BACK RIVER PROJECT
MLA Bulk Fuel Storage Area

Construction Summary Report

December 2021

SBR7SBB-73-C-RPT-0001

Revision 0

BACK RIVER PROJECT

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1. Introduction

The Back River Project (the Project) is a gold project owned by Sabina Gold & Silver Corp. (Sabina) within the West Kitikmeot region of south-western Nunavut. It is situated approximately 400 kilometres (km) southwest of Cambridge Bay, 95 km southeast of the southern end of Bathurst Inlet, and 520 km northeast of Yellowknife, Northwest Territories. The Project is located predominantly within the Queen Maud Gulf Watershed (Nunavut Water Regulations, Schedule 4).

The Project is comprised of two main areas with interconnecting winter ice roads: Goose Property and the Marine Laydown Area (MLA) situated along the western shore of southern Bathurst Inlet. The majority of annual resupply will be completed using the MLA, and an approximately 160 km long winter ice road will interconnect these sites.

1.1 PURPOSE OF THE REPORT

This report is intended to present the design basis and considerations, engineering design and drawings related to the Goose Plant site pond facilities that will be installed for the Back River Project.

In accordance with Sabina's Type A Water Licence (No. 2AM-BRP1831) Schedule D, Item 1, Sabina shall submit to the Nunavut Water Board (the Board) for review, within ninety (90) days of completion of each facility designed to contain, withhold, divert or retain Water and Wastes during the construction phase, a Construction Summary Report prepared by a qualified Engineer(s) in accordance with Schedule D, Item 1. As required by the Water Licence, this report contains the final design and construction drawings, a summary of construction activities including photographic recorded before, during and after construction. The as-built drawings, detailed explanation of field decision to reflect any deviations from the original construction drawings/plans and how such deviations may affect performance of engineered structures, a discussion of the mitigation measures implemented during construction and its effectiveness are also presented.

2. Construction Summary

The containment facility design complies with the Water Management Plan for the Back River Project, which governs the design of such facilities. Additionally, the facility complies with the latest editions of the Codes and Standards relating to this project (Federal, Territorial, Municipal, NBCC, NFCC, CEC, CSA, NFPA, and API) as well as the directives of the authorities having jurisdiction over this project. Specific codes and standards as: Canadian Council of Ministers of Environment (CCME), R-125-95 NWT and Nunavut Mine Health and Safety Regulations (Mine Health and Safety Act) shall apply.

2.1 SITE LOCATION PLAN

Sabina Gold & Silver Corp. is developing the Back River Project in the Kitikmeot Region of Nunavut. The Marine Laydown Area (MLA) is located on Inuit Owned Land (IOL), approximately 160km north of the Goose Property Area.

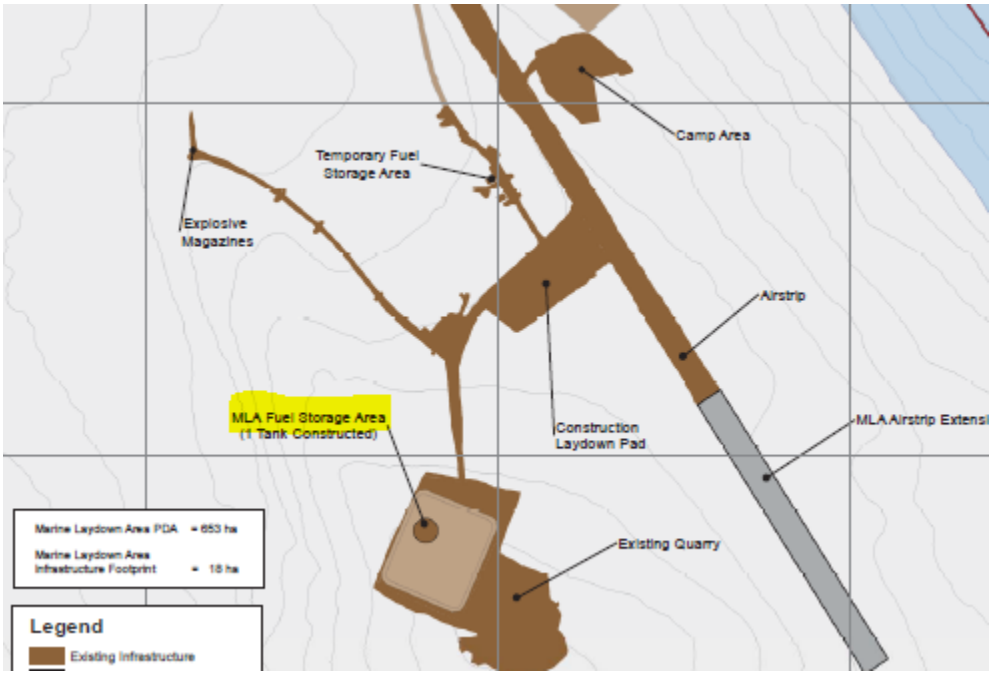


Figure 1. MLA Fuel Farm Site Overview

2.2 FUEL TANK SIZE

The tank capacity is 10 M liters. The tank is approximately 12.2 m tall and 33.5 m in diameter. Tank asbuilt drawings can be found in Appendix A.

2.3 TANK FOUNDATIONS DESIGN

The tank foundation consists of a pad with a minimum 1000 mm thickness, which is underlain by competent bedrock. A 1000 mm shoulder is provided around the perimeter of the tank which slopes away at 1V:2H. Tank foundation and berm drawings can be found in Appendix A.

2.4 BERMS DESIGN

The containment area provided is designed to retain accidental spillage of the fuel product. the berms and base are made impervious using an HDPE liner. The berms and base are then constructed using site-available granular material.

The berms are approximately 4 m higher than the interior contained area and are 3 m wide at crest height. The berm slopes are 1V:2H. The berm drawings can be found in Appendix A.

2.5 SECONDARY CONTAINMENT CAPACITY

The required capacity of the fuel farm containment was calculated based on the National Fire Code of Canada (NFCC) and the Canadian Council of Ministers of Environment (CCME). The containment area/berm drawings can be found in Appendix A.

2.6 SECONDARY CONTAINMENT IMPERVIOUSNESS

As per NFCC requirements, the base and walls of the fuel farm is designed and constructed to withstand the full hydrostatic head and provide a permeability of not more than 10^{-6} cm/s for flammable liquids or combustible liquids contained in the storage tank. The HDPE membrane, as constructed, provides adequate imperviousness

2.7 SECONDARY CONTAINMENT DRAINAGE

The finished grade of the secondary containment is sloped away from the tanks to drain the runoff water. The bottom of the berms surface is built with slopes that will allow accidental spills to be concentrated at a low point. A drainage basin located at the low point allows the recovery by pumping accumulations of rainwater and accidental spills.

2.8 DRAWINGS AND PHOTOGRAPHS

Fuel farm tank and containment final design and construction drawings are available in the Appendices.

3. Field Decisions

3.1 EQUIPMENT AND CONTROLS

This section describes the criteria, methods, data, analysis and specifications used to design the primary pond facility.

3.2 PIPING

The pond facility is designed for a 24 hour total rainfall volume and 100 year return period. Catchment areas are calculated based on the final anticipated grading design and surrounding topography.

The emergency discharge pond is additionally designed to be fully lined with excess capacity available to redirect material (saline water, tailings, etc) as needed in emergency situations.

Piping between filling and distributing container and the fuel tank respect the point to point design. Please refer to the P&ID SBR6-73-P-IS0-0001_RB) for the final design. For interim loading and

unloading of the system, a piping design was considered (SBR6-73-P-IS0-0001_RB). The final design of the piping distribution will be done by end of 2022 and not planned at this point of time.

4. Mitigation Measures

Quarrying activities to build the berm and the containment were not near fish bearing water. During the fuel storage tank and containment facilities construction, no sediment was released in water from construction areas and no water was used to manage dust emissions during construction activity.

5. Construction Monitoring and Inspection Test Plan

5.1 MEMBRANE

The manufacture and supply of the liner system for the fuel farm comply with ASTM standard. The manufacturer provided a certification stating that the material proposed has physical properties that meet the required values. All floor areas, berms and key trenches were inspected and deemed acceptable prior to placing geotextile protection. All wedge and extrusion welders were qualified daily prior to any liner placement.

- SBR7A&A-73-G-IR-0001-MLA- Tank Farm 73-TK-01 -HDPE Liner Install report
- SBR7A&A-73-G-IR-0002 - MLA- Tank Farm 73-TK-01 -HDPE Liner Install report Fuel pad

5.2 TANK WELD

During the tank construction, a testing protocol was followed based on the construction team procedure. This procedure ensure that the tank meets API Standard 650. In it, the contractor registers welder's qualifications, confirm construction material quality and outline is testing procedure. The results from weld tests are also registered. Testing on weld took place during the whole construction process.

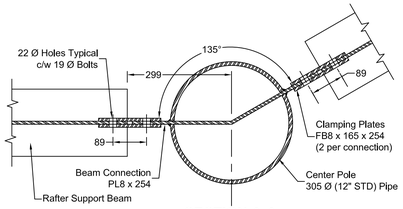
Weld maps have been provided in the following drawings included in the Appendix

- SBR7GEM-73-S-PLN-0004-Shell weld map & Radiograph test map
- SBR7GEM-73-S-PLN-0001-Floor Plate Layout and weld map
- SBR7GEM-73-S-IR-0002 Sabina 2019 X-ray Reports.pdf

Appendix A - Engineering Drawings List

The following list of drawings covers the technical requirements for this package.

Drawing Number and Title	Rev
SBR7GEM-73-S-DET-0001-General Tank details.pdf	1
SBR7GEM-73-S-DET-0002-General Tank details_ pdf	1
SBR7GEM-73-S-ELV-0001-General Tank Elevation.pdf	1
SBR7GEM-73-S-PLN-0001-Floor Plate Layout and weld map_ pdf	1
SBR7GEM-73-S-PLN-0002-Roof and Nozzle plan_.pdf	1
SBR7GEM-73-S-PLN-0003-Roof plate Layout and Weld Map_.pdf	1
SBR7GEM-73-S-PLN-0004-Shell weld map & Radiograph test map_.pdf	1
SBR7SBB-7R-P-ISO-0001 -MLA Tank 73-TK-01 – Piping ISO Drawing	0
SBR7GEM-73-S-IR-0002 Sabina 2019 X-ray Reports.pdf	0
SBR7A&A-73-G-IR-0001-MLA- Tank Farm 73-TK-01 -HDPE Liner Install report	0
SBR7A&A-73-G-IR-0002 - MLA- Tank Farm 73-TK-01 -HDPE Liner Install report Fuel pad	0



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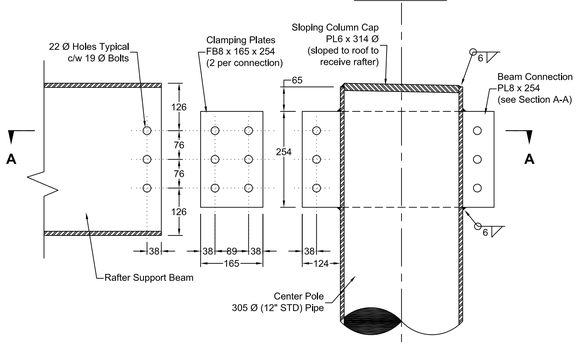
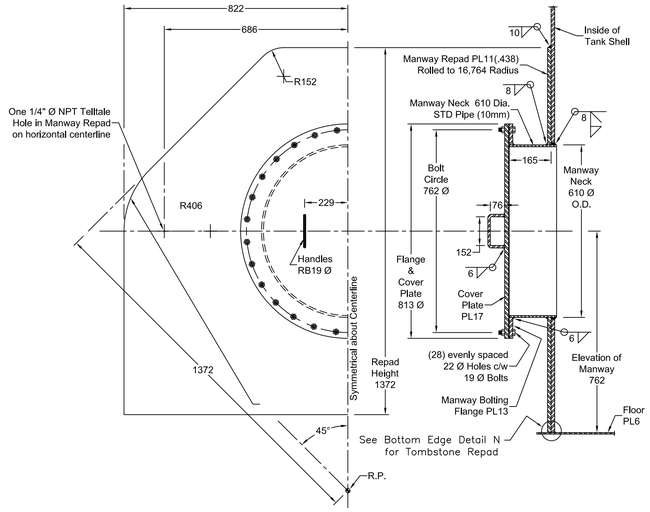


A/2 COLUMN TO ROOF BEAM DET.
NTS



B/1 610 Ø SHELL MANWAY DETAIL
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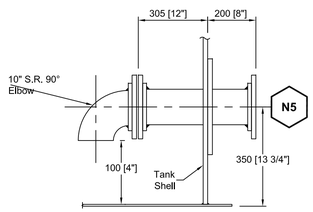

P/1 SHELL NOZZLE N5 DETAIL
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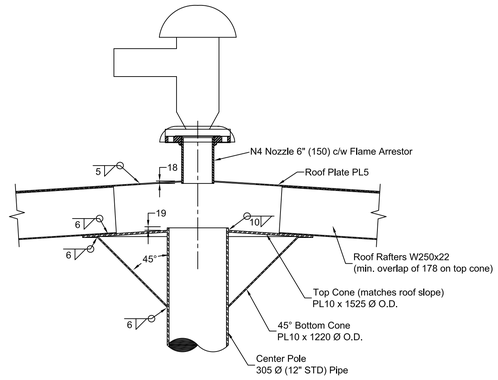

C/2 CENTER SUPPORT & VENT DET.
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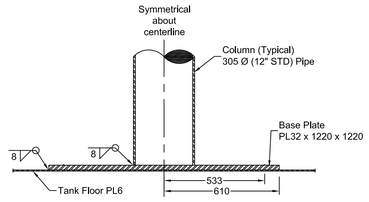

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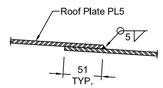

E/1 ROOF PLATE WELD DET.
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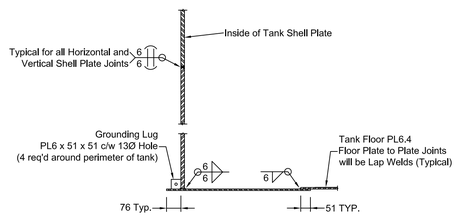

F/1 FLOOR, SHELL WELD DET.
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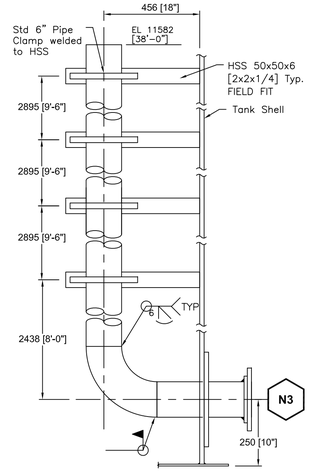
AS BUILT



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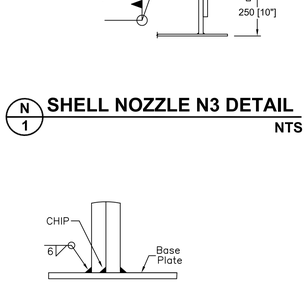
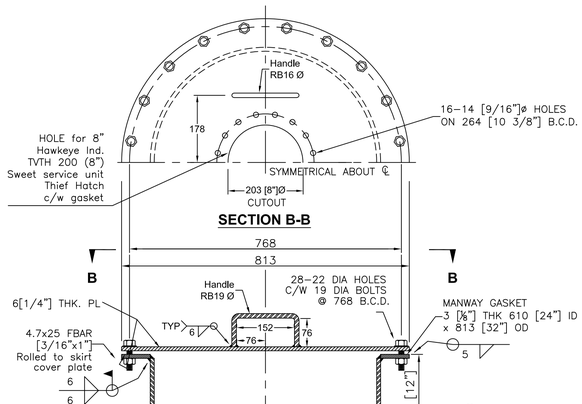


K/- BOTTOM EDGE DETAILS TOMBSTONE REPAD



G/1 ROOF MANWAY DET.
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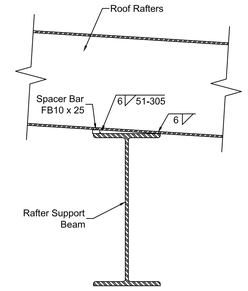

H/2 RAFTER-SUPPORT BEAM DET.
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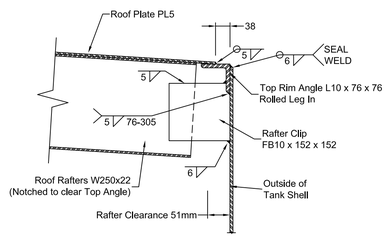

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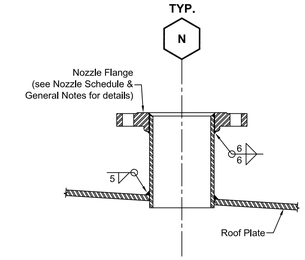

J/1 TYP. ROOF NOZZLE DET.
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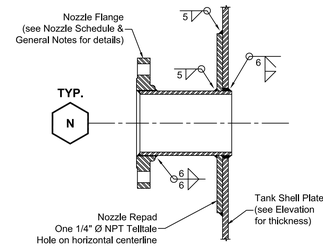
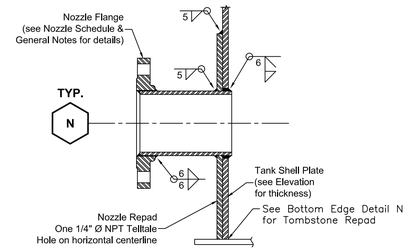


L/1 TYP. SHELL NOZZLE DETAIL ABOVE 300 EL. NTS



M/1 TYP. SHELL NOZZLE DETAIL 300 EL. AND BELOW NTS

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

#	REVISION DESCRIPTION	DATE	BY
1	Issued As-Built	Sept 10 2019	JOC
C	Re-issued for Review	July 23, 2019	JOC
B	Re-issued for Review	Aug 7, 2018	JOC
A	Issued for Review	Feb 25, 2018	JOC

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ENGINEER:

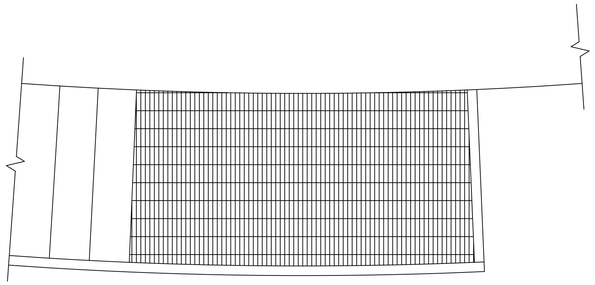
Document No: SBR7GEM-73-S-DET-0001

TITLE: **GENERAL TANK DETAILS**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp.**
Back River Project, Bathhurst Inlet, Nunavut

CHK'D BY:	DATE:	CADFILE:
B.K.G.	Aug 2019	3
DRAWN BY:	APP'D BY:	SCALE:
J.O.C.	-	N.T.S.
DRAWING #		REVISION #
SAB110-2018-3		1



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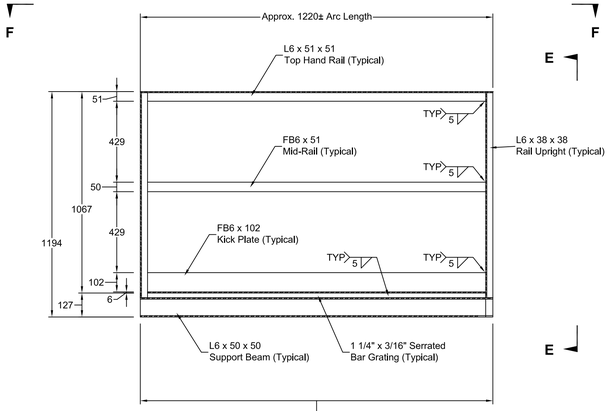

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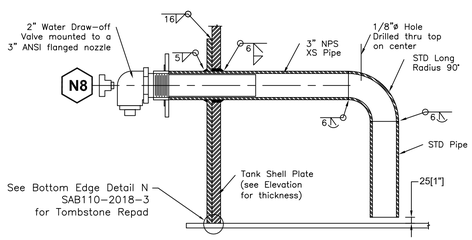

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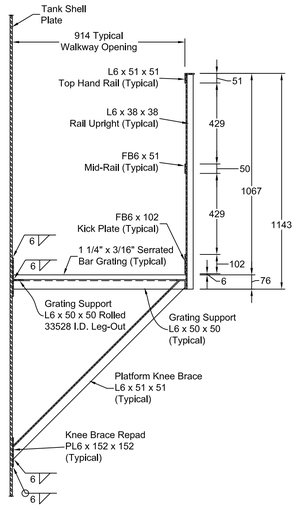

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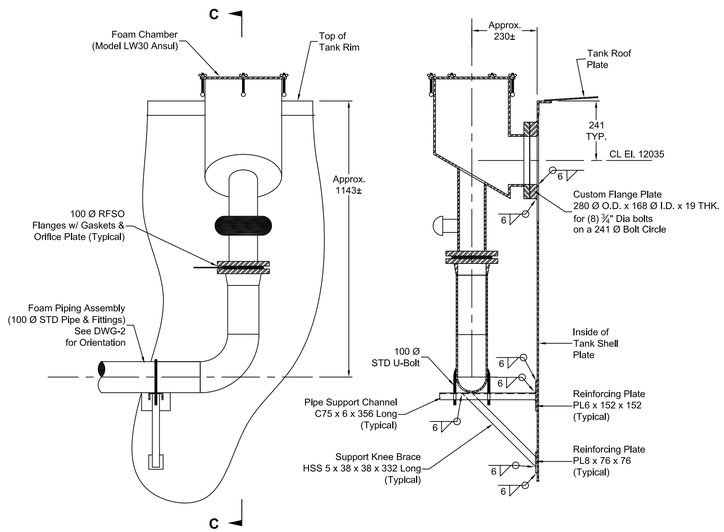

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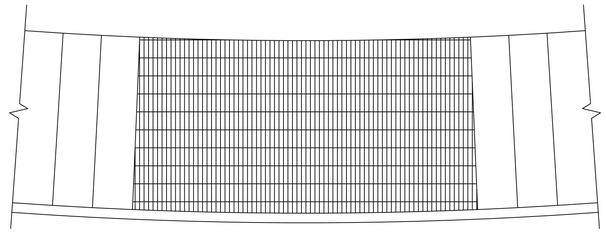

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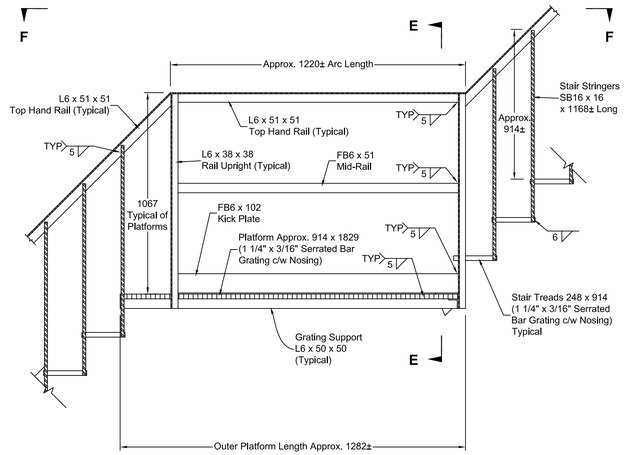

