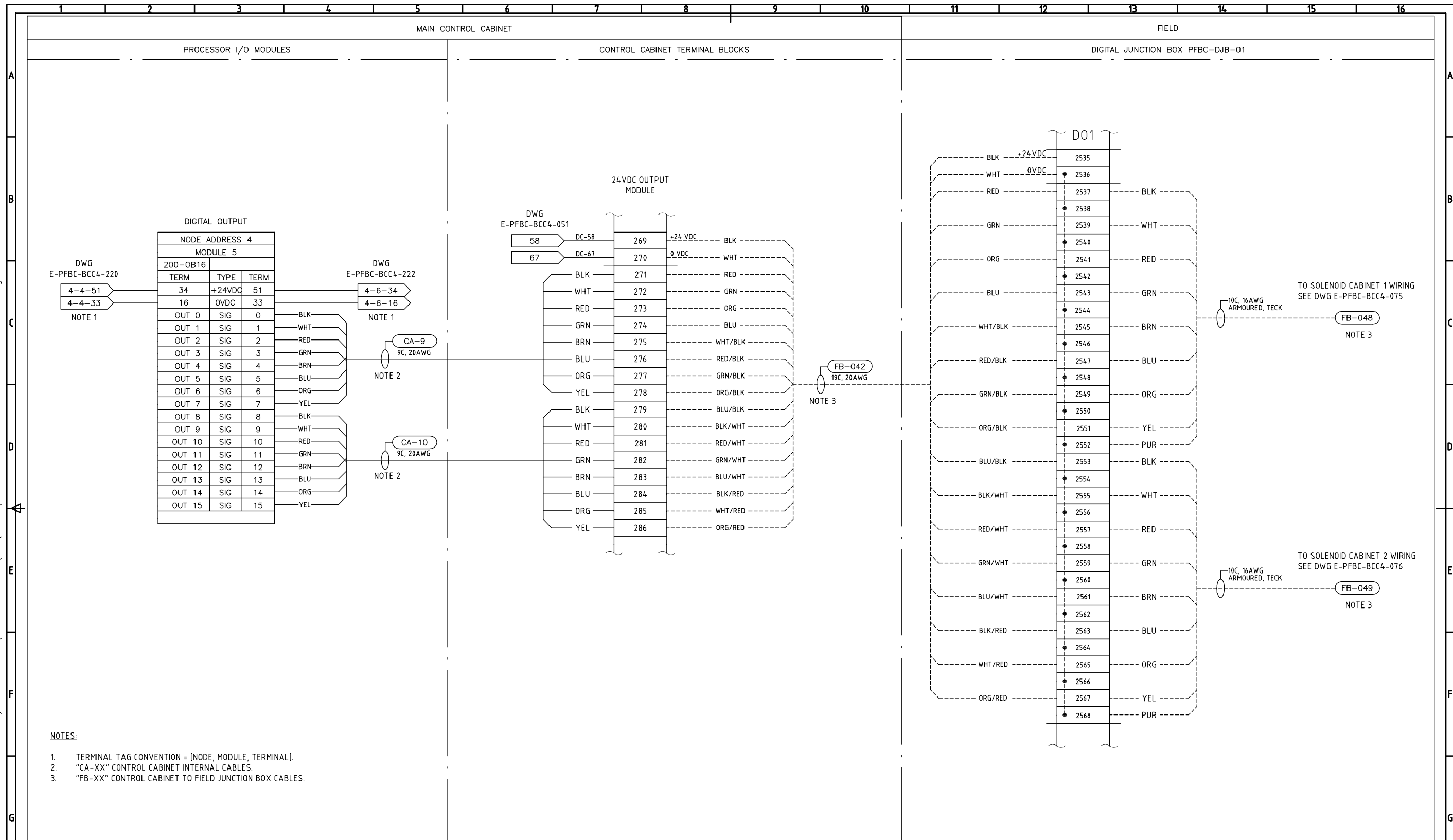
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4 - MODULE 4				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 220	REV. 0

LAST SAVE: 2015/10/03 - 4:43pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-221 DO WIRING N4-M5 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
222	DIGITAL OUTPUT WIRING N4 - M6				
220	DIGITAL OUTPUT WIRING N4 - M4				
076	SOLENOID CABINET 2 WIRING	2015/10/02	BBY	DER	
075	SOLENOID CABINET 1 WIRING	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

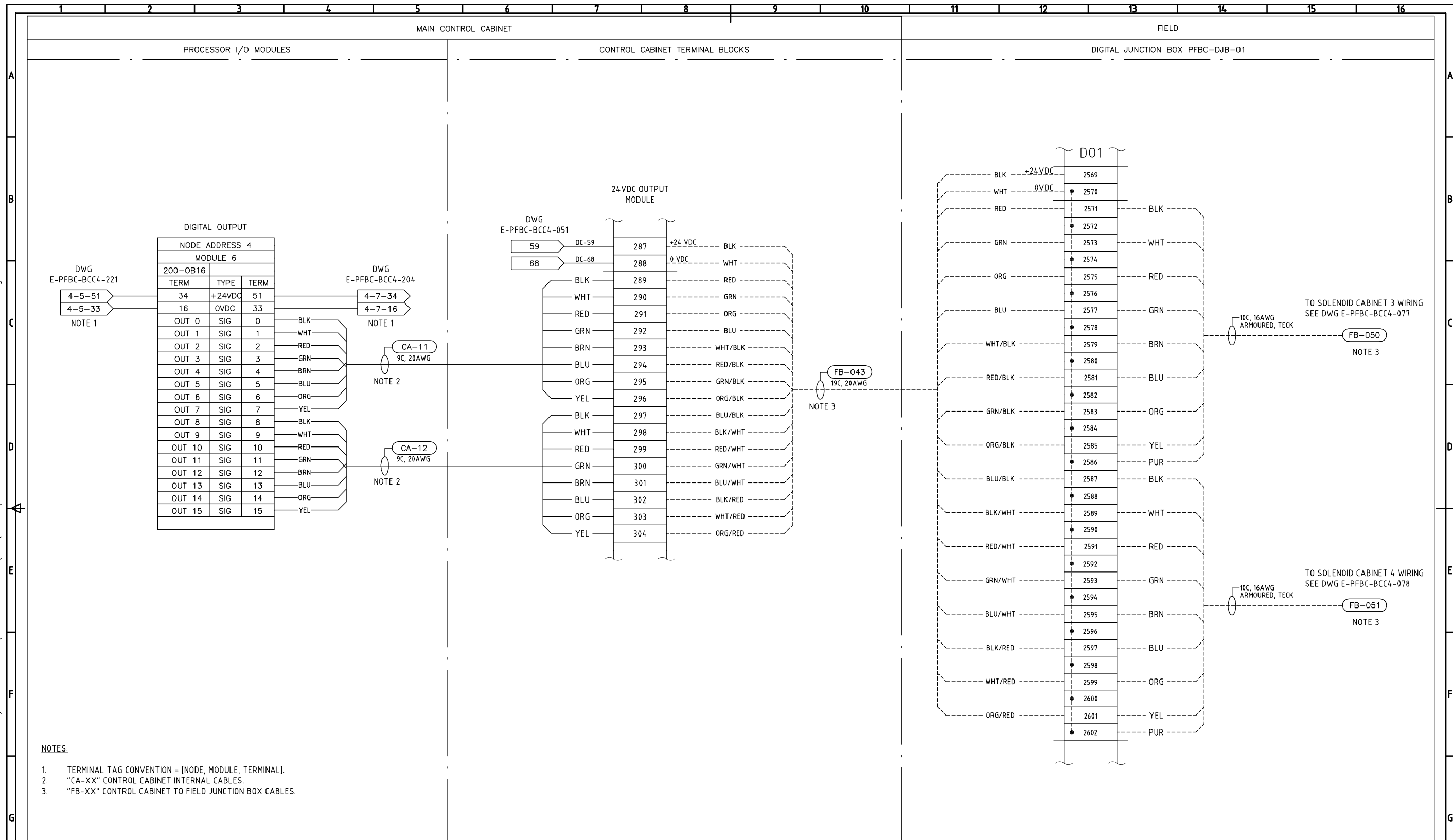
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4 - MODULE 5				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 221	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:42pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-222 DO WIRING N4-M6 REV 0.dwg



- NOTES:
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	REV	DATE	BY	CHK	APPD
221	DIGITAL OUTPUT WIRING N4 - M5					
204	DIGITAL INPUT WIRING N4 - M7					
078	SOLENOID CABINET 4 WIRING	0	2015/10/02	BBY	DER	
077	SOLENOID CABINET 3 WIRING	A	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION	No				

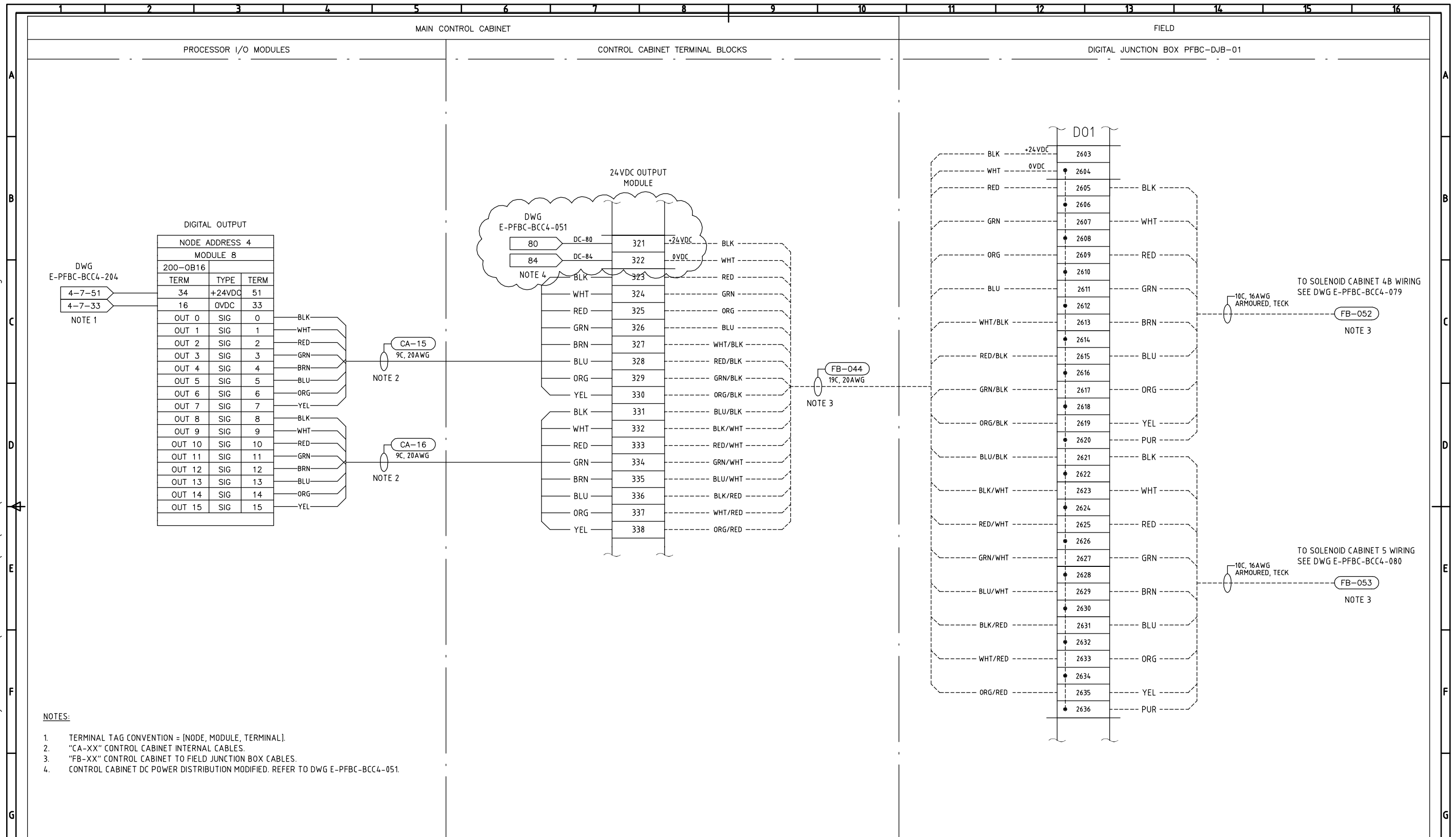
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4 - MODULE 6				
CHECKED D. RICHMOND	DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
APPROVED	E	PFBC	BCC4	222	0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:42pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-223 DO WIRING N4-M8 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
204					DIGITAL INPUT WIRING N4 - M7
080	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
079	2015/09/11	BBY	DER		INTERNAL REVIEW
051					CONTROL CABINET DC POWER DISTRIBUTION

REFERENCE DRAWINGS

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
051					CONTROL CABINET DC POWER DISTRIBUTION

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PROJECT # 151-07049-00

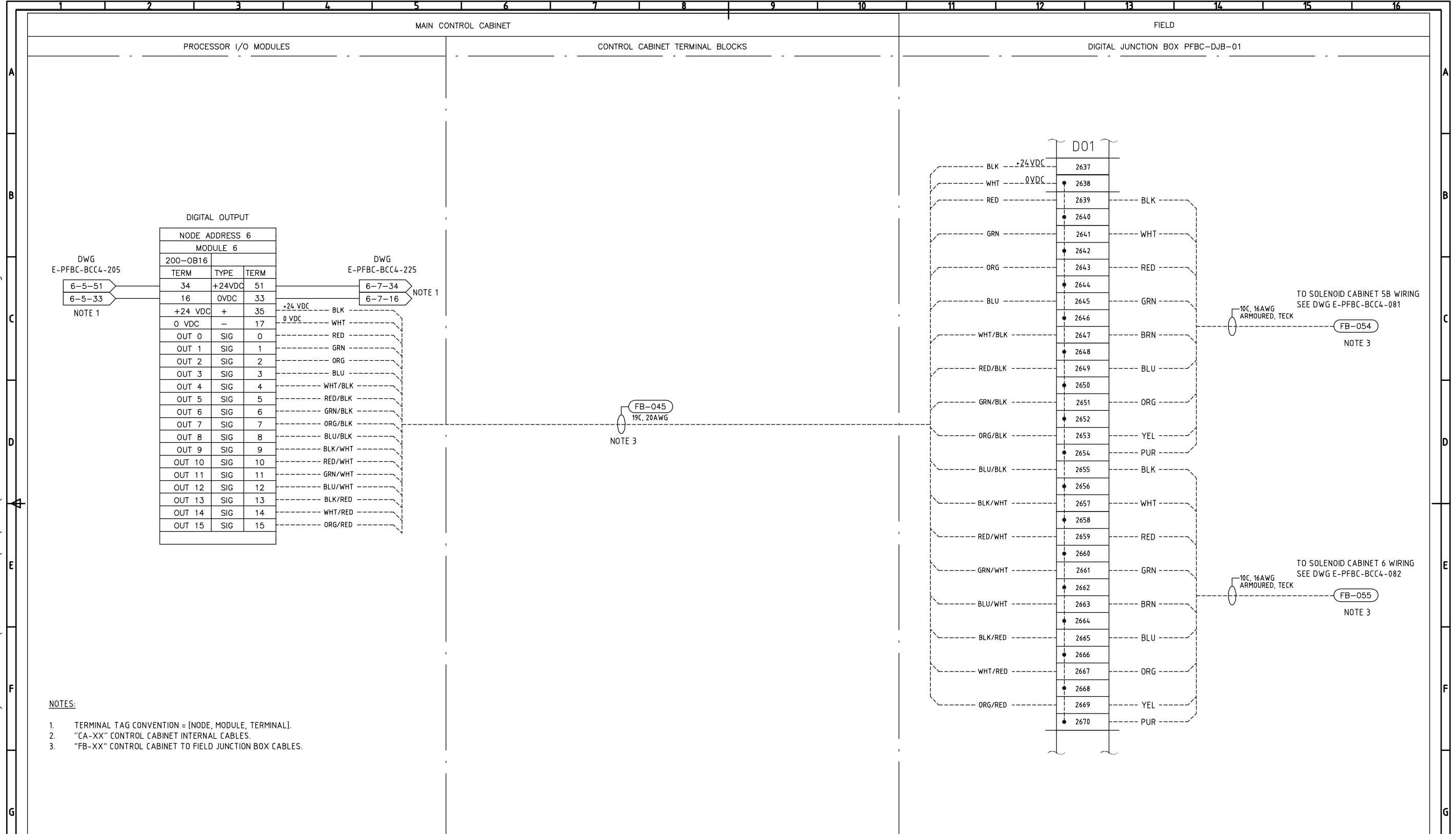
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 4 - MODULE 8				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 223	REV. 0

LAST SAVE: 2015/10/03 - 4:41pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-224 DO WIRING N6-M6 REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
225	DIGITAL OUTPUT WIRING N6 - M7				
205	DIGITAL INPUT WIRING N6 - M5				
082	SOLENOID CABINET 6 WIRING	2015/09/11	BBY	DER	
081	SOLENOID CABINET 5B WIRING				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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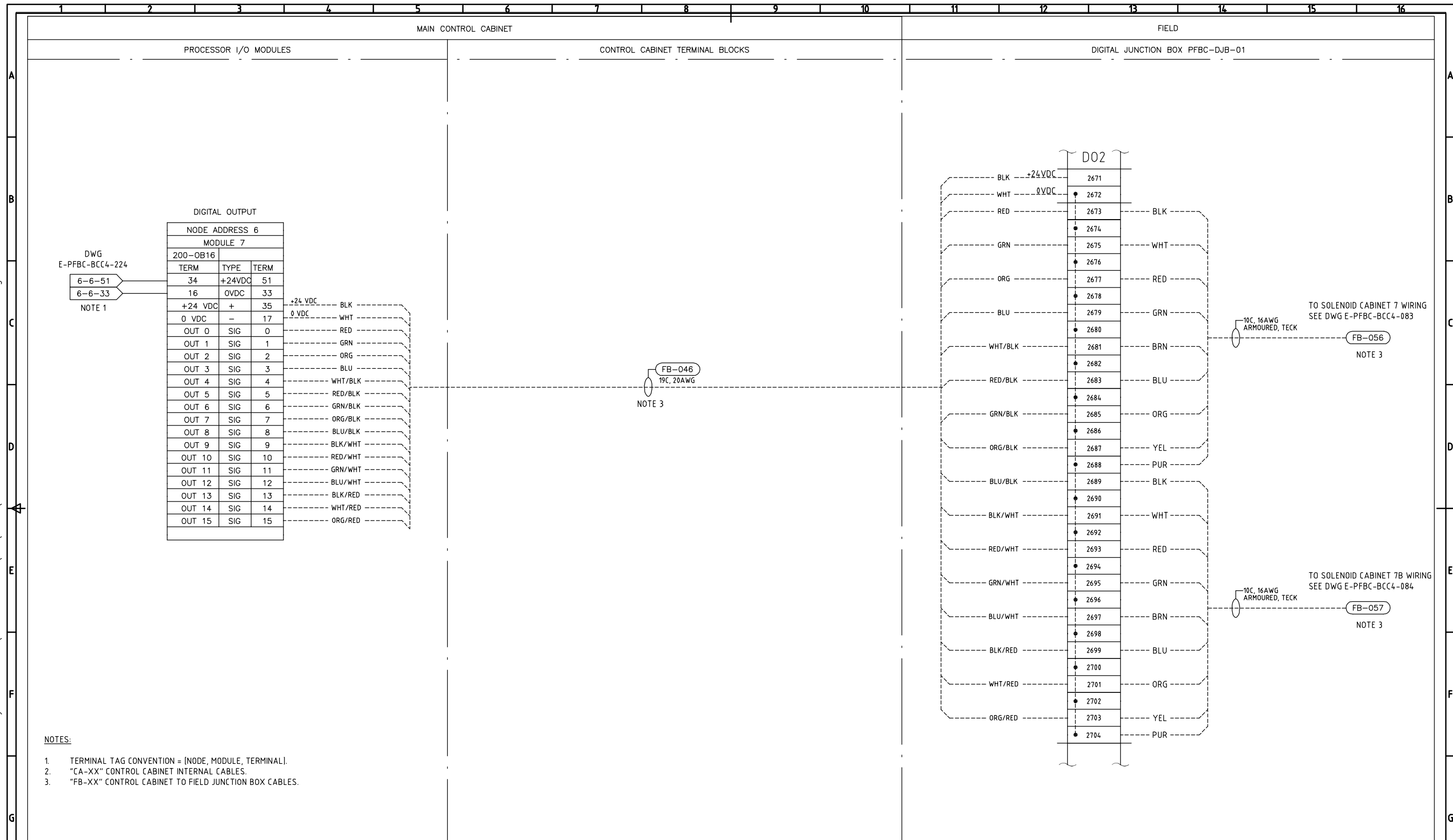
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUPUT WIRING NODE ADDRESS 6 - MODULE 6				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 224	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:41pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-225 DO WIRING N6-M7 REV 0.dwg



- NOTES:
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
224	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
084	2015/09/11	BBY	DER		INTERNAL REVIEW
083					REVISION DESCRIPTION

NO	DATE	BY	CHKD	APPD	REVISION DESCRIPTION
224	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
084	2015/09/11	BBY	DER		INTERNAL REVIEW
083					REVISION DESCRIPTION

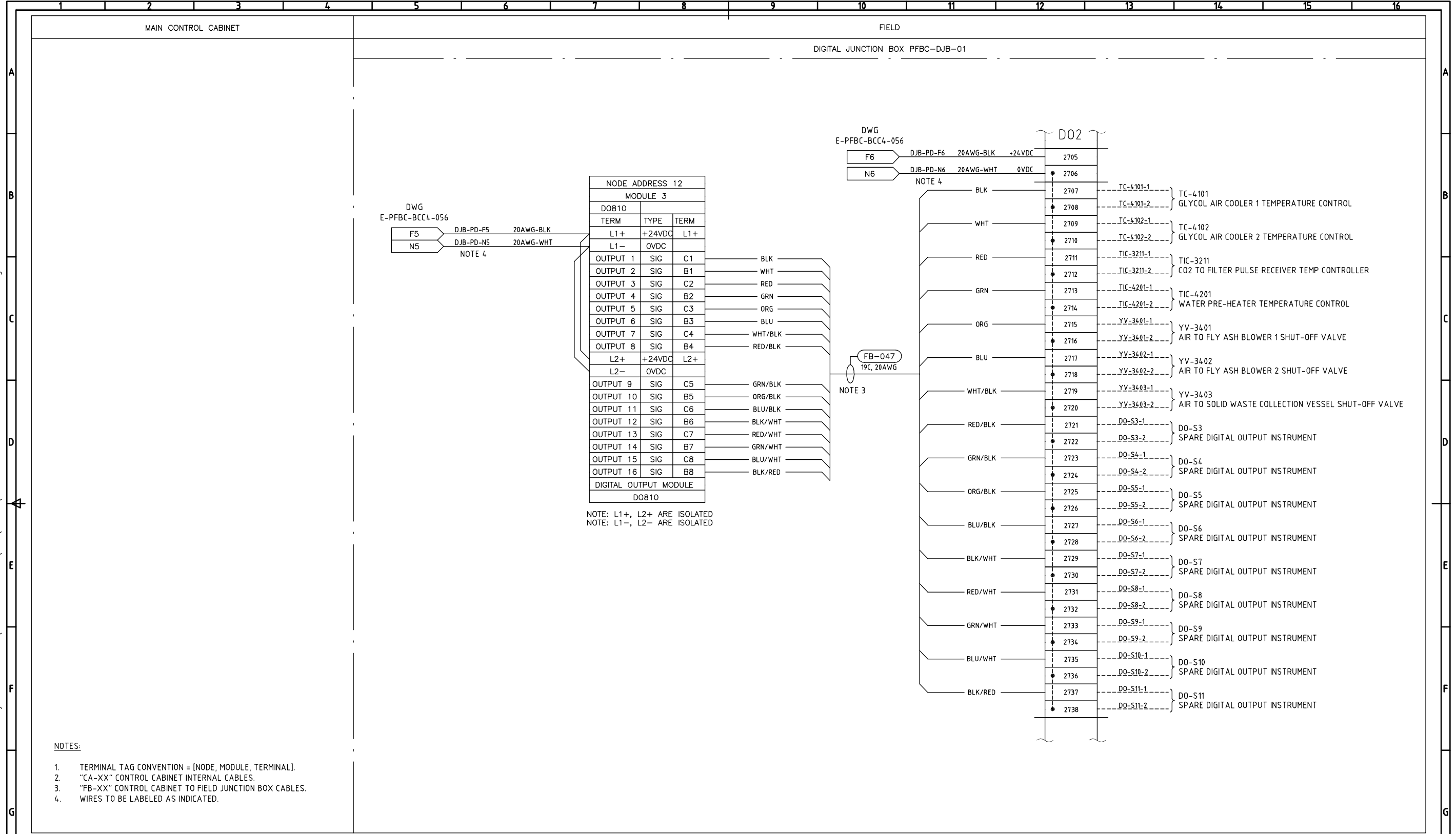
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC DJB - DIGITAL OUTPUT WIRING NODE ADDRESS 6 - MODULE 7				
CHECKED D. RICHMOND	DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
APPROVED	E	PFBC	BCC4	225	0
DATE 2015/06/30					
SCALE NONE					

LAST SAVE: 2015/10/03 - 4:41pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-226 DO WIRING N12-M3 REV 0.dwg



- NOTES:**
1. TERMINAL TAG CONVENTION = [NODE, MODULE, TERMINAL].
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. WIRES TO BE LABELED AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
056	DIGITAL JUNCTION BOX DC POWER DIST				

REFERENCE DRAWINGS

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
056	DIGITAL JUNCTION BOX DC POWER DIST				

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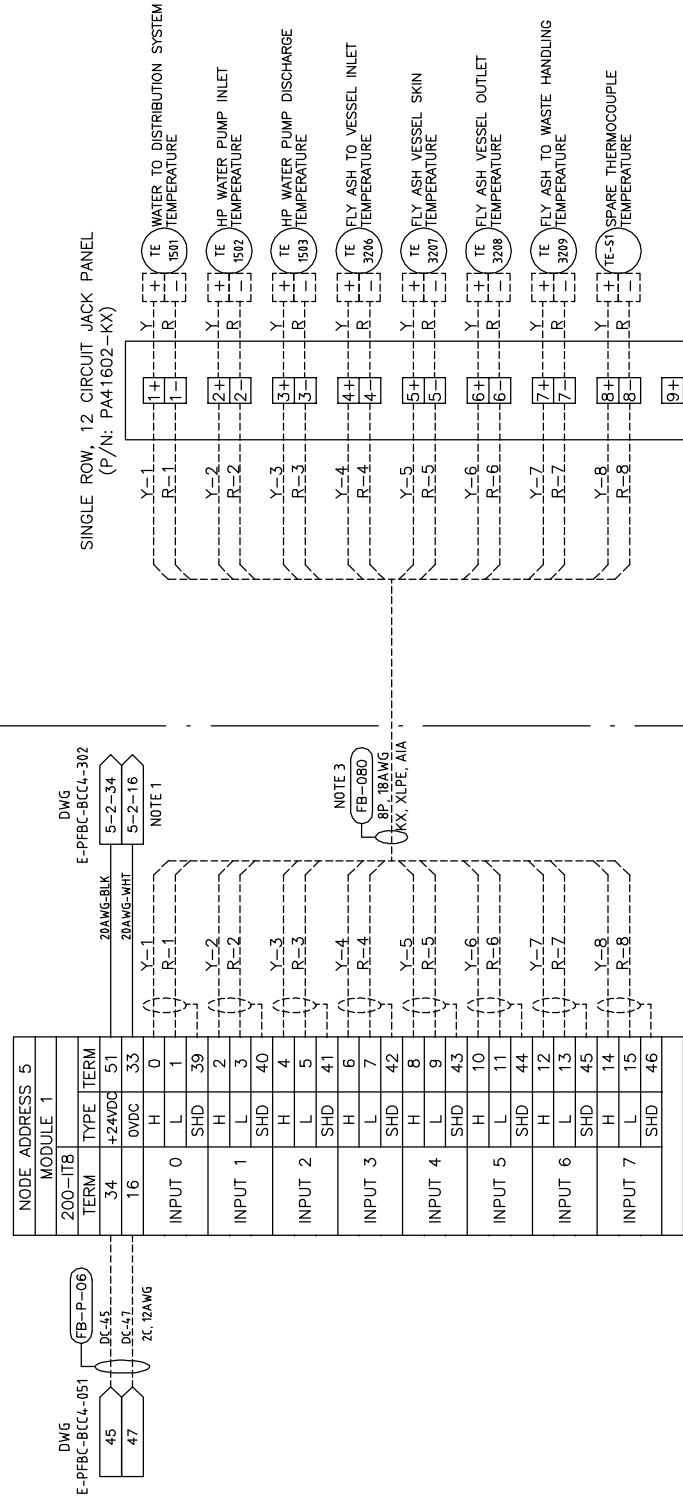
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DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC
CHECKED D. RICHMOND	DJB - DIGITAL OUTPUT WIRING
APPROVED	NODE ADDRESS 12 - MODULE 3
DATE 2015/06/30	DEPARTMENT E
SCALE NONE	PROJECT PFBC
	BUILDING BCC4
	DRAWING 226
	REV. 0

THERMOCOUPLE JACK PANEL A

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01



SINGLE ROW, 12 CIRCUIT JACK PANEL
 (P/N: PA41602-KX)

THERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTES:
 1. TERMINAL TAG CONVENTION = (NODE, MODULE, TERMINAL)
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDING AT ONE END ONLY.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHK	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
302	THERMOCOUPLE - JACK PANEL B, N5 - M2	2015/09/11	BBY	DER	
051	CONTROL CABINET DC POWER DISTRIBUTION				

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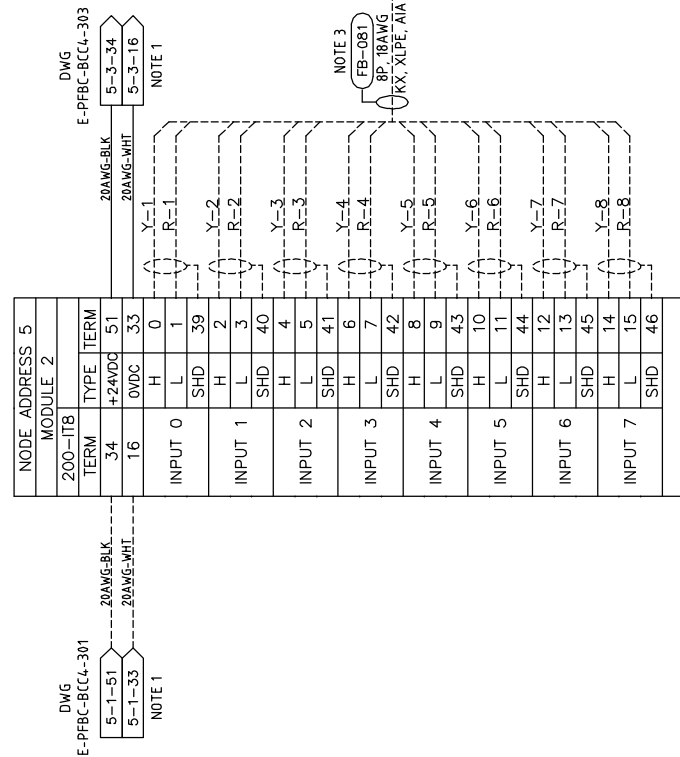
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

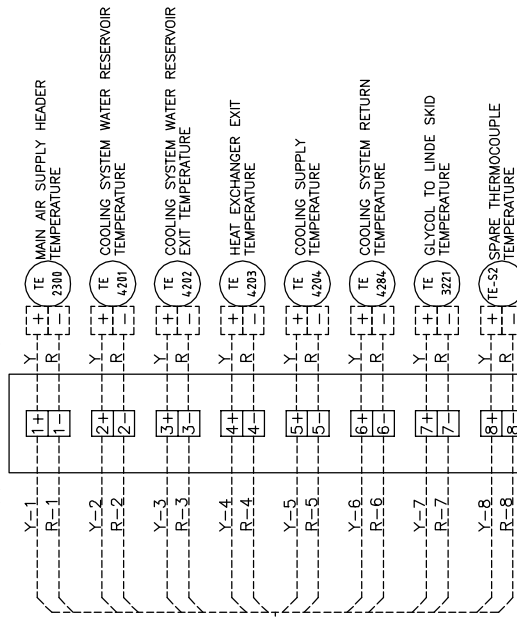
PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL A NODE ADDRESS 5 - MODULE 1				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 301	REV. 0

THERMOCOUPLE JACK PANEL B

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01



SINGLE ROW, 12 CIRCUIT JACK PANEL
 (P/N: PA41602-KX)



TERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTES:
 1. TERMINAL TAG CONVENTION = INODE, MODULE, TERMINAL
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDING AT ONE END ONLY.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
303	THERMOCOUPLE - JACK PANEL C, N5 - M3&M4	2015/09/11	BBY	DER	
301	THERMOCOUPLE - JACK PANEL A, N5 - M1				

