Appendix B6

2016 TSF As-built Report

March 1, 2017

TAILINGS STORAGE FACILITY
MEADOWBANK GOLD PROJECT

2016 Construction Season As-Built Report

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REPORT

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Executive Summary

The 2016 construction season at Meadowbank was conducted from May 18, 2016 to September 27, 2016. It consisted of the construction of Stage 5 of Central Dike, and the construction of Stage 2 for Saddle Dams 3, 4, and 5. Construction was completed in general accordance with the requirements of the Design and Technical Specifications developed by Golder for each structure.

The data collected from the quality assurance (QA) and quality control (QC) program during the construction of stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4, and 5 were used to confirm that the construction of each structure was completed in compliance with the Drawings and Technical Specifications. This includes earthwork construction such as foundation preparation and fill placement as well as the installation of the geosynthetics.

During the course of the work, three design changes and eleven field adjustments were applied to take into account the existing site conditions and to optimize construction activities.

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1.0 INTRODUCTION

The 2016 construction season of the South Cell of the Tailings Storage Facility (TSF) at Meadowbank was conducted from May 18, 2016 to September 27, 2016 and consisted of the construction of stage 5 of Central Dike and the construction of stage 2 of Saddle Dams 3, 4 and 5.

This as-built report for the 2016 construction season presents a summary of the Specifications, the construction activities, the QA/QC activities as well as the overall information used to produce the as-built drawings. This report was prepared with input from a number of contributors in a collaborative effort between Agnico Eagle Mines (AEM) and Golder Associés Ltée (Golder).

The work done in the previous stages of Central Dike and Saddle Dams 3, 4, and 5 is described in the respective construction summary as-built reports.

1.1 Roles and Responsibilities

The Drawings and Specifications for Central Dike and Saddle Dams 3, 4, and 5 were developed by Golder and reviewed by the AEM Meadowbank Engineering Team (MET) and by the Meadowbank Dike Review Board (MDRB). Qamanittuaq SANA (SANA) was contracted by AEM for the work of the 2016 construction season of the South Cell. The Owner Representative from AEM was responsible for managing and planning the construction. Golder was responsible for the Quality Assurance (QA) program and provided technical review of the work to ensure that the structures were constructed according to the Technical Specifications (Specifications) and Construction Drawings (Drawings). The Quality Control (QC) program (with the exception of aspects related to geosynthetics) was carried out by SNC-Lavalin (SNC), under the direction of AEM. SNC monitored the construction to ensure that the work and materials met the Specifications. The geosynthetics were installed by the subcontractor ZTG Geosynthetics (ZTG) under the direction of SANA. The geomembrane QC was also done by ZTG.

Table 1 presents a summary of the general roles and responsibilities for each of the parties involved during the 2016 construction season. This table also includes the key companies and the key personnel that contributed to the various construction activities.

Table 1: Roles, Responsibilities and Key Personnel for the South Cell 2016 Construction Season

Company	Role	Responsibility	Key Personnel	Position
Agnico Eagle Mines Meadowbank Division	Owner	Manage and plan the construction Act as Owner's Representative Provide survey and as-built drawings	Rebecca Cousineau Patrice Gagnon	Geotechnical Supervisor
			Yannick Simard	General Foreman, Dikes Construction
			Julie Bélanger Pierre McMullen (Asst.)	Engineering Superintendant
			Jean-François Béland Serge Tremblay	Construction Supervisor
			Michael Racine Aubrey Claude Desrocher	Surveyor (AEM sub-contractor)
Qamanittuaq SANA	Contractor	Realization of the 2016 South Cell construction activities Provide survey	Guillaume Tremblay	Project Director
			Christopher Gilbert Philippe Desgagné	Project Manager
			Danny Pageau Hugues Gagnon	SANA Foreman
			Francis Pépin Pierre-Luc Babin	Surveyor
Golder Associés Ltée	Designer of the structures	QA program during construction Technical review of construction work	Yves Boulianne	Project Director
			Frédérick L. Bolduc	Project Manager / QA Engineer
			Michael Demers Bonin Michael Nadon	QA Engineer
SNC-Lavalin	Sub-contractor of the Owner	Realization of QC program and construction monitoring	Véronique Houle	Project Manager
			Guy Lamarche Sanaz Olyaie Francis Rose Marie-Hélène Picard	QC Representative
ZTG Geosynthetics	Sub-contractor of the Contractor (SANA)	Geosynthetics installation and QC testing	Jean-Marc Brunet	Projects Director
			Stephane Côté	Field Supervisor
			Nicolas Guibault	QC Representative (geosynthetics)

1.2 Definitions of Terms Used in this Document

The following table presents the definition of the terms used in this report.

Table 2: Definition of Terms

AEM	Agnico Eagle Mines, Owner.
As-built drawing	Document showing no new concept. It is the graphical representation of a built structure showing the real measurements, installed instruments and objects. It is not a final plan and can be seen as an inventory of what was built for reference.
Approval	A written engineering or geotechnical opinion, related to the progress and completion of the Work.
Coarse Filter – Zone 3	Material produced from processing of NAG and PAG rockfill and meeting the Specifications.
Compacted Till – Zone 1	Reworked till satisfying the Specifications. The Specifications refers to compacted till (0-150 mm) and compacted sieved till (0-50 mm).
Contractor	Qamanittuaq SANA. On-site representative of the construction company contracted by the Owner to successfully carry out the scope of work as defined in the Specifications.
Designer	Golder Associés Ltée
Dike	Earthwork made of rockfill and natural soil to retain water and tailings.
Downstream and Upstream	The downstream direction represents the downward direction of water flow in a valley or in the direction of a slope. The definition of upstream is the opposite of downstream. For a dike, the downstream is the direction of flow from the dike and the upstream represents what is retained by the structure.
Field Laboratory	Area and facilities provided for QC and QA testing at Meadowbank.
Fine Filter – Zone 2	Material produced from processing of NAG and PAG rockfill and satisfying the Specifications.
Fine Rockfill	Processed rockfill satisfying the Specifications.
Geotextile	Non-woven geotextile, minimum 500 g/m^2, GSE NW16 or equivalent.
Ice-Poor Soils	Frozen soils that contain less than 10 percent visible ice and having a water content of less than 20%. No visible ice lenses.
Ice-Rich Soils	Frozen soils that contain more than 10 percent visible ice and/or having a water content greater than 20%. Ice lenses may be present.
Liner Installer	ZTG Geosynthetics. Subcontractor under the responsibility of the Contractor and responsible for the installation of geotextile and LLDPE geomembrane.
LLDPE Geomembrane	Linear low density polyethylene geomembrane satisfying the Specifications.
Low Quality Till	Till-like material having relative low permeability.
N-AG / PAG	PAG : A material that has been geochemically classified as being potentially acid generating. NAG : A material that has been geochemically classified as not being acid generating.
Owner	Agnico-Eagle Mines Limited, Meadowbank Division (AEM)

AEM	Agnico Eagle Mines, Owner.
Owner's Representative	Person(s) employed by the Owner in order to oversee the project works and the Owner's interests. The primary point of contact for the Designer and the Contractor.
QA Engineer	Responsible for QA activities.
Quality Assurance (QA)	A planned system of inspection and testing to documents, to the satisfaction of the Owner, the Engineer, other stakeholders and regulators, that the Work comply with the design, Drawings and Specifications. Quality Assurance forms a subset of the Quality Assurance program. Quality Assurance comprises of inspections carried out during Quality Control and includes verifications and, evaluations of materials and workmanship necessary to determine and document the quality of the constructed facility. Quality Assurance refers to the measures taken by the Quality Assurance organization and the Engineer, to assess whether the Contractor is in compliance with the design, Drawings and Specifications.
Quality Control (QC)	A planned system of inspection, testing and documentation carried out by the Contractor during construction to ensure that the Work is being performed and completed in a manner that complies with the Drawings and Specifications. The Contractor is responsible for the Quality Control of all Work performed by him and all Work performed by any Subcontractor under contract with him.
QC Representative	Person or company hired by the Owner and under the supervision of the Owner's Representative to collaborate with the Contractor to ensure QC testing and inspection of all work done by the Contractor.
Rockfill – Zone 4	NAG and PAG rockfill, expected to be run-of-mine material requiring little to no processing and satisfying the Specifications.
Tailings Deposition Fingers	Engineered elements designed by the Owner to facilitate the deposition of tailings from the crest of Central Dike while protecting the structure.
Till	Naturally-occurring well-graded soils consisting of sizes ranging from clay to boulders.
TSF	Tailings Storage Facility
Work	All activities associated with the construction of Central Dike, and Saddle Dams 3, 4 and 5.
Working Platform	Surface of fill and/or excavated surface from which the work is conducted.

1.3 Description of the Built Structures

The South Cell of the Meadowbank TSF consists of four permanent perimeter structures: Central Dike, Saddle Dam 3, Saddle Dam 4 and Saddle Dam 5. Central Dike is located in the southeastern end of the South Cell and adjacent to the western limits of the North Portage Pit. Saddle Dam 3 is located in the northwestern corner of the South Cell and is designed to eventually merge with Saddle Dam 2. Saddle Dam 4 is located in the southwestern corner of the South Cell and is designed to eventually merge with Saddle Dam 5 which merges with the southern end of Central Dike. Figure 1 shows a plan view of the South Cell.

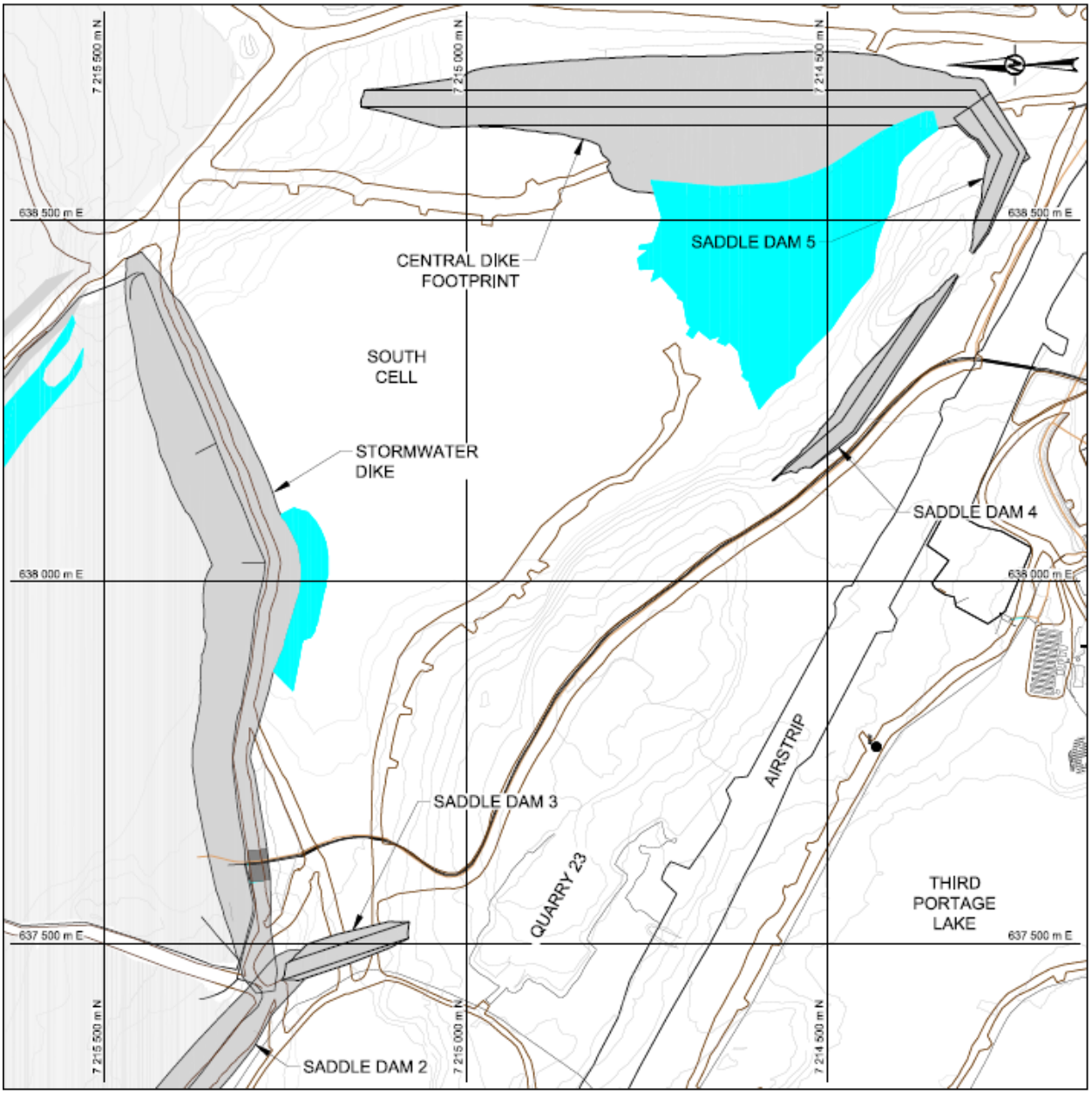


Figure 1: Layout of the South Cell of the Meadowbank Tailings Storage Facility

1.3.1 Stage 5 of Central Dike

Central Dike is designed and constructed as a zoned rockfill dam with filter zones, an impervious upstream liner and a liner tie-in key trench. The central part of the dike was constructed in 2012 and 2013 with a centre-line liner tie-in key trench. In 2013, the design was modified for the south and north abutment to have an upstream toe liner tie-in key trench. The Central Dike cross-section consists of a rockfill embankment constructed from run-of-mine waste rock, placed in lifts and compacted, with the upstream face at a 3H:1V slope from elevation (El.) 110 m to El. 130 m and 2H:1V above El. 130 m. The downstream face is at a 1.5H:1V slope. The upstream face of Central Dike is comprised of two granular filter zones (Zone 2 and 3) and a Linear Low Density Polyethylene (LLDPE) liner

extending along the upstream foundation. The filter zones is the bedding to prevent damage to the liner and act as a filter designed to prevent tailings migration and internal erosion. An upstream till liner tie-in key trench excavated to bedrock and filled with compacted till (Zone 1) is located along the upstream area of the structure. The bulk part of Central Dike consists of coarse rockfill (Zone 4). A cofferdam is included with Central Dike as part of the upstream face.

During stage 5 construction in 2016, Central Dike was raised from a crest El. of 137 m to a crest El. of 143 m (downstream toe ranging from El. 116 m to 143 m approximately). The length of the dike was extended from 788 m to 890 m (Sta.0+100 to 0+990).

1.3.2 Stage 2 of Saddle Dams 3, 4, and 5

Saddle Dams 3, 4, and 5 are designed and constructed as zoned rockfill dams with filter zones, low permeability upstream liners, and upstream toe liner tie-in key trenches. The Saddle Dams 3, 4 and 5 cross-sections consist of a rockfill embankment, constructed from run-of-mine waste rock, placed in lifts and compacted. The upstream face is designed at a 3H:1V slope and the downstream faces are designed at a 1.5H:1V slope. The upstream faces of Saddle Dams 3, 4 and 5 are comprised of two granular filter zones (Zone 2 and 3) and a Linear Low Density Polyethylene (LLDPE) liner extending along the upstream foundation. The filter zones is the bedding to prevent damage to the liner and act as a filter designed to prevent tailings migration and internal erosion. A liner tie-in key trench excavated to bedrock and filled with compacted till (Zone 1) is located along the upstream area of the structures. The bulk part of the Saddle Dams 3, 4 and 5 consist of coarse rockfill material (Zone 4).

During stage 2 construction in 2016, Saddle Dam 3 was raised from a crest El. of 140 m to a crest El. of 143 m (downstream toe ranging from El. 134 m to El. 142 m approximately). The length of the dike was extended from 160 m to 200 m (from Sta. 20+590 to 20+790).

During stage 2 construction in 2016, Saddle Dam 4 was raised from a crest El. of 140 m to a crest El. of 143 m (downstream toe ranging from El. 137 m to El. 142 m approximately). The length of the dike was extended from 260 m to 310 m (from Sta. 40+100 to 40+410)

During stage 2 construction in 2016, Saddle Dam 5 was raised from a crest El. of 137 m to a crest El. of 143 m (downstream toe ranging from El. 134 m to El. 140 m approximately). The length of the dike was extended from 42 m to 185 m (from Sta. 40+620 to 40+805).

1.4 Technical Specifications and Construction Drawings

The Construction Drawings and Technical Specifications (Specifications) of Central Dike were developed by Golder in 2012 prior to the beginning of construction. In 2013, a change in design was made to modify the original central underneath liner tie-in key trench to an upstream liner tie-in key trench.

The Construction Drawings and Specifications for Saddle Dams 3, 4, and 5 were developed by Golder prior to the start of the 2015 construction season.

Tables 3, 4, 5 and 6 below present the available versions of the Design Reports, Specifications and Drawings in chronological order.

