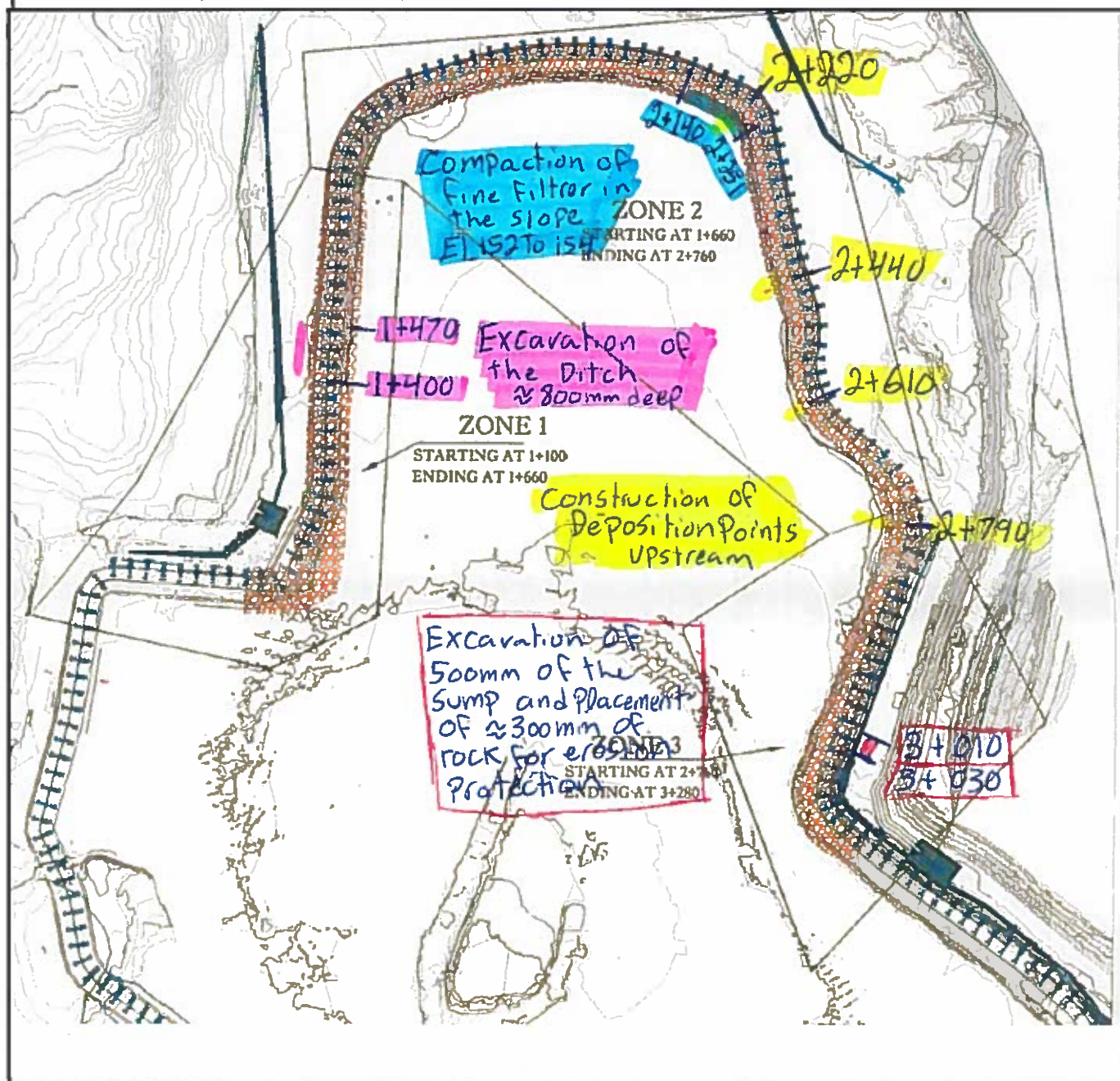




Client:	Agnico Eagle mines	Projet no.:	11118538-B1
Projet:	North cell Internal Dike	Page	1 de 1
Date d'inspection:	2018-07-26		

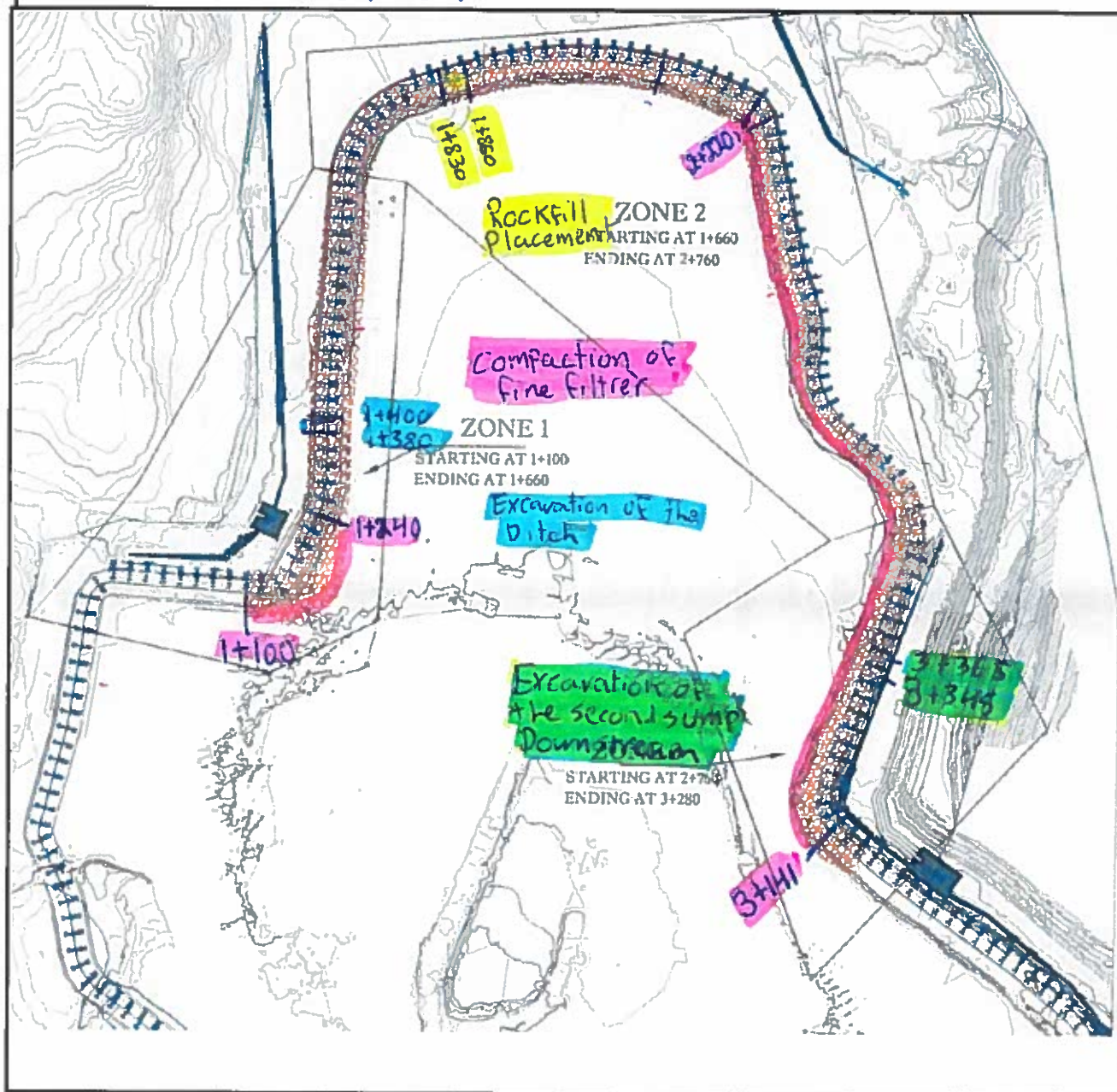


Préparé par: Mathieu Côté Vérifié par: _____



Plan/Croquis

Client:	Agnico Eagle mines	Projet no.:	11118538-B1
Projet:	North cell Internal Dike	Page	1 de 1
Date d'inspection:	2018-07-27		



Préparé par: Mathieu Côté

Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 28-Jul-18 Inspector - Day/Night: Mathieu Côté - Day shift
Weather : Cloudy and sunny (11°C)
Project: Increase the final level of North cell at 154 Contractor: Sana

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill sloping, fine filterer compaction, ditch and sump excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☒	Ditch Excavation	☒

Description:

North Cell Internal Structure :

- Rockfill placement of El. 152 to 154 at st. 1+860 to 1+660
- Compaction of fine filterer of El. 154 (500mm) in the slope at st. 2+220 to 1+940
- Excavation of the ditch (800mm deep) at st. 1+380 to 1+300
- Rockfill sloping (3H for 1V) in the slope at st.1+880 to 1+780

See sketches at the end of the report for details

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, haul trucks, packer

Manpower:

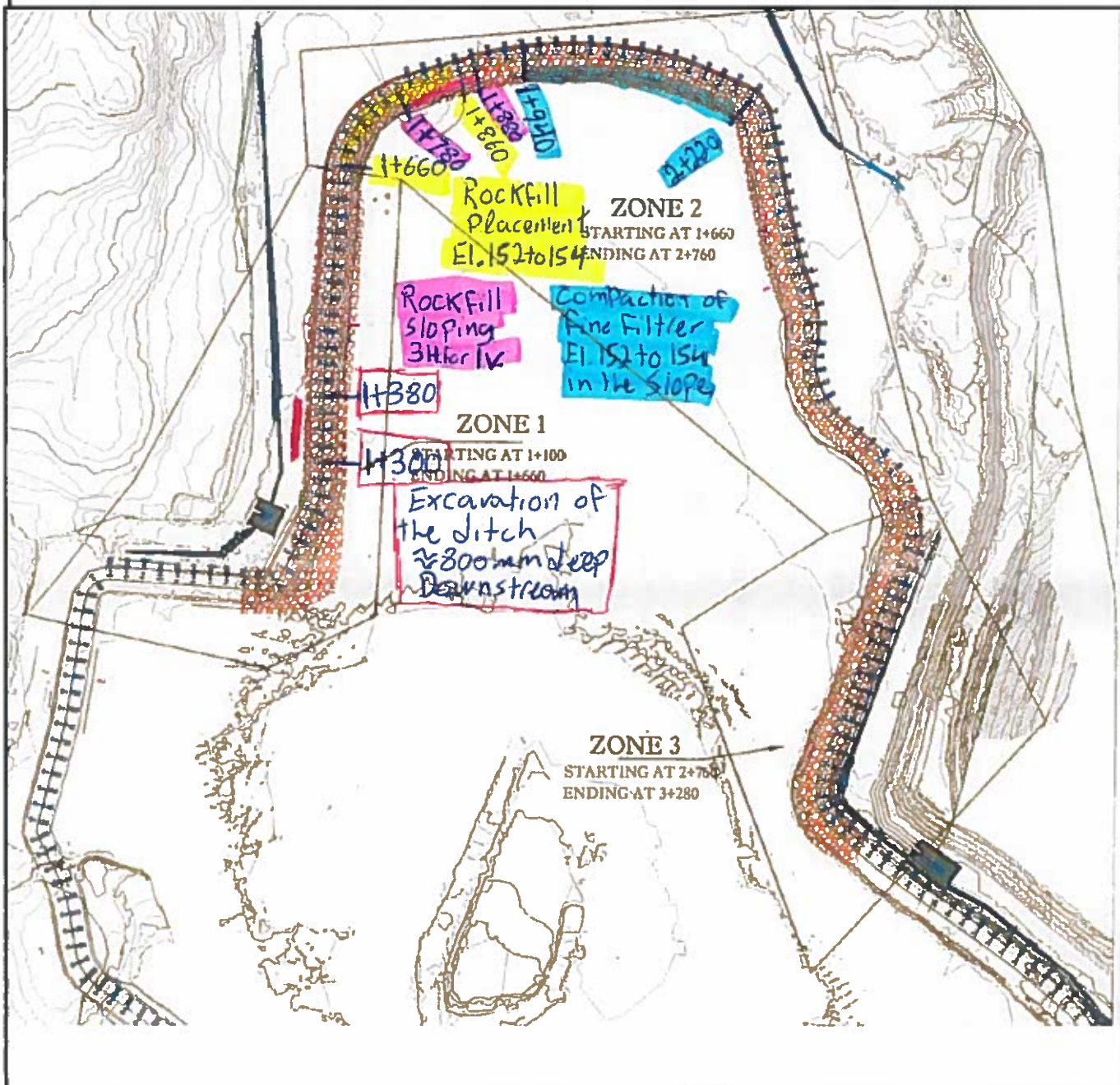
Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative



Plan/Croquis

Client:	Agnico Eagle mines	Projet no.:	11118538-B1
Projet:	North cell Internal Dike	Page	1 de 1
Date d'inspection:	2018-07-28		



Préparé par:

Mathieu Côté

Vérifié par:

QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 29-Jul-18 Inspector - Day/Night: Mathieu Côté - Day shift
Weather: Cloudy, rainy and sunny (9°C)
Project: Increase the final level of North cell at 154 Contractor: Sana

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill sloping, fine filter compaction, ditch and sump excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Tilt	☐	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☒	Ditch Excavation	☐

Description:

North Cell Internal Structure :

- Rockfill sloping (3H for 1V) in the slope at st. 1+780 to 1+700
- Placement and compaction of fine filter of El. 154 in the slope at st. 1+920 to 1+830
- Placement and compaction of coarse filter (500mm) in the slope at st. 1+940 to 1+826

See sketches at the end of the report for details

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, haul trucks, packer, loader

Manpower:

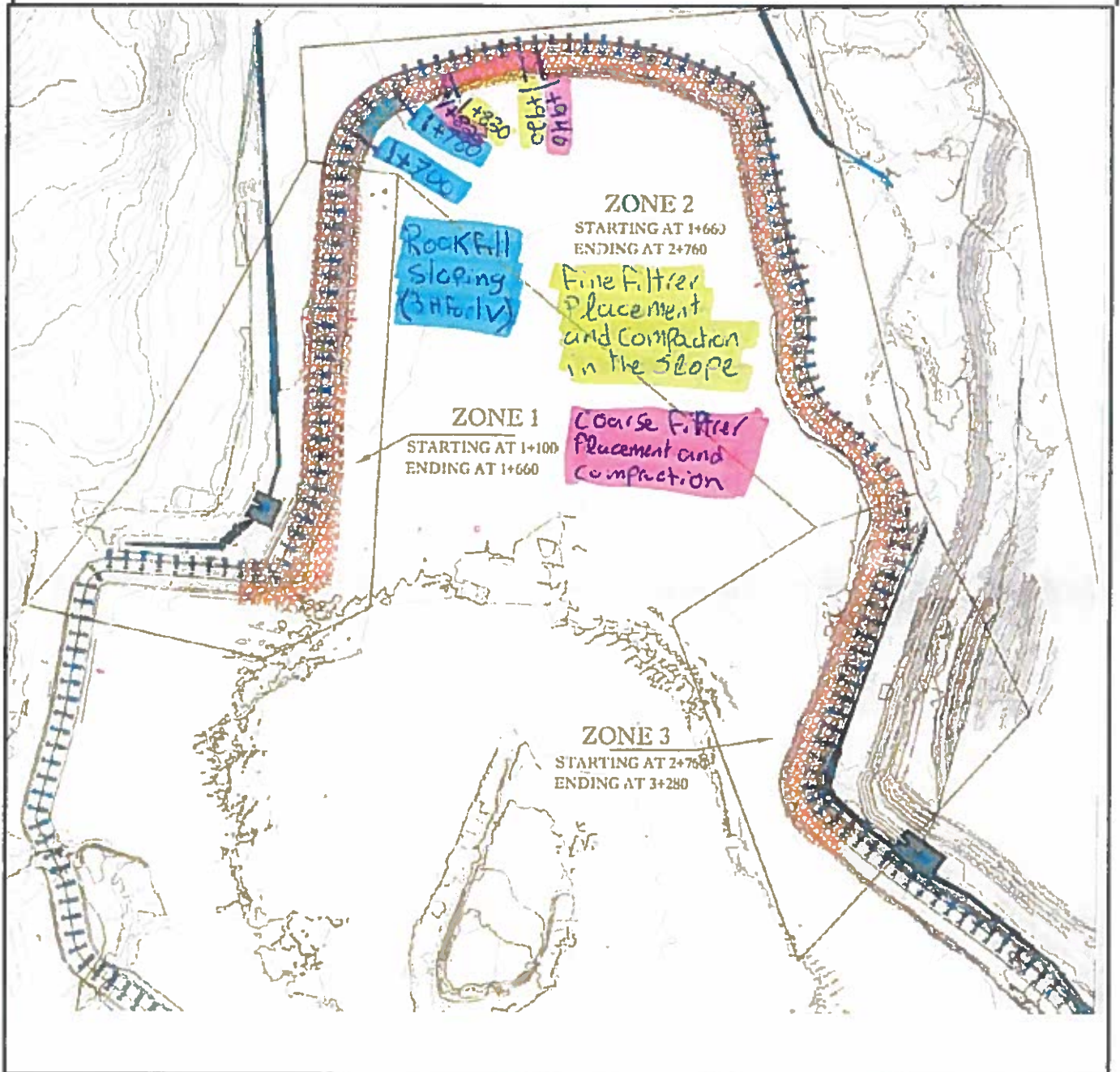
Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative



Plan/Croquis

Client:	Agnico Eagle mines	Projet no.:	11118538-B1
Projet:	North cell Internal Dike	Page	1 de 1
Date d'inspection:	2018-07-29		



Préparé par: Mathieu Côté Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 30-Jul-18 Inspector - Day/Night: Hugues Potvin - Day shift
Weather : Cloudy and rainy (9°C)
Project: Increase the final level of North cell at 154 Contractor: Sana

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Rockfill sloping, coarse and fine filter placement

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☒	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☐	Ditch Excavation	☐

Description:

North Cell Internal Structure :

- Placement of fine filter (500 mm thick), EL. 152 to 154 in the slope(ch. 1+800 to 1+700)
- Placement and compaction of coarse filter (500mm thick), EL. 152 to 154 in the slope (ch. 1+826 to 1+660)
- A sample of fine filter (FF-424-2018) was take at ch. 1+820
- Rockfill sloping (3H for 1V) in the slope (ch. 1+740 to 1+640)

See sketches at the end of the report for details

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, haul trucks, packer, loader

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative



Date d'inspection: 2018-07-30 2 SAMPLE FF-424-2018



QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 31-Jul-18 Inspector - Day/Night: Hugues Potvin - Day shift
Weather : Cloudy (6 to 17°C)
Project: Increase the final level of North cell at 154 Contractor: Sana

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Fine filter placement and ditch excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐	Sump Excavation	☐
Water Control	☐	Fine Filter	☒	Rockfill	☐	Ditch Excavation	☒

Description:

North Cell Internal Structure :

- Placement of fine filter (500 mm thick), El. 152 to 154 in the slope(ch. 1+700 to 1+660)

- Ditch excavation

See sketches at the end of the report for details

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, haul trucks, loader

Manpower:

