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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DP-02	PKG-6000		JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

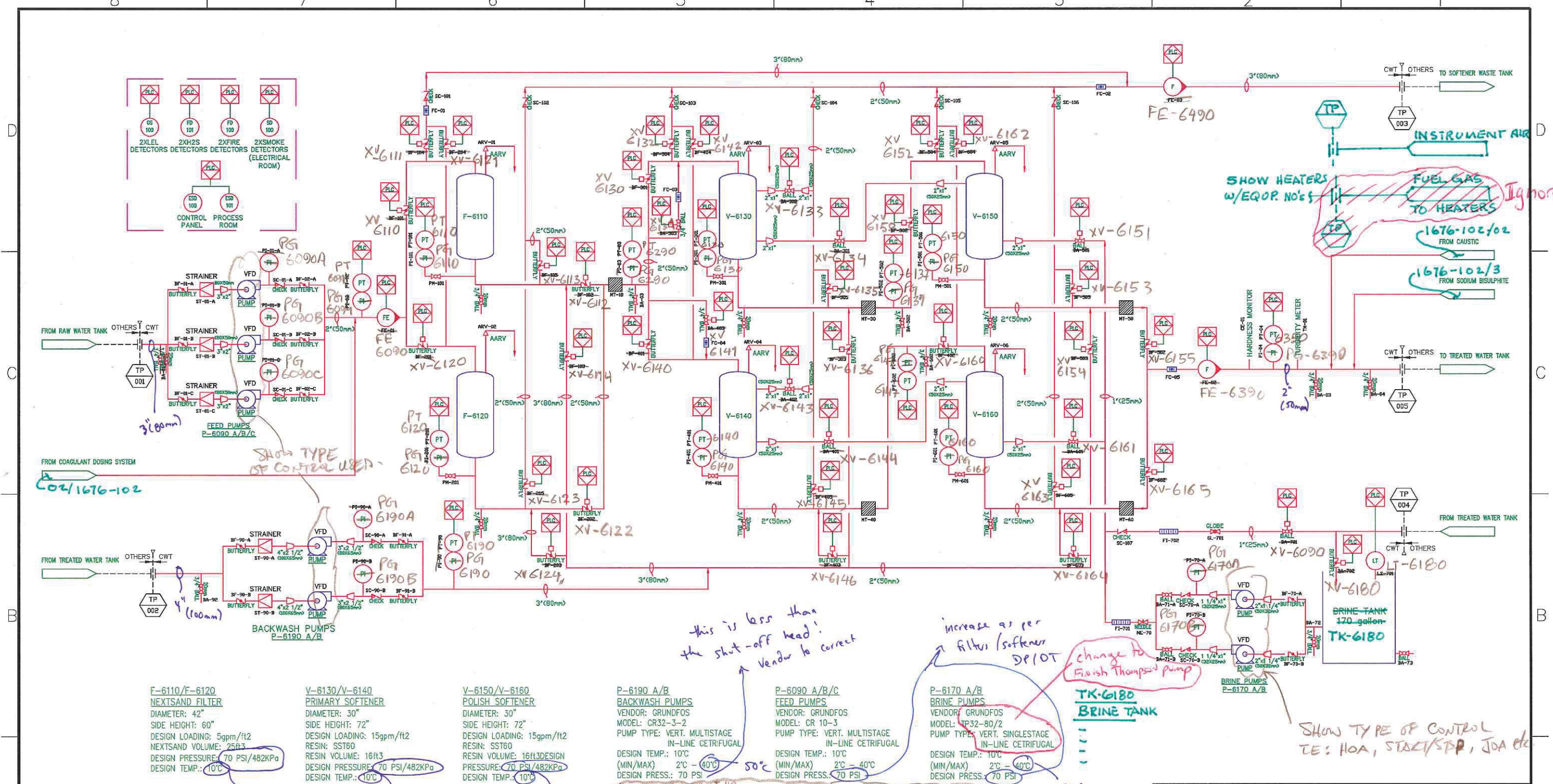
VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-101

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: Process & Instrumentation Diagram

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



DRAFT ONLY

F-6110/F-6120
NEXTSAND FILTER
DIAMETER: 42"
SIDE HEIGHT: 60"
DESIGN LOADING: 5gpm/ft2
NEXTSAND VOLUME: 25ft3
DESIGN PRESSURE: 70 PSI/482KPa
DESIGN TEMP.: 10°C

V-6130/V-6140
PRIMARY SOFTENER
DIAMETER: 30"
SIDE HEIGHT: 72"
DESIGN LOADING: 15gpm/ft2
RESIN: SST60
RESIN VOLUME: 16ft3
DESIGN PRESSURE: 70 PSI/482KPa
DESIGN TEMP.: 10°C

V-6150/V-6160
POLISH SOFTENER
DIAMETER: 30"
SIDE HEIGHT: 72"
DESIGN LOADING: 15gpm/ft2
RESIN: SST60
RESIN VOLUME: 16ft3
DESIGN PRESSURE: 70 PSI/482KPa
DESIGN TEMP.: 10°C

P-6190 A/B
BACKWASH PUMPS
VENDOR: GRUNDFOS
MODEL: CR32-3-2
PUMP TYPE: VERT. MULTISTAGE
IN-LINE CETRIFUGAL
DESIGN TEMP.: 10°C
(MIN/MAX) 2°C - 40°C
DESIGN PRESS.: 70 PSI
DRIVER: 2 MOTOR # HP
RATING

P-6090 A/B/C
FEED PUMPS
VENDOR: GRUNDFOS
MODEL: CR 10-3
PUMP TYPE: VERT. MULTISTAGE
IN-LINE CETRIFUGAL
DESIGN TEMP.: 10°C
(MIN/MAX) 2°C - 40°C
DESIGN PRESS.: 70 PSI

P-6170 A/B
BRINE PUMPS
VENDOR: GRUNDFOS
MODEL: TP32-80/2
PUMP TYPE: VERT. SINGLESTAGE
IN-LINE CETRIFUGAL
DESIGN TEMP.: 10°C
(MIN/MAX) 2°C - 40°C
DESIGN PRESS.: 70 PSI

TK-6180
BRINE TANK
170-gallon

SHOW TYPE OF CONTROL
TE: HOA, START/STOP, JDA etc

need to be increased
as per P-6190A/B shut-off head.

this is less than
the shut-off head!
Vendor to correct

increase as per
filter/softener
DP/OT

change to
Finish Thompson pump

PROVIDE DRIVER DATA SUCH AS MOTOR, MOTOR VOLTAGE, & HP RATING.

NO.	DATE	REVISIONS	BY	CHK'D
5	12.05.21	Sample Valves Added		

See email for recommendation

DRN	DATE
JL	12.02.09
APPR	DATE
AB	12.03.19
SCALE	NTS

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**CANADIAN WATER TECHNOLOGIES**

VISTA MURPHY CADOTTE -1780
PROCESS & INSTRUMENTATION DIAGRAM
WATER TREATMENT PACKAGE PKG-6000

DWG. NO.	1676 - 101	REV	-
FILE NO.	SHEET 1 OF 2		



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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DP02	PKG-6000		JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-102

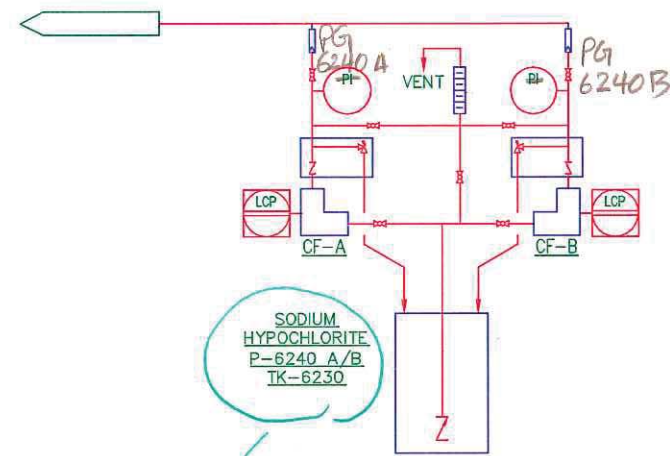
VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: Process & Instrumentation Diagram

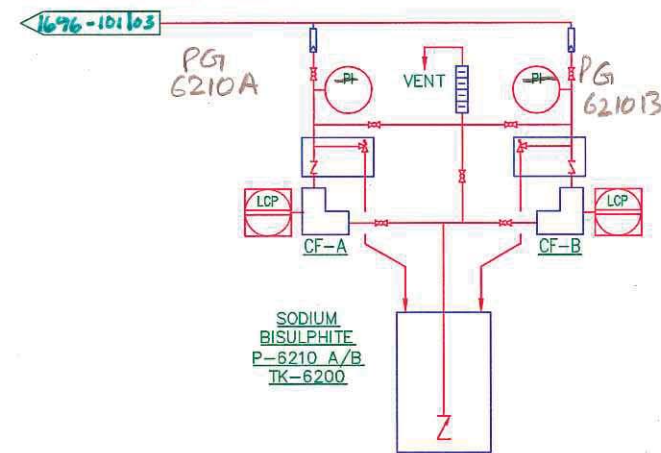
VENDOR
TRANSMITTAL
NUMBER: 120605Trans09

8 7 6 5 4 3 2 1

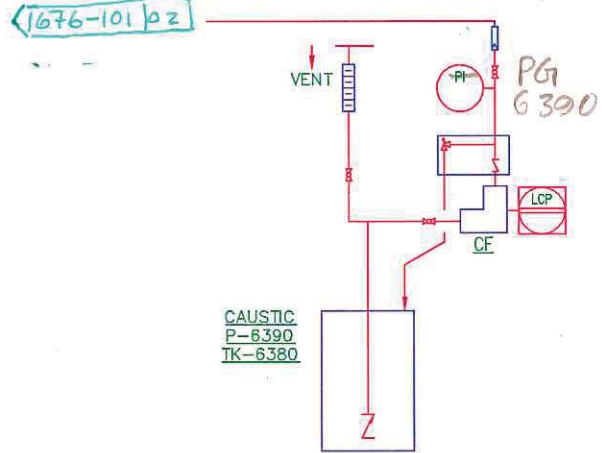
TO INLET OF RAW WATER TANK



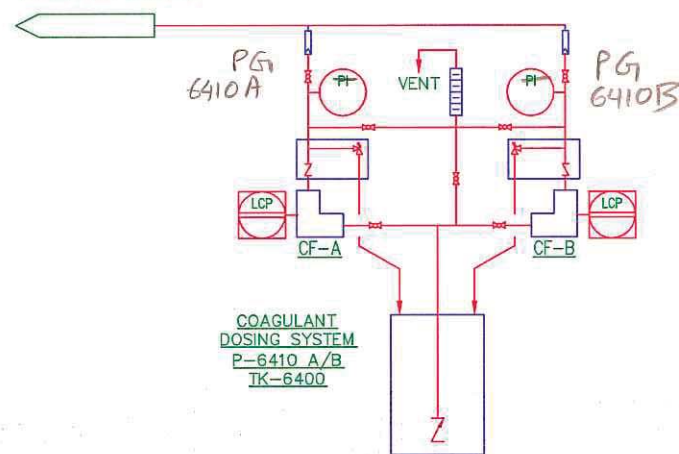
TO TREATED WATER OUTLET STREAM



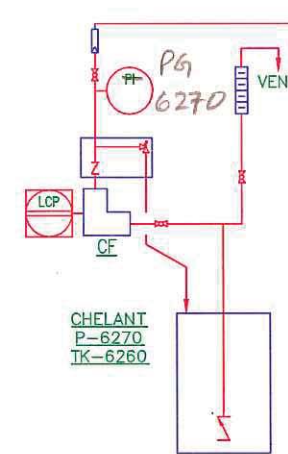
TO TREATED WATER OUTLET STREAM



TO FEED PUMP DISCHARGE



TO LP CHARGE PUMP SUCTION



P-6240 A/B
SODIUM HYDROCHLORIDE
TK-6230
SODIUM HYDROCHLORIDE TANK
CF-A/B
?
TYPICAL

DRAFT ONLY

ALSO PROVIDE DRIVER DATA
SUCH AS: MOTOR TAE, MOTOR VOLTAGE & MOTOR HP RATING.
ALSO SHOW TYPE OF CONTROL FOR MOTORS.