Table 3: List of Design Reports for Central Dike and Saddle Dams 3, 4, and 5

Document Number	Date	Rev	Title
Doc 1349 11-1221-0035	06/11/2012	1	Detailed design report for Central Dike
Doc 1504 1416081	05/12/2015	0	Detailed design report for Saddle Dams 3, 4 and 5

Table 4: List of Technical Specifications for Central Dike and Saddle Dams 3, 4, and 5

Document Number	Date	Rev	Title
Doc. 1327 11-1221-0035	07/03/2012	0	Meadowbank Gold Project Central Dike Construction Technical Specifications
Doc. 1498 14-16081	04/30/2015	0	Meadowbank Gold Project Saddle Dams 3, 4 and 5 Construction Technical Specifications

Table 5: List of Construction Drawings for Central Dike

Drawing Number	Date	Rev	Title
CD-01	03/07/2012	0	CENTRAL DIKE LOCATION MAP AND DRAWING INDEX
CD-02	03/07/2012	0	CENTRAL DIKE PROJECT SITE PLAN
CD-03	03/07/2012	0	CENTRAL DIKE GENERAL LAYOUT PLAN OF THE TSF
CD-04	03/07/2012	0	CENTRAL DIKE GENERAL ARRANGEMENT PLAN
CD-05	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+000 TO 0+400
CD-06	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+400 TO 0+800
CD-07	03/07/2012	0	CENTRAL DIKE PLAN, PROFILE AND QUANTITIES STA 0+800 TO 1+135
CD-08	03/07/2012	0	CENTRAL DIKE TYPICAL SECTION – WITH COFFERDAM
CD-09	03/07/2012	0	CENTRAL DIKE TYPICAL SECTION – ABUTMENT PORTIONS
CD-10	03/07/2012	0	CENTRAL DIKE TYPICAL DETAILS – SHEET 1 OF 2
CD-11	03/07/2012	0	CENTRAL DIKE TYPICAL DETAILS – SHEET 2 OF 2
CD-12	03/07/2012	0	CENTRAL DIKE AND SADDLE DAM 5 CONNECTION DETAILS
CD-13	03/07/2012	0	CENTRAL DIKE TAILINGS MIGRATION CONTINGENCY PLAN
CD-14	03/07/2012	0	CENTRAL DIKE CONSTRUCTION SEQUENCE

CD-15	03/07/2012	0	CENTRAL DIKE CROSS-SECTIONS
CD-16	03/07/2012	0	CENTRAL DIKE INSTRUMENTATION PLAN AND SECTION
CD-01	07/12/2013	1	CENTRAL DIKE LOCATION MAP AND DRAWING INDEX
CD-04	07/12/2013	1	CENTRAL DIKE GENERAL ARRANGEMENT PLAN
CD-08	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – WITH COFFERDAM
CD-09	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – NORTH ABUTMENT PORTIONS
CD-09A	07/12/2013	1	CENTRAL DIKE TYPICAL SECTION – SOUTH ABUTMENT PORTIONS
CD-12	07/12/2013	1	CENTRAL DIKE KEY TRENCH TO UPSTREAM LINER TIE-IN TRANSITION DETAILS – SHEET 1 OF 2
CD-12A	07/12/2013	1	CENTRAL DIKE KEY TRENCH TO UPSTREAM LINER TIE-IN TRANSITION DETAILS – SHEET 2 OF 2

Table 6: List of Construction Drawings for Saddle Dams 3, 4, and 5

Drawing Number	Date	Rev	Title
SD 3,4&5-01	04/30/2015	0	LOCATION MAP AND DRAWING INDEX
SD 3,4&5-02	04/30/2015	0	PROJECT SITE PLAN
SD 3,4&5-03	04/30/2015	0	GENERAL ARRANGEMENT PLAN
SD 3,4&5-04	04/30/2015	0	SADDLE DAM 3 PLAN, PROFILE AND QUANTITIES
SD 3,4&5-05	04/30/2015	0	SADDLE DAM 4 PLAN, PROFILE AND QUANTITIES
SD 3,4&5-06	04/30/2015	0	SADDLE DAM 5 PLAN, PROFILE AND QUANTITIES
SD 3,4&5-07	04/30/2015	0	TYPICAL CROSS-SECTION AND DETAILS
SD 3,4&5-08	04/30/2015	0	STAGED CONSTRUCTION SEQUENCE
SD 3,4&5-09	04/30/2015	0	SADDLE DAM 3 CROSS-SECTIONS
SD 3,4&5-10	04/30/2015	0	SADDLE DAM 4 CROSS-SECTIONS
SD 3,4&5-11	04/30/2015	0	SADDLE DAM 5 CROSS-SECTIONS
SD 3,4&5-12	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 3
SD 3,4&5-13	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 4
SD 3,4&5-14	04/30/2015	0	INSTRUMENTATION PLAN AND SECTION – SADDLE DAM 5
SD 3,4&5-15	04/30/2015	0	SUMP LOCATIONS AND DETAILS

1.5 As-built Drawings

Table 7 presents the as-built drawings for the 2016 construction season of the TSF South Cell. The surveying and the as-built drawings were done by AEM and verified by Golder. The as-built drawings for the 2016 construction of the South Cell are included in Appendix A.

Table 7: List of As-Built Drawings for Stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4, and 5

Drawing Title	Date	Rev	Structure
CENTRAL DIKE-SADDLE DAM 5 PROGRESS	09/11/2016	0	CENTRAL DIKE – SADDLE DAM 5 (1/6)
AS BUILT CENTRAL DIKE 2016 SECTION VIEW (0+175 AND 0+380)	09/12/2016	0	CENTRAL DIKE – SADDLE DAM 5 (2/6)
AS BUILT CENTRAL DIKE 2016 SECTION VIEW (0+400 AND 0+545)	09/12/2016	0	CENTRAL DIKE – SADDLE DAM 5 (3/6)
AS BUILT CENTRAL DIKE 2016 SECTION VIEW (0+580 AND 0+750)	09/27/2016	0	CENTRAL DIKE – SADDLE DAM 5 (4/6)
AS BUILT CENTRAL DIKE 2016 SECTION VIEW (0+900 and 0+950)	09/27/2016	0	CENTRAL DIKE – SADDLE DAM 5 (5/6)
AS BUILT SADDLE DAM 5 2016 SECTION VIEW (40+650 AND 40+725)	09/27/2016	0	CENTRAL DIKE – SADDLE DAM 5 (6/6)
SADDLE DAM 3 AS BUILT 2016 PLAN VIEW	09/11/2016	0	SADDLE DAM 3 (1/6)
SD3 AS BUILT 2016 SECTION VIEW 20+600	09/11/2016	0	SADDLE DAM 3 (2/6)
SD3 AS BUILT 2016 SECTION VIEW 20+620	09/11/2016	0	SADDLE DAM 3 (3/6)
SD3 AS BUILT 2016 SECTION VIEW 20+630	09/11/2016	0	SADDLE DAM 3 (4/6)
SD3 AS BUILT 2016 SECTION VIEW 20+700	09/11/2016	0	SADDLE DAM 3 (5/6)
SD3 AS BUILT 2016 SECTION VIEW 20+760	09/11/2016	0	SADDLE DAM 3 (6/6)
SADDLE DAM 4 AS BUILT 2016 PLAN VIEW	09/12/2016	0	SADDLE DAM 4 (1/7)
SD4 AS BUILT 2016 SECTION VIEW 40+160	09/12/2016	0	SADDLE DAM 4 (2/7)
SD4 AS BUILT 2016 SECTION VIEW 40+200	09/12/2016	0	SADDLE DAM 4 (3/7)
SD4 AS BUILT 2016 SECTION VIEW 40+280	09/12/2016	0	SADDLE DAM 4 (4/7)
SD4 AS BUILT 2016 SECTION VIEW 40+360	09/12/2016	0	SADDLE DAM 4 (5/7)
SD4 AS BUILT 2016 SECTION VIEW 40+380	09/12/2016	0	SADDLE DAM 4 (6/7)
SD4 AS BUILT 2016 SECTION VIEW 40+420	09/12/2016	0	SADDLE DAM 4 (7/7)

1.6 Technical Memoranda – Design Changes

Design changes and field adjustments have occurred during the 2016 construction season to adapt the initial design to the field conditions encountered during construction. These design changes and adjustments were implemented by the designer (Golder) in partnership with AEM and were documented in Technical Memoranda. Relevant design changes memoranda from past construction years were applied to the 2016 construction season. Table 8 and Table 9 list the Technical Memoranda that discuss field adaptation or modification from the initial Technical Specifications and Drawings relevant to the 2016 Construction Season listed in chronological order. The technical memoranda issued during the 2016 construction season can be found in Appendix B. For the other design change technical memoranda, refer to past as-built reports.

Table 8: List of Design Change Memoranda Relevant to the 2016 Construction Season of Central Dike

Doc Number	Date	Rev	Title
Doc 1102 120528	05/16/2012	0	Material placement over LLDPE geomembrane, Central Dike.
Doc 1103 120528	05/28/2012	0	Placement of fill material over LLDPE geomembrane and underlying geotextile, Central Dike.
Doc 1363 11-1221-0035	06/18/2012	0	Response to the contractor proposed work for placement of fill material over LLDPE geomembrane, Central Dike.
Doc 1385	09/18/2012	0	Central Dike – non-acid generating cover for dike closure.
Doc 1453 1312210034	04/24/2014	0	2013 Central Dike design changes.
Doc 1466 1403762	06/01/2014	0	Central Dike inverse filter details for an upstream toe liner tie-in.
Doc 1469 1403762	06/06/2014	0	Central Dike design changes in the fine filter sample frequency.
Doc 1143 1403762	06/08/2014	0	Site instruction for the use of a CAT 307 excavator for placement of material over LLDPE geomembrane, Central Dike.
Doc 1470 1403762	06/09/2014	0	Central Dike design changes, geomembrane protection cover.
Doc 1471 1403762	06/17/2014	0	Central Dike south abutment key trench and transition to the upstream toe liner tie-in details between Sta. 0+800 and 0+850.
Doc 1472 1403762	06/19/2014	0	Summary of placement of fill material.
Doc 1479 1403762	08/11/2014	0	Central Dike rockfill quality recommendations.
Doc1518 1528661	07/24/2015	0	Recommendations on the use of ultramafic rockfill on Central Dike above El. 133 m.
Doc 1544 1656047	08/01/2016	0	Presentation of a new particle size envelope for the sieved compacted till.
Doc 1545 1606047	10/17/2016	0	Technical update about the placement of good quality NAG rockfill on Central Dike.

Table 9: List of Design Change Memoranda Relevant to the 2016 Construction Season of Saddle Dam 3, 4 and 5

Doc Number	Date	Rev	Title
Doc 1514 1528661	09/09/2015	0	Saddle Dam 3, 4, 5 Design changes for upstream toe liner tie-in in backfill.
Doc 1515 1528661	09/10/2015	0	Saddle Dam 3 construction over faulted zone.
Doc 1548	01/19/2017	0	Technical updates about the configuration of the upstream toe liner tie-in on the north side of Saddle Dam 3.

2.0 SUMMARY OF TECHNICAL SPECIFICATIONS REQUIREMENTS

The Specifications and Requirements for the main work activities for Central Dike and the Saddle Dams are summarized below.

2.1 Excavation and Foundation Preparation

The technical requirements for the foundation preparation of Central Dike and the Saddle Dams include:

- Stripping of the footprints to provide suitable surface for rockfill and granular fill placement, including removal of boulders, organic soils, soft soils and ice-rich soils, including blasting.
- Preparation of foundation surfaces for LLDPE geomembrane installation, where applicable.
- Excavation of upstream toe liner tie-in.

Stripping and excavation must be carried out in accordance with their respective Drawings and Specifications, using the necessary water control measures required for safe and effective operation.

Temporary drainage and pumping systems must be provided, operated and maintained as required to direct water away from the surface excavation areas and the toe of the dikes during construction.

Foundation approval must be completed and documented before placing granular material above the foundation.

2.2 Fills Materials and Placement

Central Dike and the Saddle Dams are made of six different zones of fill materials. The general technical Specifications for each fill material zone are described below. The material gradation limits are summarized in Table 10.

Table 10: Material Gradation Limits

Grain Size (mm)	Percent Passing by Mass (%)			
	Compacted Till (Zone 1)	Compacted Sieved Till (Zone 1)	Fine Filter (Zone 2)	Coarse Filter (Zone 3)
200	-	-	-	100
152.4	100	-	-	86-100
50	-	100	-	-
76.2	90-100	-	-	35-100
25.4	75-91	85-100	-	5-40
20	-	-	100	-
12.7	65-84	75-94	50-100	0-18
4.76	53-73	63-83	23-68	0-9
2	-	-	-	0-5
0.425	33-48	43-58	0-20	-
0.075	20-35	30-45	0-15	-

2.2.1 Zone 1 - Compacted Till and Compacted Sieved Till (Zone 1)

Compacted till must be an unfrozen mix of silty sand and gravel with a maximum particle size of 150 mm. Compacted sieved till is a material specified to be placed within 0.5 m of the LLDPE geomembrane for its protection. This material has a maximum particle size of 50 mm. Compacted till and compacted sieved till must be well-graded, plastic and have a certain fine content (percent of material by mass passing No. 200 sieve). This material must be free of organic material, debris, cinders, ash, refuse, snow, ice and other deleterious materials subject to approval of the Owner's Representative.

The maximum loose horizontal lift thickness of compacted till is 0.5 m. The placement water content of the compacted till must be at 0% to 3% above the optimum water content (ASTM D698). Compaction must be carried out using a 10-T smooth drum compactor. The use, or non-use, of vibration during compaction will be based on the results of field trials. Placement and compaction of the compacted till must result in a homogeneous low hydraulic conductivity zone. The density of the compacted till material is expected to be about 95 % of standard Proctor maximum density (ASTM D698).

Compacted sieved till placed over and within 0.5 m of the LLDPE geomembrane shall:

- Be placed in loose lifts having a thickness of 0.5 m using an excavator with a maximum mass of 20 T. Direct dumping of compacted till onto the LLDPE geomembrane is not allowed.
- Be compacted with a single pass of the track of an excavator having a maximum mass of 20 T and not using a roller compactor.
- Not be trafficked by any light, heavy, or haulage equipment other than that above.
- Be to the satisfaction of the Owner's Representative.

2.2.2 Zone 1A – Low Quality Till

Low quality till is constituted of unfrozen silty sand and gravel. The material must be well-graded and have a gradation ranging between 0 and 500 mm. Low quality till must be free of boulders, organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious materials. This material is part of the Saddle Dam 3, 4 and 5 design but not of the Central Dike design.

The maximum loose lift thickness for the low quality till shall be 1.0 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid the compaction. Compaction of low quality till shall be carried out using a 10-T smooth drum roller vibratory compactor with a minimum of 4 passes parallel to the axis of the Saddle Dams and to the satisfaction of the Owner's Representative.

2.2.3 Zone 2 – Fine Filter

Fine filter is made of crushed N-AG or PAG rockfill processed to satisfy the gradation limits. Fine filter shall be free of organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious material subject to the satisfaction of the Owner's Representative.

The maximum loose lift thickness of fine filter is 0.5 m. Compaction of fine filter must be carried out using a 10-T smooth drum vibratory roller compactor with a minimum of 4 passes parallel to the axis of the structure.

2.2.4 Zone 3 – Coarse Filter

Coarse filter is made of crushed N-AG or PAG rockfill processed to satisfy the gradation limits. Coarse filters shall be free of organic material, debris, cinders, ash, refuse, snow, ice, and other deleterious material.

The maximum loose lift thickness of the coarse filter is 0.5 m. Coarse filter shall be placed and compacted to avoid disturbing the underlying materials. Compaction of the coarse filter shall be carried out using a 10-T smooth drum vibratory roller compactor with a minimum of 4 passes parallel to the axis of the structure and to the satisfaction of the Owner's Representative.

2.2.5 Zone 4A/4B – Coarse Rockfill

Coarse rockfill must be made of sound, hard, durable, well-graded rock fragments free from ice, frozen chunks, organic matter, debris and other deleterious materials. Coarse rockfill must have a maximum particle size of 1.3 m. All rockfill shall be geochemically classified by the Owner prior to placement.

Coarse rockfill classified Zone 4A must be comprised of N-AG or PAG rockfill material. Coarse rockfill classified Zone 4B must be comprised of N-AG rockfill material only and be placed in the zones shown on the drawings and areas prioritized by the Owner's Representative. N-AG rockfill may be used instead of PAG rockfill but only at the direction of the Owner's Representative.

The maximum loose lift thickness for coarse rockfill is 2 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid in compaction. Coarse rockfill shall be placed and compacted to avoid disturbance of the underlying materials. Compaction of coarse rockfill shall be carried out using a fully-loaded haul truck with a minimum of 4 passes parallel to the axis of the structure. Alternatively, a 10-T smooth drum roller vibratory compactor with a minimum of 6 passes parallel to the axis of the structure can be used. Compaction shall be to the satisfaction of the Owner's Representative.

2.2.6 Zone 5 – Fine Rockfill

Fine rockfill is made of sound, hard, durable, well-graded rock fragments free from ice, frozen chunks, organic matter, debris and other deleterious materials. Fine rockfill must be well graded and have a gradation ranging between 0 and 300 mm. N-AG and PAG rockfill may be used for the fine rockfill at the direction of the Owner's Representative.

The maximum loose lift thickness for fine rockfill is 0.5 m. Placement equipment shall traffic the material uniformly parallel and perpendicular to the lift front advancement to aid in compaction. Compaction of fine rockfill shall be carried out using a 10-T smooth drum roller vibratory compactor with a minimum of 4 passes parallel to the axis of the structure and to the satisfaction of the Owner's Representative.