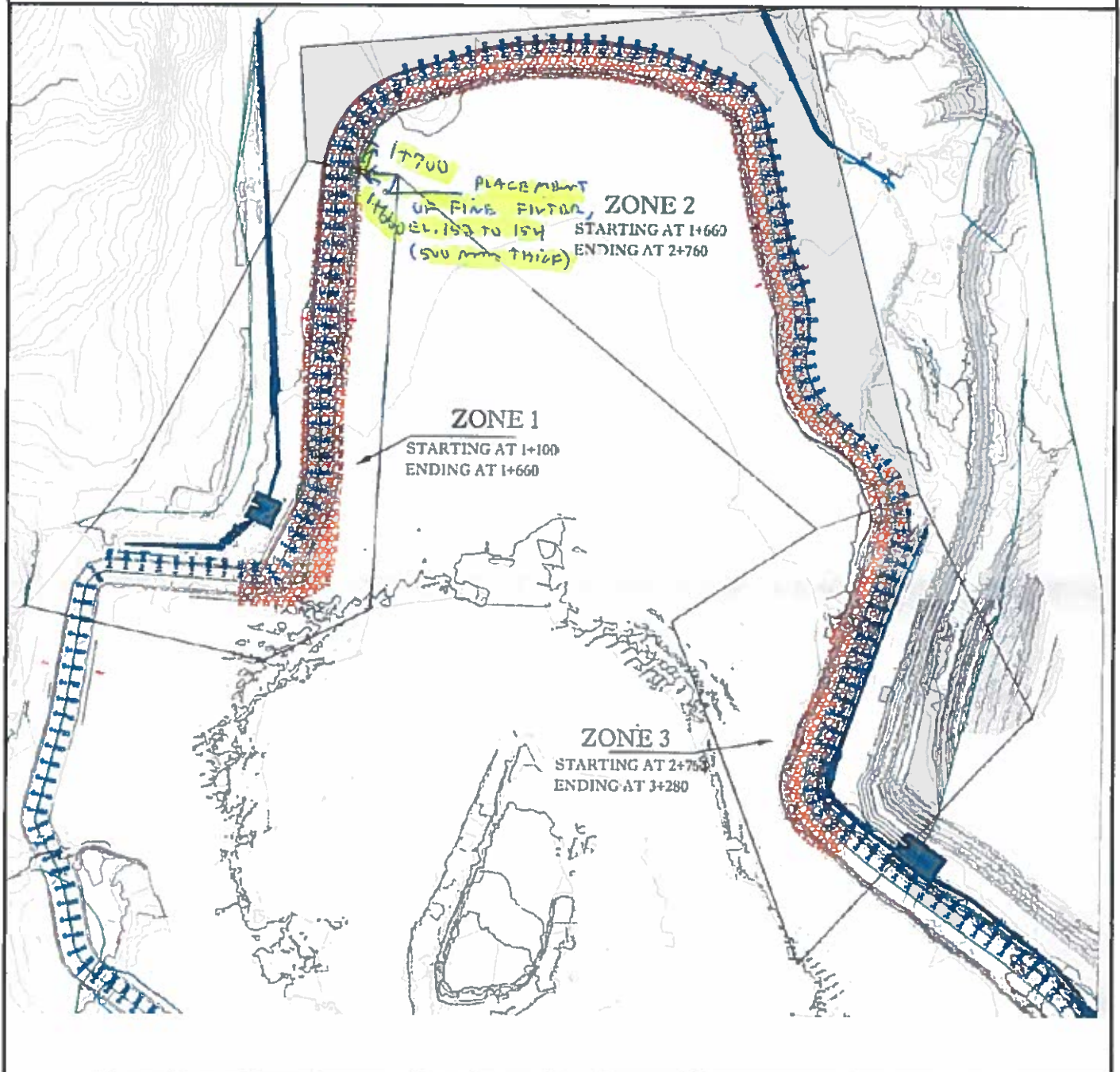
Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative



Client:	Agnico Eagle mines	Projet no.:	11118538-B1
Projet:	North cell Internal Dike	Page	1 de 1

Date d'inspection: 2018-07-31



Préparé par: HUGUES POTVIN Vérifié par: _____

QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 1-Aug-18 Inspector - Day/Night: Hugues Potvin - Day shift

Weather : Cloudy + rain (6 to 17°C)

Project: Increase the final level of North cell at 154 Contractor: Sana

Work in Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Ditch excavation

General Activities: see work in progress

Soft Sediment Excavation	☐	Key Excavation	☐	Coarse Filter	☐	Drilling/Blasting	☐
Foundation Preparation	☐	LLDPE/Geotextile	☐	Till	☐	Sump Excavation	☐
Water Control	☐	Fine Filter	☐	Rockfill	☐	Ditch Excavation	☒

Description:

North Cell Internal Structure :

- Ditch excavation and placement of aproximately 300 mm of sieving residue (pebbles and gravel) for erosion protection

fom ch. 1+200 to approx.1+100

- Gradation on fine filter (FF-424-2018)

- A deposition point was built yesterday (position not noted)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, one haul trucks, loader

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

QC INSPECTOR'S DAILY REPORT
NORTH CELL
AGNICO-EAGLE MEADOWBANK



Date: 2-Aug-18

Inspector - Day/Night: Hugues Potvin - Day shift, AM

Weather : Cloudy + rain (6 to 17°C)

Project: Increase the final level of North cell at 154

Contractor: Sana

Work In Progress (Location, Activities, Equipment, Quantities, Problems, Delays etc.): Ditch excavation

General Activities: see work in progress

Soft Sediment Excavation ☐

Key Excavation ☐

Coarse Filter ☐

Drilling/Blasting ☐

Foundation Preparation ☐

LLDPE/Geotextile ☐

Till ☐

Sump Excavation ☐

Water Control ☐

Fine Filter ☐

Rockfill ☐

Ditch Excavation ☒

Description:

North Cell Internal Structure :

- Ditch excavation and placement of approximately 300 mm of sieving residue (pebbles and gravel) for erosion protection

nb: No visit on the field today (truck not available)

Delays:

Comments (observations, comments, discussions with contractor, ect.):

Equipment: Excavators, one haul trucks, loader

Manpower:

Photos Location:

* Photos must be stored in appropriate location as indicated by the Owner Representative

APPENDIX G

Foundation and Geosynthetics Installation Approval Forms

APPENDIX G-1

Central Dike Stage 6 Approval Forms

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CD

Acceptance No.:

FND-CD-139

Date:

29/Apr/18

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

- 1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);
- 2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);
- 3) Photo of the accepted area, at the moment of the acceptance;
- 4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative

Name: Pier-Eric McDonald

Position: AEM- Ower Rep.

QC Representative

Name: Cédric Fillon Tremblay

Position: GHD

QA Engineer

Name: Marion Habersetzer

Position: Golder-Qa

Surveyor

Name: Marc-Andre Blackburn

Position: FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Foundation and Key Trench Preparation and Excavation

DIKE : Central Dike TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. <u>40+780.80</u> Offset <u>14.16</u>	SHIFT: NIGHT: ☐ DAY ☒ DATE: <u>29-Apr-18</u> SHEET <u>2</u> OF <u>4</u>
To Sta. <u>0+981.22</u> Offset <u>2.02</u>	LOCATION: : <u>Central Dike bedrock foundation (downstream)</u>
EQUIPMENT: <u>Excavator CAT 345</u>	<u>intersection with Saddle Dam 5</u>

DESCRIPTION rock foundation

NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	MH
2.	Storage areas planned for disposal of removed materials	PG	MH
3.	Occurrence of snow and ice removal method in place	PG	MH
4.	Occurrence of boulders and removal method in place	PG	MH
5.	Occurrence of hummocks and scalping method in place	PG	MH
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	MH
7.	Presence of other unsuitable materials and removal method in place	PG	MH
8.	Soil frozen or thawed and measures taken	PG	MH
9.	Blasting requirement to remove unsuitable material and safety measure checked	—	—
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	MH
11.	Final walkover inspection before re-sloping or fill placement	PG	MH
	Rough grading of foundation	PG	MH
12.	"As-excavated" survey conducted	PG	MH
	Bedrock cleaning	PG	MH
13.	Bedrock Mapping	—	—

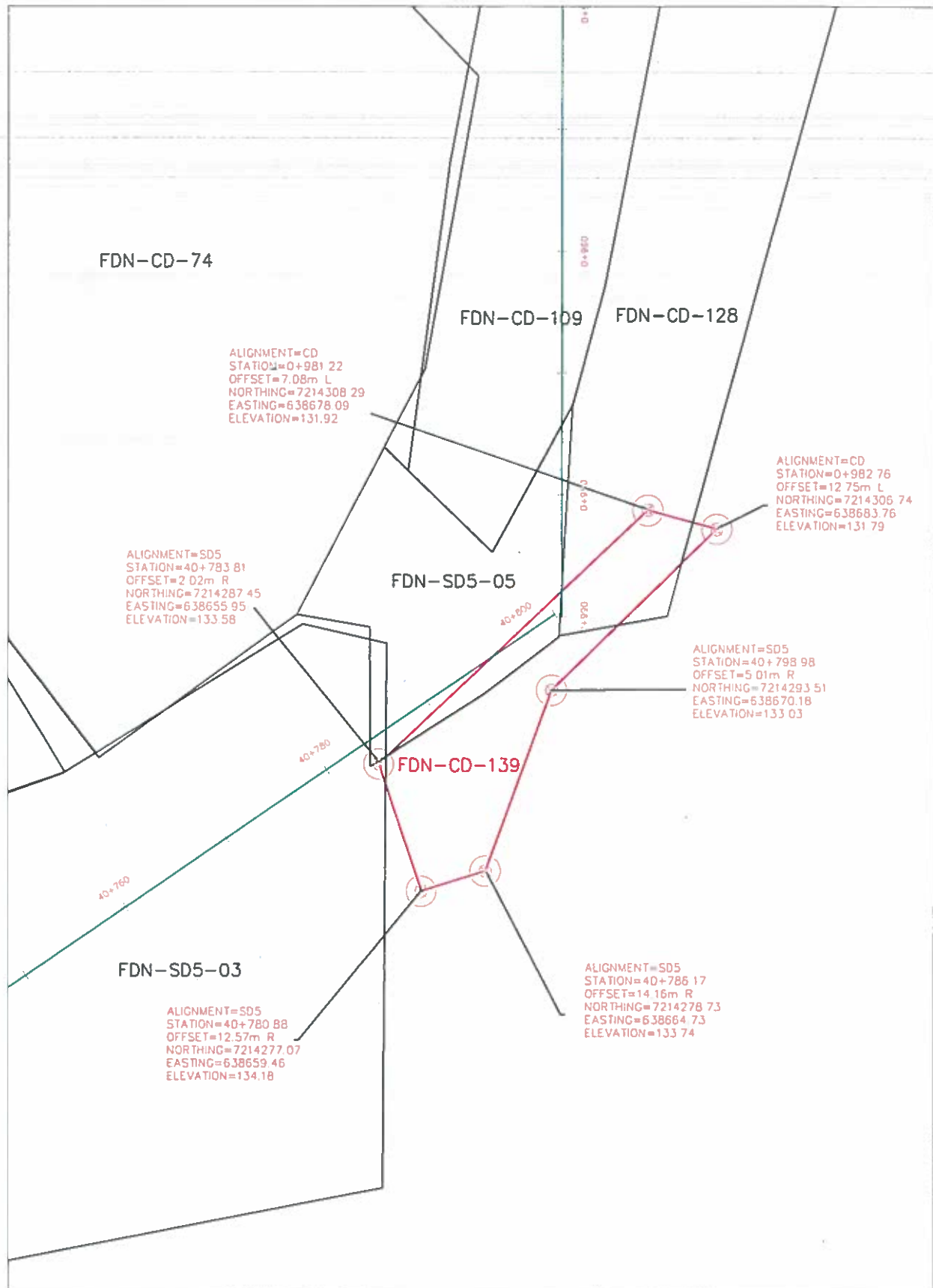
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: <u>MARC ANDRE BLACKBURN</u>	NAME: <u>Marion Haberstar</u>	NAME: <u>Patrice Leguen for REM</u>
SIGNATURE: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>
DATE: <u>02-05-2018</u>	DATE: <u>29/04/2018</u>	DATE: <u>29/05/18</u>

FND-CD-139
FONDATION APPROVAL
CONTRACT # 11-505



KIVALLIQ CONTRACTORS
GROUP LTD

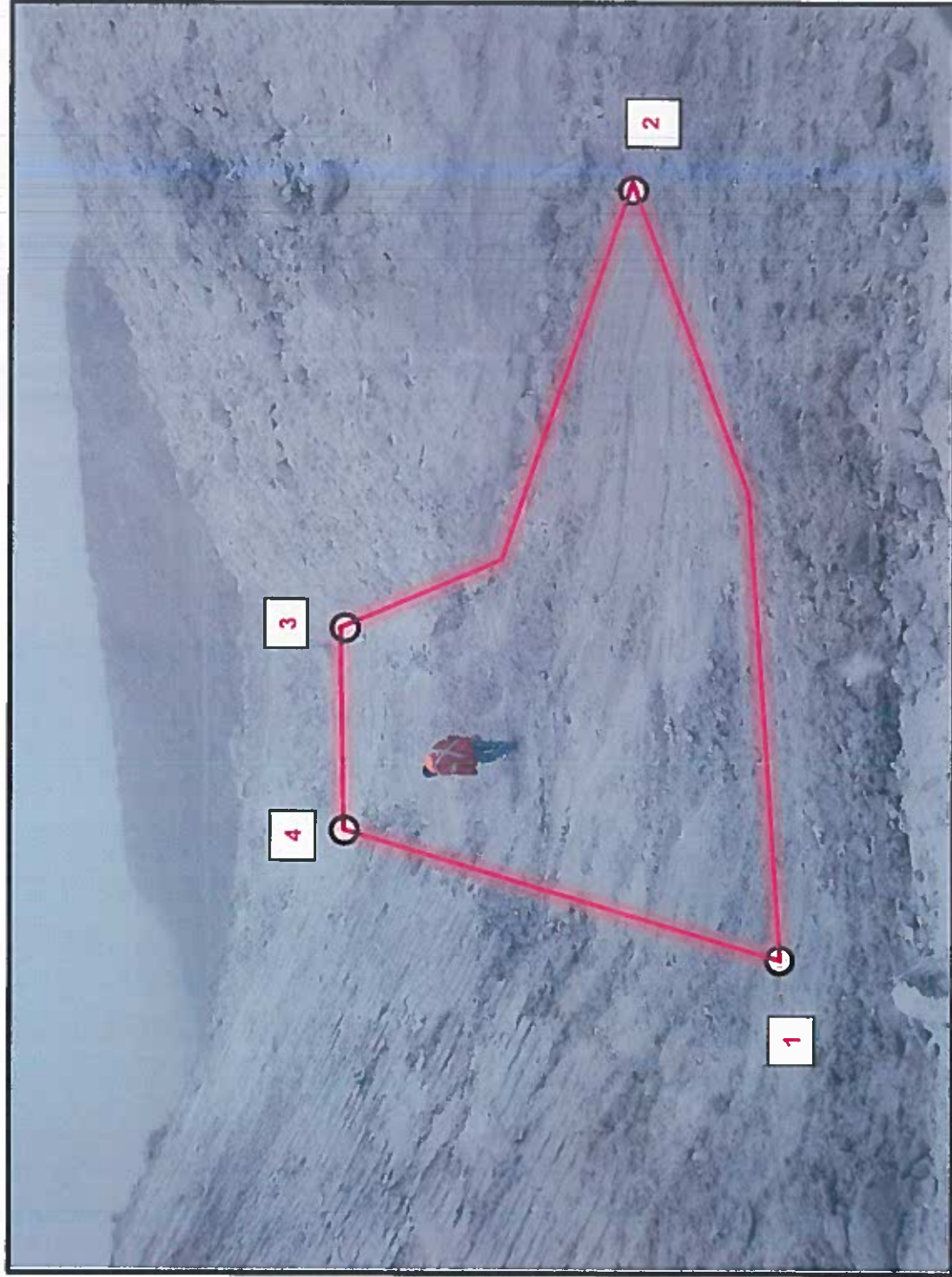
PREPARED BY: MARC-ANDRE BLACKBURN
DATE: 01-05-2018
CON-FD-001-CD_FA_01052018

1:
E = 638655.95
N = 7214287.45
St = 40+783.81
Offset = 2.02m - R
El = 133.58m

2:
E = 638659.46
N = 7214277.07
St = 40+780.88
Offset = 12.57m - R
El = 134.18

3:
E = 638683.76
N = 7214306.74
St = 0+982.76
Offset = 12.75m - L
El = 131.79

4:
E = 638678.09
N = 7214308.29
St = 0+981.22
Offset = 7.08m - L
El = 131.92



Picture 1- Approximate approved foundation area

Date: 2018-04-29

Photo by (Initial): C.F.T

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CD

Acceptance No.:

FND-CD-140

Date:

18/May/18

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

- 1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);
- 2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);
- 3) Photo of the accepted area, at the moment of the acceptance;
- 4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative

Name: Pier-Eric McDonald

Position: AEM- Owner Rep.