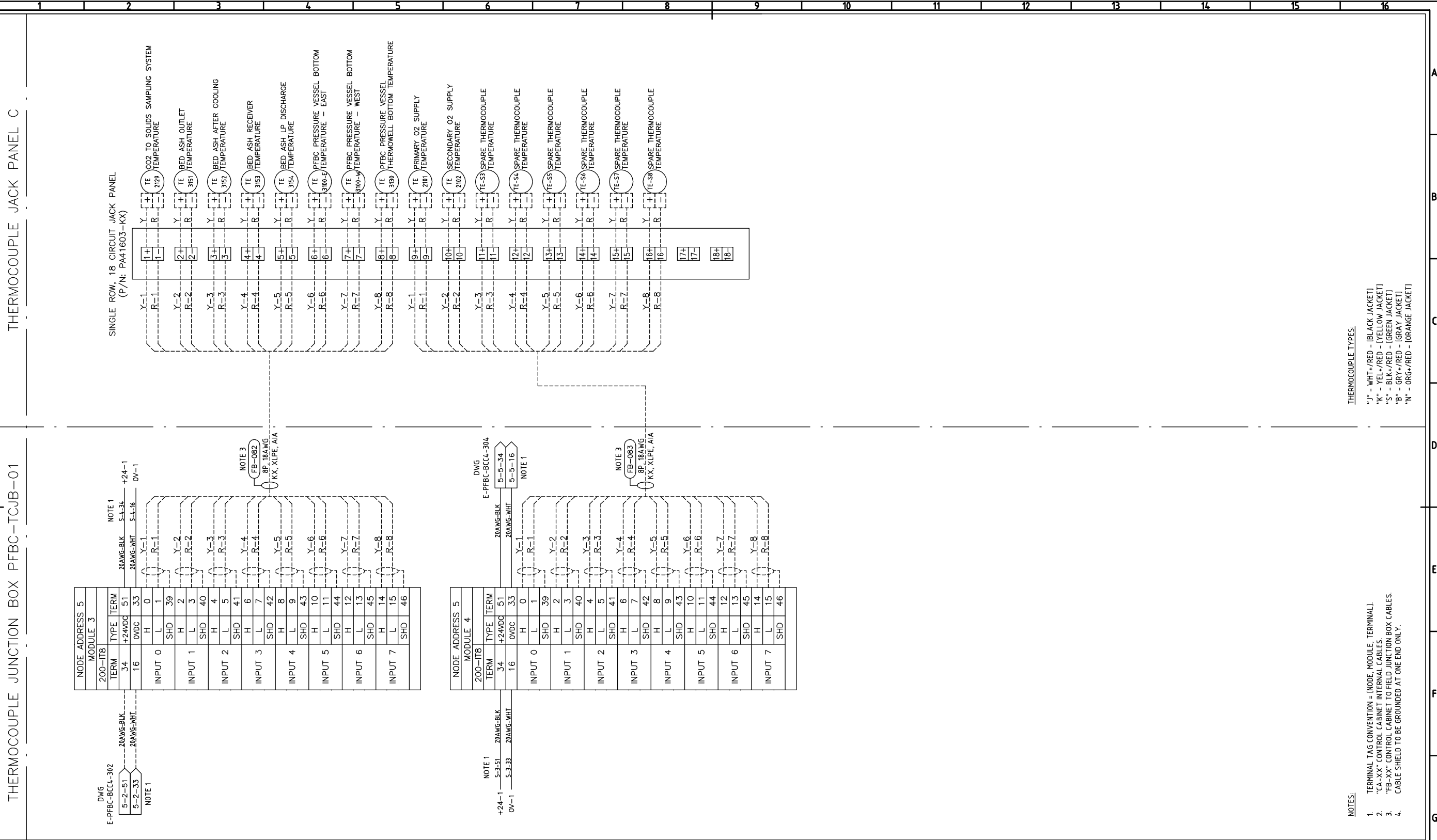
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL B NODE ADDRESS 5 - MODULE 2				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 302	REV. 0



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE (Y/M/D)	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
304	THERMOCOUPLE - JACK PANEL C, N5 - M5	2015/09/11	BBY	DER	
302	THERMOCOUPLE - JACK PANEL C, N5 - M3&M4				

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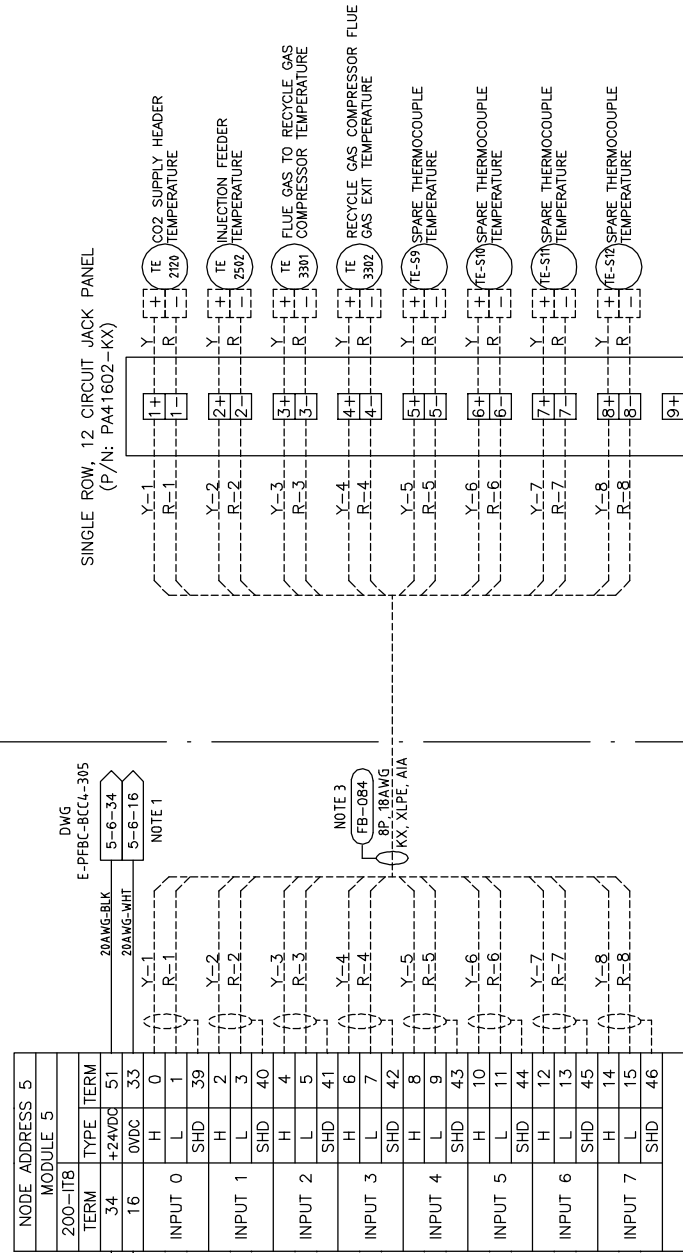
DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL C NODE ADDRESS 5 - MODULE 3 & 4				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 303	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

THERMOCOUPLE TYPES:

"J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

THERMOCOUPLE JACK PANEL D

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01



SINGLE ROW, 12 CIRCUIT JACK PANEL
(P/N: PA41602-KX)

THERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTES:
 1. TERMINAL TAG CONVENTION = INODE, MODULE, TERMINAL
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDING AT ONE END ONLY.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
305	THERMOCOUPLE - JP-E, N5-M6, N7-M1&M2	2015/09/11	BBY	DER	
303	THERMOCOUPLE - JP-C, N5-M3&M4				

REFERENCE DRAWINGS

NO	DESCRIPTION
5	REVISION REGISTER

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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

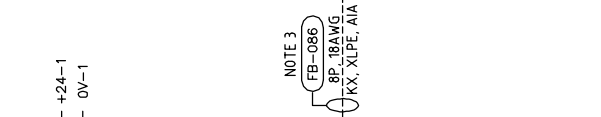
PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL D NODE ADDRESS 5 - MODULE 5				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 304	REV. 0

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

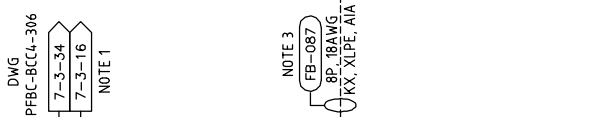
NODE ADDRESS 5		MODULE 6	
200-ITB	TERM	TYPE	TERM
34	+24VDC	51	
16	OVDC	33	
INPUT 0	H	0	
	L	1	
INPUT 1	H	2	
	L	3	
INPUT 2	H	4	
	L	5	
INPUT 3	H	6	
	L	7	
INPUT 4	H	8	
	L	9	
INPUT 5	H	10	
	L	11	
INPUT 6	H	12	
	L	13	
INPUT 7	H	14	
	L	15	
	SHD	46	



NODE ADDRESS 7		MODULE 1	
200-ITB	TERM	TYPE	TERM
34	+24VDC	51	
16	OVDC	33	
INPUT 0	H	0	
	L	1	
INPUT 1	H	2	
	L	3	
INPUT 2	H	4	
	L	5	
INPUT 3	H	6	
	L	7	
INPUT 4	H	8	
	L	9	
INPUT 5	H	10	
	L	11	
INPUT 6	H	12	
	L	13	
INPUT 7	H	14	
	L	15	
	SHD	46	



NODE ADDRESS 7		MODULE 2	
200-ITB	TERM	TYPE	TERM
34	+24VDC	51	
16	OVDC	33	
INPUT 0	H	0	
	L	1	
INPUT 1	H	2	
	L	3	
INPUT 2	H	4	
	L	5	
INPUT 3	H	6	
	L	7	
INPUT 4	H	8	
	L	9	
INPUT 5	H	10	
	L	11	
INPUT 6	H	12	
	L	13	
INPUT 7	H	14	
	L	15	
	SHD	46	



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NO	DESCRIPTION	DATE	BY	CHK	APPD
306	THERMOCOUPLE - JP-F, N7-M3 & M4 & M5	2015/10/02	BBY	DER	
304	THERMOCOUPLE - JP-D, N5-M5	2015/09/11	BBY	DER	

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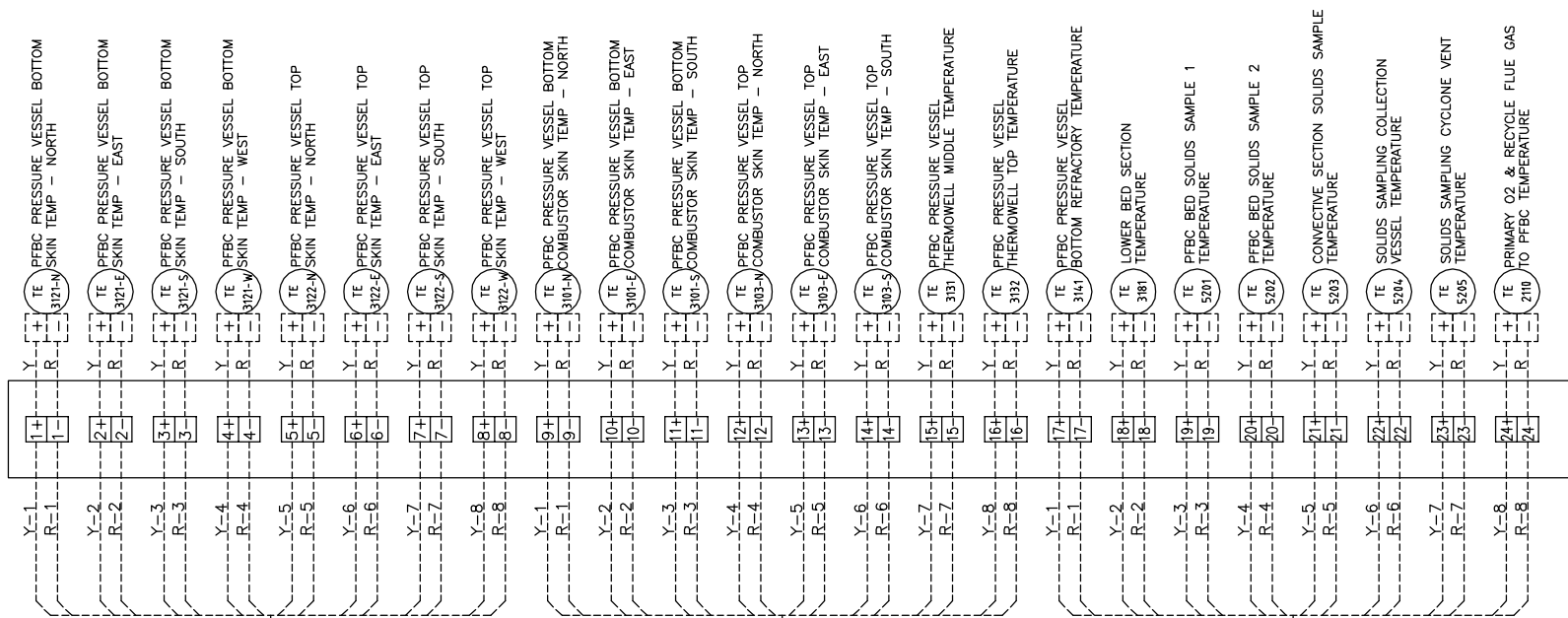
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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL E N5-M6 & N7-M1&M2				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 305	REV. 0

THERMOCOUPLE JACK PANEL E

TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)

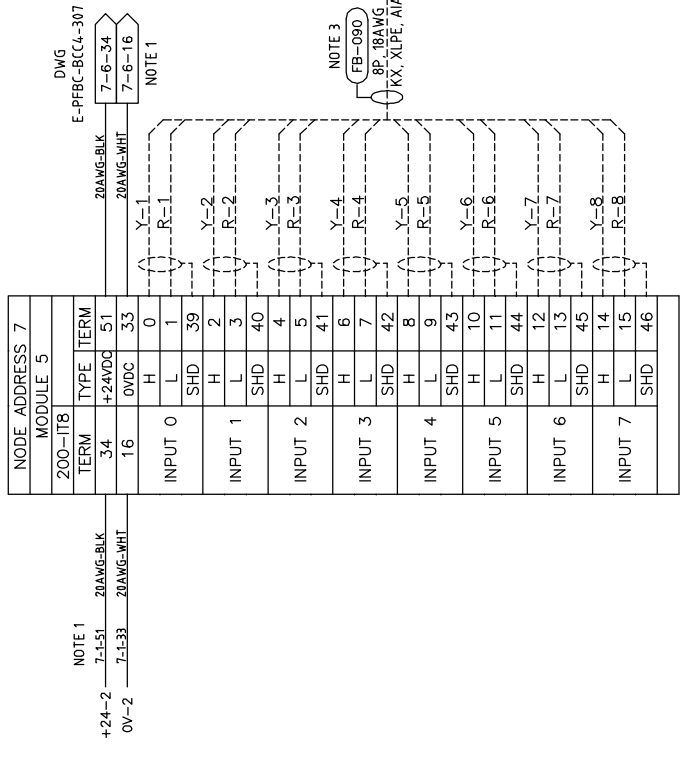
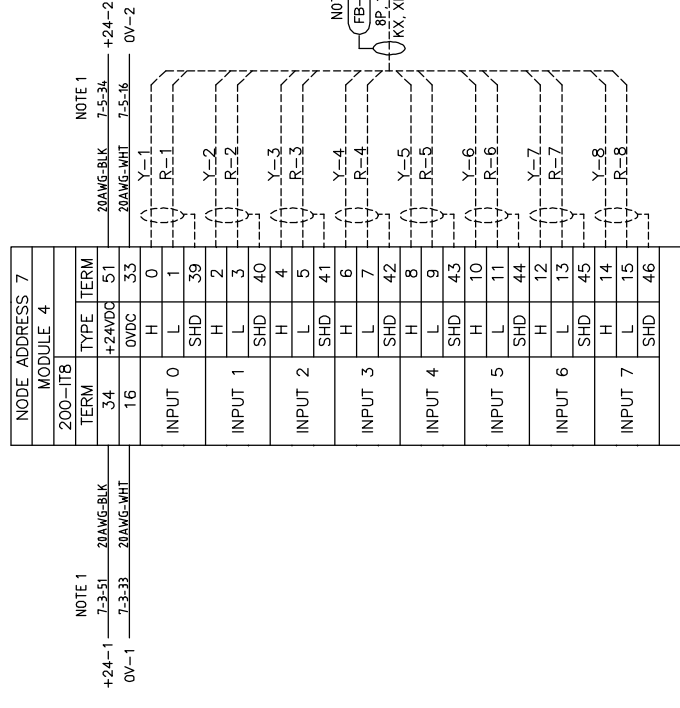
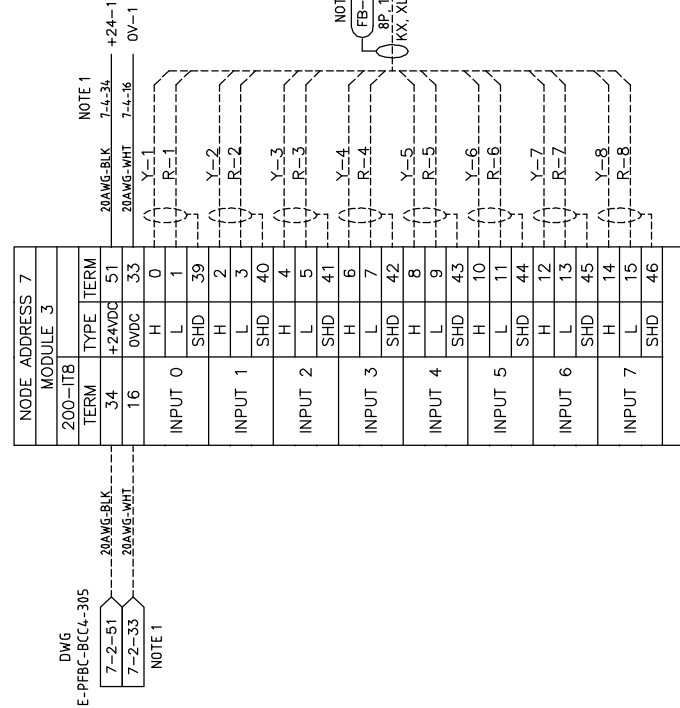


TERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

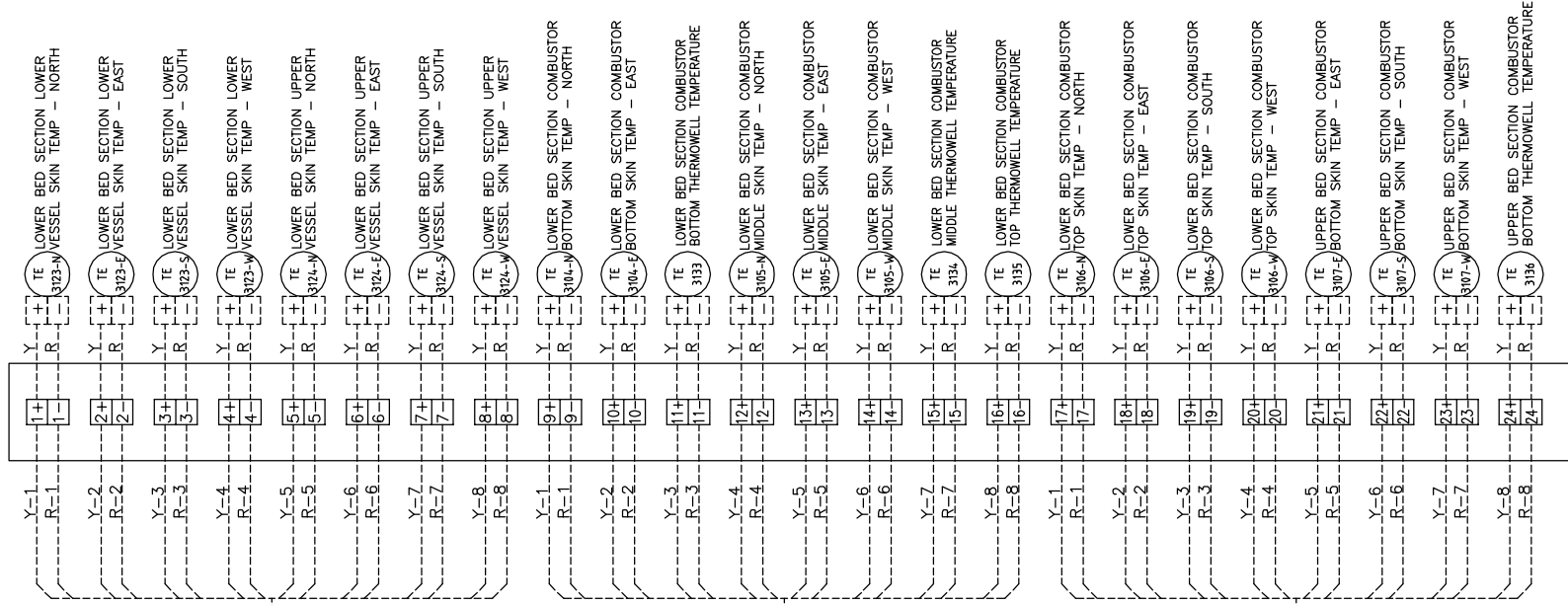
NOTES:
 1. TERMINAL TAG CONVENTION = (NODE, MODULE, TERMINAL)
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDING AT ONE END ONLY.

THERMOCOUPLE JACK PANEL F

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01



TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)



TERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CHKD	APPD
307	THERMOCOUPLE - JP-G, N7-M6 & N8-M2	2015/10/02	BBY	DER	
305	THERMOCOUPLE - JP-E, N5-M6 & N7-M1&M2	2015/09/11	BBY	DER	

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DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL F NODE ADDRESS 7 - MODULES 3, 4 & 5				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 306	REV. 0

THERMOCOUPLE JACK PANEL G

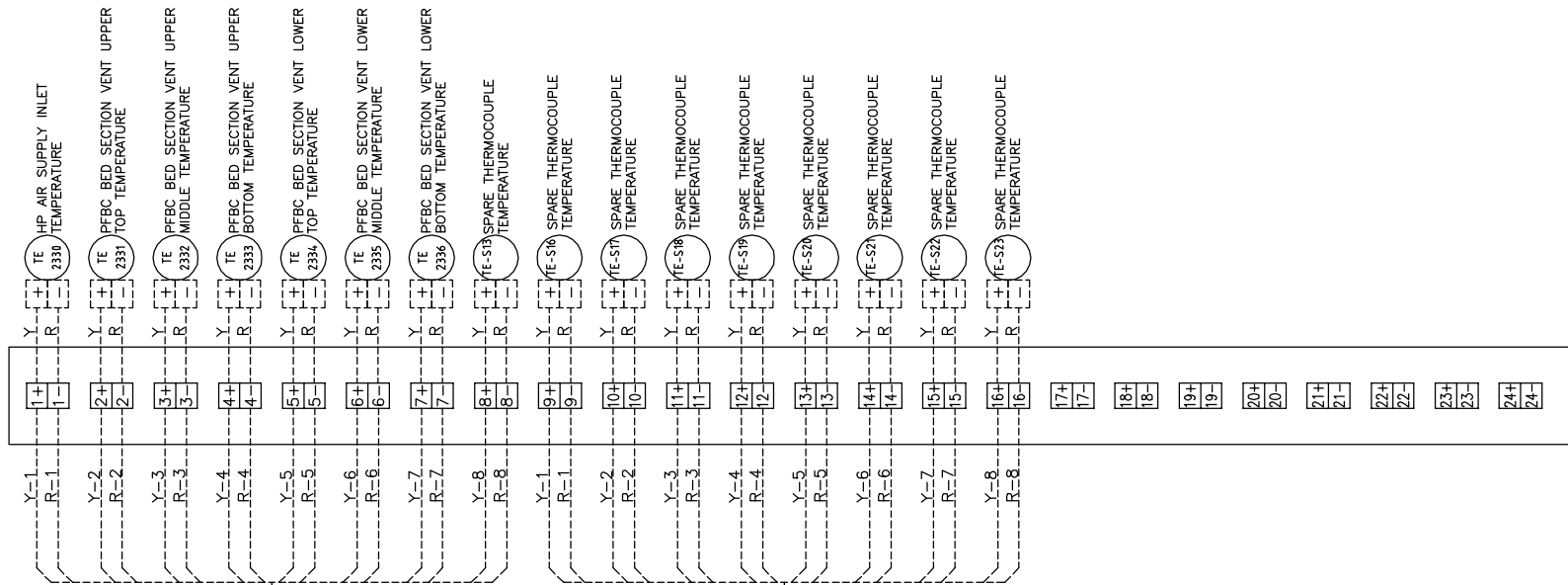
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

NODE ADDRESS 7	
MODULE 6	
200-ITB	TERM
34	+24VDC 51
16	0VDC 33
INPUT 0	H 1
	L 1
INPUT 1	SHD 39
	H 2
	L 3
INPUT 2	SHD 40
	H 4
	L 5
INPUT 3	SHD 41
	H 6
	L 7
INPUT 4	SHD 42
	H 8
	L 9
INPUT 5	SHD 43
	H 10
	L 11
INPUT 6	SHD 44
	H 12
	L 13
INPUT 7	SHD 45
	H 14
	L 15
	SHD 46

DWG
E-PFBC-BCC4-306

7-5-51 20AWG-BLK.
7-5-33 20AWG-WHT.
NOTE 1

TWO ROW, 12 CIRCUIT PER ROW
JACK PANEL
(P/N: PA41604-KX)



NOTE 3
FB-091
8P-18AWG
KX, XLPE, AIA

NOTE 3
FB-092
8P-18AWG
KX, XLPE, AIA

STATION ADDRESS 8	
MODULE 2	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1
	SIG- B1
INPUT 1	SIG+ C2
	SIG- B2
INPUT 2	SIG+ C3
	SIG- B3
INPUT 3	SIG+ C4
	SIG- B4
INPUT 4	SIG+ C5
	SIG- B5
INPUT 5	SIG+ C6
	SIG- B6
INPUT 6	SIG+ C7
	SIG- B7
INPUT 7	SIG+ C8
	SIG- B8
TE INPUT MODULE	
	AI835A

THERMOCOUPLE TYPES:

- "J" - WHT./RED - (BLACK JACKET)
- "K" - YEL./RED - (YELLOW JACKET)
- "S" - BLK./RED - (GREEN JACKET)
- "B" - GRY./RED - (GRAY JACKET)
- "N" - ORG./RED - (ORANGE JACKET)

- NOTES:
1. TERMINAL TAG CONVENTION = INODE, MODULE, TERMINAL
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY
 5. EXTERNAL POWER SUPPLY NOT REQUIRED FOR AI835A.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	
306	THERMOCOUPLE - JP-F, N7-M3 & M4 & M5				

**FOR REVIEW
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CONSTRUCTION**

WSP
 4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K0T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

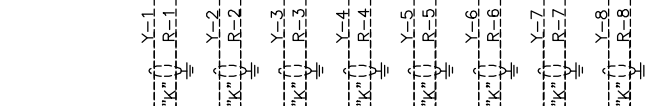
Canada
 Natural Resources
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 CANMET Energy
 Technology Center
 Ressources naturelles
 Canada
 Centre de la technologie
 de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL G N7-M6 & N8-M2
CHECKED D. RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 307
	REV. 0

THERMOCOUPLE JACK PANEL H

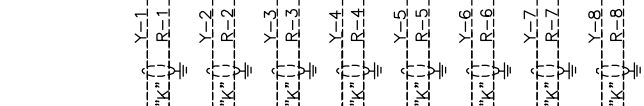
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

STATION ADDRESS 8	
MODULE 3	
AI835	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	



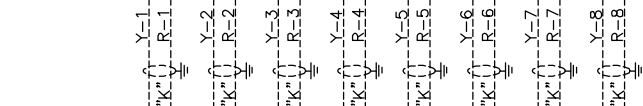
NOTE 3
 FB-093
 8P, 18AWG
 KX, XLPE, AIA

STATION ADDRESS 8	
MODULE 4	
AI835	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	



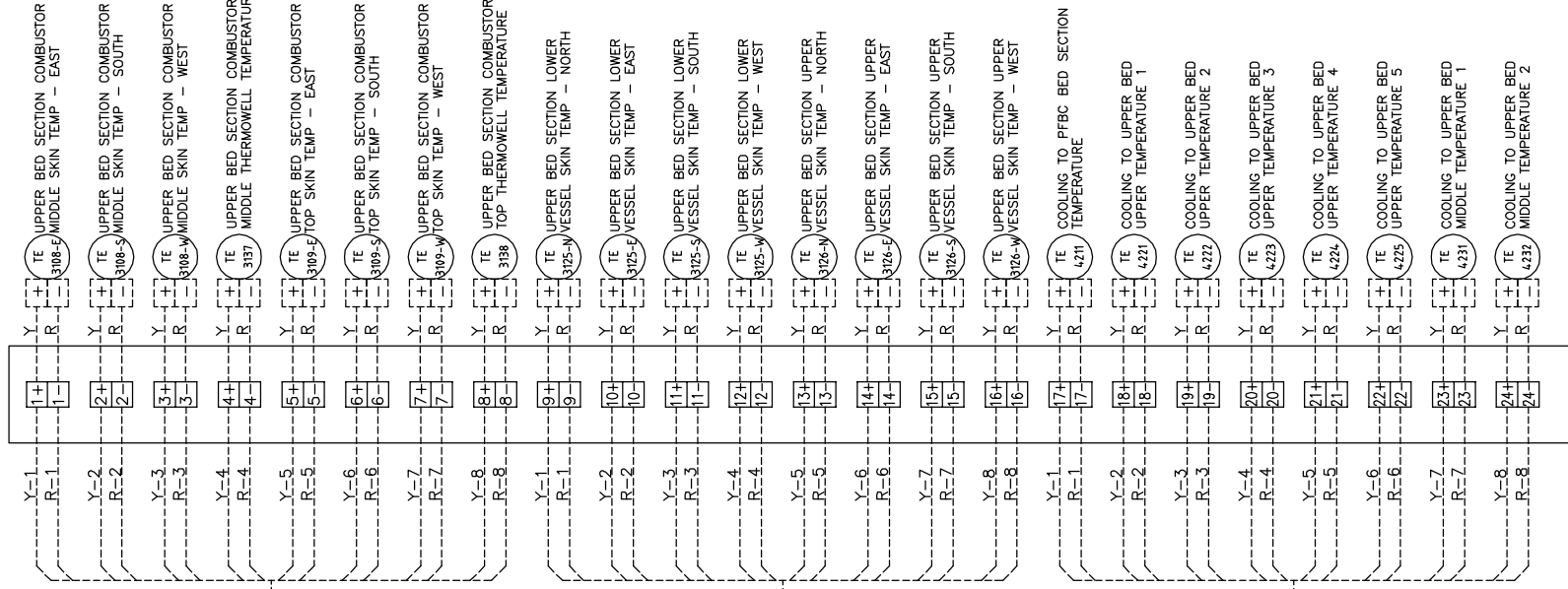
NOTE 3
 FB-094
 8P, 18AWG
 KX, XLPE, AIA

STATION ADDRESS 8	
MODULE 5	
AI835	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	



NOTE 3
 FB-095
 8P, 18AWG
 KX, XLPE, AIA

TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)



THERMOCOUPLE TYPES:

- "J" - WHI./RED - (BLACK JACKET)
- "K" - YEL./RED - (YELLOW JACKET)
- "S" - BLK./RED - (GREEN JACKET)
- "B" - GRY./RED - (GRAY JACKET)
- "N" - ORG./RED - (ORANGE JACKET)

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS		REVISION REGISTER			
NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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CONSTRUCTION

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CANADA K0T 1A9
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www.wspgroup.com

PROJECT # 151-07049-00

Natural Resources
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CANMET Energy
Technology Center

Ressources naturelles
Canada
Centre de la technologie
de l'énergie de CANMET

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL H			
CHECKED D. RICHMOND	NODE ADDRESS 8 - MODULES 3, 4, & 5			
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 308
DATE 2015/06/30	REV. 0			
SCALE NONE				

THERMOCOUPLE JACK PANEL J

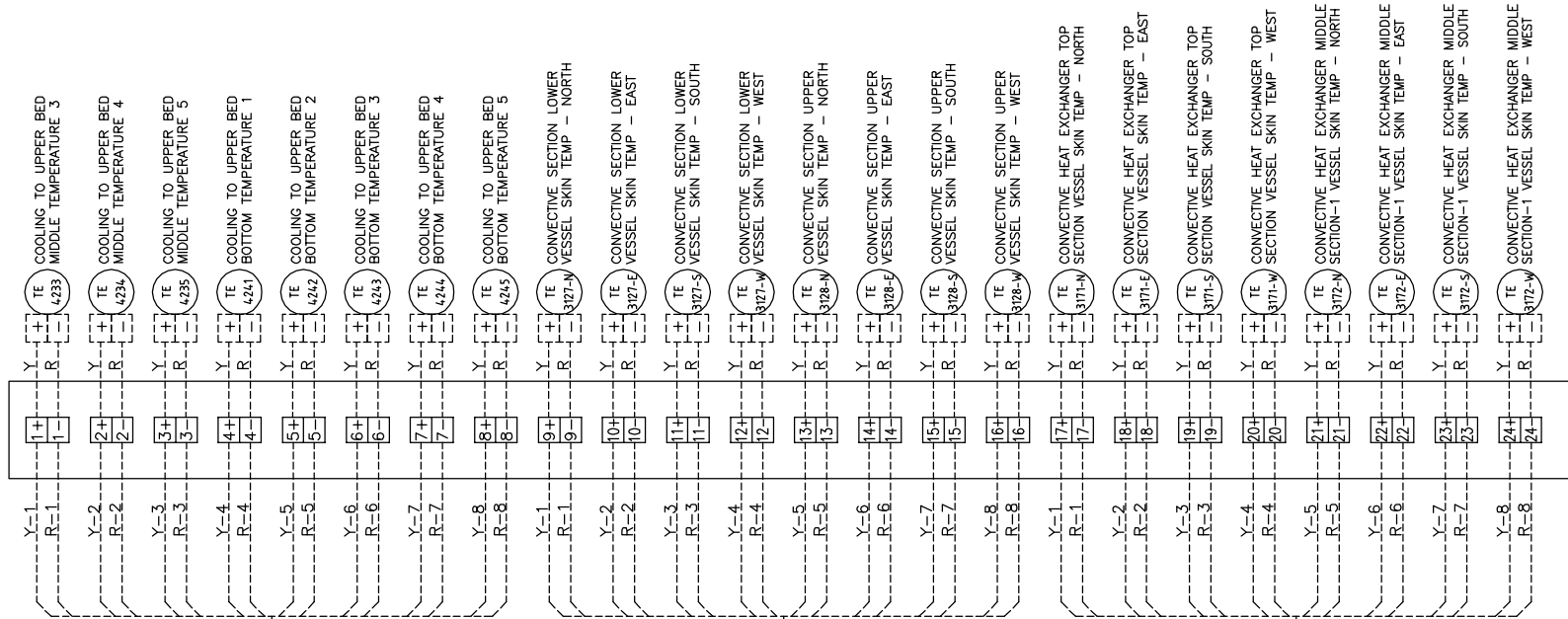
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

