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May 8, 2009

Via email and Xpresspost

Mr. Richard Dwyer
Licensing Administrator
Nunavut Water Board
PO Box 119
Gjoa Haven, NU X0B 1J0
Phone: (867) 360-6338

Dear Mr. Dwyer,

Re: Meadowbank Water License 2AM-MEA0815: Bulk Fuel Storage Tank Construction Report

Water License 2AM-MEA0815, Part B, Item 1, states, '*This Licence incorporates two previously issued Type B licences, 8BC-TEH0809 for the All Weather Private Access Road and 8BC-MEA0709 for the Baker Lake Marshalling Facility. To the extent that any reports, studies and plans pursuant to the Type B licences are not yet received or approved by the Board, the requirement(s) becomes part of this Licence.*'

In accordance with the above and as required by Type B License 8BC-TEH0809 Part E, Item 10, please find enclosed a copy of the document: *Meadowbank Fuel Storage Installations: Final Report Following the Construction*. Construction on the 5.6 m liters bulk fuel storage tank facility at the Meadowbank mine site was completed in January 2009.

Should you require any further information, please contact me directly at 819-759-3700 ext.814 or via email at stephane.robert@agnico-eagle.com.

Regards,

A handwritten signature in black ink, appearing to read "Stéphane Robert", with a long, sweeping horizontal line extending to the right.

Stéphane Robert
Environment Superintendent

Encl (1)



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

MEADOWBANK FUEL STORAGE INSTALLATIONS

**FINAL REPORT
FOLLOWING THE CONSTRUCTION**



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

MEADOWBANK FUEL STORAGE INSTALLATIONS

**FINAL REPORT
FOLLOWING THE CONSTRUCTION**

PREPARED BY :



Patrick Giard, P.Eng., CCE
Supervisor, Construction Department
AGNICO-EAGLE MINES LTD, *Meadowbank Division*



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

MEADOWBANK FUEL STORAGE INSTALLATIONS

**FINAL REPORT
FOLLOWING THE CONSTRUCTION**

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APPENDIX 1 : DRAWINGS

AS-BUILT : VD2259-MBD-001, VD2259-MBD-002, VD2259-MBD-003

REVISION 1 OF 17202-2000-46D6-2001 IFC DRAWING from SNC-LAVALIN
VENDOR DRAWING FROM CHAMCO INDUSTRIES LTD : CUP1014938-21

APPENDIX 2

SAFE FILL LEVEL FOR FUEL TANK 680-TK-042

DESCRIPTION OF THE MANDATE

Agnico-Eagle Mines has given a mandate to the undersigned in order to verify the compliance with applicable regulations of its fuel storage installations at the Meadowbank gold mining site, in Nunavut.

According to the terms of reference, the mandate consists summarily in the following activities.

- A. Review and compilation of the available documentation ;
- B. Collection of any information that may be missing ;
- C. Preparation of an *AS BUILT* version of the construction drawings ;
- D. Verifications to the storage capacity within the containment berms in regards to the applicable regulations.

A. DOCUMENTATION READILY AVAILABLE

HATCH - Vancouver Office

Only one (1) layout drawing showing the berm enclosure was issued from Hatch. No detailed design or cross-sections of containment berms was available prior to the construction phase. The original design of the fuel containment area is shown on revision 0B of drawing 325174-600-C-0135, which was issued **for information**.

NISHI-KHON / SNC-LAVALIN LTD - Vancouver Office

This firm was responsible for issuing the piping layout drawings and P&ID's for the Baker Lake fuel storage installations, which is a similar project located 100 km further South. During the construction and installation of piping for the Meadowbank bulk fuel storage tank, the *Process and Instrumentation Diagram* issued for construction was not readily available to the pipefitters.

GEM STEEL EDMONTON LTD

This vendor has submitted a set of drawings issued **for review**, consisting in three (3) structural drawings showing the details of a fuel tank of 5.6 million liters nominal capacity. The original design of this fuel tank is shown on revision A0 of drawings BL-2008-80-1, BL-2008-80-2, and BL-2008-80-3.

CHAMCO INDUSTRIES LTD

This vendor has submitted a set of preliminary drawings issued **for approval**, consisting in twenty-five (25) documents showing details of a fuel dispensing module. These documents have been reviewed by HATCH, and bear the following identification, which has been assigned by HATCH Document Control.

DRAWING NUMBER	H325174-M268-VD-0040	H325174-M268-VD-0041	H325174-M268-VD-0010
H325174-M268-VD-0011	H325174-M268-VD-0012	H325174-M268-VD-0013	H325174-M268-VD-0014
H325174-M268-VD-0015	H325174-M268-VD-0016	H325174-M268-VD-0017	H325174-M268-VD-0019
H325174-M268-VD-0020	H325174-M268-VD-0021	H325174-M268-VD-0029	H325174-M268-VD-0030
H325174-M268-VD-0031	H325174-M268-VD-0032	H325174-M268-VD-0033	H325174-M268-VD-0034
H325174-M268-VD-0035	H325174-M268-VD-0036	H325174-M268-VD-0037	H325174-M268-VD-0039

B. ADDITIONAL COLLECTION OF INFORMATION

HATCH - Vancouver Office

Role during construction phase : Design & Field Supervision during construction of berms.

Mr. Marlon Coakley and Jim Bonia, both of which were HATCH employees at the time, have supervised the construction of the fuel containment area. They have also hired a specialized crew from Saskatoon (Enviroline Service inc.) in October 2008 to install the HDPE membrane covering the berms. This HDPE membrane has since been covered with a layer of about 100 mm thickness of crushed stone.

NISHI-KHON / SNC-LAVALIN LTD - Vancouver Office

Role during construction phase : So far, I have never communicated with these people.

A research of all files provided by HATCH Document Control has permitted to find **Revision 0** of drawing 017202-2000-46D6-2001 from SNC-LAVALIN.