CANADIAN WATER TECHNOLOGIES

VISTA MURPHY CADOTTE -1780
PROCESS & INSTRUMENTATION DIAGRAM
WATER TREATMENT PACKAGE PKG-6000

NO.	DATE	REVISIONS	BY	CHK'D

DRN	JL	DATE	12.02.09
APPR	AB	DATE	12.03.19
SCALE	NTS		
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DWG. NO.	1676 - 102	REV	-
FILE NO.		SHEET	2 OF 2

8 7 6 5 4 3 2 1



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SDR CODE DM01	EQUIPMENT TAG PKG-6000	REVIEWED BY 	DATE JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

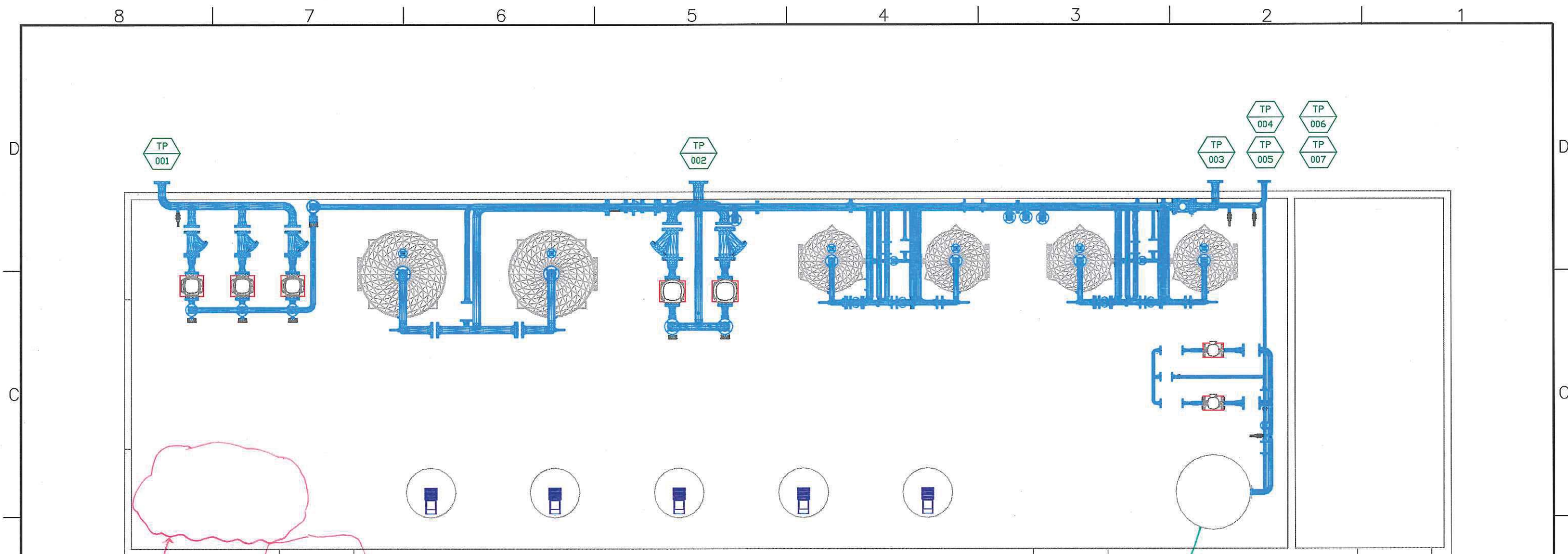
VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-201

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: General Assembly Water Treatment Package PKG-6000

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



TANK DIAMETER LARGER THAN SHOWN ON DWG. 1676-201 (Ø 24'0")

Relocate Brine System (tank and pumps) Here

Does this opening NEED to shift over to allow some room for Brine system?

PLAN VIEW

TIE-IN POINT	CONNECTION	DESCRIPTION	ELEVATION
TP-001	3"-150# RF	FROM RAW WATER TANK	0'-7"
TP-002	4"-150# RF	FROM TREATED WATER TANK	0'-7"
TP-003	3"-150# RF	TO SOFTENER WASTE TANK	6'-5"
TP-004	1"-150# RF	FROM TREATED WATER TANK	2'-8.5"
TP-005	2"-150# RF	TO FROM TREATED WATER TANK	3'-5.75"
TP-006	-	ELECTRICAL FEED	8'-6"
TP-007	-	INSTRUMENT AIR	7'-0"
TP-008	HOLD	FUEL GAS	



CANADIAN WATER TECHNOLOGIES

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-	12.04.19	ISSUED FOR APPROVAL	JL	

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DRN	DATE
JL	12.04.19
APPR	DATE
SCALE	NTS

VISTA MURPHY CADOTTE -1780
GENERAL ASSEMBLY
WATER TREATMENT PACKAGE PKG-6000

DWG. NO.	DM01-004-1676-201	REV	-
FILE NO.		SHEET 1 OF 5	



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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM-01	Pkg-6000		JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-201-PL

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: Proposed Layout

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



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DM01	PKG-6000		JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

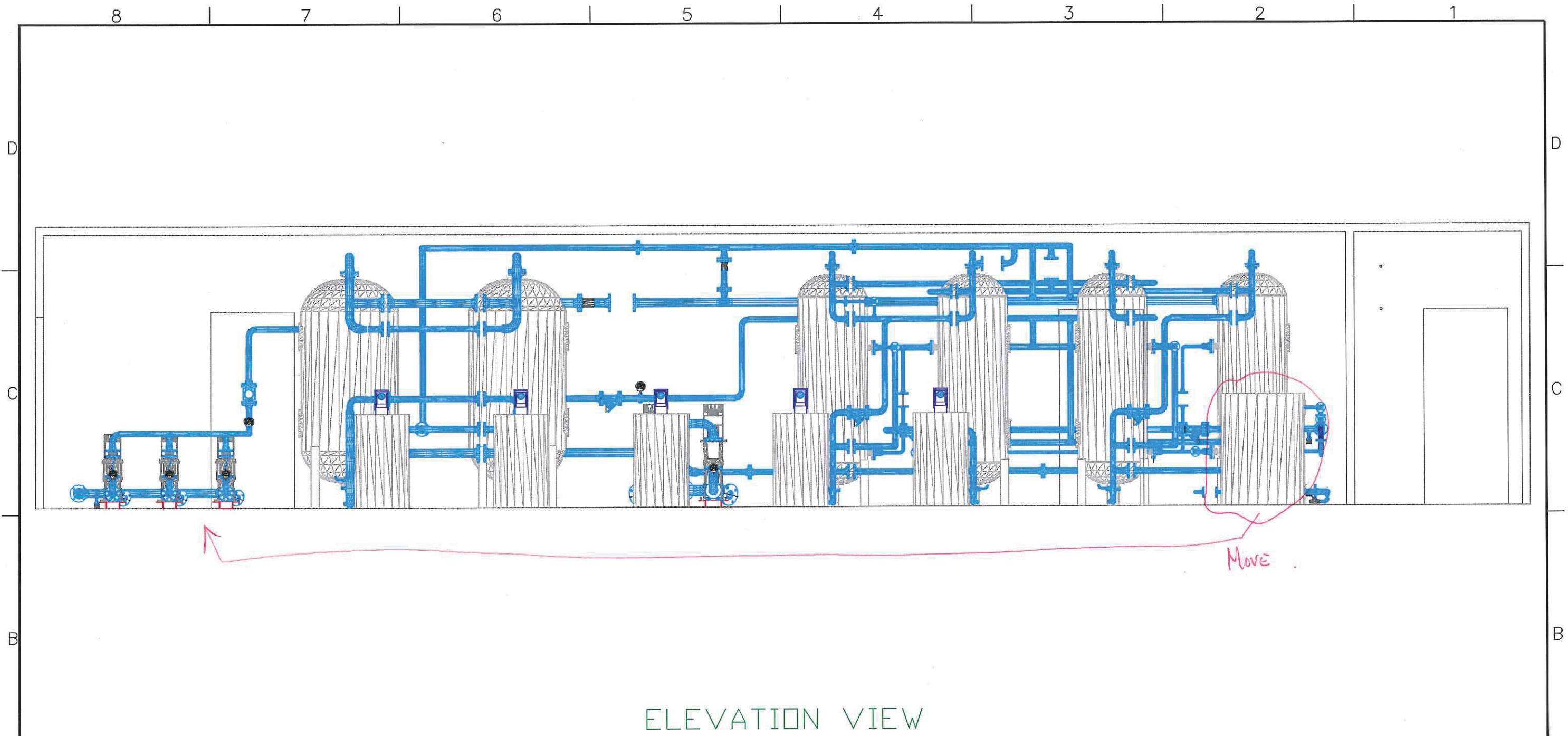
VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-202


VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: General Assembly Water Treatment Package PKG-6000

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



ELEVATION VIEW



CANADIAN WATER TECHNOLOGIES

VISTA MURPHY CADOTTE -1780
GENERAL ASSEMBLY
WATER TREATMENT PACKAGE PKG-6000

DWG. NO.	DM01-006-1676-202	REV	-
FILE NO.	SHEET 2 OF 5		

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SCALE	



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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM01	PKG-6000		2012-06-26