STATION ADDRESS 8	
MODULE 6	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

STATION ADDRESS 8	
MODULE 7	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

STATION ADDRESS 8	
MODULE 8	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)



NOTE 3
 FB-096
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-097
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-098
 8P, 18AWG
 KX, XLPE, AIA

TE THERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTES:
 1. TERMINAL TAG CONVENTION = (NODE, MODULE, TERMINAL)
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY
 5. EXTERNAL POWER SUPPLY NOT REQUIRED FOR AI835A

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DATE (Y/M/D)	BY	CHKD	APPD	DESCRIPTION
0	2015/10/02	BBY	DER		ISSUE FOR CLIENT REVIEW
A	2015/09/11	BBY	DER		INTERNAL REVIEW
No					REVISION DESCRIPTION

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4502 HANNA DRIVE,
 ELIZABETHTOWN, ONTARIO
 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL J NODE ADDRESS 8 - MODULES 6, 7, & 8				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 309	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

THERMOCOUPLE JACK PANEL K

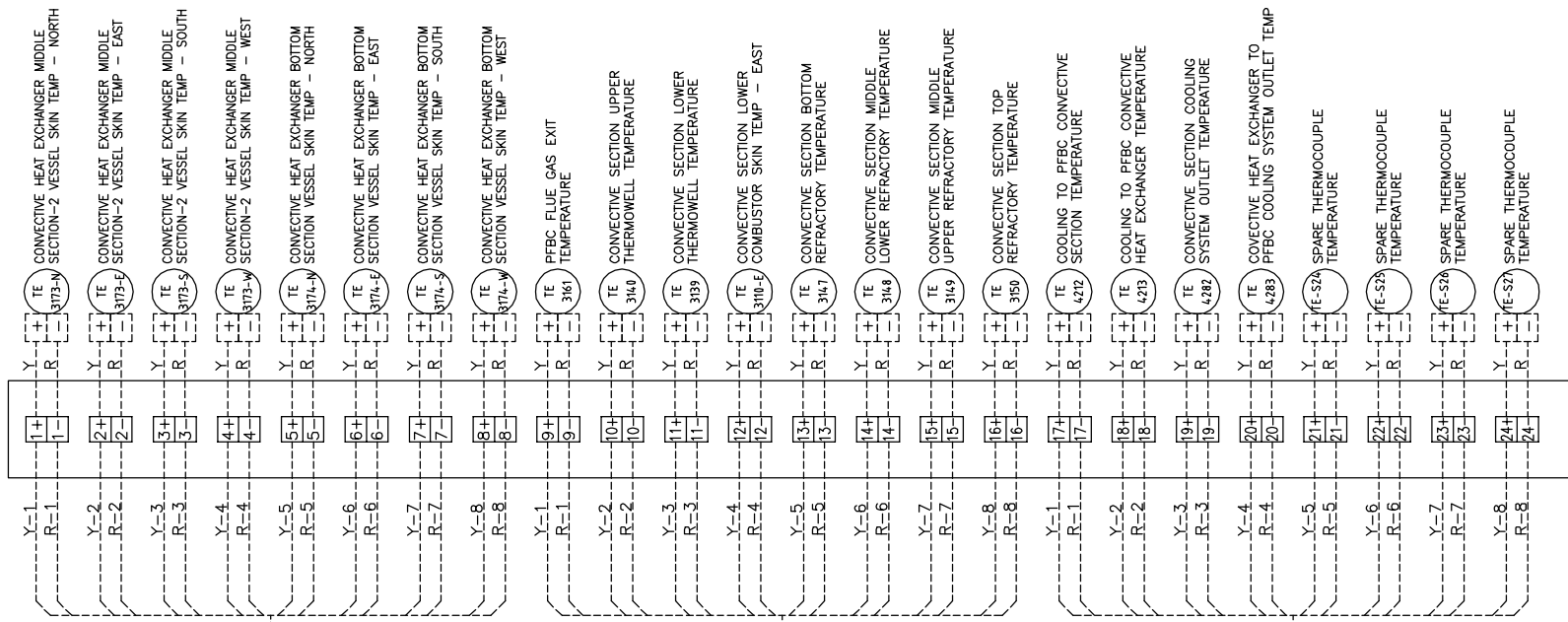
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

STATION ADDRESS 9	
MODULE 1	
AIB35	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AIB35A	

STATION ADDRESS 9	
MODULE 2	
AIB35	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AIB35A	

STATION ADDRESS 9	
MODULE 3	
AIB35	TERM
L1+	+24VDC
L1-	OVDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AIB35A	

TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)



NOTE 3
 FB-09B
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-100
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-101
 8P, 18AWG
 KX, XLPE, AIA

TE THERMOCOUPLE TYPES:
 "J" - WHI+/RED - (BLACK JACKET)
 "K" - YEL+/RED - (YELLOW JACKET)
 "S" - BLK+/RED - (GREEN JACKET)
 "B" - GR+/RED - (GRAY JACKET)
 "N" - ORG+/RED - (ORANGE JACKET)

NOTES:
 1. TERMINAL TAG CONVENTION = (NODE, MODULE, TERMINAL)
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES.
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES.
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY.
 5. EXTERNAL POWER SUPPLY NOT REQUIRED FOR AIB35A.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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 CANADA K0T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL K NODE ADDRESS 9 - MODULES 1, 2, & 3				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 310	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

THERMOCOUPLE JACK PANEL L

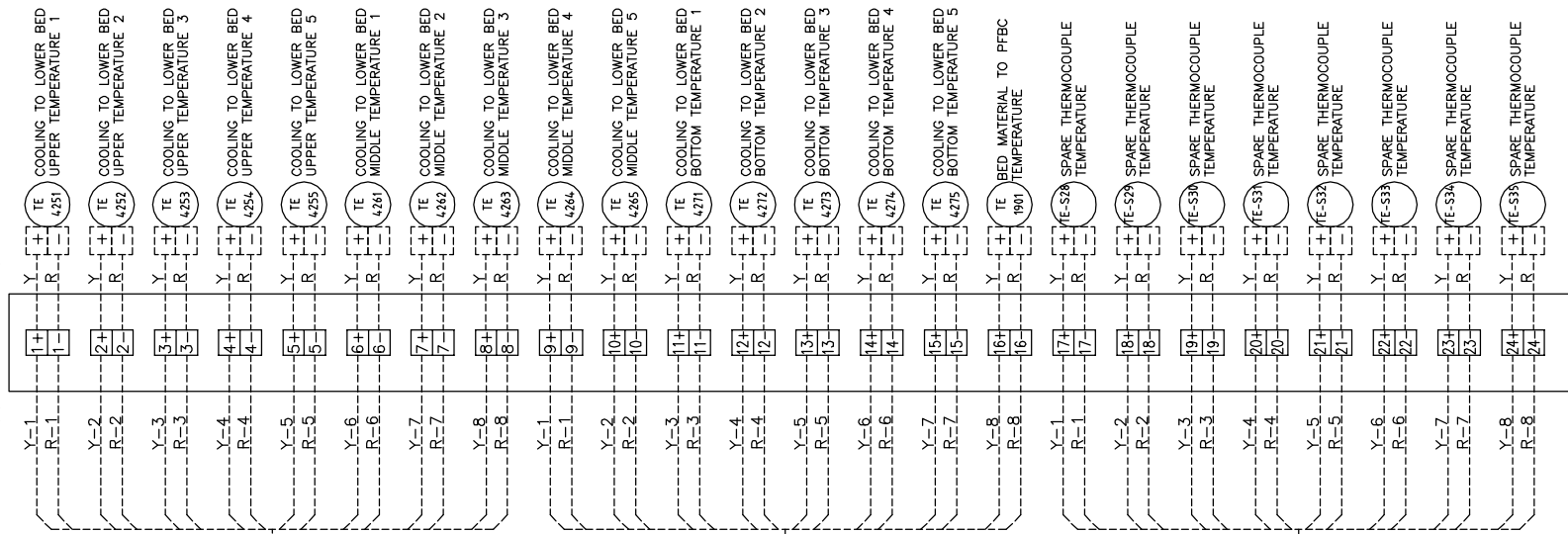
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

STATION ADDRESS 9	
MODULE 4	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

STATION ADDRESS 9	
MODULE 5	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

STATION ADDRESS 9	
MODULE 6	
AI835	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE AI835A	

TWO ROW, 12 CIRCUIT PER ROW
 JACK PANEL
 (P/N: PA41604-KX)



NOTE 3
 FB-102
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-103
 8P, 18AWG
 KX, XLPE, AIA

NOTE 3
 FB-104
 8P, 18AWG
 KX, XLPE, AIA

TE THERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DATE (Y/M/D)	BY	CHKD	APPD
0	2015/10/02	BBY	DER	
A	2015/09/11	BBY	DER	
No				

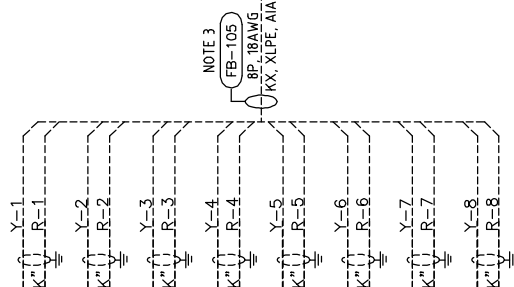
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 CANADA K6T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
 www.wspgroup.com
 PROJECT # 151-07049-00

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL L NODE ADDRESS 9 - MODULES 4, 5, & 6				
CHECKED D. RICHMOND	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 311	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

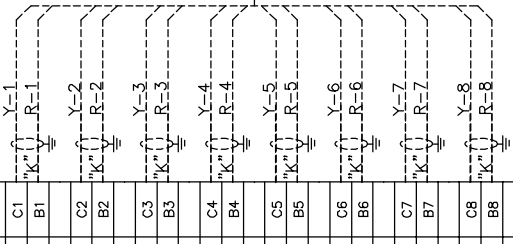
THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01

STATION ADDRESS 9 MODULE 7	
AIB35	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE	AIB35A



NOTE 5

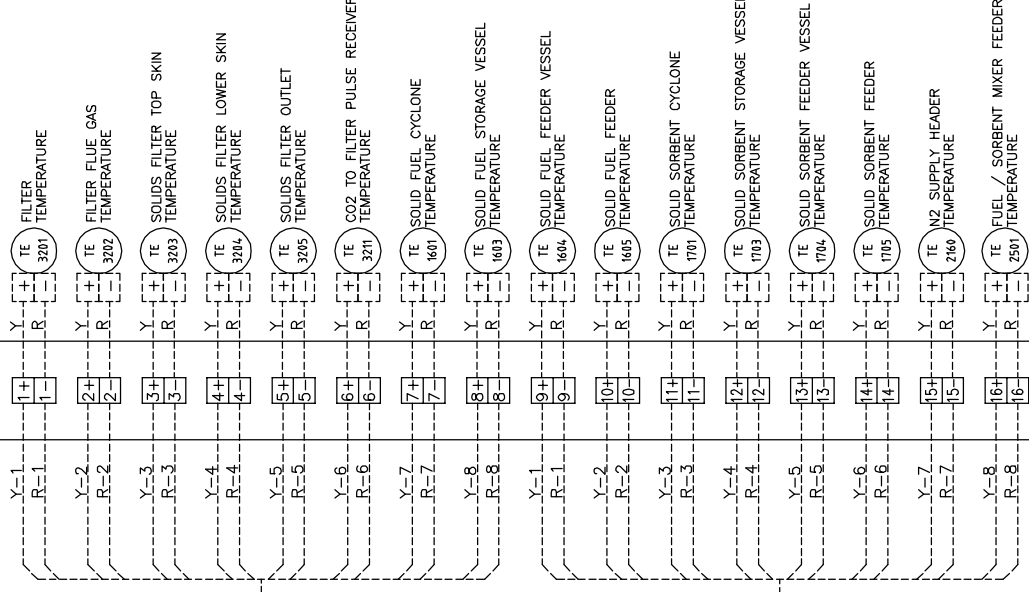
STATION ADDRESS 9 MODULE 8	
AIB35	TERM
L1+	+24VDC
L1-	0VDC
INPUT 0	SIG+ C1 SIG- B1
INPUT 1	SIG+ C2 SIG- B2
INPUT 2	SIG+ C3 SIG- B3
INPUT 3	SIG+ C4 SIG- B4
INPUT 4	SIG+ C5 SIG- B5
INPUT 5	SIG+ C6 SIG- B6
INPUT 6	SIG+ C7 SIG- B7
INPUT 7	SIG+ C8 SIG- B8
TE INPUT MODULE	AIB35A



NOTE 5

THERMOCOUPLE JACK PANEL M

SINGLE ROW, 18 CIRCUIT JACK PANEL
(P/N: PA41603-KX)



THERMOCOUPLE TYPES:

- "J" - WHT./RED - (BLACK JACKET)
- "K" - YEL./RED - (YELLOW JACKET)
- "S" - BLK./RED - (GREEN JACKET)
- "B" - GRY./RED - (GRAY JACKET)
- "N" - ORG./RED - (ORANGE JACKET)

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS	REVISION REGISTER
	0 ISSUE FOR CLIENT REVIEW 2015/10/02 BBY DER
	A INTERNAL REVIEW 2015/09/11 BBY DER
	No REVISION DESCRIPTION DATE (Y/M/D) DRAWN CKD APPD

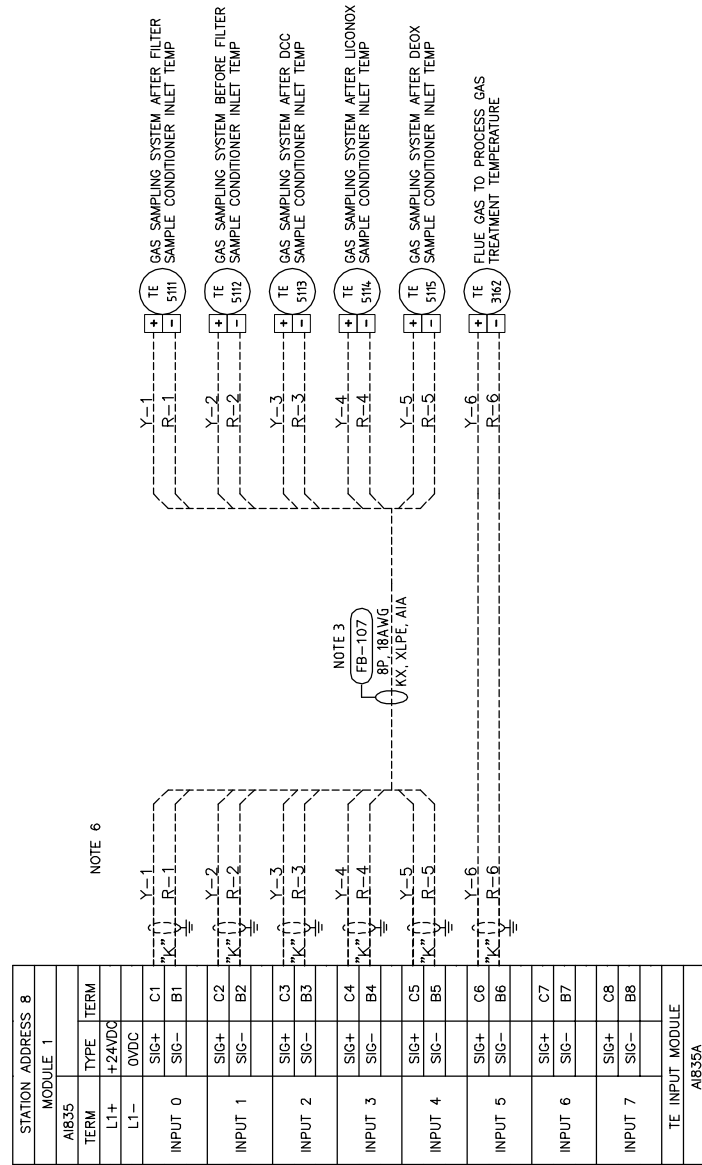
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4502 HANNA DRIVE,
ELIZABETHTOWN, ONTARIO
CANADA K6T 1A9
PHONE: 613-342-8300 FAX: 613-342-9400
www.wspgroup.com
PROJECT # 151-07049-00

CLIENT

DESIGNED B. YACH	PROJECT NRCAN CANMET OXY-PFBC
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE - JACK PANEL M NODE ADDRESS 9 - MODULES 7 & 8
CHECKED D. RICHMOND	DEPARTMENT E
APPROVED	PROJECT PFBC
DATE 2015/06/30	BUILDING BCC4
SCALE NONE	DRAWING 312
	REV. 0

THERMOCOUPLE JUNCTION BOX PFBC-TCJB-01



TERMOCOUPLE TYPES:
 "J" - WHT./RED - (BLACK JACKET)
 "K" - YEL./RED - (YELLOW JACKET)
 "S" - BLK./RED - (GREEN JACKET)
 "B" - GRY./RED - (GRAY JACKET)
 "N" - ORG./RED - (ORANGE JACKET)

- NOTES:
1. TERMINAL TAG CONVENTION = INODE, MODULE, TERMINAL
 2. "CA-XX" CONTROL CABINET INTERNAL CABLES
 3. "FB-XX" CONTROL CABINET TO FIELD JUNCTION BOX CABLES
 4. CABLE SHIELD TO BE GROUNDED AT ONE END ONLY
 5. EXTERNAL POWER SUPPLY NOT REQUIRED FOR AIB35A
 6. THERMOCOUPLE INSTRUMENTS WIRED DIRECTLY TO MODULE AS INDICATED.

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REV	DATE (Y/M/D)	DESCRIPTION	BY	CHKD	APPD
0	2015/10/02	ISSUE FOR CLIENT REVIEW	BBY	DER	
A	2015/09/11	INTERNAL REVIEW	BBY	DER	
No		REVISION DESCRIPTION			

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 ELIZABETHTOWN, ONTARIO
 CANADA K0T 1A9
 PHONE: 613-342-8300 FAX: 613-342-9400
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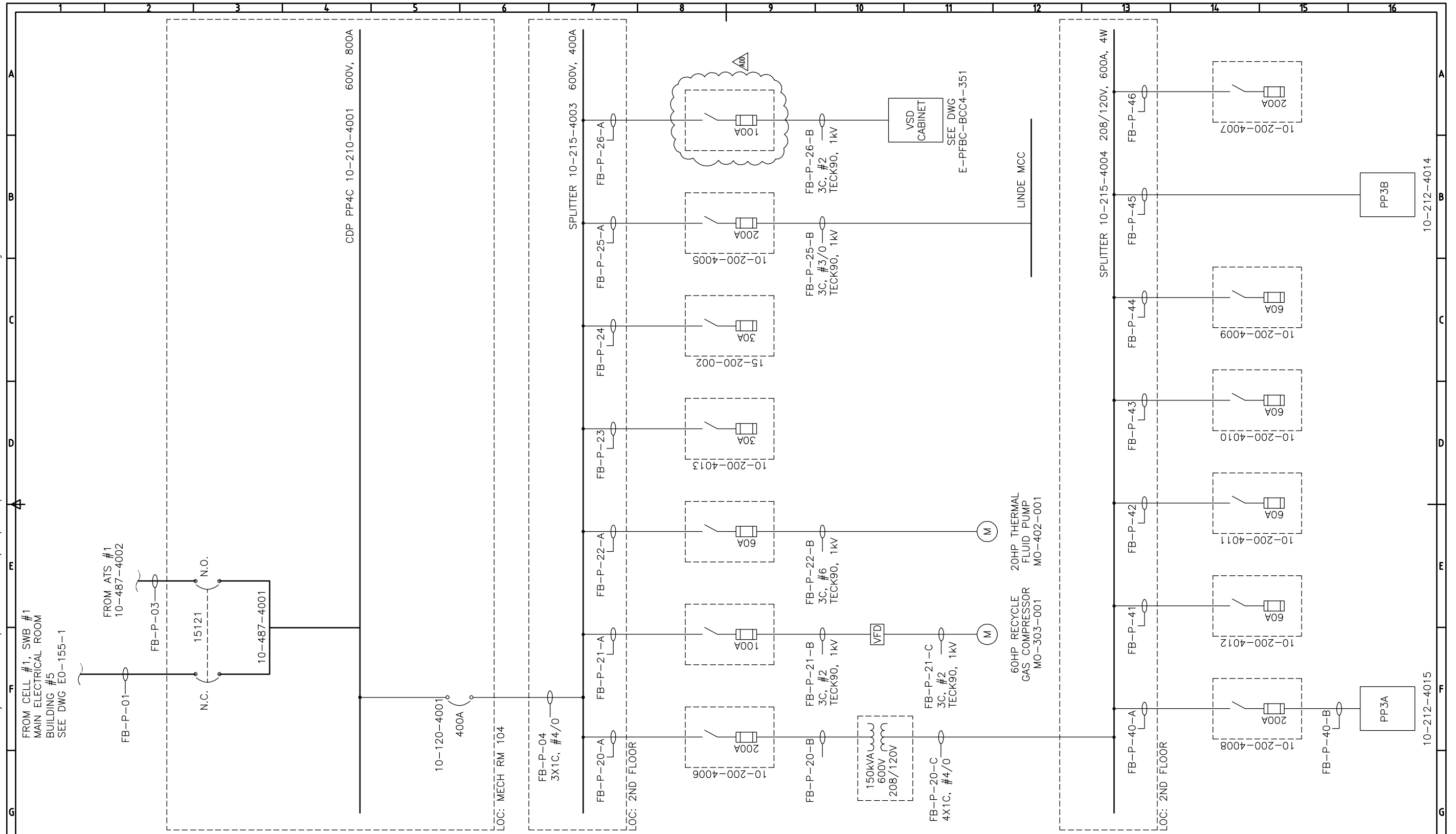
PROJECT # 151-07049-00

CLIENT
Canada
 Natural Resources Canada
 Ressources naturelles Canada
 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

DESIGNED B. YACH
DRAWN B. YACH
CHECKED D. RICHMOND
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC THERMOCOUPLE WIRING NODE ADDRESS 8 - MODULE 1				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 313	REV. 0

LAST SAVE: 2015/10/03 - 5:19pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
351	VSD CABINET SINGLE LINE DIAGRAM				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

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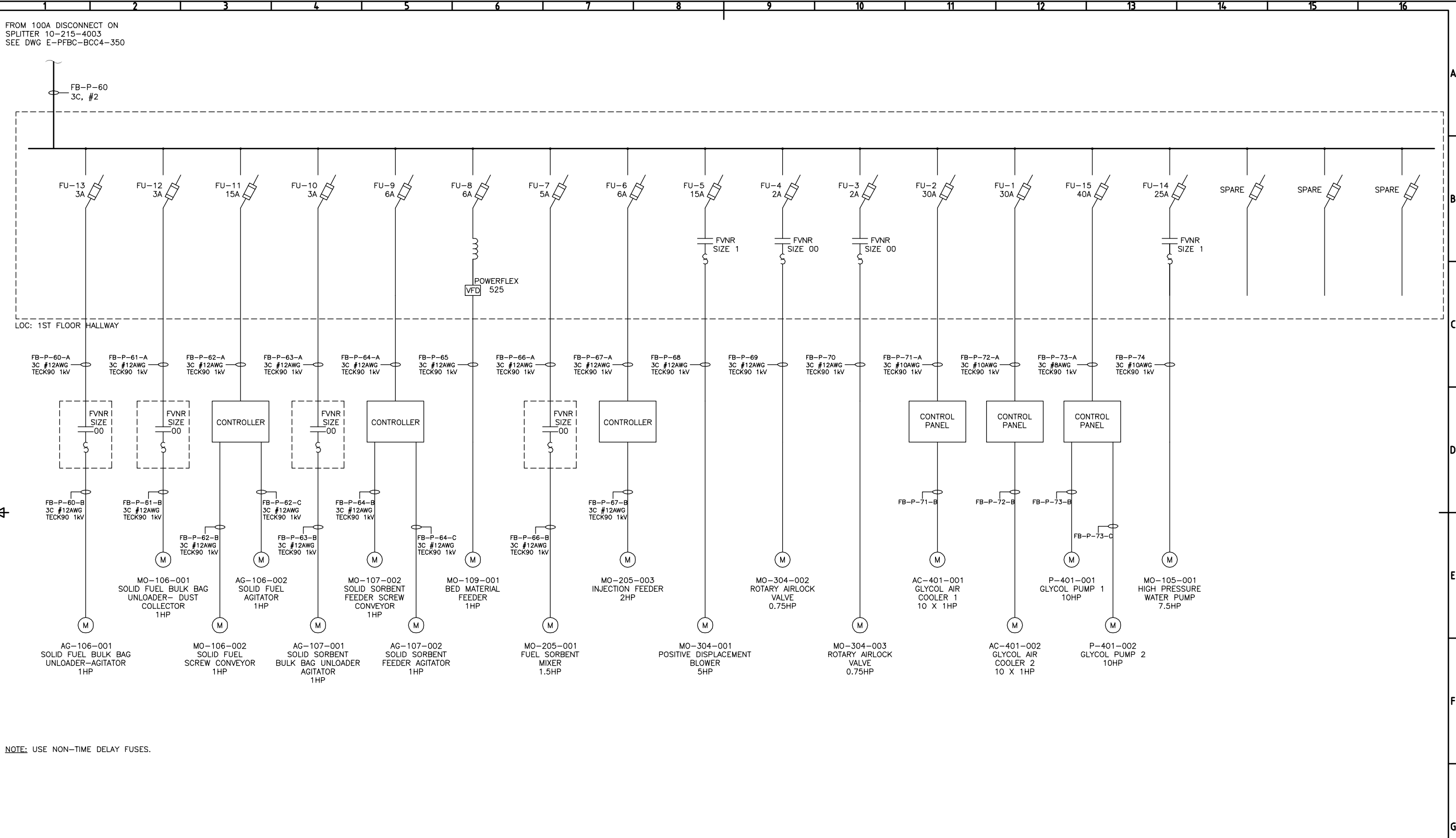
PROJECT # 151-07049-00

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DESIGNED W. FEENSTRA
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC SINGLE LINE DIAGRAM 1				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 350	REV. 0

LAST SAVE: 2015/10/03 - 5:20pm
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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
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A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
350	SINGLE LINE DIAGRAM 1				

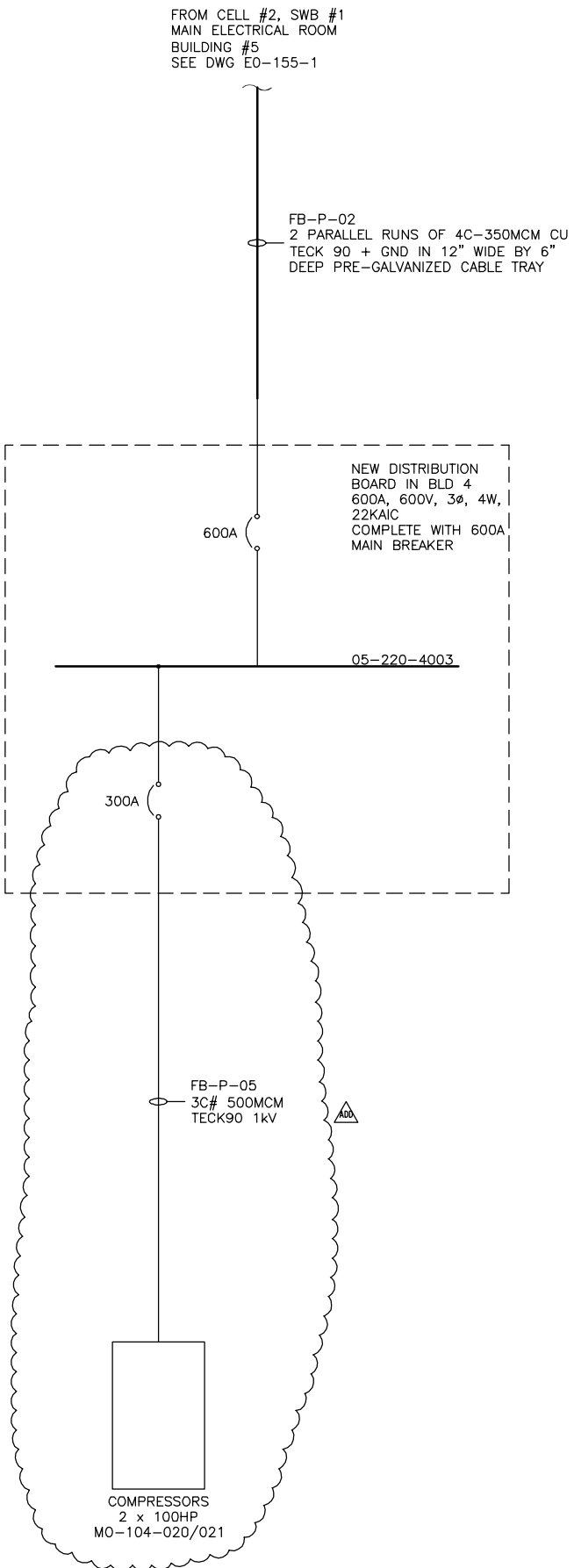
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DESIGNED W. FEENSTRA
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC VSD CABINET SINGLE LINE DIAGRAM				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 351	REV. 0



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS		REVISION REGISTER			
No	REVISION DESCRIPTION	DATE (Y/M/D)	DRWN	CKD	APPD
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A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

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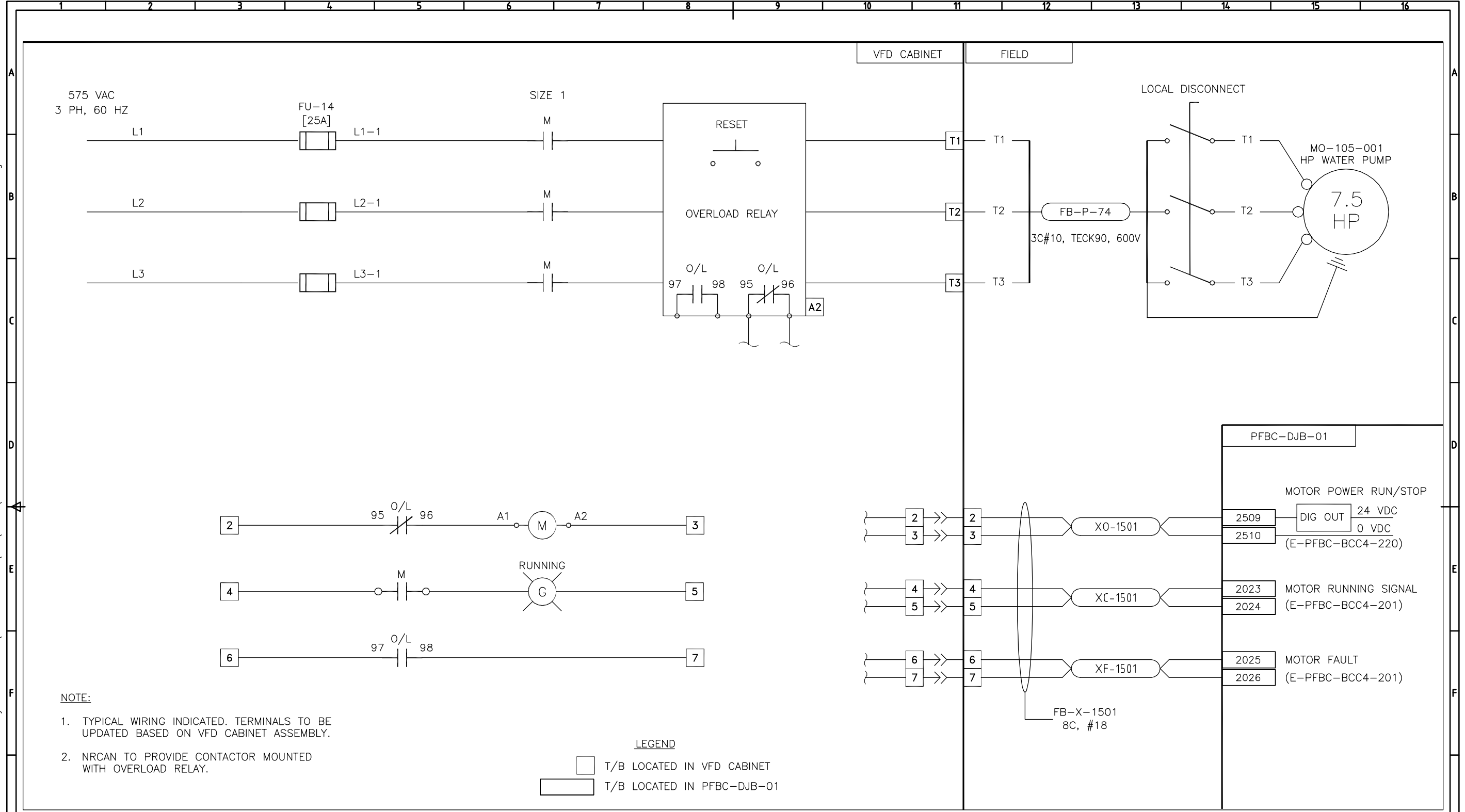
WSP
 4022 JAMES BAY
 ELECTRICIAN
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DESIGNED		PROJECT	
W. FEENSTRA	DRWN	NRCAN	CANMET OXY-PFBC
B. YAOH	CHECKED		ELECTRICAL
W. FEENSTRA	APPROVED		OXY-PFBC
DATE	2015/06/30		2 X 100HP COMPRESSORS
SCALE	NONE		SINGLE LINE DIAGRAM
DEPARTMENT	E	PROJECT	PFBC
		BUILDING	BCC4
		DRAWING	352
		REV.	0