This document was not readily available to the construction team at the time when the crew from Mosher Engineering Ltd were installing the piping and commissioning the fuel dispensing module.

AGNICO-EAGLE MINES LTD, Meadowbank Surveying Team

Role during construction phase : Surveying of quantities & grades for berms, HDPE liner.

A surveying crew from AEM has monitored the quantities of granular materials and required berm elevations, as well as the installation of the HDPE membrane and grounding wire around the fuel tank. All of this work was done with the same specifications which were observed during the construction of the berms around the AEM bulk fuel storage tanks, which are located in Baker Lake.

GEM STEEL EDMONTON LTD

Role during construction phase : Fabrication and field assembly of the 5.6 M liters tank

A crew of ten (10) workers has started the construction of fuel tank 680-TK-042 on August 25, 2008 and the field erection was completed over a period of 16 days. Following this field work, a crew from ACUREN has proceeded to X-RAY testing of horizontal and vertical welds according to specifications described in the latest edition of API Standard 650. According to the report made by ACUREN, no repairs of defective welds were required, either on the tank shell or nozzles.

MOSHER ENGINEERING LTD

Role during construction phase : Welding of pipelines and support brackets between the 5.6 M liters tank and the fuel dispensing module.

In early November 2008, a crew of two (2) workers has welded the pipelines and installed the flanged connections and gate valves between fuel tank 680-TK-042 and the fuel dispensing module manufactured by CHAMCO INDUSTRIES LTD.

They have also installed check valves on the 100 mm diameter inlet and outlet nozzles on this tank, as well as a pressure relief valve set at 75 psi to bypass the check valve on the pipeline between the tank outlet and the fuel dispensing module. The grade of material that was used for this pipeline was A333 cold temperature rated steel.

CHAMCO INDUSTRIES LTD

Role during construction phase : Manufacturing of the fuel dispensing module.

This fuel dispensing module was manufactured in the summer of 2007 and sent to the Meadowbank site. No representatives of CHAMCO were present during the commissioning. Possibly due to vibrations during transport, there were many flanged connections that needed tightening, and it was found that this was not a turn-key installation. The air eliminator unit on the fuel tanker unloading area leaked fuel extensively during operation, as it was often locked in open position.

C. REVISION OF CONSTRUCTION DRAWINGS

AEM has hired STAVIBEL Engineering Services, a firm based in Val-d'Or, in order to complete the drawings that were used in producing this report.

Those four (4) drawings are enclosed in **Appendix 1** of this report.

Drawing VD2259-MDB-001 shows the general layout of the fuel tank 680-TK-042 and containment area. It has been compiled using surveying data collected by a crew from AEM. It also shows the location of pipelines, fuel dispensing module, and some three (3) additional fuel tanks.

Drawing VD2259-MDB-002 shows the cross-sections on both sides of the containment area. These cross-sections are derived from surfaces that were generated using the *Autocad Civil 3D* software, and are also based on information collected from AEM Construction Supervisors. This drawing file was also used to verify containment volumes, as it is described further in section D.

Drawing VD2259-MDB-003 is an as-built version of Vendor drawing BL-2008-80-1 which has been updated to reflect nozzle orientations that were noted during a site visit. No changes were noted except those made to the nozzle schedule.

The enclosed **Revision 1** of drawing 017202-2000-46D6-2001 from SNC-LAVALIN is also an as-built drawing. It shows a few items from the proposed piping layout for the Meadowbank bulk fuel storage that have not yet been put in place. These missing items consists in three (3) pressure relief loops around gate valves, and a 300 US gallon floor sump, which was to be located inside the fuel dispensing module. This floor sump has not been supplied by CHAMCO INDUSTRIES LTD.

Also enclosed is a vendor drawing from CHAMCO INDUSTRIES LTD, which shows the piping details inside the fuel dispensing module.

D. VERIFICATIONS TO STORAGE CAPACITY WITHIN BERMS

STAVIBEL Engineering Services has completed verifications on the liquid storage capacity inside the containment berms, which create an impermeable enclosure around tank 680-TK-042.

The method used was a volume calculation using *Autocad CIVIL 3D* software.

The maximum storage capacity of fuel tank 680-TK-042 is 5 675 700 litres of diesel fuel at a standard temperature of fifteen degrees Celcius (15 °C).

It has been verified using the above software that the impermeable enclosure around this fuel tank will effectively hold one hundred and ten percent (110 %) of its maximum storage capacity. This theoretical calculation does not include the volume inside the tank itself, as if the fuel was pumped outside the tank.