PROJECT NAME: Murphy Cadotte / 1780

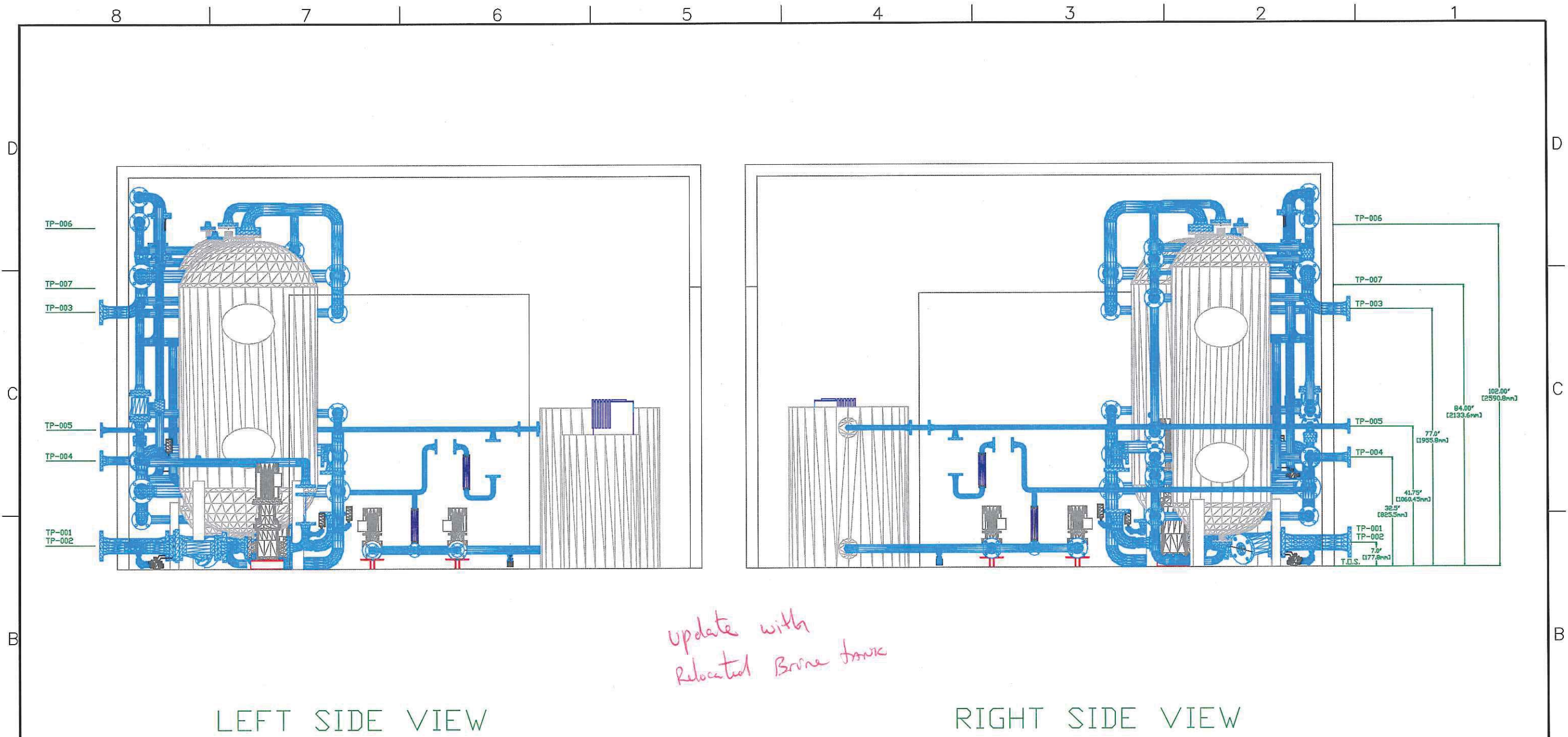
VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-203

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: General Assembly Water Treatment Package PKG-6000

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



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-	12.04.19	ISSUED FOR APPROVAL	JL	

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DRN	DATE
JL	12.04.19
APPR	DATE
SCALE	NTS

VISTA MURPHY CADOTTE -1780
GENERAL ASSEMBLY
WATER TREATMENT PACKAGE PKG-6000

DWG. NO.	DM01-005-1676-203	REV	-
FILE NO.	SHEET 3 OF 5		



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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM01	PKG-6000		JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-204

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: General Assembly Water Treatment Package PKG-6000

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09

8 7 6 5 4 3 2 1

D

D

TP-006 x 578",y 0",z 102"
[x 14681.2mm,y 0mm,z 2590.8mm]

TP-007 x 578",y 0",z 84"
[x 14681.2mm,y 0mm,z 2133.6mm]

TP-003 x 528.25",y 5",z 77"
[x 13417.55mm,y 127.0mm,z 1955.8mm]

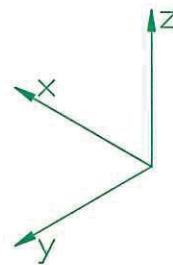
TP-005 x 552.0",y 5",z 41.75"
[x 14020.8mm,y 127.0mm,z 1060.45mm]

TP-004 x 552.0",y 5",z 32.5"
[x 14020.8mm,y 127.0mm,z 825.5mm]

update to New Brine tank
location

TP-002 x 278.5",y 5",z 7"
[x 7073.9mm,y 127.0mm,z 177.8mm]

TP-001 x 18.5",y 5",z 7"
[x 469.9mm,y 127.0mm,z 177.8mm]



NOTE:

ELEVATIONS TAKEN FROM TOP
OF SKID FLOOR.

NW ISOMETRIC VIEW



CANADIAN WATER TECHNOLOGIES

VISTA MURPHY CADOTTE -1780
GENERAL ASSEMBLY
WATER TREATMENT PACKAGE PKG-6000

DWG. NO.

DM01-003-1676-204

REV

FILE NO.

SHEET 4 OF 5

NO.	DATE	REVISIONS	BY	CHK'D
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DRN JL DATE 12.04.19
APPR DATE
SCALE NTS

8 7 6 5 4 3 2 1

A



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SDR CODE DM01	EQUIPMENT TAG PKG-6000	REVIEWED BY 	DATE JUN 26 2012

PROJECT NAME: Murphy Cadotte / 1780

VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-205

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: General Assembly Water Treatment Package PKG-6000

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09



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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DP02	PK67-6000		JUN 23 2012

PROJECT NAME: Murphy Cadotte / 1780

VENDOR NAME: Canadian Water Technologies / 1780-005

DOCUMENT
NUMBER: 1676-801

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: Process & Instrumentation Diagram Legend

VENDOR
TRANSMITTAL
NUMBER: 120605Trans09

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

D


D


ABBREVIATIONS


VALVE SYMBOLS


INTRUMENT SYMBOLS


LT LEVEL TRASMITTER
LCP LOCAL CONTROL PANEL
PI PRESSURE INDICATOR
PLC PROGRAMMABLE LOCAL
 CONTROLLER
PT PRESSURE TRANSMITTER
VFD VARIABLE FREQUENCY
 DRIVE


 AUTOMATIC AIR
 RELEASE VALVE


 BALL VALVE


 BALL VALVE
 PISTON ACTUATED


 CHECK VALVE


 NEEDLE VALVE


 NEEDLE VALVE
 MANUAL HAND WHEEL


 PRESSURE
 SAFETY VALVE


 BUTTERFLY VALVE


 BUTTERFLY VALVE
 PISTON ACTUATED


 RESIN TRAP


 STRAINER

 FLOW CONTROL
 ORIFICE

 ROTAMETER

 INJECTION
 QUILL

 DCS LOGIC SYSTEM
 CROSS REFERENCE

 FRONT PANEL MOUNTED
 (LOCAL CONTROL PANEL)


C

C

B

B

ISSUED FOR INFORMATION ONLY

**CANADIAN WATER TECHNOLOGIES**

VISTA MURPHY CADOTTE-1780
PROCESS & INSTRUMENTATION
DIAGRAM LEGEND

DWG. NO. 1676 - 801

FILE NO. SHEET 1 OF 1

NO.	DATE	REVISIONS	BY	CHK'D			DRN	DATE
							JL	12.03.16
							APPR	DATE
							AB	12.03.19
							SCALE	
							NTS	
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A

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DG 01	Pkg - 6000	<i>[Signature]</i>	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0001-1

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Drawing List

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

DRAWING LIST		
GROUP	DRAWING NUMBER	DESCRIPTION
A. COVER	0001	DRAWING LIST (1 OF 2)
	0002	STANDARD ELECTRICAL DETAIL (2 OF 2)
B. BUILDING LAYOUTS	0010	BUILDING LIGHTING LAYOUT (1 OF 6)
	0011	BUILDING EMERGENCY LIGHTING LAYOUT (2 OF 6)
	0012	BUILDING HEATER LAYOUT (3 OF 6)
	0013	BUILDING PANEL LOCATION LAYOUT (4 OF 6)
	0014	BUILDING INSTRUMENTATION LAYOUT (5 OF 6)
	0015	BUILDING HAZARDOUS LOCATION LAYOUT (6 OF 6)
C. POWER	0050	LOAD LIST (1 OF 8)
	0060 - 0062	CABLE SCHEDULE (2-4 OF 8)
	0070	PANEL SCHEDULE (5 OF 8)
	0080 - 0081	SINGLE LINE DIAGRAM (6-7 OF 8)
	0100	THREE LINE DIAGRAM (8 OF 8)
D. CONTROLS	1000 - 1050	CONTROL POWER WIRING DIAGRAM (1-2 OF 17)
	2000 - 2050	DISCRETE INPUT WIRING DIAGRAM (3-4 OF 17)
	3000 - 3050	DISCRETE OUTPUT WIRING DIAGRAM (5-6 OF 17)
	4000 - 4050	ANALOG INPUT WIRING DIAGRAM (7-9 OF 17)
	5000	ANALOG OUTPUT WIRING DIAGRAM (10 OF 17)
	6000	COMMUNICATIONS DIAGRAM (11 OF 17)
	6001	STANDARD VFD WIRING DIAGRAM (12 OF 17)
	7000	480VAC JUNCTION BOX WIRING DIAGRAM (13 OF 17)
	7001 - 7002	120VAC JUNCTION BOX WIRING DIAGRAM (14-15 OF 17)
	7003 - 7004	CONTROL JUNCTION BOX WIRING DIAGRAM (16-17 OF 17)
E. LAYOUT AND BILL OF MATERIAL	8000	CONTROL PANEL LAYOUT (1 OF 7)
	8001	MCC PANEL LAYOUT (2 OF 7)
	8002	CONTROL PANEL BILL OF MATERIAL (3 OF 7)
	8003	MCC PANEL BILL OF MATERIAL (4 OF 7)
	8004	480VAC JUNCTION BOX LAYOUT AND BILL OF MATERIAL (5 OF 7)
	8005	120VAC JUNCTION BOX LAYOUT AND BILL OF MATERIAL (6 OF 7)
	8006	CONTROL JUNCTION BOX LAYOUT AND BILL OF MATERIAL (7 OF 7)

NOTES:

1) ALL DRAWING
NUMBERS PRECEDED
BY:
4488-ELC-XXXX

(PV)

A	27/03/12	ISSUED FOR APPROVAL	PZC
REV	DATE	DESCRIPTION	BY

REVISIONS

APPROVED

NAME DATE

TRIQUEST
SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012

PROJECT
**MURPHY OIL
CADOTTE CSS
PILOT WTP**

DRAWING TITLE
**DRAWING
LIST**

DRAWING GROUP	A	SHEET	1 OF 2	REV
DRAWING NUMBER	4488-ELC-0001	DWG SIZE	11x17	A

CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DG 99	PKG - 6000		2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005






































































































































VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0002-2

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Standard Electrical Detail

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

PLOT PLAN & BUILDING LAYOUT SYMBOLS		CONTROL & MOTOR SCHEMATIC SYMBOLS		SINGLE LINE SYMBOLS	
 P-101 CONDUIT/CABLE NUMBER P-101 (TYP.) P-POWER C-CONTROL F-FIRE DETECTION D-DATA PE-POWER/CONTROL MC-MOTOR CONTROL MF-MAIN FEEDER LTG-LIGHTING TEL-TELEPHONE  U/G BELOW GRADE CONDUIT OR CABLE  A/G ABOVE GRADE CONDUIT OR CABLE  O/H OVERHEAD CONDUIT OR CABLE  CONDUIT DOWN  CONDUIT UP  CONDUIT "T" FITTING  CONDUIT CAP  CONDUIT FITTING  MAIN GROUND WIRE  GROUNDING JUMPER  GROUND CONNECTION, COMPRESSION TYPE  GROUND CONNECTION FOR EQUIPMENT OR BUILDING  THERMOSTAT  CEILING MOUNTED EXHAUST FAN  WALL MOUNTED EXHAUST FAN  CATHODYNE HEATER  BLOWER HEATER  BASEBOARD HEATER  SUBMERSIBLE HEATER  PULL STATION  BUZZER  "F" FOR FIRE ALARM BELL "T" FOR TELEPHONE BELL  "F" FOR FIRE ALARM HORN "T" FOR TELEPHONE HORN  FIRE SWITCH  DISTRIBUTION PANEL  TRANSFORMER  TRUCK OUT GND	 SWITCHES, WHERE: 1 - SINGLE-POLE SWITCH 2 - DOUBLE-POLE SWITCH 3 - THREE-WAY SWITCH 4 - FOUR-WAY SWITCH K - KEY-OPERATED SWITCH  SINGLE RECEPTACLE  DOUBLE RECEPTACLE  SPLIT RECEPTACLE  SPECIAL RECEPTACLE  TELEPHONE OUTLET  TELEPHONE JACK  DATA JACK  DATA/TELEPHONE JACK  ESD PUSHBUTTON  SMOKE DETECTOR (PHOTOELECTRIC)  SMOKE DETECTOR (IONIZATION)  SMOKE DETECTOR (COMBINATION)  ULTRA-VIOLET/INFRARED FLAME DETECTION HEAD  HORN  HORIZONTAL MOTOR  VERTICAL MOTOR  POWER DISCONNECT  WALL MOUNTED LIGHT FIXTURE TYPE A  PENDANT LIGHT FIXTURE TYPE A  FLOODLIGHT SHOWING AIMING DIRECTION, TYPE "X" FIRE/GAS ("F"/"G") DETECTOR HEAD  FLUORESCENT LIGHT FIXTURE TYPE A  EMERGENCY LIGHTING UNIT, DUAL HEAD (NO BATTERY PACK)  EMERGENCY LIGHTING UNIT, DUAL HEAD (WITH BATTERY PACK AND EXIT SIGN)  ROTATING BEACON (WALL MOUNT SHOWN) LETTER IN SYMBOL INDICATES COLOUR, IF REQUIRED.  STROBE BEACON (WALL MOUNT SHOWN) LETTER IN SYMBOL INDICATES COLOUR, IF REQUIRED.  MOVEMENT ACTIVATED CONTROL C/W SINGLE POLE, SINGLE THROW SWITCH  PHOTOELECTRIC CELL	 NORMALLY OPEN (N.O.) PUSHBUTTON  NORMALLY CLOSED (N.C.) PUSHBUTTON  ON - OFF SELECTOR SWITCH  HAND-OFF-AUTO SELECTOR SWITCH  LEVEL SWITCH  PRESSURE SWITCH  FLOW SWITCH  TEMPERATURE SWITCH  LIMIT SWITCH  VIBRATION SWITCH  TIMED CONTACT: TIMES OUT WHEN ENERGIZED  TIMED CONTACT: TIMES OUT WHEN DE-ENERGIZED  DIFFERENTIAL PRESSURE SWITCH  MANUAL MOTOR STARTING SWITCH  SHIELDED 2 CONDUCTOR CABLE WITH GROUND  FIELD WIRING  CONTROL PANEL WIRING  WIRING CONNECTED  WIRING NOT CONNECTED DEVICE PIN  RESISTANCE TEMPERATURE DETECTOR  FUSE  CIRCUIT BREAKER  CONTROL PANEL TERMINAL  TERMINAL C/W LOCATION NUMBER  INDICATING/ANNUNCIATOR LIGHT  TDOE TIME OPEN ON ENERGIZE  TODDE TIME DELAY ON DE-ENERGIZE  T.O. TIMED TO OPEN  T.C. TIMED TO CLOSE  INST. INSTANTANEOUS USED IN CONJUNCTION WITH COIL USED IN CONJUNCTION WITH CONTACTS	 RELAY COIL (C/W INPUT PIN No's)  TIME DELAY RELAY COIL (C/W INPUT PIN No's)  CONTACTOR COIL  ESD RELAY  CONTROL RELAY  NORMALLY OPEN CONTACT  NORMALLY CLOSED CONTACT  CONTACTOR CONTACTS (2 POLE CONTACTOR)  OVERLOAD CONTACTS  SOLENOID VALVE  DIODE WIRE COLOUR CODE GROUND/ EARTH - GREEN / BARE WIRE ANALOG COLOUR CODE POSITIVE - WHITE SHIELD - BARE NEGATIVE - BLACK 24VDC COLOUR CODE FOR CONTROL PANEL 24VDC POWER - BROWN (OPTIONAL BLUE) DC COM - BLUE (USE YELLOW IF POWER COLOUR IS BLUE) 120VAC 1 PHASE COLOUR CODE L1 - 120VAC POWER - RED L2 - BLACK NEUTRAL - WHITE 120/208 3 PHASE COLOUR CODE L1 - RED L2 - BLACK L3 - BLUE NEUTRAL - WHITE 277/480 3 PHASE COLOUR CODE L1 - ORANGE L2 - BROWN L3 - YELLOW NEUTRAL - WHITE 347/600 3 PHASE COLOUR CODE L1 - ORANGE L2 - BROWN L3 - YELLOW NEUTRAL - WHITE	 CIRCUIT BREAKER AT - AMP. TRIP AF - AMP. FRAME  DISCONNECT SWITCH  FUSIBLE DISCONNECT SWITCH  CURRENT TRANSFORMER INDICATING 3 COILS & RATIO 1200 TO 5 (240:1)  FUSE  CAPACITOR  CONTACTOR  MOTOR OVERLOAD PROTECTION  MALE & FEMALE DISCONNECTING DEVICE  3 PHASE GENERATOR  TRANSFORMER DELTA CONNECTED WYE CONNECTED WYE OR STAR WITH SOLID GROUNDED NEUTRAL WYE OR STAR WITH RESISTANCE GROUNDED NEUTRAL AND MAX. CURRENT INDICATED  EXHAUST FAN  MOTOR W/ INDICATED HORSEPOWER  LINE REACTOR  AUTOMATIC TRANSFER SWITCH  HEATER W/ POWER RATING  UV UNIT  VARIABLE FREQUENCY DRIVE  TRANSIENT VOLTAGE SURGE SUPPRESSOR  POWER DISTRIBUTION BLOCK  SPECIAL OUTLET  RESISTOR  BUS BAR WITH CONNECTION  THERMISTOR	EQUIPMENT ENCLOSURE OUTLINE  LIGHTNING ARRESTOR  POTENTIAL TRANSFORMER INDICATING 3 COILS  PILOT LIGHT G - GREEN R - RED A - AMBER B - BLUE W - WHITE  AMMETER  VOLTMETER  KILOWATT-HOUR METER  SHUNT TRIP  GROUND FAULT  POWER FACTOR METER  VOLTAGE RELAY  GROUND PROTECTIVE RELAY  WATT-HOUR DEMAND METER

NOTES:

REV	DATE	DESCRIPTION	BY
A	27/03/12	ISSUED FOR APPROVAL	PZC

REVISIONS

NAME	DATE

TRIQUEST
SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012
PROJECT	

MURPHY OIL
CADOTTE CSS
PILOT WTP

DRAWING TITLE

STANDARD
ELECTRICAL
DETAIL

DRAWING GROUP	A	SHEET	2	OF	2	REV
DRAWING NUMBER	4488-ELC-0002	DWG SIZE	11x17			A

CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE 02	PKG-6000	Demon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

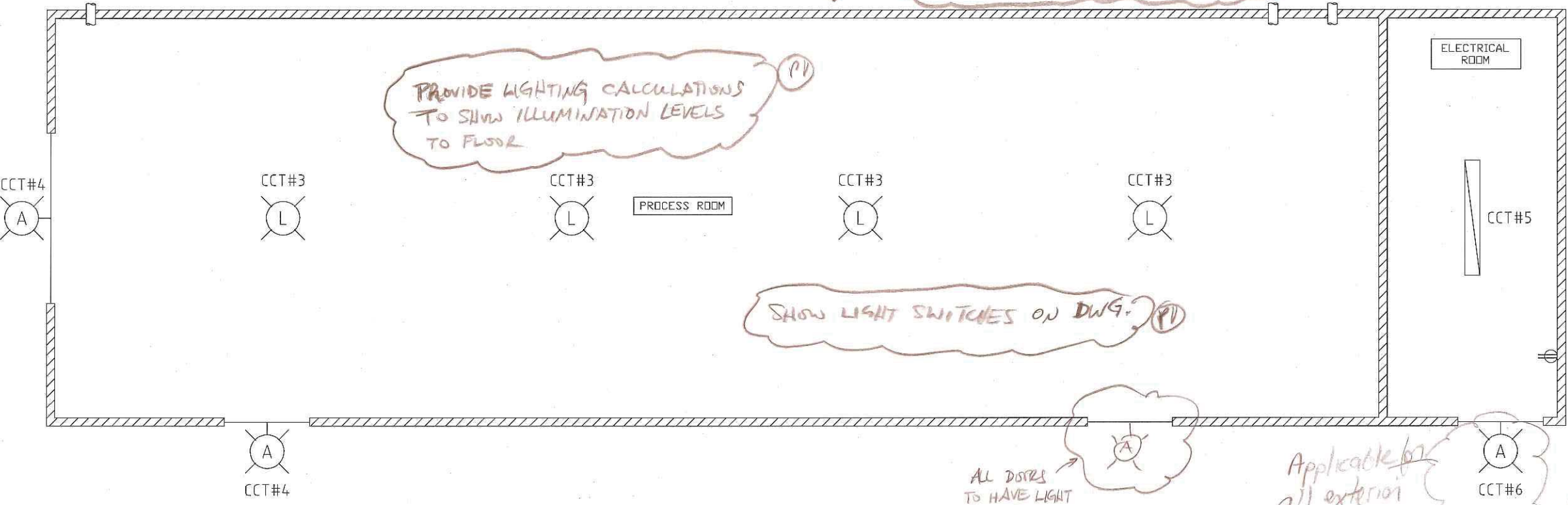
DOCUMENT
NUMBER: 4488-ELC-0010-1

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Building Lighting Layout

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

LIGHTING AND RECEPTACLE BILL OF MATERIAL				
ITEM#	DESCRIPTION	DIMENSIONS/SIZE	MANUFACTURER	PART#
1	NEMA 4 FLUORESCENT FIXTURE	-	AIMLITE	FW4-232-120-DE
2	PENDANT LIGHT, EXPLOSION PROOF	-		
3	70W HPS WALLPACK C/W LAMP	-	COOPER	TWS-70S-120-PE-LPI
4	15A DUPLEX RECEPTACLE	-	LEVITON	



ALL DRAWINGS MUST HAVE DIMENSIONS IN MM & PROPERLY SHOWN ON DWG & DWG TO BE TO SCALE.