LAST SAVE: 2015/10/03 - 5:30pm
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- NOTE:**
- TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
 - NRCAN TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

□ T/B LOCATED IN VFD CABINET

▭ T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE (Y/M/D)	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	WDF		ISSUE FOR CLIENT REVIEW
220	2015/09/11	BBY	WDF		INTERNAL REVIEW
201					REVISION DESCRIPTION

NO	DATE (Y/M/D)	BY	CHKD	APPD	REVISION DESCRIPTION
0	2015/10/02	BBY	WDF		ISSUE FOR CLIENT REVIEW
220	2015/09/11	BBY	WDF		INTERNAL REVIEW
201					REVISION DESCRIPTION

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PROJECT # 151-07049-00

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DESIGNED
A. HASHMI

DRAWN
B. YACH

CHECKED
W. FEENSTRA

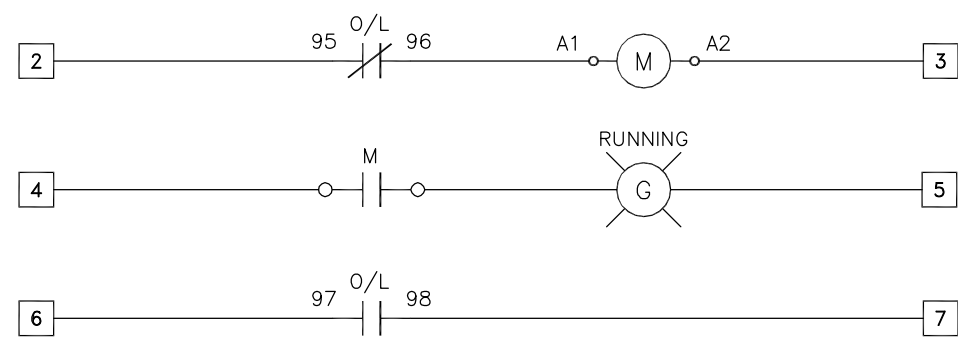
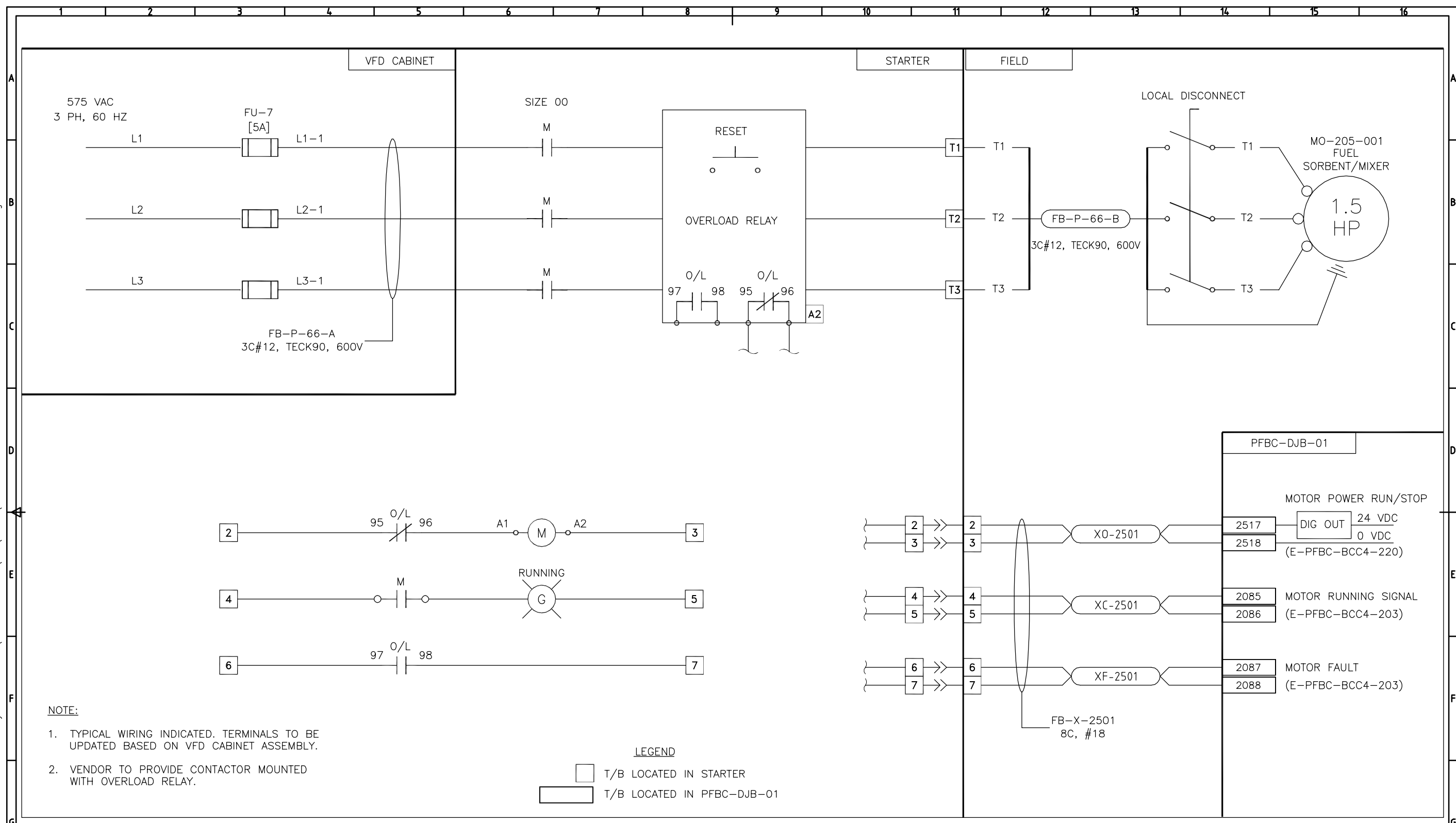
APPROVED

DATE
2015/06/30

SCALE
NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC HP WATER PUMP MO-105-001 VFD CABINET				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	401	0

LAST SAVE: 2015/10/03 - 5:31pm
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NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
2. VENDOR TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN STARTER
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DATE (Y/M/D)	BY	CHKD	APPD	DESCRIPTION
0	2015/10/02	BBY	WDF		ISSUE FOR CLIENT REVIEW
220	2015/09/11	BBY	WDF		INTERNAL REVIEW
203					REVISION DESCRIPTION

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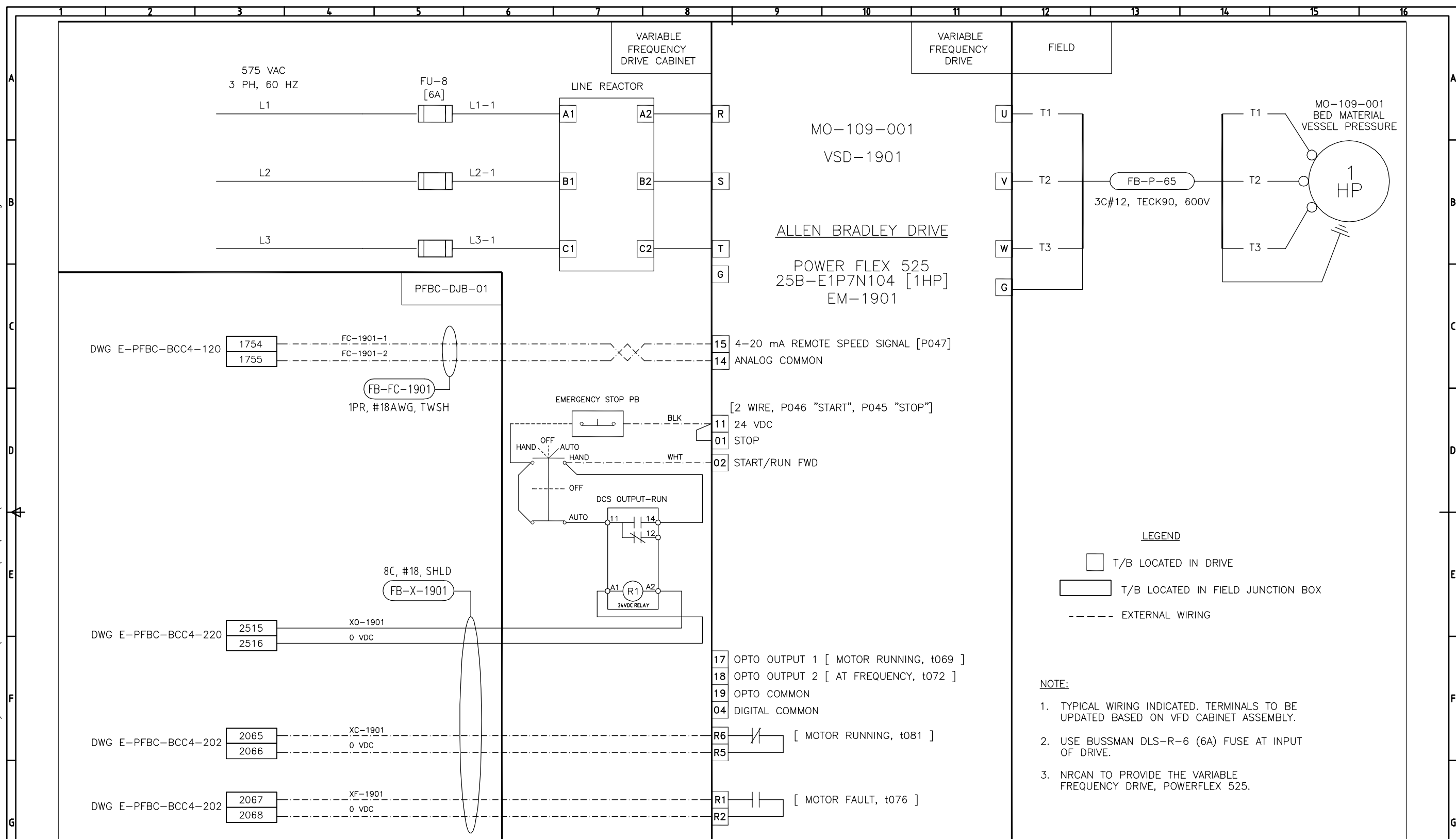
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC FUEL SORBENT/MIXER MO-205-001 VFD CABINET			
CHECKED W. FEENSTRA	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 402
APPROVED			REV. 0	
DATE 2015/06/30				
SCALE NONE				

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 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-403 MO-109-001 BED MATERIAL VESSEL REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
220	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 4	2015/10/02	BBY	WDF	
202	DIGITAL INPUT WIRING - NODE 4 - MODULE 2	2015/09/11	BBY	WDF	
120	ANALOG OUTPUT WIRING - N3 - M1 & M2				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
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A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

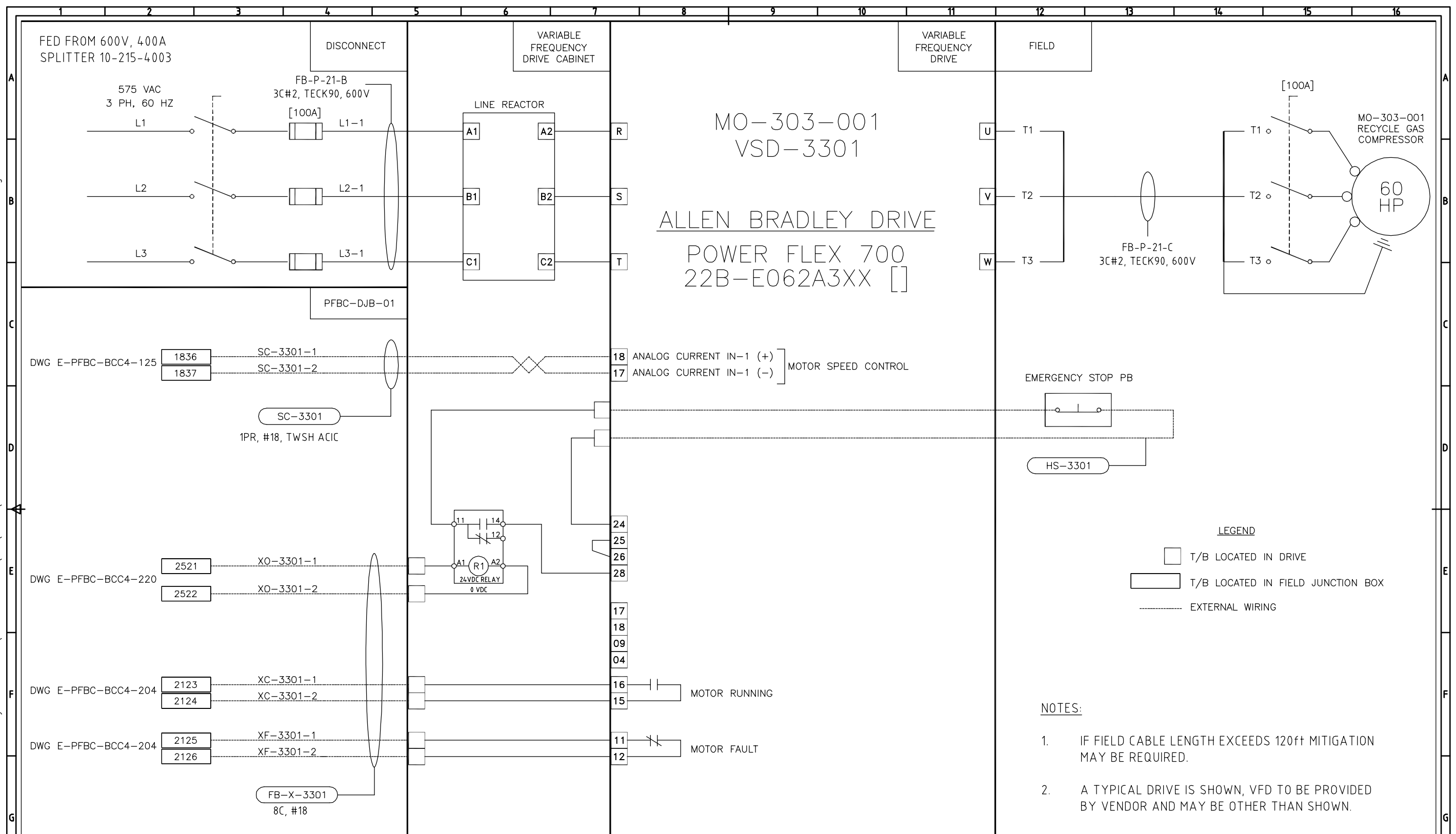
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC				
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC BED MATERIAL VESSEL PRESSURE MOTOR MO-109-001 VFD CABINET				
CHECKED W. FEENSTRA	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 403	REV. 0
APPROVED					
DATE 2015/06/30					
SCALE NONE					

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 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-404 MO-303-001 RECYCLE GAS COMPRESSOR REV 0.dwg



NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
220	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 4	2015/10/02	BBY	WDF	
204	DIGITAL INPUT WIRING - NODE 4 - MODULE 7	2015/09/11	BBY	WDF	
125	ANALOG OUTPUT WIRING - N2 - M1 & M2				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

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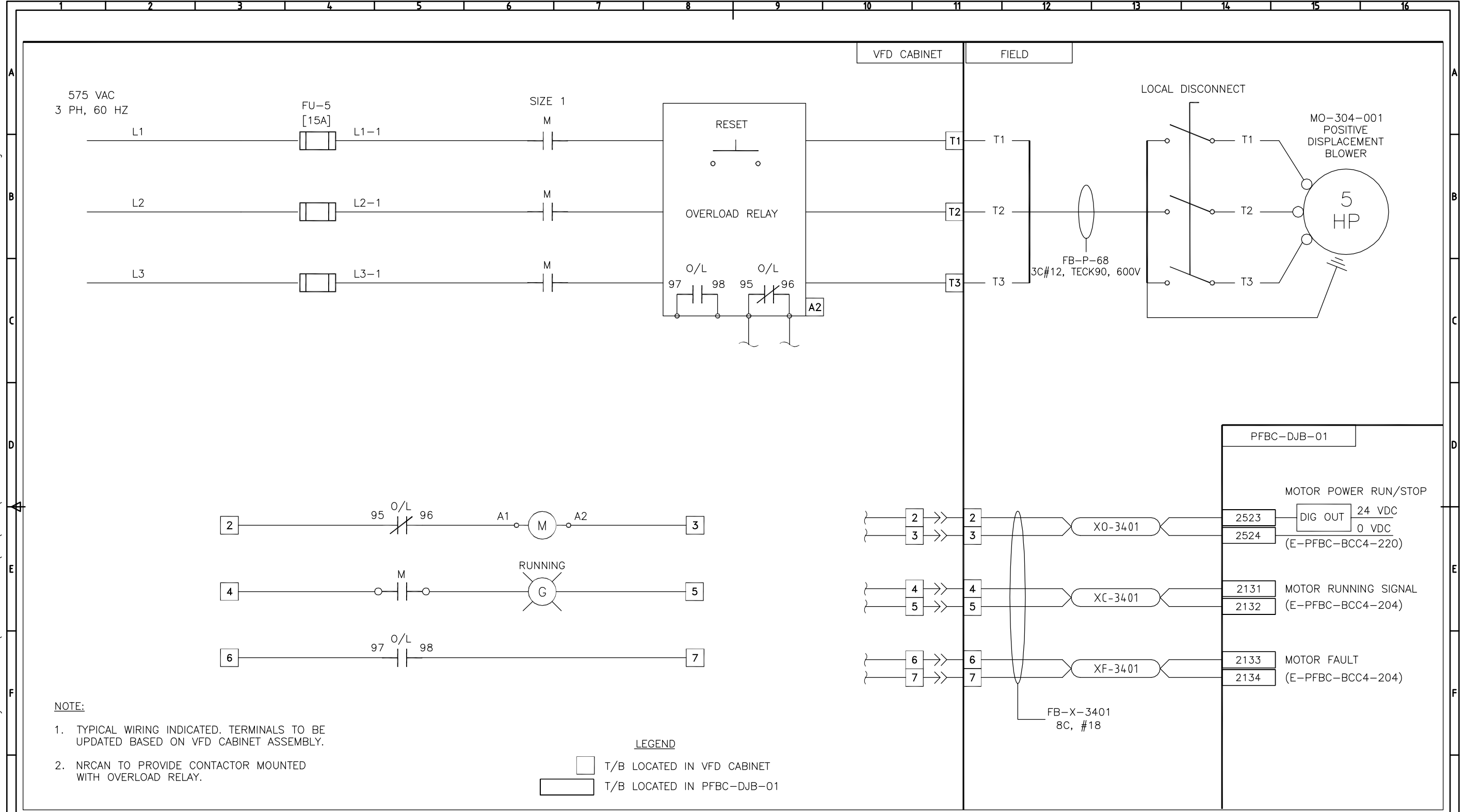
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DESIGNED
 A. HASHMI
 DRAWN
 B. YACH
 CHECKED
 W. FEENSTRA
 APPROVED

DATE
 2015/06/30
 SCALE
 NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC RECYCLE GAS COMPRESSOR MO-303-001 VFD CABINET				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	404	0

LAST SAVE: 2015/10/03 - 5:32pm
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NOTE:

- TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
- NRCAN TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN VFD CABINET
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

No	DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
220	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 4	2015/09/11	BBY	WDF	
204	DIGITAL INPUT WIRING - NODE 4 - MODULE 7				

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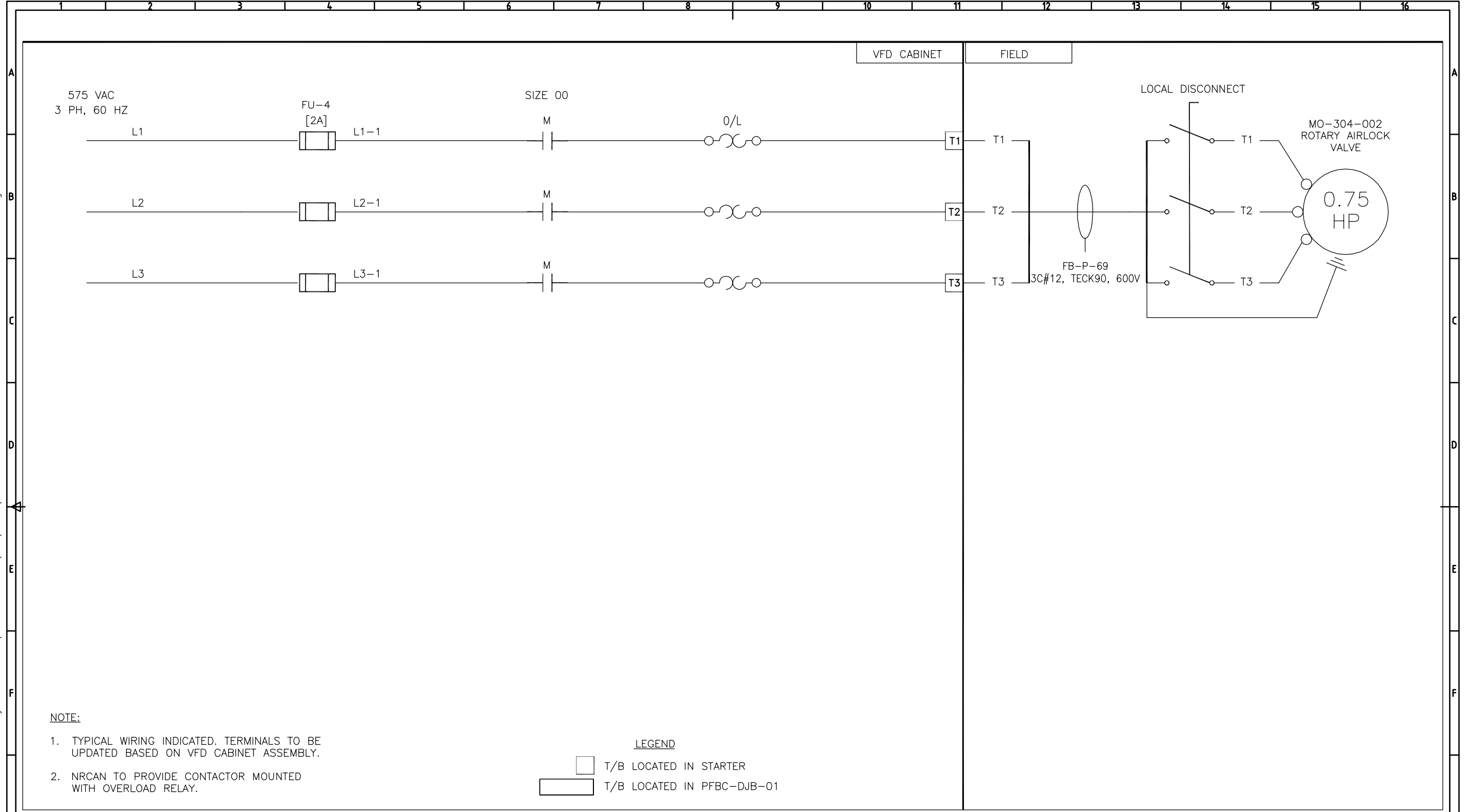
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC POSITIVE DISPLACEMENT BLOWER MO-304-001 VFD CABINET			
CHECKED W. FEENSTRA	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 405
APPROVED			REV. 0	
DATE 2015/06/30				
SCALE NONE				

LAST SAVE: 2015/10/03 - 5:33pm
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NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
2. NRCAN TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN STARTER
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
REVISION REGISTER					
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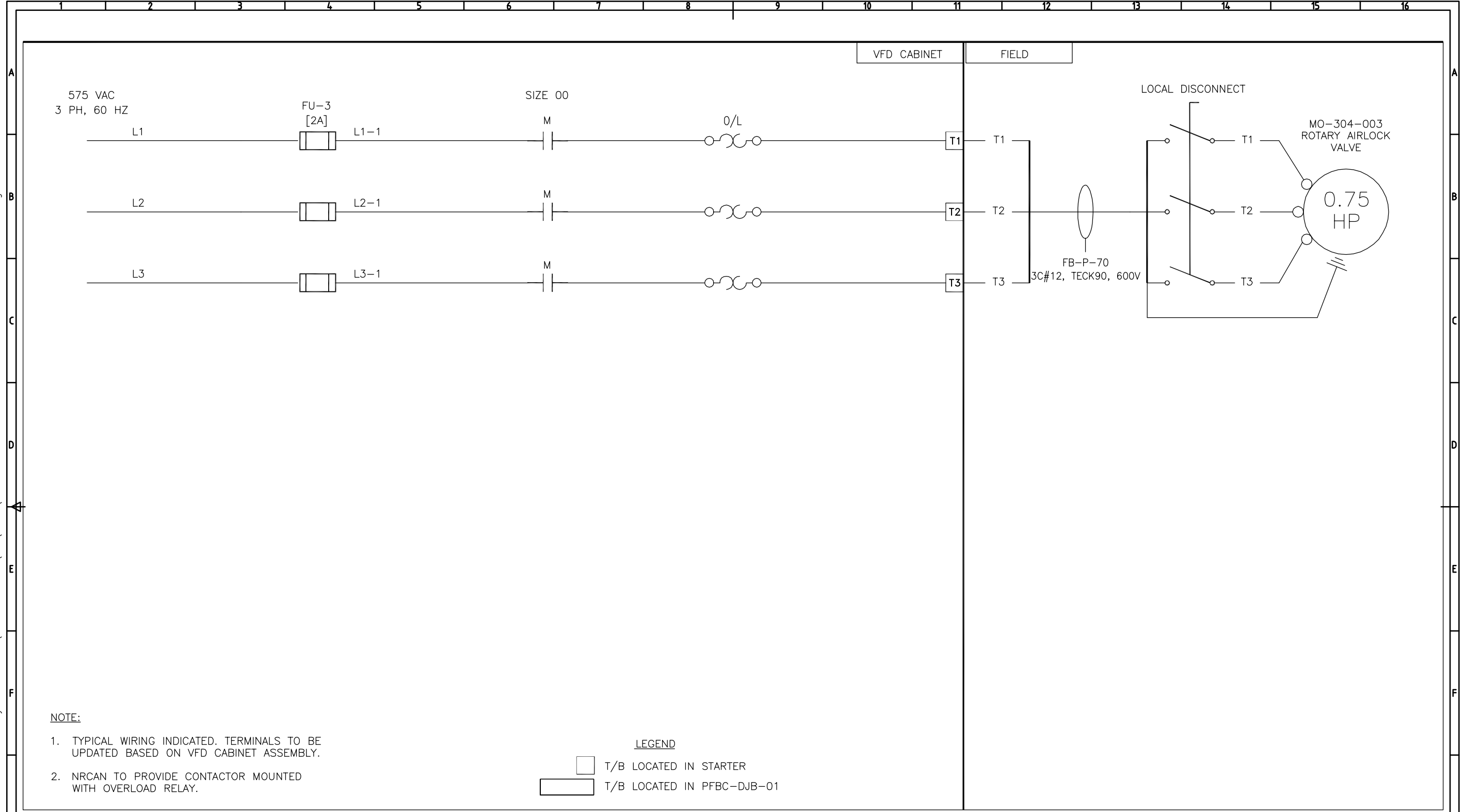
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DESIGNED A. HASHMI
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC ROTARY AIRLOCK VALVE MO-304-002 VFD CABINET				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	406	0

LAST SAVE: 2015/10/03 - 5:35pm
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NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
2. NRCAN TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN STARTER
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
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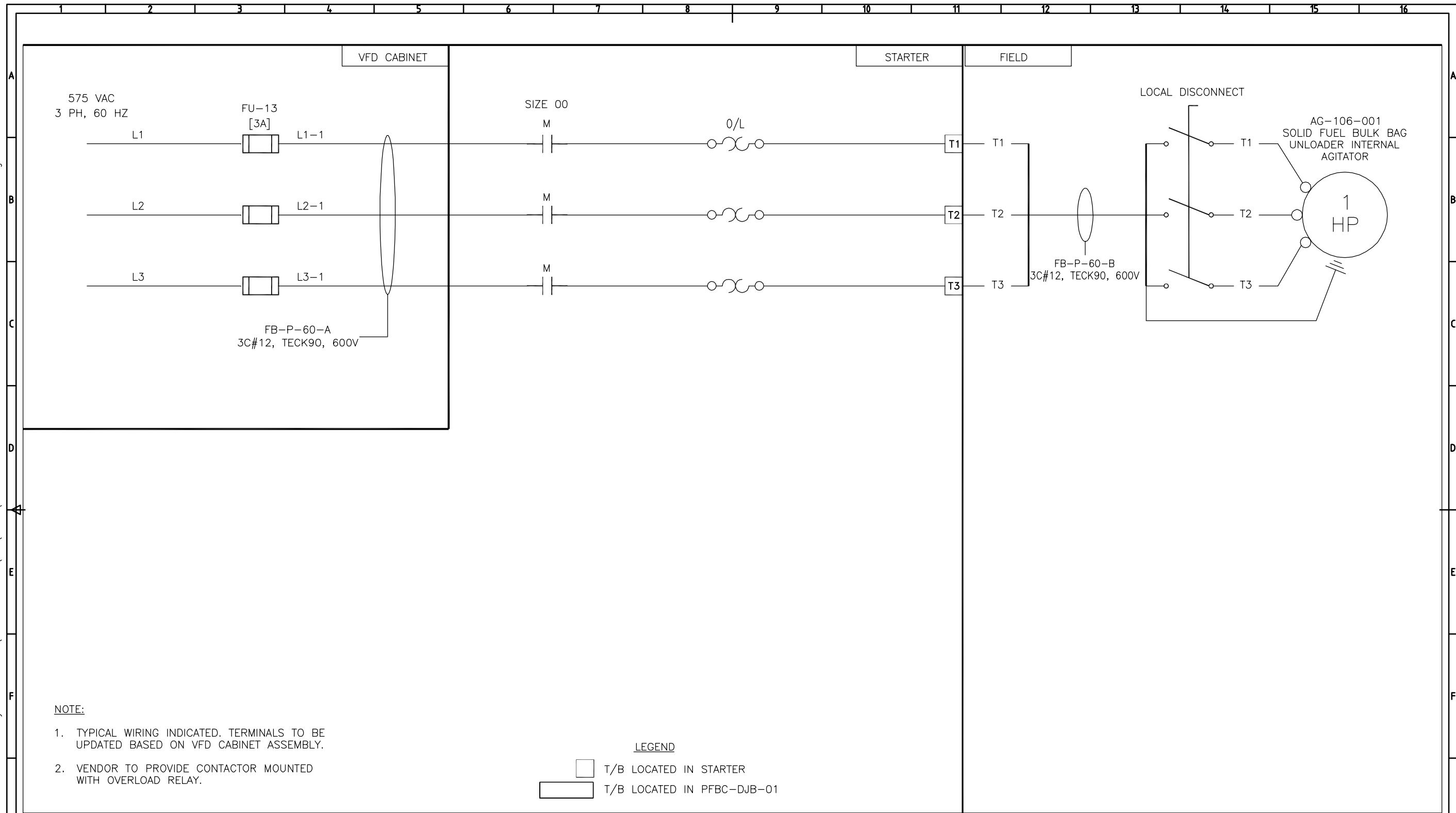
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DESIGNED A. HASHMI
DRAWN B. YACH
CHECKED W. FEENSTRA
APPROVED
DATE 2015/06/30
SCALE NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC ROTARY AIRLOCK VALVE MO-304-003 VFD CABINET				
DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 407	REV. 0

LAST SAVE: 2015/10/03 - 5:33pm
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NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
2. VENDOR TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN STARTER
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
REVISION REGISTER					
REFERENCE DRAWINGS					

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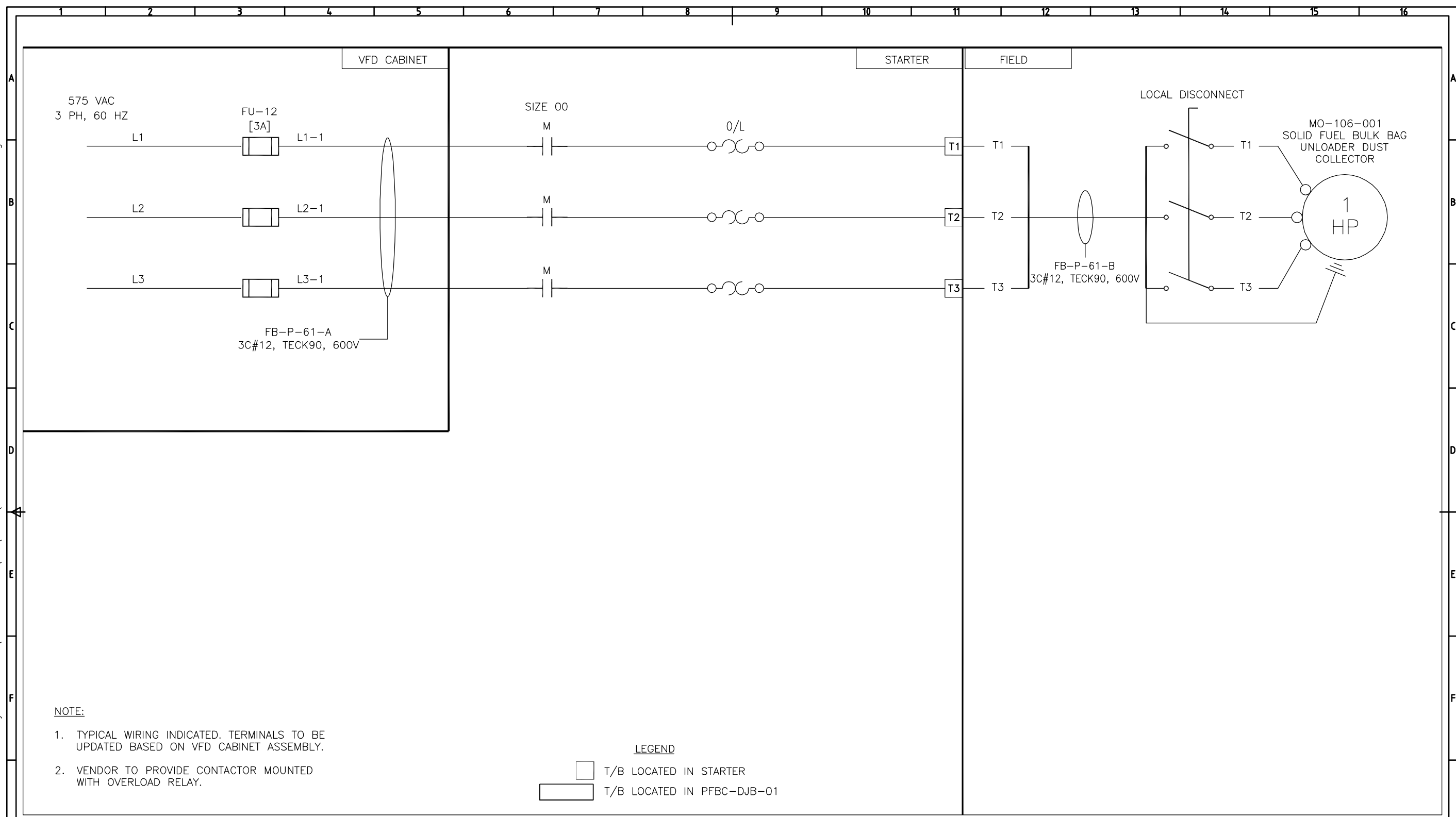
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC			
CHECKED W. FEENSTRA	SOLID FUEL BULK BAG UNLOADER INTERNAL AGITATOR AG-106-001 VFD CABINET			
APPROVED	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 408
DATE 2015/06/30	REV. 0			
SCALE NONE				