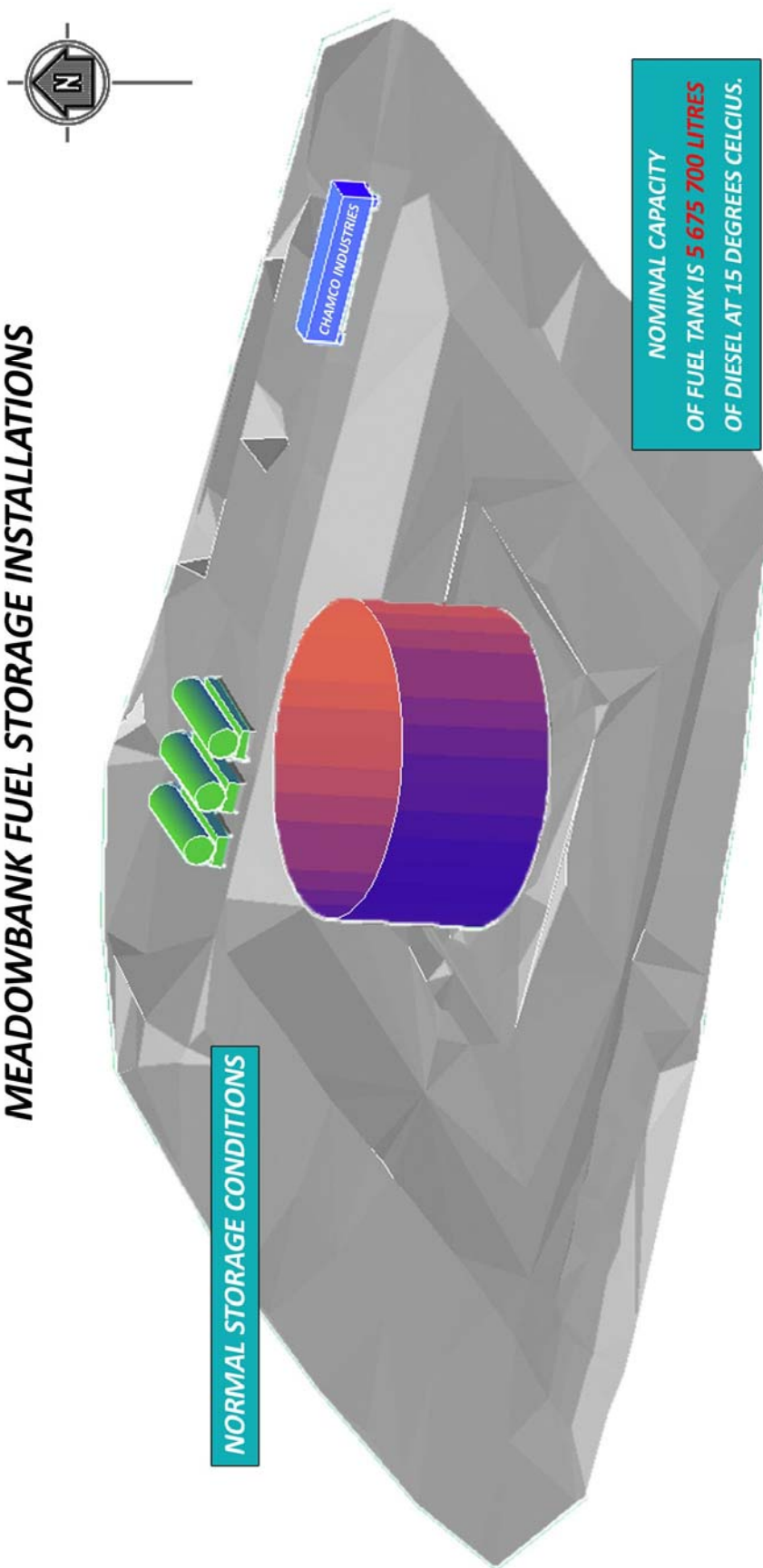
Thus, the lowest point of the HDPE membrane that sits atop the containment area is sufficiently high (at elevation 150.94 m) to meet the above criteria.

On the following pages are the results of a software simulation, which are showing a 3D view of the containment area in normal storage conditions, as well as another view showing the worst case scenario.

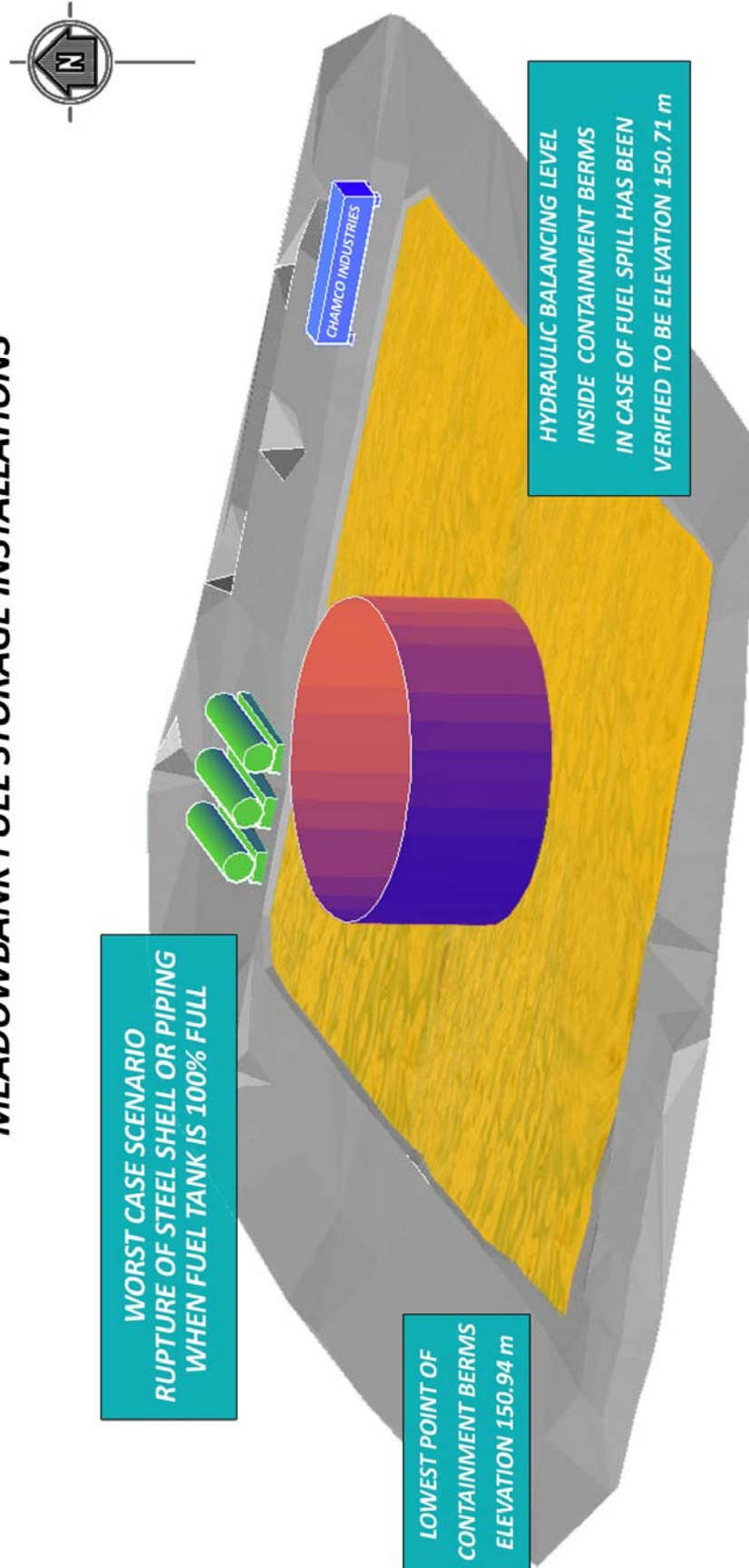
This worst case scenario would consist in either a rupture of the first course of side plates in the tank shell, or a failure in the outlet piping, when the tank is 100% full.