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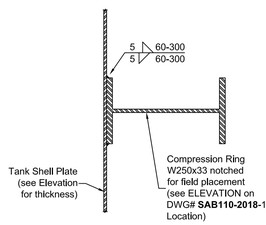

T 1 INTERNAL COMPRESSION RING NTS

AS BUILT

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

ENGINEER:

Document No: SBR7GEM-73-S-DET-0002

TITLE: **GENERAL TANK DETAILS**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp.**
Back River Project, Bathhurst Inlet, Nunavut

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B.K.G.	Aug 2019	4
DRAWN BY:	APP'D BY:	SCALE:
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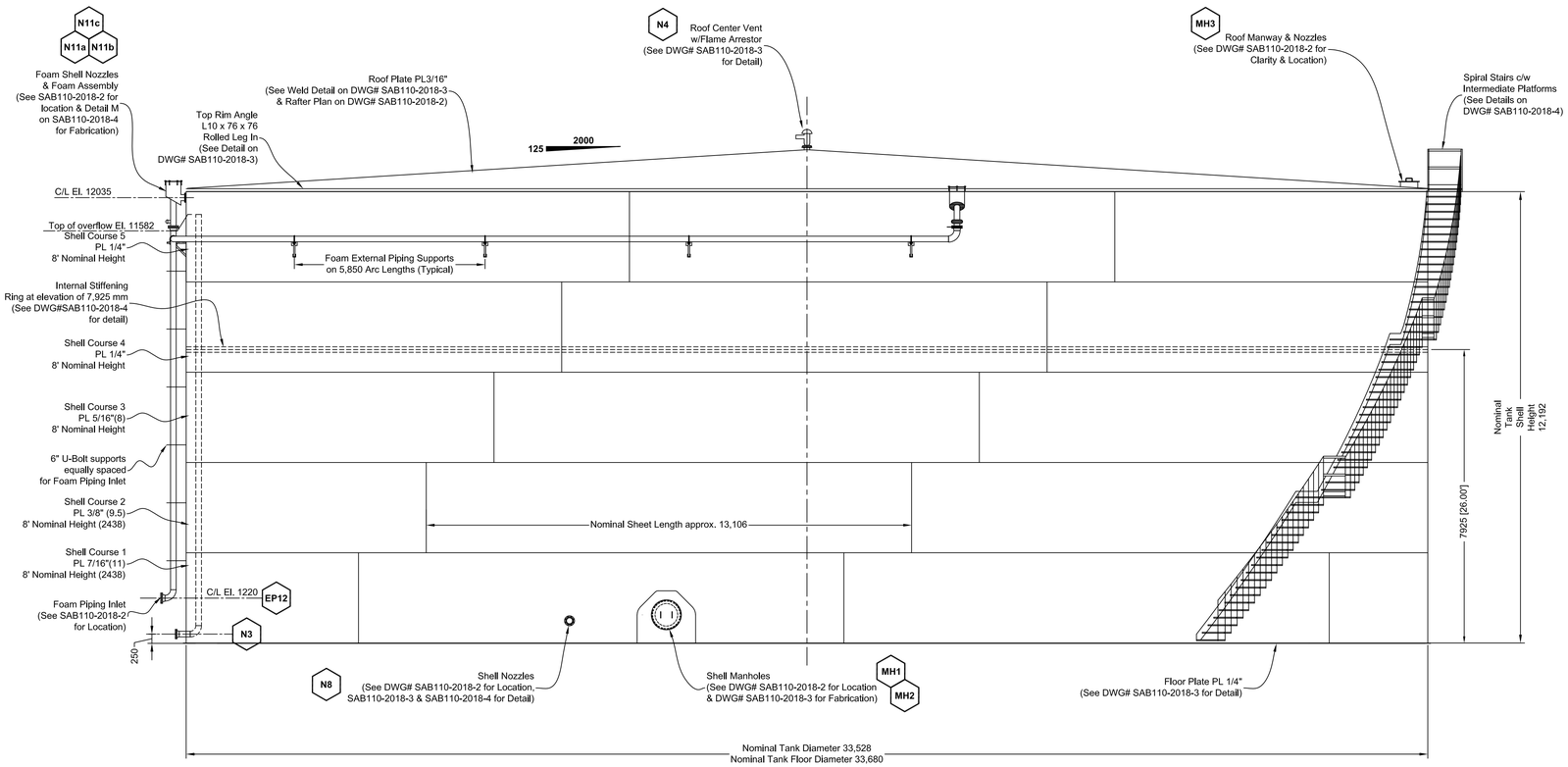
BILL OF MATERIALS (Quantity Per Tank)

MARK	DESCRIPTION	QTY.
BM1	Floor Plate (PL 1/4")	1
BM2	Shell Course 1 (PL 7/16")	1
BM3	Shell Course 2 (PL 3/8")	1
BM4	Shell Course 3 (PL 5/16")	1
BM5	Shell Course 4 (PL 1/4")	1
BM6	Shell Course 5 (PL 1/4")	1
BM7	Roof Plate (PL 3/16")	1
BM8	Outer Roof Support Column Assemblies (12"Ø STD Pipe) (Structural Grade) 40'-8" lg c/w 3/4" Cap Plate	8
BM9	Center Pole Assembly (12"Ø STD Pipe) (Structural Grade) Length to be field cut & capped	1
BM10	Girders (W410 x 54 x 6,400 Long)	8
BM11	Internal Roof Rafters (W250 x 22 x 9,144 Long)	80
BM12	Spiral Staircase c/w Intermediate & Top Platforms (3 Sections total)	1
BM13	Foam External Piping Assembly (3"Ø STD Pipe & Fittings)	1



ELEVATION

(SEE DWG. SAB110-2018-2 FOR TRUE ORIENTATION)

GENERAL NOTES

Design

1 Code of Construction: API-650, 12 Edition March 2013
2. All dimensions are In mm unless noted otherwise.
3. Product Stored: Diesel Fuel
4. Diameter: 33,528 mm Ø
5. Height: 12,192 mm
6. Nominal Capacity: 10,760,000 litres
7. Working Capacity: 10,000,000 litres
8. Design Metal Temp: -50° C
9. Product Specific Gravity: 0.9 @ 15 °C

Materials

1. Bolts: A-325
2. Pipe Nozzles: A333 Gr. 6
3. Forged Flanges & Couplings: A350M, Gr. LF 2 & ANSI B16.5 LF2 Class D
4. Pipe Fittings: A420 Gr. WPG-6
5. Structural Steel: G40.21-300W
6. Shell Steel Plate: G40.21M-260WT, Killed and Fine-Grain Practice, Impact Energy 20 ft./lbs @ -50° F
7. Floor & Roof Steel Plate: G40.21M-260WT
8. Tank Manways: Structural Grade Pipe or better.

Inspection

1. Vacuum Testing: Floor
2. Radiography: Vertical Shell Welds - Spot as per API 650
3. Air Test: Re-pads
4. Vacuum and Diesel Test: Shell Welds

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

AS BUILT

#	REVISION DESCRIPTION	DATE	BY
1	Issued As-Built	Sept 10 2019	JOC
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A	Issued for Review	Feb 25 2018	JOC

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ENGINEER:

Document No: SBR7GEM-73-S-ELV-0001

TITLE: **GENERAL TANK ELEVATION**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp. Back River Project, Bathhurst Inlet, Nunavut**

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DRAWING #		REVISION #
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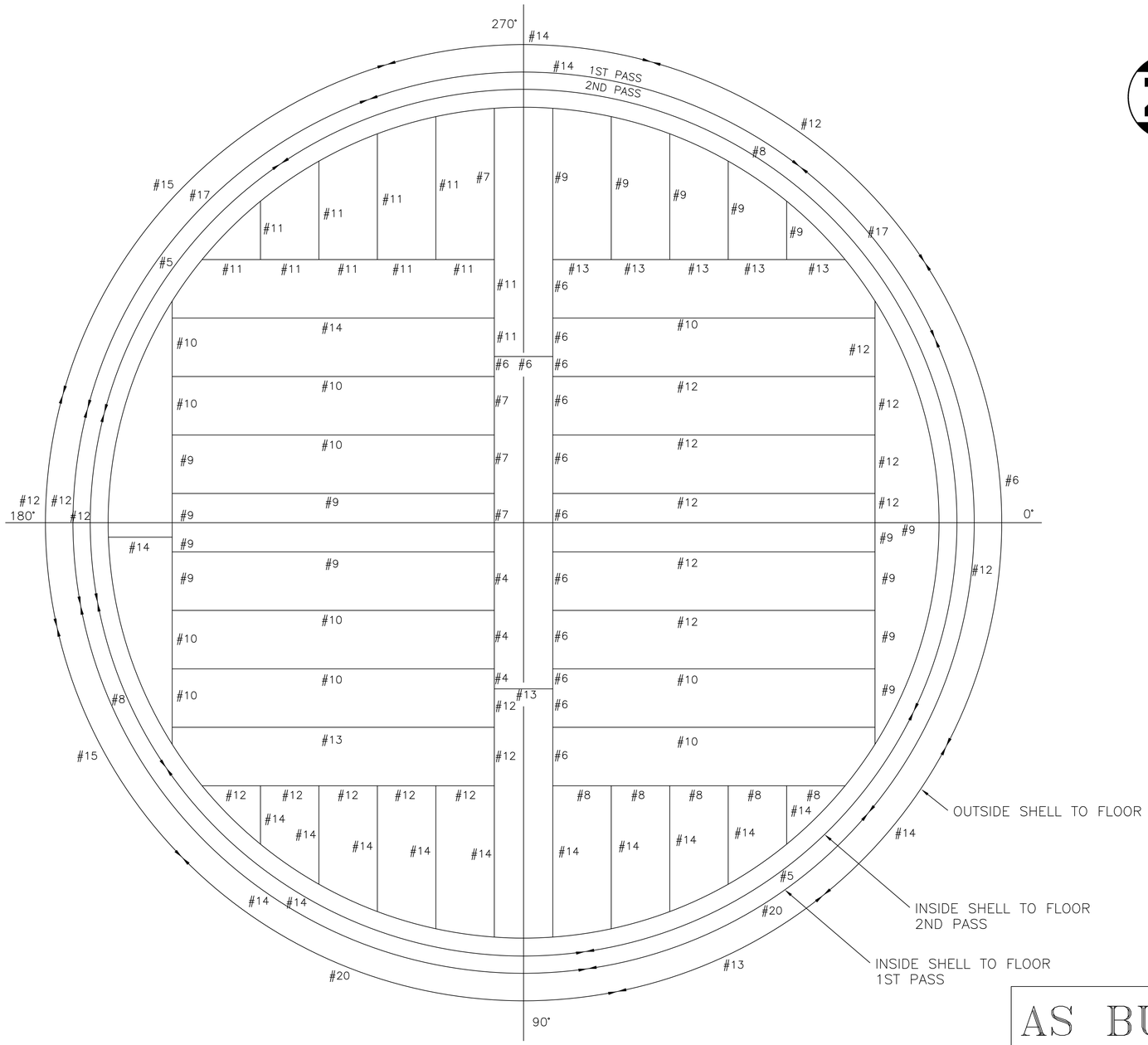

FLOOR WELD MAP

AS BUILT

Welder's I.D. Numbers Schedule

Jesse Duncalfe	#5
Tyler Boutilier	#7
Chris Gauthier	#8
Kyle Potter	#9
Kyle Fehr	#10
Chris Gaudet	#11
Dayton Tymchuck	#12
Byron Oulton	#13
Jesse Hayes	#14
Kory Andrusiak	#15
Glen Cosby	#17
Justin Harris	#20

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

#	REVISION DESCRIPTION	DATE	BY
A	ISSUED AS-BUILT	SEP 12/19	JOC

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Fax. (780) 449-0001

ENGINEER:

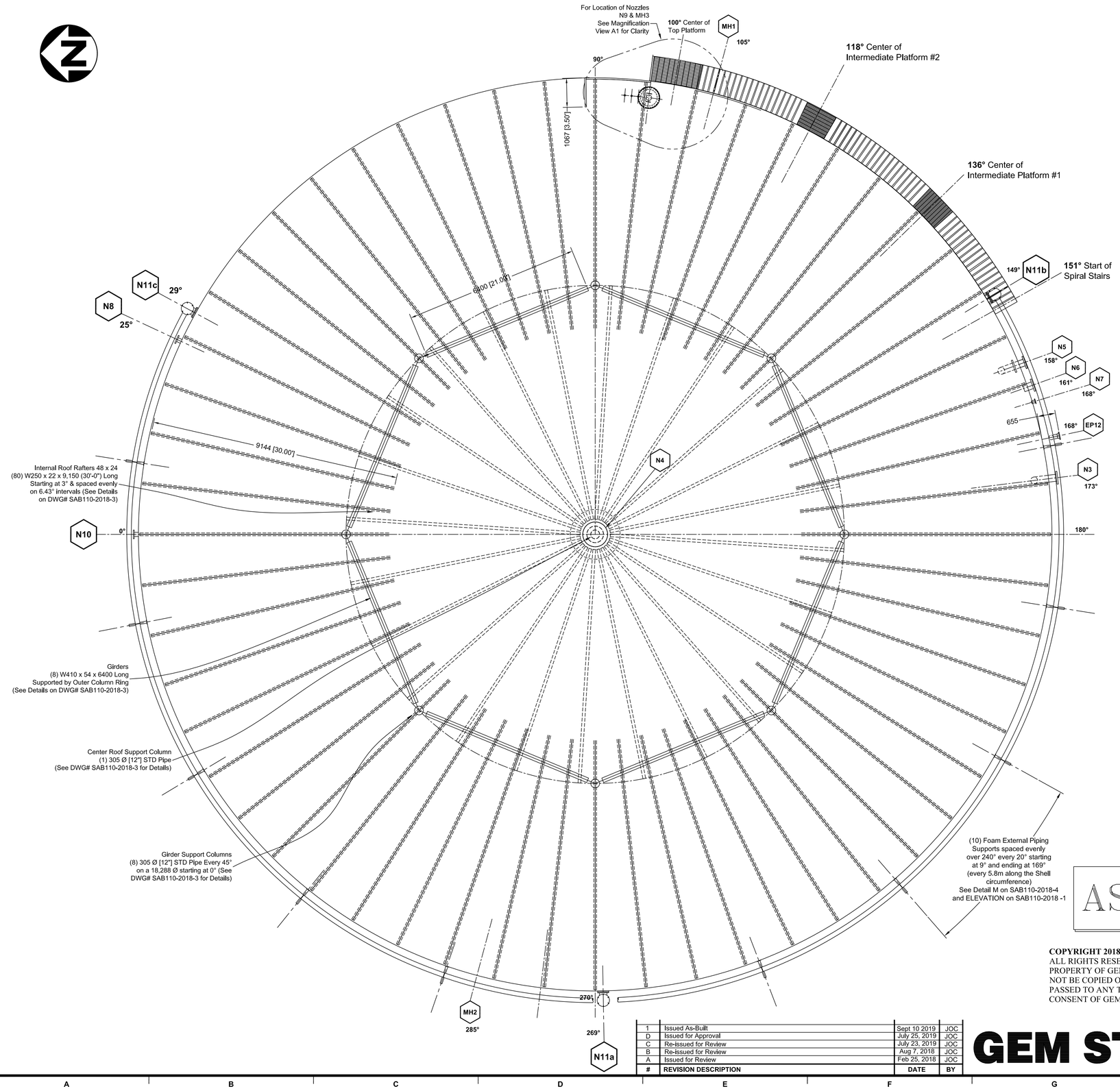
Document No: SBR7GEM-73-S-PLN-0001

TITLE: **FLOOR PLATE LAYOUT AND WELD MAP**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp. Back River Project, Bathhurst Inlet, Nunavut**

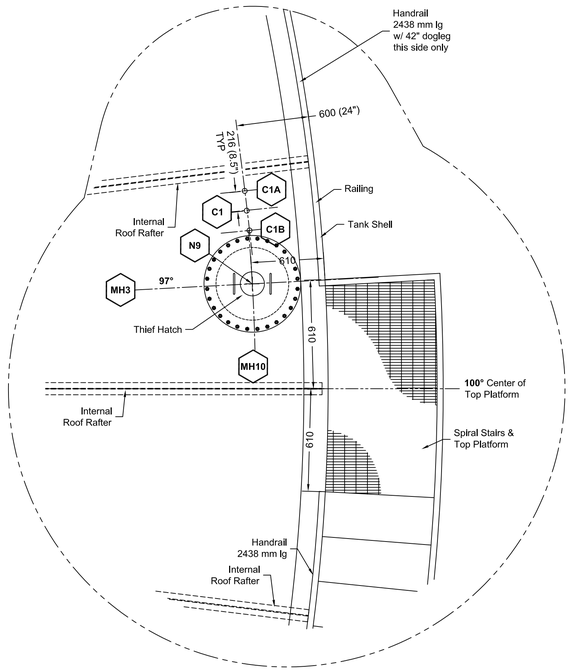
CHK'D BY:	DATE:	CADFILE:
B.K.G.	Aug 2019	5
DRAWN BY:	APP'D BY:	SCALE:
J.O.C.	-	N.T.S.
DRAWING #		REVISION #
SAB110-2018-5		1



NOZZLE SCHEDULE

MARK	DESCRIPTION	SIZE	PROJ.	INT. PROJ.	TYPE	RATING	RPD.	LOC.	ELEV.
MH1	Shell Manway	24"	Det.		RFSO	API650	Det.	105°	762
MH2	Shell Manway	24"	Det.		RFSO	API650	Det.	285°	762
MH3	Roof Manway	24"	Det.		RFSO	API650	Det.	Det.	N/A
N3	Overflow	6"	200		RFSO	150#	15 3/4"	173°	11582
N4	Vent c/w Flame Arrestor as per API 2000 Emergency Venting	6"	200		RFSO	150#	N/A	Roof	N/A
N5	Fill	10"	200		RFSO	150#	23"	158°	350
N6	Draw	10"	200		RFSO	150#	23"	161°	350
N7	Thermal Relief	1"	150		RFSO	150#	N/A	163°	250
N8	Water Draw-off	3"	150		RFSO	150#	10 1/2"	25°	250
N9	Jayco JT8 Thief Hatch	8"	200		Fab	150#	15 3/4"	173°	N/A
N10	Spare	4"	200		RFSO	150#	12"	0°	350
N11a	Foam	3"					N/A	269°	See Det.
N11b	Foam	3"					N/A	149°	See Det.
N11c	Foam	3"					N/A	29°	See Det.
EP12	External Foam Piping Inlet c/w blind flg	6"	N/A		RFSO	150#	N/A	98°	1500
C1	Varec 2500 Level Indicator	1 1/2"	Det.		CPLG	1500#	N/A	N/A	N/A
C1A/B	Varec Wire Guides	1 1/4"	Det.						

Note: Install N6 Flange face parallel to N5



View A1

Magnification 3x

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

AS BUILT

#	REVISION DESCRIPTION	DATE	BY
1	Issued As-Built	Sept 10 2019	JOC
D	Issued for Approval	July 25, 2019	JOC
C	Re-issued for Review	July 23, 2019	JOC
B	Re-issued for Review	Aug 7, 2018	JOC
A	Issued for Review	Feb 25, 2018	JOC

GEM STEEL
9060 - 24 Street
Edmonton, Alberta
Canada T6P1X8
Ph. (780) 449-0000
Fax. (780) 449-0001

ENGINEER:

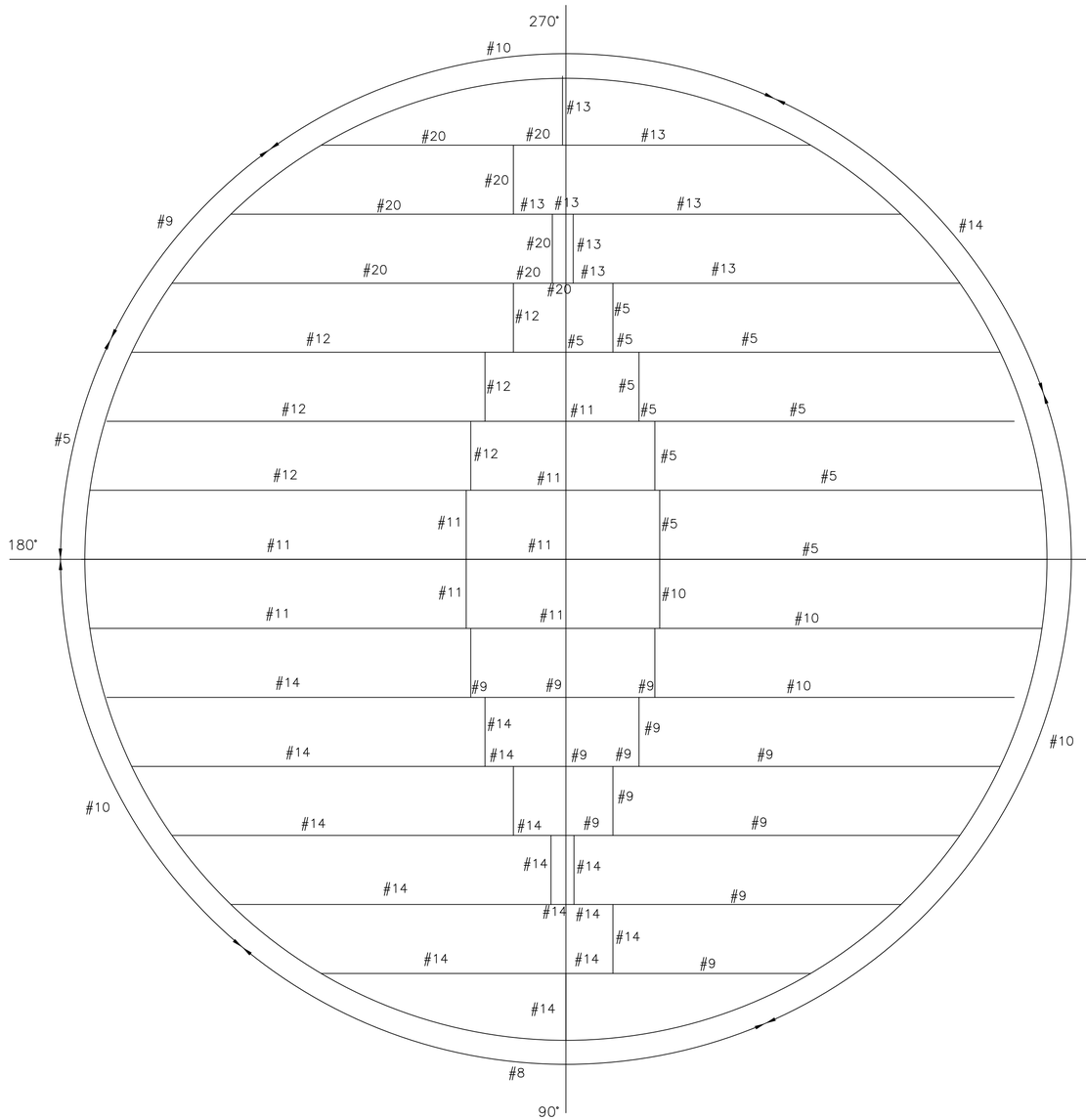
Document No: SBR7GEM-73-S-PLN-0002

TITLE: **ROOF & NOZZLE PLAN**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp.**
Back River Project, Bathhurst Inlet, Nunavut