QC Representative

Name: Sébastien Blackburn

Position: GHD

QA Engineer

Name: Marion Habersetzer

Position: Golder-Qa

Surveyor

Name: Mickael Levesque

Position: FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Foundation and Key Trench Preparation and Excavation

DIKE: Central Dike TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

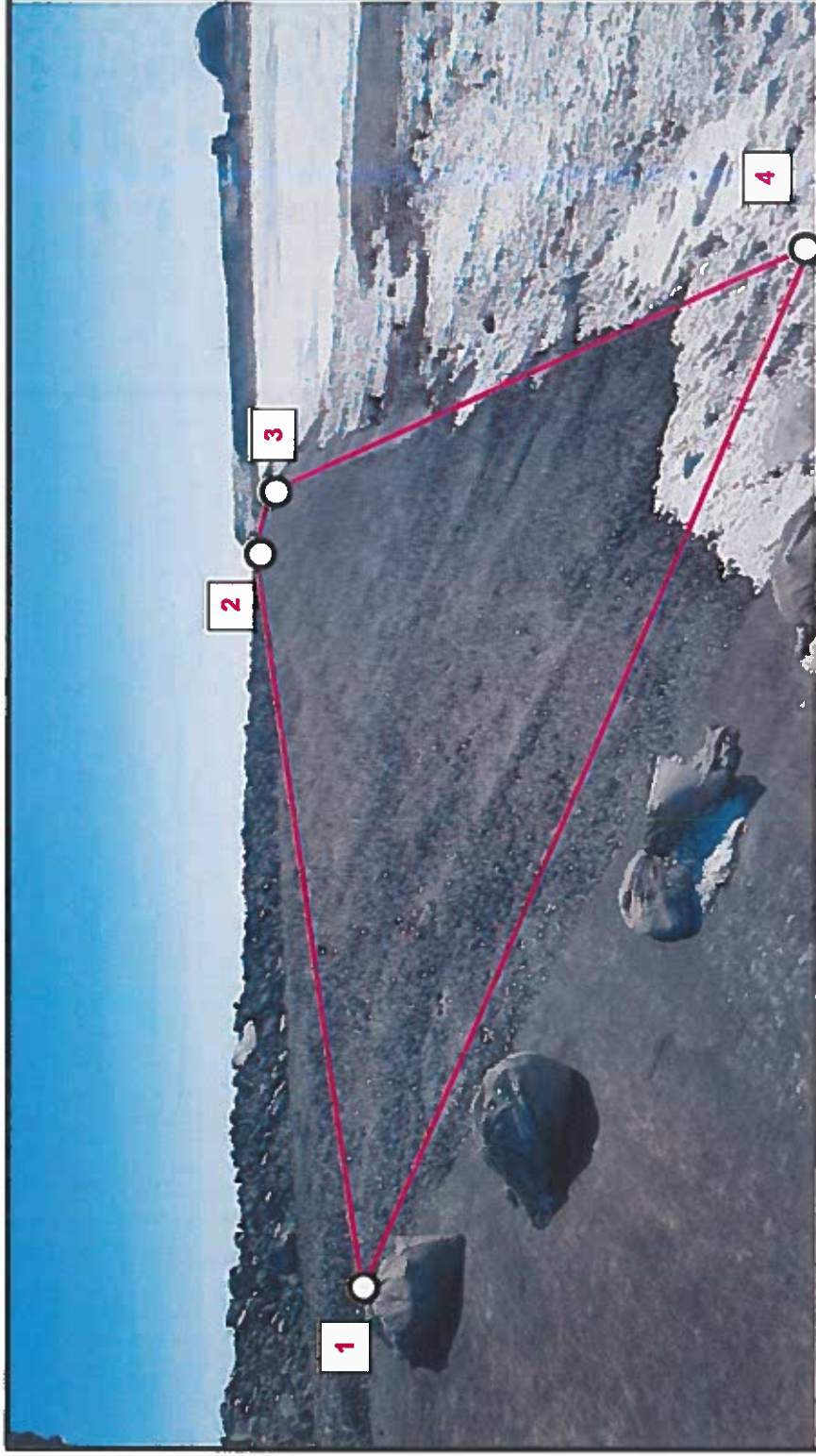
From Sta. <u>0+161.13</u> Offset <u>-23.30 m</u>		SHIFT: NIGHT ☐ DAY ☒	DATE: <u>18/05/2018</u>	SHEET <u>2</u> OF <u>5</u>
To Sta. <u>1+059.48</u> Offset <u>-33.93 m</u>		LOCATION: <u>Central Dike liner bedding</u>		
EQUIPMENT: <u> </u>				
DESCRIPTION <u>liner bedding (el. 143 m to 145 m)</u>				
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER	
1.	Survey lines and layout checked to ensure the locations conform with the Drawings		MH	
2.	Storage areas planned for disposal of removed materials		MH	
3.	Occurrence of snow and ice removal method in place		MH	
4.	Occurrence of boulders and removal method in place		MH	
5.	Occurrence of hummocks and scalping method in place		MH	
6.	Occurrence of surface and ground water and its impact mitigation in place		MH	
7.	Presence of other unsuitable materials and removal method in place		MH	
8.	Soil frozen or thawed and measures taken		MH	
9.	Blasting requirement to remove unsuitable material and safety measure checked			
	Preparation of surface for LLDPE geomembrane placement		MH	
10.	Adjustment made to suit design in field		MH	
11.	Final walkover inspection before re-sloping or fill placement		MH	
	Rough grading of foundation		MH	
12.	"As-excavated" survey conducted		MH	
	Bedrock cleaning			
13.	Bedrock Mapping			
REMARKS :				
DEVIATIONS : (Attach list if necessary)				
DATE OF RECTIFICATION :				
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:	
NAME: <u>Mikaël Lévesque</u>		NAME: <u>Marion Haberlzer</u>	NAME: <u>Pier-Eric McDonald</u>	
SIGNATURE:		SIGNATURE:	SIGNATURE:	
DATE: <u>2018/05/21</u>		DATE: <u>18/05/2018</u>	DATE: <u>18/05/2018</u>	

1:
E = 638647.39
N = 7215128.13
St = 0+161.38
Offset = 23.62m – R
El = 145.04m

2:
E = 638647.68
N = 7214502.54
St = 0+786.97
Offset = 23.33m – R
El = 145.06

3:
E = 638643.45
N = 7214502.62
St = 0+786.89
Offset = 27.56m - R
El = 142.93

4:
E = 638643.92
N = 7215128.38
St = 0+161.13
Offset = 27.09m – R
El = 143.32



Date: 2018-05-18

Photo by (Initial): S.B.

Picture 1 - Approximate approved foundation area

Foundation Approval, FND-CD-140 (2 of 2)

2:
E = 638647.68
N = 7214502.54
St = 0+786.97
Offset = 23.33m - R
El = 145.06

3:
E = 638643.45
N = 7214502.62
St = 0+786.89
Offset = 27.56m - R
El = 142.93

5:
E = 638646.63
N = 7214336.78
St = 0+952.73
Offset = 24.38m - R
El = 145.04

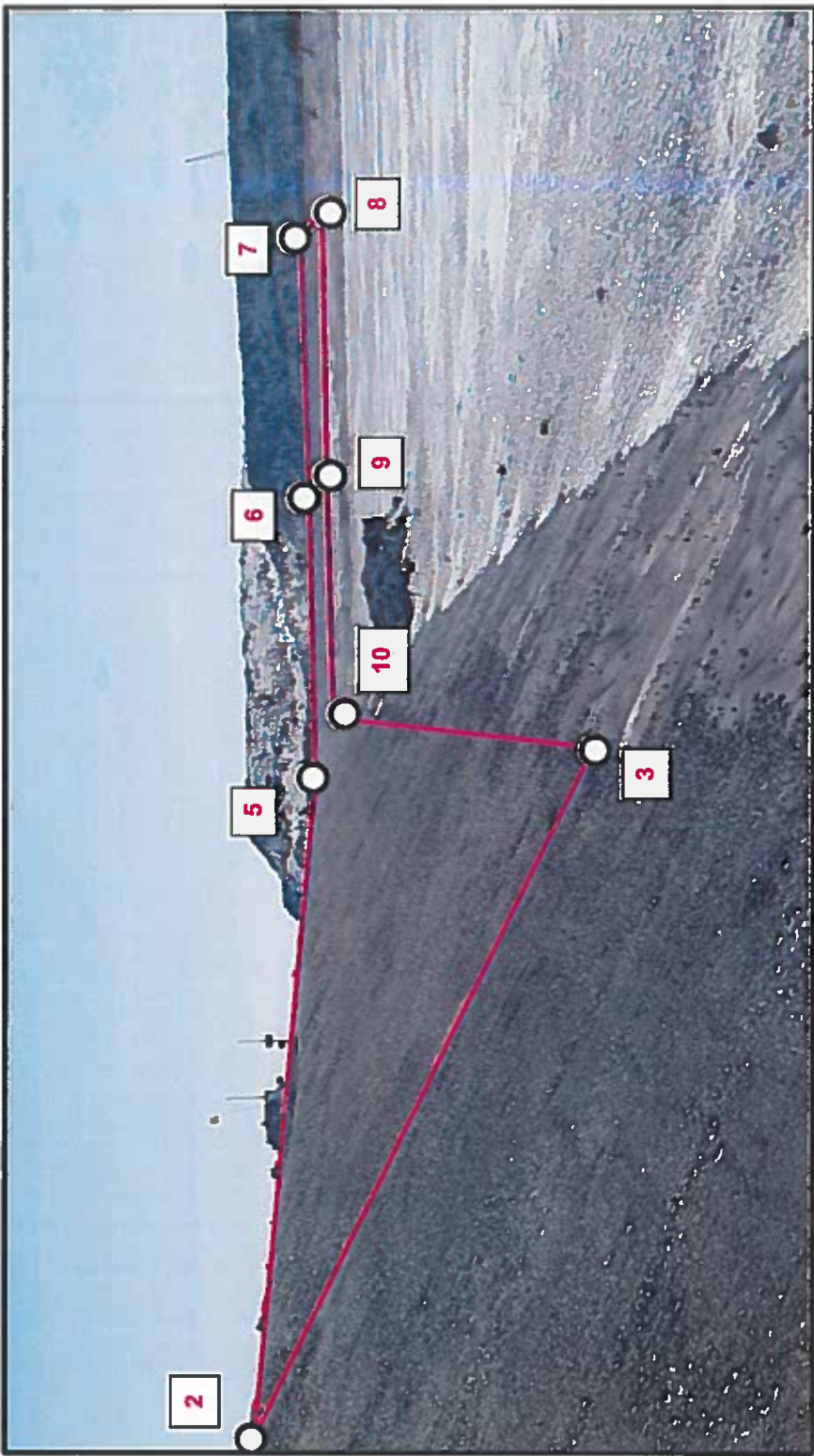
6:
E = 638625.28
N = 7214301.10
St = 1+021.82
Offset = 27.03m - R
El = 145.00

7:
E = 638593.16
N = 7214281.36
St = 1+059.48
Offset = 28.77m - R
El = 145.09

8:
E = 638592.03
N = 7214286.82
St = 1+057.35
Offset = 33.93 - R
El = 143.35

9:
E = 638620.73
N = 7214303.96
St = 1+023.98
Offset = 31.95m - R
El = 143.17

10:
E = 638642.53
N = 7214339.25
St = 0+950.26
Offset = 28.48m - R
El = 143.24

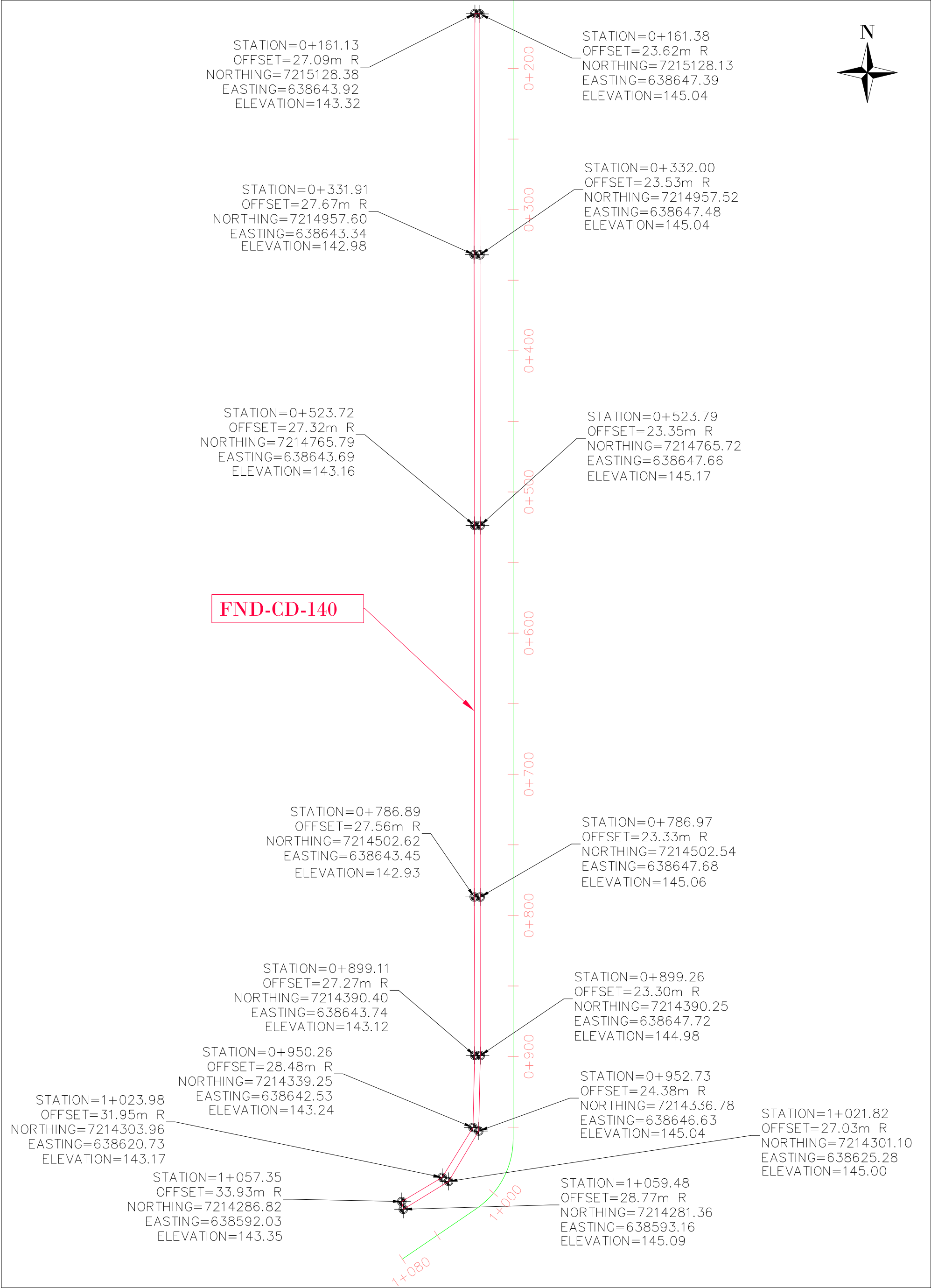


Picture 1- Approximate approved foundation area

Date: 2018-05-18

Photo by (Initial): S.B.

FND-CD-140
FINE FILTER APPROVAL
CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A :
Qamanittuaq
SANA

PREPARED BY : MIKAËL LÉVESQUE
DATE : 19-05-2018
CON-FD-002-CD_FFA

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DIKE

Acceptance No.:

LLDPE-CD-31

Date:

09/Jun/18

This Certificate of Acceptance for LLDPE Geomembrane Placement includes the following items, reviewed and accepted by the undersigned:

- 1) Sketch of the approximate accepted area;
- 2) Photo of the accepted area, at the moment of the acceptance;
- 3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing ZTG Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved area has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the geomembrane conditions at the time of the inspection and the condition of the geomembrane is required to be maintained prior to and during geotextile and fill placement.

Owner Representative

Name:

Patrice Gagnon

Position:

AEM- Owner Rep.

QC Representative

Name:

Daniel Roy

Position:

GHD

QA Engineer

Name:

Samuel Barbeau

Position:

Golder-Qa

Surveyor

Name:

Mikael Levesque

Position:

FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Geotextile Installation

DIKE: <u>Central Dike</u> TSF DIKE CONSTRUCTION CHECKLIST – GEOTEXTILE INSTALLATION			
From Sta. <u>0+157.3m</u> Offset <u>-44.39m</u>		SHIFT: NIGHT: ☐ DAY: ☒	DATE: <u>2018/06/10</u> SHEET <u>2</u> OF <u>6</u>
To Sta. <u>1+077.1m</u> Offset <u>-21.14m</u>		LOCATION: <u>Central Dike geotextile : (upstream)</u>	
EQUIPMENT :			
DESCRIPTION: <u>geotextile</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	<u>HB</u>	<u>S.B.</u>
2	Visual inspection of geotextile rolls or factory panels to determine physical damage and defects	<u>[Signature]</u>	<u>SB</u>
3	Deficiencies reported before installation	<u>[Signature]</u>	<u>SB</u>
4	Inspection of geotextile storage facilities performed	<u>[Signature]</u>	<u>SB</u>
5	Final bedding surface condition meets the Specification and Approved by Liner Installer <u>VISUAL OK</u>	<u>[Signature]</u>	<u>SB</u>
6	Visual inspection during geotextile installation performed	<u>[Signature]</u>	<u>SB</u>
7	Damages during installation repaired in accordance with Specifications	<u>[Signature]</u>	<u>SB</u>
REMARKS :			
DEVIATIONS : (Attach list if necessary)			
DATE OF RECTIFICATION :			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	
NAME: <u>Mikaël Lévesque</u>		NAME: <u>Samuel Barbeau</u>	
SIGNATURE: <u>[Signature]</u>		SIGNATURE: <u>[Signature]</u>	
DATE: <u>10/06/2018</u>		DATE: <u>2018/06/10</u>	
		ACCEPTED BY OWNER'S REPRESENTATIVE:	
		NAME: <u>[Signature]</u>	
		SIGNATURE: <u>[Signature]</u>	
		DATE: <u>2018/06/11</u>	

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LLDPE Geomembrane Installation

DIKE: <u>Central Dike</u> TSF DIKE CONSTRUCTION CHECKLIST – geotextile and liner INSTALLATION			
From Sta. <u>0+157.3m</u>	Offset <u>-44.39m</u>	SHIFT: NIGHT ☐ DAY ☒	DATE: <u>2018/06/10</u> SHEET <u>3</u> OF <u>6</u>
To Sta. <u>1+077.1m</u>	Offset <u>-21.14m</u>	LOCATION: <u>Central Dike LLDPE membrane (upstream)</u>	
EQUIPMENT:			
DESCRIPTION: <u>LLDPE membrane</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER	INSPECTED BY QA ENGINEER
1.	Liner material received has Manufacturer's certification and meets the specification	<u>DS</u>	<u>SB</u>
2.	Visual inspection of liner performed to determine physical damages during handling	<u>[Signature]</u>	<u>SB</u>
3.	Deficiencies reported before installation	<u>DS</u>	<u>SB</u>
4.	Inspection of LINER storage facilities	<u>DS</u>	<u>SB</u>
5.	Final bedding surface condition meets the Specification and Approved by Liner Installer	<u>[Signature]</u>	<u>SB</u>
6.	Visual inspection during liner installation performed	<u>[Signature]</u>	<u>SB</u>
7.	Weather conditions meet the requirements during installation	<u>[Signature]</u>	<u>SB</u>
8.	Welding carried out in accordance with manufacturer's specification	<u>[Signature]</u>	<u>SB</u>
9.	Liner (routine destructive and non-destructive) testing and sampling performed as required	<u>[Signature]</u>	<u>SB</u>
10.	Floor and upstream wall surfaces of anchor trench are smooth	<u>DS</u>	<u>SB</u>
11.	Damages during installation repaired in accordance with Specification	<u>[Signature]</u>	<u>SB</u>
12.	Site cleaned up	<u>[Signature]</u>	<u>SB</u>
13.	As-built survey conducted and approved	<u>[Signature]</u>	<u>SB</u>
14.	Check for: overheating of seams and loss of bitumen, risibility by trowel test, holes, folding, wrinkling, visible lumps or protrusions	<u>[Signature]</u>	<u>SB</u>
REMARKS: <u>* The LLDPE geomembrane does not meet the specifications by being stored outside without any shelter. The risk regarding the use of the unsheltered LLDPE geomembrane is low.</u>			
DEVIATIONS: (Attach list if necessary)			
DATE OF RECTIFICATION:			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER:	
NAME: <u>Mikael Givessgue</u>	NAME: <u>Samuel Barbeau</u>	ACCEPTED BY OWNER'S REPRESENTATIVE:	
SIGNATURE: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>	NAME: <u>Patrice Gagnon</u>	
DATE: <u>10/06/2018</u>	DATE: <u>2018/06/10</u>	SIGNATURE: <u>[Signature]</u>	
		DATE: _____	