2.3 Liner Tie-In Key Trench

The Specifications for the construction of the liner tie-in key trench of Central Dike and the Saddle Dams include the following activities:

- Excavation of the liner tie-in key trench that may involve blasting and the use of a hydraulic hammer.
- Preparation of the bedrock surface at the base of the liner tie-in key trench. This include removal of soft material and ponding water, bedrock mapping and the filling of exposed bedrock discontinuities. The filling of

bedrock discontinuities for piping and erosion protection is done by the application of slush grout for Central Dike or a fine filter and bentonite mix for Saddle Dams 3,4 and 5.

- Preparation of liner tie-in key trench surfaces for LLDPE geomembrane placement.
- Backfilling of the liner tie-in key trench with compacted till and erosion protection cover.

2.4 Geosynthetics

The Central Dike and Saddle Dams Specifications define the technical requirements for installation of the non-woven geotextile (minimum mass per unit area of 500 g/m^2). The work covered by the Specifications includes the purchase, fabrication (if needed), supply, transport, storage, testing and installation of the geotextile.

The LLDPE geomembrane placed on the upstream face and within the tie-in key trench must be a micro spike geomembrane (1.5 mm-thick, textured on both sides) or an approved equivalent. The work covered by the Specifications includes the purchase, supply, transport, storage, installation, and testing of the LLDPE geomembrane.

3.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND SCHEDULE

This section describes the construction steps performed during the 2016 construction season to build Central Dike and Saddle Dams 3, 4 and 5. This section also includes the schedule for the work done on each structure.

3.1 Central Dike Stage – Schedule and Construction Steps

The construction of stage 5 of Central Dike was done from May 18, 2016 to September 27, 2016 and comprised the following major work items:

- Drilling and blasting on the north abutment;
- Site preparation (including water management, access roads and removal of the tailings pipe on the crest);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (widening of rockfill downstream slope, rockfill, and upstream filter placement);
- Inverse filter material placement and compaction on north abutment foundation;
- Bedrock cleaning, mapping and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation;
- Placement and compaction of erosion protection cover of the upstream toe liner tie-in; and
- Raise of the tailings deposition fingers to El. 143 m.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C1.

Table 11 presents the construction schedule for the main work items for the construction of Central Dike stage 5.

Table 11: Schedule for the Construction Activity for Stage 5 of Central Dike

Activity	Beginning	End
Drilling and blasting on the north abutment	May 18, 2016	June 7, 2016
Foundation preparation and approval	May 30, 2016	July 12, 2016
Widening of the rockfill downstream to El. 137 m and profiling of the downstream slope (1.5H:1V)	June 4, 2016	July 2, 2016
Inverse filter placement and compaction on the north abutment	July 4, 2016	July 6, 2016
Removal of tailings deposition pipe on the crest of Central Dike	July 7, 2016	July 7, 2016
Placement, compaction and profiling of rockfill on the crest from El. 137 m to El. 143 m (1.5:H d/s, 2H:1V u/s)	July 3, 2016	August 11, 2016
Placement, compaction and profiling of filter material on the upstream 2H:1V slope from El. 137 m to El. 143 m	July 16, 2016	August 10, 2016
Bedrock cleaning and mapping within the upstream toe liner tie-in	August 7, 2016	August 15, 2016
Slush grouting and placement of compacted till in the upstream toe liner tie-in as the geosynthetics foundation	August 16, 2016	August 17, 2016
Final profiling of the 2H:1V upstream slope before geosynthetics installation	August 17, 2016	August 18, 2016
Geosynthetics installation on the upstream 2H:1V slope	August 27, 2016	September 8, 2016
Placement and compaction of compacted till layers and erosion protection material over the geosynthetics in the upstream toe liner tie-in of the north abutment (compacted till, fine filter, coarse filter, fine rockfill)	September 6, 2016	September 11, 2016
Raise or construction of the tailings deposition finger from El. 137 m to El. 143 m	September 11, 2016	September 27, 2016

3.1.1 Drilling and Blasting

Drilling and blasting was required to break the frozen foundation soil so that a suitable foundation could be prepared for Central Dike Stage 5 construction. AEM took care of the drilling, holes staking and blasting operation.

Three blasts were done at Central Dike during the 2016 construction season for the extension of the north abutment of the structure for a dike footprint at El. 143 m. Each blast was monitored by AEM for blast vibration with the measurement station installed on Central Dike. The purpose of the monitoring was to ensure that the peak particle velocity (PPV) did not exceed 50 mm/s. The first blast occurred on May 30 (4.08 mm/s), the second blast occurred on June 5 (3.81 mm/s) and the third blast occurred on June 7 (2.35 mm/s).

The drilling was performed with a Tamrock. The blast patterns were designed by AEM with a hole diameter of 3”, a spacing of 1.75 m by 1.75 m and a depth of 3 m. The objective of the blast pattern was to obtain a smooth and regular floor once it was mucked. This objective was met and the blasts yielded good results.

3.1.2 Site Preparation

Temporary accesses for material hauling were constructed for the Stage 5 construction of Central Dike. The location of the permanent access was also modified during the construction season to connect to a crest at El. 143 m. The access roads were made of rockfill. Generally they were built within the final dike footprint and the foundation underneath the access roads within the dike footprint was inspected and approved. The rockfill was then placed as per the Specifications. A portion of the southern access was built on unapproved foundation inside the final dike footprint but outside of the built dike footprint.

The tailings pipe was removed from the crest of the dike and relocated to the south abutment from July to September 2016. The material placed for the tailings deposition fingers was also removed from the crest and the edge of the upstream slope to expose the liner and allow the raise of the upstream filter in these areas. The majority of the tailings deposition fingers was removed with an excavator and the remaining material was cleaned by laborers to avoid damaging the LLDPE geomembrane.

3.1.3 Foundation Preparation

Foundation preparation was done on the north abutment for the extension of the structure for a dike footprint going from El. 137 m to El 143 m (including the rockfill embankment and the upstream toe liner tie-in area). Foundation preparation was also done on the downstream side to widen the rockfill footprint by 15 m toward the downstream side, corresponding to a downstream dike footprint at El. 145 m. The foundation preparation on the downstream side was done for a higher dike footprint than the stage 5 crest elevation as the downstream rockfill slope needed to be widened to a minimum of 15 m for haul truck access.

The foundation preparation consisted of the removal of the foundation soil to the bedrock surface below El. 130 m. Above El. 130 m, the foundation preparation consisted of the removal of unsuitable material such as soft sediment, ice rich soil, large boulder and poor quality till until ice poor competent till was reached. When an access road was constructed over a non-approved foundation, the existing access road was removed in order to prepare the foundation before placing additional rockfill. The material was excavated by excavator (Komatsu 1250 or CAT 345) and then loaded into 50-T haul trucks (CAT 773). The unsuitable material was hauled to the waste dump while potentially reusable material was hauled and stockpiled on the north of Central Dike and at the snow dump also located north of Central Dike.

Before the placement of fill materials over the dike foundation, the foundation surface was inspected and then accepted by the Owner's Representative, the QC Representative and the QA Engineer. The parties verified that the foundation to be approved was competent, dry and free of contamination or ice. The approved foundation area was then surveyed by SANA and AEM surveyors. The foundation preparation approval process before the placement of fill materials was performed 10 times during the construction of Central Dike stage 5. A foundation approval form was filled out each time. Refers to Appendix G for the completed foundation approval forms.

The foundation on the downstream side of Central Dike was submerged by the Central Dike downstream pond to El. 115 m (from Sta. 0+440 to 0+830 approximately). While the majority of the submerged area had been prepared in the past and covered by rockfill and inverse filters, a small zone had not been prepared. The ice was removed from the pond within the dike footprint at the beginning of the 2016 construction season using a Komatsu 1250 excavator. Afterwards, the submerged till was scraped until refusal. The material was frozen under the water line and some soft material was removed. In the western portion, filter materials were immediately encountered. In the eastern portion, soft materials (lake bed sediments and till) were removed from the bottom of the pond until

competent till was found in the excavator bucket. This work was done on June 8 and 9, 2016 under the constant supervision of the Owner's Representative as the QA Engineer was not present on site yet.

A small fault characterized by a fault infill composed of crushed rocks, gouge and till-like material was found at Sta. 0+175 during foundation approval FND-CD-132. The fault width was approximately 1 m and it was surrounded on both sides by good quality bedrock. The foundation was accepted due to the limited width of the fault. No visible ice lenses were observed and the sample taken within the fault infill indicated that it was an ice-poor material.

There were 24,592 m^3 of material excavated during the foundation preparation of Central Dike Stage 5.

3.1.4 Placement of Rockfill for Embankment Raise to El. 143 m

At the beginning of Stage 5 construction, the rockfill slope was widened on the downstream side by placing a 15 m wide lift of rockfill up to Stage 4 crest elevation (El. 137 m). This width of rockfill corresponded to a dike footprint for a crest at El. 145 m. During this operation, some areas of the foundation on the downstream side of Central Dike were submerged by the water of the downstream pond up to El. 115 m. While placing rockfill in the area submerged by water, the ice was first removed with an excavator and the rockfill was then placed in the water by a dozer and an excavator. The bucket of the excavator was used to compact the rockfill placed in the water. This operation was done before the QA Engineer arrived on site and was supervised entirely by the Owner Representative.

While widening the rockfill downstream slope, the former downstream slope was pushed back with an excavator or the dozer blade to provide a better contact with the newly placed material. This technique was used to prevent placement of rockfill against a continuous weak layer.

Once the rockfill lift on the downstream side reached the Stage 4 crest elevation (El. 137 m), the rockfill embankment was raised up to the Stage 5 final crest elevation (El. 143 m).

Each lift of rockfill had a maximum thickness of 2 m and was placed by a dozer (D8). To avoid segregation, the rockfill was dumped on a flat surface and then pushed on the slope. Each lift was compacted with 8 passes of a 10-T smooth-drum vibratory roller compactor. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 2H:1V slope.

Three types of rocks were used for the raise of Central Dike, i.e., 1) good quality potentially acid-generating (PAG) rockfill; 2) good quality non-acid generating (N-AG) rockfill; and, 3) ultramafic rockfill (UM). The UM rockfill is a N-AG material and was initially not supposed to be used for the construction of Central Dike Stage 5, as it is considered to be a heterogeneous material whose quality is variable and hard to control. The design was modified during Stage 5 construction to allow the use of some UM on Central Dike from El. 137 m to El. 143 m. Section 5.2 describes this design change. Good quality N-AG rockfill was placed for the downstream extension of the dike above the expected water level at closure (El. 132 m) while the UM rockfill was confined inside the structure from El. 137 to El. 143 m. PAG rockfill was used on the upstream side from El. 137 m to El. 143 m, on the downstream side below the elevation to be submerged by water and in the center of the lift at El. 137 m.

Special attention was taken during the placement of UM rockfill to observe whether the material was competent and was not predominantly formed of fine particles and rock powder. The UM rockfill was heterogeneous with some loads containing lots of fine particles but was generally well graded. Each lift of UM rockfill was scarified with

a loader before the placement of the next lift to have a better contact between each layer, as it was observed that the UM rockfill surface became deteriorated when trafficked by haul trucks.

A total of 324,900 m^3 of rockfill of the three different types were placed on Central Dike during Stage 5 construction.

3.1.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed over the approved foundation of the northern abutment. It consisted of a 0.5 m-thick lift of fine filter covered by a 0.5 m thick lift of coarse filter. Bedrock depressions were filled with fine filter and stamped in place with the excavator bucket. The inverse filters were extended further than the limit for a dike footprint at El. 143 m and ended in steps. The width of the inverse filter placement was done for a crest at a final elevation at El. 150 m. Well graded aggregates made of sound good quality material were used on Central Dike. The material was placed by an excavator in a way to prevent segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth-drum compactor in vibratory mode and the material was wetted to promote compaction.

During material placement on the 2H:1V upstream slope, fine and coarse filters were placed with the bucket of the excavator in 0.5 m thick horizontal lifts compacted against the rockfill. Coarse material was placed first and raised against the rockfill and then the fine filter material was placed. A maximum height difference of 2 m was maintained between the rockfill and the upstream filter, and the sequence continued as rockfill was placed higher on the slope. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m.

After the placement of each 0.5 m lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a smooth-drum compactor in vibratory mode. When the elevation of the upstream filter reached the rockfill elevation, and before further raising of the rockfill, the slope of the fine filter was profiled with the bucket of an excavator to obtain a continuous 2H:1V upstream slope.

There were 12,106 m^3 of coarse filter and 12,478 m^3 of fine filter placed on Central Dike during the Stage 5 construction.

3.1.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in on the north abutment was marked in the field and excavated to bedrock. The upstream edge of the toe liner tie-in was built against an in-situ slope of native material and not a pile of loosely placed material. An excavator was used to remove the boulders from the in-situ material to ensure it was composed of natural soil.

Once the first 5-m wide strip of key trench was cleaned out to good quality bedrock, the bedrock was cleaned using an excavator, handwork and compressed air. The objective of the bedrock cleaning was to expose the bedrock discontinuities and to clean the residual soils. Following the bedrock cleaning, the QA Engineer performed bedrock mapping over the whole area in segments of 10 m. After the bedrock mapping, a foundation approval was completed for the upstream toe liner tie-in area. Refers to Appendix G for the completed foundation approval forms.

Slush grouting was performed on the totality of the cleaned and mapped 5-m wide strip of the upstream toe liner tie-in. The slush grout recipe by volume consisted of a mix of 1 to 1-1/3 cement, 2 portions of sand and 2 portions of water. This mix was used in the previous construction season and led to satisfactory results. The slush grout was applied with brooms to fill all the surfaces and discontinuities within the upstream toe liner tie-in. The grout

was quickly covered by a thin lift of compacted sieved till to fill local bedrock depressions. This approach allowed a better contact between these two materials before the grout dried. This thin lift was compacted with the bucket of the excavator. The CAT 307 excavator was used for this operation.

A 0.5-m thick lift of compacted sieved till (0-50 mm) was then applied on the slush grouted area and over the in-situ material beyond the upstream toe liner tie-in. The compacted sieved till was well graded and unloaded from the haul truck into metal boxes to avoid contamination. The compaction and water content of the placed material was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.1.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter and part of the sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by the subcontractor, ZTG. No geosynthetics were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a smooth fine filter surface that was covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed out by an excavator with a roller attachment without using vibration. Surfaces made of fine filters on the upstream slope and sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative and the QA Engineer. It was verified that the surfaces were smooth, dry and would not damage the geosynthetics. The fine filter lying over the geomembrane placed during the previous construction season near the base of the upstream toe liner tie-in was cleaned up in some areas. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. Refers to Appendix G for the completed approval forms.

The geotextile and the LLDPE geomembrane were buried in a 0.5- m deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics, once all QC tests passed. The geotextile was not placed farther than 0.5 m horizontally within the upstream toe liner tie-in, while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment using a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches) the geotextiles were bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

Per Specifications, no horizontal weld was allowed on geomembrane placed on slopes with more than a 5% incline, except on small localized patches to repair defects. The decision was taken by the Owner's Representative to carry out six horizontal seams on the upstream 2H:1V slope to optimize the quantity of LLDPE available on site during the 2016 construction season. These seams were spread far apart and were never at the same elevation. They were located approximately at Sta.0+380, 0+440, 0+490, 0+560, 0+795 and 0+850. Refer to Section 5.1 for further discussions on this field adjustment.

After its installation, the LLDPE geomembrane surface was visually inspected and approved by the Owner's Representative and the QA Engineer. Three geosynthetics approval forms were completed after the installation of the LLDPE geomembrane. Refers to Appendix G for the completed approval forms.

A total of 14,436 m^2 of geotextile and 14,508 m^2 of LLDPE geomembrane were installed for the Central Dike Stage 5 construction.

3.1.8 Protection Cover of the Upstream Toe Liner Tie-In

Once the geosynthetics installation was completed, three 0.5-m thick lifts of compacted till were placed over the upstream toe liner tie-in with the excavator (for a total of 2 m of till including the 0.5-m base bedding under the LLDPE geomembrane). Before the placement of compacted till over the geomembrane, the bituminous geomembrane placed in 2015 to protect the northern extremity of the upstream toe liner tie-in was removed. The material covered by the bituminous geomembrane was scarified with the excavator before placing new material above it.

The first lift of compacted till in direct contact with the geomembrane was made of compacted sieved till (0-50 mm) and was only compacted with the excavator bucket. The compacted sieved till was dumped from the haul truck into a metal box to prevent it from being contaminated. Only the CAT 307 was allowed to traffic over the geomembrane if there was at least 1 m of material over it. The second and the third lift above the geomembrane were made of compacted till (0-150 mm) and were compacted with the 10-T smooth drum compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative and met the Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to traffic over the compacted till material.

A 2 -m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in with the CAT 345 excavator. The erosion protection cover consisted of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill. The fine filter and coarse filter lift were made of UM rockfill and were placed with an excavator and compacted with 4 passes of a 10-T smooth-drum compactor in vibratory mode. A geotextile was placed above the LLDPE geomembrane which was covered by fine filter. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was compacted with 8 passes of the 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed at safe distance from the upstream slope LLDPE to avoid damaging it.

There were 1,670 m^3 of compacted till and 353 m^3 of compacted sieved till placed on Central Dike during Stage 5 construction.