MUST SHOW GROUNDING/BUNDLING ON LAYOUT DWG THROUGHOUT BUILDING & GND BUS BAR IN MCC ROOM. ALSO PROVIDE ISOLATED GND BUS FOR PLC & INSTRUMENTS & OTHER SENSITIVE ELECTRONIC EQUIPMENT.

Vendor to supply exterior fixtures. Power & control will be from B-1100 mcc Building.

NOTES:

unable to locate cut sheet for this part #

photocell is not required. Fixtures will be controlled by contractor panel in B-1100 mcc Building.

VENDOR TO INDICATE THIS IN A NOTE ON THIS DWG.

A	27/03/12	ISSUED FOR APPROVAL	PZC		
REV	DATE	DESCRIPTION	BY		
REVISIONS					
APPROVED					
NAME		DATE			
TRIQUEST SERVICES LTD					
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS					
BAY 11 3716 56AVE S.E. CALGARY, AB T2C-2B5					
SCALE	NTS				
DESIGNED	PZC				
DRAWN	PZC				
CHECKED	LT				
DATE	MARCH, 2012				
PROJECT	MURPHY OIL CADOTTE CSS PILOT WTP				
DRAWING TITLE	BUILDING LIGHTING LAYOUT				
DRAWING GROUP	B	SHEET	1 OF 6		
DRAWING NUMBER	4488-ELC-0010	DWG SIZE	11x17		
		REV	A		

CODE SHEET

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A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE02	PKG-6000	D Lemon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0011-2

VENDOR
REVISION: A

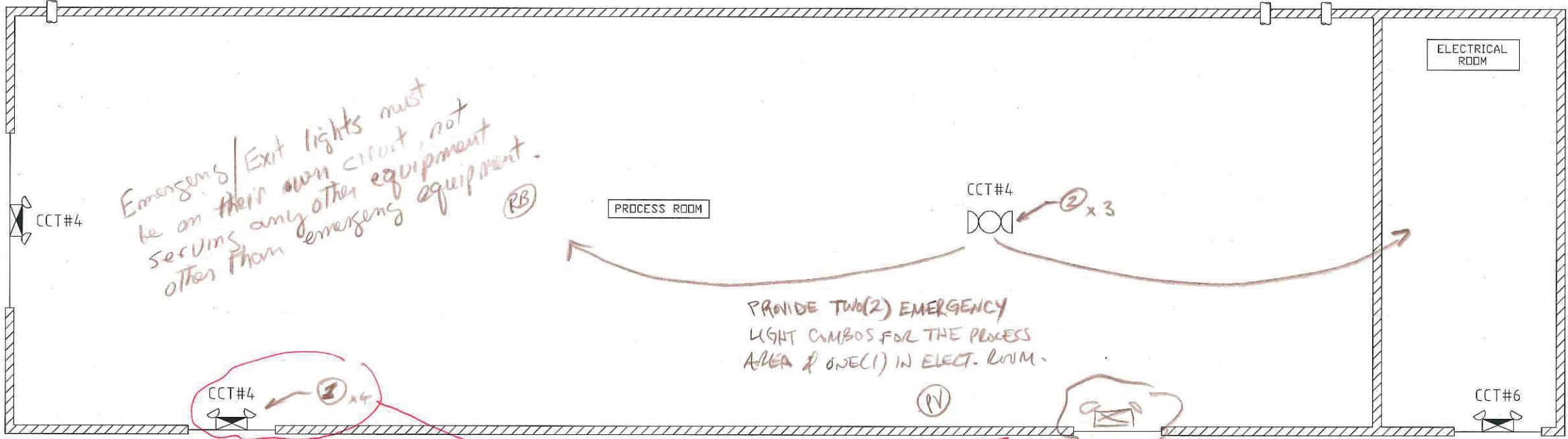
DOCUMENT
DESCRIPTION: Building Emergency Lighting Layout

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

EMERGENCY LIGHTING BILL OF MATERIAL				
ITEM#	DESCRIPTION	DIMENSIONS/SIZE	MANUFACTURER	PART#
1	EXIT SIGN, PLASTIC COMBO UNIT, EXPLOSION PROOF	-	LUMACELL	5LGRA12M10W3
2	EMERGENCY LIGHT W/ TWO HEADS, EXPLOSION PROOF	-		

provide with
battery backup
minimum.

Complete B.O.M.
not a classified
fixture.



Emergencies/Exit lights must
be on their own circuit, not
serving any other equipment
other than emergency equipment.

PROVIDE TWO(2) EMERGENCY
LIGHT COMBOS FOR THE PROCESS
AREA & ONE(1) IN ELECT. ROOM.

EACH DOOR MUST HAVE
EXIT SIGN TO CODE

This opening NOT AN EXIT (EMERGENCY SHOWER)

ALL DWG'S MUST HAVE DIMENSIONS IN MM
& APPLIED TO DWG & DWG TO BE TO SCALE.

NOTES:

LEGEND:

Ⓢ ITEM NUMBER

REV	DATE	DESCRIPTION	BY
A	27/03/12	ISSUED FOR APPROVAL	PZC

APPROVED
NAME
DATE

TRIQUEST
SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012

PROJECT
**MURPHY OIL
CADOTTE CSS
PILOT WTP**

DRAWING TITLE
**BUILDING
EMERGENCY LIGHTING
LAYOUT**

DRAWING GROUP	B	SHEET	2 OF 6	REV
DRAWING NUMBER	4488-ELC-0011	DWG SIZE	11x17	A



CODE SHEET

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE 02	PKG-6000	D Lemon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

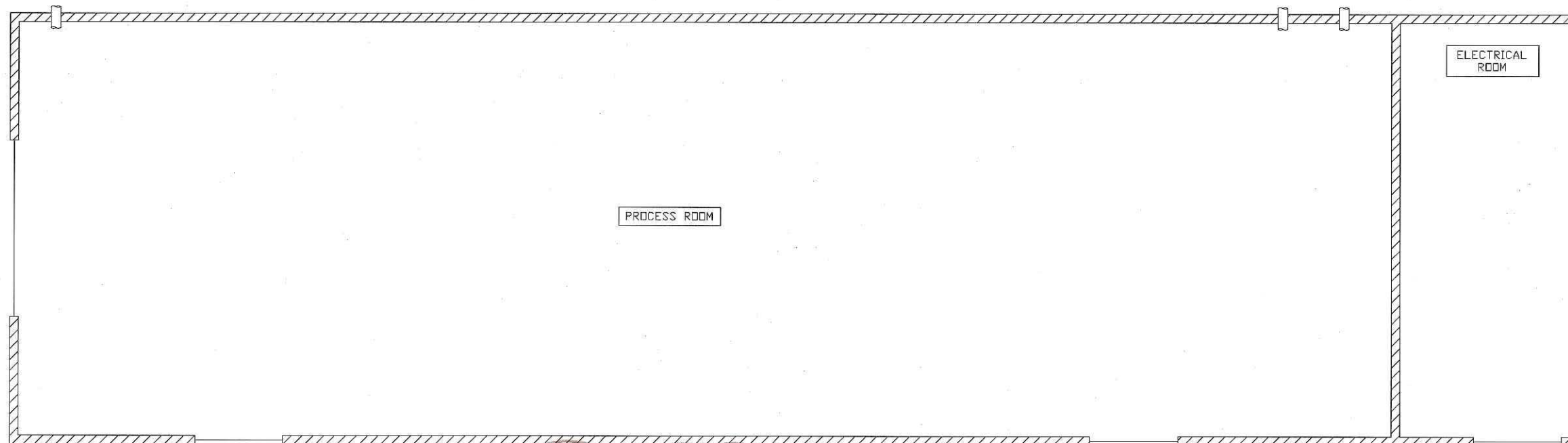
VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0012-3

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Building Fan and Heater Layout

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05



PROVIDE FAN & HEATER LOCATIONS & BOM

(P1)

ALL DWG'S MUST HAVE DIMENSIONS IN MM &
PROPERLY SAID ON DWG & DWG TO BE TO SCALE

(P1)

Drawing requires completion

(P3)

NOTES:

REV	DATE	DESCRIPTION	BY
A	27/03/12	ISSUED FOR APPROVAL	PZC

APPROVED	
NAME	DATE

TRIQUEST
SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012

PROJECT
**MURPHY OIL
CADOTTE CSS
PILOT WTP**

DRAWING TITLE
**BUILDING
FAN AND HEATER
LAYOUT**

DRAWING GROUP	B	SHEET	3 OF 6	REV
DRAWING NUMBER	4488-ELC-0012	DWG SIZE	11x17	A



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/ documents.		
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D	Not required for review. Received for information.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE02	PLCQ-6000	D. Lemon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0013-4

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Building Panel Location Layout

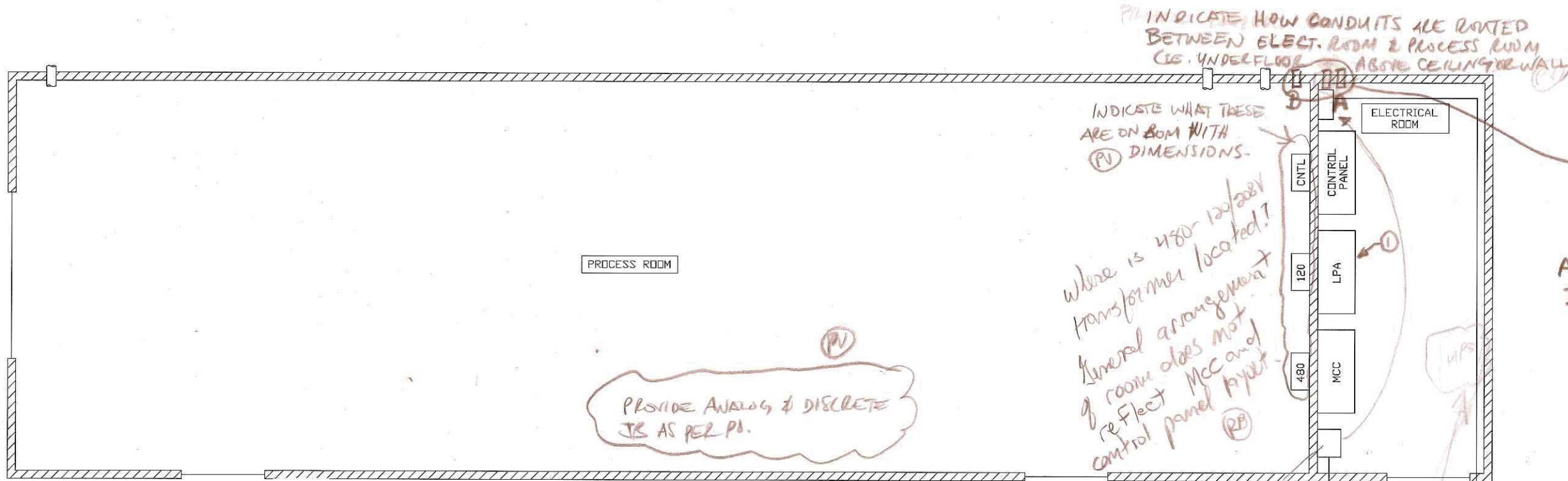
VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