CHK'D BY:	DATE:	CADFILE:
B.K.G.	Aug 2019	2
DRAWN BY:	APP'D BY:	SCALE:
J.O.C.	-	N.T.S.
DRAWING #		REVISION #
SAB110-2018-2		1



Welder's I.D. Numbers Schedule

Jesse Duncalfe	#5
Chris Gauthier	#8
Kyle Potter	#9
Kyle Fehr	#10
Chris Gaudet	#11
Dayton Tymchuck	#12
Byron Oulton	#13
Jesse Hayes	#14
Justin Harris	#20

AS BUILT

ROOF WELD MAP

#	REVISION DESCRIPTION	DATE	BY
A	ISSUED AS-BUILT	SEP 12/19	JOC

GEM STEEL
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Edmonton, Alberta
Canada T6P1X8
Ph. (780) 449-0000
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TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

ENGINEER:

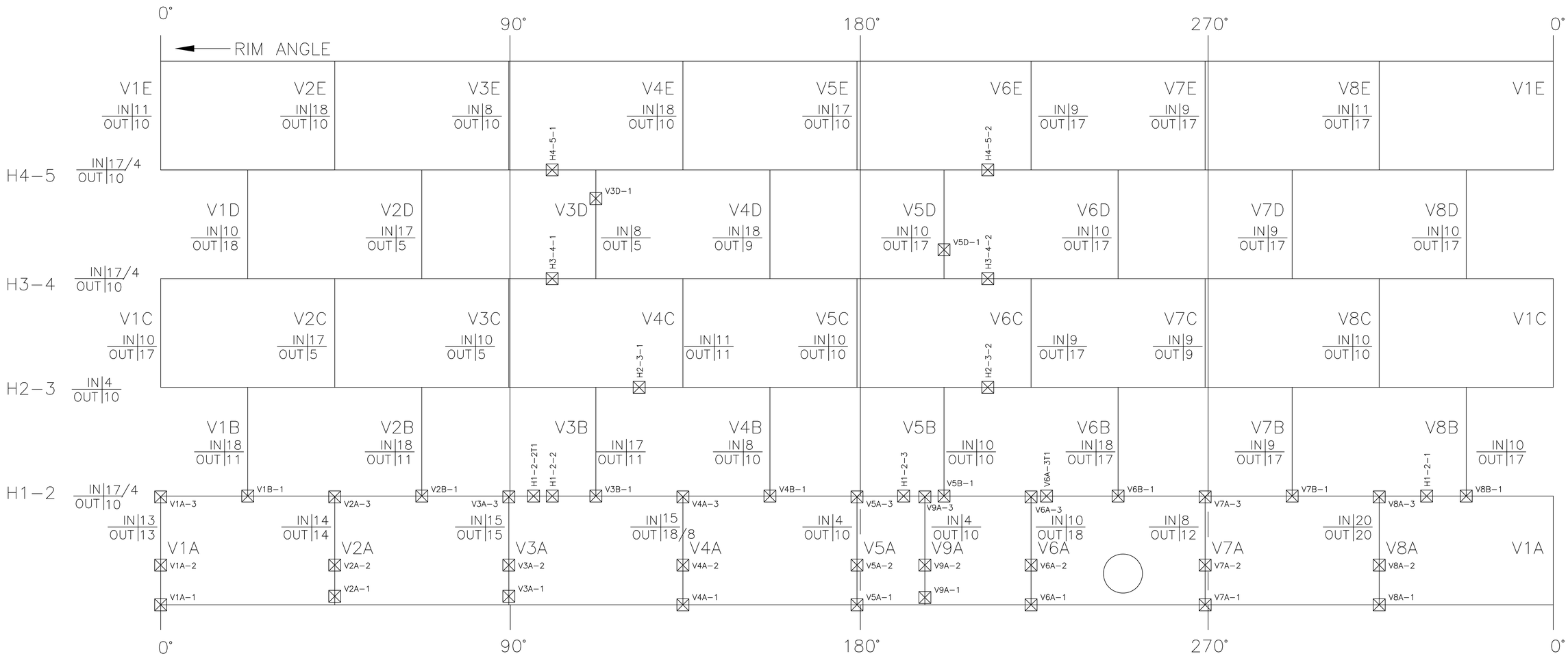
Document No: SBR7GEM-73-S-DET-0001

TITLE: **ROOF PLATE LAYOUT AND WELD MAP**

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp. Back River Project, Bathhurst Inlet, Nunavut**

CHK'D BY:	DATE:	CADFILE:
B.K.G.	Aug 2019	6
DRAWN BY:	APP'D BY:	SCALE:
J.O.C.	-	N.T.S.
DRAWING #		REVISION #
SAB110-2018-6		1



Welder's I.D. Numbers Schedule

Mark Kinzel	#4
Jesse Duncalfe	#5
Chris Gauthier	#8
Kyle Potter	#9
Kyle Fehr	#10
Chris Gaudet	#11
Dayton Tymchuck	#12
Byron Oulton	#13
Jesse Hayes	#14
Kory Andrusiak	#15
Glen Cosby	#17
Alex Hoy	#18
Justin Harris	#20

SHELL WELD MAP
VIEWED FROM INSIDE

LEGEND

IN|8 OUT|8 WELDED BY

1A-2 X-RAY TAKEN

[ ] NEW WELD BETWEEN

AS BUILT

#	REVISION DESCRIPTION	DATE	BY
1	ISSUED AS-BUILT	SEP 12/19	JOC

GEM STEEL

9060 - 24 Street
Edmonton, Alberta
Canada T6P1X8
Ph. (780) 449-0000
Fax. (780) 449-0001

TANK ID 53-TK-01 - Goose Site
TANK ID 73-TK-01 - MLA Site 2019

ENGINEER:

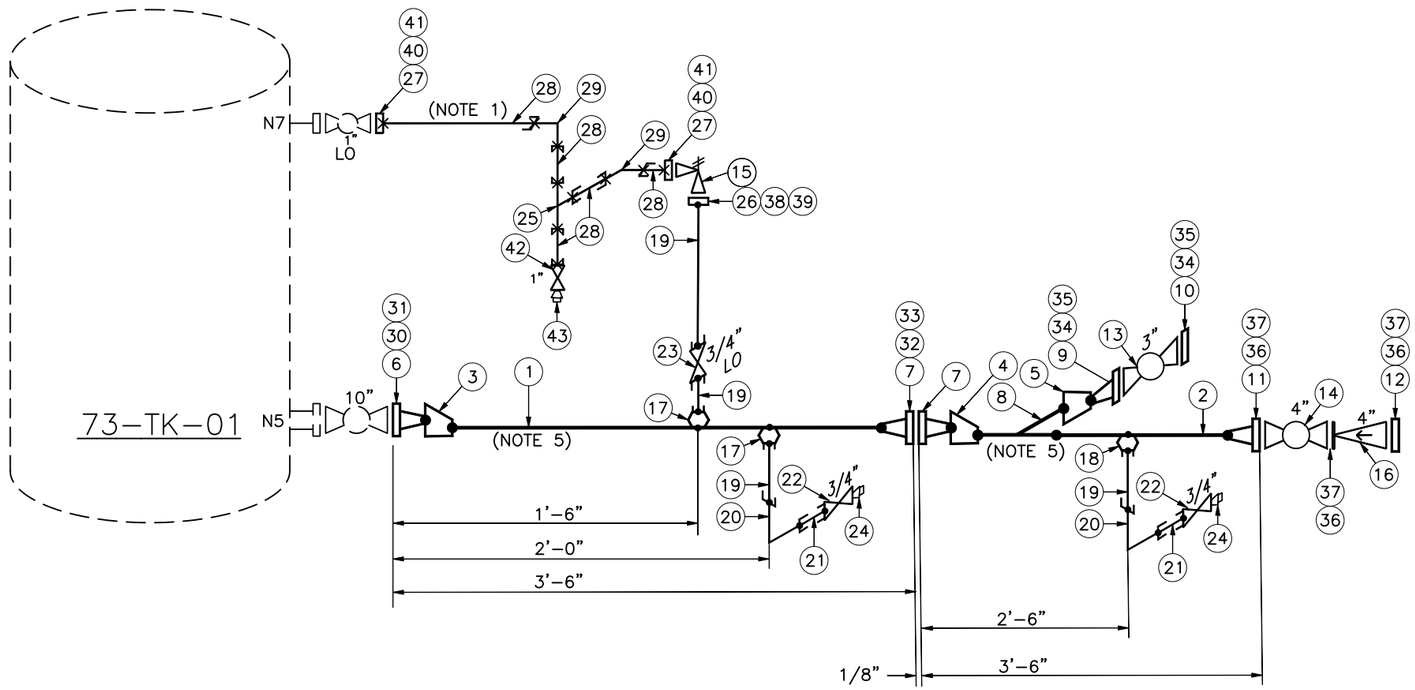
Document No: SBR7GEM-73-S-PLN-0004

TITLE: SHELL WELD MAP & RADIOGRAPH TEST MAP

PROJECT: **Tanks 1 & 2, 110' Ø x 40' High Diesel Fuel Storage Tanks**

CLIENT: **Sabina Gold and Silver Corp.**
Back River Project, Bathhurst Inlet, Nunavut

CHK'D BY:	DATE:	CADFILE:
B.K.G.	Aug 2019	7
DRAWN BY:	APP'D BY:	SCALE:
J.O.C.	-	N.T.S.
DRAWING #		REVISION #
SAB110-2018-7		1



NOTES:

1. PIPING TO BE FIELD RUN. INSTALLATION CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, FIELD WELDS, PIPING ARRANGEMENT AND CHECK MATERIAL QUANTITIES PRIOR TO FABRICATION.
2. FIELD WELDS & TRIM ALLOWANCES SHALL BE LOCATED BY CONTRACTOR UNLESS NOTED OTHERWISE.
3. DEVIATIONS ARE NOT PERMITTED UNLESS APPROVED IN WRITING BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. ALL ABOVE GRADE PIPING TO BE SUPPLIED WITH ONE COAT OF PPG AMERCOAT@68HS AND ONE COAT OF PPE PSX-700. FIELD FABRICATED PIPING TO BE SUPPLIED WITH 6"LG BARE ENDS.

SHOP FIELD WELD WELD

Document No: SBR7SBB-73-P-ISO-0001

MATERIAL LIST

ITEM	DESCRIPTION	SIZE	QUANT.
1	PIPE, SMLS, SCH 40, ASTM A333 GR 6 BBE, ASME B36.10	8	PER DWG
2	PIPE, SMLS, SCH 80, ASTM A333 GR 6 PBE, ASME B36.10	4	PER DWG
3	REDUCER, ECC, SCH 40, ASTM A420 WPLG BW, ASME B16.9 BW	10x8	1
4	REDUCER, ECC, SCH 40, ASTM A420 WPLG BW, ASME B16.9 BW	8x4	1
5	REDUCER, ECC, SCH 40, ASTM A420 WPLG BW, ASME B16.9 BW	4x3	1
6	FLANGE, ASTM A350 FSLF2 FS, WN, RF, CL150, SCH 40 BORE, ASME B16.5	10	1
7	FLANGE, ASTM A350 FSLF2 FS, WN, RF, CL150, SCH 40 BORE, ASME B16.5	8	2
8	TEE, STR, BW, ASTM A420 WPLG, SCH 40, ASME B16.9 (NOTE 9)	4	1
9	FLANGE, ASTM A350 FSLF2 FS, WN, RF, CL150, SCH 40 BORE, ASME B16.5	3	1
10	BLIND FLANGE, ASTM A350 FSLF2 FS, RF, CL150, ASME B16.5	3	1
11	FLANGE, ASTM A350 FSLF2 FS, WN, RF, CL150, SCH 40 BORE, ASME B16.5	4	1
12	BLIND FLANGE, ASTM A350 FSLF2 FS, RF, CL150, ASME B16.5	4	1
13	VALVE, BALL, V314 - CL150 RF, HANDWHEEL OR LEVER OP, API 607, 6D, 598	3	1
14	VALVE, BALL, V314 - CL150 RF, HANDWHEEL OR LEVER OP, API 607, 6D, 598	4	1
15	THERMAL RELIEF VALVE, CL150 RF, CONSOLIDATED 19000 LOW TEMPERATURE DIESEL SERVICE	3/4x1	1
16	SWING CHECK VALVE, V710, CL150 RF, API 600	4	1
17	SOCKOLET, ASTM A350 LF2, FS SW CL3000, B16.11 SW	8x3/4	2
18	SOCKOLET, ASTM A350 LF2, FS SW CL3000, B16.11 SW	4x3/4	1
19	NIPPLE, ASTM A333 GR 6 PBE, SCH-80, 3" LG, ASME B36.10	3/4x3LG	5
20	ELBOW, 90 DEG, SW, ASTM A350 LF2, CL3000, ASME B16.11	3/4	2
21	NIPPLE, ASTM A333 GR 6 PBE, SCH-80, 6" LG, ASME B36.10	3/4x6LG	2
22	VALVE, GATE, V208-SW/TH - CL800 SWxTHRD, HANDWHEEL OP, API 602	3/4	2
23	VALVE, GATE, V208-SW/SW - CL800 SWxSW, HANDWHEEL OP, API 602	3/4	1
24	PLUG, ASTM A350 LF2 FS TE, ROUND HEAD, ASME B16.11	3/4	2
25	TEE, STR, SW, ASTM A350 LF2 FS, CLASS 3000, ASME B16.11	1	1
26	FLANGE, A350 FS SW, RF, CL150, ASME B16.5	3/4	1
27	FLANGE, A350 FS SW, RF, CL150, ASME B16.5	1	2
28	PIPE, SMLS, SCH 80, ASTM A333 GR 6 BBE, ASME B36.10	1	80'-0"
29	ELBOW, 90 DEG, SW, ASTM A350 LF2, CL3000, ASME B16.11	1	2
30	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	10	1
31	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (4.50 LG)	7/8x4 1/2	12
32	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	8	1
33	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (4.25 LG)	3/4x4 1/4	8
34	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	3	1
35	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (3.50 LG)	5/8x3 1/2	4
36	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	4	1
37	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (3.50 LG)	5/8x3 1/2	8
38	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	3/4	1
39	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (2.50 LG)	1/2x2 1/2	4
40	GASKET, 316 SP WOUND, CL150, FLEX GRAPHITE, C.STL CR, 316 IR, ASME B16.20	1	2
41	STUD BOLT w/2 HVY HEX NUT, A320-GR.L7/A194-GR.4 (CL150) (2.50 LG)	1/2x2 1/2	4
42	VALVE, GATE, V208-SW/SW - CL800 SWxSW, HANDWHEEL OP, API 602	1	1
43	PLUG, ASTM A350 LF2 FS TE, ROUND HEAD, ASME B16.11	1	1

REV.	Y M D DATE	DESCRIPTION	BY	CHK.	ENG.	APP.

TITLE

TLINE1
TLINE2

DESIGN AND INSPECTION DATA:	SERVICE: DIESEL	SPEC: SC5	REV: LATEST	DESIGN DATA: 285PSIG@100°F/20PSIG@-49°F		OPERATING DATA: 20PSIG@70°F/20PSIG@-20°F	INSPECTION CLASS: II	HYDRO TEST: 428PSIG	PNEUM TEST: N/A	TIME(MIN): 30MIN	ADDITIONAL REQUIREMENTS : N/A		
	FABRICATE PER ANSI CODE: B31.3		APPROVED BY A.B.B. N/A		GASKET SPACING 1/8"	DEVIATIONS TO SPEC: N/A	X-RAY WELDS SHOP 10 % FIELD 10 %						
PROTECTIVE WARMING REQUIREMENTS: N/A	ELECTRICAL: N/A	STEAM N/A	RATING N/A	SUP. N/A	GLYCOL: N/A	TRACER (QTY, SIZE) N/A	TRACER MATERIAL: N/A	CLADDING THK AND MAT: N/A	INSUL. CLASS: N/A	INSUL. THK AND MAT: N/A			

EQUIP. NO.	PLANT AREA	LINE NO.	
DRAWN BY	CHECKED BY	SAP NO.	
APPROVED	DRAWING NO.		REV. B

Document No: SBR7SBB-73-S-IR-0002

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Edmonton, AB, Canada T6P 1N8
www.acuren.com

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RADIOGRAPHIC EXAMINATION

PAGE 1 OF 1

CLIENT AND PROJECT INFORMATION:

CLIENT: Gem Steel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA N.U. 73-TK-01
DATE: Aug 22 19
ACUREN JOB #: 231-0096842
REPORT #: Bo-22-08-19-1
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650 REVISION: 2013 MATERIAL: C/S
PROCEDURE/TECHNIQUE: CAN-RT-14P001 REVISION: 8 FILM BRAND: Agfa
SOURCE: ☑ Ir 192 ☐ Co 60 ☐ Se 75 35 Ci ☐ X-ray kV FOCAL SPOT: 2.98mm SCREENS: ☑ Lead (Pb) ☐ Other: THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (x)
	V6A-1		0-6	N/A	7/16"	1/8"	12"	9/16"	D5	3	1	P-2, S-1	✓	
	V6A-2		↓	↓	↓	↓	↓	↓	↓	↓	↓	P1	✓	
	V6A-3											Transverse crack in horizontal		X
	V7A-1											P-1	✓	
	V7A-2											P-1	✓	
	V7A-3												✓	

The Client Representative who receives this report is responsible for verifying that the acceptance standard listed in the report is correct, confirming that all radiographs listed in the report have been received by Client and promptly notifying Acuren of any issues with this report and/or the work summarized herein. The owner is responsible for the permanent custody of all radiographs and the final disposition of all items inspected.

SIGNATURES:

	(PRINT)	(SIGNATURE)	LEVEL CGSB	LEVEL SNT	REG. # CGSB
CLIENT REPRESENTATIVE	ERIC MOODIE				
1ST TECHNICIAN	Brad Osmond		II	II	3161
2ND TECHNICIAN	Marie Lederer				10288
REVIEWER (IF APPLICABLE)					

DTR #: 448978

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Document No: SBR7SBB-73-S-IR-0002

RADIOGRAPHIC EXAMINATION

CLIENT AND PROJECT INFORMATION:

CLIENT: GemSteel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA - N.U
73-TK-01
DATE: Aug 23/19
ACUREN JOB #: 231-0096842
REPORT #: BO-23-08-19-1
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650
REVISION: 2013
MATERIAL: c/s
PROCEDURE/TECHNIQUE: CAN-RT-14P001
REVISION: 8
FILM BRAND: Agfa
SOURCE: ☑ Ir 192 ☐ Co 60 ☐ Se 75 35 Ci ☐ X-ray kV FOCAL SPOT: 2.98 mm SCREENS: ☐ Lead (Pb) ☐ Other:
THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	V1A-1		0-6	N/A	7/16"	1/8"	12"	9/16"	25	3	1	P-1, S-2 in horizontal	✓	
	V1A-2											P-1	✓	
	V1A-3												✓	
	V2A-1											P-1	✓	
	V2A-2											P-1	✓	
	V2A-3											P-1	✓	
	V3A-1											P-1	✓	
	V3A-2												✓	
	V3A-3											P-1	✓	
	V4A-1												✓	
	V4A-2											P-1	✓	
	V4A-3											P-1	✓	
	V8A-1											P-2 @ 0, S-1	✓	
	V8A-2											P-1	✓	
	V8A-3											P-1	✓	

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SIGNATURES:

	(PRINT)	(SIGNATURE)	LEVEL CGSB	LEVEL SNT	REG. # CGSB
CLIENT REPRESENTATIVE	ERIC ADDIE				
1ST TECHNICIAN	Brad Osmond		II	II	3161
2ND TECHNICIAN	Marie Lederer				10280
REVIEWER (IF APPLICABLE)					

DTR #: 448979

Document No: SBR7SBB-73-S-IR-0002

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Edmonton, AB, Canada T6P 1N8
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RADIOGRAPHIC EXAMINATION

CLIENT AND PROJECT INFORMATION:

CLIENT: Gem Steel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA - N.U
73-TK-01
DATE: Aug 23/19
ACUREN JOB #: 231-0096842
REPORT #: BO-23-08-19-2
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650
PROCEDURE/TECHNIQUE: CAN-RT-14-P001
REVISION: 2013
REVISION: 8
MATERIAL: c/s
FILM BRAND: Agfa
SOURCE: ☑ Ir 192 ☐ Co 60 ☐ Se 75 35 Ci ☐ X-ray kV FOCAL SPOT: 2.98 mm SCREENS: ☑ Lead (Pb) ☐ Other:
THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	V6A-3T1		0-6	N/A	3/8"	1/8"	12"	1/2"	D5	3	1	transverse crack @ 5-6		X
	V1B-1											P-1	✓	
	V2B-1											S-1	✓	
	V3B-1												✓	
	V4B-1											S-1	✓	
	V5B-1											P-1		
	V6B-1											P-1		
	V7B-1											P-1	✓	
	V8B-1													
	H1-2-1												✓	
	H1-2-2											P-3 @ O-1		X
	H2-3-1													
	H3-4-1													
	H4-5-1													
	V3D-1											S-1		

SIGNATURES:

		LEVEL		REG. #
CLIENT REPRESENTATIVE: ERIC ADDIE (PRINT)	(SIGNATURE)			
1ST TECHNICIAN: Brad Osmond (PRINT)	(SIGNATURE)	II CGSB	III SNT	3161 CGSB
2ND TECHNICIAN: Marie Lederer (PRINT)	(SIGNATURE)	CGSB	SNT	10288 CGSB
REVIEWER (IF APPLICABLE) (PRINT)	(SIGNATURE)			

DTR #: 448979

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ACUREN A Higher Level of Reliability

Document No: SBR7SBB-73-S-IR-0002

RADIOGRAPHIC EXAMINATION

CLIENT AND PROJECT INFORMATION:

CLIENT: GemSteel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA - N.U 73-TK-01
DATE: Aug 24/19
ACUREN JOB #: 231-0096842
REPORT #: BO-24-08-19-1
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650 REVISION: 2013 MATERIAL: c/s
PROCEDURE/TECHNIQUE: CAN-RT-14P001 REVISION: 8 FILM BRAND: Agfa
SOURCE: ☒ Ir 192 ☐ Co 60 ☐ Se 75 35 Ci ☐ X-ray kV FOCAL SPOT: 2.98mm SCREENS: ☑ Lead (Pb) ☐ Other: THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

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#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	H2-3-a		0-6	N/A	3/8"	1/8"	12"	1/2"	D5	3	1		✓	
	H3-4-a		↓	↓	↓	↓	↓	↓	↓	↓	↓		✓	
	H4-5-a												✓	
	V5D-1												✓	

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SIGNATURES:

		LEVEL CGSB	LEVEL SNT	REG. # CGSB
CLIENT REPRESENTATIVE (PRINT) ERIC ADDIE	(SIGNATURE)			
1ST TECHNICIAN (PRINT) Brad Osmond	(SIGNATURE)	II	II	3161
2ND TECHNICIAN (PRINT) Marie Lederer	(SIGNATURE)			10488
REVIEWER (IF APPLICABLE) (PRINT)	(SIGNATURE)			