1:
E = 638649.10
N = 7215132.23
St = 0+157.28
Offset = 21.91m - R
EI = 144.93m

2:
E = 638649.87
N = 7214620.02
St = 0+669.49
Offset = 21.39m - R
EI = 144.87

3:
E = 638642.73
N = 7214619.85
St = 0+669.66
Offset = 28.28m - R
EI = 142.58

4:
E = 638642.85
N = 7215132.23
St = 0+157.28
Offset = 28.16m - R
EI = 142.89

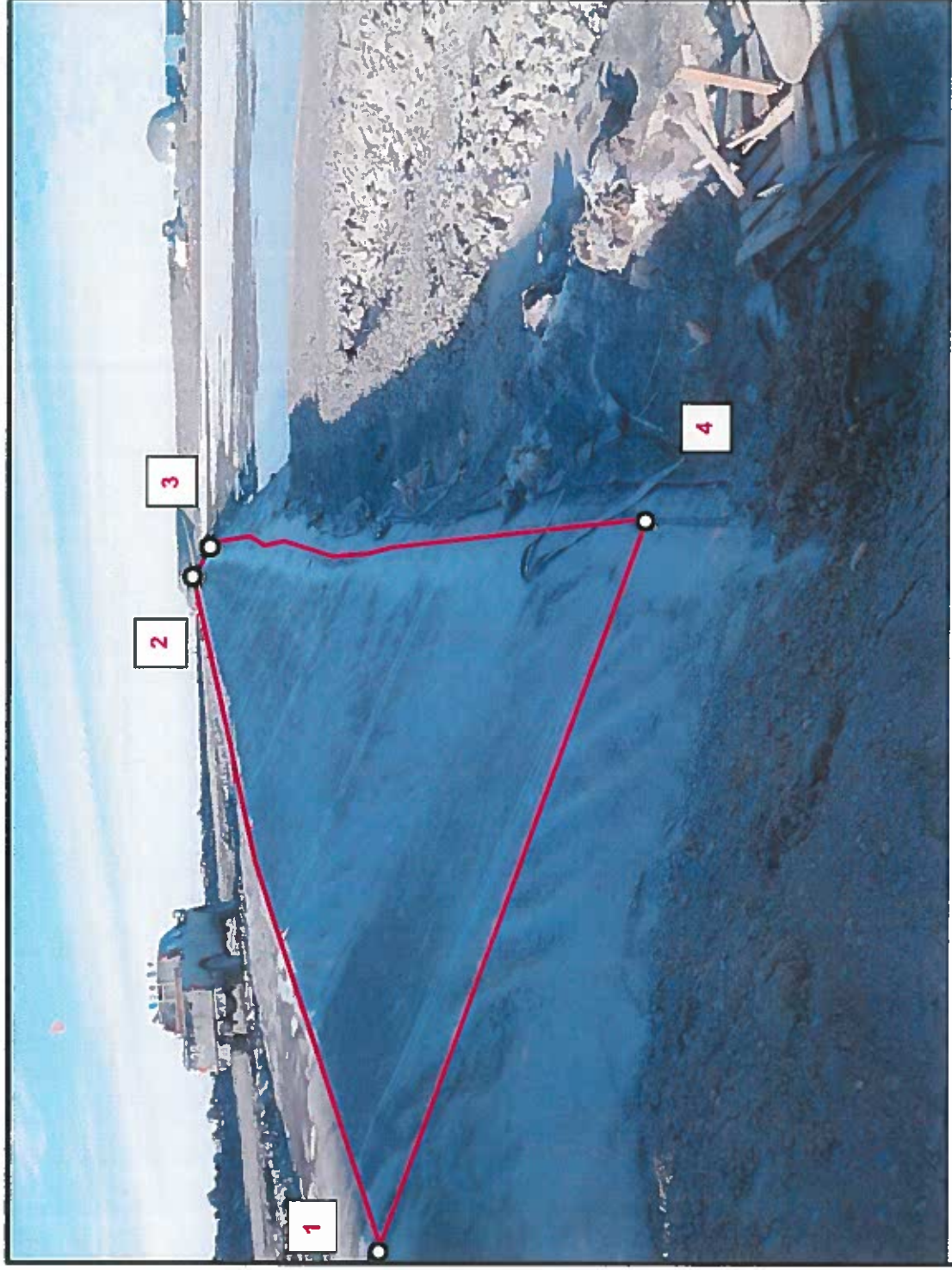


Photo 1- Approximate approved foundation area

Date: 2018-06-10

Photo by (Initial): D.R

2:
E = 638649.87
N = 7214620.02
St = 0+669.49
Offset = 21.39m - R
El = 144.87

3:
E = 638642.73
N = 7214619.85
St = 0+669.66
Offset = 28.28m - R
El = 142.58

5:
E = 638649.81
N = 7214345.82
St = 0+943.69
Offset = 21.20m - R
El = 144.96

6:
E = 638628.01
N = 7214300.82
St = 1+019.72
Offset = 27.03m - R
El = 145.00

7:
E = 638572.66
N = 7214280.17
St = 1+077.10
Offset = 39.32m - R
El = 145.11

8:
E = 638576.41
N = 7214288.86
St = 1+069.12
Offset = 44.39m - R
El = 142.65

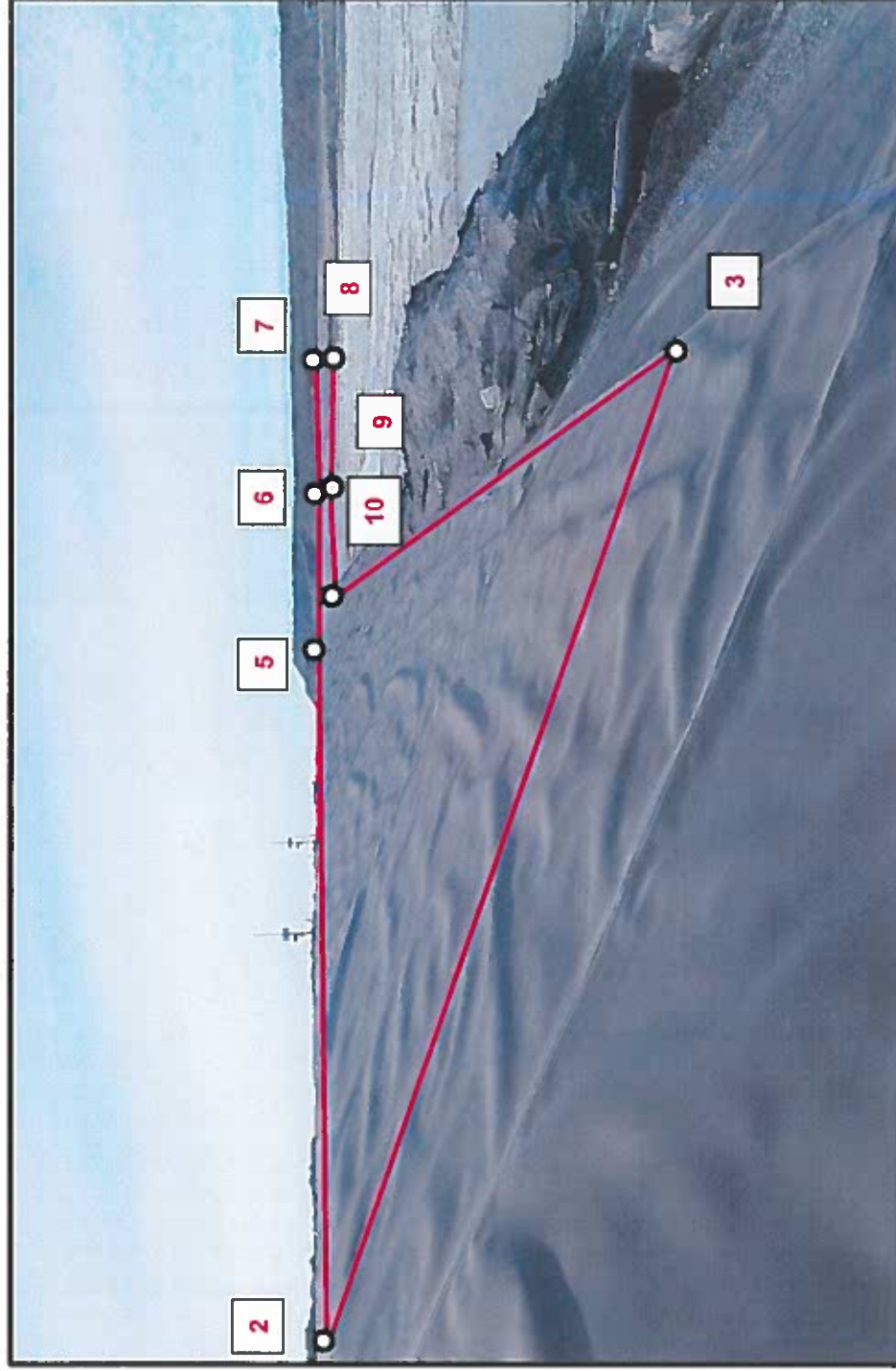
9:
E = 638621.19
N = 7214305.39
St = 1+022.79
Offset = 32.87m - R
El = 142.90

10:
E = 638642.79
N = 7214346.16
St = 0+943.35
Offset = 28.22m - R
El = 142.88

Picture 2- Approximate approved foundation area

Date: 2018-06-10

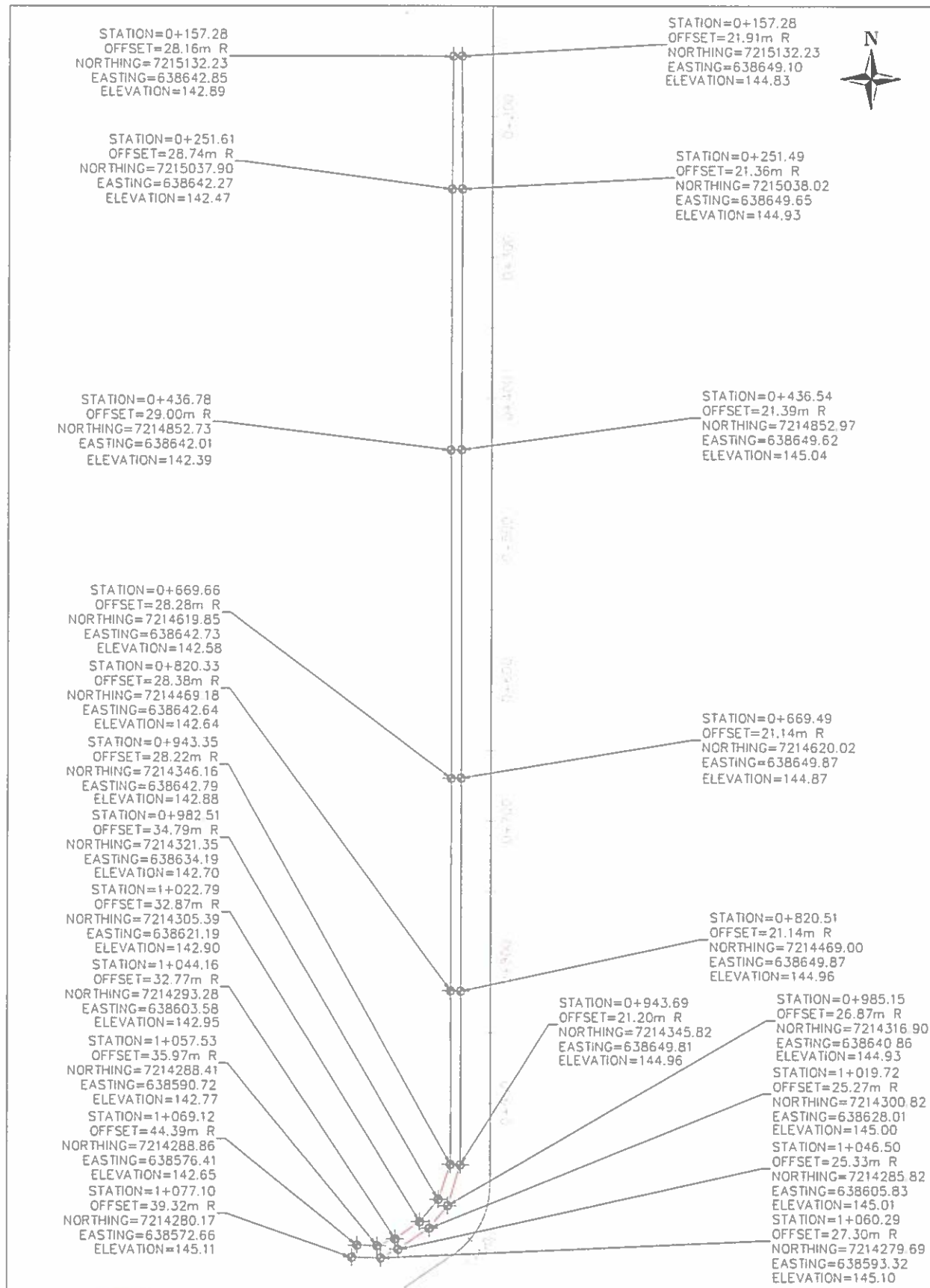
Photo by (Initial): D.R



LLDPE-CD-31

LLDPE APPROVAL

CONTRACT # 11-505



984246 N.W.T. Limited
D/B/A:
Qamanittuaq
SANA

PREPARED BY: MIKAËL LÉVESQUE
DATE: 10-06-2018
CON-FD-006-CD_LLDPE

APPENDIX G-2

Saddle Dam 3 Finalization of Stage 3 Approval Forms

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:

FND-SD3-37

Date:

06/Jun/18

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

- 1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);
- 2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);
- 3) Photo of the accepted area, at the moment of the acceptance;
- 4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative

Name:

Patrice Gagnon

Position:

AEM- Ower Rep.

QC Representative

Name:

Daniel Roy

Position:

GHD

QA Engineer

Name:

Samuel Barbeau

Position:

Golder-QA

Surveyor

Name:

Mikaël Lévesque

Position:

FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Foundation and Key Trench Preparation and Excavation

DIKE : <u>Saddle Dam 3</u> TSF DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION			
From Sta. <u>20+610.15</u> Offset <u>-43.01m</u>		SHIFT: NIGHT : ☐ DAY ☒	DATE : <u>2018/06/06</u> SHEET <u>2</u> OF <u>4</u>
To Sta. <u>20+803.45</u> Offset <u>-25.29</u>		LOCATION : <u>Saddle dam 3 liner bedding</u>	
EQUIPMENT:			
DESCRIPTION <u>liner bedding (el. 143 to 145m)</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	<u>PG</u>	<u>SB</u>
2.	Storage areas planned for disposal of removed materials	<u>PG</u>	<u>SB</u>
3.	Occurrence of snow and ice removal method in place	<u>PG</u>	<u>SB</u>
4.	Occurrence of boulders and removal method in place	<u>PG</u>	<u>SB</u>
5.	Occurrence of hummocks and scalping method in place	<u>PG</u>	<u>SB</u>
6.	Occurrence of surface and ground water and its impact mitigation in place	<u>PG</u>	<u>SB</u>
7.	Presence of other unsuitable materials and removal method in place	<u>PG</u>	<u>SB</u>
8.	Soil frozen or thawed and measures taken	<u>PG</u>	<u>SB</u>
9.	Blasting requirement to remove unsuitable material and safety measure checked	<u>—</u>	<u>—</u>
	Preparation of surface for LLDPE geomembrane placement	<u>PG</u>	<u>S.B.</u>
10.	Adjustment made to suit design in field	<u>PG</u>	<u>S.B.</u>
11.	Final walkover inspection before re-sloping or fill placement	<u>PG</u>	<u>S.B.</u>
	Rough grading of foundation	<u>PG</u>	<u>S.B.</u>
12.	"As-excavated" survey conducted	<u>PG</u>	<u>S.B.</u>
	Bedrock cleaning	<u>—</u>	<u>—</u>
13.	Bedrock Mapping	<u>—</u>	<u>—</u>
REMARKS :			
DEVIATIONS : (Attach list if necessary)			
DATE OF RECTIFICATION :			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: <u>Mikael Guegoue</u>		NAME: <u>Samuel Baybeau</u>	NAME: <u>Patricia Gagnon</u>
SIGNATURE: <u>[Signature]</u>		SIGNATURE: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>
DATE: <u>10/06/2018</u>		DATE: <u>2018/06/06</u>	DATE: <u>06/06/2018</u>

1:
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N = 7215043.71
St = 20+803.45
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El = 145.05

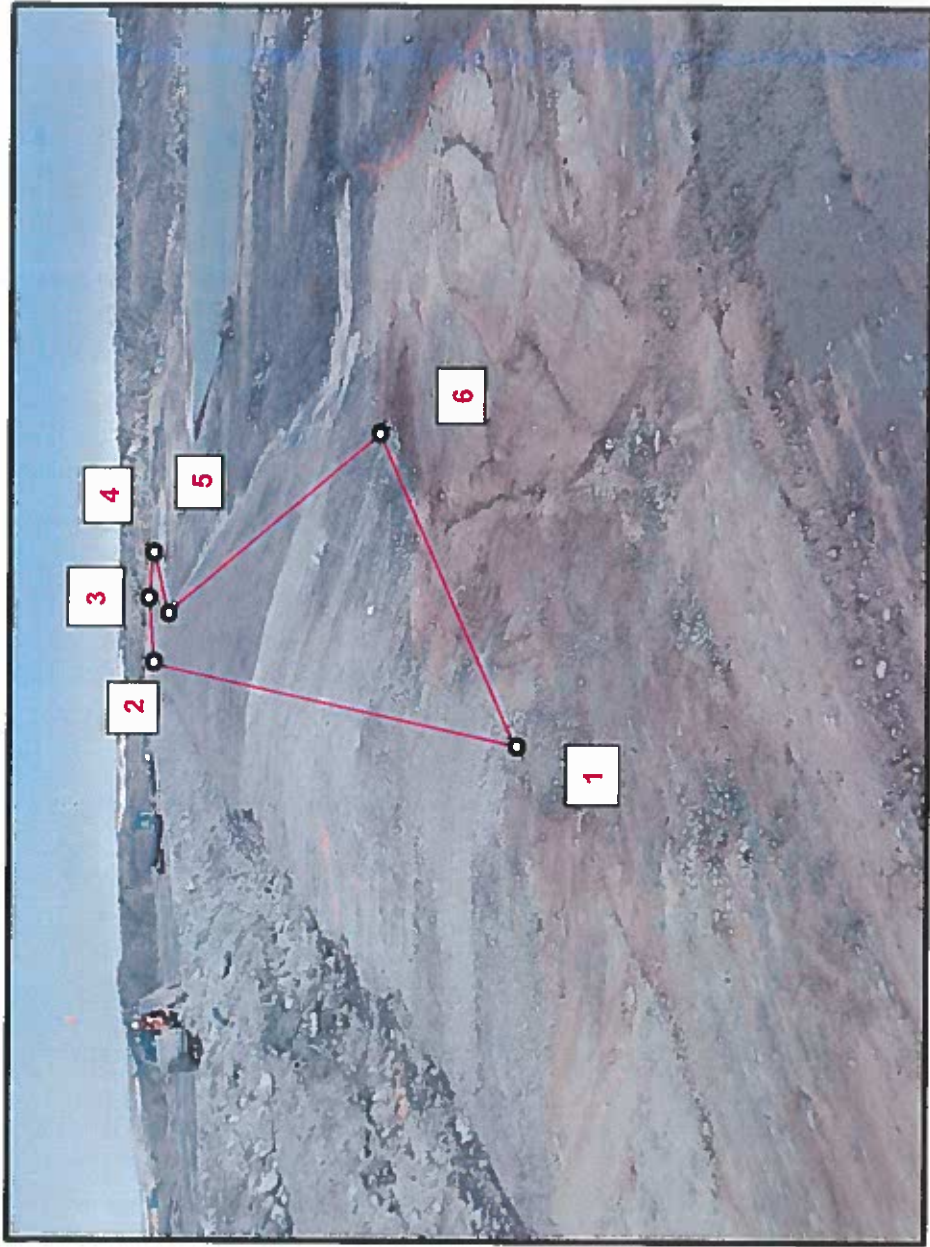
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N = 7215212.16
St = 20+622.88
Offset = 26.60m - L
El = 145.11