LAST SAVE: 2015/10/03 - 5:34pm
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- NOTE:**
- TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
 - VENDOR TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

T/B LOCATED IN STARTER
 T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	
REVISION REGISTER					
REFERENCE DRAWINGS					

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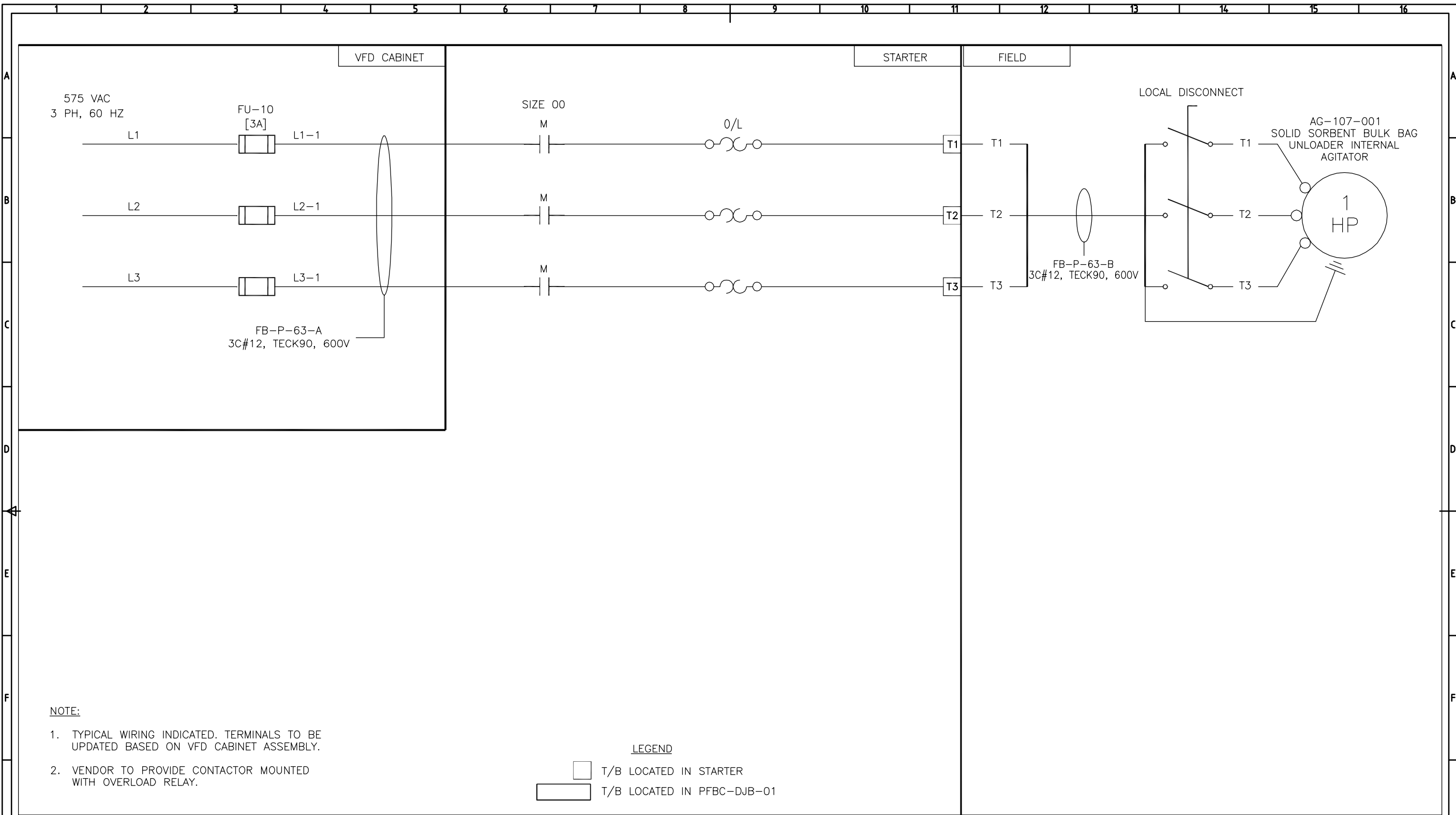
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLID FUEL BULK BAG UNLOADER GAS COLLECTOR MO-106-001 VFD CABINET			
CHECKED W. FEENSTRA	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 409
APPROVED				REV. 0
DATE 2015/06/30	SCALE NONE			

LAST SAVE: 2015/10/03 - 5:34pm
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NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.
2. VENDOR TO PROVIDE CONTACTOR MOUNTED WITH OVERLOAD RELAY.

LEGEND

- T/B LOCATED IN STARTER
- T/B LOCATED IN PFBC-DJB-01

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No	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
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REFERENCE DRAWINGS					

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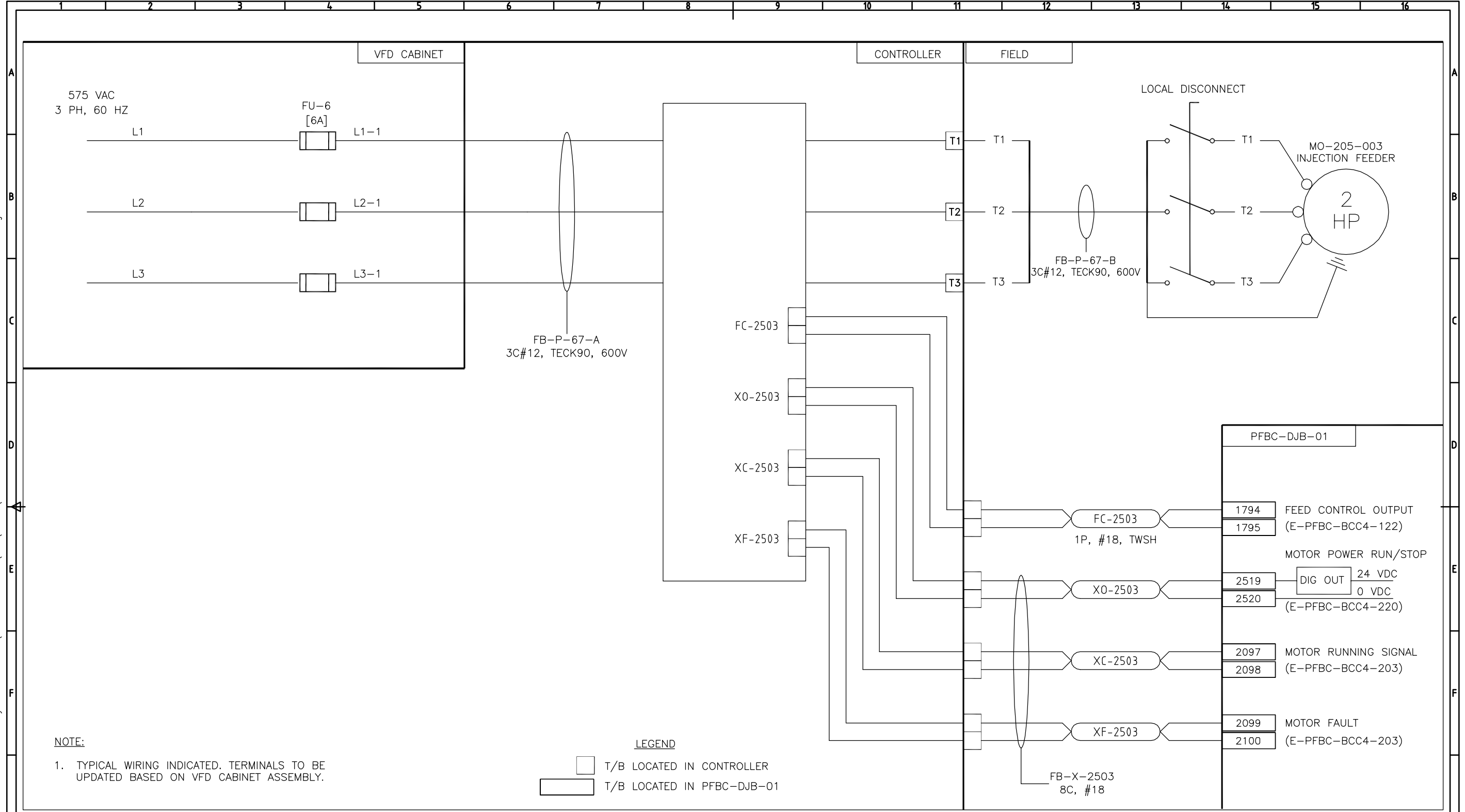
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CANMET Energy Technology Center
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DESIGNED A. HASHMI	PROJECT NRCAN CANMET OXY-PFBC			
DRAWN B. YACH	TITLE ELECTRICAL OXY-PFBC SOLID SORBENT BULK BAG UNLOADER INTERNAL AGITATOR AG-107-001 VFD CABINET			
CHECKED W. FEENSTRA	DEPARTMENT E	PROJECT PFBC	BUILDING BCC4	DRAWING 410
APPROVED				REV. 0
DATE 2015/06/30	SCALE NONE			

LAST SAVE: 2015/10/03 - 5:33pm
 PATH: S:\01-ACTIVE PROJECTS\2015\151-07049-00 - NRCAN Oxy-PFBC CANMET\INSTRUMENTATION\CAD\REV 0\E-PFBC-BCC4-411 MO-205-003 INJECTION FEEDER REV 0.dwg



NOTE:

1. TYPICAL WIRING INDICATED. TERMINALS TO BE UPDATED BASED ON VFD CABINET ASSEMBLY.

LEGEND

- T/B LOCATED IN CONTROLLER
- T/B LOCATED IN PFBC-DJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

NO	DESCRIPTION	DATE	BY	CHKD	APPD
220	DIGITAL OUTPUT WIRING - NODE 4 - MODULE 4	2015/10/02	BBY	WDF	
203	DIGITAL INPUT WIRING - NODE 4 - MODULE 3	2015/09/11	BBY	WDF	
122	DIGITAL INPUT WIRING - NODE 3 - MODULE 6&7				

NO	REVISION DESCRIPTION	DATE (Y/M/D)	DRAWN	CKD	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

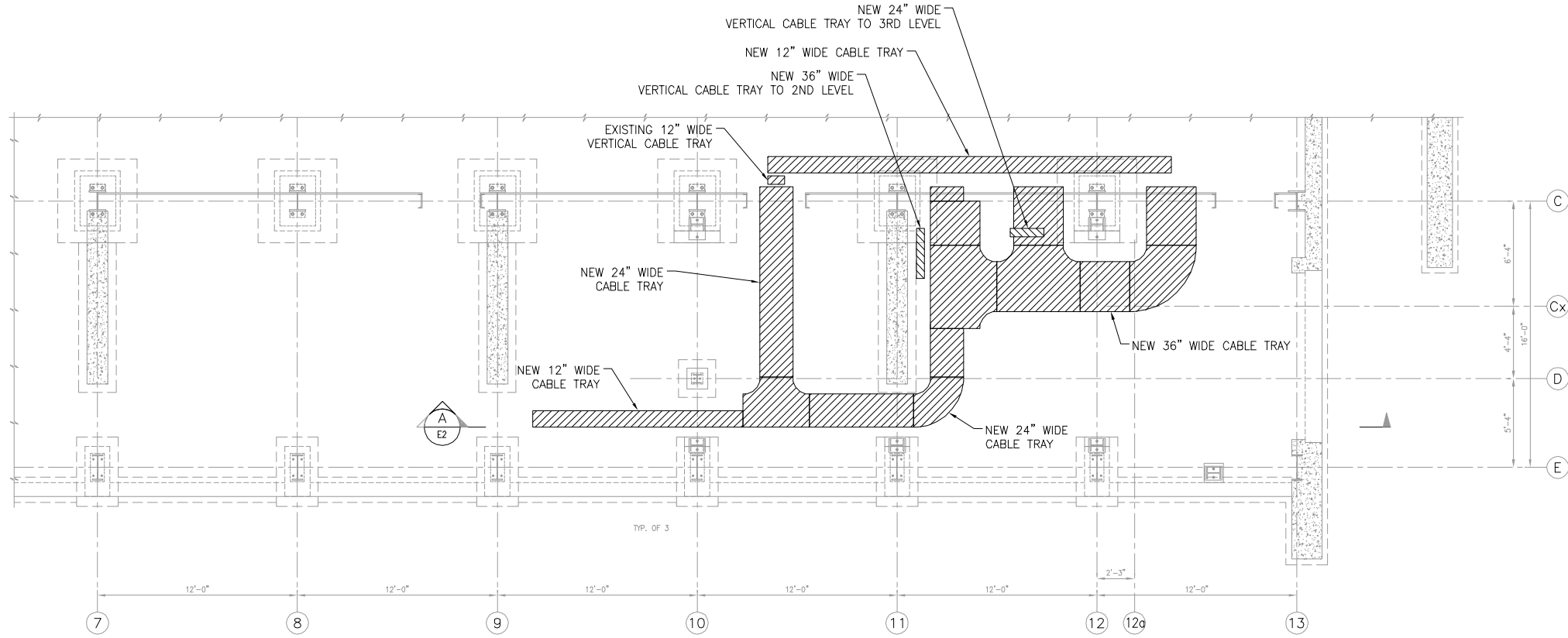
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 PROJECT # 151-07049-00

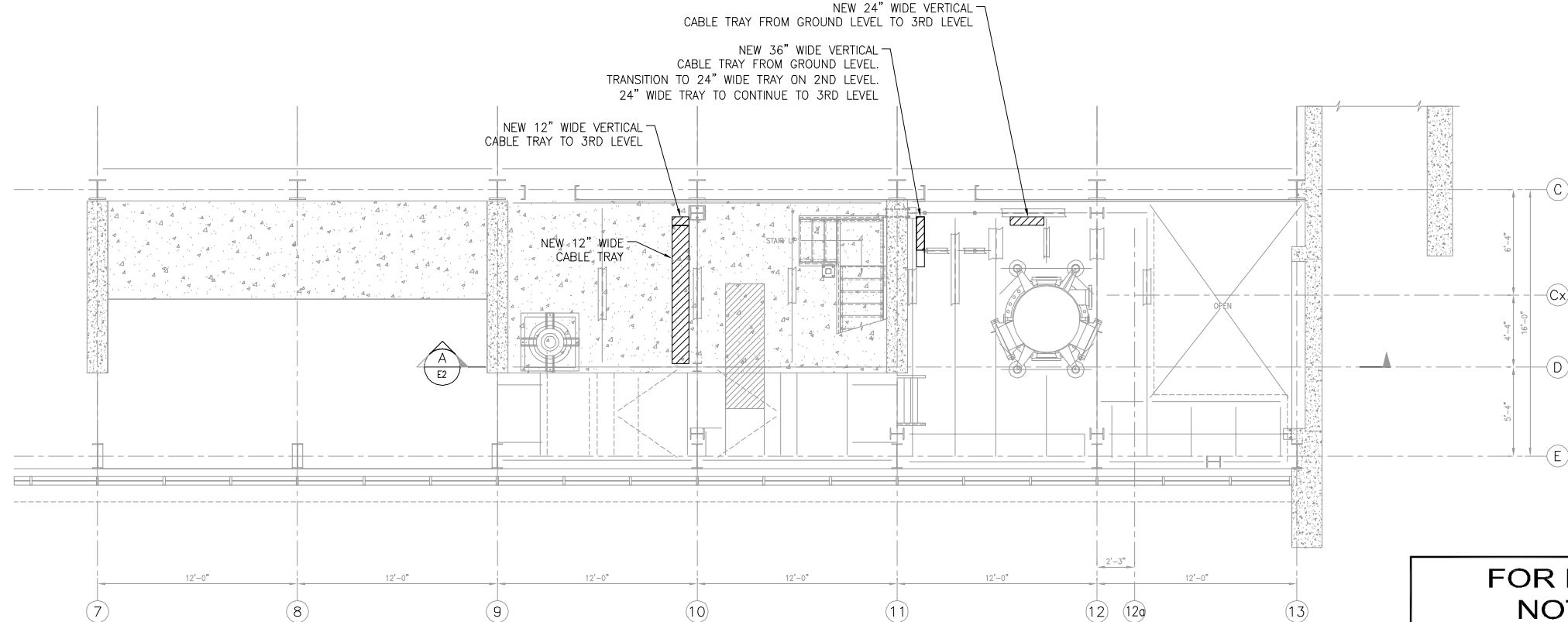
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 Centre de la technologie
 de l'énergie de CANMET

DESIGNED
 A. HASHMI
 DRAWN
 B. YACH
 CHECKED
 W. FEENSTRA
 APPROVED
 DATE
 2015/06/30
 SCALE
 NONE

PROJECT NRCAN CANMET OXY-PFBC				
TITLE ELECTRICAL OXY-PFBC INJECTION FEEDER MO-205-003 VFD CABINET				
DEPARTMENT	PROJECT	BUILDING	DRAWING	REV.
E	PFBC	BCC4	411	0



⊖
E1
GROUND LEVEL PLAN – CABLE TRAY
1/4" = 1'-0"



⊖
E1
2ND LEVEL PLAN – CABLE TRAY
1/4" = 1'-0"

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CONSTRUCTION**

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OTTAWA, ON
K1A 1M1

PROJECT:
NEW MEZZANINES

KEY PLAN:

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ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
0		2015.10.02	ISSUED FOR CLIENT REVIEW
A		2015.09.25	INTERNAL REVIEW

PROJECT NO: 151-07049-00	DATE: 2015.09.24
ORIGINAL SCALE: AS SHOWN	IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: WDF	
DRAWN BY: DEP	
CHECKED BY: WDF	1"

DISCIPLINE: ELECTRICAL

TITLE:
GROUND AND 2ND LEVEL
CABLE TRAY LAYOUT

SHEET NUMBER:
E-PFBC-BCC4-500

ISSUE: ISSUED FOR CLIENT REVIEW
DATE OF: 2015.10.02

REV #
0



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CLIENT:
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 CANMET ENERGY**
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PROJECT:
NEW MEZZANINES

KEY PLAN:
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ISSUED FOR - REVISION:

NO	DATE	DESCRIPTION
D	2015.10.02	ISSUED FOR CLIENT REVIEW
A	2015.09.25	INTERNAL REVIEW

PROJECT NO:	DATE:
151-07049-00	2015.09.24

ORIGINAL SCALE: AS SHOWN
 DESIGNED BY: WDF
 DRAWN BY: DEP
 CHECKED BY: WDF
 DISCIPLINE: ELECTRICAL

IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.

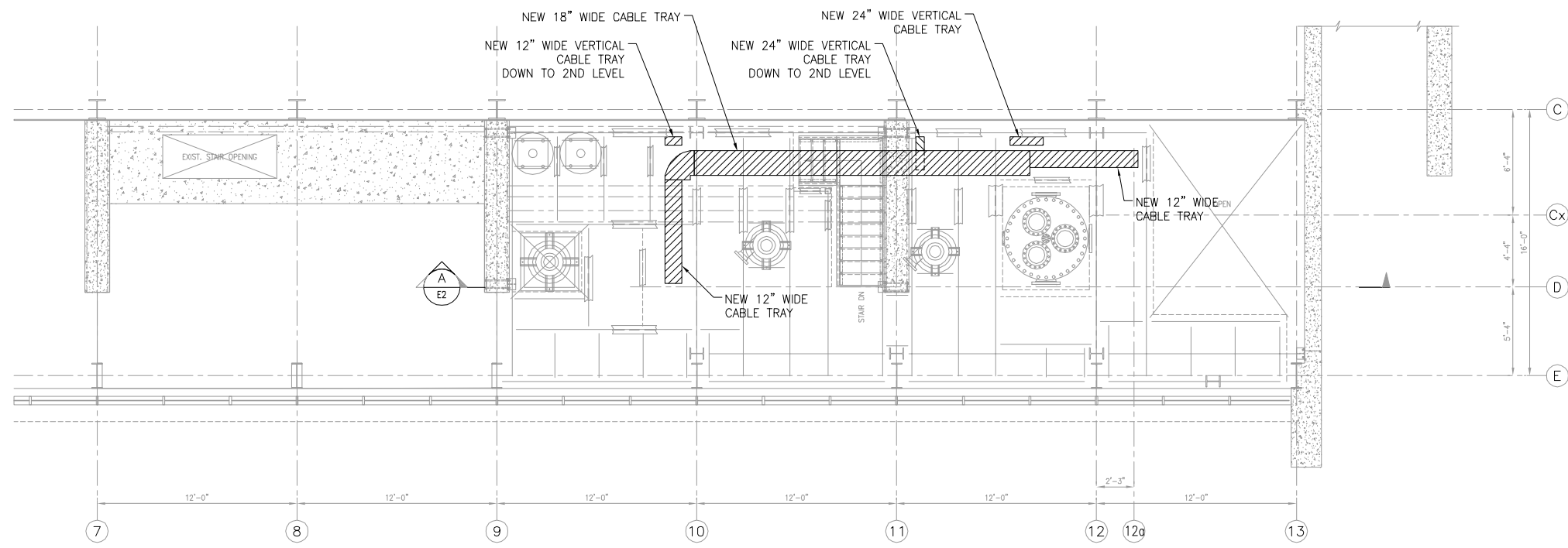
1"

TITLE:
3RD LEVEL CABLE TRAY LAYOUT AND SECTIONS

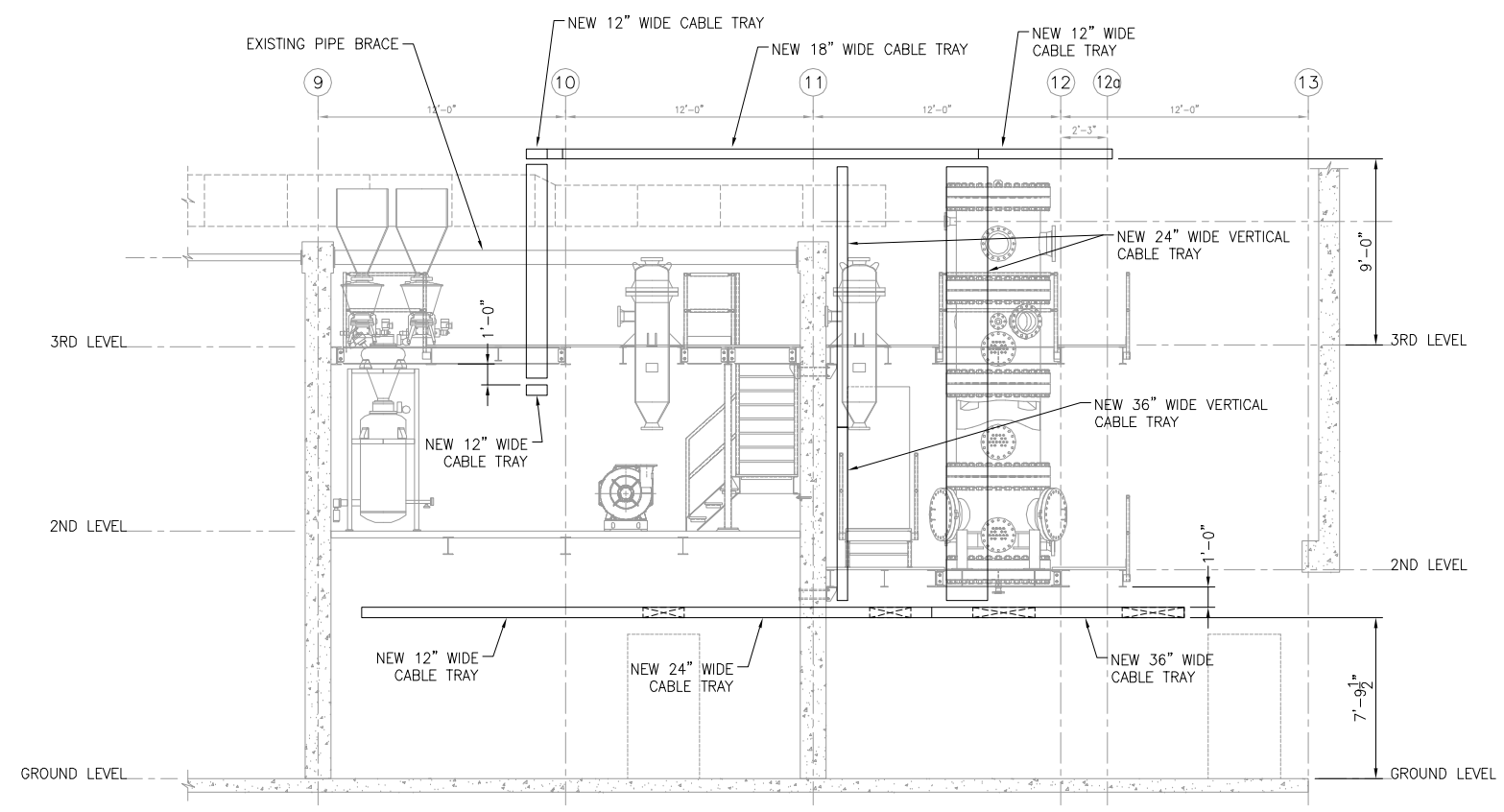
SHEET NUMBER:
 E-PFBC-BCC4-501

ISSUE:
 ISSUED FOR CLIENT REVIEW
 DATE OF: 2015.10.02

REV #:
 0



3RD LEVEL PLAN - CABLE TRAY
 1/4" = 1'-0"



OVERALL SECTION - CABLE TRAY
 1/4" = 1'-0"

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NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

ITEM	DESCRIPTION	VENDOR PART NUMBER	QUANTITY	REF. DWG.	NOTES
1	T&B 7" Straight Section (Series 3-7), 36" wide, Exceeding CSA E/6M	AH3-7-36-L06-3	3	E-PFBC-BCC4-500/501	Contractor to verify quantity
2	T&B 7" Horizontal Bend (AHF-7), 36" wide, 24" Radius	AHF-7-36-L-HB90-24	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
3	T&B 7" Horizontal Tee (AHF-7), 36" wide, 24" Radius	AHF-7-36-L-HT-24	2	E-PFBC-BCC4-500/501	Contractor to verify quantity
4	T&B 7" Horizontal Reducer Right(AHF-7), 36" wide to 24" wide	AHF-7-36-L-HRR	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
5	T&B 7" Horizontal Reducer Left(AHF-7), 36" wide to 24" wide	AHF-7-36-L-HLR	2	E-PFBC-BCC4-500/501	Contractor to verify quantity
6	T&B 7" Horizontal Cable Protection Plate, 36" wide	ABW-36-DO	2	E-PFBC-BCC4-500/501	Contractor to verify quantity
7	T&B 7" Straight Section (Series 3-7), 24" wide, Exceeding CSA E/6M	AH3-7-24-L06-3	6	E-PFBC-BCC4-500/501	Contractor to verify quantity
8	T&B 7" Horizontal Bend (AHF-7), 24" wide, 24" Radius	AHF-7-24-L-HB90-24	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
9	T&B 7" Horizontal Tee (AHF-7), 24" wide, 24" Radius	AHF-7-24-L-HT-24	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
10	T&B 7" Horizontal Reducer Right(AHF-7), 24" wide to 12" wide	AHF-7-24-L-HRR	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
11	T&B 7" Horizontal Cable Protection Plate, 24" wide	ABW-24-DO	2	E-PFBC-BCC4-500/501	Contractor to verify quantity
12	T&B 7" Straight Section (Series 3-7), 18" wide, Exceeding CSA E/6M	AH3-7-18-L06-3	4	E-PFBC-BCC4-500/501	Contractor to verify quantity
13	T&B 7" Horizontal Bend (AHF-7), 18" wide, 12" Radius	AHF-7-18-L-HB90-24	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
14	T&B 7" Horizontal Reducer Right(AHF-7), 18" wide to 12" wide	AHF-7-18-L-HRR	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
15	T&B 7" Horizontal Reducer Left(AHF-7), 18" wide to 12" wide	AHF-7-18-L-HLR	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
16	T&B 7" Straight Section (Series 3-7), 12" wide, Exceeding CSA E/6M	AH3-7-12-L06-3	8	E-PFBC-BCC4-500/501	Contractor to verify quantity
17	T&B 7" Vertical Bend (AHF-7), 12" wide, 12" Radius	AHF-7-12-L-VI90-12	1	E-PFBC-BCC4-500/501	Contractor to verify quantity
18	T&B 7" Regular Splice Plate (Set of 2)	ABW-7-SSP	30	E-PFBC-BCC4-500/501	Contractor to verify quantity
19	T&B 7" Expansion Splice Plate (Set of 2)	ABW-7-SSP	10	E-PFBC-BCC4-500/501	Contractor to verify quantity
20	T&B 7" Straight Section (Series 3-7), 9" wide, Exceeding CSA E/6M	AH3-7-09-L06-3	1	E-PFBC-BCC4-500/501	Contractor to verify quantity

NO	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHKD	APPD
A	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	WDF	
A	INTERNAL REVIEW	2015/09/11	BBY	WDF	

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PROJECT # 151-07049-00

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 de l'énergie de CANMET

DESIGNED
 W. FEENSTRA

DRAWN
 B. YAOH

CHECKED
 W. FEENSTRA

APPROVED

DATE
 2015/06/30

SCALE
 NONE

PROJECT	NRCAN CANMET OXY-PFBC
TITLE	ELECTRICAL OXY-PFBC CABLE TRAY BILL OF MATERIALS
DEPARTMENT	E
PROJECT	PFBC
BUILDING	BCC4
DRAWING	502
REV.	0