DTR #: 448980

Document No: SBR7SBB-73-S-IR-0002

Acuren Group Inc.
7450 - 18th Street
Edmonton, AB, Canada T6P 1N8
www.acuren.com

ACUREN

A Higher Level of Reliability

RADIOGRAPHIC EXAMINATION

PAGE 1 OF 1

CLIENT AND PROJECT INFORMATION:

CLIENT: Gem Steel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA - NU 73-TK-05
DATE: Aug 24/19
ACUREN JOB #: 231-0096842
REPORT #: BO-24-08-19-2
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650
PROCEDURE/TECHNIQUE: CAN-RT-14 P001
REVISION: 2013
REVISION: 8
MATERIAL: c/s
FILM BRAND: Agfa
SOURCE: ☑ Ir 192 ☐ Co 60 ☐ Se 75 35 Ci ☐ X-ray kV FOCAL SPOT: 2.98 mm SCREENS: ☑ Lead (Pb) ☐ Other:
THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	V1A-1		0-6	N/A	1/4"	1/8"	12"	3/8"	D5	3	1	P-1	✓	
	V1A-2		↓	↓	↓	↓	↓	↓	↓	↓	↓	P-1, S-1	✓	
	V2A-1											S-1	✓	
	V1B-1											P-1, S-1, drying mark 0-2	✓	
	V1C-1											P-1	✓	
	H1-2-1												✓	
	H2-3-1											P-1	✓	

SIGNATURES:

			LEVEL CGSB	LEVEL SNT	REG. # CGSB
CLIENT REPRESENTATIVE	ERIC ADDIE (PRINT)	(SIGNATURE)			
1ST TECHNICIAN	Brad Osmond (PRINT)	(SIGNATURE)	II	II	3161
2ND TECHNICIAN	Marie Lederer (PRINT)	(SIGNATURE)			10288
REVIEWER (IF APPLICABLE)	(PRINT)	(SIGNATURE)			

DTR #: 448980

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ACUREN

A Higher Level of Reliability

Document No: SBR7SBB-73-S-IR-0002

RADIOGRAPHIC EXAMINATION

CLIENT AND PROJECT INFORMATION:

CLIENT: Gem Steel
PROJECT: Sabina
DATE: Aug 25/19
ADDRESS:
ACUREN JOB #: 231-6096842
WORK LOCATION: MLA - N.U
REPORT #: BO-25-08-19-1
ATTENTION: Steve Davies
73-TK-01
CONTRACT/PO: 06631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650
REVISION: 2013
MATERIAL: c/s
PROCEDURE/TECHNIQUE: CAN-RT-14P001
REVISION: B
FILM BRAND: Agfa
SOURCE: ☑ Ir 192 ☐ Co 60 ☐ Se 75 34 Ci ☐ X-ray ____ kV FOCAL SPOT: 2.98mm SCREENS: ☑ Lead (Pb) ☐ Other: ____ THK (F) .005" (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	H1-2-2R		0-6	N/A"	3/8"	1/8"	12"	1/2"	D5	3	1	P1	✓	
	H1-2-2T1		↓	↓	↓	↓	↓	↓	↓	↓	↓		✓	
	V6A-3T1R		↓	↓	↓	↓	↓	↓	↓	↓	↓	P1	✓	

SIGNATURES:

		LEVEL		
CLIENT REPRESENTATIVE (PRINT): ERIC ADDIE	(SIGNATURE): EA			DTR #: 448981
1ST TECHNICIAN (PRINT): Brad Osmond	(SIGNATURE): Brad Osmond	II CGSB	II SNT	REG. # 3161 CGSB
2ND TECHNICIAN (PRINT): Marie Lederer	(SIGNATURE):	CGSB	SNT	10288 CGSB
REVIEWER (IF APPLICABLE) (PRINT):	(SIGNATURE):			

Acuren Group Inc.
7450 - 18th Street
Edmonton, AB, Canada T6P 1N8
www.acuren.com

ACUREN

A Higher Level of Reliability

Document No: SBR7SBB-73-S-IR-0002

RADIOGRAPHIC EXAMINATION

CLIENT AND PROJECT INFORMATION:

CLIENT: Gem Steel
ADDRESS:
ATTENTION: Steve Davies
PROJECT: Sabina
WORK LOCATION: MLA N.U 73-TK-01
DATE: Aug 26/19
ACUREN JOB #: 231 0096842
REPORT #: BO-26-09-19-1
CONTRACT/PO: 00631 WO: N/A

TEST DETAILS:

ACCEPTANCE STANDARD: API 650
PROCEDURE/TECHNIQUE: CAN-RT-14P001
SOURCE: ☒ Ir 192 ☐ Co 60 ☐ Se 75 34 Ci ☐ X-ray kV FOCAL SPOT: 2.98 mm SCREENS: ☒ Lead (Pb) ☐ Other:
REVISION: 2013
REVISION: 8
MATERIAL: c/s
FILM BRAND: Agfa
THK (F) .005 (B) .010"

RESULTS: (ENTER UNITS OF MEASUREMENT IN TABLE HEADER)

ONE FILM USED PER CASSETTE, UNLESS NOTED IN REMARKS

#	IDENTIFICATION	WS*	VIEW in	O.D. in	NOM. THK. in	REIN. in	SOD in	OFD in	FILM TYPE	TECH #	# OF EXP	REMARKS	ACC. (✓)	REJ. (×)
	V5A-1		6-6	N/A	7/16"	1/8"	9/16"	12"	D5	3	1	P-1	✓	
	V5A-2		↓	↓	↓	↓	↓	↓	↓	↓	↓	P-1	✓	
	V5A-3		↓	↓	↓	↓	↓	↓	↓	↓	↓	P-1, S-2	✓	
	V9A-1		↓	↓	↓	↓	↓	↓	↓	↓	↓		✓	
	V9A-2		↓	↓	↓	↓	↓	↓	↓	↓	↓	P-1	✓	
	V9A-3		↓	↓	↓	↓	↓	↓	↓	↓	↓		✓	
	H1-2-3		↓	↓	↓	↓	↓	↓	↓	↓	↓	S-1	✓	

The Client Representative who receives this report is responsible for verifying that the acceptance standard listed in the report is correct, confirming that all radiographs listed in the report have been received by Client and promptly notifying Acuren of any issues with this report and/or the work summarized herein. The owner is responsible for the permanent custody of all radiographs and the final disposition of all items inspected.

SIGNATURES:

			LEVEL CGSB	LEVEL SNT	REG. # CGSB
CLIENT REPRESENTATIVE	ERIC ADDIE (PRINT)	(SIGNATURE)			
1ST TECHNICIAN	Brad Osmond (PRINT)	(SIGNATURE)	II	II	3161
2ND TECHNICIAN	Marie Lederer (PRINT)	(SIGNATURE)			10288
REVIEWER (IF APPLICABLE)	(PRINT)	(SIGNATURE)			

DTR #: 448982

A&A Technical Services
Yellowknife NT

Sabina MLA
Fuel tank pad 60mil textured HDPE liner installation
July 13-15, 2019

A&A Technical Services
Yellowknife NT

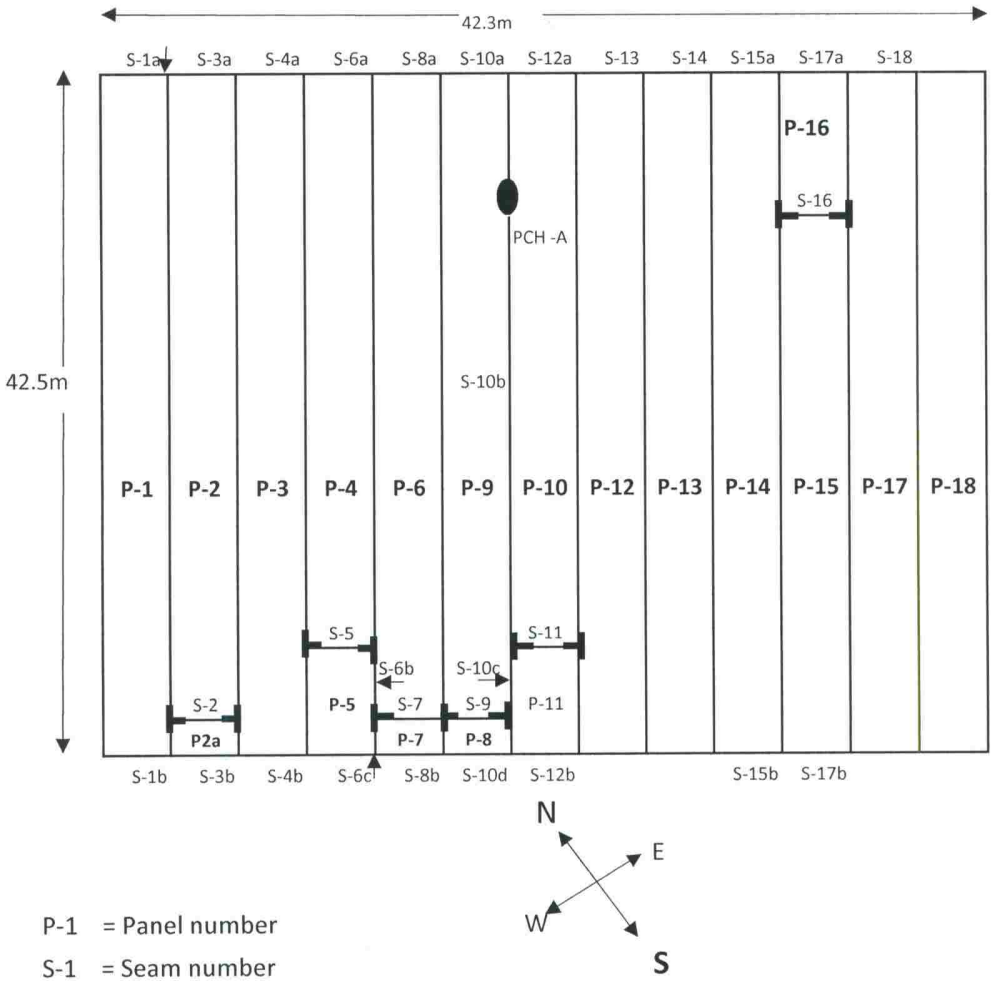
Sabina MLA
Fuel tank pad 60mil textured HDPE liner installation
July 13-15, 2019

TECHNICAL SERVICES

A&A Technical Services
Yellowknife NT
July 13-15, 2019

Sabina Gold and Silver
MLA site - Fuel Tank Pad HDPE liner installation.

60mil textured HDPE sandwiched between 540g/m2 non-woven geotextile.
Panel layout drawing.



P-1 = Panel number
S-1 = Seam number
PCH = Patch number
= Extrusion T weld

* Note: Not to scale

A&A Technical Services
Yellowknife NT
July 13-15, 2019

Sabina Gold and Silver
MLA site - Fuel Tank Pad HDPE liner installation.

Panel log

Panel #	Roll #	Length m	width m	m2
1	1-142263	42.5	3.25	138.1
2	1-142263	41	3.25	133.3
2a	1-142263	1.5	3.25	4.9
3	1-142263	42.5	3.25	138.1
4	1-142263	37.5	3.25	121.9
5	1-142263	5.0	3.25	16.3
6	1-142263	41.0	3.25	133.3
7	1-142263	1.5	3.25	4.9
8	1-142263	1.5	3.25	4.9
9	1-142263	41.0	3.25	133.3
10	1-142263	37.5	3.25	121.9
11	5-14314	5.0	3.25	16.3
12	5-14314	42.5	3.25	138.1
13	5-14314	42.5	3.25	138.1
14	5-14314	42.5	3.25	138.1
15	5-14314	30.6	3.25	99.5
16	5-14314	11.9	3.25	38.7
17	5-14314	42.5	3.25	138.1
18	5-14314	42.5	3.25	138.1

Total m2 **1795.6**

A&A Technical Services
Yellowknife NT
July 13-15, 2019

Sabina Gold and Silver
MLA site - Fuel Tank Pad HDPE liner installation.

Wedge welder qualification

Peel strength

14-Jul-19	Inside weld	Outside weld	Minimum ppi (lbs/inch)
1	136	141	91
2	140	140	91
3	142	136	91
4	145	142	91

Shear Strength

14-Jul-19			Minimum ppi (lbs/inch)
1	161		120
2	155		120

Peel strength

15-Jul-19	Inside weld	Outside weld	Minimum ppi (lbs/inch)
1	144	135	91
2	146	150	91
3	148	151	91
4	146	149	91

Shear Strength

15-Jul-19			Minimum ppi (lbs/inch)
1	161		120
2	160		120

Destruct samples taken from N. end of seam 1 peel tests

15-Jul-19	Inside weld	Outside weld	Minimum ppi (lbs/inch)
1	144	139	91
2	144	146	91

Destruct samples taken from either side of PCH A peel tests

15-Jul-19	Inside weld	Outside weld	Minimum ppi (lbs/inch)
1 North	144	139	91
2 North	144	146	91
3 South	152	149	91
4 South	145	149	91

Extrusion welder qualification

15-Jul-19	Peel strength		Minimum ppi (lbs/inch)
1	138		78
2	144		78

Shear Strength

1	158		120
2	152		120

A&A Technical Services
Yellowknife NT
July 13-15, 2019

Sabina Gold and Silver
MLA site - Fuel Tank Pad HDPE liner installation.

Non destructive air pressure testing

Date	Technician	Seam #	Start psi	Finish psi	Pass/Fail	Comments
15-Jun-19	AH	S-1a	30	30	Pass	
15-Jun-19	AH	S-1b	35	35	Pass	
15-Jun-19	AH	S-2	35	35	Pass	
15-Jun-19	AH	S-3a	35	35	Pass	
15-Jun-19	AH	S-3b	35	35	Pass	
15-Jun-19	AH	S-4a	35	35	Pass	
15-Jun-19	AH	S-4b	34	34	Pass	
15-Jun-19	AH	S-5	34	34	Pass	
15-Jun-19	AH	S-6a	35	35	Pass	
15-Jun-19	AH	S-6b	35	35	Pass	
15-Jun-19	AH	S-6c	35	35	Pass	
15-Jun-19	AH	S-7	35	35	Pass	
15-Jun-19	SH	S-8a	35	35	Pass	
15-Jun-19	SH	S-8b	35	35	Pass	
15-Jun-19	SH	S-9	35	35	Pass	
15-Jun-19	SH	S-10a	35	35	Pass	
15-Jun-19	SH	S-10b	35	35	Pass	
15-Jun-19	SH	S-10c	40	40	Pass	
15-Jun-19	SH	S-10d	35	35	Pass	
15-Jun-19	SH	S-11	35	35	Pass	
15-Jun-19	SH	S-12a	35	35	Pass	
15-Jun-19	SH	S-12b	36	36	Pass	
15-Jun-19	SH	S-13	35	35	Pass	
15-Jun-19	SH	S-14	35	35	Pass	
16-Jun-19	SH	S-15a	35	35	Pass	
16-Jun-19	SH	S-15b	35	35	Pass	
16-Jun-19	SH	S-16	30	30	Pass	
16-Jun-19	SH	S-17a	30	30	Pass	
16-Jun-19	SH	S-17b	33	33	Pass	
16-Jun-19	SH	S-18	35	35	Pass	

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Whati - NWT

Project Number : 19-008

Reference Number : 112486

Packing Slip Number : 226974

SOLMAX APPROVED Quality Assurance

Product : 1039792

HDPE 1.50 mm Black ST

CE Certificate = HD-60-ST-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	Each Roll
Specification		1.43 / 1.28	≥ 0.940	2.0 - 3.0	Cat. 1 / Cat. 2	23	13	23	150	200	535	± 2	0.40
1-142255	MD	1.43 / 1.38	0.950	2.54	10 /10 Views	26.1	17.5	35.8	566	206	602		/ 0.57
	XD					26.3	16.4	31.6	524	220			
1-142257	MD	1.43 / 1.38	0.950	2.67	10 /10 Views	26.2	17.6	36.9	598	206	602		/ 0.56
	XD					26.4	16.7	31.5	544	220			
1-142263	MD	1.44 / 1.40	0.951	2.55	10 /10 Views	25.4	18.1	38.3	627	207	601		/ 0.51
	XD					25.5	16.8	31.7	555	221			

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tel.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name: Shell Albian Sands, Fort McMur

Project Number: 00019681

Reference Number: 108048

Packing Slip Number: 216856

SOLMAX Approved Quality Assurance

Product Solmax 460CWST-9003

HDPE 1.50 mm S-Textured - Conductive White

CE Certificate = 60--

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5994	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	D7466
Frequency		Each roll	1/2 ro	1/2 ro	1/6 ro	1/2 ro				1/6 ro	1/6 ro	1/6 ro	Each roll
Specification		1.43 / 1.28	≥ 0.940	2.0 - 3.0	Cat. 1 / Cat. 2	23	13	23	150	200	534	± 2	0.38
5-14297	MD	56.2 / 55	0.947	2.70	10 /10 Views	151.8	17.9	233	627	46.7	147.9	-0.15	16.8 /
	XD					151.2	17.0	227	635	50.1		-0.13	
5-14302	MD	56.6 / 55	0.947	2.51	10 /10 Views	151.2	17.4	245	661	46.7	147.9	-0.15	16.5 /
	XD					152.6	16.7	239	668	50.1		-0.13	
5-14304	MD	56.4 / 53	0.948	2.71	10 /10 Views	148.7	17.8	237	612	46.3	147.8	-0.22	16.5 /
	XD					152.2	16.3	227	662	51.2		-0.03	
5-14308	MD	57.3 / 56	0.948	2.72	10 /10 Views	147.1	17.6	217	602	46.3	147.8	-0.22	17.9 /
	XD					156.3	16.3	210	607	51.2		-0.03	
5-14309	MD	57.0 / 55	0.949	2.76	10 /10 Views	150.0	17.9	218	596	46.4	146.9	-0.22	18.1 /
	XD					153.5	16.1	218	628	49.6		-0.03	
5-14314	MD	56.4 / 55	0.950	2.82	10 /10 Views	145.6	17.9	230	645	45.9	147.1	-0.11	17.1 /
	XD					151.9	16.8	217	641	50.0		-0.04	
5-14315	MD	56.4 / 53	0.950	2.82	10 /10 Views	145.6	17.9	230	645	45.9	147.1	-0.11	17.2 /
	XD					151.9	16.8	217	641	50.0		-0.04	
5-14316	MD	56.3 / 55	0.948	2.84	10 /10 Views	141.4	18.4	216	608	45.9	147.1	-0.11	17.2 /
	XD					147.7	16.6	222	670	50.0		-0.04	
5-14318	MD	57.6 / 55	0.948	2.73	10 /10 Views	145.1	18.1	235	639	45.9	147.1	-0.11	16.9 /
	XD					154.3	16.9	213	624	50.0		-0.04	
5-14320	MD	56.9 / 54	0.951	2.73	10 /10 Views	147.7	17.9	219	623	46.4	147.2	-0.11	16.6 /
	XD					146.2	16.9	226	653	50.2		-0.04	
5-14321	MD	56.5 / 55	0.951	2.73	10 /10 Views	147.7	17.9	219	623	46.4	147.2	-0.11	17.2 /
	XD					146.2	16.9	226	653	50.2		-0.04	
5-14322	MD	56.7 / 55	0.949	2.65	10 /10 Views	150.6	17.4	214	571	46.4	147.2	-0.11	19.4 /
	XD					146.8	17.6	222	657	50.2		-0.04	
5-14323	MD	56.3 / 55	0.949	2.65	10 /10 Views	150.6	17.4	214	571	46.4	147.2	-0.11	17.6 /
	XD					146.8	17.6	222	657	50.2		-0.04	

CERTIFIED WELDING TECHNICIAN

The International Association of Geosynthetic Installers
Certifies:

ALAN HARMAN

As a **Certified Welding Technician**, in polyethylene wedge and extrusion welding, having demonstrated superior hands-on skills, knowledge and experience in the welding and installation of polyethylene (PE) geomembranes, and having basic mechanical aptitude for working with welders and equipment on the job site.
Registration number: **CWT162010**

Valid 07 June 2016 — 07 June 2021

International Association of Geosynthetic Installers

President, IAGI

Managing Director, IAGI

A&A Technical Services
Subgrade acceptance and warranty

Client –Sabina Gold and Silver
MLA – Fuel Tank pad liner installation.
July 13-15, 2019

Upon arrival to site the fuel tank pad area to be lined was thoroughly inspected by A&A Technical Services installation supervisor and deemed to be a suitable surface on which to place the HDPE lining system. The SOLMAX 60mil textured HDPE liner was sandwiched between two layers of 540g/m2 non-woven geotextile.

Warranties issued by A&A Technical Services shall cover only the cost of replacement and/or repair of defective installations, determined or agreed to be the responsibility of A&A Technical Services, provide that the warranty work will be performed to the same standards and scope of work set out in the contract documents. A&A's installation warranty shall commence upon acceptance of the individual geosynthetic components by the owner or its representative as such components are completed. The installation warranty period shall not exceed beyond 1 years. Our installation warranty is rendered null and void if the installed geosynthetics are subject to abuse by machinery, equipment or personnel not under the control of A&A, harmful chemicals or unusual weather conditions or catastrophic earthworks failures.

A&A Technical Services shall not be held liable for defects, damage and/or deficient materials and installations, either in whole or in part should the defects, damage or deficient materials and installations arise as the result from the use of poor quality and inappropriate or unsuitable earthworks material or site preparation. This limitation of liability extends to improper and/or construction techniques, and methods and equipment used to create the earthworks covering all or any portion of the completed geosynthetic installation.

Signed: Dated: July 16, 2019

Al Harman
President
A&A Technical Services
Yellowknife NT

A&A Technical Services
Yellowknife NT

Sabina Gold and Silver – MLA

Fuel tank farm HDPE liner installation Q/C report
July 30 – August 18, 2021

TECHNICAL SERVICES

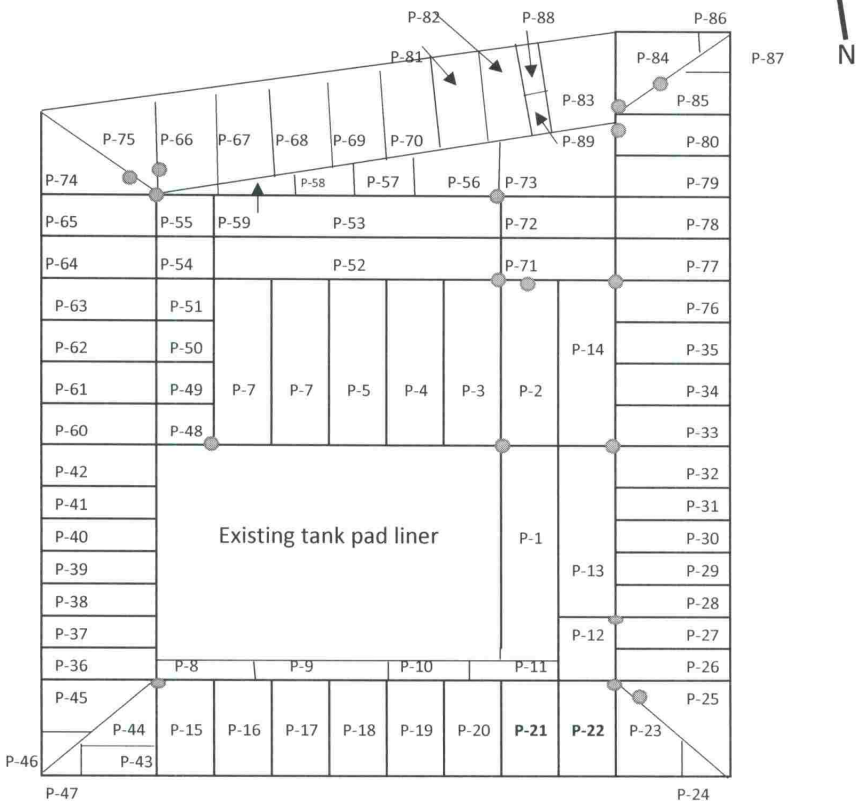
Sabina Gold and Silver – MLA

Fuel tank farm HDPE liner installation Q/C report
July 30 – August 18, 2021

TECHNICAL SERVICES

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Panel layout drawing.