3.1.9 Raise of the Tailings Deposition Fingers

The tailings deposition fingers on the upstream face of Central Dike were raised from El. 137 m to El. 143 m. The QA Engineer and the QC Representative had left the site at the time of this activity and this operation was entirely supervised by the Owner's Representative. A geotextile was placed above the geomembrane followed by 1 m of fine filter to raise the fingers in a 1-m lifts. This operation was done with the CAT 307 which was only allowed on top of the geomembrane if there was at least 1 m of material above it. The fine filter that fell on the geomembrane during fine filter placement was removed by laborers. The last metre of the fine filter was compacted and profiled with the CAT 307. A bituminous geomembrane was then placed on top of the fine filter to protect the tailings

deposition fingers from erosion. An additional layer of bituminous geomembrane was added directly where tailings are to be deposited.

3.2 Saddle Dam 3 – Schedule and Construction Steps

The construction of Stage 2 of Saddle Dam 3 was done from June 30, 2016 to September 6, 2016 and comprised the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);
- Inverse filter material placement and compaction on north and south abutments foundation;
- Bedrock cleaning, mapping and slush grout within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation; and
- Placement and compaction of the protection cover over the geosynthetics in the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C2.

Table 12 presents the construction schedule for the main work items for the construction of Stage 2 of Saddle Dam 3.

Table 12: Schedule for the Construction Activity for Stage 2 of Saddle Dam 3

Activity	Beginning	End
Foundation preparation and approval	June 30, 2016	August 3, 2016
Construction of new access road	July 9, 2016	July 10, 2016
Inverse filter placement and compaction on the foundation of the north and south abutment	July 26, 2016	August 6, 2016
Placement, compaction and profiling of rockfill to El. 143 m (slope of 1.5:H d/s, 3 H:1V u/s)	July 27, 2016	August 6, 2016
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 143 m	August 1, 2016	August 6, 2016
Bedrock cleaning and mapping within the upstream toe liner tie-in	August 5, 2016	August 13, 2016
Slush grouting of the major discontinuities and placement of compacted sieved till in the upstream toe liner tie-in as the geosynthetics foundation	August 13, 2016	August 16, 2016
Final profiling of the upstream 3H:1V slope before the geosynthetics installation	August 17, 2016	August 17, 2016
Geosynthetics installation on the upstream slope	August 25, 2016	August 26, 2016
Placement and compaction of compacted till layers and its protection covers over the geosynthetics in the upstream toe liner tie-in of the north and south abutments (compacted till 0-150 mm, low quality till)	August 27, 2016	September 6, 2016

3.2.1 Drilling and Blasting

No drilling and blasting was required for Saddle Dam 3 Stage 2 construction. The schedule was adapted to allow for the ground to thaw and be excavated as it was possible to do so.

3.2.2 Site Preparation

Two main access roads for hauling material were used to get to the Saddle Dam 3 area. The Saddle Road access started at the portion of West Road in front of the Portage Pit Central Dump and led to Saddle Dam 3 and Saddle Dam 4 along the airstrip. The second access road started from the north end of the West Road, in front of the main waste dump, passing over Stormwater Dike and through the old Portage Water Treatment Plant (WTP) area.

For the construction of Stage 2 of Saddle Dam 3, it was necessary to construct a new access from the Saddle Road to the All Weather Access Road (AWAR) passing on the downstream side of SD3. This new access was built outside of the dike footprint for a crest at El. 143 m with no foundation preparation. The access was made of till-like material and was covered by rejected material from till sieving activity.

Water management occurred before and during the construction season to remove water that accumulated on the downstream area within the lowest points.

3.2.3 Foundation Preparation

Foundation preparation was done on both abutments for the extension of the structure for a dike footprint from a crest El. of 140 m to El. 143 m (including the rockfill embankment and the upstream toe liner tie-in area). One foundation approval was also done to permit widening of the downstream rockfill slope for a downstream dike footprint at El. 143 m.

Foundation preparation consisted of the removal of unsuitable material down to competent bedrock, with the exception of the faulted area crossing SD3 from the upstream to downstream side (between Sta. 20+600 to 20+650). In this sector, the foundation preparation was done to the ice poor competent in situ soil (El. 135 m) as inferred during the July 2015 characterization drilling campaign.

During foundation preparation, water was managed with pumps to avoid accumulation within the prepared zones. Two minor inflows of water (less than 10L/min) were localized on the downstream side within the faulted zone (20+609 and Sta. 20+630). Both water inflows were plugged with a 1 m and 0.6 m thick till plug, respectively, after the surface was cleaned.

The material was excavated (Komatsu 1250 or CAT 345) and then loaded into 50-T haul trucks (CAT 773). The unsuitable material was hauled to the waste dump while reusable material was hauled and stockpiled to the north of Central Dike and at the snow dump.

Before the placement of fill material over the dike foundation, the foundation surface was accepted by the Owner's Representative, QC Representative and the QA Engineer. The approved foundation areas were surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill material was conducted six times during the construction of Stage 2 of Saddle Dam 3. The completed approval forms are presented in Appendix G.

There were 11,113 m^3 of material excavated during the foundation preparation of Stage 2 of Saddle Dam 3.

3.2.4 Placement of Rockfill for Embankment Raise to El. 143 m

Placement of rockfill for Stage 2 of Saddle Dam 3 started with the widening of the rockfill footprint on the downstream side by placing 2-m thick lifts of rockfill from El. 134 m to El. 140 m above the approved foundation. Once the downstream rockfill lift reached El. 140 m, the entire rockfill embankment was raised to Stage 2 crest elevation (El. 143 m) by adding 2 lifts of 1.5 m each.

On the north abutment, the gap between the dike crest and the upstream toe liner tie-in built in 2015 was filled with rockfill on the plateau from El. 138 m to El. 143 m to reconnect the upstream toe liner tie-in to the dike. This formed a rockfill bump from Sta. 20+640 to 20+660 approximately. Section 5.3 documents this design change.

Ultramafic rockfill was used entirely for the Saddle Dam 3 construction as allowed by the Specifications. Each lift of rockfill had a maximum thickness of 2 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface of the lift and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory compactor with 8 passes. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles. Each lift of UM rockfill was scarified with a loader or an excavator before the placement of the next lift to obtain a better contact between each lift due to the deterioration of the UM caused by the haul trucks..

A total of 20,475 m^3 of ultramafic rockfill was placed on Saddle Dam 3 during Stage 2 construction.

3.2.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the southern and northern abutment. It consisted of a 0.5-m lift of fine filter covered by a 0.5-m lift of coarse filter. If required, bedrock depressions were filled with fine filter and stamped in place with the excavator bucket. The inverse filter was installed for a dike footprint at El. 143 m. The inverse filters of both abutments were extended farther than the limit of the footprint and ended in steps to ease the construction if the dike is further raised. The width of the inverse filter placement was done for a crest at a final elevation at El. 150 m. Competent aggregates made of good quality rocks were used for the inverse filter of Saddle Dam 3. It was verified that the material was well graded, hard and sound and that the placement technique was done in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum roller compactor in vibratory mode and the material was wetted to promote compaction.

During the placement of the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. Aggregates made of UM were used for the filter placed on the upstream slope. The filter materials were placed in 0.5-m thick horizontal lifts using the bucket of an excavator. Coarse material was placed first and raised against the rockfill and then fine filter material was placed. A maximum height difference of 2 m was maintained between the rockfill and the upstream filter. This sequence continued as rockfill was placed higher on the slope. The width of each lift was such that the thickness of the material perpendicular to the slope be at 0.5 m. After the placement of each 0.5-m thick lift of fine and coarse filter, the compaction of both materials was done with 4 passes of the smooth drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to obtain a smooth and a continuous 3H:1V upstream slope in preparation for the geosynthetics installation.

The fine and coarse filters were installed in one lift over the whole area of the rockfill bump in the north abutment. The compaction of these aggregates was done on the slope with 4 passes of a 10-T smooth-drum compactor in vibratory mode.

There were 1,193 m^3 of coarse filters and 1,616 m^3 of fine filters placed on Saddle Dam 3 during Stage 2 construction.

3.2.6 Upstream Toe Liner Tie-In Key Preparation

The south and north abutments of the upstream toe liner tie-in were marked out in the field and excavated to bedrock.

Once competent bedrock was reached, the first 5-m wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m wide strips of both abutments was cleaned using handwork and compressed air. The objective of this cleanup was to expose the residual soils and to clean and expose the discontinuities. After the completion of the bedrock cleaning within the upstream toe liner tie-in, the QA Engineer performed bedrock mapping of the whole upstream toe liner tie-in in segments of 10 m. After the bedrock mapping, a foundation approval was completed for each upstream toe liner area. Completed approval forms are located in Appendix G.

Slush grouting was performed in selected areas of the cleaned and mapped 5-m wide strip of the upstream toe liner tie-in where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1 to 1-1/3 cement, 2 portions of sand and 2 portions of water. This mix was used in previous construction seasons and yielded satisfactory results.

Compacted sieved till (0-50 mm) was then placed in the 5-m wide strip of the upstream toe liner tie-in area before the geosynthetics installation. First, a thin lift was placed and compacted with the excavator bucket to fill the bedrock depression and to cover the slush grout before it dried. Then a lift of 0.5 m was placed. The sieved till was placed by the CAT 307 in a way to limit segregation and to prevent contamination. After the placement of the compacted sieved till, a 0.5-m lift of compacted till (0-150 mm) was placed upstream over a width corresponding to an upstream toe liner tie-in in backfill. The compaction and water content of the compacted till was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.2.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter and the sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by the subcontractor, ZTG. No geosynthetic were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a fine filter surface covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and in the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed by an excavator with a roller attachment. Surfaces made of fine filter on the upstream slope and compacted sieved till on the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative and the QA Engineer. It was verified that the surfaces were smooth, dry and would not damage the geosynthetics. Each surface was surveyed by AEM and SANA and a geosynthetics bedding surface approval form was filled out. Refers to Appendix G for the completed forms.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics. The geotextile was not placed further than 0.5 m horizontally in the upstream toe liner tie-in, while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment with a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches) the geotextiles were bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

In the area of the rockfill bump on the upstream slope, a 0.5-m deep anchor trench was excavated on top of the bump. The LLDPE panels were installed on both sides and tied in the trench. After the LLDPE installation, the trench was backfilled and sealed with a LLDPE patch fixed with an extrusion weld.

Per Specifications, no horizontal weld was performed on geomembranes placed on slopes with more than a 5% incline, except for small localized patches to repair defects.

After its installation, the LLDPE geomembrane surface was visually inspected and approved by the Owners Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane. Completed approval forms are located in Appendix G.

A total of 2,690 m^2 of geotextile and 3,010 m^2 of LLDPE geomembrane was installed for Stage 2 of Saddle Dam 3 construction.

3.2.8 Protection Cover of the Upstream Toe Liner Tie-In

To provide a suitable erosion protection it was verified that the upstream toe liner tie-in protection layers were not seated or placed against loose backfill materials present in the area. Unsuitable loose material was removed on the north and south abutment and the whole foundation of the erosion protection layers was excavated to bedrock.

Once the geosynthetics installation was completed in the upstream toe liner tie-in, three 0.5-m thick lifts of compacted till (0-150 mm) were placed over the upstream toe liner tie-in with an excavator (for a total of 2 m of till including the 0.5-m bedding under the LLDPE). The first lift of compacted till in direct contact with the LLDPE geomembrane was made of compacted sieved till (0-50 mm). The compacted sieved till was not dumped on the floor to prevent it from being contaminated. The material was either dumped in metal boxes or placed with the CAT345 on top of the in-place sieved compacted till. Only the CAT 307 was allowed to traffic over the geomembrane where there was at least 1 m of material over it. The remainder of the till and the second and the third lift above the geomembrane was made of compacted till (0-150 mm). The compaction of the first lift over the geomembrane was done with the excavator bucket. The remainder of the till was compacted with the 10-T smooth drum vibratory roller compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to pass over the till material.

A 2-m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in using the backfill configuration. The erosion protection cover consisted of two 1-m lifts of low quality till (0-500 mm). A similar material was used for the erosion protection cover of Saddle Dam 3 during Stage 1 construction. The portion of the erosion protection cover that were not completed during the 2015 construction season was completed by placing the missing quantity of low quality till. The material came from the till stockpiled at the snow dump stockpile. Each lift was compacted with 4 passes of 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed 3 m from the LLDPE placed on the upstream slope in order to avoid damaging it.

There were 943 m^3 of compacted till, 1,192 m^3 of compacted sieved till and 2,560 m^3 of low quality till placed on Saddle Dam 3 during Stage 2 construction.

3.3 Saddle Dam 4 – Schedule and Construction Steps

The construction of Stage 2 of Saddle Dam 4 was done from June 24, 2016 to September 10, 2016 and consisted of the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);

- Inverse filter material placement and compaction on north and south abutment foundation;
- Bedrock cleaning, mapping and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in;
- Geotextile and LLDPE geomembrane installation; and
- Placement and compaction of protection cover in the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C3.

Table 13 presents the construction schedule for the main work items for the construction of Stage 2 of Saddle Dam 4.

Table 13: Schedule for the Construction Activity for Stage 2 of Saddle Dam 4

Activity	Beginning	End
Foundation preparation and approval	June 24, 2016	July 14, 2016
Placement, compaction and profiling of rockfill to El. 143 m (slope of 1.5:H d/s, 3 H:1V u/s)	July 15, 2016	July 31, 2016
Inverse filters placement and compaction on the foundation of the abutments	July 22, 2016	July 23, 2016
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 143 m	July 23, 2016	August 4, 2016
Bedrock cleaning and mapping in the upstream toe liner tie-in	August 4, 2016	August 10, 2016
Slush grouting of the major discontinuities and placement of compacted sieved till in the upstream toe liner tie-in for the geosynthetics bedding	August 12, 2016	August 16, 2016
Final profiling of the upstream 3H:1V slope in preparation for geosynthetics installation	August 17, 2016	August 17, 2016
Geosynthetics installation on the upstream slope	August 23, 2016	August 26, 2016
Placement and compaction of the compacted till layers and its protection cover in the upstream toe liner tie-in of the abutments	August 26, 2016	September 10, 2016

3.3.1 Drilling and Blasting

No drilling and blasting was required for Saddle Dam 4 Stage 2 construction. The schedule was adapted to allow for the ground to thaw and to be excavated as it was possible to do so.

3.3.2 Site Preparation

One main access road for hauling material was used to get to the Saddle Dam 4 area. This access was built using rockfill material during the 2015 construction season and was prepared per the Specifications within the dike

footprint to El. 150 m. This existing access road was slightly adjusted to connect with the dike crest that was raised by 3 m. This access road starts from the saddle road and goes northwest for about 75 m. Other temporary accesses were constructed and dismantled, as needed, during the construction season.

Water management occurred before and during the construction season to remove water that accumulated on the downstream area within the lowest points.

3.3.3 Foundation Preparation

Foundation preparation was conducted on both abutments for the extension of the structure for a dike footprint going from El. 140 m to El 143 m (including the rockfill embankment and the upstream toe liner tie-in area). Foundation approval was also completed for the widening of rockfill embankment toward the downstream side for a dike footprint at El. 143 m.

The foundation preparation consisted of the removal of unsuitable material until competent bedrock was reached. During the foundation preparation, water was managed with pumps to avoid accumulation within the prepared zones. The material was excavated by excavator (CAT 345) and then loaded into 50-T haul trucks (CAT 773). The unsuitable material was hauled to the waste dump while reusable material was hauled and stockpiled to the north of Central Dike or at the snow dump.

Before the placement of fill material over the dike foundation, the foundation surfaces were inspected and accepted by the Owner's Representative, the QC Representative and QA Engineer. The approved foundation area was then surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill material was done 6 times during the construction of Stage 2 of Saddle Dam 4. Completed approval forms are presented in Appendix G.

There were 5,015 m^3 of material excavated during the foundation preparation of Stage 2 of Saddle Dam 4.

3.3.4 Placement of Rockfill for Embankment Raise to El. 143 m

Placement of rockfill for Stage 2 of Saddle Dam 4 started by widening the rockfill slope on the downstream side by placing 2 m thick lifts of rockfill from El. 138 m to El. 140 m above the approved foundation. Once the rockfill lift on the downstream side reached El. 140 m, the elevation of the entire rockfill embankment was raised to Stage 2 crest elevation (El. 143 m) by performing 2 lifts of 1.5 m each.

Ultramafic rockfill was used for the entirety of the Saddle Dam 4 Stage 2 construction as allowed by the Specifications. Each lift of rockfill had a maximum thickness of 2 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory roller compactor with 8 passes. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles. Each lift of UM rockfill was scarified with a loader before the placement of the next lift to have a better contact between each lift due to the deterioration of the UM caused by the haul trucks..

A total of 29,133 m^3 of ultramafic rockfill was placed on Saddle Dam 4 during the Stage 2 construction.

3.3.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the eastern and western abutments. It consisted of a 0.5-m lift of fine filter covered by a 0.5-m lift of coarse filter. Bedrock depressions were filled with fine filter and compacted with the excavator bucket.

The inverse filters were installed for a dike footprint at El. 143 m. The inverse filters of both abutments were extended farther than the limit of the footprint and ended in steps to facilitate the extension of the inverse filter if needed for future dike raises. The width of the inverse filter was built for a crest at a final elevation at El. 150 m. Competent aggregates were used for the inverse filters of Saddle Dam 4. The material was well graded, hard and sound and the placement was done in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum compactor in vibratory mode and the material was wetted to promote compaction.

The segment of the inverse filters between Sta. 40+430 and 40+460 was in contact with a steep bedrock face (from El. 141 to 143 m). Due to the good quality of the rockfill in that sector, the gap was filled with rockfill instead of fine filter once a minimum length of inverse filter of 5 m had been placed at the base of the bedrock face.