This simulation shows that, in such a worst case scenario, the hydraulic balancing level inside the containment area would not exceed the point with the lowest elevation on the surrounding berms. There is a safety margin of about 200 mm.

MEADOWBANK FUEL STORAGE INSTALLATIONS



MEADOWBANK FUEL STORAGE INSTALLATIONS



APPENDIX 1

AS BUILT DRAWINGS

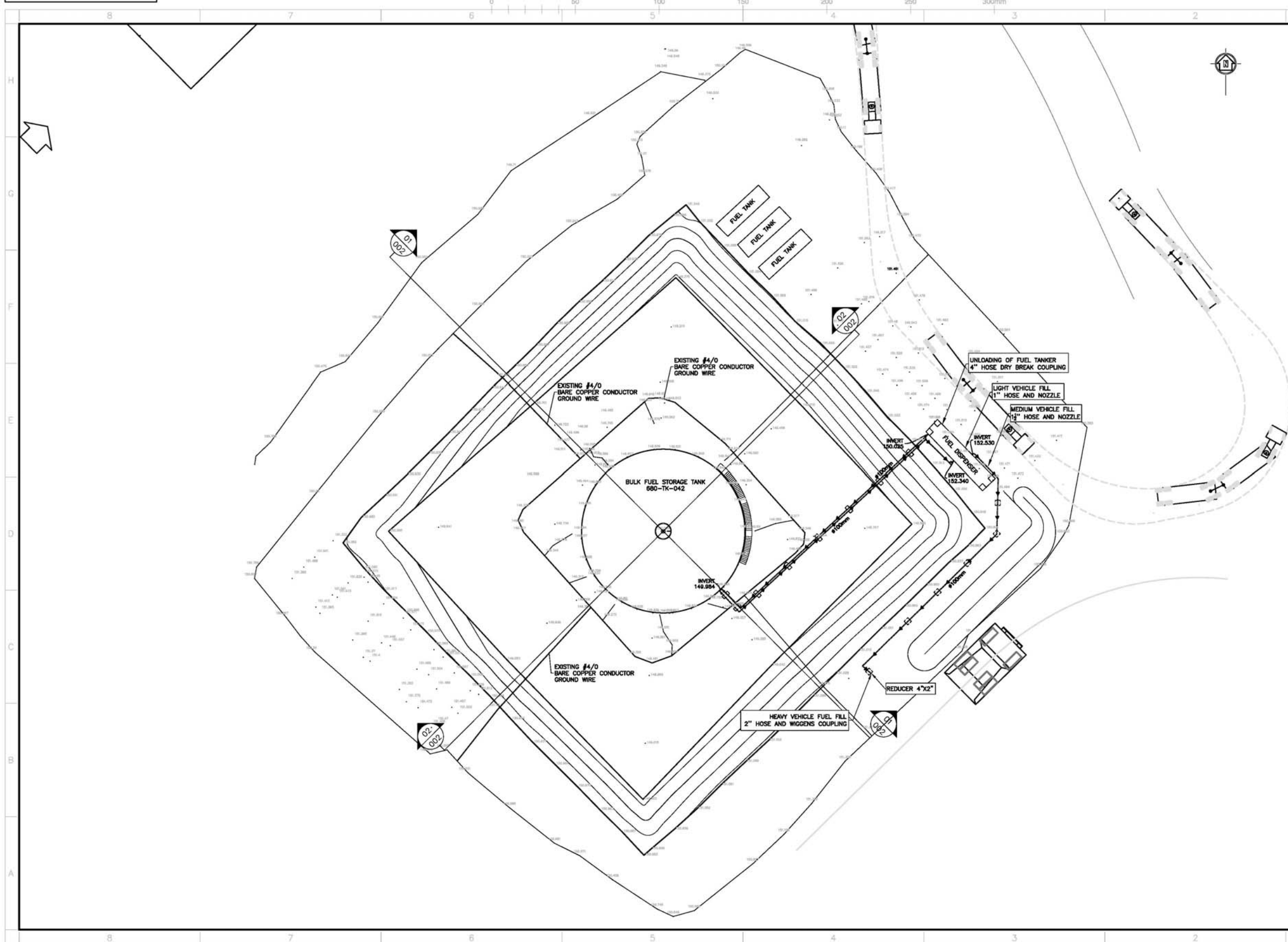
VD2259-MDB-001
VD2259-MDB-002
VD2259-MDB-003

017202-2000-46D6-2001 IFC DRAWING from SNC-LAVALIN

**Plus one (1) drawing from
CHAMCO INDUSTRIES LTD**

Vendor ref. # CUP1014938-21

DRAWING NO.