CABLE NO.	FROM	TO	MFG/CAT NO.	CABLE CONDUCTOR/ SIZE (AWG)	CABLE TYPE	CABLE RATING	LENGTH (FT)	REF. DWG.	NOTES
FB-P-05	600A POWER PANEL (1ST FLOOR) 05-220-4003	COMPRESSOR POWER DISTRIBUTION (MO-104-020/021)	-	3C-500MCM	CU, TECK90	1KV	120	E-PFBC-BCC4-350	The compressors are located outside of the building within a container. Contractor is only responsible to wire to a distribution point within the container.
FB-P-06	CONTROL CABINET 24VDC DISTRIBUTION TB-45,47	PFBC-TCJB-01 N-5 M-1 T-34,16	-	2C-12AWG	CU, TECK90	1KV	150	E-PFBC-BCC4-051 E-PFBC-BCC4-301	
FB-P-07	CONTROL CABINET 24VDC DISTRIBUTION TB-46,48	PFBC-TCJB-01 N-7 M-1 T-34,16	-	2C-12AWG	CU, TECK90	1KV	150	E-PFBC-BCC4-051 E-PFBC-BCC4-302	
FB-P-21-B	100A FUSED DISCONNECT (FOR 60HP GAS COMPRESSOR)	VFD (FOR 60HP GAS COMPRESSOR)	-	3C-2AWG	CU, TECK90	1KV	120	E-PFBC-BCC4-350	
FB-P-21-C	VFD (FOR 60HP GAS COMPRESSOR)	60HP RECYCLE GAS COMPRESSOR (MO-303-001)	-	3C-2AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-350	
FB-P-22-B	60A FUSED DISCONNECT (FOR 20HP THERMAL FLUID PUMP)	20HP THERMAL FLUID PUMP	-	3C-6AWG	CU, TECK90	1KV	60	E-PFBC-BCC4-350	
FB-P-25-B	200A FUSED DISCONNECT 10-200-4005	LINDE MCC	-	3C-3/0AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-350	
FB-P-26-A	SPLITTER 10-215-4003 2ND FLOOR	NEW 100A FUSED DISCONNECT FOR VSD CABINET	-	3C-2AWG	CU, TECK90	1KV	6	E-PFBC-BCC4-350	Locate disconnect near splitter. Estimated length 6 ft. Run in conduit
FB-P-26-B	NEW 100A FUSED DISCONNECT FOR VSD CABINET	VSD CABINET	-	3C-2AWG	CU, TECK90	1KV	20	E-PFBC-BCC4-350 E-PFBC-BCC4-351	Disconnect is to be located on second floor almost directly above VSD cabinet. May be run in conduit
FB-P-60-A	NEW VSD CABINET 1ST FLOOR HALLWAY	MOTOR STARTER FOR AG-106-001	-	3C-12AWG	CU, TECK90	1KV	100	E-PFBC-BCC4-351	
FB-P-60-B	MOTOR STARTER FOR AG-106-001	SOLID FUEL BULK BAG UNLOADER-AGITATOR AG-106-001	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-61-A	NEW VSD CABINET 1ST FLOOR HALLWAY	MOTOR STARTER FOR MO-106-001	-	3C-12AWG	CU, TECK90	1KV	100	E-PFBC-BCC4-351	
FB-P-61-B	MOTOR STARTER FOR MO-106-001	SOLID FUEL BULK BAG UNLOADER-DUST COLLECTOR MO-106-001	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-62-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR MO-106-002 & AG-106-002	-	3C-12AWG	CU, TECK90	1KV	110	E-PFBC-BCC4-351	
FB-P-62-B	CONTROLLER FOR MO-106-002 & AG-106-002	SOLID FUEL SCREW CONVEYOR MO-106-002	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-62-C	CONTROLLER FOR MO-106-002 & AG-106-002	SOLID FUEL AGITATOR AG-106-002	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-63-A	NEW VSD CABINET 1ST FLOOR HALLWAY	MOTOR STARTER FOR AG-107-001	-	3C-12AWG	CU, TECK90	1KV	100	E-PFBC-BCC4-351	
FB-P-63-B	MOTOR STARTER FOR AG-107-001	SOLID SORBENT BULK BAG UNLOADER AGITATOR AG-107-001	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-64-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR MO-107-002 & AG-107-002	-	3C-12AWG	CU, TECK90	1KV	110	E-PFBC-BCC4-351	
FB-P-64-B	CONTROLLER FOR MO-107-002 & AG-107-002	SOLID SORBENT FEEDER SCREW CONVEYOR MO-107-002	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-64-C	CONTROLLER FOR MO-107-002 & AG-107-002	SOLID SORBENT FEEDER AGITATOR AG-107-002	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-65	BED MATERIAL VFD VSD CABINET	BED MATERIAL FEEDER MO-109-001	-	3C-12AWG	CU, TECK90	1KV	80	E-PFBC-BCC4-351	
FB-P-66-A	NEW VSD CABINET 1ST FLOOR HALLWAY	MOTOR STARTER FOR MO-205-001	-	3C-12AWG	CU, TECK90	1KV	110	E-PFBC-BCC4-351	
FB-P-66-B	MOTOR STARTER FOR MO-205-001	FUEL SORBENT MIXER MO-205-001	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-67-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR MO-205-003	-	3C-12AWG	CU, TECK90	1KV	110	E-PFBC-BCC4-351	
FB-P-67-B	CONTROLLER FOR MO-205-003	INJECTION FEEDER MO-205-003	-	3C-12AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-P-68	NEW VSD CABINET 1ST FLOOR HALLWAY	POWER DISPLACEMENT BLOWER MO-304-001	-	3C-12AWG	CU, TECK90	1KV	70	E-PFBC-BCC4-351	
FB-P-69	NEW VSD CABINET 1ST FLOOR HALLWAY	ROTARY AIRLOCK VALVE MO-304-002	-	3C-12AWG	CU, TECK90	1KV	70	E-PFBC-BCC4-351	
FB-P-70	NEW VSD CABINET 1ST FLOOR HALLWAY	ROTARY AIRLOCK VALVE MO-304-003	-	3C-12AWG	CU, TECK90	1KV	70	E-PFBC-BCC4-351	
FB-P-71-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR AC-401-001	-	3C-10AWG	CU, TECK90	1KV	300	E-PFBC-BCC4-351	
FB-P-71-B	CONTROLLER FOR AC-401-001	GLYCOL AIR COOLER 1 AC-401-001	-	-	-	-	-	E-PFBC-BCC4-351	Outside of Contractor Scope
FB-P-72-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR AC-401-002	-	3C-10AWG	CU, TECK90	1KV	300	E-PFBC-BCC4-351	
FB-P-72-B	CONTROLLER FOR AC-401-002	GLYCOL AIR COOLER 2 AC-401-002	-	-	-	-	-	E-PFBC-BCC4-0351	Outside of Contractor Scope
FB-P-73-A	NEW VSD CABINET 1ST FLOOR HALLWAY	CONTROLLER FOR P-401-001 & P-401-002	-	3C-8AWG	CU, TECK90	1KV	300	E-PFBC-BCC4-351	
FB-P-73-B	CONTROLLER FOR P-401-001 & P-401-002	GLYCOL PUMP 1 P-401-001	-	-	-	-	-	E-PFBC-BCC4-351	Outside of Contractor Scope
FB-P-73-C	CONTROLLER FOR P-401-001 & P-401-002	GLYCOL PUMP 2 P-401-002	-	-	-	-	-	E-PFBC-BCC4-351	Outside of Contractor Scope
FB-P-74	NEW VSD CABINET 1ST FLOOR HALLWAY	HIGH PRESSURE WATER PUMP MO-105-001	-	3C-10AWG	CU, TECK90	1KV	30	E-PFBC-BCC4-351	
FB-UPS-1	NEW JUNCTION BOX 2ND FLOOR	THERMOCOUPLE CABINET 1ST FLOOR (PFBC-TCJB-01)	-	2C-10AWG	CU, TECK90	600V	50	E-PFBC-BCC4-049	Locate junction box near UPS. Cable going into JB has a plug (to outlet of UPS). Outgoing cable (FB-UPS-1) goes to TC cabinet
FB-UPS-2	THERMOCOUPLE CABINET 1ST FLOOR (PFBC-TCJB-01)	ANALOG CABINET 1ST FLOOR (PFBC-AJB-01)	-	2C-12AWG	CU, TECK90	600V	30	E-PFBC-BCC4-049	
FB-UPS-3	THERMOCOUPLE CABINET 1ST FLOOR (PFBC-TCJB-01)	DIGITAL CABINET 1ST FLOOR (PFBC-DJB-01)	-	2C-12AWG	CU, TECK90	600V	40	E-PFBC-BCC4-049	


NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS

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CLIENT



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PROJECT # 151-07049-00

Natural Resources Canada
 CANMET Energy Technology Center

Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	D. RICHMOND
DATE	2015/06/30
SCALE	NONE
PROJECT	NRCAN CANMET OXY-PFBC
TITLE	ELECTRICAL OXY-PFBC POWER CABLE SCHEDULE
DEPARTMENT	E
PROJECT	PFBC
BUILDING	BCC4
DRAWING	510
REV.	0

ITEM	CABLE NO.	FROM	TO	MFG/CAT NO.	CABLE CONDUCTOR/ SIZE (AWG)	CABLE TYPE	CABLE RATING	LENGTH (FT)	REF. DWG.	NOTES
1	FB-01	CONTROL CABINET - ANALOG INPUT MODULE TB 403 TO 426	PFBC-AJB-01 TB A1 1003 TO 1034	PROVO/1712	12P/20	PVC, OVRSHLD	600 V	80	E-PFBC-BCC4-101	
2	FB-02	CONTROL CABINET - ANALOG INPUT MODULE TB 427 TO 446	PFBC-AJB-01 TB A1 1069 TO 1112	PROVO/6775	25C/20	PVC, OVRSHLD	600V	80	E-PFBC-BCC4-102/103	
3	FB-03	CONTROL CABINET - ANALOG INPUT MODULE TB 452 TO 476	PFBC-AJB-01 TB A1 1114 TO A12 1226	PROVO/6775	25C/20	PVC, OVRSHLD	600V	80	E-PFBC-BCC4-103/104	
4	FB-04	CONTROL CABINET - ANALOG INPUT MODULE TB 477 TO 486	PFBC-AJB-01 TB A12 1227 TO 1244	PROVO/6769	19C/20	PVC, OVRSHLD	600V	80	E-PFBC-BCC4-104	
5	FB-05	CONTROL CABINET - ANALOG INPUT MODULE TB 500 TO 509	PFBC-AJB-01 TB A13 1279 TO 1296	PROVO/6769	19C/20	PVC, OVRSHLD	600V	80	E-PFBC-BCC4-105	
6	FB-06	CONTROL CABINET - ANALOG INPUT MODULE TB 518 TO 527	PFBC-AJB-01 TB A13 1297 TO 1314	PROVO/6769	19C/20	PVC, OVRSHLD	600V	80	E-PFBC-BCC4-105	
7	FB-07	CONTROL CABINET I/O CARD N-6 M-1 & 2	PFBC-AJB-01 TB A12 1123 TO 1190	PROVO/1712	12P/20	PVC, OVRSHLD	600 V	80	E-PFBC-BCC4-106/107	
8	FB-08	PFBC-AJB-01 I/O CARD N-11 M-1	PFBC-AJB-01 TB A11 1040 TO 1068	PROVO/9209	9C/20	SR PVC, UNSHLD	600 V	10	E-PFBC-BCC4-108	CABLE INSIDE PFBC-AJB-01
9	FB-09	PFBC-AJB-01 I/O CARD N-11 M-2	PFBC-AJB-01 TB A13 1250 TO 1278	PROVO/9209	9C/20	SR PVC, UNSHLD	600 V	10	E-PFBC-BCC4-109	CABLE INSIDE PFBC-AJB-01
10	FB-10	PFBC-AJB-01 I/O CARD N-11 M-3	PFBC-AJB-01 TB A13 1318 TO 1332	PROVO/9209	9C/20	SR PVC, UNSHLD	600 V	10	E-PFBC-BCC4-110	CABLE INSIDE PFBC-AJB-01
11	FB-11	PFBC-AJB-01 I/O CARD N-11 M-4	PFBC-AJB-01 TB A13 1336 TO 1350	PROVO/9209	9C/20	SR PVC, UNSHLD	600 V	10	E-PFBC-BCC4-111	CABLE INSIDE PFBC-AJB-01
12	FB-12	PFBC-AJB-01 I/O CARD N-11 M-5	PFBC-AJB-01 TB A14 1354 TO 1368	PROVO/9209	9C/20	SR PVC, UNSHLD	600 V	10	E-PFBC-BCC4-111	CABLE INSIDE PFBC-AJB-01
13	FB-13	PFBC-AJB-01 I/O CARD N-11 M-6	PFBC-AJB-01 TB A14 1371 TO 1386	PROVO/8209	9P/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-112	CABLE INSIDE PFBC-AJB-01
14	FB-14	PFBC-AJB-01 I/O CARD N-11 M-7	PFBC-AJB-01 TB A14 1389 TO 1404	PROVO/8209	9P/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-112	CABLE INSIDE PFBC-AJB-01
15	FB-15	PFBC-AJB-01 I/O CARD N-11 M-8	PFBC-AJB-01 TB A14 1407 TO 1422	PROVO/8209	9P/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-113	CABLE INSIDE PFBC-AJB-01
16	FB-16	PFBC-AJB-01 I/O CARD N-11 M-9	PFBC-AJB-01 TB A14 1425 TO 1440	PROVO/8209	9P/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-113	CABLE INSIDE PFBC-AJB-01

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.


REFERENCE DRAWINGS

REVISION REGISTER

NO	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHK	APPD
0	ISSUE FOR CLIENT REVIEW	2015/10/02	BBY	DER	
A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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NOT FOR
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PROJECT # 151-07049-00

Natural Resources Canada
CANMET Energy Technology Center

Ressources naturelles Canada
Centre de la technologie de l'énergie de CANMET

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT	NRCAN CANMET OXY-PFBC	
TITLE	ELECTRICAL OXY-PFBC	
DEPARTMENT	FIELD ANALOG JUNCTION BOX CABLE SCHEDULE	
PROJECT	PFBC	BCC4
BUILDING	511	
DRAWING	0	

ITEM	CABLE NO.	FROM	TO	MFG/CAT NO.	CABLE CONDUCTOR/ SIZE (AWG)	CABLE TYPE	CABLE RATING (V)	LENGTH (FT)	REF. DWG.	NOTES
1	FB-30	CONTROL CABINET ANALOG OUTPUT MODULE TB 703 TO 730	PFBC-DJB-01 TB AO1 1750 TO 1773	PROVO/1712	12P/20	PVC, OVRSHLD	600	80	E-PFBC-BCC4-120/121	ANALOG OUTPUTS
2	FB-31	CONTROL CABINET ANALOG OUTPUT MODULE TB 733 TO 760	PFBC-DJB-01 TB AO1 1774 TO 1797	PROVO/1712	12P/20	PVC, OVRSHLD	600	80	E-PFBC-BCC4-121/122	ANALOG OUTPUTS
3	FB-32	CONTROL CABINET ANALOG OUTPUT MODULE TB 773 TO 790	PFBC-DJB-01 TB AO1 1798 TO 1813	PROVO/1709	9P/20	SR PVC, OVRSHLD	600	80	E-PFBC-BCC4-123	ANALOG OUTPUTS
4	FB-33	CONTROL CABINET I/O CARD N-6 M-3 & 4	PFBC-DJB-01 TB AO1 1814 TO 1829	PROVO/1712	12P/20	PVC, OVRSHLD	600	80	E-PFBC-BCC4-124	ANALOG OUTPUTS
5	FB-34	PFBC-DJB-01 I/O CARD N-12 M-1	PFBC-DJB-01 TB AO1 1830 TO 1845	PROVO/9019	19C/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-125	ANALOG OUTPUT MODULE INTERNAL WIRING TO TBs
6	FB-35	PFBC-DJB-01 I/O CARD N-12 M-2	PFBC-DJB-01 TB AO1 1846 TO 1861	PROVO/9019	19C/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-125	ANALOG OUTPUT MODULE INTERNAL WIRING TO TBs
7	FB-36	CONTROL CABINET 24 VDC INPUT MODULE TB 101 TO 118	PFBC-DJB-01 TB DI1 2001 TO 2033	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-201	
8	FB-37	CONTROL CABINET 24 VDC INPUT MODULE TB 119 TO 136	PFBC-DJB-01 TB DI1 2035 TO 2067	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-202	
9	FB-38	CONTROL CABINET 24 VDC INPUT MODULE TB 137 TO 154	PFBC-DJB-01 TB DI1 2069 TO 2101	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-203	
10	FB-39	CONTROL CABINET 24 VDC INPUT MODULE TB 171 TO 188	PFBC-DJB-01 TB DI1 2103 TO 2135	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-204	
11	FB-40	CONTROL CABINET I/O CARD N-6 M-5	PFBC-DJB-01 TB DI1 2137 TO 2169	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-205	
12	FB-41	CONTROL CABINET 24 VDC OUTPUT MODULE TB 251 TO 268	PFBC-DJB-01 TB DO1 2501 TO 2533	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-220	
13	FB-42	CONTROL CABINET 24 VDC OUTPUT MODULE TB 269 TO 286	PFBC-DJB-01 TB DO1 2535 TO 2567	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-221	
14	FB-43	CONTROL CABINET 24 VDC OUTPUT MODULE TB 287 TO 304	PFBC-DJB-01 TB DO1 2569 TO 2601	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-222	
15	FB-44	CONTROL CABINET 24 VDC OUTPUT MODULE TB 321 TO 338	PFBC-DJB-01 TB DO1 2603 TO 2635	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-223	
16	FB-45	CONTROL CABINET I/O CARD N-6 M-6	PFBC-DJB-01 TB DO1 2637 TO 2669	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-224	
17	FB-46	CONTROL CABINET I/O CARD N-6, M-7	PFBC-DJB-01 TB DO2 2671 TO 2703	PROVO/9019	19C/20	SR PVC, UNSHLD	600	80	E-PFBC-BCC4-225	
18	FB-47	PFBC-DJB-01 I/O CARD N-12, M-3	PFBC-DJB-01 TB DO2 2707 TO 2737	PROVO/9019	19C/20	SR PVC, UNSHLD	600	10	E-PFBC-BCC4-226	DIGITAL OUTPUT MODULE INTERNAL WIRING TO TBs
19	FB-48	PFBC-DJB-01 DO1 TB 2537 TO 2552	PFBC SOLENOID CAB 1 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-221 E-PFBC-BCC4-075	SOLENOID CABINET LOCATED IN FIELD
20	FB-49	PFBC-DJB-01 DO1 TB 2553 TO 2568	PFBC SOLENOID CAB 2 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-221 E-PFBC-BCC4-076	SOLENOID CABINET LOCATED IN FIELD
21	FB-50	PFBC-DJB-01 DO1 TB 2570 TO 2586	PFBC SOLENOID CAB 3 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-222 E-PFBC-BCC4-077	SOLENOID CABINET LOCATED IN FIELD
22	FB-51	PFBC-DJB-01 DO1 TB 2587 TO 2602	PFBC SOLENOID CAB 4 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-222 E-PFBC-BCC4-078	SOLENOID CABINET LOCATED IN FIELD
23	FB-52	PFBC-DJB-01 DO1 TB 2605 TO 2620	PFBC SOLENOID CAB 4B TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-223 E-PFBC-BCC4-079	SOLENOID CABINET LOCATED IN FIELD
24	FB-53	PFBC-DJB-01 DO1 TB 2621 TO 2636	PFBC SOLENOID CAB 5 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-223 E-PFBC-BCC4-080	SOLENOID CABINET LOCATED IN FIELD
25	FB-54	PFBC-DJB-01 DO1 TB 2639 TO 2654	PFBC SOLENOID CAB 5B TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-224 E-PFBC-BCC4-081	SOLENOID CABINET LOCATED IN FIELD
26	FB-55	PFBC-DJB-01 DO1 TB 2655 TO 2670	PFBC SOLENOID CAB 6 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-224 E-PFBC-BCC4-082	SOLENOID CABINET LOCATED IN FIELD
27	FB-56	PFBC-DJB-01 DO1 TB 2673 TO 2688	PFBC SOLENOID CAB 7 TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-225 E-PFBC-BCC4-083	SOLENOID CABINET LOCATED IN FIELD
28	FB-57	PFBC-DJB-01 DO1 TB 2689 TO 2704	PFBC SOLENOID CAB 7B TB 1 TO 8	ARMCON/ 46A1610-40	10C/16	ARMOURED, TECK	600	150	E-PFBC-BCC4-225 E-PFBC-BCC4-084	SOLENOID CABINET LOCATED IN FIELD

NOTE: REFERENCE DRAWING NUMBERS PREFIXED BY "E-PFBC-BCC4-" UNLESS OTHERWISE NOTED.


REFERENCE DRAWINGS

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A	INTERNAL REVIEW	2015/09/11	BBY	DER	

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 CANMET Energy Technology Center

Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

PROJECT # 151-07049-00

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT	NRCAN CANMET OXY-PFBC		
TITLE	ELECTRICAL OXY-PFBC FIELD DIGITAL JUNCTION BOX CABLE SCHEDULE		
DEPARTMENT	PROJECT	BUILDING	DRAWING
E	PFBC	BCC4	512
			0

ITEM	CABLE NO.	FROM	TO	MFG/CAT NO.	CABLE CONDUCTOR/ SIZE (AWG)	CABLE TYPE	CABLE RATING	LENGTH (FT)	REF. DWG.	NOTES
1	FB-80	PFBC-TCJB-01 VO CARD N-5 M-1	THERMOCOUPLE JACK PANEL-A (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	70	E-PFBC-BCC4-301	
2	FB-81	PFBC-TCJB-01 VO CARD N-5 M-2	THERMOCOUPLE JACK PANEL-B (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	70	E-PFBC-BCC4-302	
3	FB-82	PFBC-TCJB-01 VO CARD N-5 M-3	THERMOCOUPLE JACK PANEL-C (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	40	E-PFBC-BCC4-303	
4	FB-83	PFBC-TCJB-01 VO CARD N-5 M-4	THERMOCOUPLE JACK PANEL-C (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	40	E-PFBC-BCC4-303	
5	FB-84	PFBC-TCJB-01 VO CARD N-5 M-5	THERMOCOUPLE JACK PANEL-D (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	120	E-PFBC-BCC4-304	
6	FB-85	PFBC-TCJB-01 VO CARD N-5 M-6	THERMOCOUPLE JACK PANEL-E (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-305	
7	FB-86	PFBC-TCJB-01 VO CARD N-7 M-1	THERMOCOUPLE JACK PANEL-E (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-305	
8	FB-87	PFBC-TCJB-01 VO CARD N-7 M-2	THERMOCOUPLE JACK PANEL-E (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-305	
9	FB-88	PFBC-TCJB-01 VO CARD N-7 M-3	THERMOCOUPLE JACK PANEL-F (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-306	
10	FB-89	PFBC-TCJB-01 VO CARD N-7 M-4	THERMOCOUPLE JACK PANEL-F (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-306	
11	FB-90	PFBC-TCJB-01 VO CARD N-7 M-5	THERMOCOUPLE JACK PANEL-F (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-306	
12	FB-91	PFBC-TCJB-01 VO CARD N-7 M-6	THERMOCOUPLE JACK PANEL-G (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-307	
13	FB-92	PFBC-TCJB-01 VO CARD N-8 M-2	THERMOCOUPLE JACK PANEL-G (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	60	E-PFBC-BCC4-307	
14	FB-93	PFBC-TCJB-01 VO CARD N-8 M-3	THERMOCOUPLE JACK PANEL-H (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-308	
15	FB-94	PFBC-TCJB-01 VO CARD N-8 M-4	THERMOCOUPLE JACK PANEL-H (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-308	
16	FB-95	PFBC-TCJB-01 VO CARD N-8 M-5	THERMOCOUPLE JACK PANEL-H (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-308	
17	FB-96	PFBC-TCJB-01 VO CARD N-8 M-6	THERMOCOUPLE JACK PANEL-J (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-309	
18	FB-97	PFBC-TCJB-01 VO CARD N-8 M-7	THERMOCOUPLE JACK PANEL-J (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-309	
19	FB-98	PFBC-TCJB-01 VO CARD N-8 M-8	THERMOCOUPLE JACK PANEL-J (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-309	
20	FB-99	PFBC-TCJB-01 VO CARD N-9 M-1	THERMOCOUPLE JACK PANEL-K (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-310	
21	FB-100	PFBC-TCJB-01 VO CARD N-9 M-2	THERMOCOUPLE JACK PANEL-K (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-310	
22	FB-101	PFBC-TCJB-01 VO CARD N-9 M-3	THERMOCOUPLE JACK PANEL-K (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-310	
23	FB-102	PFBC-TCJB-01 VO CARD N-9 M-4	THERMOCOUPLE JACK PANEL-L (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-311	
24	FB-103	PFBC-TCJB-01 VO CARD N-9 M-5	THERMOCOUPLE JACK PANEL-L (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-311	
25	FB-104	PFBC-TCJB-01 VO CARD N-9 M-6	THERMOCOUPLE JACK PANEL-L (INPUTS 17-24)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	90	E-PFBC-BCC4-311	
26	FB-105	PFBC-TCJB-01 VO CARD N-9 M-7	THERMOCOUPLE JACK PANEL-M (INPUTS 1-8)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	100	E-PFBC-BCC4-312	
27	FB-106	PFBC-TCJB-01 VO CARD N-9 M-8	THERMOCOUPLE JACK PANEL-M (INPUTS 9-16)	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	100	E-PFBC-BCC4-312	
28	FB-107	PFBC-TCJB-01 VO CARD N-8 M-1	FIELD THERMOCOUPLES	SHAWFLEX/ 7422M180847700	8P/18	KX TYPE, XLPE, AIA	600 V	70	E-PFBC-BCC4-313	

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REFERENCE DRAWINGS

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PROJECT # 151-07049-00

Natural Resources Canada
 CANMET Energy Technology Center

Ressources naturelles Canada
 Centre de la technologie de l'énergie de CANMET

DESIGNED	B. YACH
DRAWN	B. YACH
CHECKED	D. RICHMOND
APPROVED	
DATE	2015/06/30
SCALE	NONE

PROJECT	NRCAN CANMET OXY-PFBC		
TITLE	ELECTRICAL OXY-PFBC		
DEPARTMENT	PROJECT	BUILDING	DRAWING
E	PFBC	BCC4	513
REV.			0

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
ANALOG INPUT (4-20 mA)														
NG TO G2 SYSTEM FLOW	FT-1303	AI	1-03	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1006	FB-FT-1303	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-101
NG TO OTHER USERS FLOW	FT-1304	AI	1-03	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1010	FB-FT-1304	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-101
NG DISTRIBUTION SYSTEM FLOW	FT-1305	AI	1-03	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1014	FB-FT-1305	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-101
WATER TO DISTRIBUTION SYSTEM FLOW	FT-1501	AI	1-05	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1018	FB-FT-1501	2 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-101
PRIMARY O2 SUPPLY FLOW	FT-2101	AI	2-01	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1022	FB-FT-2101	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-101
SECONDARY O2 SUPPLY FLOW	FT-2102	AI	2-01	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1026	FB-FT-2102	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-101
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC FLOW	FT-2110	AI	2-01	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1030	FB-FT-2110	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-101
SPARE O2 AND RECYCLE FLUE GAS FLOW	FT-2111	AI	2-01	1	FB-001	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1034	FB-FT-2111	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-101
BULK O2 SMALL TANK LEVEL TEST	LT-1101	AI	1-01	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1072	FB-LT-1101	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
BULK O2 SMALL TANK PRESSURE	PT-1101	AI	1-01	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1074	FB-PT-1101	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
BULK O2 LARGE TANK LEVEL	LT-1102	AI	1-01	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1076	FB-LT-1102	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
BULK O2 LARGE TANK PRESSURE	PT-1102	AI	1-01	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1078	FB-PT-1102	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
O2 SUPPLY PRESSURE	PT-1103	AI	1-01	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1080	FB-PT-1103	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
BULK CO2 TANK LEVEL	LT-1201	AI	1-02	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1082	FB-LT-1201	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
BULK CO2 TANK PRESSURE	PT-1201	AI	1-02	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1084	FB-PT-1201	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
CO2 SUPPLY PRESSURE	PT-1202	AI	1-02	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1086	FB-PT-1202	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-102
NG COMPRESSOR RECEIVER PRESSURE	PT-1301	AI	1-03	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1090	FB-PT-1301	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
NG DISTRIBUTION SYSTEM PRESSURE	PT-1302	AI	1-03	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1092	FB-PT-1302	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
NG COMPRESSOR MOTOR CURRENT	IT-1320	AI	1-03	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1094	FB-IT-1320	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
HP AIR COMPRESSOR 1 MOTOR CURRENT	IT-1420	AI	1-04	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1096	FB-IT-1420	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
HP AIR DISTRIBUTION SYSTEM PRESSURE	PT-1420	AI	1-04	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1098	FB-PT-1420	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
HP AIR COMPRESSOR 2 MOTOR CURRENT	IT-1421	AI	1-04	2	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1100	FB-IT-1421	1 PR #18 TWSH ACIC	OUTSIDE	90	E-PFBC-BBC4-102
SOLID FUEL FEEDER MOTOR SPEED	ST-1602	AI	1-06	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1102	FB-ST-1602	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-102
SOLID SORBENT FEEDER MOTOR SPEED	ST-1702	AI	1-07	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1104	FB-ST-1702	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-102
HIGH PRESSURE SUPPLY WATER PUMP MOTOR CURRENT	IT-1501	AI	1-05	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1108	FB-IT-1501	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-103
WATER TO DISTRIBUTION SYSTEM PRESSURE	PT-1502	AI	1-05	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1110	FB-PT-1502	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-103
HP WATER TO DISTRIBUTION SYSTEM PRESSURE	PT-1502	AI	1-05	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1112	FB-PT-1502	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-103
BULK N2 TANK LEVEL	LT-1801	AI	1-08	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1114	FB-LT-1801	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-103
BULK N2 TANK PRESSURE	PT-1801	AI	1-08	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1116	FB-PT-1801	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-103
N2 TO GAS DISTRIBUTION SYSTEM PRESSURE	PT-1802	AI	1-08	1	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1118	FB-PT-1802	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-103
BED MATERIAL FEEDER VESSEL PRESSURE	PT-1901	AI	1-09	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1120	FB-PT-1901	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-103
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(2)-S1	AI	X-XX	X	FB-002	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1122	FB-AI-S1-2	1 PR #18 TWSH ACIC		100	E-PFBC-BBC4-103
MAIN AIR TO PFBC BED SECTION COOLANT PRESSURE	PT-2303	AI	2-03	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1230	FB-PT-2303	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-104
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS PRESSURE	PT-2304	AI	2-03	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1232	FB-PT-2304	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-104
LP AIR TO SOLID FUEL SUPPLY INSTRUMENT AIR PRESSURE	PT-2321	AI	2-03	2	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1234	FB-PT-2321	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-104
FUEL / SORBENT MIXER MOTOR CURRENT	IT-2501	AI	2-05	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1236	FB-IT-2501	1 PR #18 TWSH ACIC	6-02 4	100	E-PFBC-BBC4-104
PRESSURIZATION TO INJECTION VESSEL DIFFERENTIAL PRESSURE	DPT-2502	AI	2-05	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1238	FB-DPT-2502	1 PR #18 TWSH ACIC	6-02 4	120	E-PFBC-BBC4-104
PRESSURIZATION VESSEL PRESSURE	PT-2502	AI	2-05	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1240	FB-PT-2502	1 PR #18 TWSH ACIC	6-02 4	120	E-PFBC-BBC4-104
INJECTION VESSEL PRESSURE	PT-2503	AI	2-05	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1242	FB-PT-2503	1 PR #18 TWSH ACIC	6-02 4	120	E-PFBC-BBC4-104

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
INJECTION FEEDER MOTOR SPEED	ST-2503	AI	2-05	1	FB-004	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1244	FB-ST-2503	1 PR #18 TWSH ACIC	6-02 4	120	E-PFBC-BBC4-104
PRIMARY O2 SUPPLY PRESSURE	PT-2101	AI	2-01	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1194	FB-PT-2101	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-103
SECONDARY O2 SUPPLY PRESSURE	PT-2102	AI	2-01	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1196	FB-PT-2102	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-103
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC PRESSURE	PT-2110	AI	2-01	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1198	FB-PT-2110	1 PR #18 TWSH ACIC			E-PFBC-BBC4-103
CO2 SUPPLY HEADER PRESSURE	PT-2120	AI	2-01	2	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1200	FB-PT-2120	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-103
CO2 TO INJECTION SYSTEM PRESSURE	PT-2121	AI	2-01	2	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1202	FB-PT-2121	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-103
CO2 TO SOLIDS COOLING PRESSURE	PT-2124	AI	2-01	2	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1204	FB-PT-2124	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-103
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM PRESSURE	PT-2125	AI	2-01	2	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1206	FB-PT-2125	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-103
CO2 TO SOLIDS SAMPLING SYSTEM PRESSURE	PT-2129	AI	2-01	2B	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1208	FB-PT-2129	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-103
N2 SUPPLY HEADER PRESSURE	PT-2160	AI	2-01	3	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1212	FB-PT-2160	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-104
N2 TO LINDE SKID - DILUTION PRESSURE	PT-2161	AI	2-01	3	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1214	FB-PT-2161	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-104
N2 TO PRESSURE TESTING PRESSURE	PT-2162	AI	2-01	3	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1216	FB-PT-2162	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-104
HP NG AUXILIARY LINE PRESSURE	PT-2201	AI	2-02	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1218	FB-PT-2201	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-104
NG TO LINDE SKID PRESSURE	PT-2202	AI	2-02	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1220	FB-PT-2202	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-104
LP NG TO PFBC BURNER PRESSURE	PT-2211	AI	2-02	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1222	FB-PT-2211	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-104
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE 1	PT-2301	AI	2-03	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1224	FB-PT-2301	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-104
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE 2	PT-2302	AI	2-03	1	FB-003	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1226	FB-PT-2302	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-104
CO2 FROM GAS DISTRIBUTION SYSTEM DIFFERENTIAL PRESSURE	DPT-3151	AI	3-01	1	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1280	FB-DPT-3151	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-105
CO2 TO SOLIDS LETDOWN PRESSURE	PT-3151	AI	3-01	1	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1282	FB-PT-3151	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-105
BED ASH TO SOLID WASTE HANDLING DIFFERENTIAL PRESSURE	DPT-3153	AI	3-01	1	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1284	FB-DPT-3153	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-105
PRIMARY O2 AND RECYCLE FLUE GAS DIFFERENTIAL PRESSURE	DPT-3154	AI	3-01	1	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1288	FB-DPT-3154	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
COOLING AIR OUTLET PRESSURE	PT-2330	AI	3-01	2	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1290	FB-PT-2330	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 1	DPT-3101	AI	3-01	2	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1292	FB-DPT-3101	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED REDUNDANT 1 PRESSURE	PT-3101A	AI	3-01	2	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1294	FB-PT-3101A	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED REDUNDANT 2 PRESSURE	PT-3101B	AI	3-01	2	FB-005	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1296	FB-PT-3101B	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 2	DPT-3102	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1300	FB-DPT-3102	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 3	DPT-3103	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1302	FB-DPT-3103	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 4	DPT-3104	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1304	FB-DPT-3104	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 5	DPT-3105	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1306	FB-DPT-3105	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 6	DPT-3106	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1308	FB-DPT-3106	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
BED DIFFERENTIAL PRESSURE 7	DPT-3107	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1310	FB-DPT-3107	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
FREEBOARD PRESSURE	PT-3107	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1312	FB-PT-3107	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
TO PFBC CONVECTIVE SECTION HV-3109 AND HV-3108 DIFFERENTIAL PRESSURE	DPT-3108	AI	3-01	2	FB-006	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1314	FB-DPT-3108	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-105
CO2 TO INJECTION SYSTEM FLOW	FT-2121	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1128	FB-FT-2121	2 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-106
CO2 TO SOOT BLOWERS FLOW	FT-2122	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1132	FB-FT-2122	2 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-106
CO2 TO SOLIDS LETDOWN FLOW	FT-2123	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1136	FB-FT-2123	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-106
CO2 TO SOLIDS COOLING FLOW	FT-2124	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1140	FB-FT-2124	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM FLOW	FT-2125	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1144	FB-FT-2125	2 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO BED MATERIAL FLOW	FT-2126	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1148	FB-FT-2126	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-106
CO2 PRESSURIZING GAS TO INTERSTITIAL FLOW	FT-2127	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1152	FB-FT-2127	2PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-106