During the placement of the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. Aggregates made of UM were used for the filter placed on the upstream slope. The filter materials were placed in 0.5-m thick horizontal lifts placed with the bucket of the excavator. Coarse material was first raised against the rockfill and then fine filter material was placed. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m. After the placement of each 0.5-m lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a smooth-drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to obtain a smooth and continuous 3H:1V upstream slope in preparation for the geosynthetics installation.

There were 2,714 m^3 of coarse filter and 2,926 m^3 of fine filter placed on Saddle Dam 4 during Stage 2 construction.

3.3.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in for the east abutment and the west abutment was marked out in the field and excavated to bedrock.

Once competent bedrock was reached, a 5-m wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m strip was cleaned using handwork and compressed air. The objective of this cleaning was to clean the residual soils and to expose the bedrock discontinuities. After the completion of the bedrock cleaning in the upstream toe liner tie-in, the QA Representative performed bedrock mapping of the whole upstream toe liner tie-in in segments of 10 m. After the bedrock mapping, a foundation approval was completed for each upstream toe liner tie-in area. Refer to Appendix G for the completed approval forms.

Slush grouting was performed in selected areas of the cleaned and mapped 5-m wide strip within the upstream toe liner tie-in where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1 to 1-1/3 cement, 2 portions of sand and 2 portions of water. This mix was used in past years and led to satisfactory results. The slush grout was applied with a broom to make sure the open discontinuities of the upstream toe liner tie-in were filled in.

Compacted sieved till (0-50 mm) was then placed in the 5-m wide strip of the upstream toe liner tie-in area before the geosynthetics installation. First, a thin lift was placed and compacted with the excavator bucket to fill the bedrock depressions and to cover the slush grout before it dried. Then, a lift of 0.5 m was placed. The compacted sieved till was placed by the CAT 307 in a way to limit segregation and to prevent contamination. After the placement of the compacted sieved till, a 0.5-m lift of compacted till (0-150 mm) was placed upstream of the compacted sieved till over a width corresponding to an upstream toe liner tie-in in backfill.

The compaction and water content of the compacted till was controlled by the QC Representative with a portable nuclear gauge. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.3.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter (on the upstream slope) and the compacted sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by the subcontractor, ZTG. No geosynthetic were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a surface with a smooth fine fitler subgrade that was covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and in the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed by an excavator with a roller attachment. Surfaces made of fine filter on the upstream slope and compacted sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative and the QA Engineer. It was verified that the surfaces were smooth, dry and would not damage the geosynthetics. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. The completed approval forms are presented in Appendix G.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics, once the QC tests successfully passed. The geotextile was not placed further than 0.5 m horizontally in the upstream toe liner tie-in while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment with a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches), the geotextiles were rather bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

Per Specifications, no horizontal welds were allowed on geomembranes placed on slopes with more than a 5% incline, with the exception of small localized patches in order to repair defects. The decision was taken by the Owner's Representative to carry out three horizontal seams on the upstream 3H:1V slope to optimize the LLDPE quantity available on site during the 2016 construction season. These seams were spread far apart and were never at the same elevation. They were approximately located at Sta.40+170, 40+240 and 40+320. Refer to Section 5.1 for further discussions on this field adjustment.

After its installation, the LLDPE geomembrane surface was visually inspected and approved by the Owners Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane and can be found in Appendix G.

A total of 4,457 m^2 of geotextile and 4,198 m^2 of LLDPE geomembrane were installed for Stage 2 of Saddle Dam 4 construction.

3.3.8 Protection Cover of the Upstream Toe Liner Tie-In

To provide suitable erosion protection, a verification was done to ensure that the whole foundation of the erosion protection layers was excavated to bedrock, so that the fine filter and coarse filter layer was seated on bedrock.

Once the geosynthetics installation was completed in the upstream toe liner tie-in, three 0.5-m thick lifts of compacted till were placed over the LLDPE geomembrane, for a total of 2 m of compacted till including the 0.5-m bedding under the LLDPE. The material in direct contact with the LLDPE geomembrane was made of compacted sieved till (0-50 mm). The compacted sieved till was not dumped on the floor to prevent it from being contaminated. Only the CAT 307 was allowed to traffic over the geomembrane where there was at least 1 m of material over it. The second and the third lifts above the geomembrane were made of compacted till (0-150 mm). The compaction of the first lift over the geomembrane was done with the excavator bucket. The remainder of the till lift was compacted with the 10-T smooth drum compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative to ensure it met the Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to pass over the compacted till material.

A 2-m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in using the backfill configuration. The portion of the erosion protection cover that had not been completed during the 2015 construction season was also completed by placing the missing quantity with compacted sieved till (from Sta. 40+170 to 40+340). Due to a shortage in low quality till, the erosion protection layers of the upstream toe liner tie-in at both abutments was reverted to the original design using granular materials (0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill). To respect material compatibility (low quality till in contact with fine filter and coarse filter between rockfill and fine filter) a transition was constructed between the segments of the upstream toe liner tie-in from the 2015 construction season (made with low quality till), and the one from the 2016 construction season (made with granular material).

The fine filter and coarse filter aggregates of the erosion protection cover were made of UM rockfill. These materials were placed with an excavator and compacted with 4 passes of a 10-T smooth-drum compactor in vibratory mode. A geotextile was placed above the LLDPE geomembrane in the area that would be covered by fine filters. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed with an excavator and compacted with 8 passes of 10-T smooth-drum compactor in vibratory mode.

There were 1,185 m^3 of compacted till and 1,190 m^3 of compacted sieved till placed on Saddle Dam 4 during Stage 2 construction.

3.4 Saddle Dam 5 – Schedule and Construction Steps

The construction of Stage 2 of Saddle Dam 5 was done from June 27, 2016 to September 9, 2016 and consisted of the following main work items:

- Site preparation (including water management and access roads);
- Foundation preparation and approval (excavation of soft sediment and ice rich soils);
- Fill placement, compaction and slope profiling (rockfill and upstream filter placement);
- Inverse filter materials placement and compaction on the west abutment foundation;
- Bedrock cleaning, mapping and slush grouting within the upstream toe liner tie-in;
- Compacted till placement and compaction in the upstream toe liner tie-in ;
- Geotextile and LLDPE geomembrane installation; and
- Placement and compaction of erosion protection cover over the LLDPE geomembrane in the upstream toe liner tie-in.

The work procedures followed during the construction of these work items are discussed in the following subsections.

Selected photographs of the work progress taken throughout the construction season are shown in Appendix C4.

Table 14 presents the construction schedule for the main work items for the construction of Stage 2 of Saddle Dam 5.

Table 14: Schedule for the Construction Activity for Stage 2 of Saddle Dam 5

Activity	Beginning	End
Foundation preparation and approval	June 27, 2016	July 13, 2016
Placement, compaction and profiling of rockfill to El. 143 m (slope of 1.5:H d/s, 3 H:1V u/s)	July 7, 2016	August 5, 2016
Placement, compaction and profiling of filter material on the upstream 3H:1V slope to El. 143 m	July 20, 2016	August 9, 2016
Inverse filter placement and compaction on the foundation of the west abutment	July 29, 2016	July 30, 2016
Bedrock cleaning and mapping of the upstream toe liner tie-in	August 9, 2016	August 17, 2016
Slush grouting of the discontinuities and placement of till in the upstream toe liner tie-in for the geosynthetics foundation	August 19, 2016	August 21, 2016
Final profiling of the 3H:1V upstream slope in preparation for geosynthetics installation	August 18, 2016	August 18, 2016
Geosynthetics installation on the 3H:1V upstream slope	August 27, 2016	August 29, 2016
Placement and compaction of compacted till and its protection cover over the LLDPE geomembrane in the upstream toe liner tie-in of the west abutment (compacted till, fine filter, coarse filter, fine rockfill)	August 31, 2016	September 7, 2016
Construction of an access road from Saddle Dam 5 to the pig launcher station	September 9, 2016	September 9, 2016

3.4.1 Drilling and Blasting

No drilling and blasting was required for Saddle Dam 5 Stage 2 construction. The schedule was adapted to allow the ground to thaw and to be excavated as it was possible to do so.

3.4.2 Site Preparation

Saddle Dam 5 was accessed by using the southern Central Dike access. At the end of the construction season another access was built with rockfill to connect the abutment of Saddle Dam 5 with the pig launcher station. This access was built over partly non-approved foundation over the inverse filter area and will have to be removed if Saddle Dam 5 is raised further.

No pumping was required for water management during Saddle Dam 5 construction as the water was flowing toward Central Dike due to the topography.

3.4.3 Foundation Preparation

Foundation preparation was done on the west abutment for the extension of the structure for a dike footprint going from El. 137 m to El 143 m (including the rockfill embankment and the upstream toe liner tie-in area). Foundation approval was also done on the downstream side to widen the rockfill embankment toward the downstream side corresponding to a dike footprint at El. 143 m. A bedrock surface plateau at El. 143 m approximately was encountered on the abutment of Saddle Dam 5. The foundation was prepared to the edge of this plateau.

The foundation preparation consisted of the removal of the unsuitable material until competent bedrock was reached. The material was excavated by excavator (CAT 345) and then loaded into 50-T haul trucks (CAT 773). The majority of the material excavated consisted of boulders and was not reusable. This material was hauled to the waste dump.

Before the placement of fill material over the dike foundation, the exposed surface was inspected and then accepted by the Owner's Representative, QC Representative and QA Engineer. The approved foundation area was then surveyed by SANA and AEM. The foundation preparation approval process before the placement of fill materials was performed 8 times during the construction of Stage 2 of Saddle Dam 5. A foundation approval form was filled out each time. The completed approval forms are located in Appendix G.

There were 8,534 m^3 of material excavated during the foundation preparation of Stage 2 of Saddle Dam 5.

3.4.4 Placement of Rockfill for Embankment Raise to El. 143 m

Placement of rockfill for Stage 2 of Saddle Dam 5 started by widening the rockfill slope on the downstream side by placing lifts of rockfill to El. 137 m above the approved foundation. Once the rockfill lifts on the downstream side reached El. 137 m, the elevation of the rockfill embankment was raised to El. 143 m. Rockfill was placed until the edge of the plateau at El. 143 m reached the west abutment.

Ultramafic rockfill was used entirely for the Saddle Dam 5 construction as allowed by the Specifications. Each lift of rockfill had a maximum thickness of 2.0 m and was placed by a dozer (D8). The rockfill was dumped on a flat surface and then pushed on the slope to avoid segregation. Each lift was compacted with a 10-T smooth-drum vibratory compactor with 8 passes. After compaction, the slope of each lift was profiled with an excavator. The downstream slope was profiled with a 1.5H:1V slope while the upstream rockfill slope was profiled with a 3H:1V slope.

The UM rockfill was heterogeneous and well graded with some loads containing more fine particles but was generally well graded. Each lift of UM rockfill was scarified with a loader before the placement of the next lift to have a better contact between each lift due to the deterioration of the UM caused by the haul trucks.

A total of 23,486 m^3 of ultramafic rockfill was placed on Saddle Dam 5 during Stage 2 construction.

3.4.5 Filter Placement on Foundation and on the Upstream Slope

The inverse filter was placed on the approved foundation of the west abutment. It consisted of a 0.5-m lift of fine filter covered by a 0.5-m lift of coarse filter. Bedrock depressions were carefully filled with fine filter and compacted with the excavator bucket.

The inverse filters were installed until the edge of the plateau at El. 143 m was reached. The inverse filter was ended in steps to facilitate the extension of the inverse filter, if needed for a future dike raise. The width of the inverse filter placement was done for a crest at a final elevation at El. 150 m. Competent aggregates were used for the inverse filter of Saddle Dam 5. The material was well graded, hard, sound and placed in a way to limit segregation. Compaction of each lift was completed by 4 passes of a 10-T smooth drum compactor in vibratory mode and the material was wetted to promote compaction.

During placement of filter layers on the 3H:1V upstream slope, fine and coarse filters were raised in compacted lifts against the rockfill. The filter materials were placed in 0.5-m thick horizontal lifts placed with the bucket of the excavator. Coarse material was raised against the rockfill and then fine filter material was placed against the

coarse filter. A maximum height difference of 2 m was kept between the rockfill and the upstream filter, and the sequence continued as rockfill was placed higher on the slope. The width of each lift was such that the thickness of the material perpendicular to the slope was 0.5 m. After the placement of each 0.5-m lift of fine and coarse filter, the compaction of both materials was done with 4 passes of a 10-T smooth-drum compactor in vibratory mode. Afterwards, the slope of the fine filter was profiled with the bucket of an excavator to have a smooth and continuous 3H:1V upstream slope, in preparation for the geosynthetics installation.

There were 2,197 m^3 of coarse filter and 2,708 m^3 of fine filter placed on Saddle Dam 5 during Stage 2 construction.

3.4.6 Upstream Toe Liner Tie-In Key Preparation

The upstream toe liner tie-in for the west abutment was marked out in the field and excavated to bedrock.

Once competent bedrock was reached, a 5-m wide strip along the upstream toe liner tie-in was cleaned out to good quality bedrock. The bedrock within the 5-m strip of the west abutment was cleaned using handwork and compressed air. The objective of this cleaning was to clean the residual soils and expose the bedrock discontinuities.

After the bedrock cleaning of the upstream toe liner tie-in was completed, bedrock mapping was performed. An alternative technique was tested for the bedrock mapping at Saddle Dam 5. The cleaned bedrock surface was surveyed by LIDAR to generate a 3D surface of the bedrock from which the joint dip and dip direction could be extracted. This technique has been used for a while at Meadowbank for the bedrock mapping of the pit wall. The QA Engineer reviewed the LIDAR scan. It was noted that the scan is in mine coordinates and there was a 20-degree difference between the north of the mine coordinate and the UTM north. The QA Engineer supplemented this technique by manually mapping open joints with an aperture width greater than 10 mm. After the bedrock mapping, a foundation approval was completed for the upstream toe liner area and can be found in Appendix G.

Slush grouting was performed in selected areas of the cleaned and mapped 5 m wide strip of the liner tie-in key trench where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1 to 1-1/3 cement, 2 portions of sand and 2 portions of water. This mix was used in the previous construction season and led to satisfactory results.

Compacted sieved till (0-50 mm) was then placed in the 5-m wide strip of the upstream toe liner tie-in area, in preparation for the geosynthetics installation. First, a thin lift was placed and compacted with the excavator bucket to fill the bedrock depressions and to cover the slush grout before it dried. Then another lift of 0.5 m was placed. The compacted sieved till was placed by the CAT 307 so as to limit segregation and to prevent contamination. After the placement of the compacted sieved till, a 0.5-m lift of compacted till (0-150 mm) was placed upstream of the compacted sieved till over a width corresponding to an upstream toe liner tie-in in backfill. The compaction and water content of the compacted till was controlled by the QC Representative with a portable nuclear gauge and was visually adequate. Compaction was done with a 10-T smooth-drum compactor in vibratory mode.

3.4.7 Geosynthetics Installation

Geosynthetics installation included the placement of a geotextile above the fine filter and the compacted sieved till bedding and the installation of a LLDPE geomembrane above the geotextile. The geotextile and the LLDPE geomembrane were installed by ZTG. No geosynthetics were allowed to be installed when it was raining. When not being used, the geomembrane rolls were stored on a surface with a fine filter subgrade covered with geotextile. Stoppers generally made of sandbags were placed to secure the rolls in place.

Before the installation of the geosynthetics on the upstream slope and in the upstream toe liner tie-in, the geosynthetics bedding was prepared. The upstream fine filter face was smoothed by an excavator with a roller attachment. Surfaces made of fine filter on the upstream slope and compacted sieved till in the upstream toe liner tie-in were then approved by the Owner's Representative, the QC Representative and the QA Engineer. It was verified that the surfaces were smooth, dry and would not damage the geosynthetics. Each surface was surveyed by AEM and SANA, and a geosynthetics bedding surface approval form was filled out. Refer to Appendix G for the completed approval forms.

The geotextile and the LLDPE geomembrane were buried in a 0.5-m deep anchor trench excavated into the upstream side of the rockfill crest within the coarse filter. The anchor trench was backfilled after the installation of the geosynthetics. The geotextile was not placed further than 0.5 m horizontally in the upstream toe liner tie-in while the LLDPE geomembrane was installed horizontally 3 m inside the upstream toe liner tie-in.

The geotextile panels were mostly seamed with the dual hot wedge welding equipment with a minimum overlap of 0.45 m. When wedge seams were not practical (such as for patches) the geotextiles were rather bonded with a heat gun. The geotextiles were visually inspected during installation to make sure that the overlap was sufficient and that the panels were not damaged.

Per Specifications, no horizontal welds were done on geomembrane placed on slopes with more than a 5% incline, with the exception of small localized patches to repair defects.

After the installation, the LLDPE geomembrane surface was visually inspected and approved by the Owner's Representative and the QA Engineer. A geosynthetics approval form was completed after the installation of the LLDPE geomembrane and can be found in Appendix G.

A total of 2,662 m^2 of geotextile and 2,143 m^2 of LLDPE geomembrane was installed for Stage 2 of Saddle Dam 5 construction.

3.4.8 Protection Cover of the Upstream Toe Liner Tie-In

The whole foundation of the erosion protection layers was excavated to bedrock or to in situ soils. Once the geosynthetics installation was completed in the upstream toe liner tie-in, three 0.5 m thick lifts of till were placed over the upstream toe liner tie-in with an excavator (for a total of 2 m of till including the 0.5-m bedding under the LLDPE geomembrane).