3:
E = 637508.64
N = 7215225.93
St = 20+611.77
Offset = 36.88m - L
El = 144.11

4:
E = 637513.95
N = 7215229.40
St = 20+610.15
Offset = 43.01m - L
El = 144.89

5:
E = 637511.77
N = 7215200.31
St = 20+637.09
Offset = 31.81m - L
El = 142.96

6:
E = 637554.10
N = 7215079.84
St = 20+773.29
Offset = 31.35m - L
El = 143.12

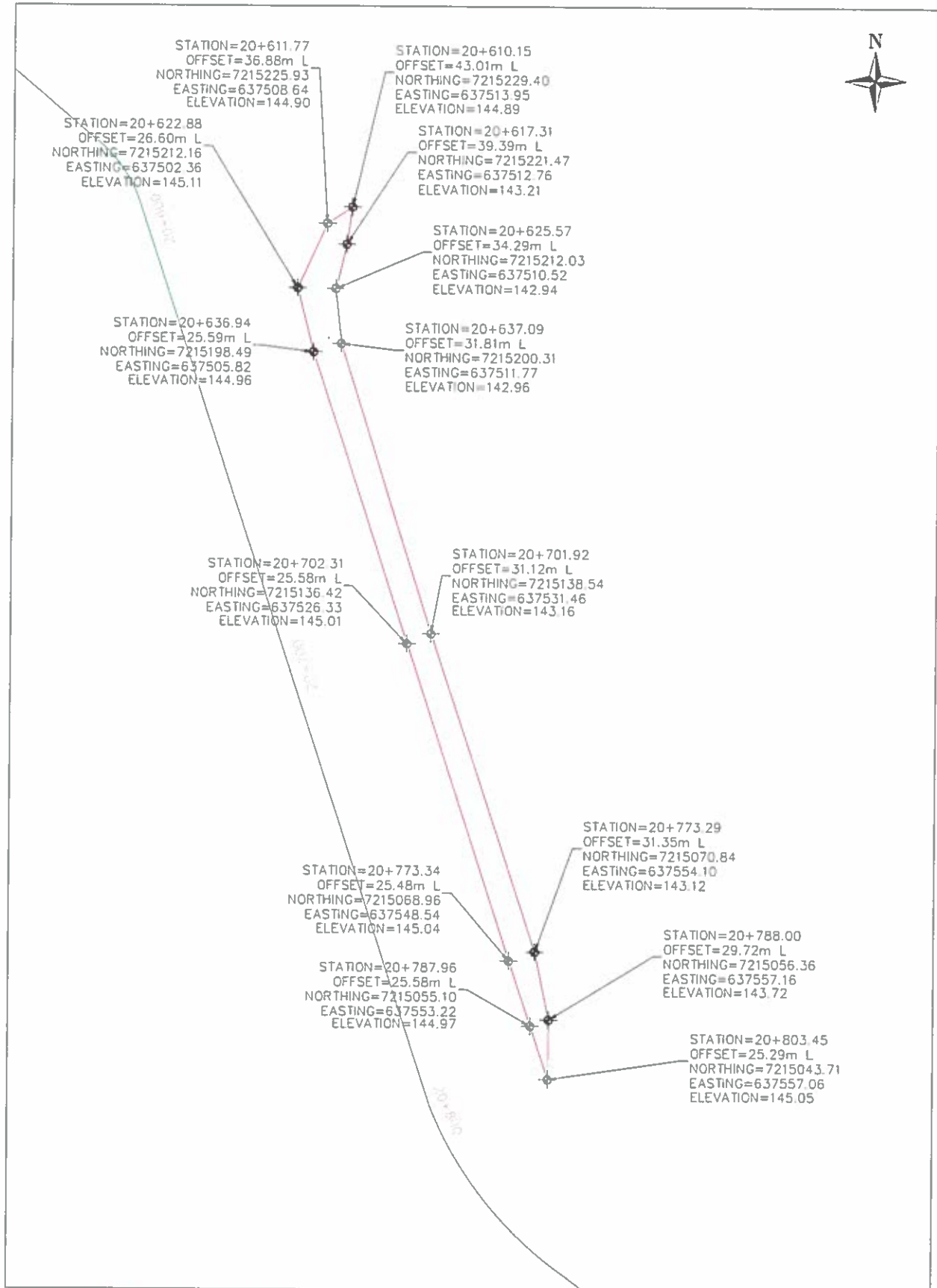


Picture 1- Approximate approved foundation area

Date: 2018-06-06

Photo by (Initial): D.R.

FND-SD3-37
FINE FILTER APPROVAL
CONTRACT # 11-505



984246 N.W.T. Limited
 D/B/A:
Qamanittuaq
SANA

PREPARED BY : MIKAËL LÉVESQUE
 DATE : 06-06-2018
 CON-FD-003-SD3_FFA

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SD-3

Acceptance No.:

FND-SD3-38

Date:

09/Jun/18

This Certificate of Acceptance includes the following items, reviewed and accepted by the undersigned:

- 1) Foundation and Key Trench Preparation and Excavation Checklist (from GAL);
- 2) Sketch of the approximate accepted area, incl. Station and Offset (according to Central Dike Stations);
- 3) Photo of the accepted area, at the moment of the acceptance;
- 4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved foundation surface has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the foundation conditions at the time of the inspection and the condition of the foundation is required to be maintained prior to and during fill placement.

Owner Representative

Name:

Patrice Gagnon

Position:

AEM- Owner Rep.

QC Representative

Name:

Daniel Roy

Position:

GHD

QA Engineer

Name:

Samuel Barbeau

Position:

Golder-QA

Surveyor

Name:

Mikaël Lévesque

Position:

FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Foundation and Key Trench Preparation and Excavation

DIKE : <u>Central Dike TSF</u> DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION			
From Sta.	Offset	SHIFT: NIGHT : ☐ DAY ☐	DATE :
To Sta.	Offset	LOCATION: :	
EQUIPMENT:		<u>Saddle Dam 3 liner bedding</u>	
DESCRIPTION <u>Liner bedding (el. 143m to 145m)</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	<u>PG</u>	<u>S.B.</u>
2.	Storage areas planned for disposal of removed materials	<u>PG</u>	<u>S.B.</u>
3.	Occurrence of snow and ice removal method in place	<u>PG</u>	<u>S.B.</u>
4.	Occurrence of boulders and removal method in place	<u>PG</u>	<u>S.B.</u>
5.	Occurrence of hummocks and scalping method in place	<u>PG</u>	<u>S.B.</u>
6.	Occurrence of surface and ground water and its impact mitigation in place	<u>PG</u>	<u>S.B.</u>
7.	Presence of other unsuitable materials and removal method in place	<u>PG</u>	<u>S.B.</u>
8.	Soil frozen or thawed and measures taken	<u>PG</u>	<u>S.B.</u>
9.	Blasting requirement to remove unsuitable material and safety measure checked	<u>—</u>	<u>—</u>
	Preparation of surface for LLDPE geomembrane placement	<u>PG</u>	<u>S.B. *</u>
10.	Adjustment made to suit design in field	<u>PG</u>	<u>S.B.</u>
11.	Final walkover inspection before re-sloping or fill placement	<u>PG</u>	<u>S.B.</u>
	Rough grading of foundation	<u>PG</u>	<u>S.B.</u>
12.	"As-excavated" survey conducted	<u>PG</u>	<u>S.B.</u>
	Bedrock cleaning	<u>—</u>	<u>—</u>
13.	Bedrock Mapping	<u>—</u>	<u>—</u>
REMARKS : * Portable nuclear gauge test will be required on the compacted sieved fill under the LLDPE around Sta. 20+595 before the construction of the LLDPE liner protection cover, as no Portable Nuclear gauge is currently on site.			
DEVIATIONS : (Attach list if necessary)			
DATE OF RECTIFICATION :			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	
NAME: <u>Mikaël Lévesque</u>		NAME: <u>Samuel Barbeau</u>	
SIGNATURE: <u>[Signature]</u>		SIGNATURE: <u>[Signature]</u>	
DATE: <u>10/06/2018</u>		DATE: <u>2018-06-08</u>	
		ACCEPTED BY OWNER'S REPRESENTATIVE:	
		NAME: <u>Patrice Gagnon</u>	
		SIGNATURE: <u>[Signature]</u>	
		DATE: <u>2018-06-09</u>	

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St = 20+605.15
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El = 144.92

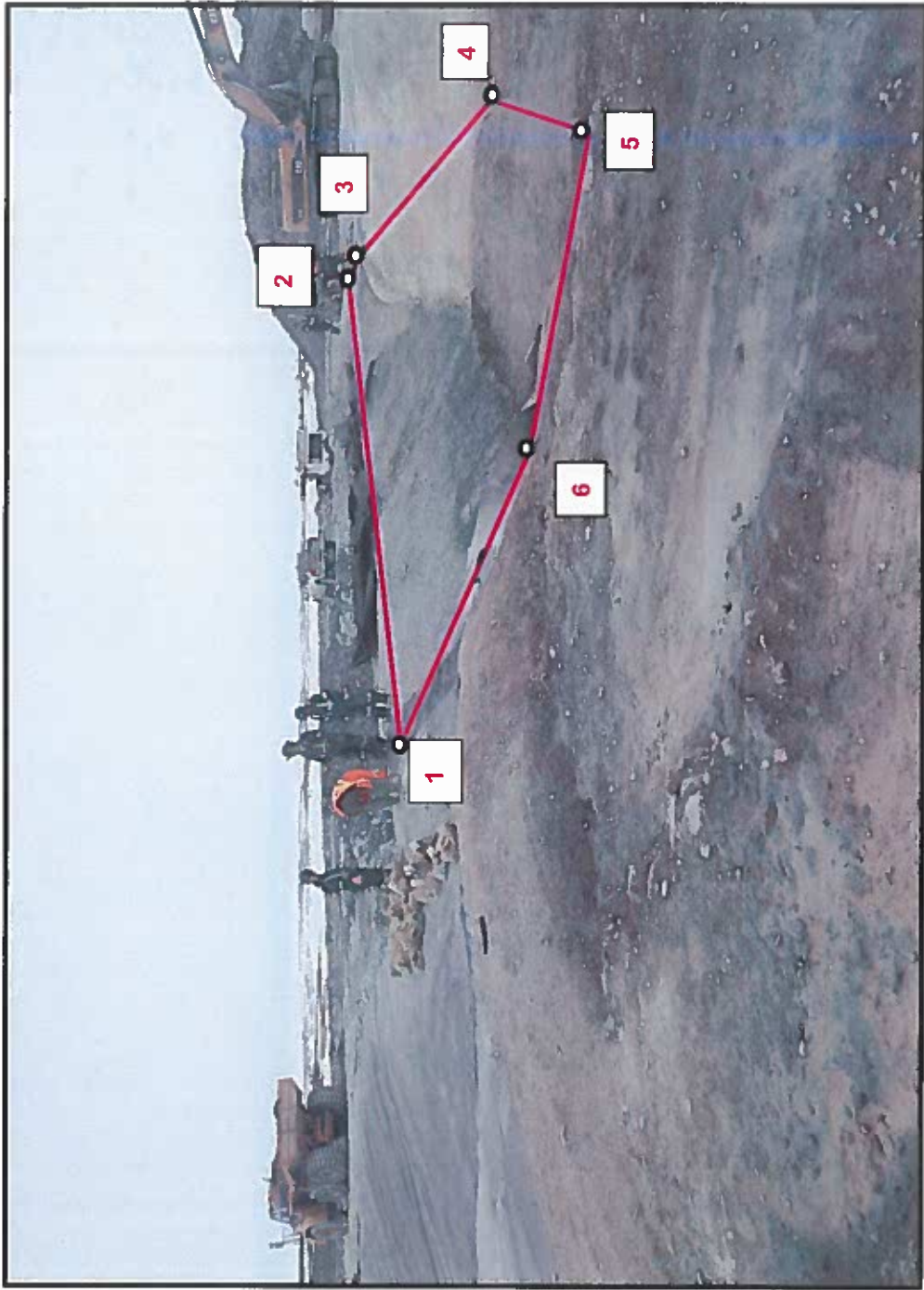
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N = 7215239.86
St = 20+596.38
Offset = 34.69m - L
El = 145.04

3:
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N = 7215241.34
St = 20+595.44
Offset = 36.11m - L
El = 144.42

4:
E = 637512.76
N = 7215243.38
St = 20+596.50
Offset = 46.27m - L
El = 143.38

5:
E = 637516.86
N = 7215241.69
St = 20+599.39
Offset = 49.64m - L
El = 143.34

6:
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N = 7215238.52
St = 20+601.59
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El = 143.22

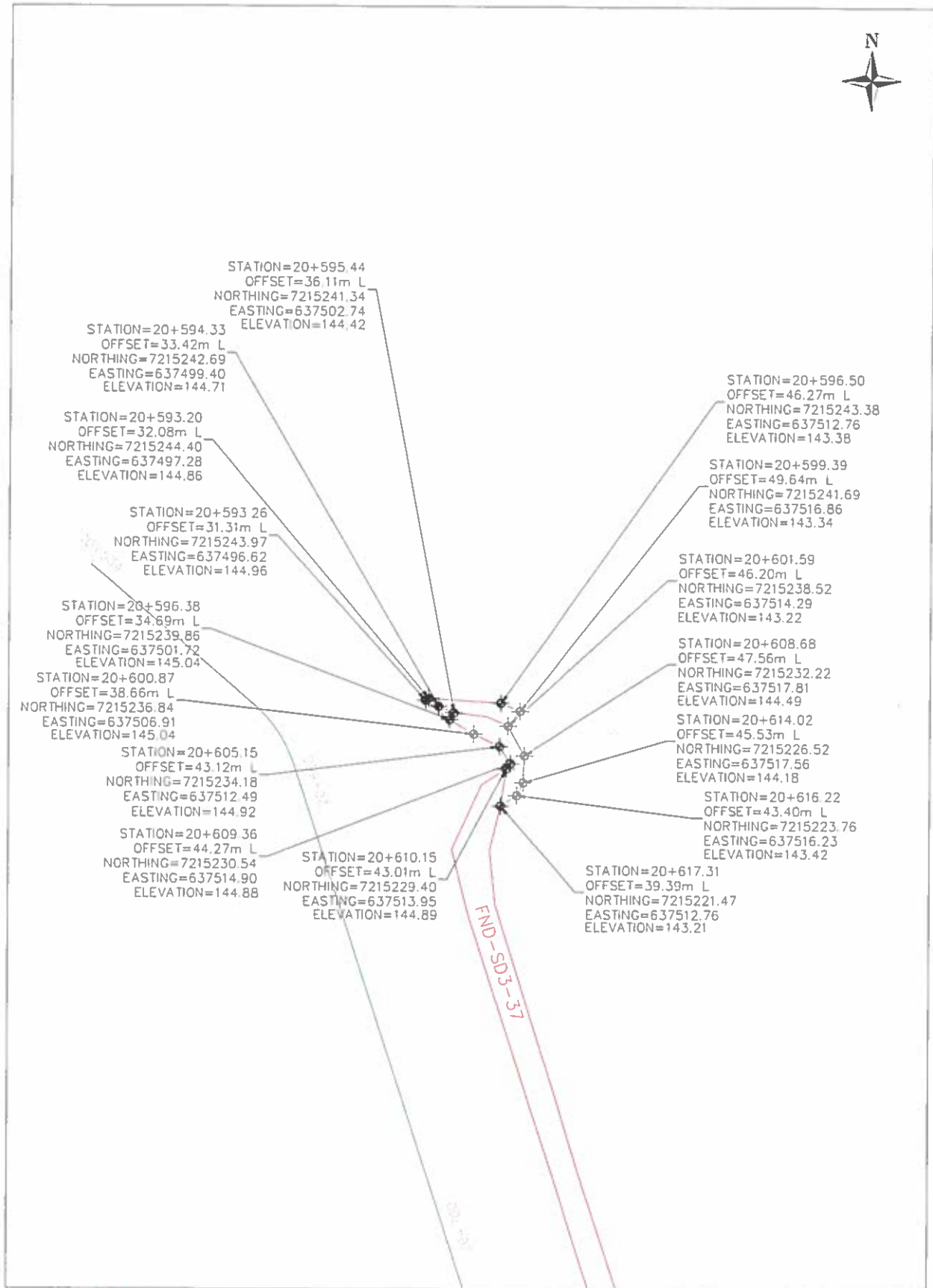


Date: 2018-09-06

Photo by (Initial): D.R.

Picture 1- Approximate approved foundation area

FND-SD3-38
FOUNDATION APPROVAL
CONTRACT # 11-505



984246 N.W.T. Limited
 D/B/A:
Qamanittuaq
SANA

PREPARED BY: MIKAËL LÉVESQUE
 DATE: 09-06-2018
 CON-FD-004-SD3_FA

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - SADDLE DAM 3

Acceptance No.:

LLDPE-SD3-003

Date:

10/Jun/18

This Certificate of Acceptance for LLDPE Geomembrane Placement includes the following items, reviewed and accepted by the undersigned:

- 1) Sketch of the approximate accepted area;
- 2) Photo of the accepted area, at the moment of the acceptance;
- 3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by authorised personnel representing ZTG Quality Control (QC) Program, Quality Assurance (QA) Program and the Owner Representative.

Topography of the approved area has been surveyed for documentation and as-built purposes, as confirmed by the undersigned surveyor.

The area is accepted as per the geomembrane conditions at the time of the inspection and the condition of the geomembrane is required to be maintained prior to and during geotextile and fill placement.

Owner Representative

Name:

Patrice Gagnon

Position:

AEM- Owner Rep.

QC Representative

Name:

Daniel Roy

Position:

GHD

QA Engineer

Name:

Samuel Barbeau

Position:

Golder-Qa

Surveyor

Name:

Mikael Levesque

Position:

FGL-Surveyor

NOTES: 1. Original signed certificate must be given to the Owner Representative for documentation records. 2. Survey files from the approved area must be saved in appropriate location as required by the Owner Representative. 3. Photos of approved area must be saved in appropriate location as required by the Owner Representative.