P:\V2259 - AGNICO-EAGLE\MEADOWBANK DIVISION\VD2259-1 AS BULK FUEL TANK MEADOWBANK 2008-03-31 (REV 1).DWG, 31 Mar 2008

FORMAT ARCHD-LANDSCAPE

KEY PLAN

GENERAL NOTES

Groupe STAVIBEL
Consultants en Ingénierie
1271, 7^e Rue
Val-d'Or (Québec) J9P 3S1
Tél: (819) 825-2233 Téléc: (819) 825-1322
Courriel : stavibel@stavibel.qc.ca
Site Internet : www.stavibel.qc.ca

SE CONFORMER À LA NORME DE CONSTRUCTION D'UN PÉTROLE EN ALUMINE, D'UNE PRODUIT

FILE	#

REFERENCE DRAWINGS



REV.	DATE	DESCRIPTION	BY	APP.
1	08-03-31	AS-BUILT (ADD GROUNDWATER T.A. P.D.)		
0	08-03-12	AS-BUILT		

REVISIONS



FILE
AGNICO-EAGLE - MEADOWBANK DIVISION

GENERAL LAYOUT

DRAWN BY	CHRISTIAN DERY	DATE	2008-02-29
CHECKED BY	FRANCIS ROSE	DATE	2008-03-31
APPROVED BY	PATRICK GARD, P.ENG	DATE	2008-03-31
SCALE	1:250	DATE	2008-03-31

DRAWING NO.	VD2259-MDB-001
PROJECT NO.	VD2259-1
REVISION	1
SHEET	1 / 4

FILE NO. .DWG

DRAWING NO.

0 50 100 150 200 250 300mm

8 7 6 5 4 3 2 1

H G F E D C B A

163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143

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01 001

CROSS-SECTION

163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143

0+000 0+020 0+040 0+060 0+080 0+100 0+105

02 001

CROSS-SECTION

163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143

0+000 0+020 0+040 0+060 0+080 0+100 0+105

03 001

CROSS-SECTION

163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143

0+000 0+020 0+040 0+060 0+080 0+100 0+105

04 001

CROSS-SECTION

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05 001

CROSS-SECTION

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12 001

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13 001

CROSS-SECTION

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14 001

CROSS-SECTION

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15 001

CROSS-SECTION

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16 001

CROSS-SECTION

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17 001

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18 001

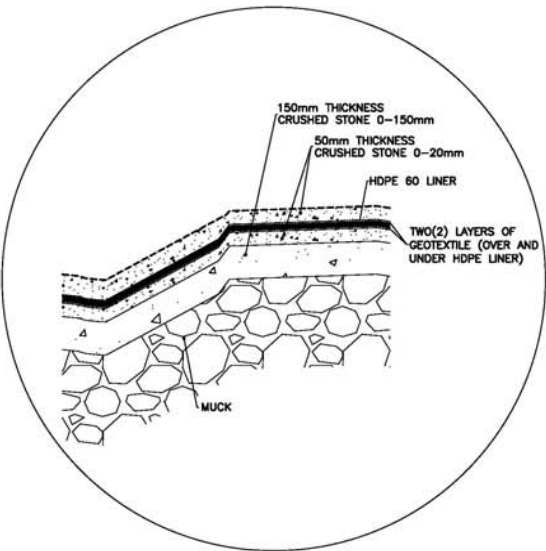
CROSS-SECTION

163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143

0+000 0+020 0+040 0+060 0+080 0+100 0+105

19 001

CROSS-SECTION



Property Specifications for High Density Polyethylene (HDPE 60):

Style	ASTM	Qualifier	Unit	Specified Value	Minimum Test Frequency
Average Thickness	D5994	minimum	mm	1.5	1 per 50,000 kg
Density (Untextured)	D792	minimum	kg	0.94	1 per 50,000 kg
Tensile Strength	D638	minimum	kN/m	23.1	1 per 4,000 m ²
Tear Resistance	D1004	minimum	N	200	1 per 4,000 m ²
Low Temperature	D746	minimum	°C	-60	1 per 4,000 m ²
Dimension Stability	D1204	maximum	%	+/- 1.5	1 per 4,000 m ²
Notched Constant Load	D5397	minimum	hours	200	1 per 4,000 m ²
Puncture Resistance	2065	minimum	N	347	1 per 4,000 m ²
Carbon Black Content	D1603	minimum	%	2.0	1 per 4,000 m ²

Property Specifications for Geotextile:

Material Property	Qualifier	Unit	Specified Value	Test Method	Minimum Frequency	Test
Mass / Unit Area	minimum	g/m	270	ASTM D5261	1 per 10,000 m ²	
Grab Tensile Strength	minimum	N	975	ASTM D4632	1 per 10,000 m ²	
Grab Elongation	minimum	%	50	ASTM D4632	1 per 10,000 m ²	
Puncture Strength	minimum	N	525	ASTM D4633	1 per 10,000 m ²	
Apparent Opening Size	maximum	mm	0.180	ASTM D4751	1 per 60,000 m ²	
Permeability	minimum	cm/sec	0.30	ASTM D4191	1 per 60,000 m ²	
Water Flow Rate	minimum	L/min/m ²	4,480	ASTM D4491	1 per 60,000 m ²	
UV Resistance	minimum	%	70	ASTM D355	1 per 60,000 m ²	

SPECIFICATIONS FOR
GEOTEXTILE AND HDPE LINER

KEY PLAN

GENERAL NOTES

Groupe STAVIBEL
Consultants en Ingénierie
1271, 7e Rue
Val-d'Or (Québec) J9P 3S1
Tél: (819) 825-2233 Téléc: (819) 825-1322
Courriel : stavibel-vo@stavibel.qc.ca
Site Internet : www.stavibel.qc.ca

REVISIONS

NO.	DATE	DESCRIPTION	BY	APP. /G.D.
1	06-03-31	AS-BUILT	F.R.	P.A.
2	06-03-13	AS-BUILT	F.R.	P.A.