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
CO2 TO PGT LOCK HOPPER FLOW	FT-2128	AI	2-01	2	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1156	FB-FT-2128	2 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-106
CO2 TO SOLIDS SAMPLING SYSTEM FLOW	FT-2129	AI	2-01	2B	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1162	FB-FT-2129	2 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-107
N2 TO LINDE SKID - DILUTION FLOW	FT-2161	AI	2-01	3	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1166	FB-FT-2161	2 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-107
HP NG AUXILIARY LINE FLOW	FT-2201	AI	2-02	1	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1170	FB-FT-2201	2 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-107
LP NG TO PFBC BURNER FLOW	FT-2211	AI	2-02	1	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1174	FB-FT-2211	2 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-107
MAIN AIR TO PFBC PRE-HEAT BURNER FLOW	FT-2301	AI	2-03	1	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1178	FB-FT-2301	2 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-107
MAIN AIR TO PFBC BED SECTION COOLANT FLOW	FT-2302	AI	2-03	1	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1182	FB-FT-2302	2 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-107
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS FLOW	FT-2303	AI	2-03	1	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1186	FB-FT-2303	2 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-107
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(4)-52	AI	X-XX	X	FB-007	E-PFBC-BBC4-511	PFBC-AJB-01	AI2	1190	FB-AI-515-2	2 PR #18 TWSH ACIC		100	E-PFBC-BBC4-107
COOLING TO PFBC BED SECTION PFBC FLOW	FT-4211	AI	4-02	1	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1040	FB-FT-4211	2 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-108
COOLING TO PFBC CONVECTIVE SECTION 1 FLOW	FT-4212	AI	4-02	1	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1044	FB-FT-4212	2 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-108
COOLING TO PFBC CONVECTIVE SECTION 2 FLOW	FT-4213	AI	4-02	1	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1048	FB-FT-4213	2 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-53	AI	X-XX	X	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1052	FB-FT-52-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-54	AI	X-XX	X	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1056	FB-FT-53-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-55	AI	X-XX	X	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1060	FB-FT-54-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-56	AI	X-XX	X	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1064	FB-FT-55-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT FLOW TRANSMITTER	AI(4)-57	AI	X-XX	X	FB-008	E-PFBC-BBC4-511	PFBC-AJB-01	AI1	1068	FB-FT-56-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-108
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-58	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1250	FB-AI-57-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-59	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1254	FB-AI-58-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-510	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1258	FB-AI-59-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-511	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1262	FB-AI-510-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-512	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1266	FB-AI-511-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-513	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1270	FB-AI-512-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-514	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1274	FB-AI-513-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
SPARE 4 WIRE ANALOG INPUT INSTRUMENT	AI(4)-515	AI	X-XX	X	FB-009	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1278	FB-AI-514-4	2 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-109
INTERSTITIAL SPACE PRESSURE	PT-3111	AI	3-01	2	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1318	FB-PT-3111	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-110
THERMAL FLUID RETURN PRESSURE	PT-4281	AI	3-01	2	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1320	FB-PT-4281	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-110
CONVECTIVE HEAT EXCHANGER FLUE GAS DIFFERENTIAL PRESSURE	DPT-3161	AI	3-01	3	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1322	FB-DPT-3161	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-110
PFBC FLUE GAS EXIT PRESSURE	PT-3161	AI	3-01	3	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1324	FB-PT-3161	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-110
FLUE GAS TO PROCESS GAS TREATMENT PRESSURE	PT-3162	AI	3-01	3	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1326	FB-PT-3162	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-110
FLUE GAS FILTER DIFFERENTIAL PRESSURE	DPT-3201	AI	3-02	1	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1328	FB-DPT-3201	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-110
FILTER FLUE GAS PRESSURE	PT-3201	AI	3-02	1	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1330	FB-PT-3201	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-110
FLY ASH RECEIVER DIFFERENTIAL PRESSURE	DPT-3202	AI	3-02	1	FB-010	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1332	FB-DPT-3202	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-110
FLY ASH TO SOLID WASTE HANDLING DIFFERENTIAL PRESSURE	DPT-3203	AI	3-02	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1336	FB-DPT-3203	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-111
CO2 TO LOCK HOPPER PRESSURE	PT-3210	AI	3-02	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1338	FB-PT-3210	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-111
CO2 TO FILTER PULSE RECEIVER PRESSURE	PT-3211	AI	3-02	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1340	FB-PT-3211	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-111
RECYCLE GAS COMPRESSOR MOTOR CURRENT	IT-3301	AI	3-03	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1342	FB-IT-3301	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-113
FLUE GAS TO RECYCLE GAS COMPRESSOR PRESSURE	PT-3301	AI	3-03	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1344	FB-PT-3301	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-113
GLYCOL PUMP 1 MOTOR CURRENT	IT-4101	AI	4-01	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1346	FB-IT-4101	1 PR #18 TWSH ACIC	OUTSIDE	300	E-PFBC-BBC4-111
GLYCOL TO PFBC COOLING SYSTEM PRESSURE	PT-4101	AI	4-01	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1348	FB-PT-4101	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-111

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
GLYCOL PUMP 2 MOTOR CURRENT	IT-4102	AI	4-01	1	FB-011	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1350	FB-IT-4102	1 PR #18 TWSH ACIC	OUTSIDE	300	E-PFBC-BBC4-111
WATER RESERVOIR PRESSURE	PT-4201	AI	4-02	1	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1354	FB-PT-4201	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-111
HEAT EXCHANGER PUMP OUTLET PRESSURE	PT-4202	AI	4-02	1	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1356	FB-PT-4202	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-111
COOLING TO PFBC BED SECTION PFBC PRESSURE	PT-4211	AI	4-02	1	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1358	FB-PT-4211	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-111
COOLING TO PFBC CONVECTIVE SECTION 1 PRESSURE	PT-4212	AI	4-02	1	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1360	FB-PT-4212	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-111
COOLING TO PFBC CONVECTIVE SECTION 2 PRESSURE	PT-4213	AI	4-02	1	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1362	FB-PT-4213	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-111
N2 DILUTION FLOWRATE SET POINT	FY-3221	AI	3-02	2	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1364	FB-FY-3221	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-111
SPARE 4-WIRE ANALOG INPUT INSTRUMENT	AI(2)-516	AI	X-XX	X	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1366	FB-AI-516-2	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-111
SPARE 2-WIRE ANALOG INPUT INSTRUMENT	AI(2)-517	AI	X-XX	X	FB-012	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1368	FB-AI-517-2	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-111
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC O2 ANALYZER	AT-2110	AI	2-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1371	FB-AT-2110	1 PR #18 TWSH ACIC			E-PFBC-BBC4-112
SPARE O2 AND RECYCLE FLUE GAS FLOW O2 ANALYZER	AT-2111	AI	2-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1373	FB-AT-2111	1 PR #18 TWSH ACIC			E-PFBC-BBC4-112
PFBC PRODUCT GAS / SOLID ACID DEW POINT	AT-3201	AI	3-02	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1375	FB-AT-3201	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-112
FILTER FLUE GAS ACID DEW POINT	AT-3202	AI	3-02	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI3	1377	FB-AT-3202	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER O2 ANALYZER	AT-5101A	AI	5-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1379	FB-AT-5101A	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER CO2 ANALYZER	AT-5101B	AI	5-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1381	FB-AT-5101B	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER CO ANALYZER	AT-5101C	AI	5-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1383	FB-AT-5101C	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER SO2 ANALYZER	AT-5101D	AI	5-01	1	FB-013	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1385	FB-AT-5101D	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER FILTER NOx ANALYZER	AT-5101E	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1389	FB-AT-5101E	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER O2 ANALYZER	AT-5102A	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1391	FB-AT-5102A	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER CO2 ANALYZER	AT-5102B	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1393	FB-AT-5102B	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER CO ANALYZER	AT-5102C	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1395	FB-AT-5102C	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER SO2 ANALYZER	AT-5102D	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1397	FB-AT-5102D	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM BEFORE FILTER NOx ANALYZER	AT-5102E	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1399	FB-AT-5102E	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC O2 ANALYZER	AT-5103A	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1401	FB-AT-5103A	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC CO2 ANALYZER	AT-5103B	AI	5-01	1	FB-014	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1403	FB-AT-5103B	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-112
GAS SAMPLING SYSTEM AFTER DCC CO ANALYZER	AT-5103C	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1407	FB-AT-5103C	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DCC SO2 ANALYZER	AT-5103D	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1409	FB-AT-5103D	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DCC NOx ANALYZER	AT-5103E	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1411	FB-AT-5103E	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX O2 ANALYZER	AT-5104A	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1413	FB-AT-5104A	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX CO2 ANALYZER	AT-5104B	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1415	FB-AT-5104B	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX CO ANALYZER	AT-5104C	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1417	FB-AT-5104C	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX SO2 ANALYZER	AT-5104D	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1419	FB-AT-5104D	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER LICONOX NOx ANALYZER	AT-5104E	AI	5-01	1	FB-015	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1421	FB-AT-5104E	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX O2 ANALYZER	AT-5105A	AI	5-01	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1425	FB-AT-5105A	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX THC ANALYZER	AT-5105B	AI	5-01	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1427	FB-AT-5105B	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX SO2 ANALYZER	AT-5105C	AI	5-01	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1429	FB-AT-5105C	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
GAS SAMPLING SYSTEM AFTER DEOX NOx ANALYZER	AT-5105D	AI	5-01	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1431	FB-AT-5105D	1 PR #18 TWSH ACIC	6-01 3	70	E-PFBC-BBC4-113
SOLID FUEL FEEDER WEIGHT	WT-1602	AI	1-06	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1434	FB-WT-1602	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-113
SOLID SORBENT FEEDER WEIGHT	WT-1702	AI	1-07	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1436	FB-WT-1702	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-113
BED MATERIAL FEEDER WEIGHT	WT-1901	AI	1-09	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1434	FB-WT-1901	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-113

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
INJECTION FEEDER WEIGHT	WT-2503	AI	2-05	1	FB-016	E-PFBC-BBC4-511	PFBC-AJB-01	AI4	1439	FB-WT-2503	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-113
ESTIMATED TOTAL LENGTH														
1 PR #18 TWSH ACIC (FEET)											9790			
2 PR #18 TWSH ACIC (FEET)											3400			
ANALOG OUTPUT (4-20 mA)														
SOLID FUEL FEEDER MOTOR FLOW CONTROL	FC-1602	AO	1-06	1	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1750	FB-FC-1602	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-120
SOLID SORBENT FEEDER MOTOR FLOW CONTROL	FC-1702	AO	1-07	1	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1752	FB-FC-1702	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-120
BED MATERIAL FEEDER MOTOR FLOW CONTROL	FC-1901	AO	1-09	1	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1754	FB-FC-1901	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-120
PRIMARY O2 SUPPLY FLOW CONTROL VALVE	FCV-2101	AO	2-01	1	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1756	FB-FCV-2101	1 PR #18 TWSH ACIC	6-01 1	40	E-PFBC-BBC4-120
SECONDARY O2 SUPPLY FLOW CONTROL VALVE	FCV-2102	AO	2-01	1	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1758	FB-FCV-2102	1 PR #18 TWSH ACIC	6-01 1	40	E-PFBC-BBC4-120
BED MATERIAL FEEDER VESSEL PRESSURE CONTROL VALVE	PCV-1901	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1760	FB-PCV-1901	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-120
CO2 TO INJECTION SYSTEM FLOW CONTROL VALVE	FCV-2121	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1762	FB-FCV-2121	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-120
CO2 TO SOLIDS COOLING FLOW CONTROL VALVE	FCV-2124	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1764	FB-FCV-2124	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-120
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM PRESSURE CONTROL VALVE	PCV-2502	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1766	FB-PCV-2502	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-121
CO2 PRESSURIZING GAS TO INTERSTITIAL PRESSURE CONTROL VALVE	PCV-3111	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1768	FB-CV-3111	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-121
CO2 TO SOLIDS LETDOWN PRESSURE CONTROL VALVE	PCV-3151	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1770	FB-PCV-3151	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-121
CO2 TO LOCK HOPPER PRESSURE CONTROL VALVE	PCV-3210	AO	2-01	2	FB-030	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1772	FB-PCV-3210	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-121
FILTER PULSE VESSEL PRESSURE CONTROL VALVE	PCV-3211	AO	2-01	2	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1774	FB-PCV-3211	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-121
CO2 TO SOLIDS SAMPLING SYSTEM FLOW CONTROL VALVE	FCV-2129	AO	2-01	2B	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1776	FB-FCV-2129	1 PR #18 TWSH ACIC	6-01 2	40	E-PFBC-BBC4-121
N2 TO LINDE SKID - DILUTION FLOW CONTROL VALVE	FCV-2161	AO	2-01	3	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1778	FFB-CV-2161	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-121
SPARE ANALOG OUTPUT INSTRUMENT	AO-51	AO	X-XX	X	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1780	FB-AO-51	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-121
N2 FLOWRATE FROM GAS DISTRIBUTION SYSTEM	AO-32X1	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1798	FB-AO-32X1	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
PFBC PRESSURE CONTROL SP	AO-32X2	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1800	FB-AO-32X2	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
LINDE SKID AO 3	PY-3221	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1802	FB-PY-3221	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
Q-1010 ANALYSIS NOx	AO-32X3	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1804	FB-AO-32X3	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
HP NG AUXILIARY LINE FLOW CONTROL VALVE	FCV-2201	AO	2-02	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1782	FB-FCV-2201	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-122
LP NG TO PFBC BURNER FLOW CONTROL VALVE	FCV-2211	AO	2-02	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1784	FB-FCV-2211	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-122
MAIN AIR TO PFBC PRE-HEAT BURNER FLOW CONTROL VALVE	FCV-2301	AO	2-03	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1786	FB-FCV-2301	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-122
MAIN AIR TO PFBC BED SECTION COOLANT FLOW CONTROL VALVE	FCV-2302	AO	2-03	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1788	FB-FCV-2302	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-122
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS FLOW CONTROL VALVE	FCV-2303	AO	2-03	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1790	FB-FCV-2303	1 PR #18 TWSH ACIC	6-01 2	70	E-PFBC-BBC4-122
PRESSURIZATION VESSEL VENT PRESSURE CONTROL VALVE	PCV-2501	AO	2-05	1	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1792	FB-PCV-2501	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-122
INJECTION VESSEL FEED CONTROL	FC-2503	AO	2-05	1	fb-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1794	FB-FC-2503	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-122
CONVECTIVE HEAT EXCHANGER FLUE GAS PRESSURE CONTROL VALVE	PCV-3161	AO	3-01	3	FB-031	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1796	FB-PCV-3161	1 PR #18 TWSH ACIC	6-01 5	90	E-PFBC-BBC4-122
FLUE GAS ANALYSIS CO	AO-32X1	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1814	FB-AO-32X1	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
FLUE GAS ANALYSIS NOx	AO-32X2	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1816	FB-AO-32X2	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
FLUE GAS ANALYSIS SOx	AO-32X3	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1818	FB-AO-32X3	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
FLUE GAS ANALYSIS H2O	AO-32X4	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1820	FB-AO-32X4	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 1	AO-32X5	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1822	FB-AO-32X5	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 2	AO-32X6	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1824	FB-AO-32X6	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
ANALYSE SOX/OX FROM DCC/SCRUBBER 3	AO-32X7	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1826	FB-AO-32X7	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
ANALYSE SOX/OX FROM DCC/SCRUBBER 4	AO-32X8	AO	3-02	2	FB-033	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1828	FB-AO-32X8	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-124
Q-1010 ANALYSIS SOx	AO-32X9	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1806	FB-AO-32X9	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
Q-1010 ANALYSIS CO	AO-32X10	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1808	FB-AO-32X10	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
FLUE GAS ANALYSIS O2	AO-32X11	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1810	FB-AO-32X11	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
FLUE GAS ANALYSIS CO2	AO-32X12	AO	3-02	2	FB-032	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1812	FB-AO-32X12	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-123
LINDE SKID AO 17	AO-32X13	AO	3-02	2	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1830	FB-AO-32X13	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-125
LINDE SKID AO 18	AO-32X14	AO	3-02	2	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1832	FB-AO-32X14	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-125
LINDE SKID AO 19	AO-32X15	AO	3-02	2	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1834	FB-AO-32X15	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-125
RECYCLE GAS COMPRESSOR SPEED CONTROL	SC-3301	AO	3-03	1	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1836	FB-SC-3301	1 PR #18 TWSH ACIC	6-01 4	120	E-PFBC-BBC4-125
VENT STACK PRESSURE CONTROL VALVE	PCV-3601	AO	3-06	1	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1838	FB-PCV-3601	1 PR #18 TWSH ACIC	6-01 5	100	E-PFBC-BBC4-125
GLYCOL TEMPERATURE CONTROL	TIC-4112	AO	4-01	1	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1840	FB-TIC-4112	1 PR #18 TWSH ACIC	OUTSIDE	300	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S2	AO	X-XX	X	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1842	FB-AO-S2	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S3	AO	X-XX	X	FB-034	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1844	FB-AO-S3	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125
THERMAL FLUID HEAT EXCHANGER TEMPERATURE CONTROL VALVE	TCV-4203	AO	4-02	1	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1846	FB-FCV-4211	1 PR #18 TWSH ACIC	6-01 4	60	E-PFBC-BBC4-125
COOLING TO PFBC BED SECTION PFBC FLOW CONTROL	FCV-4211	AO	4-02	1	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1848	FB-FCV-4212	1 PR #18 TWSH ACIC	6-10 4	60	E-PFBC-BBC4-125
COOLING TO PFBC CONVECTIVE SECTION 1 FLOW CONTROL	FCV-4212	AO	4-02	1	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1850	FB-FCV-4213	1 PR #18 TWSH ACIC	6-10 4	60	E-PFBC-BBC4-125
COOLING TO PFBC CONVECTIVE SECTION 2 FLOW CONTROL	FCV-4213	AO	4-02	1	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1852	FB-AO-S4	1 PR #18 TWSH ACIC	6-10 4	60	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S4	AO	X-XX	X	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1854	FB-AO-S4	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S5	AO	X-XX	X	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1856	FB-AO-S5	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S6	AO	X-XX	X	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1858	FB-AO-S6	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125
SPARE ANALOG OUTPUT INSTRUMENT	AO-S7	AO	X-XX	X	FB-035	E-PFBC-BBC4-511	PFBC-DJB-01	AO1	1860	FB-AO-S7	1 PR #18 TWSH ACIC	TBD	100	E-PFBC-BBC4-125

ESTIMATED TOTAL LENGTH	
1 PR #18 TWSH ACIC (FEET)	4470
2 PR #18 TWSH ACIC (FEET)	0

DIGITAL INPUT (24 VDC)

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
NG COMPRESSOR MOTOR RUNNING SIGNAL	XC-1320	DI	1-03	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2003	FB-X-1320	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
NG COMPRESSOR MOTOR FAULT	XF-1320	DI	1-03	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2005	FB-X-1320	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
LP AIR COMPRESSOR 1 MOTOR FAULT	XF-1401	DI	1-04	1	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2007	FB-X-1401	2C #16 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
LP AIR COMPRESSOR 2 MOTOR FAULT	XF-1402	DI	1-04	1	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2009	FB-X-1402	2C #16 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR COMPRESSOR 1 MOTOR RUNNING SIGNAL	XC-1420	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2011	FB-X-1402	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR COMPRESSOR 1 MOTOR FAULT	XF-1420	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2013	FB-X-1402	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR COMPRESSOR 2 MOTOR RUNNING SIGNAL	XC-1421	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2015	FB-X-1401	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR COMPRESSOR 2 MOTOR FAULT	XF-1421	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2017	FB-X-1401	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR DRYER 1 FAULT	XF-1422	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2019	FB-XF-1422	2C #16 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP AIR DRYER 2 FAULT	XF-1423	DI	1-04	2	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2021	FB-XF-1423	2C #16 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-201
HP PRESSURE SUPPLY WATER PUMP MOTOR RUNNING SIGNAL	XC-1501	DI	1-05	1	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2023	FB-X-1501	8C #18 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-201
HP PRESSURE SUPPLY WATER PUMP MOTOR FAULT	XF-1501	DI	1-05	1	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2025	FB-X-1501	8C #18 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S1	DI	X-XX	X	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2027	FB-DI-S1	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S2	DI	X-XX	X	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2029	FB-DI-S2	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-201
SPARE DIGITAL INPUT INSTRUMENT	DI-S3	DI	X-XX	X	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2031	FB-DI-S3	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-201

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
SPARE DIGITAL INPUT INSTRUMENT	DI-S4	DI	X-XX	X	FB-036	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2033	FB-DI-S4	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-201
SOLID FUEL BAG UNLOADER HIGH LEVEL	LSH-1601	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2037	FB-LSH-1601	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL CYCLONE HIGH LEVEL	LSH-1602	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2039	FB-LSH-1602	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR ALARM	XA-1602	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2041	FB-X-1602	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR RUNNING SIGNAL	XC-1602	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2043	FB-X-1602	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL FEEDER MOTOR FAULT	XF-1602	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2045	FB-X-1602	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL STORAGE VESSEL HIGH LEVEL	LSH-1603	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2047	FB-LSH-1603	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID FUEL STORAGE VESSEL LOW LEVEL	LSL-1603	DI	1-06	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2049	FB-LSL-1603	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT BAG UNLOADER HIGH LEVEL	LSH-1701	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2051	FB-LSH-1701	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT CYCLONE HIGH LEVEL	LSH-1702	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2053	FB-LSH-1702	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR ALARM	XA-1702	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2055	FB-X-1702	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR RUNNING SIGNAL	XC-1702	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2057	FB-X-1702	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT FEEDER MOTOR FAULT	XF-1702	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2059	FB-X-1702	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT STORAGE VESSEL HIGH LEVEL	LSH-1703	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2061	FB-LSH-1703	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
SOLID SORBENT STORAGE VESSEL LOW LEVEL	LSL-1703	DI	1-07	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2063	FB-LSL-1703	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-202
BED MATERIAL FEEDER MOTOR RUNNING SIGNAL	XC-1901	DI	1-09	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2065	FB-X-1901	8C #18 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-202
BED MATERIAL FEEDER MOTOR FAULT	XF-1901	DI	1-09	1	FB-037	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2067	FB-X-1901	8C #18 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-202
HP NG AUXILIARY LINE PRESSURE LOW	PSL-2201	DI	2-02	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2071	FB-PSL-2201	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-203
HP NG AUXILIARY LINE PRESSURE HIGH	PSH-2202	DI	2-02	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2073	FB-PSH-2202	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-203
LP NG TO PFBC BURNER PRESSURE LOW	PSL-2211	DI	2-02	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2075	FB-PSL-2211	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-203
LP NG TO PFBC BURNER PRESSURE HIGH	PSH-2212	DI	2-02	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2077	FB-PSH-2212	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-203
MAIN AIR TO PFBC PRE-HEAT BURNER PRESSURE LOW	PSL-2301	DI	2-03	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2079	FB-PSL-2301	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-203
FUEL / SORBENT MIXER LOW FLOW	FSL-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2081	FB-FSL-2501	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
MIXER STORAGE VESSEL HIGH LEVEL	LSH-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2083	FB-LSH-2501	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-203
FUEL / SORBENT MIXER FEEDER MOTOR RUNNING SIGNAL	XC-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2085	FB-X-2501	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-203
FUEL / SORBENT MIXER FEEDER MOTOR FAULT	XF-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2087	FB-X-2501	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-203
PRESSURIZATION VESSEL INLET VALVE CLOSED	ZSC-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2089	FB-ZSC-2501	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
PRESSURIZATION VESSEL INLET VALVE OPEN	ZSO-2501	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2091	FB-ZSO-2501	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
PRESSURIZATION VESSEL HIGH LEVEL	LSH-2502	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2093	FB-LSH-2502	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
PRESSURIZATION VESSEL LOW LEVEL	LSL-2502	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2095	FB-LSL-2502	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
INJECTION FEEDER MOTOR RUNNING SIGNAL	XC-2503	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2097	FB-X-2503	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
INJECTION FEEDER MOTOR FAULT	XF-2503	DI	2-05	1	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2099	FB-X-2503	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-203
SPARE DIGITAL INPUT INSTRUMENT	DI-S5	DI	X-XX	X	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2101	FB-DI-S5	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-203
PFBC CONVECTIVE SECTION VENT HIGH FLOW SWITCH	FSH-3101	DI	3-01	3	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2105	FB-FSH-3101	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-204
CONVECTIVE HEAT EXCHANGER VENT HIGH FLOW SWITCH	FSH-3102	DI	3-01	3	FB-038	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2107	FB-FSH-3102	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-204
FILTER LEVEL SWITCH HIGH	LSH-3201	DI	3-02	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2109	FB-LSH-3201	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-204
FLY ASH VESSEL SWITCH HIGH	LSH-3210	DI	3-02	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2111	FB-LSH-3210	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-204
FLY ASH VESSEL SWITCH LOW	LSL-3210	DI	3-02	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2113	FB-LSL-3210	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-204
CO2 PRE-HEATER TEMPERATURE SWITCH HIGH	TSH-3211	DI	3-02	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2115	FB-TSH-3211	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-204
TOTAL SULFUR HIGH HIGH LEVEL	AAL-3221	DI	3-02	2	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2117	FB-AAL-3221	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-204

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG	
Q-1010 LOW LOW LEVEL	LAL-3221	DI	3-02	2	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2119	FB-LAL-3221	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-204	
PLANT SHUTDOWN SIGNAL	XO-3221	DI	3-02	2	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2121	FB-XO-3221	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-204	
RECYCLE GAS COMPRESSOR MOTOR RUNNING SIGNAL	XC-3301	DI	3-03	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2123	FB-X-3301	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-204	
RECYCLE GAS COMPRESSOR MOTOR FAULT	XF-3301	DI	3-03	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2125	FB-X-3301	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-204	
SOLID WASTE VESSEL LEVEL SWITCH HIGH	LSH-3401	DI	3-04	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2127	FB-LSH-3401	2C #16 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-204	
SOLID WASTE VESSEL LEVEL SWITCH LOW	LSL-3401	DI	3-04	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2129	FB-LSL-3401	2C #16 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-204	
SOLID WASTE HANDLING VENT BLOWER MOTOR RUNNING SIGNAL	XC-3401	DI	3-04	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2131	FB-X-3401	8C #18 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-204	
SOLID WASTE HANDLING VENT BLOWER MOTOR FAULT	XF-3401	DI	3-04	1	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2133	FB-X-3401	8C #18 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-204	
SPARE DIGITAL INPUT INSTRUMENT	DI-S6	DI	X-XX	X	FB-039	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2135	FB-DI-S6	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-204	
GLYCOL TO GLYCOL PUMPS FLOW SWITCH LOW	FSL-4101	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2139	FB-FSL-4101	2C #16 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 1 MOTOR RUNNING SIGNAL	XC-4101	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2141	FB-X-4101	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 1 MOTOR FAULT	XF-4101	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2143	FB-X-4101	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 1 FLOW SWITCH	FS-4102	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2145	FB-FS-4102	2C #16 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 2 MOTOR RUNNING SIGNAL	XC-4102	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2147	FB-X-4102	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 2 MOTOR FAULT	XF-4102	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2149	FB-X-4102	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
GLYCOL PUMP 2 FLOW SWITCH	FS-4103	DI	4-01	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2151	FB-FS-4103	2C #16 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-205	
COOLING SYSTEM FEED PUMP MOTOR RUNNING SIGNAL	XC-4201	DI	4-02	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2153	FB-X-4201	8C #18 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-205	
COOLING SYSTEM FEED PUMP MOTOR FAULT	XF-4201	DI	4-02	1	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2155	FB-X-4201	8C #18 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S7	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2157	FB-DI-S7	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S8	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2159	FB-DI-S8	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S9	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2161	FB-DI-S9	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S10	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2163	FB-DI-S10	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S11	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2165	FB-DI-S11	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S12	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2167	FB-DI-S12	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
SPARE DIGITAL INPUT INSTRUMENT	DI-S13	DI	X-XX	X	FB-040	E-PFBC-BBC4-512	PFBC-DJB-01	DI1	2169	FB-DI-S13	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-205	
ESTIMATED TOTAL LENGTH															
	2C #16 AWG TECK 90 (FEET)	5330													
	8C #18 AWG TECK 90 (FEET)	3620													
DIGITAL OUTPUT (24 VDC)															
NG COMPRESSOR MOTOR POWER RUN/STOP	XO-1320	DO	1-03	2	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2503	FB-X-1320	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-220	
HP AIR COMPRESSOR 1 MOTOR POWER RUN/STOP	XO-1420	DO	1-04	2	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2505	FB-X-1420	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-220	
HP AIR COMPRESSOR 2 MOTOR POWER RUN/STOP	XO-1421	DO	1-04	2	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2507	FB-X-1421	8C #18 AWG TECK 90	OUTSIDE	90	E-PFBC-BBC4-220	
HP PRESSURE SUPPLY WATER PUMP MOTOR POWER RUN/STOP	XO-1501	DO	1-05	1	FB-035	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2509	FB-X-1501	8C #18 AWG TECK 90			E-PFBC-BBC4-220	
SOLID FUEL FEEDER MOTOR RUN/STOP	XO-1602	DO	1-06	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2511	FB-X-1602	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-220	
SOLID SORBENT FEEDER VESSEL MOTOR RUN/STOP	XO-1702	DO	1-07	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2513	FB-X-1702	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-220	
BED MATERIAL FEEDER MOTOR RUN/STOP	XO-1901	DO	1-09	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2515	FB-X-1901	8C #18 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-220	
FUEL / SORBENT MIXER FEEDER RUN/STOP	XO-2501	DO	2-05	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2517	FB-X-2501	8C #18 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-220	
INJECTION FEEDER RUN/STOP	XO-2503	DO	2-05	1	FB-41	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2519	FB-X-2503	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-220	
RECYCLE GAS COMPRESSOR RUN/STOP	XO-3301	DO	3-03	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2521	FB-X-3301	8C #18 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-220	
SOLID WASTE HANDLING VENT BLOWER MOTOR RUN/STOP	XO-3401	DO	3-04	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2523	FB-X-3401	8C #18 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-220	

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
GLYCOL PUMP 1 MOTOR RUN/STOP	XO-4101	DO	4-01	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2525	FB-X-4101	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-220
GLYCOL PUMP 2 MOTOR RUN/STOP	XO-4102	DO	4-01	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2527	FB-X-4102	8C #18 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-220
COOLING SYSTEM FEED PUMP MOTOR RUN/STOP	XO-4201	DO	4-02	1	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2529	FB-X-4201	8C #18 AWG TECK 90	OUTSIDE	70	E-PFBC-BBC4-220
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S1	DO	X-XX	X	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2531	FB-DO-S1	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-220
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S2	DO	X-XX	X	FB-041	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2533	FB-DO-S2	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-220
FILTER TO FLY ASH VESSEL SHUT-OFF VALVE 1	YV-3201	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2537	FB-YV-3201	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
FILTER TO FLY ASH VESSEL SHUT-OFF VALVE 2	YV-3202	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2539	FB-YV-3202	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
CO2 TO FLY ASH VESSEL SHUT-OFF VALVE	YV-2191	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2541	FB-YV-2191	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
CO2 TO SOLID WASTE HANDLING SHUT-OFF VALVE	YV-2192	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2543	FB-YV-2192	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
FLY ASH TO SOLID WASTE HANDLING SHUT-OFF VALVE 1	YV-3203	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2545	FB-YV-3203	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
FLY ASH TO SOLID WASTE HANDLING SHUT-OFF VALVE 2	YV-3204	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2547	FB-YV-3204	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
FLY ASH VESSEL VENT SHUT-OFF VALVE	YV-3205	DO	3-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2549	FB-YV-3205	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
COOLING SYSTEM FEED SHUT-OFF VALVE	YV-4201	DO	4-02	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2551	FB-YV-4201	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
MAIN AIR TO PFBC PRE-HEAT BURNER SHUT-OFF VALVE	YV-2301	DO	2-03	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2553	FB-YV-2301	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
MAIN AIR TO PFBC BED SECTION COOLANT SHUT-OFF VALVE	YV-2302	DO	2-03	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2555	FB-YV-2302	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
MAIN AIR TO GAS DISTRIBUTION SYSTEM RECYCLE FLUE GAS SHUT-OFF VALVE	YV-2303	DO	2-03	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2557	FB-YV-2303	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER FILTER SHUT-OFF VALVE	YV-5101	DO	5-01	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2559	FB-YV-5101	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM BEFORE FILTER SHUT-OFF VALVE	YV-5102	DO	5-01	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2561	FB-YV-5102	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER DCC SHUT-OFF VALVE	YV-5103	DO	5-01	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2563	FB-YV-5103	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER LICONOX SHUT-OFF VALVE	YV-5104	DO	5-01	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2565	FB-YV-5104	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
GAS SAMPLING SYSTEM AFTER DEOX SHUT-OFF VALVE	YV-5105	DO	5-01	1	FB-042	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2567	FB-YV-5105	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-221
PRESSURIZATION VESSEL INLET SHUT-OFF VALVE	YV-2501	DO	2-05	1	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2571	FB-YV-2501	2C #16 AWG TECK 90	6-01 4	100	E-PFBC-BBC4-222
INJECTION VESSEL INLET SHUT-OFF VALVE (TV-2502)	YV-2502	DO	2-05	1	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2573	FB-YV-2502	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
INJECTION VESSEL TO PRESSURIZATION VESSEL RECIRCULATION VALVE	YV-2503	DO	2-05	1	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2575	FB-YV-2503	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
INJECTION VESSEL TO VENT SHUT-OFF VALVE	YV-2504	DO	2-05	1	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2577	FB-YV-2504	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
CO2 TO INJECTION SYSTEM SHUT-OFF VALVE	YV-2121	DO	2-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2579	FB-YV-2121	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
CO2 TO SOOT BLOWERS SHUT-OFF VALVE	YV-2122	DO	2-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2581	FB-YV-2122	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
CO2 PRESSURIZING GAS TO SOLIDS DISTRIBUTION SYSTEM SHUT-OFF VALVE	YV-2125	DO	2-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2583	FB-YV-2125	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
CO2 TO PGT LOCK HOPPER SHUT-OFF VALVE	YV-2128	DO	2-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2585	FB-YV-2128	2C #16 AWG TECK 90	6-01 4	120	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER TOP SHUT-OFF VALVE	YV-2331	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2587	FB-YV-2331	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER MIDDLE SHUT-OFF VALVE	YV-2332	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2589	FB-YV-2332	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
HP AIR SUPPLY UPPER BOTTOM SHUT-OFF VALVE	YV-2333	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2591	FB-YV-2333	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER TOP SHUT-OFF VALVE	YV-2334	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2593	FB-YV-2334	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER MIDDLE SHUT-OFF VALVE	YV-2335	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2595	FB-YV-2335	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
HP AIR SUPPLY LOWER BOTTOM SHUT-OFF VALVE	YV-2336	DO	3-01	2	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2597	FB-YV-2336	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
CONVEYING CO2 TO PFBC COAL/ SORBENT FEED SHUT-OFF VALVE	YV-2510	DO	2-05	1	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2599	FB-YV-2510	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-222
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S1	DO	X-XX	X	FB-043	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2601			6-01 4	60	E-PFBC-BBC4-222
SOLIDS SAMPLING CYCLONE INLET VALVE	YV-5204	DO	5-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2605	FB-YV-5204	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-223
SOLIDS SAMPLING CYCLONE VENT VALVE	YV-5205	DO	5-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2607	FB-YV-5205	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-223
CO2 SAMPLING SHUT-OFF VALVE 1	YV-5210	DO	5-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2609	FB-YV-5210	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-223