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Geotextile Installation

DIKE: <u>Saddle Dam 3</u> TSF DIKE CONSTRUCTION CHECKLIST – GEOTEXTILE INSTALLATION			
From Sta. <u>20+542.23m</u> Offset <u>-49.6m</u>	SHIFT: NIGHT: ☐ DAY: ☒	DATE: <u>2018/06/10</u>	SHEET <u>2</u> OF <u>5</u>
To Sta. <u>20+807.5m</u> Offset <u>-31.3m</u>	LOCATION: <u>Saddle Dam 3 geotextile (upstream)</u>		
EQUIPMENT :			
DESCRIPTION : <u>geotextile</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	<u>PC</u>	<u>SB</u>
2	Visual inspection of geotextile rolls or factory panels to determine physical damage and defects	<u>[Signature]</u>	<u>SB</u>
3	Deficiencies reported before installation	<u>[Signature]</u>	<u>SB</u>
4	Inspection of geotextile storage facilities performed	<u>DB</u>	<u>SB</u>
5	Final bedding surface condition meets the Specification and Approved by Liner Installer <u>VISUAL OK</u>	<u>[Signature]</u>	<u>SB</u>
6	Visual inspection during geotextile installation performed	<u>[Signature]</u>	<u>SB</u>
7	Damages during installation repaired in accordance with Specifications	<u>[Signature]</u>	<u>SB</u>
REMARKS :			
DEVIATIONS : (Attach list if necessary)			
DATE OF RECTIFICATION :			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	
NAME: <u>Mikael Levesque</u>	NAME: <u>Samuel Barbeau</u>	ACCEPTED BY OWNER'S REPRESENTATIVE:	
SIGNATURE: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>	NAME: <u>[Signature]</u>	
DATE: <u>10/06/2018</u>	DATE: <u>2018/06/10</u>	SIGNATURE: <u>[Signature]</u>	
		DATE: <u>2018/06/11</u>	

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LLDPE Geomembrane Installation

DIKE: <u>Saddle Dam 3</u> TSF DIKE CONSTRUCTION CHECKLIST – geotextile and liner INSTALLATION			
From Sta. <u>20+59.220 m</u> Offset <u>-49.64 m</u>	SHIFT: NIGHT ☐ DAY ☒	DATE: <u>2018/06/10</u>	SHEET <u>3</u> OF <u>5</u>
To Sta. <u>20+80.95 m</u> Offset <u>-31.31 m</u>	LOCATION: <u>Saddle Dam 3 LLDPE membrane (upstream)</u>		
EQUIPMENT :			
DESCRIPTION: <u>LLDPE membrane</u>			
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER	INSPECTED BY QA ENGINEER
1.	Liner material received has Manufacturer's certification and meets the specification		SB
2.	Visual inspection of liner performed to determine physical damages during handling		SB
3.	Deficiencies reported before installation		SB
4.	Inspection of LINER storage facilities		SB *
5.	Final bedding surface condition meets the Specification and Approved by Liner Installer		SB
6.	Visual inspection during liner installation performed		SB
7.	Weather conditions meet the requirements during installation		SB
8.	Welding carried out in accordance with manufacturer's specification		SB
9.	Liner (routine destructive and non-destructive) testing and sampling performed as required		SB
10.	Floor and upstream wall surfaces of anchor trench are smooth		SB
11.	Damages during installation repaired in accordance with Specification		SB
12.	Site cleaned up		SB
13.	As-built survey conducted and approved		SB
14.	Check for: overheating of seams and loss of bitumen, risibility by trowel test, holes, folding, wrinkling, visible lumps or protrusions		SB
REMARKS: * The LLDPE geomembrane does not meet the specifications by being stored outside without any shelter. The risk regarding the use of the unsheltered LLDPE geomembrane is low			
DEVIATIONS : (Attach list if necessary)			
DATE OF RECTIFICATION :			
SURVEY VERIFICATION		ACCEPTED BY QA ENGINEER :	
NAME: <u>Mikael Lévesque</u>	NAME: <u>Samuel Barbeau</u>	ACCEPTED BY OWNER'S REPRESENTATIVE:	
SIGNATURE:	SIGNATURE:	NAME: <u>Philippe Gagnon</u>	
DATE: <u>10/06/2018</u>	DATE: <u>2018/06/10</u>	SIGNATURE:	
		DATE: <u>2018/06/11</u>	

1:
E = 637555.88
N = 7215041.18
St = 20+805.92
Offset = 23.09m - L
El = 145.20

2:
E = 637500.61
N = 7215210.26
St = 20+624.14
Offset = 24.33m - L
El = 145.03

3:
E = 637512.47
N = 7215230.52
St = 20+608.62
Offset = 41.96m - L
El = 144.89

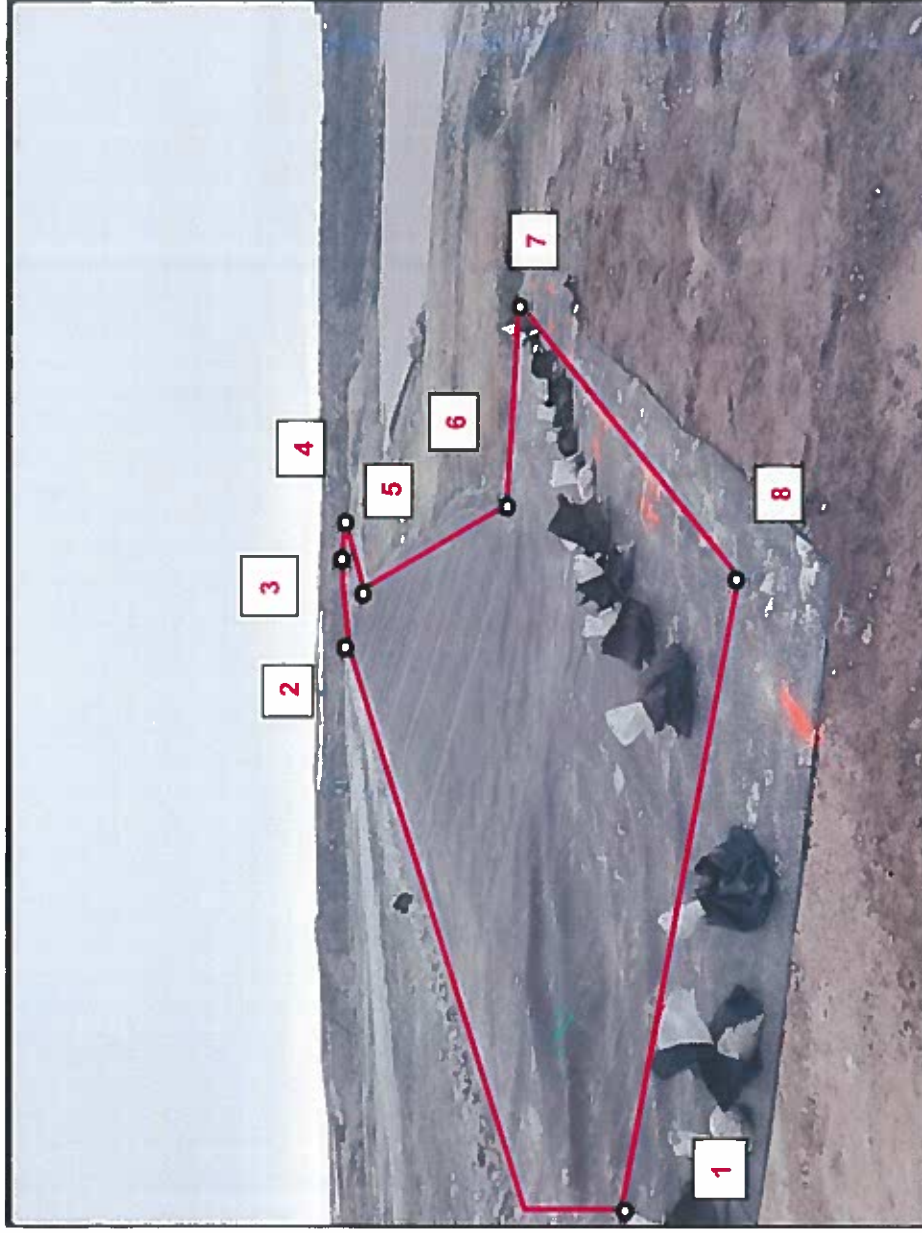
4:
E = 637517.91
N = 7215232.19
St = 20+608.74
Offset = 47.65m - L
El = 144.49

5:
E = 637511.13
N = 7215206.72
St = 20+630.80
Offset = 33.21m - L
El = 142.74

6:
E = 637557.63
N = 7215059.28
St = 20+785.38
Offset = 31.08m - L
El = 143.33

7:
E = 637561.57
N = 7215058.61
St = 20+787.26
Offset = 34.61m - L
El = 143.20

8:
E = 637560.98
N = 7215042.70
St = 20+807.55
Offset = 28.29m - L
El = 144.76



Date: 2018-10-06

Photo by (Initial): D.R.

Picture 1- Approximate approved foundation area

3:
E = 637512.47
N = 7215230.52
St = 20+608.62
Offset = 41.96m - L
El = 144.89

4:
E = 637517.91
N = 7215232.19
St = 20+608.74
Offset = 47.65m - L
El = 144.49

9:
E = 637511.80
N = 7215232.48
St = 20+606.55
Offset = 41.94m - L
El = 144.93

10:
E = 637495.62
N = 7215242.08
St = 20+593.94
Offset = 29.67m - L
El = 145.03

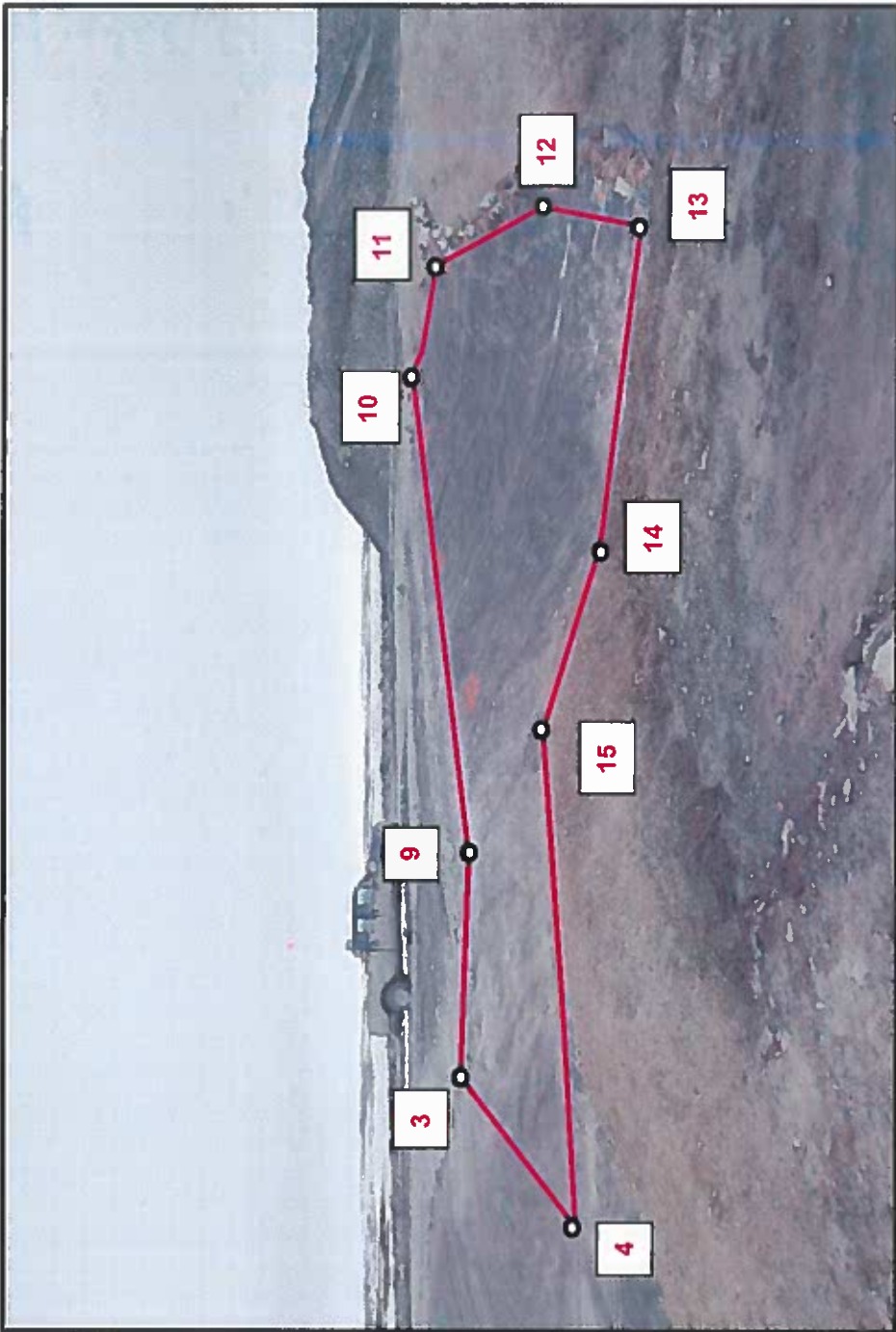
11:
E = 637499.26
N = 7215247.52
St = 20+592.23
Offset = 35.15m - L
El = 145.01

12:
E = 637512.90
N = 7215243.25
St = 20+696.67
Offset = 46.35m - L
El = 143.42

13:
E = 637516.88
N = 7215241.28
St = 20+599.78
Offset = 49.52m - L
El = 143.37

14:
E = 637514.74
N = 7215238.09
St = 20+602.15
Offset = 46.48m - L
El = 143.22

15:
E = 637515.14
N = 7215235.55
St = 20+604.69
Offset = 46.07m - L
El = 144.25

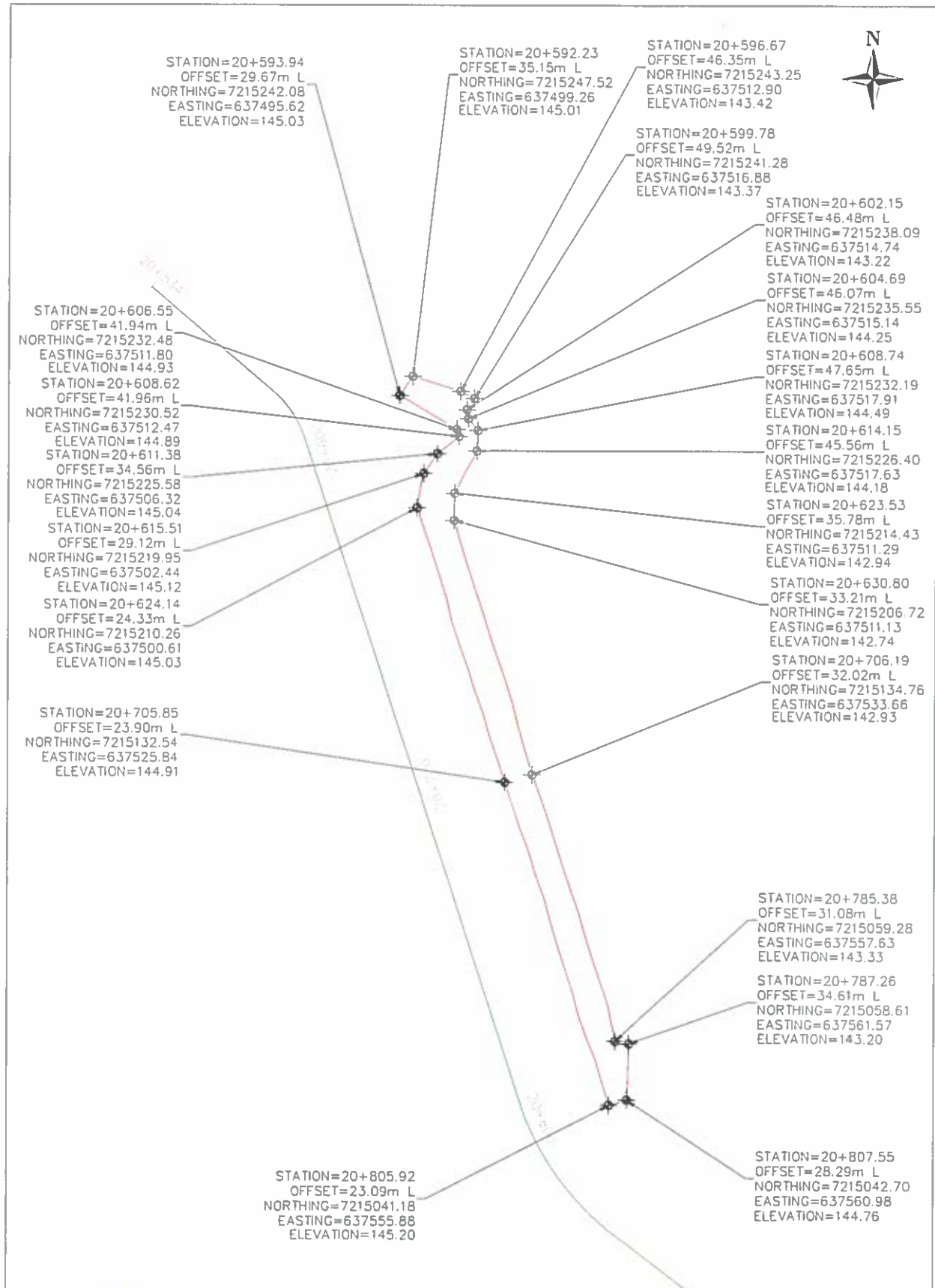


Picture 2- Approximate approved foundation area

Date: 2018-10-06

Photo by (Initial): D.R.

LLDPE-SD3-003
LLDPE APPROVAL
CONTRACT # 11-505



984246 N.W.T. Limited
 D/B/A:
Qamanittuaq
SANA

PREPARED BY: MIKAËL LÉVESQUE
 DATE: 10-06-2018
 CON-FD-005-SD3_LLDPE

APPENDIX H

Geosynthetics Installation QC Documentation

FERNAND GILBERT LTÉE.
921700, BOUL. TALBOT, BUREAU 400
CHICOUTIMI, QC
G7H7Y1



WORK REPORT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION
SD3, SD5 AND CENTRAL DYKE CONSTRUCTION



GEOSYNTHETICS INSTALLATION

GEOMEMBRANE LLDPE 1,5 MM LLDPE textured
PROTECTION GEOTEXTILE

MAY - JUNE 2018

GÉOSYNTHÉTIQUES ZTG INC.

4085, rue Lavoisier – Boisbriand, (Québec) J7H 1N1
Tél. : 1-877-430-5333 Fax : 450-430-9352
www.ztg-inc.com
R.B.Q. : 2628-0297-55



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A	Work site registry: SD3, SD5 AND Central Dyke North - Surface Approbation - Panel position register - Calibration trial register - Weld register - Destructive trial register
B	Manufacturer data sheet
C	« As built » drawings



INTRODUCTION

ZTG Geosynthetics inc. prepared this report, to the attention of Fernand Gilbert Ltée, for the projects SD3, SD5 and Central Dyke construction, Agnico-Eagle Mines Limited – Meadowbank Division.

This report contains a brief description of the quality control methods used at the work site, the geomembrane manufacturer's quality control along with our work site registries. Also included in this report is the « As built » assembly plans.

The work realised in 1 phases from May 24th to June 09th 2018 consisted of the installation of a geomembrane of Linear Low Density PolyEthylene (LLDPE) protected by a geotextile. Three different locations were covered.

1. SD3 - represented approximately 2,552 m² and more than 361 linear meters of welding.
2. SD5 - represented approximately 1,181 m² and more than 173 linear meters of welding.
3. Central Dyke (North) - represented approximately 8,058 m² and more than 1,153 linear meters of welding.