The first lift of compacted till in direct contact with the LLDPE geomembrane was made of compacted sieved till (0-50 mm). The compacted sieved till was not unloaded on the floor to prevent it from being contaminated. Only the CAT 307 was allowed to traffic over the geomembrane, if there was at least 1 m of material over it. The second and the third lifts above the geomembrane were made of compacted till (0-150 mm). The compaction of the first lift over the geomembrane was done with the excavator bucket. The remainder of the compacted till lifts was compacted with the 10-T smooth drum roller compactor. The compaction of each lift was controlled with a portable nuclear gauge by the QC Representative and met the Specifications. The placement and compaction of till was only allowed when there was no rain. Haul trucks were not allowed to traffic over the till material.

A 2-m erosion protection cover was placed over the compacted till of the upstream toe liner tie-in with the CAT 345 excavator. The configuration of the erosion protection on Saddle Dam 5 was similar to the one used on Central Dike, which consisted of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill. The fine filter and coarse filter lift were made of UM rock and were placed with an excavator and compacted with 4 passes of 10-T smooth-

drum compactor in vibratory mode. Geotextile was placed above the LLDPE geomembrane in the area where it was covered by fine filter. The fine rockfill consisted of UM rockfill that was mechanically sorted to remove boulders of more than 0.5 m in diameter. The fine rockfill lift was placed with an excavator. The fine rockfill lift was compacted with 8 passes of a 10-T smooth-drum compactor in vibratory mode. During the compaction of the erosion protection cover, the compactor stayed at safe distance from the upstream slope LLDPE to avoid damaging it.

There were 1,268 m^3 of compacted till and 1,225 m^3 of compacted sieved till placed on Saddle Dam 5 during Stage 2 construction.

4.0 QA/QC PROGRAM AND RESULTS

4.1 General

During the 2016 construction season of the South Cell, a daily construction meeting was held every morning on the construction site with all parties present on site (AEM, Sana, Golder, SNC-Lavallin, ZTG). This meeting was used to review the progress of the last 24 hours, plan for the next 24 hours and to discuss and resolve problems encountered during the construction. Minutes from these meeting were taken by AEM and are presented in Appendix D.

The Quality Assurance (QA) program was carried out by Golder during the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4 and 5. The content of the QA program is defined in the Specifications and includes foundation preparation, fill placement and geosynthetics installation. The QA team consisted of QA Engineers working on approximately 2-week rotations. A QA Engineer was present full time on site from June 13, 2016 to September 13, 2016. No QA activities were performed during night shifts. A QA assistant was also present on site from July 15, 2016 to July 21, 2016 and from August 18, 2016 to August 21, 2016. The QA assistant supported the QA Engineer during periods of peak activity and performed laboratory testing of the QA samples. Daily and weekly reports were prepared by the QA personnel to document the QA activities performed during the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4 and 5. These QA daily and weekly reports are presented in Appendix E.

SNC-Lavalin carried out the Quality Control (QC) program defined in the Specifications for all construction activities except for the geosynthetics installation. The SNC-Lavalin QC team worked under the supervision of AEM and consisted of a QC representative on day shift from June 4, 2016 to September 11, 2016, and a QC representative on night shift from June 13, 2016 to August 14, 2016. The daily reports prepared by the on-site QC Representatives to document the QC activities are presented in Appendix F.

The geosynthetics installation QC activities were carried out by the geosynthetics installation crew (ZTG) under the supervision of SANA.

The Owner's representative and the QA Engineer routinely conducted visual inspection of the work done during the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dam 3, 4 and 5. Review of the work procedures was done on a daily basis and corrections were made if necessary. Photographs of the work progress and activities were taken every day. A selection of photographs taken throughout the construction season are presented in Appendix C.

Daily surveys were conducted by SANA and AEM to ensure that limits and grades were followed correctly during construction. These surveys were reviewed by the QA Engineer.

4.2 Foundation Approval

As part of the QA/QC program, the foundations were approved before placing any material over natural soil and before the installation of geosynthetics on a bedding surface. The objective of the foundation approval process was to ensure that the foundation was prepared as per the Specifications. The approval was done by the Owner's Representative, the QA Engineer and the QC Representative. It was verified that the foundation to be approved was competent, dry, free of contamination or ice and that:

- The clearing and stripping was adequate.

- The foundation excavation and the removal of unsuitable foundation materials was adequate.
- The preparation of the bedrock surface within the upstream toe liner tie-in was adequate.
- The bedding surface conditions for geomembrane placement were smooth and flat.

For each foundation approval, the limit of the approved area was surveyed and a foundation approval form was signed by the surveyor, the Owner's Representative, the QA Engineer and the QC Representative. Each foundation approval form included a sketch and picture of the approved foundation area as well as the filled inspection item checklist. Table 15 presents a summary of the foundation approvals done during the 2016 construction season of the South Cell. These foundation approvals forms are presented in Appendix G.

Four foundation approvals were completed and filled out at the beginning of the construction season before the Golder QA Engineer arrived on site. These foundation approvals were done for the widening of the rockfill shell on the downstream side of Central Dike from Sta.0+352 to 0+440 and from 0+858 to 0+927. They are documented in certificates FND-CD-124 to FND-CD-127. These foundation approval forms were reviewed by the QA Engineer and are considered adequate as they were excavated to bedrock and approved by the Owner's Representative and the QC Representative.

Table 15: Summary of Foundation Approval for the 2016 Construction Season of South Cell

Structure	# of Foundation Approval for Fill Placement	# of Foundation Approval for Geosynthetics Bedding
Central Dike	10 (FND-CD-124 to FND-CD-133)	1 (FND-CD-134)
Saddle Dam 3	6 (FND-SD3-15 to FND-SD3-20)	1 (FND-SD3-21)
Saddle Dam 4	6 (FND-SD4-19 to FND-SD4-24)	1 (FND-SD4-25)
Saddle Dam 5	8 (FND-SD5-03 to FND-SD5-09, FND-SD5-11)	1 (FND-SD5-10)

4.3 Geosynthetics Installation

Quality control (QC) testing of the geosynthetics installation was done by ZTG under the supervision of the QA Engineer. QC testing included quality control on the assembly and testing during the installation. QC testing during installation included welding calibration (AM and PM), air pressure tests on every seam, vacuum box testing of each extrusion weld and destructive weld integrity tests every 150 m of welding. The QA Engineer assisted on a minimum of 20% of the vacuum box testing and 100% of the other QC tests to ensure that they were done according to Specifications.

The QC report from the geomembrane installer (ZTG) is presented in Appendix H. This document presents the layout of the geosynthetics installation, the results of the geosynthetics QC testing and the manufacturer data sheets. All of the installed geomembrane passed the QC testing.

After the completion of the geomembrane installation, the Owner's Representative, the QA Engineer and the ZTG QC Representative completed an inspection of the installation to approve the installation. The inspection was done to ensure the following:

- The geomembrane was not damaged (cracks or rips) and was smooth and flat.
- The welding and patches were done properly.
- The QC testing was completed and passed all tests.

After each geosynthetic approval, the limit of the approved area was surveyed and a geosynthetic approval form was signed by the surveyor, the Owner's Representative, the QA Engineer and the QC Representative. Each geosynthetic approval form included a sketch and picture of the approved area and the filled out inspection item checklist. Table 16 presents a summary of the geosynthetic approval done during the 2016 construction season of the South Cell. The completed geosynthetic installation approval form for the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4 and 5 are included in Appendix G.

Table 16: Summary of Geosynthetic Approval for the 2016 Construction Season of South Cell

Structure	# of Geomembrane Approval
Central Dike	3 (LLDPE-CD-27 to LLDPE-CD-29)
Saddle Dam 3	1 (LLDPE-SD3-02)
Saddle Dam 4	1 (LLDPE-SD4-02)
Saddle Dam 5	1 (LLDPE-SD5-02)

4.4 Material Placement

During material placement, the quality of the material and the placement technique were routinely reviewed. It was ensured that the placement technique limited segregation, that the material quality was visually acceptable and that the maximum allowable lift thickness was not exceeded.

During placement of fine filter and coarse filter on the upstream slope, it was visually verified that the coarse filter completely wrapped the fine filter.

During rockfill placement, it was verified by the QC Representative and QA Engineer that the rockfill was well graded, did not contain oversized particles and was placed in the correct area of the dike. For the placement of UM rockfill, special attention was taken to observe whether the material was competent and was not predominantly formed of fine particles and rock powder.

4.4.1 Laboratory Testing

Samples of compacted till (Sieved and unsieved), fine filter and coarse filter were taken by the QC Representative and the QA Engineer during construction as per the sampling intervals defined in the Specifications. The QA Engineer reviewed the QC Representative sampling technique and laboratory procedure to ensure that proper

techniques were being used. The QA Engineer took and tested one sample for every five samples taken by the QC Engineer.

The fine filter and coarse filter samples were tested for particle size distribution (ASTM C136) to ensure that the gradation limits of the Specifications were met. The samples of compacted till (sieved and unsieved) were tested for particles size distribution (ASTM C136), water content (ASTM D2216) and standard Proctor (ASTM D698). The particles size distribution tests were done to ensure that the gradation limits of the Specifications were met. Many gradation tests were taken at the beginning of the construction season to determine which stockpiles could be used for compacted till and which stockpiles could be sieved.

Standard Proctor tests were done on the compacted till stockpile material (sieved and unsieved) to define the optimal dry density and water content of the compacted till. These Proctor tests were supplemented by reference pad testing in the field. Water content testing was mostly used in the till stockpile to determine whether the material was dry enough to be placed. At the beginning of till placement, the till was sampled for water content as the results from the portable nuclear gauge testing indicated that the material was too wet, while visual observation of the material seemed to indicate appropriate water content. It was later discovered that the portable nuclear gauge had a 3% positive water content offset which was later corrected. After this correction was applied, in situ sampling of till for water content stopped.

The results of gradation testing on compacted till (zone 1 - sieved and unsieved) indicate that the material was well graded and met the Specifications. The placed material was also visually acceptable.

The results of gradation testing on fine filters (zone 2) indicate that the material was well graded and met the Specifications in the stockpile and in-situ. The placed material was visually acceptable.

The results of gradation testing on coarse filter (zone 3) indicate that the material was well graded. Some samples were 5 to 10% finer than allowed by the Specifications below the 12.5 mm fractions. The material was still accepted by the QA Engineer and QC Representative as it was visually adequate and it was judged that this difference would not negatively impact the performance of the filter.

The results of the QC and QA laboratory testing of the material used during the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dam 3, 4 and 5 are presented in Appendix I and J. Table 17 indicates the number of samples tested during the 2016 construction season of the South Cell. The sampling requirements of the Specifications was met during the 2016 construction season.

Table 17: Summary of Field Laboratory Testing During South Cell 2016 Construction Season

Sample Location	Material	# Samples QC	# Samples QA
Stockpile	Low Quality Till (stockpile tested but not suitable to be used for compacted till)	5 PSD	-
	Compacted Till Stockpiles 0-150 mm	3 PSD	1 PSD
	Compacted Sieved Till Stockpiles 0-50 mm	7 PSD 4 WC 2 Proctor	2 PSD
	Fine Filter (zone 2)	8 PSD	2 PSD
	Coarse Filter (zone 3)	4 PSD	1 PSD
Central Dike	Fault Infill	1 WC	-
	Sieved Compacted Till (zone1)	1 PSD 1 WC	1 PSD
	Fine Filter (zone 2)	6 PSD	2 PSD
	Coarse Filter (zone 3)	4 PSD	1 PSD
Saddle Dam 3	Compacted Till (used to plug inflow of water d/s)	-	1 PSD
	Sieved Compacted Till (zone 1)	1 PSD 1 WC	1 PSD
	Fine Filter (zone 2)	1 PSD	1 PSD
	Coarse Filter (zone 3)	1 PSD	1 PSD
Saddle Dam 4	Compacted Till (zone 1)	1 PSD	1 PSD
	Fine Filter (zone 2)	2 PSD	1 PSD
	Coarse Filter (zone 3)	1 PSD	1 PSD
Saddle Dam 5	Compacted Till (zone 1)	1 PSD	1 PSD
	Fine Filter (zone 2)	1 PSD	1 PSD
	Coarse Filter (zone 3)	1 PSD	1 PSD

Note: Particle size distribution (PSD) per ASTM C136-06, Water Content (WC) testing per ASTM D2216 and Standard Proctor (Proctor) testing per ASTM D698

4.4.2 Control of Compaction

The QC Representative was present at all times during material compaction to supervise the process. The compaction of the fine filter, coarse filter and rockfill was verified visually and it was ensured that a sufficient number of compactor passes were done. The overlap of the passes and the compactor speed was continuously verified by the QC Representative.

The compaction of each lift of each compacted till material (0-50 mm and 0-150 mm) was controlled by the QC Representative on the field with a portable nuclear gauge. The number of compactor passes was adjusted on the

field until 95% of the standard proctor optimal dry density was reached. The overlap of the passes and the compactor speed was verified by the QC Representative.

The optimal dry density of the compacted till material was obtained as the maximum value obtained from the Standard Proctor laboratory test and two compaction reference boards. The maximum optimal dry density obtained was 2,100 kg/m^3 for a water content of 8.5%.

During the compaction reference board testing, a pad made of compacted sieved till and compacted till was constructed in the field and compacted by the 10-T smooth-drum compactor in vibratory mode. After each pass of the compactor, the dry density and water content was measured with the portable nuclear gauge. This method was used to determine the optimal dry density and how many passes of a compactor would be required to achieve it.

At the beginning of the construction season the portable nuclear gauge had a 3% positive water content offset. When this was discovered it was corrected and all previous test results were modified to remove that positive water content offset from the reported results.

Results from the field measurement of the dry density and water content are summarized in Table 18 and are presented in Appendix I. A degree of compaction higher than 95% of the optimal was achieved for all compacted till material (Zone 1) placed during the 2016 construction season of the South Cell.

Table 18: Summary of Portable Nuclear Gauge Field Testing During South Cell 2016 Construction Season

Sample Location	Material	Water Content %	Water content % Mean	Dry Volumetric Density Kg/m^3	Dry volumetric density Kg/m^3 Mean	Compaction Rate %	Compaction Rate % Mean
Stockpile (reference board)	Compacted Sieved Till	8 to 8.9	8.5	2050 to 2079	2060	-	-
	Compacted Till	8.1 to 8.5	8.3	2039 to 2126	2073	-	-
Central Dike	Compacted Sieved Till	7.1 to 9.4	7.85	2007 to 2152	2077.19	96 to 102	99
	Compacted Till	7.9 to 9.8	7.85	2007 to 2152	2077.19	96 to 102	99
Saddle Dam 3	Compacted Sieved Till	7.9 to 9.2	8.62	2003 to 2157	2069.63	95 to 101	99
	Compacted Till	5.9 to 9.8	8.34	2051 to 2330	2153.59	97 to 111	103
Saddle Dam 4	Compacted Sieved Till	7.0 to 8.4	7.89	2042 to 2227	2149.94	95 to 106	102
	Compacted Till	5.4 to 7.9	7.16	2097 to 2340	2184.72	99.7 to 111	104
Saddle Dam 5	Compacted Sieved Till	6.5 to 8.6	8.39	2088 to 2176	2124.43	99.4 to 104	101
	Compacted Till	6.0 to 9.1	7.52	2068 to 2238	2167.94	98.4 to 107	103

5.0 DESIGN CHANGES AND FIELD ADJUSTMENTS

Design changes and field adjustments were implemented during the construction of Stage 5 of Central Dike and Stage 2 of Saddle Dams 3, 4 and 5.

Some elements of the design were changed during construction to adapt the design to the encountered field conditions. These changes were implemented by the designer in collaboration with AEM and were documented in Technical Memoranda. Three design change memoranda were issued for the 2016 construction season. These documents are listed in Section 1.6 and can be found in Appendix B.

The design changes of Central Dike and Saddle Dam 3, 4 and 5 that were implemented in previous construction seasons and that were still relevant to the 2016 construction season were carried out. Fourteen design changes documented in technical memoranda were carried out from previous construction seasons to the 2016 construction season. These documents are listed in Section 1.6 and can be found in their respective construction season reports.

Some local field adjustments were made during construction when the encountered conditions were different than the expected conditions. These local adjustments were discussed with the designer and implemented by the Owner's Representative without requiring a change to the design. Field adjustments were documented in the QA Engineer weekly and daily reports.

5.1 General

Design Change – Gradation Limits of Compacted Sieved Till

A change to the Specifications was done to present gradation limits for the compacted sieved till (0-50 mm). Two types of compacted till are defined in the Specifications of Central Dike and Saddle Dams 3, 4 and 5. These are the compacted till (0-150 mm) whose gradation limit is presented in the Specifications and the compacted sieved till (0-50 mm) that must be used within 0.5 m of the LLDPE geomembrane. In the past, the gradation limits of the compacted till has been used for the sieved compacted till. It was pointed out that the use of the compacted till gradation limit for sieved compacted till can lead to a proper material having non-compliant results as it would underestimate the percentage passing through the 50 mm sieves. Therefore, Golder established a particle size envelope for the sieved compacted till by adjusting the particle size distribution of the compacted till for a maximum particle size of 50 mm. This change to the Specifications is documented in technical memorandum Doc 144-1656047 presented in Appendix B.