Wedge weld seams
Patches
Liner panel — see liner panel log for dimensions

Note: Not to scale

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Liner panel log

Date placed	Panel #	Roll #	Length m	width m	m2
Aug. 2, 2021	1	2097290	45.0	6.7	301.5
Aug. 4, 202	2	2-97290	30.0	6.7	201
Aug. 4, 202	3	2-97304	30.0	6.7	201
Aug. 4, 202	4	2-97304	30.0	6.7	201
Aug. 4, 202	5	2-97304	30.0	6.7	201
Aug. 4, 202	6	2-97304	30.0	6.7	201
Aug. 4, 202	7	2-97304	30.0	6.7	201
Aug. 6, 2021	8	2-97317	12.0	6.0	72
Aug. 6, 2021	9	2-97317	15.0	6.0	90
Aug. 6, 2021	10	2-97317	12.0	6.0	72
Aug. 6, 2021	11	2-97317	13.0	6.0	78
Aug. 7, 2021	12	2-97317	5.0	6.7	33.5
Aug. 7, 2021	13	2-97317	40.0	6.7	268
Aug. 7, 2021	14	2-97317	30.0	6.7	201
Aug. 9, 2021	15	2-97317	11.0	6.7	73.7
Aug. 9, 2021	16	2-97317	11.0	6.7	73.7
Aug. 9, 2021	17	2-97320	11.0	6.7	73.7
Aug. 9, 2021	18	2-97320	11.0	6.7	73.7
Aug. 9, 2021	19	2-97320	11.0	6.7	73.7
Aug. 9, 2021	20	2-97320	11.0	6.7	73.7
Aug. 9, 2021	21	2-97320	11.0	6.7	73.7
Aug. 9, 2021	22	2-97320	11.0	6.7	73.7
Aug. 10, 2021	23	2-97320	11.0	6.7	73.7
Aug. 10, 2021	24	2-97320	4.0	4.0	16
Aug. 10, 2021	25	2-97320	11.0	3.4	37.4
Aug. 10, 2021	26	2-97320	11.0	6.7	73.7
Aug. 10, 2021	27	2-97320	11.0	6.7	73.7
Aug. 10, 2021	28	2-97320	11.0	6.7	73.7
Aug. 10, 2021	29	2-97320	11.0	6.7	73.7
Aug. 10, 2021	30	2-97320	11.0	6.7	73.7
Aug. 10, 2021	31	2-97300	11.0	6.7	73.7
Aug. 11 , 2021	32	2-97300	11.0	6.7	73.7
Aug. 11 , 2021	33	2-97300	11.0	6.7	73.7
Aug. 11 , 2021	34	2-97300	11.0	6.7	73.7
Aug. 11 , 2021	35	2-97300	11.0	6.7	73.7
Aug. 12, 2021	36	2-97300	11.0	6.7	73.7
Aug. 12, 2021	37	2-97300	11.0	6.7	73.7
Aug. 12, 2021	38	2-97300	11.0	6.7	73.7
Aug. 12, 2021	39	2-97300	11.0	6.7	73.7
Aug. 12, 2021	40	2-97300	11.0	6.7	73.7
Aug. 12, 2021	41	2-97300	11.0	6.7	73.7
Aug. 12, 2021	42	2-97300	11.0	6.7	73.7
Aug. 13, 2021	43	2-97300	5.0	6.0	30
Aug. 13, 2021	44	2-97300	4.0	4.0	16
Aug. 13, 2021	45	2-97300	5.0	5.0	25
Aug. 13, 2021	46	2-97300	4.0	3.0	12
Aug. 13, 2021	47	2-97300	3.0	3.0	9
Aug. 14, 2021	48	2-97293	8.0	6.7	53.6
Aug. 14, 2021	49	2-97293	8.0	6.7	53.6
Aug. 14, 2021	50	2-97293	8.0	6.7	53.6
Aug. 14, 2021	51	2-97293	8.0	6.7	53.6
Aug. 14, 2021	52	2-97293	30.0	6.7	201
Aug. 14, 2021	53	2-97293	30.0	6.7	201
Aug. 14, 2021	54	2-97293	8.0	6.7	53.6

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Liner panel log continued

Date placed	Panel #	Roll #	Length m	width m	m2
Aug. 14, 2021	55	2-97293	8.0	6.7	53.6
Aug. 14, 2021	56	2-97293	10.0	3.0	30
Aug. 14, 2021	57	2-97293	7.0	3.0	21
Aug. 14, 2021	58	2-97293	7.0	2.0	14
Aug. 14, 2021	59	2-97293	12.0	1.5	18
Aug. 15, 2021	60	2-97302	11.0	6.7	73.7
Aug. 15, 2021	61	2-97302	11.0	6.7	73.7
Aug. 15, 2021	62	2-97302	11.0	6.7	73.7
Aug. 15, 2021	63	2-97302	11.0	6.7	73.7
Aug. 15, 2021	64	2-97302	11.0	6.7	73.7
Aug. 15, 2021	65	2-97302	11.0	6.7	73.7
Aug. 15, 2021	66	2-97302	11.0	6.7	73.7
Aug. 15, 2021	67	2-97302	11.0	6.7	73.7
Aug. 15, 2021	68	2-97302	11.0	6.7	73.7
Aug. 15, 2021	69	2-97302	11.0	6.7	73.7
Aug. 15, 2021	70	2-97302	11.0	6.7	73.7
Aug. 16, 2021	71	2-97314	20.0	6.7	134
Aug. 16, 2021	72	2-97314	20	6.7	134
Aug. 16, 2021	73	2-97314	20	6.7	134
Aug. 17, 2021	74	2-97314	11	3.4	37.4
Aug. 17, 2021	75	2-97314	11.0	3.4	37.4
Aug. 17, 2021	76	2-97314	11	6.7	73.7
Aug. 17, 2021	77	2-97314	11	6.7	73.7
Aug. 17, 2021	78	2-97314	11.0	6.7	73.7
Aug. 17, 2021	79	2-97314	11.0	6.7	73.7
Aug. 17, 2021	80	2-97314	11.0	6.7	73.7
Aug. 17, 2021	81	2-97314	11.0	6.7	73.7
Aug. 17, 2021	82	2-97314	12.0	6.7	80.4
Aug. 17, 2021	83	2-97314	12.0	6.7	80.4
Aug. 17, 2021	84	2-97314	6.0	6.7	40.2
Aug. 17, 2021	85	2-97314	5.0	6.7	33.5
Aug. 17, 2021	86	2-97314	2.0	4.0	8
Aug. 17, 2021	87	2-97314	2.5	4.0	10
Aug. 17, 2021	88	2-97314	1.5	5.5	8.25
Aug. 17, 2021	89	2-97314	1.5	5.5	8.25
				Total m2	**7188.9**

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Sabina Gold - Hay River, NWT

Reference Number : 111930

Project Number : PC00133

Packing Slip Number : 225503

SOLMAX Approved Quality Assurance

Product : 1037703

HDPE 1.50 mm Black Smooth

CE Certificate = HD-60-SS-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5199	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	N/A
Specification		1.50 / 1.35	≥ 0.940	2.0 - 3.0	Cat. 1 / Cat. 2	23	13	43	700	187	534	± 2	
2-97288	MD	1.51 / 1.48	0.945	2.46	10 /10 Views	24.9	18.9	51.2	844	206	611		/
	XD					26.3	16.7	51.8	922	222			
2-97289	MD	1.51 / 1.47	0.945	2.46	10 /10 Views	24.9	18.9	51.1	844	206	611		/
	XD					26.3	16.7	51.8	922	222			
2-97294	MD	1.50 / 1.48	0.944	2.43	10 /10 Views	25.0	18.9	50.2	821	198	617		/
	XD					26.5	16.7	50.5	896	213			
2-97296	MD	1.50 / 1.45	0.944	2.41	10 /10 Views	24.8	18.8	48.4	800	200	618		/
	XD					26.0	16.9	51.0	901	211			
2-97298	MD	1.50 / 1.46	0.944	2.45	10 /10 Views	25.6	18.2	49.9	824	200	618		/
	XD					26.3	16.2	51.1	896	211			
2-97299	MD	1.52 / 1.49	0.944	2.45	10 /10 Views	25.6	18.2	49.9	824	200	618		/
	XD					26.3	16.2	51.1	896	211			
2-97300	MD	1.51 / 1.48	0.950	2.49	10 /10 Views	25.9	18.2	48.8	800	203	617		/
	XD					26.6	16.6	50.1	869	217			
2-97301	MD	1.51 / 1.46	0.950	2.49	10 /10 Views	25.9	18.2	48.9	800	203	617		/
	XD					26.6	16.6	50.1	869	217			
2-97302	MD	1.51 / 1.48	0.950	2.47	10 /10 Views	26.4	18.3	52.7	846	203	617		/
	XD					27.0	16.5	51.1	884	217			
2-97303	MD	1.51 / 1.46	0.950	2.47	10 /10 Views	26.4	18.3	52.7	846	203	617		/
	XD					27.0	16.5	51.1	884	217			
2-97306	MD	1.50 / 1.47	0.950	2.42	10 /10 Views	26.3	17.6	49.3	798	200	597		/
	XD					26.8	16.4	52.7	916	214			
2-97307	MD	1.50 / 1.46	0.950	2.42	10 /10 Views	26.3	17.6	49.4	798	200	597		/
	XD					26.8	16.4	52.7	916	214			
2-97308	MD	1.50 / 1.46	0.950	2.52	10 /10 Views	25.8	18.2	49.0	799	200	597		/
	XD					26.9	16.7	52.5	913	214			
2-97309	MD	1.51 / 1.47	0.950	2.52	10 /10 Views	25.8	18.2	49.0	799	200	597		/
	XD					26.9	16.7	52.5	913	214			
2-97310	MD	1.51 / 1.48	0.950	2.39	10 /10 Views	25.1	18.4	47.6	794	199	622		/
	XD					25.9	17.0	51.5	911	213			
2-97311	MD	1.51 / 1.48	0.950	2.39	10 /10 Views	25.1	18.4	47.6	794	199	622		/
	XD					25.9	17.0	51.5	911	213			
2-97312	MD	1.51 / 1.47	0.950	2.56	10 /10 Views	25.0	18.6	50.1	821	199	622		/
	XD					26.3	17.1	50.2	887	213			

SOLMAX

MANUFACTURING QUALITY CONTROL

Test Results - Rolls

Solmax, 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tél.: 1-450-929-1234 • Fax.: 1-450-929-2547 • www.solmax.com

Project Name : Sabina Gold - Hay River, NWT

Project Number : PC00133

Reference Number : 111930

Packing Slip Number : 225504

SOLMAX APPROVED Quality Assurance

Product : 1037703

HDPE 1.50 mm Black Smooth

CE Certificate = HD-60-SS-BB

Properties		Thickness ave / min.	Geo-membrane Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension. Stability	Asperity Height in / out
Unit		mm	g/cc	%	Cat. 1 and 2	kN/m	%	kN/m	%	N	N	%	mm
Test Method		D5199	D1505/D792	D4218 / D1603	D5596	D6693				D1004	D4833	D1204	
Frequency		Each roll		1/2 ro	1/10 ro	1/2 ro				1/5 ro	1/5 ro	Certied	N/A
Specification		1.50 / 1.35	≥ 0.940	2.0 - 3.0	Cat. 1 / Cat. 2	23	13	43	700	187	534	± 2	
2-97290	MD	1.51 / 1.48	0.944	2.38	10 /10 Views	25.5	18.3	48.7	810	198	617		/
	XD					26.1	16.9	51.8	897	213			
2-97291	MD	1.52 / 1.48	0.944	2.38	10 /10 Views	25.5	18.3	48.7	810	198	617		/
	XD					26.1	16.9	51.8	897	213			
2-97292	MD	1.50 / 1.46	0.944	2.45	10 /10 Views	24.9	18.9	49.3	814	198	617		/
	XD					26.5	17.1	51.6	918	213			
2-97293	MD	1.50 / 1.46	0.944	2.45	10 /10 Views	24.9	18.9	49.4	814	198	617		/
	XD					26.5	17.1	51.5	918	213			
2-97295	MD	1.51 / 1.47	0.944	2.43	10 /10 Views	25.0	18.9	50.1	821	200	618		/
	XD					26.5	16.7	50.6	896	211			
2-97297	MD	1.51 / 1.47	0.944	2.41	10 /10 Views	24.8	18.8	48.5	800	200	618		/
	XD					26.0	16.9	51.0	901	211			
2-97304	MD	1.50 / 1.47	0.950	2.47	10 /10 Views	25.8	18.3	49.0	813	203	617		/
	XD					26.3	16.4	52.7	918	217			
2-97305	MD	1.51 / 1.47	0.950	2.47	10 /10 Views	25.8	18.3	49.0	813	200	597		/
	XD					26.3	16.4	52.7	918	214			
2-97314	MD	1.51 / 1.46	0.950	2.53	10 /10 Views	24.8	18.5	50.4	832	199	622		/
	XD					26.4	16.7	52.5	916	213			
2-97315	MD	1.51 / 1.45	0.950	2.53	10 /10 Views	24.8	18.5	50.4	832	198	622		/
	XD					26.4	16.7	52.5	916	212			
2-97316	MD	1.51 / 1.48	0.950	2.37	10 /10 Views	25.3	18.8	46.3	769	198	622		/
	XD					26.4	16.8	51.8	909	212			
2-97317	MD	1.51 / 1.48	0.950	2.37	10 /10 Views	25.3	18.8	46.4	769	198	622		/
	XD					26.4	16.8	51.8	909	212			
2-97318	MD	1.51 / 1.45	0.950	2.50	10 /10 Views	24.7	18.9	47.1	786	198	622		/
	XD					25.6	17.1	52.4	921	212			
2-97319	MD	1.53 / 1.49	0.950	2.50	10 /10 Views	24.7	18.9	47.1	786	198	622		/
	XD					25.6	17.1	52.4	921	212			
2-97320	MD	1.54 / 1.50	0.948	2.51	10 /10 Views	25.6	18.7	51.3	831	204	612		/
	XD					27.1	16.3	52.7	915	217			
2-97321	MD	1.53 / 1.49	0.948	2.51	10 /10 Views	25.6	18.7	51.3	831	204	612		/
	XD					27.1	16.3	52.7	915	217			
2-97322	MD	1.53 / 1.49	0.948	2.40	10 /10 Views	26.3	18.4	51.2	826	204	612		/
	XD					27.2	16.8	52.6	912	217			

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
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MLA site - Fuel Tank Farm HDPE liner installation phase II

Daily Wedge Welder Qualification Data

	Wedge welder #2 daily qualification			Ambient temp: '+17C	broken cloud
	Peel strength			calm winds	Tech: AH
Date	Aug. 2, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	128	130	91	Broke outside weld, no peel
	2	124	140	91	SAA
	3	131	127	91	SAA
	4	132	130	91	SAA
Date	Aug. 2, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	152		120	Necked outside weld
	2	155		120	SAA
	3	145		120	SAA
	4	149		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+10C	overcast
	Peel strength			calm winds	Tech: AH
Date	Aug. 4, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	135	132	91	Broke outside weld, no peel
	2	136	129	91	SAA
	3	128	131	91	SAA
	4	132	135	91	SAA
Date	Aug. 4, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	155		120	Necked outside weld
	2	151		120	SAA
	3	149		120	SAA
	4	157		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+6C	overcast
	Peel strength			calm winds	Tech: GH
Date	Aug. 5, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	129	134	91	Broke outside weld, no peel
	2	135	135	91	SAA
	3	140	132	91	SAA
	4	135	131	91	SAA
Date	Aug. 5, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	161		120	Necked outside weld
	2	152		120	SAA
	3	158		120	SAA
	4	158		120	SAA
Date	Aug. 5, 2021	**Test**		**Location**	Comments
		Vac Box			Pass
	Wedge welder #2 daily qualification			Ambient temp: '+7C	
	Peel strength			Breeze	Tech: GH
Date	Aug. 6, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	131	127	91	Broke outside weld, no peel
	2	133	132	91	SAA
	3	125	131	91	SAA
	4	130	134	91	SAA
Date	Aug. 6, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	151		120	Necked outside weld
	2	148		120	SAA
	3	155		120	SAA
	4	152		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+8C	overcast in am/Broken cloud PM windy
	Peel strength			breeze from NE	Tech: GH
Date	Aug. 7, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	129	128	91	Broke outside weld, no peel
	2	135	127	91	SAA
	3	129	129	91	SAA
	4	129	134	91	SAA
Date	Aug. 7, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	149		120	Necked outside weld
	2	152		120	SAA
	3	155		120	SAA
	4	148		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+12C	broken cloud
	Peel strength			light breeze	Tech: AH
Date	Aug. 9, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	127	128	91	Broke outside weld, no peel
	2	125	125	91	SAA
	3	129	131	91	SAA
	4	124	129	91	SAA
Date	Aug. 9, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	151		120	Necked outside weld
	2	148		120	SAA
	3	149		120	SAA
	4	145		120	SAA

A&A Technical Services
Yellowknife NT
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Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Daily Wedge Welder Qualification Data

	Wedge welder #2 daily qualification			Ambient temp: '+14C	broken cloud
	Peel strength			breeze NE	Tech: AH
Date	Aug. 10, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	125	124	91	Broke outside weld, no peel
	2	125	128	91	SAA
	3	122	131	91	SAA
	4	127	128	91	SAA
Date	Aug. 10, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	149		120	Necked outside weld
	2	155		120	SAA
	3	148		120	SAA
	4	148		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+8C	overcast
	Peel strength			Windy NE heavy gusts	Tech: GH
Date	Aug. 11, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	131	133	91	Broke outside weld, no peel
	2	125	132	91	SAA
	3	131	135	91	SAA
	4	133	129	91	SAA
Date	Aug. 11, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	155		120	Necked outside weld
	2	152		120	SAA
	3	160		120	SAA
	4	155		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+10C	broken cloud
	Peel strength			light breeze NE	Tech: AH
Date	Aug. 12, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	134	131	91	Broke outside weld, no peel
	2	128	130	91	SAA
	3	132	132	91	SAA
	4	129	127	91	SAA
Date	Aug. 12, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	149		120	Necked outside weld
	2	155		120	SAA
	3	155		120	SAA
	4	150		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+14C	broken cloud
	Peel strength			light breeze SW	Tech: AH
Date	Aug. 13, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	127	124	91	Broke outside weld, no peel
	2	124	124	91	SAA
	3	127	129	91	SAA
	4	123	126	91	SAA
Date	Aug. 13, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	151		120	Necked outside weld
	2	145		120	SAA
	3	150		120	SAA
	4	149		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+12C	broken cloud
	Peel strength			light breeze NW	Tech: GH
Date	Aug. 14, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	129	124	91	Broke outside weld, no peel
	2	127	127	91	SAA
	3	124	129	91	SAA
	4	126	127	91	SAA
Date	Aug. 14, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	156		120	Necked outside weld
	2	145		120	SAA
	3	151		120	SAA
	4	148		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+13C	broken cloud/sunny breaks
	Peel strength			breezy NW	Tech: AH
Date	Aug. 15, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	131	128	91	Broke outside weld, no peel
	2	124	129	91	SAA
	3	128	129	91	SAA
	4	130	126	91	SAA
Date	Aug. 15, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	147		120	Necked outside weld
	2	151		120	SAA
	3	155		120	SAA
	4	145		120	SAA

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Daily Wedge Welder Qualification Data

	Wedge welder #2 daily qualification			Ambient temp: '+13C	broken cloud
	Peel strength			light breeze	Tech: AH
Date	Aug. 16, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	126	122	91	Broke outside weld, no peel
	2	121	124	91	SAA
	3	126	129	91	SAA
	4	129	125	91	SAA
Date	Aug. 16, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	152		120	Necked outside weld
	2	155		120	SAA
	3	148		120	SAA
	4	150		120	SAA
	Wedge welder #2 daily qualification			Ambient temp: '+14C	broken cloud
	Peel strength			wind SW	Tech: AH
Date	Aug. 17, 2021	Inside weld	Outside weld	Minimum ppi (lbs/inch)	Comments
Test #	1	122	122	91	Broke outside weld, no peel
	2	119	117	91	SAA
	3	125	119	91	SAA
	4	118	121	91	SAA
Date	Aug. 17, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	148		120	Necked outside weld
	2	155		120	SAA
	3	149		120	SAA
	4	144		120	SAA

Daily Extrusion Welder Qualification Data

	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp: +6C				Tech: AH
Date	Aug. 5, 2021	Peel strength		Minimum ppi (lbs/inch)	Comments
Test #	1	121		78	Broke outside weld, no peel
	2	123		78	SAA
	3	121		78	SAA
	4	126		78	SAA
Date	Aug. 5, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	152		120	Necked outside weld
	2	155		120	SAA
	3	148		120	SAA
	4	148		120	SAA
	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp. +7C				Tech: AH
Date	Aug. 6, 2021	Peel strength		Minimum ppi (lbs/inch)	Comments
Test #	1	120		78	Broke outside weld, no peel
	2	123		78	SAA
	3	123		78	SAA
	4	129		78	SAA
Date	Aug. 6, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	149		120	Necked outside weld
	2	152		120	SAA
	3	155		120	SAA
	4	151		120	SAA
	Extrusion welder # 1 Hot Air temp: 240 C Extrudite temp 250C Ambient temp. : +14C				Tech: AH
Date	Aug. 7, 2021	Peel strength		Minimum ppi (lbs/inch)	Comments
Test #	1	128		78	Broke outside weld, no peel
	2	122		78	SAA
	3	119		78	SAA
	4	123		78	SAA
Date	Aug. 7, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	145		120	Necked outside weld
	2	150		120	SAA
	3	151		120	SAA
	4	149		120	SAA
	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp: +6C				Tech: AH
Date	Aug. 8, 2021	Peel strength		Minimum ppi (lbs/inch)	Comments
Test #	1	124		78	Broke outside weld, no peel
	2	118		78	SAA
	3	115		78	SAA
	4	120		78	SAA
Date	Aug. 8, 2021	Shear Strength		Minimum ppi (lbs/inch)	Comments
Test #	1	151		120	Necked outside weld
	2	148		120	SAA
	3	142		120	SAA
	4	149		120	SAA
	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp. +7C				Tech: AH
Date	Aug. 10, 2021	Peel strength		Minimum ppi (lbs/inch)	Comments
Test #	1	122		78	Broke outside weld, no peel
	2	118		78	SAA
	3	120		78	SAA
	4	117		78	SAA