The procedures of assembling the geomembrane were done with due diligence in accordance with the geosynthetic industry and conform to all requirements and specifications of the tender document.

Wishing the whole will be to your entire satisfaction

ZTG GEOSYNTHETICS INC.



1.0 REALISATION OF THE WORK:

The installation of the geomembrane was done from May 24th to June 09th 2018.

The work consisted of recovering a surface with a smooth membrane of black LLDPE of 1,5 mm (60 mil) in thickness.

1.1 Implicated parties :

This project implicated the following parties:

AGNICO-EAGLE MINES LIMITED – MEADOWBANK DIVISION - Owner

- Mr. Thomas Lépine, Eng. Principal Geotechnical Engineer
- Mr. Patrice Gagnon, Eng. Geotechnical Engineer

FERNAND GILERT Limited - General Contractor

- Mr. Guillaume Tremblay, Division Director

GOLDER ASSOCIATES Limited - Consultant

- Mr. Yves Boulianne, Eng. Associate

ZTG GEOSYNTHETICS INC - Specialized contractor, liner installer

- Mr. Jean-Marc Brunet, Projects Director
- Mr. Marco Pigeon, Operation Director
- Mr. Stéphane Côté, Site supervisor
- Mrs. Marion Ferret, ing. jr., Field Quality Control Engineer
- Mr. Fleurant Bélanger, Fusion Welder
- Mr. Pierre-Luc Pépin, Fusion Welder
- Mr. Mathieu Bonneville, Fusion Welder

1.2 Work site installation :

1.2.1 Reception and storage of materials

The geomembrane rolls were stored in an acceptable location near the work site. The rolls were well identified and their numbers were recorded before deployment.



1.2.2 Inspection of work surfaces :

At our arrival on the work site, the sand foundation was prepared to our requirements.

1.2.3 Installation of geomembrane panels :

After the deployment of each panel the quality control technician or the supervisor did a visual inspection to find any defects. A number was then attributed and inscribed to each panel. This number was then rewritten on the « as built » drawings.

1.2.4 Welding of the geomembrane panels :

All major welds between panels were done by fusion of polymers. The welding machines used for this are known as wedge-welders, which use the wedge as heat source. These welders produce an air chamber between two welds, which lets us do non-destructive air pressure tests of the welds

The second type of welds were done with a manual extrusion process for the fusion of polymers. This type of weld was used, to fuse the geomembrane to the Seal Lock integrated in the cement foundation, at the intersection of 3 panels and for general repairs. Non destructive testing for this type of weld was the vacuum test

2.0 QUALITY CONTROL

2.1 Quality control on the assembly of geomembrane panels.

2.1.1 Welding calibration

All welding equipment was calibrated prior to usage. A weld sample was produced in the same environmental conditions and with the same materials that were to be used that day by the welding technicians.

From the sampled weld we took 25mm in width by 150mm in length samples and tested their resistance with peel and shear strength. Only after positive results could the technicians start welding the panels.

2.1.2 Weld integrity tests :

All welds were visually inspected and tested by non-destructive means. These tests were “air pressure tests” or “vacuum tests”. These tests let us verify that the welds are sealed tight.

2.1.2.1 Air pressure test :

This type of test was used on all longitudinal welds with a central air chamber. The method consists to inject air with a controlled pressure (29 to 45 PSI) in the air chamber and to verify that there is no pressure loss. If there is a loss of pressure in the air chamber than there is a breach in the weld. The breach will be found by visual inspection or by vacuum testing the weld.



2.1.2.2 Vacuum test :

This type of test was used in small areas where pressure testing was difficult or at welds done by extrusion. This method consisted of putting soapy water on the welds, we then put an airtight box on the weld and pump out the air in order to create negative pressure over the weld. If the weld is breached than bubbles will form over the breach thus locating the area to repair.

2.1.3 Repairs

All nicks and/or tears were repaired by extrusion. These repairs were then vacuum tested to verify that the welds are sealed tight.

2.1.4 «As built » drawings :

The «As built » drawings represent the layout of geomembrane panels and the details of construction.

3.0 WORK CERTIFICATION :

This document prepared by ZTG Geosynthetics inc. for the contract given by FERNAND GILBERT LIMITED certifies that the installation of geosynthetics was realised with due diligence in accordance to the geosynthetic industry and conform to the plans and tender document issued by Golder Associates Limited.

ZTG Geosynthetics inc.

A handwritten signature in blue ink, appearing to read 'Jean-Marc Brunet', is positioned above a horizontal line.

Jean-Marc Brunet B.Sc.
Project Director



LIST OF ANNEXES

- A Work site registry: SD4, SD5 AND Central Dyke North**
 - Surface Approbation
 - Panel position register
 - Calibration trial register
 - Weld register
 - Destructive trial register
- B Manufacturer data sheet**
- C « As built » drawings**

ANNEXE A

SD3, SD5 AND Central Dyke

Surface Approbation

CERTIFICAT OF SURFACES APPROBATION



GÉOSYNTHÉTIQUES ZTG INC.

PROJECT :

AGNICO-EAGLES-MEADOWBANK

FILE : **18-032**

PHASE 2018

DESCRIPTION :

Liner installation to waterproofing SD3.

This here-by confirms the acceptance of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté
SUPERVISOR

June 6th 2018
DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

CERTIFICAT OF SURFACES APPROBATION



GÉOSYNTHÉTIQUES ZTG INC.

PROJECT :

AGNICO-EAGLES-MEADOWBANK

FILE : **18-032**

PHASE 2018

DESCRIPTION :

Liner installation to waterproofing SD5.

This here-by confirms the acceptance of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté
SUPERVISOR

May 24th 2018
DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

CERTIFICAT OF SURFACES APPROBATION



PROJECT :

AGNICO-EAGLES-MEADOWBANK

FILE : **18-032**

PHASE 2018

DESCRIPTION :

Liner installation to waterproofing CENTRAL DYKE.

This here-by confirms the acceptance of the visible surfaces by the representative of ZTG Geosynthetics inc. This acceptance permits the installation of geomembrane on the accepted surfaces

PARTIAL ACCEPTATION :

COMPLETE ACCEPTATION: X

Stéphane Côté
SUPERVISOR

May 25th 2018
DATE

This acceptance is limited to the surface verified. ZTG Geosynthetics inc. endorses no responsibility to eventual tears to the geomembrane due to defects or non-accessible vices while visually inspecting the surfaces.

ANNEXE A

SD3, SD5 AND Central Dyke North

Panel position register

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.	Length m.	Area m ²
802	G17B002758	2018-05-24	7	12	84,00
803	G17B002758	2018-05-24	7	13	91,00
804	G17B002758	2018-05-24	7	11	77,00
805	G17B002758	2018-05-24	7	12	84,00
806	G17B002758	2018-05-24	7	12	84,00
807	G17B002758	2018-05-24	7	11	77,00
808	G17B002758	2018-05-24	7	10	70,00
809	G17B002758	2018-05-24	7	10	70,00
810	G17B002758	2018-05-24	7	11	77,00
811	G17B002758	2018-05-24	7	11	77,00
812	G17B002758	2018-05-24	7	11	77,00
813	G17B002758	2018-05-24	7	11	77,00
814	G17B002758	2018-05-24	7	11	77,00
815	G17B002758	2018-05-24	7	11	77,00
816	G17B002758	2018-05-24	7	10	70,00
817	G17B002758	2018-05-24	3	8	12,00

Total :	1181,00 m2
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PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.	Length m.	Area m ²
818	G17B002765	2018-05-25	7,00	10,00	70,00
819	G17B002765	2018-05-25	7,00	10,00	70,00
820	G17B002765	2018-05-27	7,00	10,00	70,00
821	G17B002765	2018-05-27	7,00	10,00	70,00
822	G17B002765	2018-05-27	7,00	10,00	70,00
823	G17B002765	2018-05-27	7,00	10,00	70,00
824	G17B002765	2018-05-28	7,00	10,00	70,00
825	G17B002765	2018-05-28	7,00	10,00	70,00
826	G17B002765	2018-05-28	7,00	10,00	70,00
827	G17B002765	2018-05-28	7,00	10,00	70,00
828	G17B002765	2018-05-28	7,00	10,00	70,00
829	G17B002765	2018-05-28	7,00	10,00	70,00
830	G17B002765	2018-05-28	7,00	10,00	70,00
831	G17B002765	2018-05-28	7,00	10,00	70,00
832	G17B002765	2018-05-28	7,00	10,00	70,00
833	G17B002765	2018-05-28	7,00	10,00	70,00
834	G17B002756	2018-05-28	7,00	10,00	70,00
835	G17B002756	2018-05-28	7,00	10,00	70,00
836	G17B002756	2018-05-28	7,00	10,00	70,00
837	G17B002756	2018-05-28	7,00	10,00	70,00
838	G17B002756	2018-05-28	7,00	10,00	70,00
839	G17B002756	2018-05-28	7,00	10,00	70,00
840	G17B002756	2018-05-28	7,00	10,00	70,00
841	G17B002756	2018-05-28	7,00	10,00	70,00
842	G17B002756	2018-05-28	7,00	10,00	70,00
843	G17B002756	2018-05-28	7,00	10,00	70,00
844	G17B002756	2018-05-28	7,00	10,00	70,00
845	G17B002756	2018-05-29	7,00	10,00	70,00
846	G17B002756	2018-05-29	7,00	10,00	70,00
847	G17B002756	2018-05-29	7,00	10,00	70,00
848	G17B002756	2018-05-29	7,00	10,00	70,00
849	G17B002756	2018-06-01	7,00	10,00	70,00
850	G17B002756	2018-06-01	7,00	10,00	70,00
851	G17B002744	2018-06-01	7,00	10,00	70,00
852	G17B002744	2018-06-01	7,00	10,00	70,00
853	G17B002744	2018-06-01	7,00	10,00	70,00
854	G17B002744	2018-06-01	7,00	10,00	70,00
855	G17B002744	2018-06-01	7,00	10,00	70,00
856	G17B002744	2018-06-01	7,00	10,00	70,00
857	G17B002744	2018-06-01	7,00	10,00	70,00
858	G17B002744	2018-06-01	7,00	10,00	70,00
859	G17B002744	2018-06-01	7,00	10,00	70,00
860	G17B002744	2018-06-01	7,00	10,00	70,00
861	G17B002744	2018-06-01	7,00	10,00	70,00
862	G17B002744	2018-06-01	7,00	10,00	70,00



PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.	Length m.	Area m ²
863	G17B002744	2018-06-01	7,00	10,00	70,00
864	G17B002744	2018-06-01	7,00	10,00	70,00
865	G17B002744	2018-06-01	7,00	10,00	70,00
866	G17B002761	2018-06-01	7,00	10,00	70,00
867	G17B002761	2018-06-01	7,00	10,00	70,00
868	G17B002761	2018-06-02	7,00	10,00	70,00
869	G17B002761	2018-06-02	7,00	10,00	70,00
870	G17B002761	2018-06-02	7,00	10,00	70,00
871	G17B002761	2018-06-02	7,00	10,00	70,00
872	G17B002761	2018-06-02	7,00	10,00	70,00
873	G17B002761	2018-06-02	7,00	10,00	70,00
874	G17B002761	2018-06-02	7,00	10,00	70,00
875	G17B002761	2018-06-02	7,00	10,00	70,00
876	G17B002761	2018-06-02	7,00	10,00	70,00
877	G17B002761	2018-06-02	7,00	10,00	70,00
878	G17B002761	2018-06-02	7,00	10,00	70,00
879	G17B002761	2018-06-02	7,00	10,00	70,00
880	G17B002761	2018-06-02	7,00	10,00	70,00
881	G17B002761	2018-06-02	7,00	10,00	70,00
882	G17B002763	2018-06-02	7,00	10,00	70,00
883	G17B002763	2018-06-02	7,00	10,00	70,00
884	G17B002763	2018-06-02	7,00	10,00	70,00
885	G17B002763	2018-06-02	7,00	10,00	70,00
886	G17B002763	2018-06-02	7,00	10,00	70,00
887	G17B002763	2018-06-03	7,00	10,00	70,00
888	G17B002763	2018-06-03	7,00	10,00	70,00
889	G17B002763	2018-06-03	7,00	10,00	70,00
890	G17B002763	2018-06-03	7,00	10,00	70,00
891	G17B002763	2018-06-03	7,00	10,00	70,00
892	G17B002763	2018-06-03	7,00	10,00	70,00
893	G17B002763	2018-06-03	7,00	10,00	70,00
894	G17B002763	2018-06-03	7,00	10,00	70,00
895	G17B002763	2018-06-03	7,00	10,00	70,00
896	G17B002763	2018-06-03	7,00	10,00	70,00
897	G17B002760	2018-06-03	7,00	10,00	70,00
898	G17B002760	2018-06-03	7,00	10,00	70,00
899	G17B002760	2018-06-03	7,00	10,00	70,00
900	G17B002760	2018-06-03	7,00	10,00	70,00
901	G17B002760	2018-06-03	7,00	10,00	70,00
902	G17B002760	2018-06-03	7,00	10,00	70,00
903	G17B002760	2018-06-03	7,00	10,00	70,00
904	G17B002760	2018-06-03	7,00	10,00	70,00
905	G17B002760	2018-06-03	7,00	10,00	70,00
906	G17B002760	2018-06-03	7,00	10,00	70,00
907	G17B002760	2018-06-03	7,00	10,00	70,00



PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.	Length m.	Area m ²
908	G17B002760	2018-06-03	7,00	10,00	70,00
909	G17B002760	2018-06-03	7,00	10,00	70,00
910	G17B002760	2018-06-03	7,00	10,00	70,00
911	G17B002760	2018-06-04	7,00	10,00	70,00
912	G17B002760	2018-06-04	7,00	10,00	70,00
913	G17B002759	2018-06-04	7,00	10,00	70,00
914	G17B002759	2018-06-04	7,00	10,00	70,00
915	G17B002759	2018-06-04	7,00	10,00	70,00
916	G17B002759	2018-06-04	7,00	10,00	70,00
917	G17B002759	2018-06-04	7,00	10,00	70,00
918	G17B002759	2018-06-04	7,00	10,00	70,00
919	G17B002759	2018-06-04	7,00	10,00	70,00
920	G17B002759	2018-06-04	7,00	10,00	70,00
921	G17B002759	2018-06-04	7,00	10,00	70,00
922	G17B002759	2018-06-04	7,00	10,00	70,00
923	G17B002759	2018-06-04	7,00	10,00	70,00
924	G17B002759	2018-06-04	7,00	10,00	70,00
925	G17B002759	2018-06-04	7,00	10,00	70,00
926	G17B002759	2018-06-04	7,00	10,00	70,00
927	G17B002759	2018-06-04	7,00	10,00	70,00
928	G17B002764	2018-06-04	7,00	9,50	66,50
929	G17B002764	2018-06-04	7,00	9,25	64,75
930	G17B002764	2018-06-04	7,00	9,00	63,00
931	G17B002764	2018-06-04	7,00	8,75	61,25
932	G17B002764	2018-06-04	7,00	8,50	59,50
933	G17B002764	2018-06-04	5,00	8,50	42,50

Total :	8057,50 m2
---------	------------



PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.	Length m.	Area m ²
934	G17B002764	2018-06-06	7	8,9	62,30
935	G17B002764	2018-06-06	7	11,1	77,70
936	G17B002764	2018-06-06	7	13,4	93,80
937	G17B002764	2018-06-06	2,9	11,8	17,11
938	G17B002764	2018-06-06	7	13,4	93,80
939	G17B002764	2018-06-06	6,4	12,1	38,72
940	G17B002764	2018-06-07	7	11	77,00
941	G17B002764	2018-06-07	7	11	77,00
942	G17B002764	2018-06-07	7	11	77,00
943	G17B002762	2018-06-07	7	11	77,00
944	G17B002762	2018-06-07	7	11	77,00
945	G17B002762	2018-06-07	7	11	77,00
946	G17B002762	2018-06-07	7	11	77,00
947	G17B002762	2018-06-07	7	11	77,00
948	G17B002762	2018-06-07	7	11	77,00
949	G17B002762	2018-06-07	7	11	77,00
950	G17B002762	2018-06-07	7	11	77,00
951	G17B002762	2018-06-07	7	11	77,00
952	G17B002762	2018-06-07	7	11	77,00
953	G17B002762	2018-06-07	7	11	77,00
954	G17B002762	2018-06-07	7	11	77,00
955	G17B002762	2018-06-07	7	11	77,00
956	G17B002762	2018-06-07	7	11	77,00
957	G17B002757	2018-06-07	7	11	77,00
958	G17B002757	2018-06-07	7	11	77,00
959	G17B002757	2018-06-07	7	11	77,00
960	G17B002757	2018-06-07	7	11	77,00
961	G17B002757	2018-06-07	7	11	77,00
962	G17B002757	2018-06-07	7	13	91,00
963	G17B002757	2018-06-07	7	11	77,00
964	G17B002757	2018-06-07	7	10	70,00
965	G17B002757	2018-06-08	7	13	91,00
966	G17B002757	2018-06-08	7	11,5	80,50
967	G17B002757	2018-06-08	7	9,2	64,40

Total :	2551,33 m2
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ANNEXE A

SD3, SD5 AND Central Dyke North

Calibration trial register

CALIBRATION REGISTER

NUMB ER	Date	Heure	Tech.	Equip. no.	TEMP °	PH/ Temp ° /vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)	Parent
1	2018-05-24	07:00	PLP	W50	460	400	124/115	134/127	155	171	158
2	2018-05-24	11:30	FB	EX53	265	180	134	140	139	147	145
3	2018-05-25	07:05	FB	EX53	265	230	118	116	140	149	155
4	2018-05-25	12:45	FB	EX53	265	210	96	97	133	136	137
5	2018-05-25	15:30	FB	W50	460	400	117	118	131	140	142
6	2018-05-27	08:30	FB	W50	460	400	128/133	123/131	160	154	157
7	2018-05-27	09:15	FB	EX53	265	210	131	134	139	144	144
8	2018-05-28	06:46	FB	W50	460	400	149/140	142/142	159	161	158
9	2018-05-28	08:56	FB	EX53	265	210	133	117	147	144	151
10	2018-05-28	12:45	PLP	W50	460	400	119/128	128/118	138	137	141
11	2018-05-28	14:39	FB	EX53	265	210	89	118	122	118	123
12	2018-05-29	07:00	PLP	W50	460	400	132/111	127/128	158	159	160
13	2018-05-29	10:46	FB	EX53	265	230	128/121	126	132	131	133
14	2018-06-01	06:45	PLP	W50	460	400	133/140	137/128	152	163	169
15	2018-06-01	14:10	FB	EX53	265	210	118	112	118	119	119
16	2018-06-02	07:06	FB	W50	460	400	145/144	138/132	171	171	164
17	2018-06-02	14:20	FB	EX53	265	190	112	122	126	121	132
18	2018-06-03	06:50	FB	W50	460	400	124/127	147/129	160	178	160
19	2018-06-03	13:50	FB	EX53	265	190	110	98	123	133	133
20	2018-06-04	07:10	FB	W50	460	400	116/116	132/116	150	143	134
21	2018-06-04	14:10	FB	EX53	265	170	114	110	114	119	114
22	2018-06-05	07:10	FB	EX53	265	190	128	127	128	131	133
23	2018-06-05	15:06	FB	EX52	265	180	107	103	126	119	122
24	2018-06-06	07:10	FB	EX52	265	195	132	137	159	145	155
25	2018-06-06	14:10	PLP	W50	460	400	124/126	118/123	139	132	147
26	2018-06-07	08:46	PLP	W50	460	450	105/108	120/123	145	142	137
27	2018-06-07	14:44	FB	EX52	265	160	105	105	111	111	123
28	2018-06-08	07:24	FB	EX52	265	170	120	101	122	122	118
29	2018-06-08	14:15	FB	EX52	265	160	122	114	118	114	115
30	2018-06-08	16:20	PLP	W50	460	420	112/113	112/113	136	128	136
31	2018-06-09	07:25	FB	EX52	265	170	112	112	116	123	142