LIGHTING PANEL BILL OF MATERIAL				
ITEM#.	DESCRIPTION	DIMENSIONS/SIZE	MANUFACTURER	PART#
1	PANELBOARD INTERIOR 30CCT	-	SQUARE D	SQD NQ430L1
-	TUB	-	SQUARE D	SQD MH32
-	GROUND BAR KIT	-	SQUARE D	SQD PK18GTA
-	PANELBOARD COVER/TRIM	-	SQUARE D	SQD NC32S
-	100A BOLT ON BREAKER	-	SQUARE D	SQD QOB3100
-	40A 3 POLE BOLT ON BREAKER	-	SQUARE D	SQD QOB340
-	20A 3 POLE BOLT ON BREAKER	-	SQUARE D	SQD QOB320
-	15A 3 POLE BOLT ON BREAKER	-	SQUARE D	SQD QOB315
-	15A 1 POLE BOLT ON BREAKER	-	SQUARE D	SQD QOB115
-	15A 1 POLE GFI BOLT ON BREAKER	-	SQUARE D	SQD QOB115GFI
-	15A 1 POLE EPD BOLT ON BREAKER	-	SQUARE D	SQD QOB115EPD

VENDOR TO COMPLETE.
(PV)

NOTES:
1. CONDUITS BETWEEN
PROCESS ROOM &
ELECT. ROOM ARE
ROUTED

PROVIDE BOM, DIMENSIONS, ETC
OF OTHER EQUIPMENT SHOWN
ON DWG.
(PV)



PROVIDE ANALOG & DISCRETE
I/O AS PER PI.
(PV)

PROVIDE THREE
CONDUIT SLEEVES
THROUGH WALL FOR
CUSTOMER @ 1625mm A.F.F.
A 1- 3" sleeve c/w bushings
B 1- 2.5" sleeve c/w bushings

ALL DWG'S MUST HAVE DIMENSION IN MM
& PROPERLY SHOWN ON DWG & DWG TO BE
TO SCALE
(PV)

Please + possible to
relocate to other
end of wall?
(RB)

WHERE IS THE
UPPER PART OF THE
UNIT? IS IT
PANEL MOUNTED
OR WALL MOUNTED
OR FLOOR MOUNTED
OR CEILING MOUNTED
OR OUTDOOR MOUNTED
OR UNDER FLOOR MOUNTED
OR UNDER CEILING MOUNTED
OR UNDER WALL MOUNTED
OR UNDER DOOR MOUNTED
OR UNDER WINDOW MOUNTED
OR UNDER ROOF MOUNTED
OR UNDER GROUND MOUNTED
OR UNDER WATER MOUNTED
OR UNDER AIR MOUNTED
OR UNDER SOIL MOUNTED
OR UNDER ROCK MOUNTED
OR UNDER SAND MOUNTED
OR UNDER GRAVEL MOUNTED
OR UNDER ASPHALT MOUNTED
OR UNDER CONCRETE MOUNTED
OR UNDER BRICK MOUNTED
OR UNDER STONE MOUNTED
OR UNDER MORTAR MOUNTED
OR UNDER PLASTER MOUNTED
OR UNDER GYPSUM MOUNTED
OR UNDER CEMENT MOUNTED
OR UNDER SLAG MOUNTED
OR UNDER FLY ASH MOUNTED
OR UNDER BOTTOM ASH MOUNTED
OR UNDER COAL MOUNTED
OR UNDER LIGNITE MOUNTED
OR UNDER PEAT MOUNTED
OR UNDER TORF MOUNTED
OR UNDER HAY MOUNTED
OR UNDER STRAW MOUNTED
OR UNDER WOOD MOUNTED
OR UNDER LEAF MOUNTED
OR UNDER BARK MOUNTED
OR UNDER TWIG MOUNTED
OR UNDER BRUSH MOUNTED
OR UNDER CLIPPING MOUNTED
OR UNDER MANURE MOUNTED
OR UNDER SLURRY MOUNTED
OR UNDER SLAG MOUNTED
OR UNDER FLY ASH MOUNTED
OR UNDER BOTTOM ASH MOUNTED
OR UNDER COAL MOUNTED
OR UNDER LIGNITE MOUNTED
OR UNDER PEAT MOUNTED
OR UNDER TORF MOUNTED
OR UNDER HAY MOUNTED
OR UNDER STRAW MOUNTED
OR UNDER WOOD MOUNTED
OR UNDER LEAF MOUNTED
OR UNDER BARK MOUNTED
OR UNDER TWIG MOUNTED
OR UNDER BRUSH MOUNTED
OR UNDER CLIPPING MOUNTED
OR UNDER MANURE MOUNTED
OR UNDER SLURRY MOUNTED

A	27/03/12	ISSUED FOR APPROVAL	PZC
REV	DATE	DESCRIPTION	BY
REVISIONS			
APPROVED			
NAME	DATE		
TRIQUEST SERVICES LTD			
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS			
BAY 11 3716 56AVE S.E. CALGARY, AB T2C-2B5			
SCALE	NTS		
DESIGNED	PZC		
DRAWN	PZC		
CHECKED	LT		
DATE	MARCH, 2012		
PROJECT	MURPHY OIL CADOTTE CSS PILOT WTP		
DRAWING TITLE			
BUILDING PANEL LOCATION LAYOUT			
DRAWING GROUP	B	SHEET	4 OF 6
DRAWING NUMBER	4488-ELC-0013	DWG SIZE	11x17
REV	A		

CODE SHEET

VISTA Projects Limited VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE 02	PKG-6000	D Lemon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0014-5

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Building Instrumentation Layout

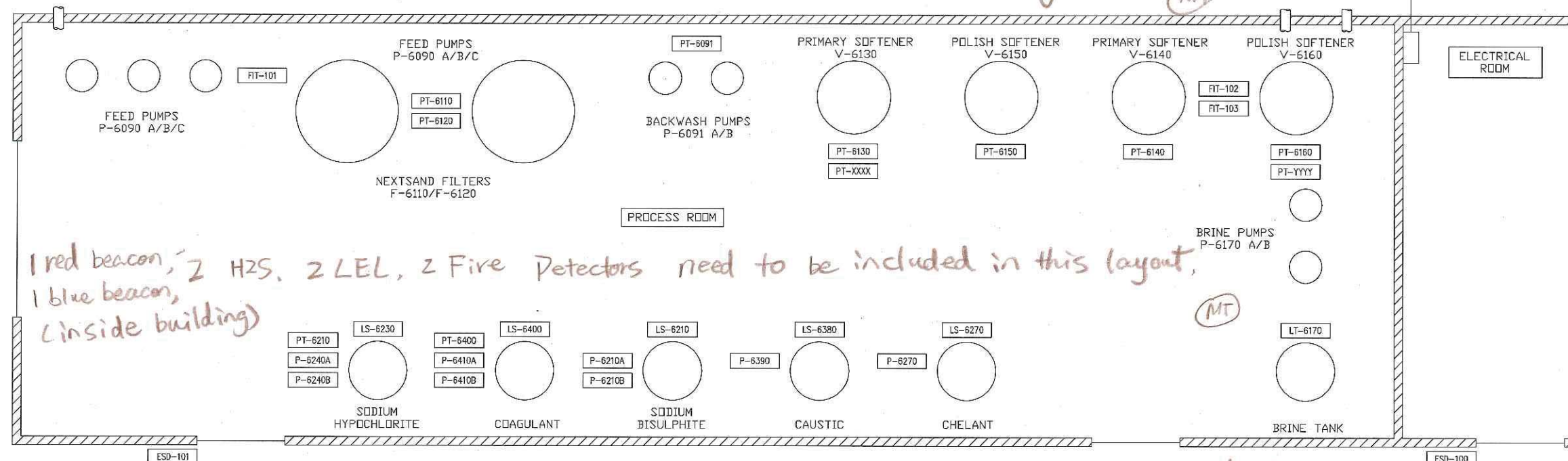
VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

Locate water drain tank pump
P-6280

ALL INSTRUMENTS TO
MEET CLASS 1, ZONE 2
GROUP 1A, 1B AREA
CLASS

SOL-101	SOL-106	SOL-111	SOL-116	SOL-121	SOL-126	SOL-131	SOL-136
SOL-102	SOL-107	SOL-112	SOL-117	SOL-122	SOL-127	SOL-132	SOL-137
SOL-103	SOL-108	SOL-113	SOL-118	SOL-123	SOL-128	SOL-133	SOL-138
SOL-104	SOL-109	SOL-114	SOL-119	SOL-124	SOL-129	SOL-134	SOL-139
SOL-105	SOL-110	SOL-115	SOL-120	SOL-125	SOL-130	SOL-135	SOL-140

please provide BOM for all the instruments listed in this layout.



1 red beacon, 2 H2S, 2 LEL, 2 Fire Detectors need to be included in this layout,
1 blue beacon,
(inside building)

The following I/O points will be hard wired between main plant PLC and this building.

- ① Remote ESD from main plant PLC to this building PLC
- ② permissive signal (plant ready) from main plant PLC to this building PLC
- ③ Water treatment package trip alarm from this building to main plant PLC
- ④ 2 H₂S, LEL, Fire Detectors wired to main plant PLC. (preferred 24VDC instead of 120VAC)
- ⑤ 1 red beacon, 1 blue beacon wired to main plant PLC (24VDC)
- ⑥ exhaust fan start/stop contact wired to main plant PLC
- ⑦ Outside ESD push buttons wired to main plant PLC

MT

A	27/03/12	ISSUED FOR APPROVAL	P
REV	DATE	DESCRIPTION	

APPROVED	
NAME	DATE

T R I Q U E S
S E R V I C E S L T D
ELECTRICAL CONTRACTING - AUTOMATION & CONTROL

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012

DATE	MARCH, 2012
------	-------------

PROJECT

MURPHY OIL
CADOTTE CSS
PILOT WTP

DRAWING TITLE

BUILDING
INSTRUMENTATION
LAYOUT

DRAWING GROUP	B	SHEET	5	OF	6	REVISION	
DRAWING NUMBER	4488-F1 C-0014		DWG SIZE		11x17		

CODE SHEET

VISTA Projects Limited			
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE09	PKG-6000	DeLeon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0015-6

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Building Hazardous Location Layout

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

AREA CLASSIFICATION LEGEND			
UNCLASSIFIED AREA			
CLASS 1 DIV 0			
CLASS 1 DIV 1			
CLASS 1 DIV 2			

MUST BE ZONE CLASSIFIED,
& SHOW GR IIA & TEMP. TRB (AS METHANE GAS IS PRESENT IN SOURCE WATER WELL)

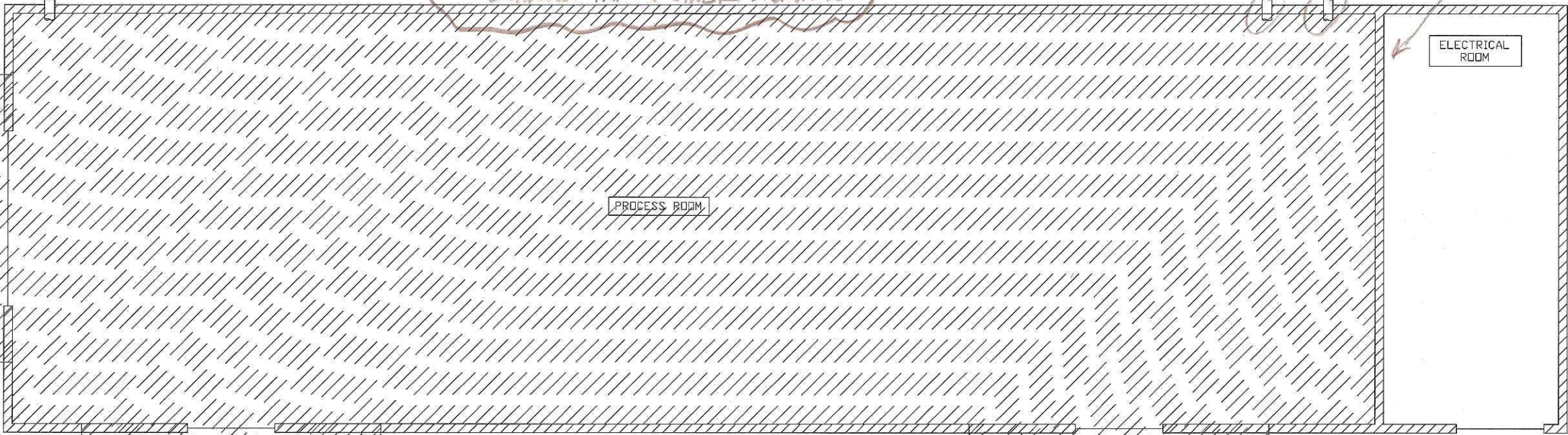
ALL ELEC. DWG'S TO BE
STAMPED & SIGNED BY VENDOR
ELEC. ENGINEER AS PER PD.