A&A Technical Services
Yellowknife NT
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Sabina Gold and Silver
MLA site - Fuel Tank Farm HDPE liner installation phase II

Daily Extrusion Welder Qualification Data

Date	Aug. 10, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	123		120	Necked outside weld
	2	119		120	SAA
	3	126		120	SAA
	4	122		120	SAA
	Extrusion welder # 1 Hot Air temp: 240 C Extrudite temp 250C Ambient temp. : +14C				Tech: AH
Date	Aug. 13, 2021	**Peel strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	128		78	Broke outside weld, no peel
	2	122		78	SAA
	3	119		78	SAA
	4	123		78	SAA
Date	Aug. 13, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	145		120	Necked outside weld
	2	150		120	SAA
	3	151		120	SAA
	4	149		120	SAA
	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp: +13C				Tech: AH
Date	Aug. 16, 2021	**Peel strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	118		78	Broke outside weld, no peel
	2	115		78	SAA
	3	121		78	SAA
	4	119		78	SAA
Date	Aug. 16, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	148		120	Necked outside weld
	2	151		120	SAA
	3	147		120	SAA
	4	149		120	SAA
	Extrusion welder # 1 Hot Air temp: 250 C Extrudite temp 250C Ambient temp. +14C				Tech: AH
Date	Aug. 17, 2021	**Peel strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	121		78	Broke outside weld, no peel
	2	125		78	SAA
	3	117		78	SAA
	4	120		78	SAA
Date	Aug. 17, 2021	**Shear Strength**		Minimum ppi (lbs/inch)	Comments
Test #	1	148		120	Necked outside weld
	2	155		120	SAA
	3	155		120	SAA
	4	144		120	SAA

A&A Technical Services
Yellowknife NT
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Sabina Gold and SilverMLA site - Fuel Tank Farm HDPE liner installation phase II
Dual wedge seam air pressure tests and extrusion weld patch vac box tests

After 5 minutes

Date	Technician	Seam location	Start psi	Finish psi	Pass/Fail	Comments
Aug 5, 2021,	GH	P-1 and E tank pad	30	30	Pass	
Aug 5, 2021,	GH	P-2 and P-3	30	30	Pass	
Aug 5, 2021,	GH	P-3 and P-4	32	32	Pass	
Aug 5, 2021,	GH	P-4 and P-5	35	35	Pass	
Aug 5, 2021,	GH	P-5 and P-6	36	35	Pass	
Aug 5, 2021,	GH	P-6 and P-7	35	35	Pass	
Aug 5, 2021,	GH	P-7 and N tank pad a	30	30	Pass	
Aug 5, 2021,	GH	b	30	30	Pass	
Aug 5, 2021,	GH	P-6 and N tank pad a	35	35	Pass	
Aug 5, 2021,	GH	b	30	35	Pass	
Aug 5, 2021,	GH	P-5 and N tank pad a	30	30	Pass	
Aug 5, 2021,	GH	b	32	32	Pass	
Aug 5, 2021,	GH	P-4 and N tank pad a	30	30	Pass	
Aug 5, 2021,	GH	b	30	30	Pass	
Aug 5, 2021,	GH	P-3 and N tank pad	30	30	Pass	
Aug 5, 2021,	GH	P-2 and P-1	30	30	Pass	
Aug 5, 2021,	AH	Vac test patch A			Pass	
9-Aug-21	AH	P-8 and P-9	31	30	Pass	
9-Aug-21	AH	P-8 and S tank pad a	30	30	Pass	
9-Aug-21	AH	b	35	35	Pass	
9-Aug-21	AH	c	35	35	Pass	
9-Aug-21	AH	d	38	38	Pass	
9-Aug-21	AH	P-9 and P-10	40	40	Pass	
9-Aug-21	AH	P-9 and S tank pad a	35	35	Pass	
9-Aug-21	AH	b	35	35	Pass	
9-Aug-21	AH	c	35	35	Pass	
9-Aug-21	AH	d	30	30	Pass	
9-Aug-21	AH	P-10 and P-11	30	30	Pass	
9-Aug-21	AH	P-10 and S tank pad a	34	34	Pass	
9-Aug-21	AH	b	35	35	Pass	
9-Aug-21	AH	c	38	38	Pass	
9-Aug-21	AH	d	30	30	Pass	
9-Aug-21	AH	P-11 and P-1	40	40	Pass	
9-Aug-21	AH	P-15 and P-16	62	62	Pass	
9-Aug-21	AH	P-16 toe	35	35	Pass	
9-Aug-21	AH	P-16 and P-17	35	35	Pass	
9-Aug-21	AH	P-17 toe	45	45	Pass	
9-Aug-21	AH	P-17 and P-18	30	30	Pass	
9-Aug-21	AH	P-18 toe	30	30	Pass	
9-Aug-21	AH	P-18 and P-19	35	35	Pass	
9-Aug-21	AH	P-19 toe	33	33	Pass	
9-Aug-21	AH	P-19 and P-20	32	32	Pass	
9-Aug-21	AH	P-20 toe	45	45	Pass	
9-Aug-21	AH	P-20 and P-21	54	54	Pass	
9-Aug-21	AH	P-21 toe P-21	34	34	Pass	
11-Aug-21	AH	P-22 toe	32	32	Pass	
11-Aug-21	AH	P-22 and P-23	35	35	Pass	
11-Aug-21	AH	P-23 and P-25	30	29	Pass	
11-Aug-21	AH	P-23 and P-24	30	30	Pass	
11-Aug-21	AH	P-24 and P-25	40	40	Pass	
11-Aug-21	AH	P-25 and P-26	39	39	Pass	
11-Aug-21	AH	P-26 and P-27	30	30	Pass	
11-Aug-21	AH	P-26 toe	30	30	Pass	
11-Aug-21	AH	P-27-P-28	44	44	Pass	
11-Aug-21	AH	P-28 and P-29	60	60	Pass	
11-Aug-21	AH	P-28 toe	34	34	Pass	
11-Aug-21	AH	P-29 and P-30	54	54	Pass	
11-Aug-21	AH	P-29 toe	35	35	Pass	
11-Aug-21	AH	P-30 and P-31	34	34	Pass	page 10

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and SilverMLA site - Fuel Tank Farm HDPE liner installation phase II
Dual wedge seam air pressure tests and extrusion weld patch vac box tests

after 5 minutes

Date	Technician	Seam location	Start psi	Finish psi	Pass/Fail	Comments
11-Aug-21	AH	P-30 toe	32	32	Pass	
11-Aug-21	AH	P-31 and P-32	44	44	Pass	
11-Aug-21	AH	P-31 toe	34	34	Pass	
11-Aug-21	AH	P-32 and P-33	32	32	Pass	
11-Aug-21	AH	P-32 toe	34	33	Pass	
11-Aug-21	AH	P-33 and P-34	34	34	Pass	
11-Aug-21	AH	P-33 toe	35	35	Pass	
11-Aug-21	AH	P-34 and P-35	43	43	Pass	
11-Aug-21	AH	P-34 toe	32	32	Pass	
11-Aug-21	AH	P-35 toe	34	34	Pass	
11-Aug-21	AH	P-12 and P13	32	32	Pass	
11-Aug-21	GH	Vac Box patch B.C,D			Pass	
11-Aug-21	GH	P-13 and P-14	30	30	Pass	
12-Aug-21	GH	P-36 and P-37	30	30	Pass	
12-Aug-21	GH	P-37 and P-38	30	30	Pass	
12-Aug-21	GH	P-38 and P-39	30	30	Pass	
12-Aug-21	GH	P-39 and P-40	30	30	Pass	
12-Aug-21	GH	P-40 and P-41	30	30	Pass	
12-Aug-21	GH	P-41 and P-42	30	30	Pass	
12-Aug-21	GH	toe P-42	30	30	Pass	
12-Aug-21	GH	toe P-41	30	30	Pass	
12-Aug-21	GH	toe P-40	30	30	Pass	
12-Aug-21	GH	toe-P-39	30	30	Pass	
12-Aug-21	GH	toe P-38	30	30	Pass	
12-Aug-21	AH	toe P-37	30	30	Pass	
12-Aug-21	AH	toe P-36	30	30	Pass	
13-Aug-21	AH	P-44 andP- 45	32	32	Pass	
13-Aug-21	AH	P-43 and P-44	32	32	Pass	
13-Aug-21	AH	P-45 and P-46	32	32	Pass	
13-Aug-21	AH	P-46 and P-47	44	43	Pass	
14-Aug-21	AH	P-48 and P-49	44	44	Pass	
14-Aug-21	AH	P-49 and P-50	48	48	Pass	
14-Aug-21	GH	Vac test patch E			Pass	
14-Aug-21	AH	P-50 and P-51	33	32	Pass	
14-Aug-21	AH	P-51 an P-54	35	35	Pass	
14-Aug-21	AH	P-54 and P-55	38	38	Pass	
14-Aug-21	AH	P-48 and P-7	34	34	Pass	
14-Aug-21	AH	P-49 and P-7	32	32	Pass	
14-Aug-21	AH	P-50 and P-7	33	32	Pass	
14-Aug-21	AH	P-51 and P-7	34	34	Pass	
14-Aug-21	AH	P-54 and P-52	44	44	Pass	
14-Aug-21	AH	P-55 and P-53	39	39	Pass	
14-Aug-21	AH	P-52 and P-53	33	33	Pass	
14-Aug-21	AH	P-52 and P=7	30	30	Pass	
14-Aug-21	AH	P-52 and P-6	31	31	Pass	
14-Aug-21	AH	P-52 and P-53	32	32	Pass	
14-Aug-21	AH	P-52 and P-4	54	54	Pass	
14-Aug-21	AH	P-52 and P-3	33	33	Pass	
14-Aug-21	AH	P-53 and P-56	30	30	Pass	
14-Aug-21	AH	P-56 and P-57	34	34	Pass	
14-Aug-21	AH	P-53 and P-57	33	33	Pass	
14-Aug-21	AH	P-53 and P-58	45	45	Pass	
14-Aug-21	AH	P-58 and P-59	60	60	Pass	
15-Aug-21	AH	P-60 and P-42	44	44	Pass	
15-Aug-21	AH	P-60 toe	45	45	Pass	
15-Aug-21	AH	P-60 and p-61	36	36	Pass	
15-Aug-21	AH	P-61 toe	33	33	Pass	
15-Aug-21	AH	P-61 and P-62	32	32	Pass	
15-Aug-21	AH	P-62 toe	32	32	Pass	page 11

A&A Technical Services
Yellowknife NT
July 30-August 18, 2021
Sabina Gold and SilverMLA site - Fuel Tank Farm HDPE liner installation phase II
Dual wedge seam air pressure tests and extrusion weld patch vac box tests

Date	Technician	Seam location	Start psi	Finish psi	Pass/Fail	Comments
15-Aug-21	AH	P-62 and P-63	32	32	Pass	
15-Aug-21	AH	P-63 toe	30	30	Pass	
15-Aug-21	AH	P-63 and P-64	30	30	Pass	
15-Aug-21	AH	P-64 toe	54	54	Pass	
15-Aug-21	AH	P-64 and P-65	44	44	Pass	
15-Aug-21	AH	P-65 toe	65	65	Pass	
15-Aug-21	AH	P-66 and P-67	32	32	Pass	
15-Aug-21	AH	P-67 and P-68	32	32	Pass	
15-Aug-21	AH	P-68 and P-69	31	31	Pass	
15-Aug-21	AH	P-66 toe	34	34	Pass	
15-Aug-21	AH	P-67 toe	35	35	Pass	
15-Aug-21	AH	P-68 toe	35	35	Pass	
15-Aug-21	AH	P-69 toe	36	36	Pass	
15-Aug-21	AH	P-69 and P-70	34	34	Pass	
15-Aug-21	AH	P-70 toe	33	33	Pass	
16-Aug-21	AH	P-71 P-72	34	34	Pass	
16-Aug-21	AH	P-72 and P-73	34	34	Pass	
16-Aug-21	AH	P-71 and P-52	32	32	Pass	
16-Aug-21	AH	P-72 and P-53	33	33	Pass	
16-Aug-21	AH	P-73 and P-56	33	33	Pass	
16-Aug-21	AH	P-71 and P-14	41	41	Pass	
16-Aug-21	AH	P-71 and P-2	32	32	Pass	
16-Aug-21	AH	P-71 and P-3	32	32	Pass	
16-Aug-21	GH	Vac test Patch F + G			Pass	
16-Aug-21	AH	Vac test Patch H,I,J,K,L			Pass	
16-Aug-21	AH	Vac test Patch M,N,O,P			Pass	
18-Aug-21	GH	P-35 and P-74	30	30	Pass	
18-Aug-21	GH	P-74 and P-75	30	30	Pass	
18-Aug-21	GH	P-74 and P-65	30	30	Pass	
18-Aug-21	GH	P-76and P35	30	30	Pass	
18-Aug-21	GH	P-76 and P-77	30	30	Pass	
18-Aug-21	GH	P-77 and P-78	30	30	Pass	
18-Aug-21	GH	P-78 and P-79	30	30	Pass	
18-Aug-21	GH	P-79 and P-80	30	30	Pass	
18-Aug-21	GH	P-80 and P-85	30	30	Pass	
18-Aug-21	GH	P-85 and P-87	32	32	Pass	
18-Aug-21	GH	P-84 and P-85	30	30	Pass	
18-Aug-21	GH	P-84 and P-87	30	30	Pass	
18-Aug-21	GH	P-87 and P-86	30	30	Pass	
18-Aug-21	GH	P-83 and P-84	30	30	Pass	
18-Aug-21	GH	P-88 and P-83	30	30	Pass	
18-Aug-21	GH	P-89 and P-83	30	30	Pass	
18-Aug-21	GH	P-82 and P-88	30	30	Pass	
18-Aug-21	GH	P-82 and P-89	30	30	Pass	
18-Aug-21	GH	Toe of P-89	30	30	Pass	
18-Aug-21	GH	Toe of P-82	30	30	Pass	
18-Aug-21	GH	P-82 and P-81	30	30	Pass	
18-Aug-21	GH	P-81 toe	30	30	Pass	
18-Aug-21	GH	P-81 and P-70	30	30	Pass	
18-Aug-21	GH	Toe of P-83	30	30	Pass	
18-Aug-21	GH	Toe of 80 a	30	30	Pass	
18-Aug-21		b	45	45	Pass	
18-Aug-21	GH	Toe of P-79 a	30	30	Pass	
18-Aug-21	GH	b	38	38	Pass	
18-Aug-21	GH	Toe of P-78 a	30	30	Pass	
18-Aug-21	GH	b	30	30	Pass	
18-Aug-21	GH	Toe of P-77 a	30	30	Pass	
18-Aug-21	GH	b	32	32	Pass	
18-Aug-21	GH	Toe of P-76	30	30	Pass	
18-Aug-21	AH	Vac test patches in NE corner and P-77 toe			Pass	page 12

A&A Technical Services
Subgrade acceptance and warranty

Sabina Gold and Silver – MLA
Fuel tank farm HDPE liner installation – Phase II
July 30 – August 18, 2021

Materials used for the construction of the tank farm floor and berms was a sandy pit run material with sub rounded to sub angular gravel sizes. The material was well compacted with a smooth drum roller. All floor areas, berms and key trenches were inspected and deemed acceptable prior to placing the two layers of 540g/m2 non-woven geotextile protection, followed by the Solmax 60mil smooth liner and a single layer of 540g/m2 non-woven geotextiles above the liner. All geotextile seams were heat bonded using a propane torch and aluminum roller for preventing wind uplift. HDPE seams were fused using a dual split wedge weld and air channel pressure tested. Extrusion weld patches were vac box tested. All wedge and extrusion welders were qualified daily prior to any liner placement.
Warranties issued by A&A Technical Services shall cover only the cost of replacement and/or repair of defective installations, determined or agreed to be the responsibility of A&A Technical Services, provide that the warranty work will be performed to the same standards and scope of work set out in the contract documents. A&A's installation warranty shall commence upon acceptance of the individual geosynthetic components by the owner or its representative as such components are completed. The installation warranty period shall not exceed beyond 1 years. Our installation warranty is rendered null and void if the installed geosynthetics are subject to abuse by machinery, equipment or personnel not under the control of A&A, harmful chemicals or unusual weather conditions or catastrophic earthworks failures. A&A Technical Services shall not be held liable for defects, damage and/or deficient materials and installations, either in whole or in part should the defects, damage or deficient materials and installations arise as the result from the use of poor quality and inappropriate or unsuitable earthworks material or site preparation. This limitation of liability extends to improper and/or construction techniques, and methods and equipment used to create the earthworks covering all or any portion of the completed geosynthetic installation.

Signed:  Dated: August 28, 2021

Al Harman
President
A&A Technical Services
Yellowknife NT

Appendix B – Construction pictures

Appendix B – Construction pictures (Tank Pad)

Tank Pad – Coarse Rock lift 1 packed 6

Tank Pad – Coarse lift 2IMG_20190709_150305

Tank Pad – Sand Lift 4- IMG_20190723_165113

Tank Pad – Final lift IMG_20190731_094839

Appendix B – Construction pictures (Tank Construction)

Elevation view : Tank Plates being installed

Elevation view 1 : 10 ML tank installed at the MLA

Elevation view 2 : 10 ML litre tank installed at the MLA

Elevation view, prior to construction of the containment berm

Appendix B – Construction pictures

15-20cm lifts compacted 4 passes

Fill material dump piles ready to be spread

Fill being spread

Containment floor being raised in lifts

Appendix B – Construction pictures

Fill being spread

Fill being dumped in an even distribution method

Appendix B – Construction pictures

First Lift North-West Berm

Completed floor packed

D6T trimming rough fill to grade

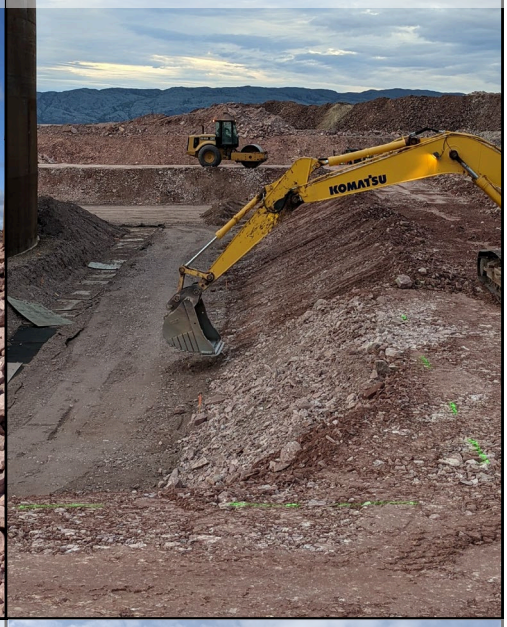
Packer on floor & fill being dumped on NE Berm

Appendix B – Construction pictures

Appendix B – Construction pictures

Outside face SW Berm, oversized rocks rolled out of berm onto slope

Trimming SW berm with hoe, packing SE berm being packed



NE edge of liner exposed & smooth packed smaller gravels of tank pad floor

View looking at SW & SE Berm taking shape, piles of oversized materials sorted out