Field Adjustment – Modification to Sampling Quantity of Till and Coarse Filter

According to ASTM Standard C136, 60 kg of till and 300 kg of coarse filter should be taken for each particle size distribution test. These quantities were too high to be manually sampled with a bucket and a shovel and tested with the available field laboratory testing equipment. As in the previous construction season, smaller quantities of materials were sampled (10-20 kg of material). Care was taken to obtain representative samples while minimizing segregation and a duplicate was taken when it was believed that segregation during sampling could have impacted the results.

Field Adjustment – Extremities of the Upstream Toe Liner Tie-In

In the previous construction season, the rockfill was built to the desired crest elevation and each layer of the upstream toe liner tie-in was stopped at progressively lower elevation so that the upstream toe liner tie-in would not be higher than the rockfill elevation. This technique resulted in a stair configuration for materials placed in the

extremities of each structure that facilitated the extension of the upstream toe liner tie-in without having to dig the inverse filter when raising each structure. However, this technique results in a dike being operational for a lower elevation than the rockfill crest. During the 2016 construction season, it was unknown whether the dike was constructed to its final elevation or whether it would be raised in the future. A decision was made by the Owner's Representative to finish the upstream toe liner tie-in in the extremities of each structure by forming stairs of material. If these structures are not raised further, work will be needed at the extremities of each structure to close the abutment to El. 143 m.

Field Adjustment – Placement of Material in Bedrock Depression

Localized narrow bedrock depressions were encountered on the foundation of the various structures and created some placement and compaction issues. These local depressions were filled with the proper material (rockfill, fine filter or compacted till) and compacted with the bucket of the excavator after each 0.5 m. Once the local depressions were filled, a layer of 0.5 m of the proper material was put over all the approved foundation and compacted per the Specifications. This resulted in having a greater thickness of fine filter or compacted till in localized areas of the foundation, which is acceptable.

Field Adjustment – Slush Grouting of Saddle Dam 3, 4 and 5 Upstream Toe Liner Tie-In

Per Specifications, slush grouting of the 5-m wide cleaned bedrock area of the upstream toe liner tie-in is not required on the Saddle Dams. The Specifications refer to a mix of fine filters plus 10% bentonite by mass above discontinuities greater than 10 mm. On the field it was decided to apply slush grouting in selected areas of the liner tie-in key trench where open discontinuities greater than 10 mm were observed. The slush grout recipe by volume consisted of a mix of 1 to 1-1/3 cement, 2 portions of sand and 2 portions of water. This substitution was more robust than the requirement of the Specification and was approved by the designer.

Field Adjustment – Horizontal Seams during Geomembrane Installation

To optimize the LLDPE quantity available on site during the 2016 construction season, the decision was made by the Owner Representative to allow horizontal seaming for six panels on the slope of Central Dike and four panels for Saddle Dam 4. These panels were spread far appart from each other laterally and were not at the same elevation. Per the Specifications, no horizontal seams are allowed on geomembrane placed on a slope with more than a 5% incline, with the exception of small localized patches to repair defects. The dike designer considers that horizontal seams should be avoided if possible as they are more susceptible to damage as the highest stress is perpendicular to the slope when tailings weigh downward on the geomembrane.

5.2 Central Dike Stage 5

Design Change – Rockfill Quality from El. 137 m to El. 143 m

A change to the design was done to allow the placement of ultramafic rockfill with restrictions on Central Dike from El. 137 to El. 143 m. Per Specifications, the use of good quality non-acid generating rockfill is required on Central Dike. At the beginning of the construction season, it became apparent that the quantity of available good quality NAG rockfill had been overestimated and would not be sufficient. The readily available materials on site were good quality potentially acid-generating (PAG) rockfill and ultramafic rockfill (UM). UM rockfill is considered to be a heterogeneous material whose quality is variable and hard to control (quality varying from very poor to competent). In the previous construction season, some changes were done to allow the placement of UM rockfill at lower dike elevations.

The downstream extension of Central Dike was constructed using good quality PAG rockfill from El. 128 to El. 132 m and good quality N-AG rockfill from El. 132 m to El. 137 m, which meet the Specifications. Golder and AEM agreed to change the design from El. 137 m to El. 143 m to allow the placement of well graded UM rockfill in the centre of each 2-m thick raise if a strip of good quality rockfill N-AG was placed on the upstream side (5m wide) and downstream side (6 m wide). It was also agreed that good quality PAG rockfill could be placed inside the lift and on the upstream side if closure requirements were met. Good quality N-AG rockfill was placed on the downstream strip and PAG rockfill was used on the upstream side. The lift from El. 137 m to El. 139 was entirely made of PAG rockfill except for a 4-m wide downstream strip made of good quality N-AG rockfill. This change in the rockfill configuration at Central Dike is documented in the technical memorandum Doc 1545-1650047 presented in Appendix B. This document also presents Golder's recommendations if AEM intends to raise Central Dike higher than El. 143 m.

Field Adjustment – Foundation Preparation and Placement of Material in the Area Submerged by Water on the Downstream Side

During foundation preparation on the downstream side of Central Dike, the foundation was submerged by the Central Dike downstream pond to El. 115 m (from 0+440 to 0+830 approximately). It was not possible to visually inspect the foundation and it was not possible to pump the water out of this area. Foundation preparation and material placement was done in water on June 8 and June 9, 2016 and supervised by the Owner's Representative as the QA Engineer was not yet present on site.

The majority of the submerged area had been prepared in the past and covered by rockfill and inverse filters materials with only a small zone that had not been prepared. The ice was removed from the pond using a Komatsu 1250 excavator and removed from the dike footprint. Once the ice was removed, the till slope was scraped until refusal. The till was frozen under the water line and some soft material was removed. In the western portion, filter materials were immediately encountered. In the eastern portion, soft material (lakebed sediments and till) were removed from the bottom of the pond until competent till was present in the excavator bucket.

During rockfill placement in the submerged area, the ice was removed with an excavator and the rockfill was placed in the water by a dozer and an excavator. The bucket of the excavator was used to compact the rockfill placed in the water. This operation was supervised by the Owner's Representative as the QA Engineer was not on site.

This field adjustment was discussed with the dike designer prior to being implemented. While presenting some risks, it is considered that this procedure is adequate as only a small zone of the foundation had not been prepared in the past.

5.3 Saddle Dam 3 Stage 2

Design Change – Configuration of the Upstream Toe Liner Tie-In on the North Side of Saddle Dam 3

A design change was done to modify the alignment and configuration of the upstream toe liner tie-in on the north side of Saddle Dam 3. During the 2015 construction season, an abrupt rock face was uncovered on the north side of SD3 (from El. 132 m to El. 141.5 m and from Sta. 20+580 to 20+660 approximately). This abrupt rock face was composed of two small plateaus, one at El. 138 m and one at El. 141 m. This rock face was located near the SD3 faulted zone and the rock quality within the original alignment of the upstream toe liner tie-in was heavily fractured and of poor quality in this sector. In 2015, a field adjustment was done to avoid the fracture which resulted in an

upstream toe liner tie-in located offset from the toe of the dike. During the 2016 construction season, the alignment of the upstream toe liner tie-in was officially modified to reconnect to the original alignment past the heavily fractured zone. The gap between the dike crest and the upstream toe liner tie-in was filled with rockfill on the plateau from El. 138 m to El. 143 m. This resulted in a rockfill bump on the northern extremity of SD3 from Sta. 20+640 to 20+660 approximately. This configuration required a U shape anchor key in the middle of the rockfill bump during geomembrane installation. This configuration helped to construct the upstream toe liner tie-in as per the requirements of the Specifications. This change in the design of the upstream toe liner tie-in of the northern extremity of Saddle Dam 3 is documented in technical memorandum Doc 1546-1656047 presented in Appendix B.

Field Adjustment – Water Inflow during Foundation Preparation

During foundation preparation, two minor inflows of water (less than 10L/min) were localized on the downstream area of Saddle Dam 3 within the faulted zone (20+609 o/s -13 and Sta. 20+630 o/s -12). Both water inflows were plugged with a 1.0-m and 0.6-m thick till plug after the surface was cleaned. The till used for this plug came from foundation preparation at Saddle Dam 3. Samples of the material were taken and tested in the field laboratory to ensure they met the Specifications for compacted till.

5.4 Saddle Dam 4 Stage 2

Field Adjustment – Modification to Inverse Filter Extent (Sta.40+430 to 40+460)

The inverse filters between Sta. 40+430 and 40+460 encountered a steep downward bedrock face of approximately 2 m height (from El. 141 to 143 m). The bedrock surface in this area was compact with limited thinly open discontinuity. On the basis of a good quality bedrock surface, the QA Engineer and the Owner's Representative accepted that the inverse filter in this area be limited to 5 m only rather than at 10 m as prescribed by the Specifications. The gap at the base of the steep rock face was filled with rockfill without placement of inverse filter.

Field Adjustment – Modification to Upstream Toe Liner Tie-In Erosion Protection Layer

During Stage 1 of Saddle Dam 4 in 2015, the erosion protection layer of the upstream toe liner tie-in was made of low quality till. In 2016, due to a shortage of low quality till, the erosion protection cover was reverted to the original design using granular layers consisting of 0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill. A transition was constructed between the segment of the upstream toe liner tie-in made with low quality till and the one made with granular material to respect material compatibility.

5.5 Saddle Dam 5 Stage 2

Field Adjustment – Extent of Material Placement for Plateau at El. 143 m

A plateau at approximately El. 143 m was encountered on the western abutment of Saddle Dam 5 toward Saddle Dam 4. This plateau between Saddle Dam 5 and Saddle Dam 4 presents some depressions lower than El. 143 m. It was verified that there was no continuous depression lower than El. 143 m within the plateau and the placement of rockfill and inverse filter of Saddle Dam 5 was stopped at the edge of the plateau at El. 143 m around station 40+620.

Field Adjustment – Deep Bedrock Discontinuity within Upstream Toe Liner Tie-In

A deep discontinuity within the cleaned bedrock of the upstream toe liner tie-in was encountered. There was a concern that the compacted till would not be able to be efficiently placed in that area. The jointed bedrock in that

area was removed with an excavator so that the placement and compaction of the compacted till in that sector could be done more efficiently. Afterwards, that segment of bedrock was cleaned again.

Report Signature Page

GOLDER ASSOCIÉS LTÉE

REGISTERED PROFESSIONAL ENGINEER
Y. BOULIANNE
LICENSEE
01 March 2017
NT/NU

Frédérick L.Bolduc, P.Eng., M.Sc.
Geotechnical Engineer

Yves Boulianne, P.Eng.
Geotechnical Engineer, Associate

PERMIT TO PRACTICE
GOLDER ASSOCIATES LTD.
Signature
Date 01/MAR/2017
PERMIT NUMBER: P 049
NT/NU Association of Professional Engineers and Geoscientists

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APPENDIX A

AS-BUILT DRAWINGS

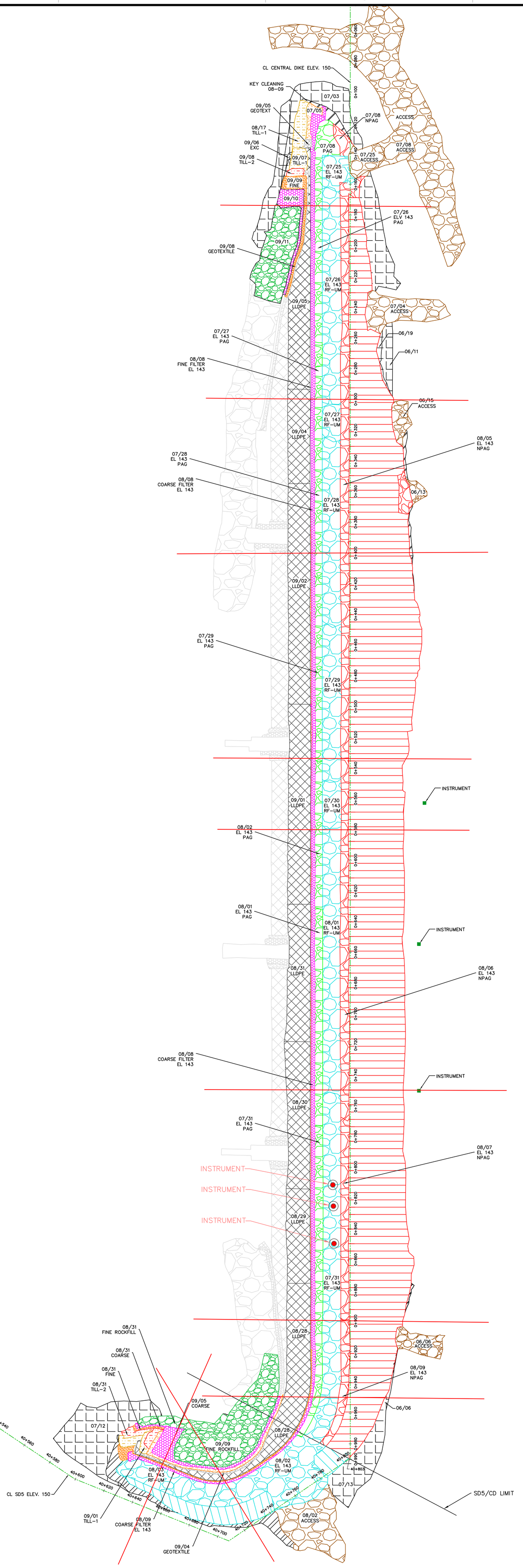
APPENDIX A1

AS-BUILT DRAWINGS

CENTRAL DIKE STAGE 5 AND SADDLE DAM 5 STAGE 2

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE
MEADOWBANK

DRAWN BY: AUBREY DESROCHES — DATE: 2016–09–11
CHECKED BY:
APPROVED BY:
PROJECT NO.:
DATE:

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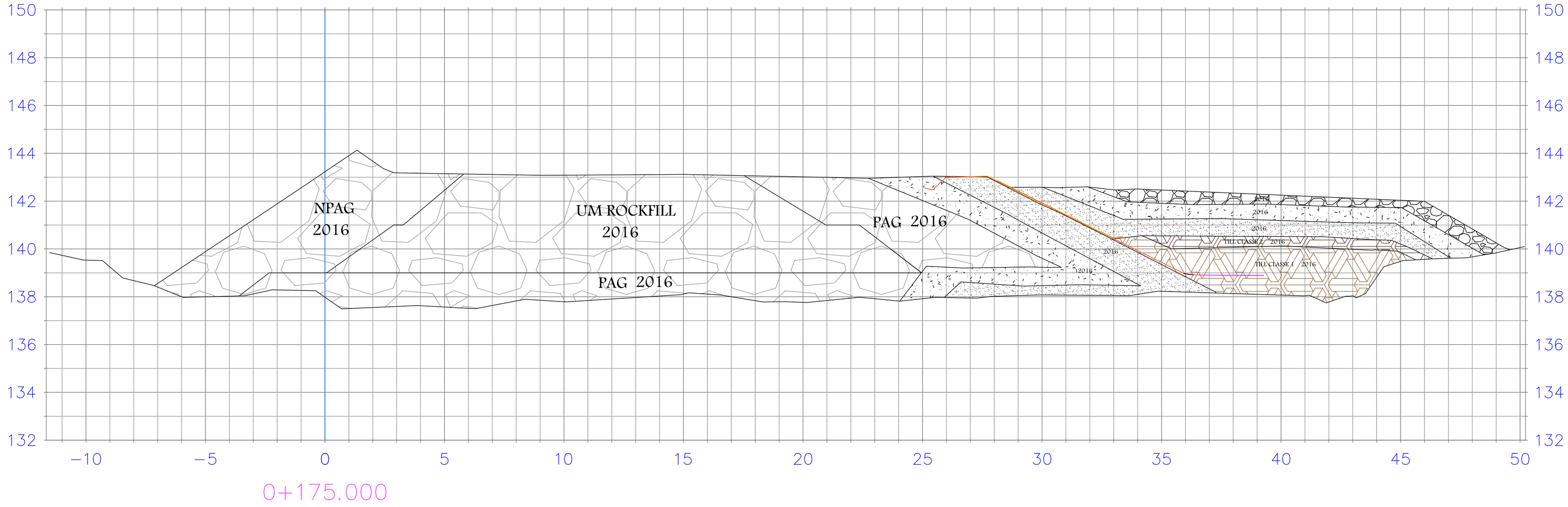
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CENTRAL DIKE–SADDLE DAM 5 PROGRESS