AGNICO-EAGLE
MEADOWBANK DIVISION

CROSS-SECTION AND DETAILS

DRAWN BY: FRANCIS ROSE DATE: 2008-03-31

CHECKED BY: PATRICK GARD, P.ENG DATE: 2008-03-31

APPROVED BY:

SCALE: HOR: 1:200 VER: 1:100 DATE: 2008-03-31

DRAWING NO.: VD2259-MDB-002

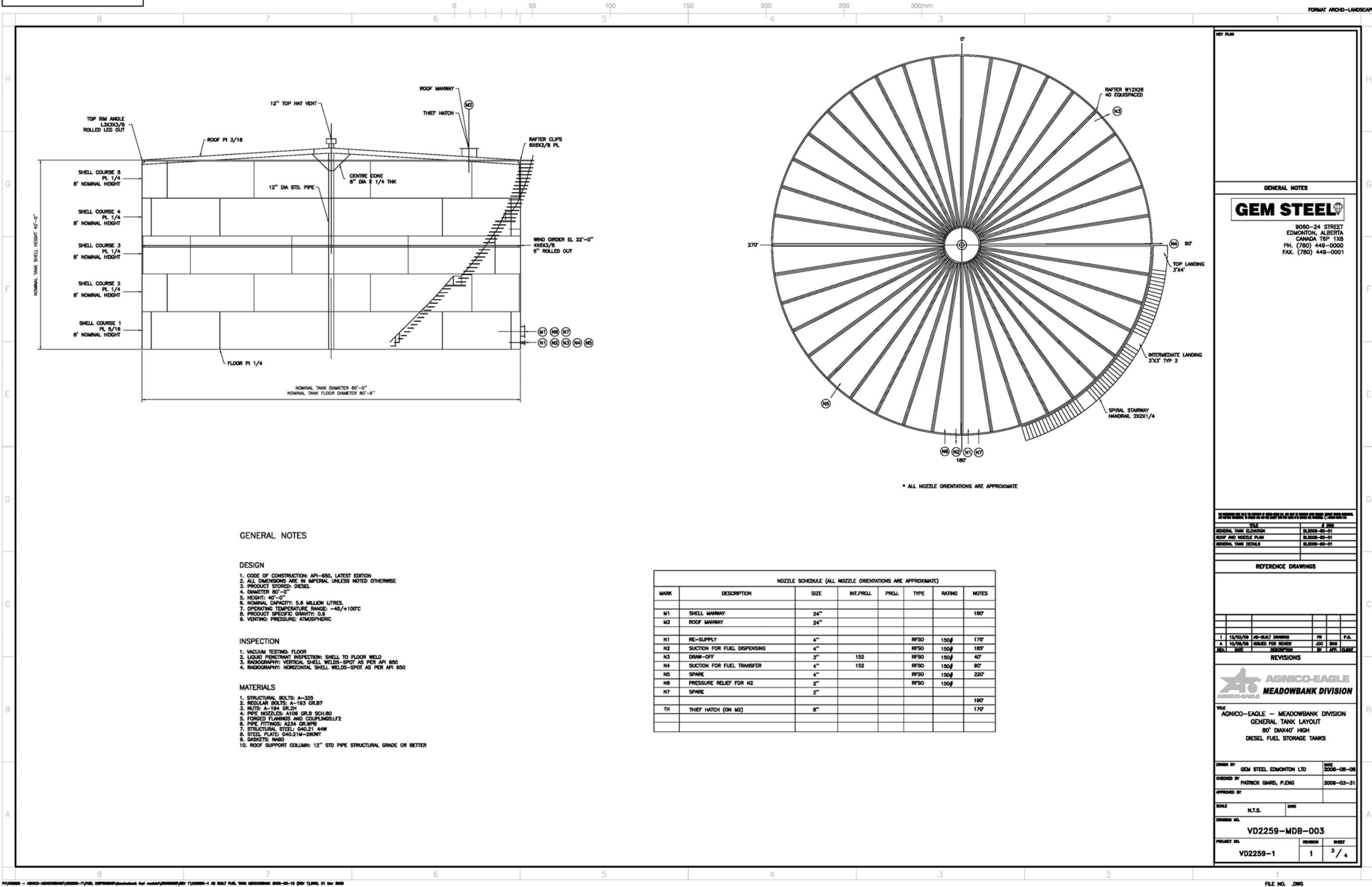
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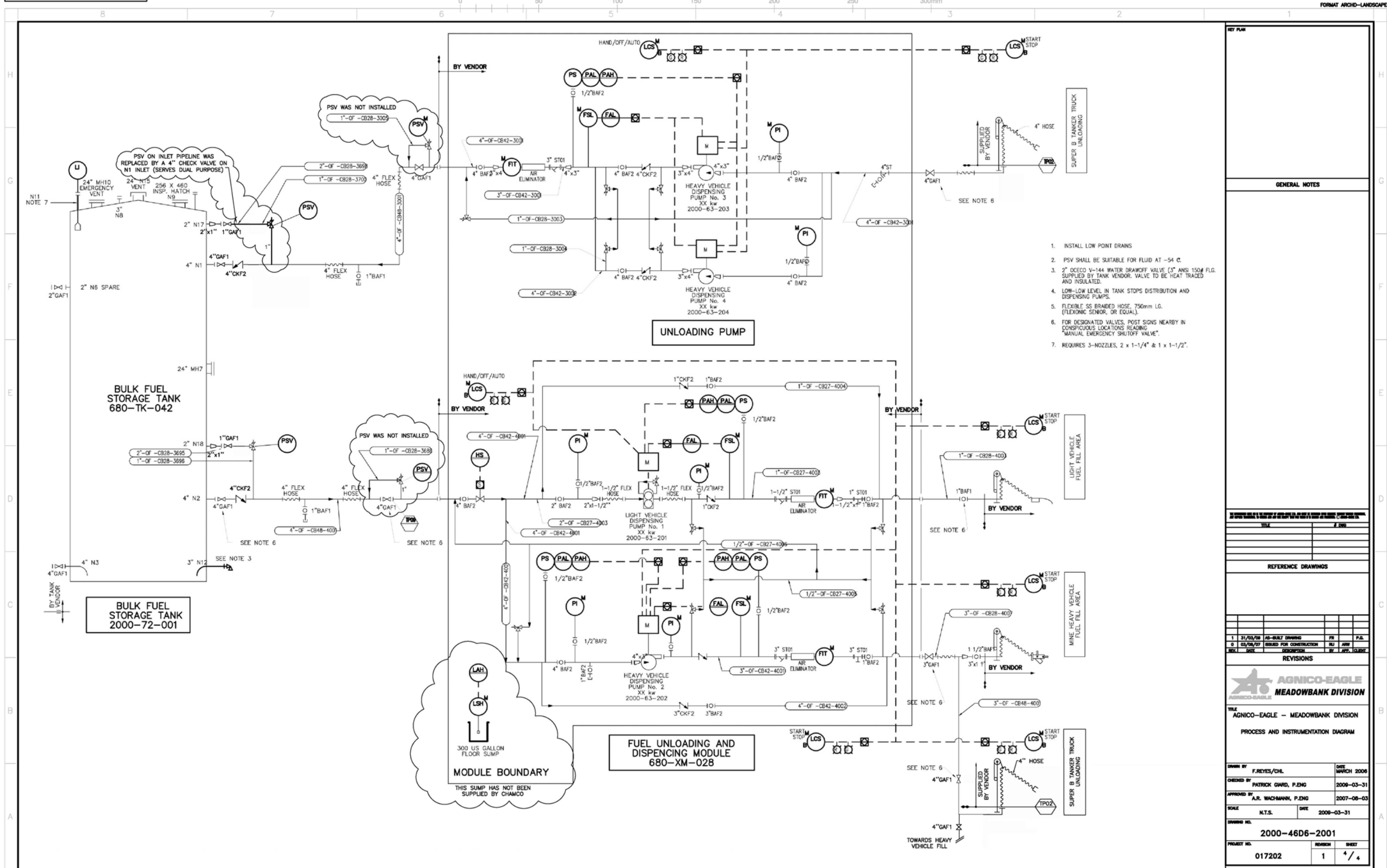
REVISION: 1