ANNEXE A

SD3, SD5 AND Central Dyke North

Weld register

WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI
<u>SD 5</u>								
782/802	2018-05-24	07:23	11,00	PLP	W50	1	09:58	35
802/803	2018-05-24	07:39	13,00	PLP	W50	1	10:04	30
803/804	2018-05-24	07:44	11,00	PLP	W50	1	10:08	31
804/805	2018-05-24	07:53	12,00	PLP	W50	1	10:09	30
805/806	2018-05-24	08:06	12,00	PLP	W50	1	10:14	30
806/807	2018-05-24	08:11	10,00	PLP	W50	1	10:20	34
807/808	2018-05-24	08:23	11,00	PLP	W50	1	10:25	30
808/809	2018-05-24	08:31	10,00	PLP	W50	1	10:27	30
809/810	2018-05-24	08:40	10,00	PLP	W50	1	10:30	30
810/811	2018-05-24	08:47	11,00	PLP	W50	1	10:31	30
811/812	2018-05-24	08:56	11,00	PLP	W50	1	10:33	30
812/813	2018-05-24	09:05	11,00	PLP	W50	1	10:37	30
813/814	2018-05-24	09:15	11,00	PLP	W50	1	10:39	30
814/815	2018-05-24	09:23	11,00	PLP	W50	1	10:42	30
815/816	2018-05-24	10:05	10,00	PLP	W50	1	10:44	30
816/817	2018-05-24	10:12	8,00	PLP	W50	1	10:50	30
<u>CENTRAL DYKE</u>								
817/818	2018-05-25	15:54	10,00	FB	W50	5	15:59	35
818/819	2018-05-25	16:06	10,00	FB	W50	5	16:16	35
819/820	2018-05-27	08:16	10,00	FB	W50	6	08:40	30
820/821	2018-05-27	08:33	10,00	FB	W50	6	08:47	30
821/822	2018-05-27	10:06	10,00	FB	W50	6	10:28	30
822/823	2018-05-27	10:15	10,00	FB	W50	6	10:29	31
823/824	2018-05-28				W50			
824/825	2018-05-28	07:16	10,00	FB	W50	8	08:31	30
825/826	2018-05-28	07:23	10,00	FB	W50	8	08:32	30
826/827	2018-05-28	08:00	10,00	FB	W50	8	08:33	30
827/828	2018-05-28	08:11	10,00	FB	W50	8	08:36	30
828/829	2018-05-28	11:03	10,00	FB	W50	8	13:55	30
829/830	2018-05-28	11:11	10,00	FB	W50	8	13:56	30
830/831	2018-05-28	11:17	10,00	FB	W50	8	13:56	30
831/832	2018-05-28	11:24	10,00	FB	W50	8	14:08	31
832/833	2018-05-28	11:33	10,00	FB	W50	8	14:09	30
833/834	2018-05-28	11:44	10,00	FB	W50	8	14:09	30
834/835	2018-05-28	11:51	10,00	FB	W50	8	14:15	31
835/836	2018-05-28	11:58	10,00	FB	W50	8	14:16	30
836/837	2018-05-28	15:00	10,00	PLP	W50	10	15:54	30
837/838	2018-05-28	15:05	10,00	PLP	W50	10	15:55	30
838/839	2018-05-28	15:12	10,00	PLP	W50	10	15:56	31
839/840	2018-05-28	15:18	10,00	PLP	W50	10	16:05	30
840/841	2018-05-28	15:25	10,00	PLP	W50	10	16:06	30
841/842	2018-05-28	15:31	10,00	PLP	W50	10	16:06	
842/843	2018-05-28	15:39	10,00	PLP	W50	10	16:16	
843/844	2018-05-28	15:45	10,00	PLP	W50	10	16:17	



WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI
844/845	2018-05-29	07:33	10,00	PLP	W50	12	08:36	30
845/846	2018-05-29	07:40	10,00	PLP	W50	12	08:38	30
846/847	2018-05-29	07:46	10,00	PLP	W50	12	08:45	30
847/848	2018-05-29	07:56	10,00	PLP	W50	12	08:46	31
848/849	2018-06-01	09:10	10,00	PLP	W50	14	11:19	32
849/850	2018-06-01	09:21	10,00	PLP	W50	14	11:21	30
850/851	2018-06-01	09:34	10,00	PLP	W50	14	11:22	30
851/852	2018-06-01	09:41	10,00	PLP	W50	14	11:22	32
852/853	2018-06-01	09:47	10,00	PLP	W50	14	11:29	32
853/854	2018-06-01	09:52	10,00	PLP	W50	14	11:31	32
854/855	2018-06-01	09:57	10,00	PLP	W50	14	11:33	32
855/856	2018-06-01	10:06	10,00	PLP	W50	14	11:34	32
856/857	2018-06-01	10:12	10,00	PLP	W50	14	11:40	31
857/858	2018-06-01	10:17	10,00	PLP	W50	14	11:41	30
858/859	2018-06-01	10:22	10,00	PLP	W50	14	11:42	30
859/860	2018-06-01	10:27	10,00	PLP	W50	14	11:43	32
860/861	2018-06-01	10:33	10,00	PLP	W50	14	11:50	31
861/862	2018-06-01	10:38	10,00	PLP	W50	14	11:51	32
862/863	2018-06-01	10:43	10,00	PLP	W50	14	11:54	34
863/864	2018-06-01	10:48	10,00	PLP	W50	14	11:54	32
864/865	2018-06-01	10:53	10,00	PLP	W50	14	12:01	30
865/866	2018-06-01	11:07	10,00	PLP	W50	14	12:03	31
866/867	2018-06-01	11:14	10,00	PLP	W50	14	12:06	33
867/868	2018-06-02	09:16	10,00	FB	W50	16	11:44	33
868/869	2018-06-02	09:23	10,00	FB	W50	16	11:47	30
869/870	2018-06-02	09:31	10,00	FB	W50	16	11:49	31
870/871	2018-06-02	09:37	10,00	FB	W50	16	11:53	31
871/872	2018-06-02	09:44	10,00	FB	W50	16	12:00	30
872/873	2018-06-02	09:51	10,00	FB	W50	16	12:03	30
873/874	2018-06-02	09:58	10,00	FB	W50	16	12:04	30
874/875	2018-06-02	10:04	10,00	FB	W50	16	12:06	31
875/876	2018-06-02	10:10	10,00	FB	W50	16	12:13	32
876/877	2018-06-02	10:16	10,00	FB	W50	16	12:16	32
877/878	2018-06-02	10:22	10,00	FB	W50	16	13:42	30
878/879	2018-06-02	10:38	10,00	FB	W50	16	13:49	31
879/880	2018-06-02	10:50	10,00	FB	W50	16	13:52	31
880/881	2018-06-02	10:56	10,00	FB	W50	16	13:54	31
881/882	2018-06-02	12:02	10,00	FB	W50	16	14:05	31
882/883	2018-06-02	11:10	10,00	FB	W50	16	15:00	30
883/884	2018-06-02	11:45	10,00	FB	W50	16	14:03	30
884/885	2018-06-02	11:21	10,00	FB	W50	16	14:08	31
885/886	2018-06-02	11:27	10,00	FB	W50	16	14:12	32
886/887	2018-06-03	09:11	10,00	PLP	W50	18	11:39	31
887/888	2018-06-03	09:18	10,00	PLP	W50	18	11:40	30
888/889	2018-06-03	09:27	10,00	PLP	W50	18	11:40	30



WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine number	Calibra. number	Air test Start	PSI
889/890	2018-06-03	09:32	10,00	PLP	W50	18	11:41	30
890/891	2018-06-03	09:39	10,00	PLP	W50	18	11:51	31
891/892	2018-06-03	09:44	10,00	PLP	W50	18	11:52	30
892/893	2018-06-03	09:53	10,00	PLP	W50	18	11:54	31
893/894	2018-06-03	10:00	10,00	PLP	W50	18	11:55	31
894/895	2018-06-03	10:06	10,00	PLP	W50	18	12:04	30
895/896	2018-06-03	10:13	10,00	PLP	W50	18	12:05	30
896/897	2018-06-03	10:20	10,00	PLP	W50	18	12:06	30
897/898	2018-06-03	10:27	10,00	PLP	W50	18	12:07	31
898/899	2018-06-03	10:33	10,00	PLP	W50	18	15:29	29
899/900	2018-06-03	10:38	10,00	PLP	W50	18	15:33	30
900/901	2018-06-03	10:44	10,00	PLP	W50	18	15:40	29
901/902	2018-06-03	10:52	10,00	PLP	W50	18	15:27	31
902/903	2018-06-03	11:01	10,00	PLP	W50	18	15:44	30
903/904	2018-06-03	11:07	10,00	PLP	W50	18	15:45	30
904/905	2018-06-03	11:15	10,00	PLP	W50	18	15:49	30
905/906	2018-06-03	11:20	10,00	PLP	W50	18	15:51	33
906/907	2018-06-03	11:27	10,00	PLP	W50	18	15:53	32
907/908	2018-06-03	11:34	10,00	PLP	W50	18	15:54	31
908/909	2018-06-03	11:40	10,00	PLP	W50	18	15:58	33
909/910	2018-06-03	11:47	10,00	PLP	W50	18	16:04	30
910/911	2018-06-04	09:32	10,00	FB	W50	20	14:25	33
911/912	2018-06-04	09:40	10,00	FB	W50	20	14:27	30
912/913	2018-06-04	09:48	10,00	FB	W50	20	14:29	29
913/914	2018-06-04	09:54	10,00	FB	W50	20	14:30	31
914/915	2018-06-04	10:01	10,00	FB	W50	20	14:37	30
915/916	2018-06-04	10:07	10,00	FB	W50	20	14:39	32
916/917	2018-06-04	10:12	10,00	FB	W50	20	14:44	30
917/918	2018-06-04	10:19	10,00	FB	W50	20	14:42	31
918/919	2018-06-04	10:26	10,00	FB	W50	20	14:49	31
919/920	2018-06-04	10:33	10,00	FB	W50	20	14:57	30
920/921	2018-06-04	10:40	10,00	FB	W50	20	14:42	30
921/922	2018-06-04	10:52	10,00	FB	W50	20	15:00	32
922/923	2018-06-04	10:58	10,00	FB	W50	20	15:02	33
923/924	2018-06-04	11:05	10,00	FB	W50	20	15:04	32
924/925	2018-06-04	11:16	10,00	FB	W50	20	15:05	34
925/926	2018-06-04	11:12	10,00	FB	W50	20	15:05	34
926/927	2018-06-04	11:18	10,00	FB	W50	20	15:09	32
927/928	2018-06-04	11:24	9,50	FB	W50	20	15:17	30
928/929	2018-06-04	11:31	9,25	FB	W50	20	15:12	32
929/930	2018-06-04	11:36	9,25	FB	W50	20	15:14	33
930/931	2018-06-04	11:43	9,00	FB	W50	20	15:13	32
931/932	2018-06-04	11:51	8,75	FB	W50	20	15:42	33
932/933	2018-06-04	11:58	8,50	FB	W50	20	15:27	34



WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine number	Calibra. number	Air test Start	PSI
933/793	2018-06-04	12:05	8,50	FB	W50	20	15:30	32
SD3								
934/935	2018-06-06	15:34	10,00	PLP	W50	25	16:24	30
935/936	2018-06-06	15:42	12,00	PLP	W50	25	16:22	31
936/937	2018-06-06	15:50	10,00	PLP	W50	25	16:24	30
937/938	2018-06-06	15:58	11,00	PLP	W50	25	16:29	32
938/939	2018-06-06	16:08	12,50	PLP	W50	25	16:30	31
939/940	2018-06-07	09:00	11,00	PLP	W50	26	14:20	30
940/941	2018-06-07	09:11	11,00	PLP	W50	26	14:23	31
941/942	2018-06-07	09:18	11,00	PLP	W50	26	14:25	32
942/943	2018-06-07	09:24	11,00	PLP	W50	26	14:27	30
943/944	2018-06-07	09:30	11,00	PLP	W50	26	14:57	30
944/945	2018-06-07	09:37	11,00	PLP	W50	26	14:58	31
945/946	2018-06-07	09:43	11,00	PLP	W50	26	14:59	30
946/947	2018-06-07	09:49	11,00	PLP	W50	26	15:01	30
947/948	2018-06-07	09:56	11,00	PLP	W50	26	15:08	31
948/949	2018-06-07	10:01	11,00	PLP	W50	26	15:10	31
949/950	2018-06-07	10:08	11,00	PLP	W50	26	15:12	32
950/951	2018-06-07	10:13	11,00	PLP	W50	26	15:14	32
951/952	2018-06-07	10:19	11,00	PLP	W50	26	15:22	31
952/953	2018-06-07	10:25	11,00	PLP	W50	26	15:23	31
953/954	2018-06-07	10:31	11,00	PLP	W50	26	15:24	31
954/955	2018-06-07	11:27	11,00	PLP	W50	26	15:26	30
955/956	2018-06-07	11:33	11,00	PLP	W50	26	15:36	33
956/957	2018-06-07	11:39	11,00	PLP	W50	26	15:37	31
957/958	2018-06-07	11:45	11,00	PLP	W50	26	15:38	30
958/959	2018-06-07	11:50	11,00	PLP	W50	26	15:39	31
959/960	2018-06-07	11:55	11,00	PLP	W50	26	15:46	32
960/961	2018-06-07	12:00	11,00	PLP	W50	26	15:48	32
961/962	2018-06-07	12:07	11,00	PLP	W50	26	15:49	32
962/963	2018-06-07	12:13	13,00	PLP	W50	26	15:59	31
963/964	2018-06-07	12:24	10,00	PLP	W50	26	16:01	30
964/965	2018-06-08	17:04	6,80	PLP	W50	26	17:16	37
965/966	2018-06-08	17:08	12,60	PLP	W50	26	17:14	33
966/967	2018-06-08	17:15	10,00	PLP	W50	26	17:22	32



ANNEXE A

SD4, SD5 AND Central Dyke North

Destructive trial register

DESTRUCTIVE TESTING REGISTER

Test number	Weld number	Peel (lb/po)	Peel (lb/po)	Peel (lb/po)	Shear (lb/po)	Shear (lb/po)
DT-1	814-815	155	159	145	179	192
DT-2	830-831	136	133	138	145	154
DT-3	845-846	120	120	116	133	137
DT-4	860-861	137	128	126	134	145
DT-5	875-876	134	129	131	131	134
DT-6	890-891	116	122	113	124	139
DT-7	905-906	124	123	127	123	133
DT-8	920-921	136	132	149	153	154
DT-9	935-936	124	116	127	126	138
DT-10	948-949	121	108	121	132	134
DT-11	959-960	116	122	122	128	129



ANNEXE B

SD3, SD5 AND Central Dyke

Manufacturer data sheet

High Density Polyethylene MicroSpike® Liner



Product Data

Property	Test Method	Frequency	Minimum Average Values				
Thickness (nominal), mil (mm)	ASTM D5994	Per Roll	30 (0.75)	40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Thickness (min avg), mil (mm)			29 (0.71)	38 (0.95)	57 (1.43)	76 (1.9)	95 (2.38)
Thickness (min 8 of 10), mil (mm)			27 (0.68)	36 (0.90)	54 (1.35)	72 (1.8)	90 (2.25)
Thickness (lowest individual), mil (mm)			26 (0.64)	34 (0.85)	51 (1.28)	68 (1.7)	85 (2.13)
Asperity Height mils, (mm)	ASTM D7466	2nd Roll	20 (0.51)	20 (0.51)	20 (0.51)	18 (0.46)	18 (0.46)
Density, g/cc, minimum	ASTM D792, Method B	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (both directions)	ASTM D6693, Type IV 2 in/minute	20,000 lb	66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Strength @ Yield, lb/in width (N/mm)			13	13	13	13	13
Elongation @ Yield, % (GL=1.3in)			66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Strength @ Break, lb/in width (N/mm)			350	350	350	350	350
Elongation @ Break, % (GL=2.0in)							
Tear Resistance, lbs. (N)	ASTM D1004	45,000 lb	23 (102)	30 (133)	45 (200)	60 (267)	72 (320)
Puncture Resistance, lbs. (N)	ASTM D4833	45,000 lb	60 (267)	90 (400)	120 (534)	150 (667)	180 (801)
Carbon Black Content, % (range)	ASTM D4218	20,000 lb	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3
Carbon Black Dispersion (Category)	ASTM D5596	45,000 lb	Only near spherical agglomerates: 10 views in Cat. 1 or 2				
Stress Crack Resistance (SP-NCTL), hrs.	ASTM D5397 Appendix	200,000 lb	500	500	500	500	500
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O ₂	200,000 lb	≥140	≥140	≥140	≥140	≥140

Agru America's geomembranes are certified to pass Low Temp. Brittleness via ASTM D746 (-80°C), Dimensional Stability via ASTM D1204 (±2% @ 100°C).

Oven Aging and UV Resistance are tested per GRI GM 13. These product specifications meet or exceed GRI's GM13.

Supply Information (Standard Roll Dimensions)

Thickness		Width		Length		Area (approx.)	
mil	mm	ft	m	ft	m	ft ²	m ²
30	0.75	23	7	Double-Sided	980	299	22,540
				Single-Sided	1000	305	23,000
40	1.0	23	7	Double-Sided	750	229	17,250
				Single-Sided	790	241	18,170
60	1.5	23	7	Double-Sided	540	165	12,420
				Single-Sided	550	168	12,650
80	2.0	23	7	Double-Sided	410	125	9,430
				Single-Sided	420	128	9,660
100	2.5	23	7	Double-Sided	335	102	7,705
				Single-Sided	340	104	7,820

Note:

Average roll weight is 3,900 lbs (1,770 kg). All rolls are supplied with two slings. Rolls are wound on a 6" core. Special length available upon request. Roll length and width have a tolerance of ±1%. The weight and length values may change due to project specifications (i.e. average or absolute minimum thickness) or shipping requirements (i.e. international containerized shipments).

All information, recommendations and suggestions appearing in this literature concerning the use of our products are based upon tests and data believed to be reliable; however, it is the users responsibility to determine the suitability for their own use of the products described herein. Since the actual use by others is beyond our control, no guarantee or warranty of any kind, expressed or implied, is made by Agru America as to the effects of such use or the results to be obtained, nor does Agru America assume any liability in connection herewith. Any statement made herein may not be absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations. Nothing herein is to be construed as permission or as a recommendation to infringe any patent.