NOTES:
1. SEALED WALL Joints
PROVIDED TO MAINTAIN
A CLEAR DEMARCATION
OF CLASSIFIED AND
NON CLASSIFIED
AREAS.

WHAT ABOUT LEAKAGE THROUGH EXHAUST
FANS? SHOW LEAKAGES THROUGH
EXHAUST FANS & OTHER OPENINGS

LEAKAGE
OPENINGS?

NOTE 1-



MUST
PROVIDE A
FUGITIVE EMISSION
STUDY AS PER
API 505 AS STATED
IN PD.

THIS DWG IS NOT PER
API 505 STANDARD.
AREA CLASS DWG MUST
COMPLY TO API 505
STANDARD AS A MINIMUM.

A	27/03/12	ISSUED FOR APPROVAL	PZC
REV	DATE	DESCRIPTION	BY

REVISIONS	
APPROVED	
NAME	DATE

TRIQUEST
SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012

PROJECT
MURPHY OIL
CADOTTE CSS
PILOT WTP

DRAWING TITLE
BUILDING
HAZARDOUS LOCATION
LAYOUT

DRAWING GROUP	B	SHEET	6 OF 6	REV
DRAWING NUMBER	4488-ELC-0015	DWG SIZE	11x17	A



CODE SHEET

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE 99	7KG-6000	D. Leman	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0050-1

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Load List

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

T R I Q U E S T
S E R V I C E S L T D.

NO EFFICIENCY FOR MOTORS?

Electrical Load List

VALUES TO BE CALCULATED WITH
PF & EFF ON MOTORS AS PER
FUNDAMENTAL PRINCIPLES.

A	27/03/12	ISSUED FOR APPROVAL			PZC
REV	DATE	DESCRIPTION			BY
REVISONS					
APPROVED					
NAME			DATE		
T R I Q U E S T S E R V I C E S L T D ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS					
BAY 11 3716 56AVE S.E. CALGARY, AB T2C-2B5					
SCALE		NTS			
DESIGNED		PZC			
DRAWN		PZC			
CHECKED		LT			
DATE		MARCH, 2012			
PROJECT					
MURPHY OIL CADOTTE CSS PILOT WTP					
DRAWING TITLE					
LOAD LIST					
DRAWING GROUP		C	SHEET		1 OF 8
DRAWING NUMBER		4488-ELC-0050	DWG SIZE		11x17
					A

CODE SHEET

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE06	PKG 6600	D. Kenon	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0060-2

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Cable Schedule

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

Project Description
Project No.

MURPHY OIL CADOTTE CSS PILOT WTP
4488

Revision
1
2
3
4

Date
2-Apr-12

By
PZC

CONDUIT AND CABLE DESIGNATION

MF - MAIN FEEDER
PC - POWER / CONTROL
P - POWER
LTG - LIGHTING
TEL - TELEPHONE
C - CONTROL
MC - MOTOR CONTROL
F - FIRE DETECTION
D - DATA

CONDUIT TYPES

AL - ALUMINUM
TRAY - CABLE TRAY
FX - FLEXIBLE
EMT - ELECT METALUCTUBING
PVC - PVC CONDUIT

CABLE TYPES

RW90
NMD90
TECK90
TW, TEW

NOTES:

CABLE NUMBERS	CIRCUIT		FROM	VIA	TO	CABLE TYPE	CONDUIT SIZE / TYPE	CONDUCTORS							COMMENTS
	LOAD	VOLTS						No.	SIZE	INSUL	INSUL	VOLTS	SPARE	LENGTH (IN MT)	
MAIN BUILDING															
MF-480V-DIS		480	MAIN		POWER DISTRIBUTION BLOCK		TBA	TBA	TBA						
MF-DIS-XFMR		480	POWER DISTRIBUTION BLOCK	TRAY	XFMR-1	TECK 90		4	#8				0		
MF-XFMR-LPA		208	XFMR-1	TRAY	LOADCENTER PANEL	TECK 90		4	#1				0		
MF-LPA-CP		120	LOADCENTER PANEL	TRAY	CONTROL PANEL	TECK 90		3	#10				0		
MF-JB-480-1		480	MCC	EMT	480VAC JUNCTION BOX		2" EMT	15	#6				0		
MF-JB-480-2		480	MCC	EMT	480VAC JUNCTION BOX		2" EMT	15	#6				3		
MF-JB-120-CP-1		120	LOADCENTER PANEL	EMT	120VAC JUNCTION BOX		1 1/2" EMT	20	#10				0		
MF-JB-120-CP-2		120	LOADCENTER PANEL	EMT	120VAC JUNCTION BOX		1" EMT	10	#10				8		
MF-JB-120-120		120	CONTROL PANEL	EMT	120VAC JUNCTION BOX		1 1/2" EMT	20	#12				6		
MF-JB-CNTL-DI			CONTROL PANEL	EMT	24VDC/CONTROL JUNCTION BOX		1" EMT	20	#14				6		
MF-JB-CNTL-DO			CONTROL PANEL	EMT	24VDC/CONTROL JUNCTION BOX		1" EMT	20	#14				4		
MF-JB-CNTL-AI			CONTROL PANEL	EMT	24VDC/CONTROL JUNCTION BOX		2" EMT	15PAIR	#18				0		
MC-P-6090A		480	480VAC JUNCTION BOX	TRAY	RAW WATER FEED PUMP A	TECK 90		3	#12				0		
MC-P-6090B		480	480VAC JUNCTION BOX	TRAY	RAW WATER FEED PUMP B	TECK 90		3	#12				0		
MC-P-6090C		480	480VAC JUNCTION BOX	TRAY	RAW WATER FEED PUMP C	TECK 90		3	#12				0		
MC-P-6091A		480	480VAC JUNCTION BOX	TRAY	BACKWASH PUMP A	TECK 90		3	#12				0		
MC-P-6091B		480	480VAC JUNCTION BOX	TRAY	BACKWASH PUMP B	TECK 90		3	#12				0		
MC-P-6170A		480	480VAC JUNCTION BOX	TRAY	BRINE TANK PUMP A	TECK 90		3	#12				0		
MC-P-6170B		480	480VAC JUNCTION BOX	TRAY	BRINE TANK PUMP B	TECK 90		3	#12				0		
P-HTR-A		480	480VAC JUNCTION BOX	TRAY	CLASSIFIED AREA BUILDING HEATER A	TECK 90		3	#12				0		
P-HTR-B		480	480VAC JUNCTION BOX	TRAY	CLASSIFIED AREA BUILDING HEATER A	TECK 90		3	#12				0		
P-EF-A		120	LOADCENTER PANEL	TRAY	CLASSIFIED AREA EXHAUST FAN A	TECK 90		2	#14				0		
P-INT-LIGHT-ER		120	LOADCENTER PANEL	TRAY	INTERIOR LIGHTS IN ELECTRICAL ROOM	TECK 90		2	#14				0		
P-E/E-LIGHT-ER		120	LOADCENTER PANEL	TRAY	EXTERIOR/EMERGENCY LIGHTS IN ELECTRICAL ROOM	TECK 90		2	#14				0		
P-INT-LIGHT-JB		120	LOADCENTER PANEL	TRAY	120VAC JUNCTION BOX	TECK 90		2	#14				0		
P-E/E-LIGHT-JB		120	LOADCENTER PANEL	TRAY	120VAC JUNCTION BOX	TECK 90		2	#14				0		
P-INT-LIGHT		120	120VAC JUNCTION BOX	TRAY	INTERIOR LIGHTS	TECK 90		2	#14				0		
P-E/E-LIGHT		120	120VAC JUNCTION BOX	TRAY	EXTERIOR/EMERGENCY LIGHTS	TECK 90		2	#14				0		
P-P-6210A		120	LOADCENTER PANEL	TRAY	SODIUM BISULPHITE CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6210B		120	LOADCENTER PANEL	TRAY	SODIUM BISULPHITE CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6240A		120	LOADCENTER PANEL	TRAY	SODIUM HYPOCHLORITE CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6240A		120	LOADCENTER PANEL	TRAY	SODIUM HYPOCHLORITE CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6270		120	LOADCENTER PANEL	TRAY	PHOSP HATE TANK CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6390		120	LOADCENTER PANEL	TRAY	CAUSTIC TANK CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6410A		120	LOADCENTER PANEL	TRAY	COASULANT DOSING SYSTEM CHEMICAL PUMP	TECK 90		2	#14				0		
P-P-6410A		120	LOADCENTER PANEL	TRAY	COASULANT DOSING SYSTEM CHEMICAL PUMP	TECK 90		2	#14				0		

B6000-C1 24VDC PNL-PLC-150 (MCC BLDG) TRAY B6000 CONTROL PANEL
B6000-C2 24VDC 11 CNTL JUNCTION BOX
B6000-A1 4-20mA CNTL JUNCTION BOX
B6000-P1 480 MCC-700 (MCC BLDG) TRAY FUSEABLE DISCONNECT
B6000-P2 120 DP-400 (MCC BLDG) TRAY CONTROL PANEL

TECK 90 150 #14 XLPE/TECK 600V 7
TECK 90 25 #14 XLPE/TECK 600V 7
TECK 90 6 TRI #16 XLPE 300V 2
TECK 90 30 4/0 1800V 480 0
TECK 90 30

(BY CUSTOMER), VENDOR TO PROVIDE 2" CONDUIT
(BY CUSTOMER) FEED THROUGH HS INTO MCC ROOM
(BY CUSTOMER), VENDOR TO PROVIDE 3" CONDUIT FEED THROUGH HS INTO MCC ROOM

Vendor to provide 2.5" sleeve through wall into process room for access to J.B.s.