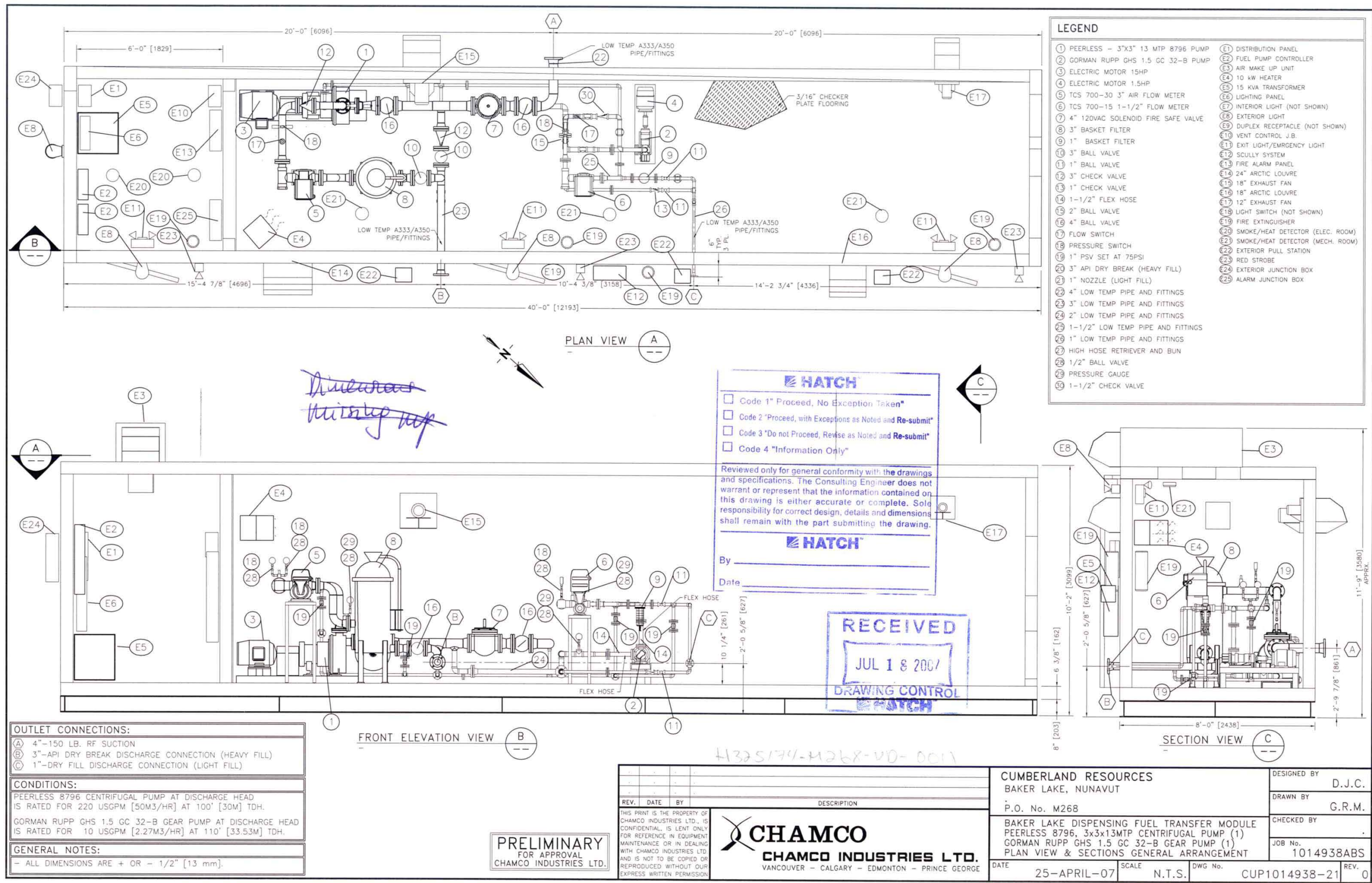
SHEET: 2 / 4

FILE NO. .DWG

DRAWING NO.