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
CO2 SAMPLING SHUT-OFF VALVE 2	YV-5211	DO	5-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2611	FB-YV-5211	2C #16 AWG TECK 90	6-01 4	60	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S2	DO	X-XX	X	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2613			6-01 4	60	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S3	DO	X-XX	X	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2615			6-01 4	60	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S4	DO	X-XX	X	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2617			6-01 4	60	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S5	DO	X-XX	X	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2619			6-01 4	60	E-PFBC-BBC4-223
N2 TO LINDE SKID - DILUTION SHUT-OFF VALVE	YV-2161	DO	2-01	3	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2621	FB-YV-2161	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
N2 TO PRESSURE TESTING SHUT-OFF VALVE	YV-2162	DO	2-01	3	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2623	FB-YV-2162	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 1	YV-3211	DO	3-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2625	FB-YV-3211	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 2	YV-3212	DO	3-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2627	FB-YV-3212	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 3	YV-3213	DO	3-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2629	FB-YV-3213	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
FILTER PULSE OUTLET SHUT-OFF VALVE 4	YV-3214	DO	3-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2631	FB-YV-3214	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
CO2 TO FILTER OUTLET SHUT-OFF VALVE	YV-3215	DO	3-02	1	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2633	FB-YV-3215	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-223
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S6	DO	X-XX	X	FB-044	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2635			6-01 5	100	E-PFBC-BBC4-223
SOLID FUEL FEEDER VESSEL SHUT-OFF VALVE	YV-1603	DO	1-06	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2639	FB-YV-1603	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-224
SOLID SORBENT FEEDER VESSEL SHUT-OFF VALVE	YV-1703	DO	1-07	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2641	FB-YV-1703	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S7	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2643			6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S8	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2645			6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S9	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2647			6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S10	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2649			6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S11	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2651			6-01 5	100	E-PFBC-BBC4-224
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S12	DO	X-XX	X	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2653			6-01 5	100	E-PFBC-BBC4-224
BED MATERIAL TO PFBC SHUT-OFF VALVE	YV-1901	DO	1-09	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2655	FB-YV-1901	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
BED MATERIAL FEEDER VESSEL VENT SHUT-OFF VALVE	YV-1902	DO	1-09	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2657	FB-YV-1902	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
HP NG AUXILIARY LINE SHUT-OFF VALVE 1	YV-2201	DO	2-02	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2659	FB-YV-2201	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
HP NG AUXILIARY LINE SHUT-OFF VALVE 2	YV-2202	DO	2-02	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2661	FB-YV-2202	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
LP NG TO PFBC BURNER SHUT-OFF VALVE 1	YV-2211	DO	2-02	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2663	FB-YV-2211	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
LP NG TO PFBC BURNER SHUT-OFF VALVE 2	YV-2212	DO	2-02	1	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2665	FB-YV-2212	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
SOOT BLOWER RECEIVER CO2 TO CONVECTIVE SECTION SOOT BLOWER SHUT-OFF VALVE	YV-2326	DO	3-01	3	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2667	FB-YV-2326	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
SOOT BLOWER RECEIVER CO2 TO CONVECTIVE HEAT EXCHANGER SHUT-OFF VALVE	YV-2327	DO	3-01	3	FB-045	E-PFBC-BBC4-512	PFBC-DJB-01	DO1	2669	FB-YV-2327	2C #16 AWG TECK 90	6-01 5	90	E-PFBC-BBC4-224
CO2 TO SOLIDS LETDOWN SHUT-OFF VALVE	YV-2123	DO	2-01	2	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2673	FB-YV-2123	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
CO2 TO SOLIDS COOLING SHUT-OFF VALVE	YV-2124	DO	2-01	2	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2675	FB-YV-2124	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
CO2 PRESSURIZING GAS TO BED MATERIAL SHUT-OFF VALVE	YV-2126	DO	2-01	2	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2677	FB-YV-2126	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
CO2 PRESSURIZING GAS TO INTERSTITIAL SHUT-OFF VALVE	YV-2127	DO	2-01	2	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2679	FB-YV-2127	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
CO2 TO SOLIDS SAMPLING SYSTEM SHUT-OFF VALVE	YV-2129	DO	2-01	2B	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2681	FB-YV-2129	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S13	DO	X-XX	X	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2683			6-01 2	40	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S14	DO	X-XX	X	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2685			6-01 2	40	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-S15	DO	X-XX	X	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2687			6-01 2	40	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN OUTLET VALVE 1	YV-3151	DO	3-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2689	FB-YV-3151	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN OUTLET VALVE 2	YV-3152	DO	3-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2691	FB-YV-3152	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
CO2 TO SOLID WASTE HANDLING BED ASH SHUT-OFF VALVE 1	YV-3153	DO	3-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2693	FB-YV-3153	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
CO2 TO SOLID WASTE HANDLING BED ASH SHUT-OFF VALVE 2	YV-3154	DO	3-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2695	FB-YV-3154	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
PFBC INJECTOR / LETDOWN VENT SHUT-OFF VALVE	YV-3155	DO	3-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2697	FB-YV-3155	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
PRIMARY O2 SUPPLY SHUT-OFF VALVE 1	YV-2101	DO	2-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2699	FB-YV-2101	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
PRIMARY O2 SUPPLY SHUT-OFF VALVE 2	YV-2102	DO	2-01	1	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2701	FB-YV-2102	2C #16 AWG TECK 90	6-01 2	40	E-PFBC-BBC4-225
SPARE DIGITAL OUTPUT INSTRUMENT	YV-516	DO	X-XX	X	FB-046	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2703			6-01 2	40	E-PFBC-BBC4-225
GLYCOL AIR COOLER 1 TEMPERATURE CONTROL	TC-4101	DO	4-01	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2707	FB-TC-4101	2C #16 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-226
GLYCOL AIR COOLER 2 TEMPERATURE CONTROL	TC-4102	DO	4-01	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2709	FB-TC-4102	2C #16 AWG TECK 90	OUTSIDE	300	E-PFBC-BBC4-226
CO2 TO FILTER PULSE RECEIVER TEMPERATURE CONTROLLER	TIC-3211	DO	3-02	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2711	FB-TIC-3211	2C #16 AWG TECK 90	6-01 5	100	E-PFBC-BBC4-226
WATER PRE-HEATER TEMPERATURE CONTROL	TIC-4201	DO	4-02	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2713	FB-TIC-4201	2C #16 AWG TECK 90	6-01 2	70	E-PFBC-BBC4-226
AIR TO FLY ASH BLOWER 1 SHUT-OFF VALVE	YV-3401	DO	3-04	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2715	FB-YV-3401	2C #16 AWG TECK 90			E-PFBC-BBC4-226
AIR TO FLY ASH BLOWER 2 SHUT-OFF VALVE	YV-3402	DO	3-04	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2717	FB-YV-3402	2C #16 AWG TECK 90			E-PFBC-BBC4-226
AIR TO SOLID WASTE COLLECTION VESSEL SHUT-OFF VALVE	YV-3403	DO	3-04	1	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2719	FB-YV-3403	2C #16 AWG TECK 90			E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S3	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2721	FB-DO-S3	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S4	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2723	FB-DO-S4	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S5	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2725	FB-DO-S5	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S6	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2727	FB-DO-S6	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S7	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2729	FB-DO-S7	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S8	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2731	FB-DO-S8	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S9	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2733	FB-DO-S9	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S10	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2735	FB-DO-S10	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226
SPARE DIGITAL OUTPUT INSTRUMENT	DO-S11	DO	X-XX	X	FB-047	E-PFBC-BBC4-512	PFBC-DJB-01	DO2	2737	FB-DO-S11	2C #16 AWG TECK 90	TBD	100	E-PFBC-BBC4-226

ESTIMATED TOTAL LENGTH	
2C #16 AWG TECK 90 (FEET)	2030
8C #18 AWG TECK 90 (FEET)	1520

THERMOCOUPLE (mV)

WATER TO DISTRIBUTION SYSTEM TEMPERATURE	TE-1501	TE	1-05	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA	6-01 2	70	E-PFBC-BBC4-301
HP WATER PUMP INLET TEMPERATURE	TE-1502	TE	1-05	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA	6-01 2	70	E-PFBC-BBC4-301
HP WATER PUMP DISCHARGE TEMPERATURE	TE-1503	TE	1-05	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA	6-01 2	70	E-PFBC-BBC4-301
FLY ASH VESSEL INLET TEMPERATURE	TE-3206	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA	6-01 2	70	E-PFBC-BBC4-301
FLY ASH VESSEL SKIN TEMPERATURE	TE-3207	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-301
FLY ASH VESSEL OUTLET TEMPERATURE	TE-3208	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-301
FLY ASH TO WASTE HANDLING TEMPERATURE	TE-3209	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-301
SPARE THERMOCOUPLE TEMPERATURE	TE-S1	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-080	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-301
MAIN AIR SUPPLY HEADER TEMPERATURE	TE-2300	TE	2-03	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
COOLING SYSTEM WATER RESERVOIR TEMPERATURE	TE-4201	TE	4-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
COOLING SYSTEM WATER RESERVOIR EXIT TEMPERATURE	TE-4202	TE	4-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
HEAT EXCHANGER EXIT TEMPERATURE	TE-4203	TE	4-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
COOLING SUPPLY TEMPERATURE	TE-4204	TE	4-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
COOLING SYSTEM RETURN TEMPERATURE	TE-4284	TE	4-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
GLYCOL TO LINDE SKID TEMPERATURE	TE-3221	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-301

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
SPARE THERMOCOUPLE TEMPERATURE	TE-S2	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-081	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	70	E-PFBC-BBC4-302
CO2 TO SOLIDS SAMPLING SYSTEM TEMPERATURE	TE-2129	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
BED ASH OUTLET TEMPERATURE	TE-3151	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
BED ASH AFTER COOLING TEMPERATURE	TE-3152	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
BED ASH RECEIVER TEMPERATURE	TE-3153	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
BED ASH LP DISCHARGE TEMPERATURE	TE-3154	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL BOTTOM TEMPERATURE - EAST	TE-3100-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL BOTTOM TEMPERATURE - WEST	TE-3100-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
PFBC PRESSURE VESSEL THERMOWELL BOTTOM TEMPERATURE	TE-3130	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-082	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
PRIMARY O2 SUPPLY TEMPERATURE	TE-2101	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SECONDARY O2 SUPPLY TEMPERATURE	TE-2102	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S3	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S4	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S5	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S6	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S7	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
SPARE THERMOCOUPLE TEMPERATURE	TE-S8	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-083	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 2	40	E-PFBC-BBC4-303
CO2 SUPPLY HEADER TEMPERATURE	TE-2120	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
INJECTION FEEDER TEMPERATURE	TE-2502	TE	2-05	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
FLUE GAS TO RECYCLE GAS COMPRESSOR TEMPERATURE	TE-3301	TE	3-03	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
RECYCLE GAS COMPRESSOR FLUE GAS EXIT TEMPERATURE	TE-3302	TE	3-03	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S9	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S10	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S11	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
SPARE THERMOCOUPLE TEMPERATURE	TE-S12	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-084	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	120	E-PFBC-BBC4-304
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - NORTH	TE-3121-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - EAST	TE-3121-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - SOUTH	TE-3121-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM SKIN TEMPERATURE - WEST	TE-3121-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - NORTH	TE-3122-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - EAST	TE-3122-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - SOUTH	TE-3122-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP SKIN TEMPERATURE - WEST	TE-3122-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-085	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - NORTH	TE-3101-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - EAST	TE-3101-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM COMBUSTOR SKIN TEMPERATURE - SOUTH	TE-3101-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - NORTH	TE-3103-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - EAST	TE-3103-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL TOP COMBUSTOR SKIN TEMPERATURE - SOUTH	TE-3103-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL THERMOWELL MIDDLE TEMPERATURE	TE-3131	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
PFBC PRESSURE VESSEL THERMOWELL TOP TEMPERATURE	TE-3132	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-086	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC PRESSURE VESSEL BOTTOM REFRACTORY TEMPERATURE	TE-3141	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
LOWER BED SECTION TEMPERATURE	TE-3181	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC BED SOLIDS SAMPLE 1 TEMPERATURE	TE-5201	TE	5-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PFBC BED SOLIDS SAMPLE 2 TEMPERATURE	TE-5202	TE	5-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
CONVECTIVE SECTION SOLIDS SAMPLE TEMPERATURE	TE-5203	TE	5-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
SOLIDS SAMPLING COLLECTION VESSEL TEMPERATURE	TE-5204	TE	5-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
SOLIDS SAMPLING CYCLONE VENT TEMPERATURE	TE-5205	TE	5-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
PRIMARY O2 AND RECYCLE FLUE GAS TO PFBC TEMPERATURE	TE-2110	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-087	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-305
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3123-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3123-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3123-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3123-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3124-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3124-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3124-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3124-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-088	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - NORTH	TE-3104-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - EAST	TE-3104-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR BOTTOM THERMOWELL TEMPERATURE	TE-3133	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - NORTH	TE-3105-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - EAST	TE-3105-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - WEST	TE-3105-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR MIDDLE THERMOWELL TEMPERATURE	TE-3134	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP THERMOWELL TEMPERATURE	TE-3135	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-089	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - NORTH	TE-3106-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - EAST	TE-3106-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - SOUTH	TE-3106-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
LOWER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - WEST	TE-3106-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - EAST	TE-3107-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - SOUTH	TE-3107-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM SKIN TEMPERATURE - WEST	TE-3107-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
UPPER BED SECTION COMBUSTOR BOTTOM THERMOWELL TEMPERATURE	TE-3136	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-090	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-306
HP AIR SUPPLY INLET TEMPERATURE	TE-2330	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER TOP TEMPERATURE	TE-2331	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER MIDDLE TEMPERATURE	TE-2332	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT UPPER BOTTOM TEMPERATURE	TE-2333	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER TOP TEMPERATURE	TE-2334	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER MIDDLE TEMPERATURE	TE-2335	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
PFBC BED SECTION VENT LOWER BOTTOM TEMPERATURE	TE-2336	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
SPARE THERMOCOUPLE TEMPERATURE	TE-S13	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-091	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
GAS SAMPLING SYSTEM AFTER FILTER SAMPLE CONDITIONER INLET TEMPERATURE	TE-S111	TE	5-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-107	8P, 18 AWG, KX, XLPE, AIA, 600 V	TBD	70	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM BEFORE FILTER SAMPLE CONDITIONER INLET TEMPERATURE	TE-S112	TE	5-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-107	8P, 18 AWG, KX, XLPE, AIA, 600 V	TBD	70	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM AFTER DCC SAMPLE CONDITIONER INLET TEMPERATURE	TE-S113	TE	5-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-107	8P, 18 AWG, KX, XLPE, AIA, 600 V	TBD	70	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM AFTER LICONOX SAMPLE CONDITIONER INLET TEMPERATURE	TE-S114	TE	5-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-107	8P, 18 AWG, KX, XLPE, AIA, 600 V	TBD	70	E-PFBC-BBC4-313
GAS SAMPLING SYSTEM AFTER DEOX SAMPLE CONDITIONER INLET TEMPERATURE	TE-S115	TE	5-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-107	8P, 18 AWG, KX, XLPE, AIA, 600 V	TBD	70	E-PFBC-BBC4-313
FLUE GAS TO PROCESS GAS TREATMENT TEMPERATURE	TE-3162	TE	3-01	TE	N/A	N/A	PFBC-TJB-01	N/A	N/A	FB-TE-3162	1P, 18 AWG, KX, XLPE, AIA, 600 V	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S14	TE	X-XX	TE	N/A	N/A	PFBC-TJB-01	N/A	N/A	N/A	N/A	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S15	TE	X-XX	TE	N/A	N/A	PFBC-TJB-01	N/A	N/A	N/A	N/A	N/A	N/A	E-PFBC-BBC4-313
SPARE THERMOCOUPLE TEMPERATURE	TE-S16	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S17	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S18	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S19	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S20	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S21	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S22	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
SPARE THERMOCOUPLE TEMPERATURE	TE-S23	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-092	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 4	60	E-PFBC-BBC4-307
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - EAST	TE-3108-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - SOUTH	TE-3108-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE SKIN TEMPERATURE - WEST	TE-3108-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR MIDDLE THERMOWELL TEMPERATURE	TE-3137	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - EAST	TE-3109-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - SOUTH	TE-3109-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP SKIN TEMPERATURE - WEST	TE-3109-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION COMBUSTOR TOP THERMOWELL TEMPERATURE	TE-3138	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-093	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3125-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3125-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3125-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3125-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3126-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3126-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3126-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
UPPER BED SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3126-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-094	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO PFBC BED SECTION TEMPERATURE	TE-4211	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 1	TE-4221	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 2	TE-4222	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 3	TE-4223	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 4	TE-4224	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - UPPER TEMPERATURE 5	TE-4225	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - MIDDLE TEMPERATURE 1	TE-4231	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
COOLING TO UPPER BED - MIDDLE TEMPERATURE 2	TE-4232	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-095	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-308
COOLING TO UPPER BED - MIDDLE TEMPERATURE 3	TE-4233	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - MIDDLE TEMPERATURE 4	TE-4234	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - MIDDLE TEMPERATURE 5	TE-4235	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 1	TE-4241	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 2	TE-4242	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 3	TE-4243	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 4	TE-4244	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
COOLING TO UPPER BED - BOTTOM TEMPERATURE 5	TE-4245	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-096	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - NORTH	TE-3127-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - EAST	TE-3127-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - SOUTH	TE-3127-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION LOWER VESSEL SKIN TEMPERATURE - WEST	TE-3127-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - NORTH	TE-3128-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - EAST	TE-3128-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - SOUTH	TE-3128-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE SECTION UPPER VESSEL SKIN TEMPERATURE - WEST	TE-3128-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-097	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - NORTH	TE-3171-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - EAST	TE-3171-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - SOUTH	TE-3171-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER TOP SECTION VESSEL SKIN TEMPERATURE - WEST	TE-3171-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - NORTH	TE-3172-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - EAST	TE-3172-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - SOUTH	TE-3172-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-1 VESSEL SKIN TEMPERATURE - WEST	TE-3172-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-098	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-309
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - NORTH	TE-3173-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - EAST	TE-3173-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - SOUTH	TE-3173-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER MIDDLE SECTION-2 VESSEL SKIN TEMPERATURE - WEST	TE-3173-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - NORTH	TE-3174-N	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - EAST	TE-3174-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - SOUTH	TE-3174-S	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER BOTTOM SECTION VESSEL SKIN TEMPERATURE - WEST	TE-3174-W	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-099	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
PFBC FLUE GAS EXIT TEMPERATURE	TE-3161	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION UPPER THERMOWELL TEMPERATURE	TE-3140	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION LOWER THERMOWELL TEMPERATURE	TE-3139	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION LOWER COMBUSTOR SKIN TEMPERATURE - EAST	TE-3110-E	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION BOTTOM REFRACTORY TEMPERATURE	TE-3147	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION MIDDLE LOWER REFRACTORY TEMPERATURE	TE-3148	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION MIDDLE UPPER REFRACTORY TEMPERATURE	TE-3149	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310

FIELD CABLE SCHEDULE

NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
CONVECTIVE SECTION TOP REFRACTORY TEMPERATURE	TE-3150	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-100	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
COOLING TO PFBC CONVECTIVE SECTION TEMPERATURE	TE-4212	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
COOLING TO PFBC CONVECTIVE HEAT EXCHANGER TEMPERATURE	TE-4213	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE SECTION COOLING SYSTEM OUTLET TEMPERATURE	TE-4282	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
CONVECTIVE HEAT EXCHANGER TO PFBC COOLING SYSTEM OUTLET TEMPERATURE	TE-4283	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S24	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S25	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S26	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
SPARE THERMOCOUPLE TEMPERATURE	TE-S27	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-101	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-310
COOLING TO LOWER BED - UPPER TEMPERATURE 1	TE-4251	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 2	TE-4252	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 3	TE-4253	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 4	TE-4254	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - UPPER TEMPERATURE 5	TE-4255	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 1	TE-4261	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 2	TE-4262	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 3	TE-4263	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-102	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 4	TE-4264	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - MIDDLE TEMPERATURE 5	TE-4265	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 1	TE-4271	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 2	TE-4272	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 3	TE-4273	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 4	TE-4274	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
COOLING TO LOWER BED - BOTTOM TEMPERATURE 5	TE-4275	TE	3-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
BED MATERIAL TO PFBC TEMPERATURE	TE-1901	TE	1-09	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-103	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S28	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S29	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S30	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S31	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S32	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S33	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S34	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
SPARE THERMOCOUPLE TEMPERATURE	TE-S35	TE	X-XX	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-104	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	90	E-PFBC-BBC4-311
FILTER TEMPERATURE	TE-3201	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
FILTER FLUE GAS TEMPERATURE	TE-3202	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLIDS FILTER TOP SKIN TEMPERATURE	TE-3203	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLIDS FILTER LOWER SKIN TEMPERATURE	TE-3204	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLIDS FILTER OUTLET TEMPERATURE	TE-3205	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
CO2 TO FILTER PULSE RECEIVER TEMPERATURE	TE-3211	TE	3-02	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID FUEL CYCLONE TEMPERATURE	TE-1601	TE	1-06	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312

FIELD CABLE SCHEDULE

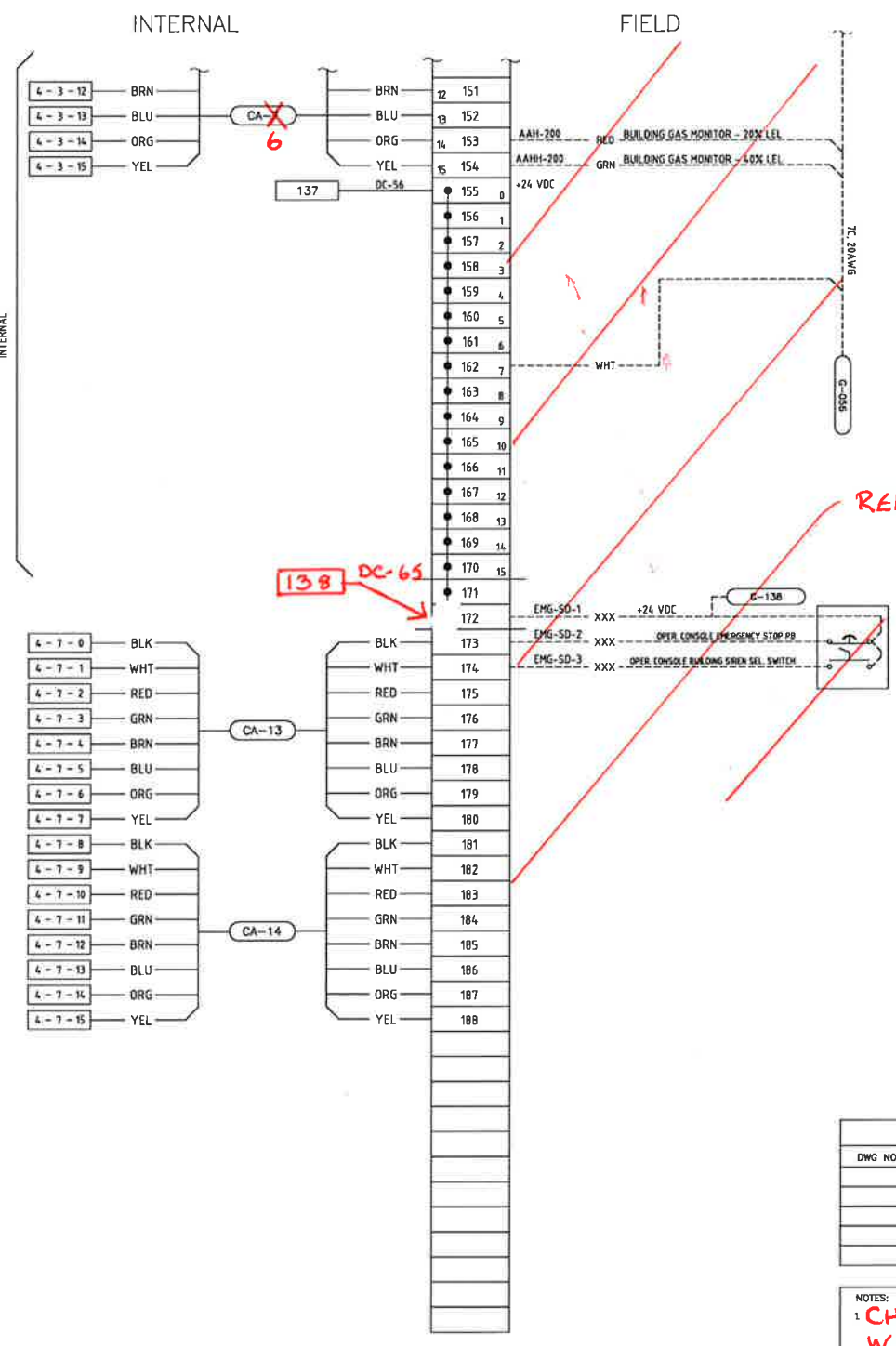
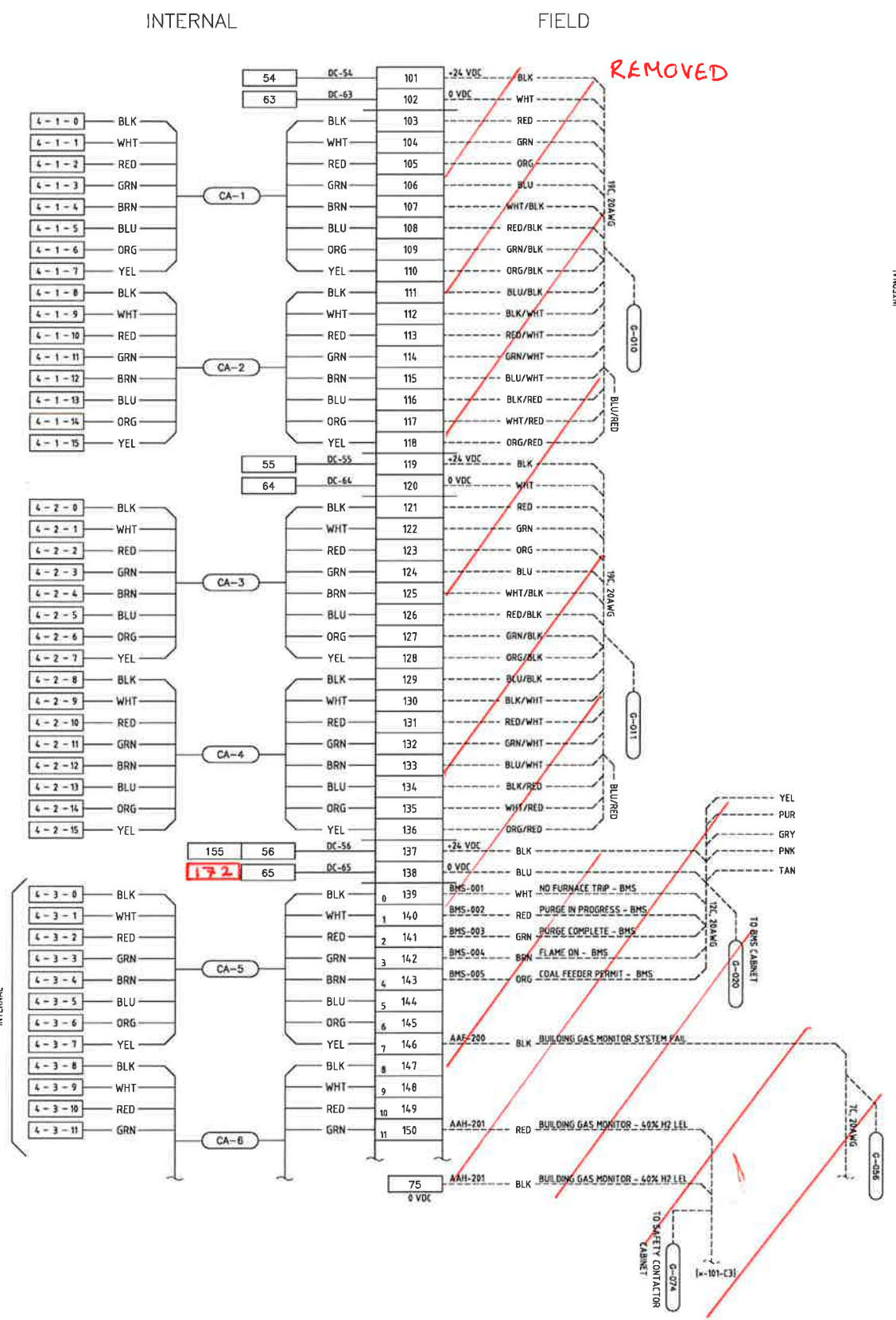
NRCAN - CANMET - OXY-PFBC

CLIENT / JOB INFORMATION

DRAWING #	E-PFBC-BCC4-514
WSP JOB #	151-07049-00
CLIENT NAME	NATURAL RESOURCES CANADA - CANMET - BELLS CORNERS COMPLEX
SITE (LOCATION)	OTTAWA, 1 HAANEL DRIVE
CLIENT JOB #	PFBC - P-002114.001
JOB DESCRIPTION	PRESSURIZED FLUIDIZED BED COMBUSTION FACILITY (OXY-PFBC)
REVISION	REV 0 - FOR CLIENT REVIEW
AUTHOR / DATE	B. YACH / OCT 1, 2015
CHECKED / DATE	D.RICHMOND/OCT 2, 2015

INSTRUMENT DESCRIPTION	TAG NO	I/O TYPE	P&ID BLOCK NO	P&ID SHEET NO	CTRL CAB TO JB CABLE	REFERENCE CABLE SCHEDULE	JUNCTION BOX	JB TERMINAL STRIP	TERMINAL NO.	FIELD CABLE	FIELD CABLE TYPE	LOCATION DRAWING	ESTIMATED LENGTH (FEET)	REFERENCE DWG
SOLID FUEL STORAGE VESSEL TEMPERATURE	TE-1603	TE	1-06	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-105	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID FUEL FEEDER VESSEL TEMPERATURE	TE-1604	TE	1-06	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID FUEL FEEDER TEMPERATURE	TE-1605	TE	1-06	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID SORBENT CYCLONE TEMPERATURE	TE-1701	TE	1-07	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID SORBENT STORAGE VESSEL TEMPERATURE	TE-1703	TE	1-07	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID SORBENT FEEDER VESSEL TEMPERATURE	TE-1704	TE	1-07	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
SOLID SORBENT FEEDER TEMPERATURE	TE-1705	TE	1-07	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
N2 SUPPLY HEADER TEMPERATURE	TE-2160	TE	2-01	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
FUEL / SORBENT MIXER FEEDER TEMPERATURE	TE-2501	TE	2-05	TE	N/A	E-PFBC-BBC4-513	PFBC-TJB-01	N/A	N/A	FB-106	8P, 18 AWG, KX, XLPE, AIA, 600 V	6-01 5	100	E-PFBC-BBC4-312
ESTIMATED TOTAL LENGTH														
1P, 18 AWG, KX, XLPE, AIA, 600 V (FEET) SEE CABLE SCHEDULE E-PFBC-BCC4-513	70													
8P, 18 AWG KX, XLPE, AIA, 600 V (FEET) SEE CABLE SCHEDULE E-PFBC-BCC4-513	2170													

RevNo	Revision note	Date	Signature	Checked
X	XX	XX	XX	



REFERENCE DRAWINGS		
DWG NO.	REV	DESCRIPTION

NOTES:
 1 CHANGES TO CONTROL CABINET WIRING.
 SEE DWG E-PFBC-BCC4-204

Canada
 Natural Resources Canada
 Ressources naturelles Canada
 CANMET Energy Technology Center
 Centre de la technologie de l'énergie de CANMET

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No /Reference
Designed by S. BETHUNE	Checked by S. BETHUNE	Approved by - date	File name 401519-049 Date Nov 8, 2002 Scale NONE
NRCan-CFF, OXY-PFBC			DIGITAL INPUT EXT. WIRNG D-401519-049 Edition 0 Sheet 1/1