Appendix B – Construction pictures

Looking East, fill being placed on NW Berm, geo being laid out NE of tank

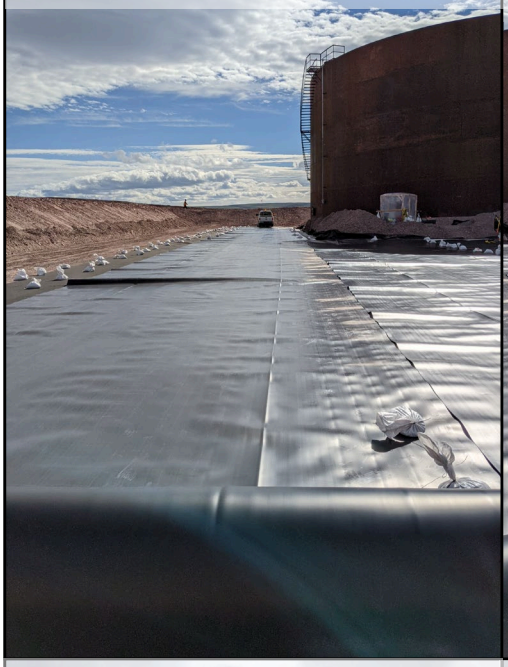
Geo being prepared for liner

Geo being prepared for liner

Geo being prepared for liner

Appendix B – Construction pictures

Floor Liner SE side of tank floor



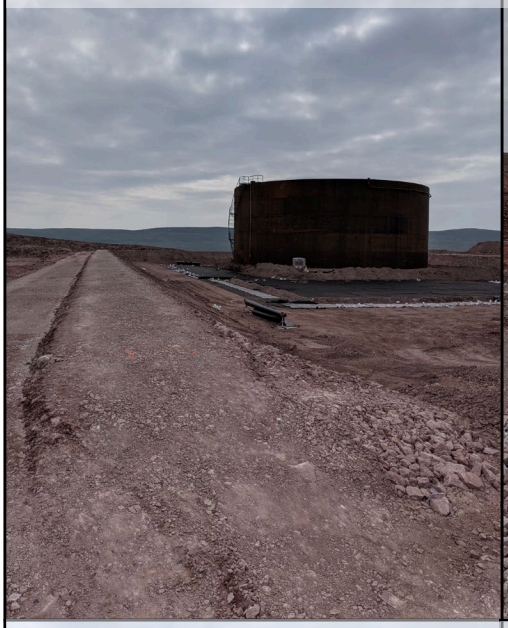
Floor Liner SE side of tank floor

Top of SW berm keyed for liner to be held in place

Top of SW berm keyed for liner to be held in place

Appendix B – Construction pictures

Top of SW berm packed



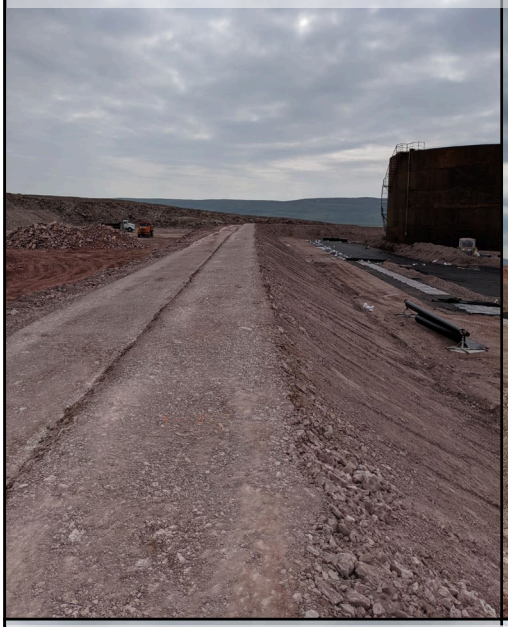
Top of SW berm packed

Tying NW berm into natural ground

Small aggregate being placed into floor of tank farm

Appendix B – Construction pictures

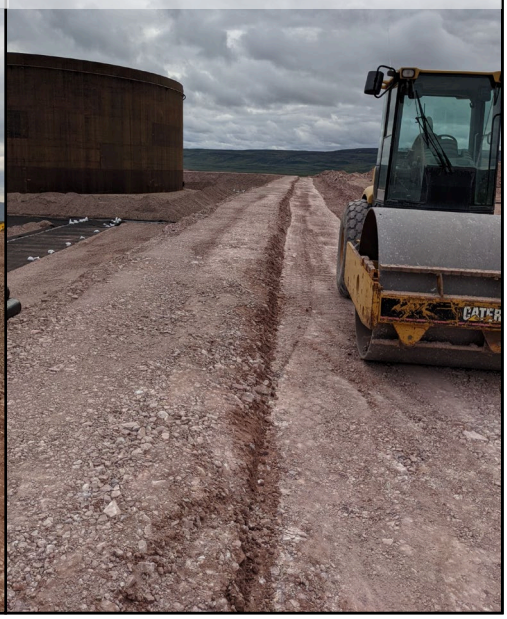
Trimmed and packed SE berm



Liner crew placing geo over liner

Packing top of NE berm

Packing top of NW berm



Appendix B – Construction pictures

Placing next lift into top of NW berm

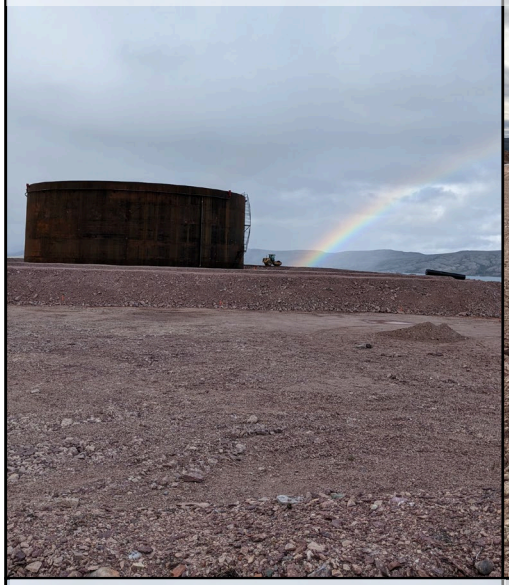
Packing top of NW berm

Placing and packing at the intersection of NW & NE berm

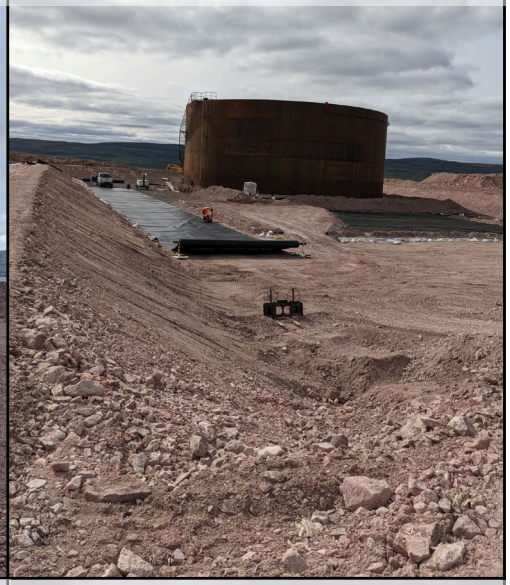
Looking at SW & SE berms

Appendix B - Construction pictures

Looking at SW berm, packer on NE berm packing

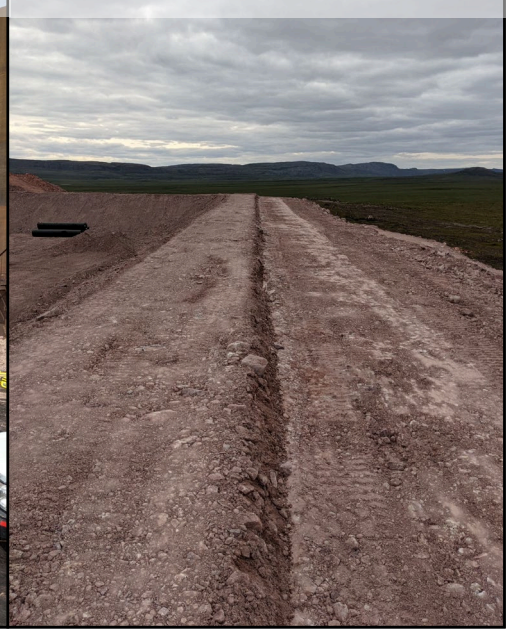


Laying liner on SE side while beginning to place small aggregates on NE side floor



Geo and liner on SW berm

Top of NE Berm packed and keyed



Sabina GOLD & SILVER CORP.

Appendix B – Construction pictures

Geo & liner on SW berm

Geo & Liner on SW berm, skid-steer placing fill on key to hold liner in place

Sabina Gold & Silver Corp.

Back River - Marine Laydown Area
Quarry Tank Farm (Phase 1)

Drawing Number	Drawing Title	Issue	Date	Revision
MLA-QTF-100	Fuel Tank Farm - General Arrangement	As-Constructed	2021/12/17	AC-1
MLA-QTF-101	Plan Layout - Final Arrangement	As-Constructed	2021/12/17	AC-1
MLA-QTF-102	Phase 1 Foundation Preparation Plan - Base Pad	Issued for Construction	7/22/2021	1
MLA-QTF-103	Phase 1 Containment Berm Plan	Issued for Construction	7/22/2021	1
MLA-QTF-104	Phase 1 Liner Subgrade Plan	As-Constructed	2021/12/17	AC-1
MLA-QTF-105	Phase 1 Final Layout	As-Constructed	2021/12/17	AC-1
MLA-QTF-300	Cross Sections	As-Constructed	2021/12/17	AC-1
MLA-QTF-301	Cross Sections	As-Constructed	2021/12/17	AC-1
MLA-QTF-400	Phase 1 Details	Issued for Construction	7/22/2021	1

NOTES

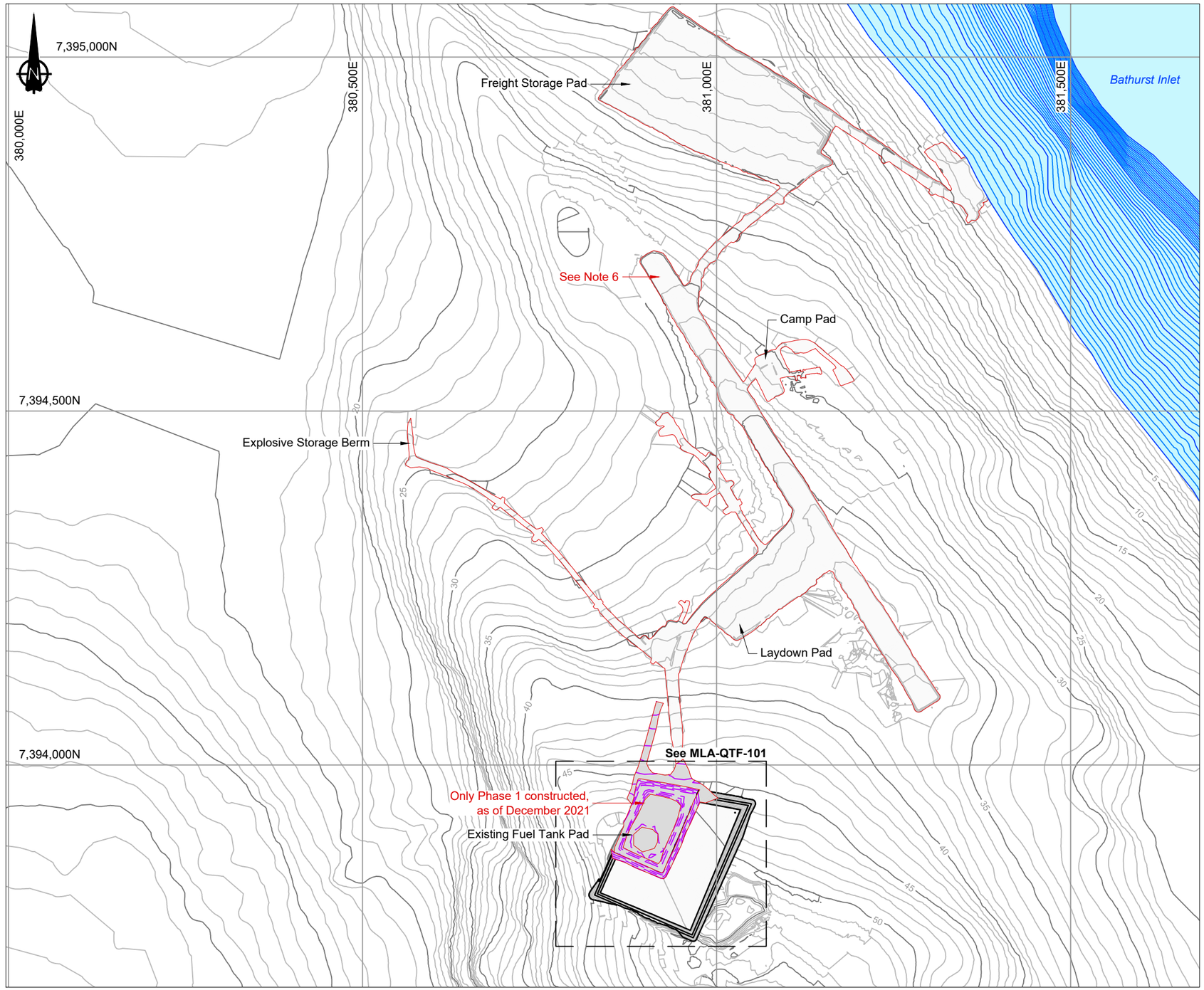
Context for "As Constructed" Drawing Set:

SRK was on site in 2019 and inspected the foundation below the first constructed MLA tank only.

SRK was not on site for any of the other tank farm construction and earthworks at the MLA in 2020 and 2021. SRK was al not involved in any of the on site quality control (QC) or quality assurance (QA) activities associated with this tank farm (beyond confirmation of bedrock below the first tank). It is SRK's understanding that all of the available as-built data was collected by Sub-Arctic survey under the guidance and supervision of Sabina Gold & Silver Corporation (Sabina). These 'as-constructed' drawings have been prepared based solely on the available information provided from Sabina to SRK.

The 'as-constructed' survey information shown in the drawing was provided to SRK via Sabina's SharePoint on 2021/11/10. None of this information has been visually verified in the field by SRK at this time. It is recommended that a professional geotechnical engineer licensed in Nunavut / Northwest Territories visit the MLA tank farm and complete a site inspection in the snow free months of 2022 (i.e. summer 2022) to confirm the layouts shown in these 'as-constructed' drawings, and to make any observations and comments beyond what is shown or presented in these drawings. Specifically, any comments on technical, operation or maintenance items that may not be apparent in the provided as-constructed information would be suggested to be focused on as part of this 2022 inspection.

srk consulting



LEGEND

- As-Constructed Infrastructure
- Phase 1 Fuel Tank Farm Area
- IFC Phase 2 Fuel Tank Farm Area

NOTES

1. Regional topographic contour data for the terrain model was provided by the Owner (Sabina) and is based on available LiDAR information and August 2018 as-built information that was provided by site survey.
2. Contour intervals are shown at 1.0m on this figure.
3. Construction is expected to be in accordance with the latest site Technical Specifications - with any variations approved and documented by the Engineer. See the issued "Earthworks and Geotechnical Engineering - Back River Gold Project, Nunavut, Canada" document for additional details.
4. These works must be executed in accordance with the standard Sabina health and safety, and environmental standards and protocols. it is the Contractors responsibility to familiarize themselves with these documents.
5. The Contractor and Construction Manager shall familiarize themselves with all appropriate Licenses and / or Permits pertaining to the execution of the Works.
6. The scope of work for this drawing package specifically is focused on the earthwork components of the MLA Tank Farm only (no other pads or roads) and excludes all electrical and mechanical elements. 2018 as-built information for pads and roads shown on this figure (not updated).
7. All dimensions are in meters unless otherwise stated.
8. Notes on this drawing apply to all other drawings in this issue / package.
9. SRK was onsite in 2019 and inspected only the foundation below the first constructed tank. SRK was not on site for any of the other tank farm construction and earthworks at the MLA in 2020 and 2021. SRK was also not involved in any of the on site quality control (QC) or quality assurance (QA) activities with this tank farm (beyond confirmation of bedrock below the first tank). It is SRK's understanding that all of the available as-built data was collected by Sub-Arctic survey under the guidance and supervision of Sabina Gold & Silver Corporation (Sabina). These 'as-constructed' drawings have been prepared based solely on the available information provided from Sabina to SRK.
   The 'as-constructed' survey information shown in the drawings was provided to SRK via Sabina's SharePoint on 2021/11/10. None of this information has been visually verified in the field by SRK at this time. It is recommended that a professional geotechnical engineer licensed in Nunavut / Northwest Territories visit the MLA tank farm and complete a site inspection in the snow free months of 2022 (i.e. summer 2022) to confirm the layouts shown in these 'as-constructed' drawings, and to make any observations and comments beyond what is shown or presented in these drawings. Specifically, any comments on technical, operation or maintenance items that may not be apparent in the provided as-built information would be suggested to be focused on as part of this 2022 inspection.

REFERENCES

1. NAD83 UTM Zone 13.
2. Base topographic contours generated from data provided by Sabina Gold and Silver Corp. File name: *'bathurst_inlet_1m_dem_tile26 to tile38.xyz'*, dated 2012-20-13.
3. Available bathymetric data (blue contours) provided by Sabina on 2018-04-19. File name: *'BathymetryBathurst.dwg'*. This data set was collected by ERM (formerly Rescan).
4. As-Built Shoreline Pad survey provided by Sabina. File name: *'Site 180818MLA Jetty.dwg'* dated 2018-08-18.
5. As-built Quarry survey provided by Sabina. File name: '*CAB180818 Quarry.dwg'* dated 2018-08-18.
6. As-built data for existing earthworks (pads and roads) provided by Sabina May 8, 2019. File name: '*Site 180818MLA Status map.dwg'* dated 2018-08-18.
7. As-constructed data for MLA Quarry Tank Farm Phase 1 provided by Sabina November 10, 2021. File names: *'80701 AUG16 tank farm asbuilt BOYD.csv', '80701 AUG24 Tank Farm.csv', '80701 AUG25 BOYD.csv', ' 80701 AUG26 BOYD.csv', '80701 Tank Farm Gravels 27aug21.dxf', 'HDPE Layer and Outside wall 20aug21.dxf', '80701 TANK FARM LINER 25AUG21.dxf'*

0m 50 100 150 200m

DRAWING NO.	DRAWING TITLE
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REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	DATE
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NO.	DESCRIPTION	CHK'D	APP'D	DATE
AC-1	As-Constructed	DG	JBK	21/12/17
1	Issued for Construction	DG	JBK	21/07/22
0	Issued for Review	DG	JBK	June2020

REVISIONS

As-Constructed
(Based on provided data)

srk consulting

DESIGN:	DRAWN:	REVIEWED:
JBK/JJ	TAH	VB
CHECKED:	APPROVED:	DATE:
RW/DG	JBK	2021/12/17

FILE NAME: 1CS020.020 - General Arrangement.dwg

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE:
Fuel Tank Farm
General Arrangement

DRAWING NO.: MLA-QTF-100

REVISION NO.: AC-1

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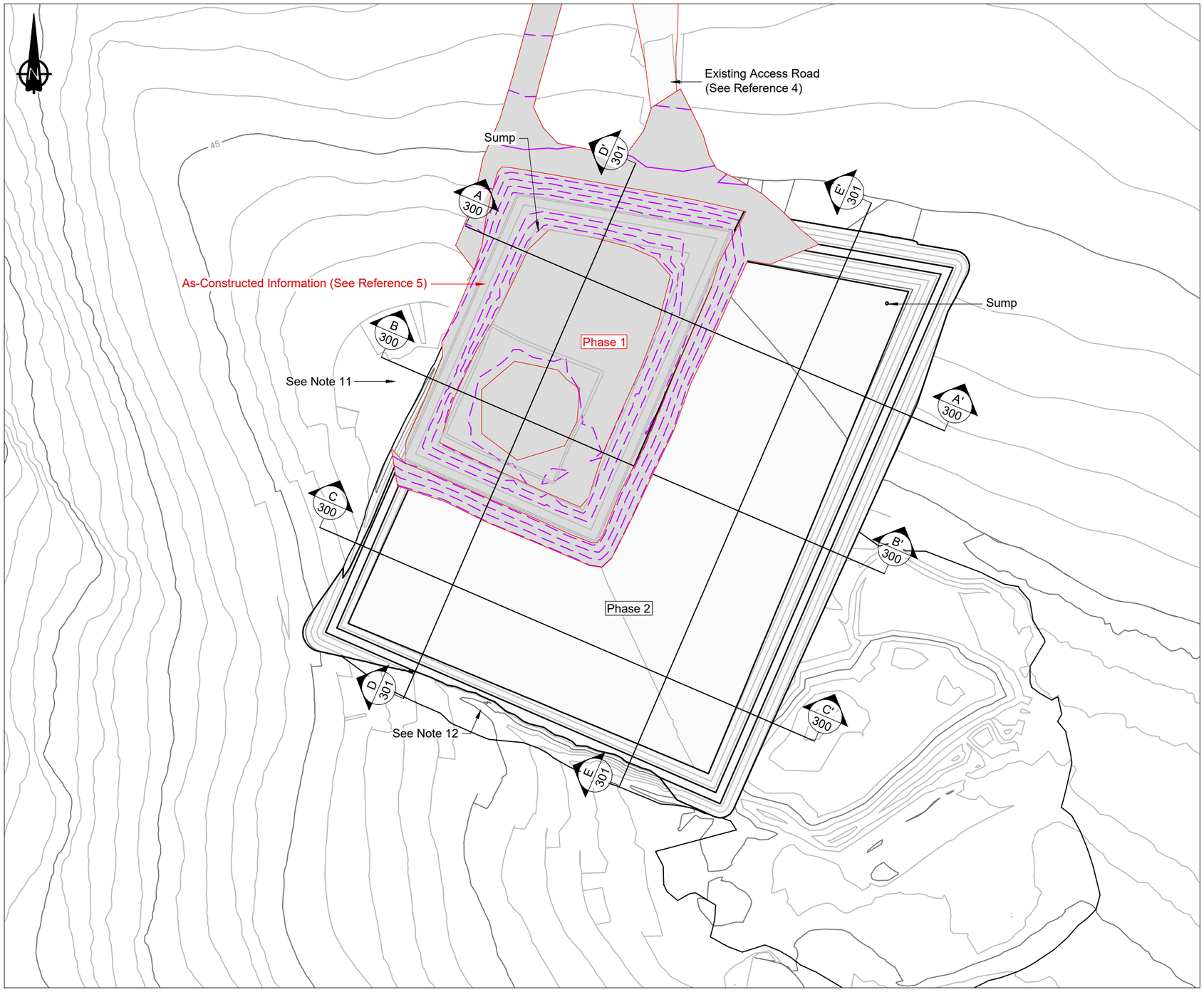

LEGEND

- As-Constructed Infrastructure
- Phase 1 Fuel Tank Farm Area
- IFC Phase 2 Fuel Tank Farm Area

NOTES

1. Contour interval is shown at 1.0m on this figure.
2. The MLA Fuel Tank Farm is to be constructed on a thin graded engineered fill pad that is constructed immediately over an intact bedrock surface. Generally, this foundation pad should be sloping from the Southeast to the Northwest to help promote better drainage of surface water.
3. The grounding of the tanks will be designed and installed by Others.
4. All tanks will only be operational once the appropriately regulatory approvals have been put in place.
5. The owner will install appropriate signage and barricades to prevent vehicle access within the secondary containment area (bunded area) other than access directly on the access / fuel transfer ramp.
6. The MLA Fuel Tank Farm design (including tank spacing and containment volume) is based on and meets the standards from the Canadian Council of Ministers of Environment (CCME), National Fire Code of Canada (2015) and the Sabina Gold and Silver Corporation Environmental Standards.
7. All drawings should be read in conjunction with the latest Technical Specifications document, "Technical Specifications Earthworks and Geotechnical Engineering - Back River Gold Project, Nunavut, Canada - Issued for Construction'.
8. Rockfill safety measures such as rock bolts and mesh may be required pending the final surface of the bedrock highwall. An inspection by the Engineer / an Engineer's representative to inspect and map the quarry highwall should be completed. In consultation with the Owner, proper safety measures can be implemented at or around the highwall. As a preliminary measure a slight offset has been left from the top fo the containment berm (bund) crest and the highwall to allow for a small 'catch bench' area to be formed between the lined containment area and the highwall.
9. Before any cranes are used on site (such as within the bunded areas to place the tank steel) calculations / checks should be completed to check that the crane loads are adequately spread as to not negatively impact / damage the underlying HDPE liner.
10. All dimensions are in meters unless otherwise stated.
11. The north west edge of the Phase 1 berm / outside bunded are to be inspected in the field before / during construction. If competent bedrock is encountered in this area then the berm may be modified to better tie into this side slope (i.e. less excavation). All loose fill and broken material should be removed from this area to create a competent base for engineered fill to be placed upon.
12. All highwalls to be scaled before any construction activities result in that area. All highwalls to be inspected by a rock mechanics specialist / professional so that adequate slope stabilization measures can be suggested (such as meshing and rock bolting) if / as required.