- LEGEND**
- | | |
|--------------------------------------|--------------------------------------|
| 1 PEERLESS - 3"x3" 13 MTP 8796 PUMP | E1 DISTRIBUTION PANEL |
| 2 GORMAN RUPP GHS 1.5 GC 32-B PUMP | E2 FUEL PUMP CONTROLLER |
| 3 ELECTRIC MOTOR 15HP | E3 AIR MAKE UP UNIT |
| 4 ELECTRIC MOTOR 1.5HP | E4 10 KW HEATER |
| 5 TCS 700-30 3" AIR FLOW METER | E5 15 KVA TRANSFORMER |
| 6 TCS 700-15 1-1/2" FLOW METER | E6 LIGHTING PANEL |
| 7 4" 120VAC SOLENOID FIRE SAFE VALVE | E7 INTERIOR LIGHT (NOT SHOWN) |
| 8 3" BASKET FILTER | E8 EXTERIOR LIGHT |
| 9 1" BASKET FILTER | E9 DUPLEX RECEPTACLE (NOT SHOWN) |
| 10 3" BALL VALVE | E10 VENT CONTROL J.B. |
| 11 1" BALL VALVE | E11 EXIT LIGHT/EMERGENCY LIGHT |
| 12 3" CHECK VALVE | E12 SCULLY SYSTEM |
| 13 1" CHECK VALVE | E13 FIRE ALARM PANEL |
| 14 1-1/2" FLEX HOSE | E14 24" ARCTIC LOUVRE |
| 15 2" BALL VALVE | E15 18" EXHAUST FAN |
| 16 4" BALL VALVE | E16 18" ARCTIC LOUVRE |
| 17 FLOW SWITCH | E17 12" EXHAUST FAN |
| 18 PRESSURE SWITCH | E18 LIGHT SWITCH (NOT SHOWN) |
| 19 1" PSV SET AT 75PSI | E19 FIRE EXTINGUISHER |
| 20 3" API DRY BREAK (HEAVY FILL) | E20 SMOKE/HEAT DETECTOR (ELEC. ROOM) |
| 21 1" NOZZLE (LIGHT FILL) | E21 SMOKE/HEAT DETECTOR (MECH. ROOM) |
| 22 4" LOW TEMP PIPE AND FITTINGS | E22 EXTERIOR PULL STATION |
| 23 3" LOW TEMP PIPE AND FITTINGS | E23 RED STROBE |
| 24 2" LOW TEMP PIPE AND FITTINGS | E24 EXTERIOR JUNCTION BOX |
| 25 1-1/2" LOW TEMP PIPE AND FITTINGS | E25 ALARM JUNCTION BOX |
| 26 1" LOW TEMP PIPE AND FITTINGS | |
| 27 HIGH HOSE RETRIEVER AND BUN | |
| 28 1/2" BALL VALVE | |
| 29 PRESSURE GAUGE | |
| 30 1-1/2" CHECK VALVE | |

OUTLET CONNECTIONS:

(A) 4"-150 LB. RF SUCTION
(B) 3"-API DRY BREAK DISCHARGE CONNECTION (HEAVY FILL)
(C) 1"-DRY FILL DISCHARGE CONNECTION (LIGHT FILL)

CONDITIONS:

PEERLESS 8796 CENTRIFUGAL PUMP AT DISCHARGE HEAD IS RATED FOR 220 USGPM [50M3/HR] AT 100' [30M] TDH.
GORMAN RUPP GHS 1.5 GC 32-B GEAR PUMP AT DISCHARGE HEAD IS RATED FOR 10 USGPM [2.27M3/HR] AT 110' [33.53M] TDH.

GENERAL NOTES:

- ALL DIMENSIONS ARE + OR - 1/2" [13 mm].

PRELIMINARY
FOR APPROVAL
CHAMCO INDUSTRIES LTD.

41325174-M268-VD-0011

REV.	DATE	BY	DESCRIPTION

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CHAMCO
CHAMCO INDUSTRIES LTD.
VANCOUVER - CALGARY - EDMONTON - PRINCE GEORGE

CUMBERLAND RESOURCES BAKER LAKE, NUNAVUT P.O. No. M268		DESIGNED BY D.J.C.
BAKER LAKE DISPENSING FUEL TRANSFER MODULE PEERLESS 8796, 3x3x13MTP CENTRIFUGAL PUMP (1) GORMAN RUPP GHS 1.5 GC 32-B GEAR PUMP (1) PLAN VIEW & SECTIONS GENERAL ARRANGEMENT		DRAWN BY G.R.M.
DATE 25-APRIL-07		CHECKED BY 1014938ABS
SCALE N.T.S.	DWG No. CUP1014938-21	REV. 0

APPENDIX 2

SAFE FILL LEVEL FOR FUEL TANK 680-TK-042

The safe fill level of fuel tank 680-TK-042 depends on the temperature of the fuel inside the tanker, as well as outside temperature. In order to allow room for thermal expansion of diesel fuel, some care must be taken not to exceed the safe fill levels stated hereunder. The VAREC float gives imperial readings.

safe fill for fuel tank 680-TK-042			
TEMPERATURE of fuel unloaded	MAXIMUM FUEL LEVEL		
	feet	inches	fraction
- 40°C	38	1	9/16
- 35°C	38	3	3/8
- 30°C	38	5	3/16
- 25°C	38	7	1/16
- 20°C	38	8	7/8
- 15°C	38	10	3/4
- 10°C	39	0	5/8
- 5°C	39	2	9/16
0°C	39	4	9/16
+ 5°C	39	6	1/2
+10°C	39	8	1/2
+15°C	39	10	1/2