APPROVED
NAME DATE
TRIQUEST SERVICES LTD
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012
PROJECT	MURPHY OIL CADOTTE CSS PILOT WTP

DRAWING TITLE
MURPHY OIL CADOTTE CSS PILOT WTP
DRAWING GROUP C SHEET 2 OF 8 REV
DRAWING NUMBER 4488-ELC-0060 DWG SIZE 11x17 A

Project Description Project No.			MURPHY OIL CADOTTE CSS PILOT WTP 4488			CONDUIT AND CABLE DESIGNATION MF - MAIN FEEDER C - CONTROL PC - POWER / CONTROL MC - MOTOR CONTROL P - POWER F - FIRE DETECTION LTG - LIGHTING D - DATA TEL - TELEPHONE				CONDUIT TYPES AL - ALUMINUM TRAY - CABLE TRAY FX - FLEXIBLE EMT - ELECT METALLIC TUBING PVC - PVC CONDUIT				CABLE TYPES RW90 NMD90 TECK90 TW, TEW		NOTES:
Revision	Date	By														
1	2-Apr-12	PZC														
2																
3																
4																

CABLE NUMBERS	CIRCUIT		FROM	VIA	TO	CABLE TYPE	CONDUIT SIZE / TYPE	CONDUCTORS						COMMENTS
	LOAD	VOLTS						No.	SIZE	INSUL.	INSUL.	VOLTS	SPARE	
MAIN BUILDING														
P-ESD-100		120	120VAC JUNCTION BOX	TRAY	CONTROL PANELESD	TECK 90		2	#14				0	
P-ESD-101		120	120VAC JUNCTION BOX	TRAY	PROCESS ROOM ESD	TECK 90		2	#14				0	
P-GS-100		120	120VAC JUNCTION BOX	TRAY	LEL DETECTOR	TECK 90		2	#14				0	
P-GS-101		120	120VAC JUNCTION BOX	TRAY	H2S DETECTOR	TECK 90		2	#14				0	
P-FD-100		120	120VAC JUNCTION BOX	TRAY	FIRE DETECTOR	TECK 90		2	#14				0	
P-SD-100		120	120VAC JUNCTION BOX	TRAY	ELECTRICAL ROOM SMOKE DETECTOR	TECK 90		2	#14				0	
P-FIT-101		120	120VAC JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		2	#14				0	
P-FIT-102		120	120VAC JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		2	#14				0	
P-FIT-103		120	120VAC JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		2	#14				0	
C-LS-6210			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM BISULPHITE TANK LEVEL SWITCH	TECK 90		2	#14				0	
C-LS-6230			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM HYPOCHLORITE TANK LEVEL SWITCH	TECK 90		2	#14				0	
C-LS-6270			24VDC/CONTROL JUNCTION BOX	TRAY	PHOSPHATE TANK LEVEL SWITCH	TECK 90		2	#14				0	
C-LS-6380			24VDC/CONTROL JUNCTION BOX	TRAY	CAUSTIC TANK LEVELSWITCH	TECK 90		2	#14				0	
C-LS-6400			24VDC/CONTROL JUNCTION BOX	TRAY	COASULANT DOSING SYSTEM TANK LEVEL SWITCH	TECK 90		2	#14				0	
C-FD-100			24VDC/CONTROL JUNCTION BOX	TRAY	FIRE DETECTOR	TECK 90		2	#14				0	
C-SD-100			24VDC/CONTROL JUNCTION BOX	TRAY	ELECTRICAL ROOM SMOKE DETECTOR	TECK 90		2	#14				0	
C-P-6210A			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM BISULPHITE CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6210B			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM BISULPHITE CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6240A			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM HYPOCHLORITE CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6240A			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM HYPOCHLORITE CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6270			24VDC/CONTROL JUNCTION BOX	TRAY	PHOSPHATE TANK CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6390			24VDC/CONTROL JUNCTION BOX	TRAY	CAUSTIC TANK CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6410A			24VDC/CONTROL JUNCTION BOX	TRAY	COASULANT DOSING SYSTEM CHEMICAL PUMP	TECK 90		2	#14				0	
C-P-6410A			24VDC/CONTROL JUNCTION BOX	TRAY	COASULANT DOSING SYSTEM CHEMICAL PUMP	TECK 90		2	#14				0	
C-FIT-101			24VDC/CONTROL JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		1PAIR	#18				0	
C-FIT-102			24VDC/CONTROL JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		1PAIR	#18				0	
C-FIT-103			24VDC/CONTROL JUNCTION BOX	TRAY	FLOW TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6091			24VDC/CONTROL JUNCTION BOX	TRAY	BACKWASH PUMP SYSTEM PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6110			24VDC/CONTROL JUNCTION BOX	TRAY	NEXTSAND FILTER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6120			24VDC/CONTROL JUNCTION BOX	TRAY	NEXTSAND FILTER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6130			24VDC/CONTROL JUNCTION BOX	TRAY	PRIMARY SOFTENER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6140			24VDC/CONTROL JUNCTION BOX	TRAY	PRIMARY SOFTENER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6150			24VDC/CONTROL JUNCTION BOX	TRAY	POLISH SOFTENER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6160			24VDC/CONTROL JUNCTION BOX	TRAY	POLISH SOFTENER PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6210			24VDC/CONTROL JUNCTION BOX	TRAY	SODIUM BISULPHITE PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-6400			24VDC/CONTROL JUNCTION BOX	TRAY	COASULANT DOSING SYSTEM PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-XXXX			24VDC/CONTROL JUNCTION BOX	TRAY	PRIMARY SOFTENER SYSTEM PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-PT-YYYY			24VDC/CONTROL JUNCTION BOX	TRAY	POLISH SOFTENER SYSTEM PRESSURE TRANSMITTER	TECK 90		1PAIR	#18				0	
C-LT-6170			24VDC/CONTROL JUNCTION BOX	TRAY	BRINE TANK LEVEL TRANSMITTER	TECK 90		1PAIR	#18				0	

</

CODE SHEET

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE06	PLG-6000	Dennis	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0062-4

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Cable Schedule

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

Revision	Date	By
1	2-Apr-12	PZC
2		
3		
4		

CONDUIT AND CABLE DESIGNATION

MF - MAIN FEEDER	C - CONTROL
PC - POWER / CONTROL	MC - MOTOR CONTROL
P - POWER	F - FIRE DETECTION
LTG - LIGHTING	D - DATA
TEL - TELEPHONE	

CONDUIT TYPES	CABLE TYPES
AL - ALUMINUM	RW90
TRAY - CABLE TRAY	NMD90
FX - FLEXIBLE	TECK90
EMT - ELECT METALLIC TUBING	TW, TEW
PVC - PVC CONDUIT	

NOTES:

CABLE NUMBERS	CIRCUIT		FROM	VIA	TO	CABLE TYPE	CONDUIT SIZE / TYPE	CONDUCTORS							COMMENTS
	LOAD	VOLTS						No.	SIZE	INSUL	INSUL	VOLTS	SPARE	LENGTH (IN MT)	
MAIN BUILDING															
C-SOL-101			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-102			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-103			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-104			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-105			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-106			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-107			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-108			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-109			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-110			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-111			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-112			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-113			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-114			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-115			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-116			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-117			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-118			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-119			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-120			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-121			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-122			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-123			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-124			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-125			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-126			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-127			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-128			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-129			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-130			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-131			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-132			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-133			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-134			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-135			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-136			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-137			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-138			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-139			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		
C-SOL-140			CONTROL PANEL	EMT	SOLENOID BANK		1" EMT	2	#14				0		

A	27/03/12	ISSUED FOR APPROVAL	P
REV	DATE	DESCRIPTION	B

REVISIONS	
APPROVED	
NAME	DATE

T R I Q U E S T
S E R V I C E S L T D
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS

BAY 11 3716 56AVE S.E.
CALGARY, AB T2C-2B5

SCALE	NTS
DESIGNED	PZC
DRAWN	PZC
CHECKED	LT
DATE	MARCH, 2012
PROJECT	

MURPHY OIL
CADOTTE CSS
PILOT WTP

DRAWING TITLE

CABLE
SCHEDULE

DRAWING GROUP	C	SHEET	4	OF	8	REV	
DRAWING NUMBER	4488-ELC-0062			DWG SIZE	11x17		A

CODE SHEET

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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DE04	PKG-6000	D. Lemaw	2012-04-30

PROJECT NAME: Murphy Oil Cadotte 1780-005

VENDOR NAME: Canadian Water Technologies

DOCUMENT
NUMBER: 4488-ELC-0070-5

VENDOR
REVISION: A

DOCUMENT
DESCRIPTION: Panel Schedule

VENDOR
TRANSMITTAL
NUMBER: 120418Trans05

Power Source:				LP-A				Location: Murphy Oil Cadotte CSS Pilot WTP				NOTES:
Feeder: 3P4W								Voltage: 120/208V 3 Phase				
Main Breaker: 125A				Mounting: Wall Mounted				POWERED BY CONTACTOR PANEL IN MLL BLDG				
Mains: 125A												
POWER SUPPLY BY CUSTOMER												
DESCRIPTION	kW	BKR	CCT	A	B	C	CCT	BKR	kW	DESCRIPTION		
CONTROL PANEL		15A	1	*			2	15A		EXHAUST FAN A		
INTERIOR LIGHTS		15A	3		*		4	15A		EXTERIOR / EMERGENCY LIGHTS		
INTERIOR LIGHTS ELECTRICAL ROOM		15A	5			*	6	15A		EXT/EMER LIGHTS ELECTRICAL ROOM		
P-6210A CHEMICAL PUMP		15A	7	*			8	15A		P-6210B CHEMICAL PUMP		
P-6240A CHEMICAL PUMP		15A	9		*		10	15A		P-6240B CHEMICAL PUMP		
P-6270 CHEMICAL PUMP		15A	11			*	12	15A		P-6390 CHEMICAL PUMP		
P-6410A CHEMICAL PUMP		15A	13	*			14	15A		P-6410B CHEMICAL PUMP		
SPARE		15A	15		*		16	15A		SPARE		
SPARE		15A	17			*	18	15A		SPARE		
			19	*			20					
			21		*		22					
			23			*	24					
			25	*			26					
			27		*		28					
			29			*	30					
			31	*			32					
			33		*		34					
			35			*	36					
			37	*			38					
			39		*		40					
			41			*	42					

SHOULD BE ON UPS POWER!

POWERED BY CONTACTOR PANEL IN MLL BLDG

PUT ON SEPARATE BLK.

A	27/03/12	ISSUED FOR APPROVAL	PZC
REV	DATE	DESCRIPTION	BY
REVISIONS			
APPROVED			
NAME		DATE	
T R I Q U E S T			
S E R V I C E S L T D			
ELECTRICAL CONTRACTING - AUTOMATION & CONTROLS			
BAY 11 3716 56AVE S.E.			
CALGARY, AB T2C-2B5			
SCALE	NTS		
DESIGNED	PZC		
DRAWN	PZC		
CHECKED	LT		
DATE	MARCH, 2012		
PROJECT	MURPHY OIL		
	CADOTTE CSS		
	PILOT WTP		
DRAWING TITLE	PANEL		
	SCHEDULE		
DRAWING GROUP	C	SHEET	5 OF 8
DRAWING NUMBER	4488-ELC-0070	DWG SIZE	11x17
		REV	A