REFERENCES

1. NAD83 UTM Zone 13.
2. Base topographic contours generated from data provided by Sabina Gold and Silver Corp. File name: '*bathurst_inlet_1m_dem_tile26 to tile38.xyz*', dated 2012-20-13.
3. As-built Quarry survey provided by Sabina. File name: '*CAB180818 Quarry.dwg*' dated 2018-08-18.
4. As-built data for existing earthworks (pads and roads) provided by Sabina May 8, 2019. File name: '*Site 180818MLA Status map.dwg*' dated 2018-08-18.
5. As-constructed data for MLA Quarry Tank Farm Phase 1 provided by Sabina November 10, 2021. File names: *'80701 AUG16 tank farm asbuilt BOYD.csv', '80701 AUG24 Tank Farm.csv', '80701 AUG25 BOYD.csv', ' 80701 AUG26 BOYD.csv', '80701 Tank Farm Gravels 27aug21.dxf', 'HDPE Layer and Outside wall 20aug21.dxf', '80701 TANK FARM LINER 25AUG21.dxf'*

0m 10 20 30 40

DRAWING NO.	DRAWING TITLE
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REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	DATE
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NO.	DESCRIPTION	CHK'D	APP'D	DATE
AC-1	As-Constructed	DG	JBK	21/12/17
1	Issued for Construction	DG	JBK	21/07/22
0	Issued for Review	DG	JBK	June2020

REVISIONS

As-Constructed
(Based on provided data)

srk consulting

DESIGN:	DRAWN:	REVIEWED:
JBK/JU	TAH	VB
CHECKED:	APPROVED:	DATE:
RW/DG	JBK	2021/12/17

FILE NAME: 1CS020.020 - General Arrangement.dwg

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE:

Plan Layout - Final Arrangement

DRAWING NO.: MLA-QTF-101

REVISION NO.: AC-1

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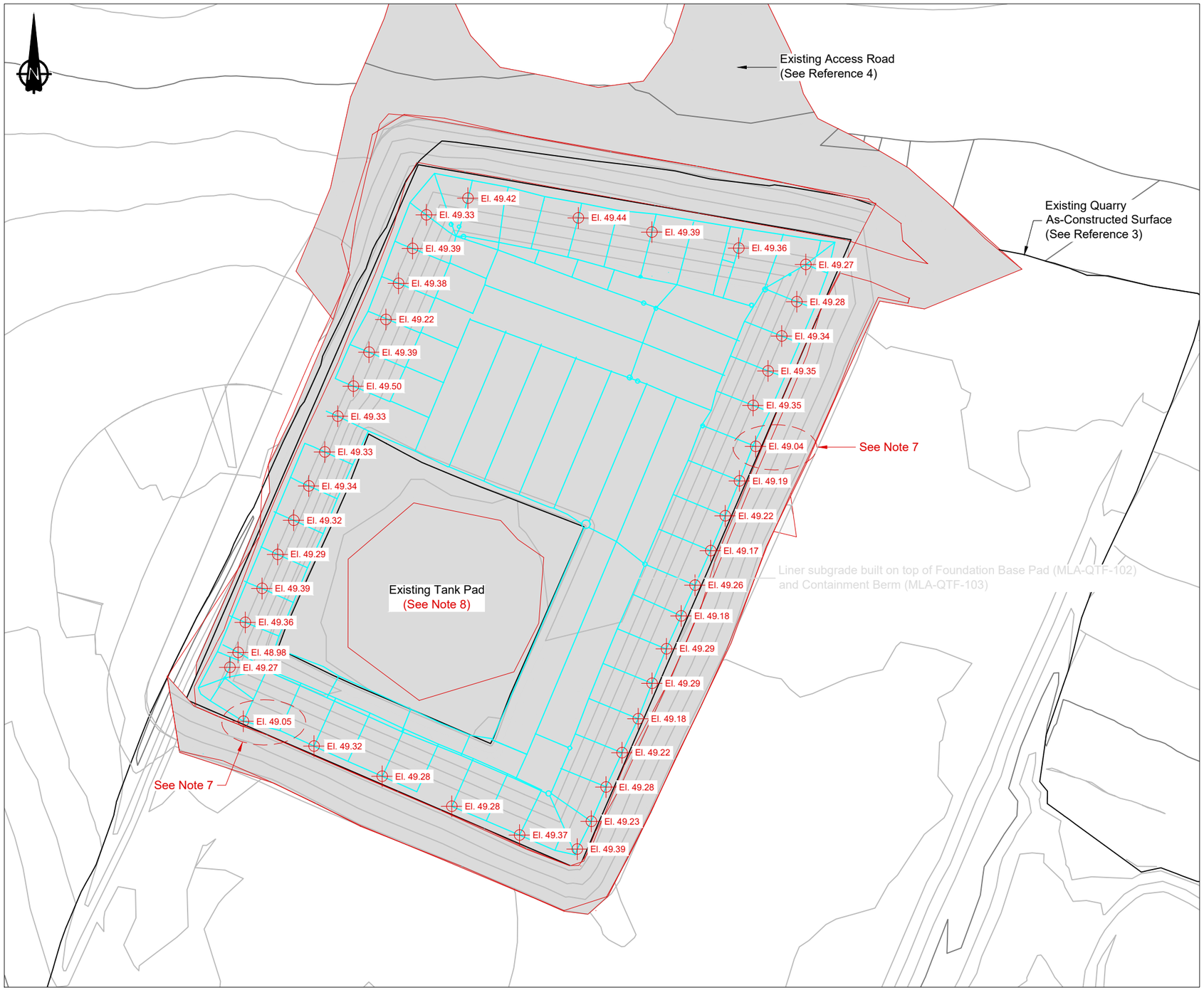

LEGEND

- As-Constructed Spot Elevations
- As-Constructed Infrastructure
- As-Constructed HDPE Liner Panels and Seams

NOTES

1. Contour intervals are shown at 1.0m on this figure.
2. All dimensions are in meters unless otherwise stated.
3. Proceeding with construction, as noted on this IFC drawing, is contingent on the Engineer conducting a physical inspection of the foundation conditions to confirm that the facility will be founded on a competent bedrock foundation as opposed to unconsolidated fill, frozen sand, or overburden. Construction may only proceed with written approval from the Engineer.
4. Berm to be field fit along length of existing tank pad, as directed and in discussion with the Engineer.
5. Berm along western highwall to be field fit based on site conditions and as directed by the Engineer. An inspection of this area and documentation of the existing conditions should be carried out before construction in this area. Berms that are tying into cleaned rock face will be more like what is presented in Detail 4 (MLA-QTF-103). Berms that are being tied into approved prepared ground may look more like Detail 5 (MLA-QTF-103).
6. Prepared Ground - all organics and saturated material removed.
7. Lowest elevations in liner survey data. This elevation controls the overall containment elevation and associated 'as-constructed' containment volume.
8. The 'Existing Tank Pad' area is based on as-built survey information provided from Sabina. Information dated June 23, 2019.
9. Liner subgrade material quality control (including particle size distribution and subgrade suitability checks) done by Sabina / others.
10. Liner installation quality checked completed on site by A&A Technical Services.

REFERENCES

1. NAD83 UTM Zone 13.
2. Base topographic contours generated from data provided by Sabina Gold and Silver Corp. File name: '*bathurst_inlet_1m_dem_tile26 to tile38.xyz'*, dated 2012-20-13.
3. As-built Quarry survey provided by Sabina. File name: '*CAB180818 Quarry.dwg'* dated 2018-08-18.
4. As-built data for existing earthworks (pads and roads) provided by Sabina May 8, 2019. File name: '*Site 180818MLA Status map.dwg'* dated 2018-08-18.
5. As-constructed data for MLA Quarry Tank Farm Phase 1 liner provided by Sabina November 10, 2021. File name: *'HDPE Layer and Outside wall 20aug21.dxf.*

0m 5 10 15 20 25 30

REFERENCE DRAWINGS		REVISIONS								
DRAWING NO.	DRAWING TITLE	NO.	DESCRIPTION	CHK'D	APP'D	DATE	NO.	DESCRIPTION	CHK'D	APP'D	DATE
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							1	Issued for Construction	DG	JBK	21/07/22
							0	Issued for Review	DG	JBK	June2020

As-Constructed
(Based on provided data)

srk consulting

DESIGN: JBK/JU	DRAWN: TAH	REVIEWED: VB
CHECKED: RW/DG	APPROVED: JBK	DATE: 2021/12/17
FILE NAME: 1CS020.020 - Liner.dwg		

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE:

Phase 1 Liner Subgrade Plan

DRAWING NO.: MLA-QTF-104

REVISION NO.: AC-1

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LEGEND

- As-Constructed Infrastructure
- IFC Phase 1 Fuel Tank Farm Area
- As-Constructed Contours (0.1m interval)

NOTES

1. Contour intervals are shown at 1.0m on this figure.
2. All dimensions are in meters unless otherwise stated.
3. Please see all notes on drawings MLA-QTF-100 to 104 for additional details. These notes apply to all drawings.
4. Based on the available survey information, a large portion of the current Phase 1 MLA tank farm base (specifically the area north of the 10ML tank) is below the suggested 0.6m minimum overliner fill thickness. To protect the installed HDPE liner no vehicle traffic should result within the bunded area of the tank farm until a minimum of 0.6m minimum of overliner material has been placed, or confirmed in the field and surveyed to show that an adequate overliner thickness has been achieved fro vehicle traffic.
5. As-built survey information not available at this time for the SW corner of the Phase 1 MLA Tank Farm.
6. Liner overliner material quality control (including particle size distribution and subgrade suitability checks) done by Sabina / others.
7. Available as-bilt information showing the SW corner of the Phase 1 tank farm as being slightly oversteepened. Based on conversations with Sabina and provided photographs this may just be a function of a gap in survey data (not enough survey points around this area to adequately represent the slope in this corner).
8. HDPE sump is not shown / apparent in the as-built data.

REFERENCES

1. NAD83 UTM Zone 13.
2. Base topographic contours generated from data provided by Sabina Gold and Silver Corp. File name: '*bathurst_inlet_1m_dem_tile26 to tile38.xyz*', dated 2012-20-13.
3. As-built Quarry survey provided by Sabina. File name: '*CAB180818 Quarry.dwg*' dated 2018-08-18.
4. As-built data for existing earthworks (pads and roads) provided by Sabina May 8, 2019. File name: '*Site 180818MLA Status map.dwg*' dated 2018-08-18.
5. As-constructed data for MLA Quarry Tank Farm Phase 1 provided by Sabina November 10, 2021. File names: *'80701 AUG16 tank farm asbuilt BOYD.csv', '80701 AUG24 Tank Farm.csv', '80701 AUG25 BOYD.csv', ' 80701 AUG26 BOYD.csv', '80701 Tank Farm Gravels 27aug21.dxf', 'HDPE Layer and Outside wall 20aug21.dxf', '80701 TANK FARM LINER 25AUG21.dxf'*

VOLUMES AND MATERIALS

As-Constructed Containment Volumes (based on provided survey information):

To elevation 49.05m (low point in liner as-built survey) = 12,106m³
To elevation 49.13m (low point in top of berm in the as-built survey) = 12,412m³

Note that the volumes above do not include any subtraction for the volume occupied by the existing tank. The existing tank has a nominal tank base diameter of ~33.528m and a minimal tank shell height of 12.192. Therefore there is expected to be a volume loss of about 88.3m³ per 0.1m in the bunded area (i.e. 16.764² x π x 0.1).

Crude estimates, based on available data, for the total containment volume excluding the volume occupied by the tank are therefore:

To elevation 49.05m (low point on the as-built survey, excluding volume occupied by the tank) = 10,792m³
To elevation 49.13m (low point in top of berm in the as-built survey, excluding volume occupied by the eank) = 11,242m³

0m 5 10 15 20 25 30

REFERENCE DRAWINGS		REVISIONS									
DRAWING NO.	DRAWING TITLE	NO.	DESCRIPTION	CHK'D	APP'D	DATE	NO.	DESCRIPTION	CHK'D	APP'D	DATE
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							1	Issued for Construction	DG	JBK	21/07/22
							AC-1	As-Constructed	DG	JBK	21/12/17

As-Constructed
(Based on provided data)

srk consulting

DESIGN: JBK/JU	DRAWN: TAH	REVIEWED: VB
CHECKED: RW/DG	APPROVED: JBK	DATE: 2021/12/17
FILE NAME: 1CS020.020 - General Arrangement.dwg		

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE:

Phase 1 Final Layout Plan

DRAWING NO.: MLA-QTF-105

REVISION NO.: AC-1

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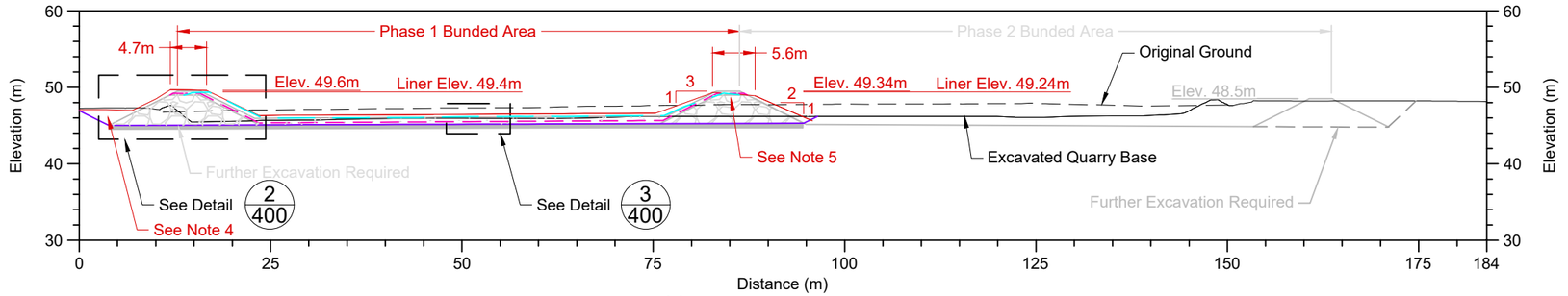
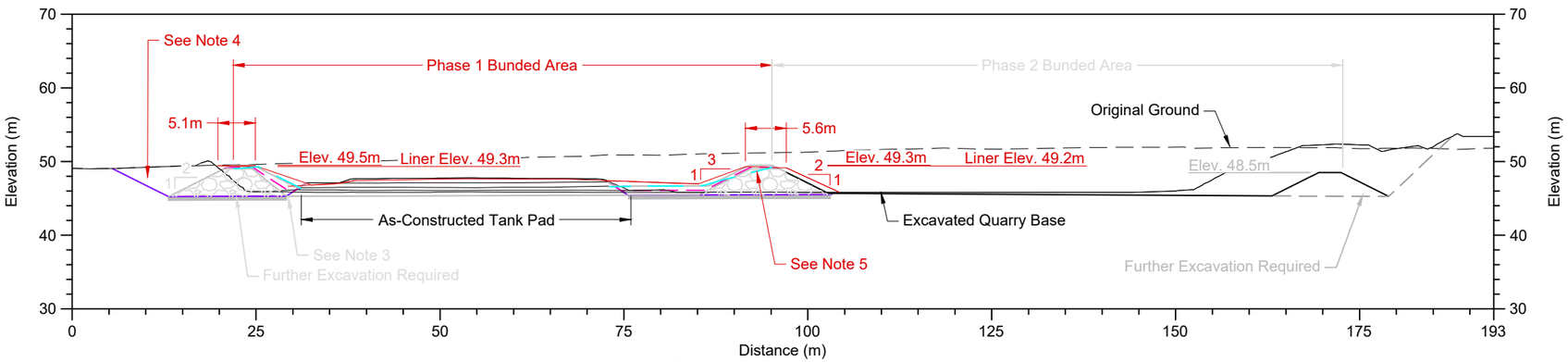
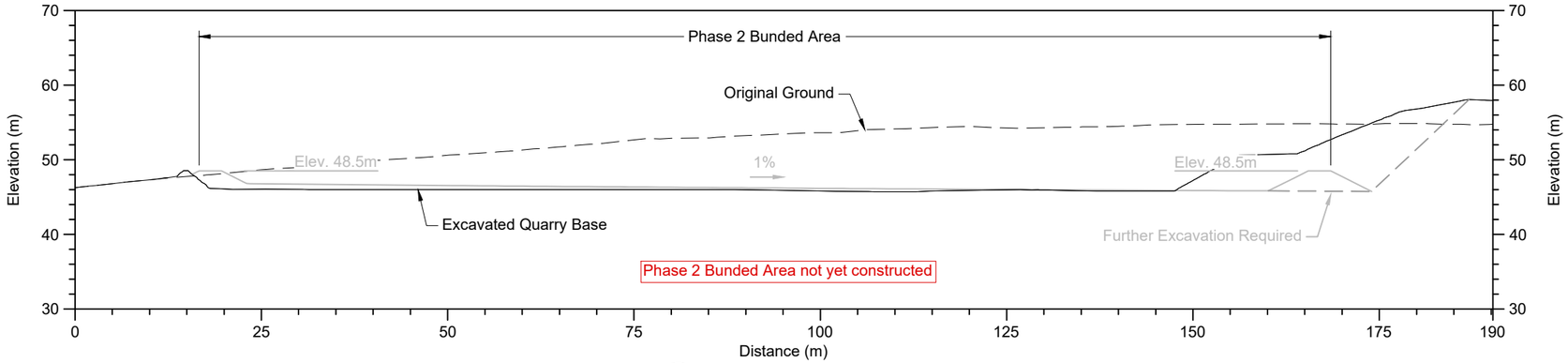


A/101 **Cross Section A-A'**



B/101 **Cross Section B-B'**



C/101 **Cross Section C-C'**

LEGEND

- As-Constructed Survey
- IFC Liner System
- As-Constructed HDPE Liner System
- IFC Crushed Rock (above / below liner)
- IFC Levelling Layer (transition)
- IFC Rockfill (ROQ)

NOTES

1. All dimensions are in meters unless otherwise stated.
2. Proceeding with construction, as noted on this IFC drawing, is contingent on the Engineer conducting a physical inspection of the foundation conditions to confirm that the facility will be founded on a competent bedrock foundation as opposed to unconsolidated fill, frozen sand, or overburden. Construction may only proceed with written approval from the Engineer.
3. 1.5H:1V side slopes from the existing tank pad to be field fit. The containment berm will also be field fit along length of existing tank pad.
4. Survey data not available for the surface below the fill in this area. Sabina site staff have verbally indicated that this area has been stripped down to 'competent' ground before placing compacted fill over this area.
5. Top liner anchor details unable to be confirmed with provided survey information.
6. One 10 million liter (ML) tank has been constructed on site. As-built survey of the 10ML tank was not provided (focus on the bunded area / earthworks in this drawings set). This has been constructed. See the August 2019 Gem Steel as-built drawings for additional information on the constructed Phase 1 10ML tank.

0m 5 10 15 20 25 30

DRAWING NO.	DRAWING TITLE
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REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	DATE
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NO.	DESCRIPTION	CHK'D	APP'D	DATE
AC-1	As-Constructed	DG	JBK	21/12/16
1	Issued for Construction	DG	JBK	21/07/22
0	Issued for Review	DG	JBK	June2020

REVISIONS

As-Constructed
(Based on provided data)

srk consulting

DESIGN:	DRAWN:	REVIEWED:
JBK/JU	TAH	VB
CHECKED:	APPROVED:	DATE:
RW/DG	JBK	2021/12/16

FILE NAME: 1CS020.020 - General Arrangement.dwg

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE:

Cross Sections

DRAWING NO. MLA-QTF-300

REVISION NO. AC-1

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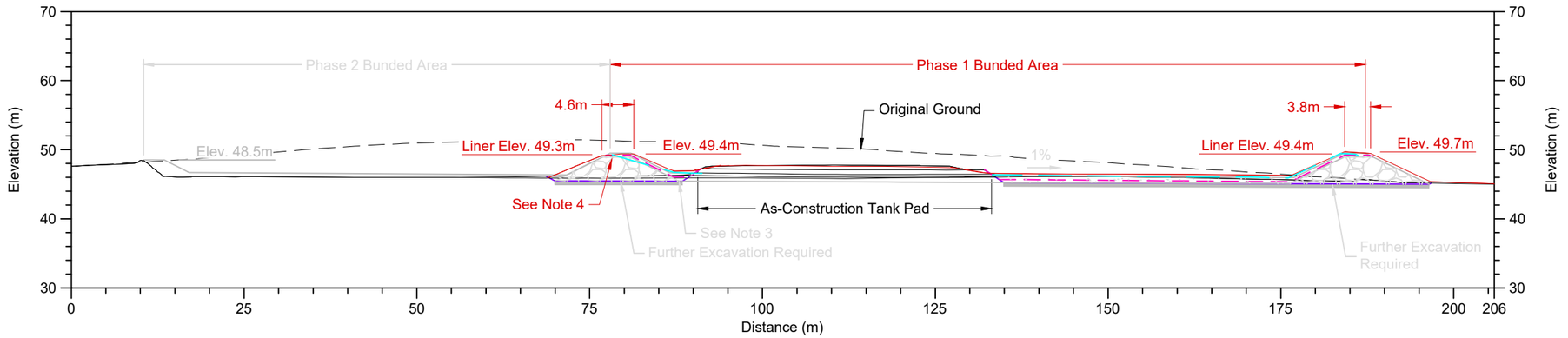
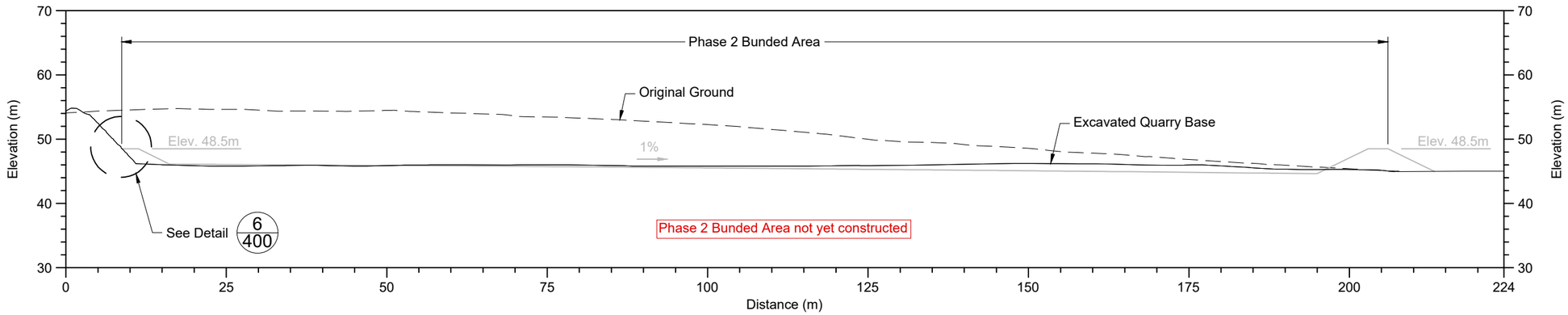


D/101 **Cross Section D-D'**



E/101 **Cross Section E-E'**

LEGEND

- As-Constructed Survey
- IFC Liner System
- As-Constructed HDPE Liner System
- IFC Crushed Rock (above / below liner)
- IFC Levelling Layer (transition)
- IFC Rockfill (ROQ)

NOTES

1. All dimensions are in meters unless otherwise stated.
2. Proceeding with construction, as noted on this IFC drawing, is contingent on the Engineer conducting a physical inspection of the foundation conditions to confirm that the facility will be founded on a competent bedrock foundation as opposed to unconsolidated fill, frozen sand, or overburden. Construction may only proceed with written approval from the Engineer.
3. 1.5H:1V side slopes from the existing tank pad to be field fit. The containment berm will also be field fit along length of existing tank pad.
4. Top liner anchor details unable to be confirmed with provided survey information.

0m 5 10 15 20 25 30

DRAWING NO.	DRAWING TITLE
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REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	DATE
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NO.	DESCRIPTION	CHK'D	APP'D	DATE
AC-1	As-Constructed	DG	JBK	21/12/16
1	Issued for Construction	DG	JBK	21/07/22
0	Issued for Review	DG	JBK	June2020

REVISIONS

As-Constructed
(Based on provided data)

srk consulting

DESIGN:	DRAWN:	REVIEWED:
JBK/JU	TAH	VB
CHECKED:	APPROVED:	DATE:
RW/DG	JBK	2021/12/16

FILE NAME: 1CS020.020 - General Arrangement.dwg

Sabina GOLD & SILVER CORP.

Back River Project

SRK JOB NO.: 1CS020.020

Marine Laydown Area - Quarry Tank Farm

DRAWING TITLE: Cross Sections

DRAWING NO.: MLA-QTF-301

REVISION NO.: AC-1

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