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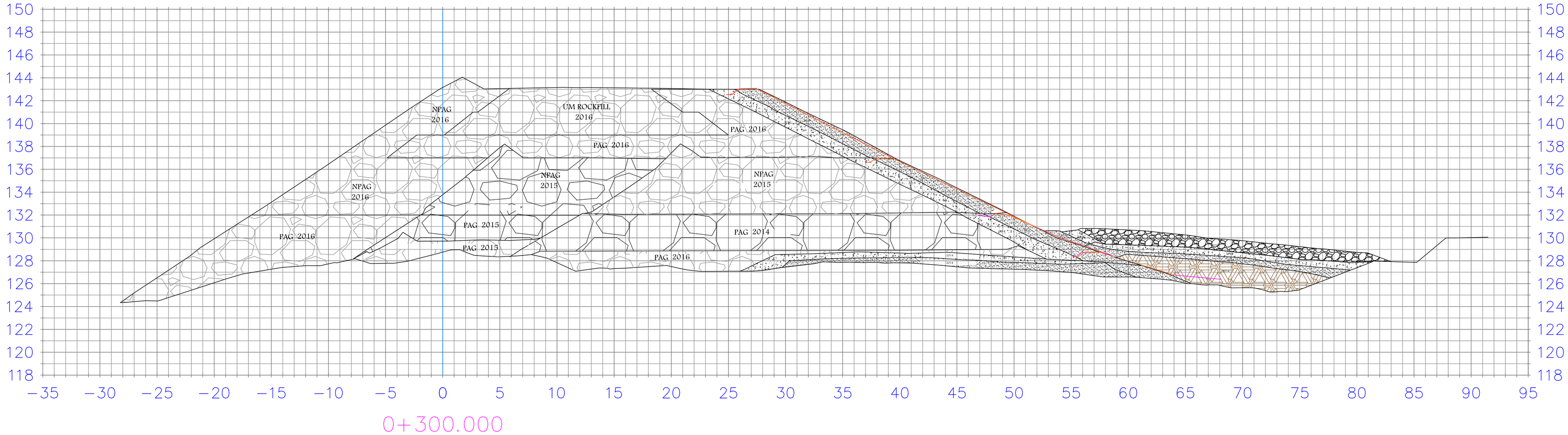
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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



0+175.000



0+300.000

ROCKFILL HAUL BY CONTRACTOR

ROCKFILL HAUL BY MINE

FINE ROCKFILL

COMPACTED TILL

0–20MM

0–150MM

GEOTEXTILE

LLDPE

KEY PLAN

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AGNICO–EAGLE – MEADOWBANK DIVISION
AS BUILT CENTRAL DIKE 2016
SECTION VIEW (0+175.000 AND 0+300.000)

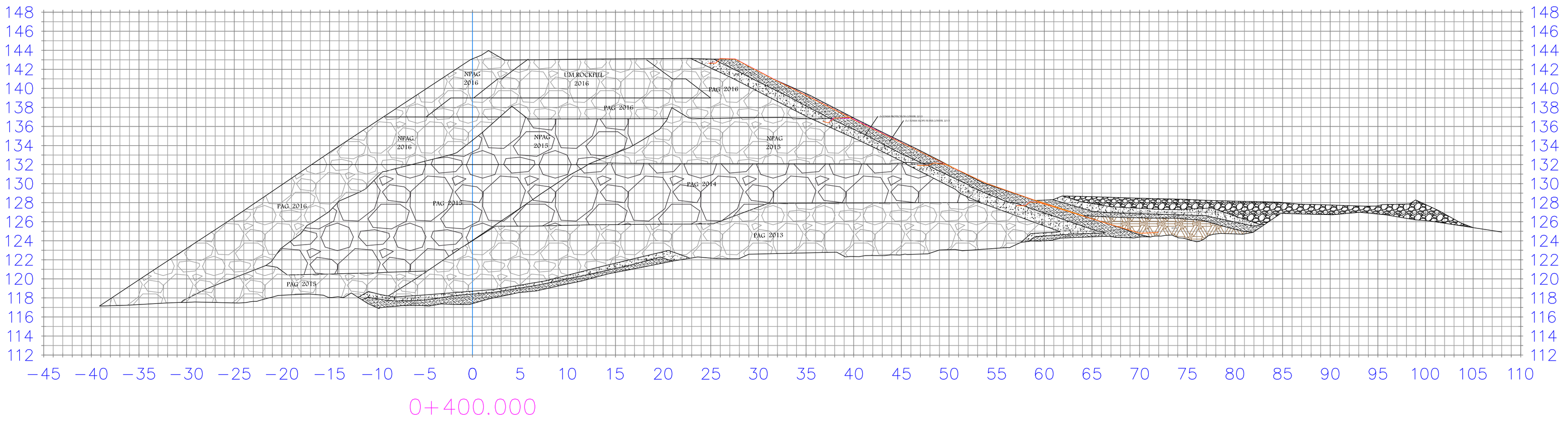
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PROJECT NO.	REVISION / SHEET: 2 / 6

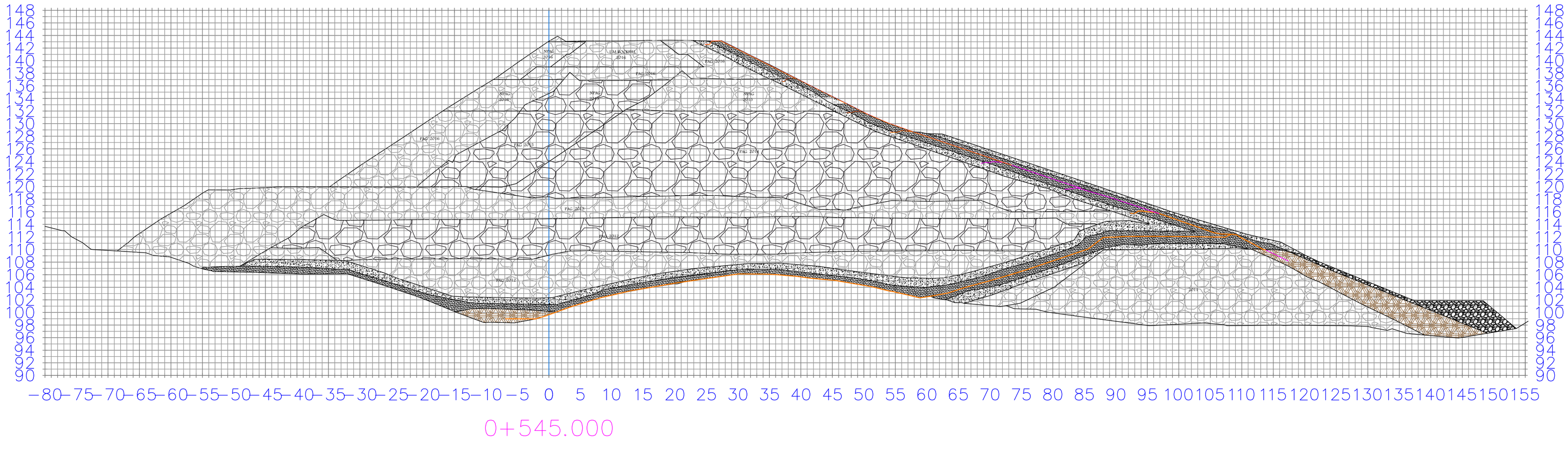
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FILE NO. .DWG

DRAWING NO.

FORMAT ARCHD–LANDSCAPE





ROCKFILL HAUL BY CONTRACTOR

ROCKFILL HAUL BY MINE

FINE ROCKFILL

COMPACTED TILL

0–20MM

0–150MM

GEOTEXTILE

LLDPE

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REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

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MEADOWBANK

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AS BUILT CENTRAL DIKE 2016
SECTION VIEW (0+400.000 AND 0+545.000)

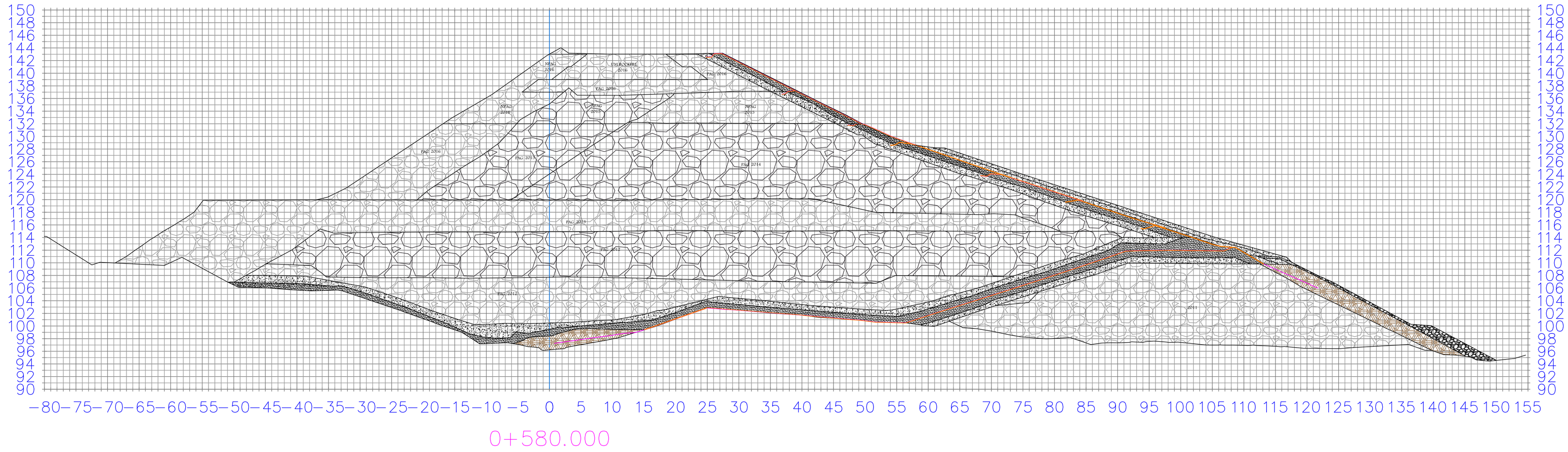
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PROJECT NO.	REVISION / SHEET
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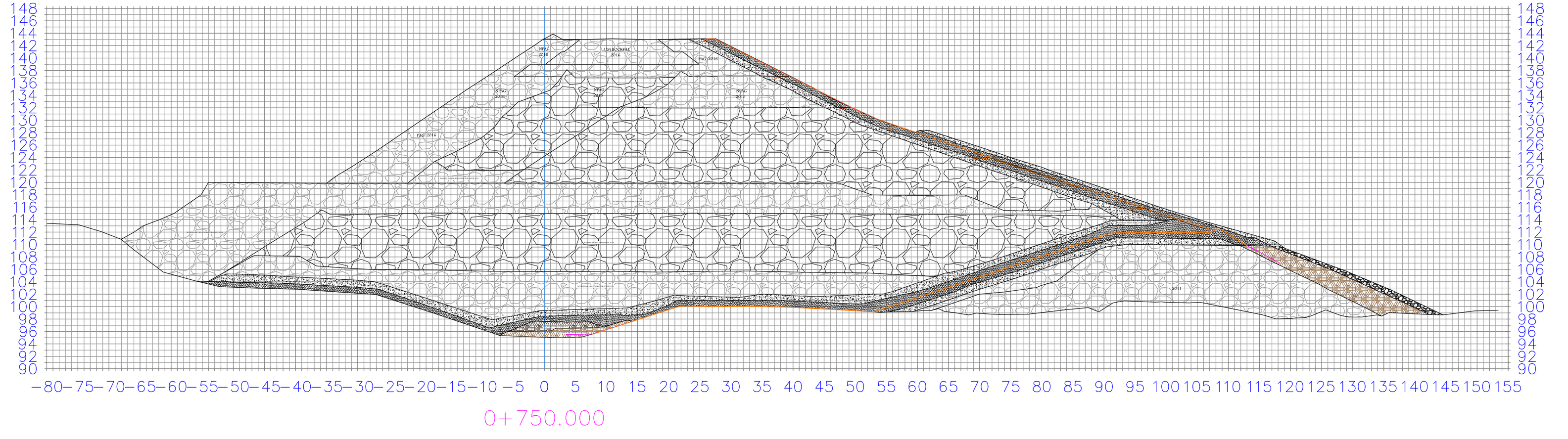
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FILE NO. .DWG

DRAWING NO.

FORMAT ARCHD–LANDSCAPE





ROCKFILL HAUL BY CONTRACTOR

ROCKFILL HAUL BY MINE

FINE ROCKFILL

COMPACTED TILL

0–20MM

0–150MM

GEOTEXTILE

LLDPE

KEY PLAN

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AS BUILT CENTRAL DIKE 2016
SECTION VIEW (0+580.00 AND 0+750.000

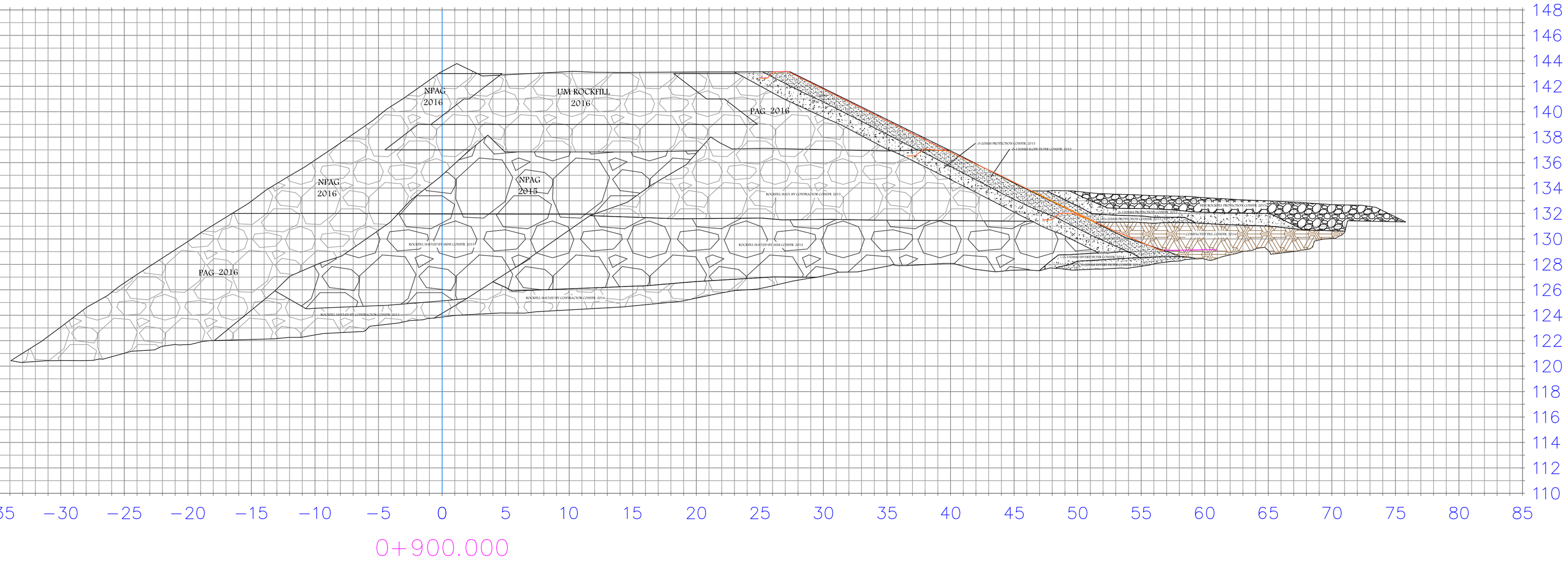
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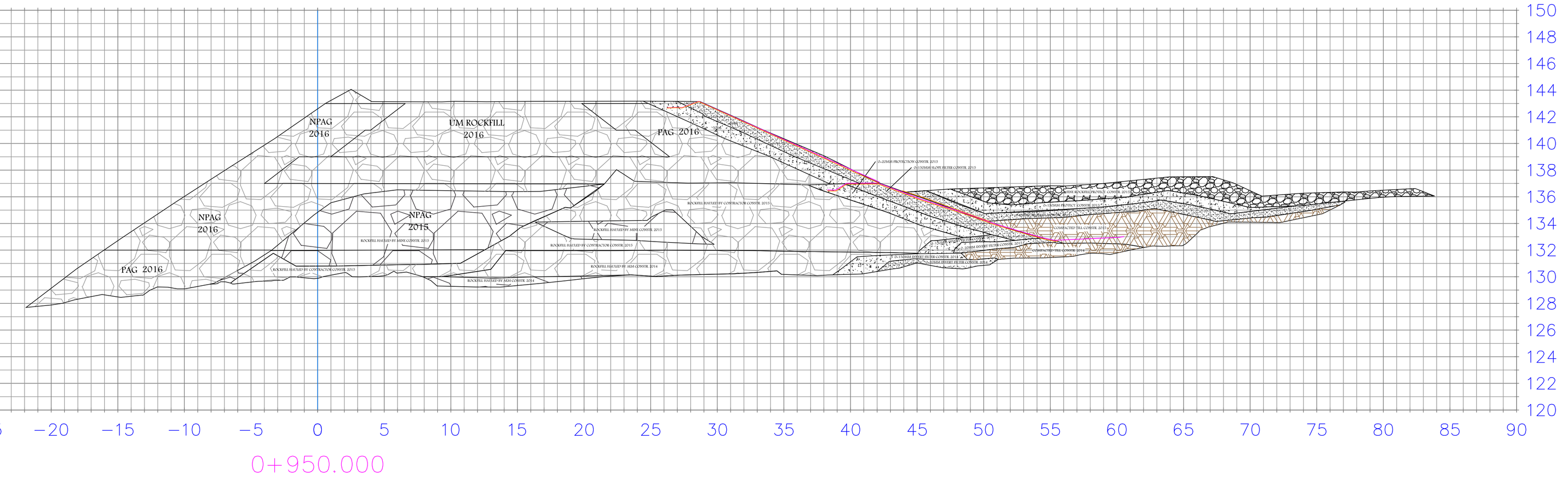
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FILE NO. .DWG

DRAWING NO.

FORMAT ARCHD–LANDSCAPE





ROCKFILL HAUL BY CONTRACTOR
ROCKFILL HAUL BY MINE
FINE ROCKFILL
COMPACTED TILL
0–20MM
0–150MM
GEOTEXTILE
LLDPE

KEY PLAN

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
AS BUILT CENTRAL DIKE 2016
SECTION VIEW (0+900.000 AND 0+950.000)

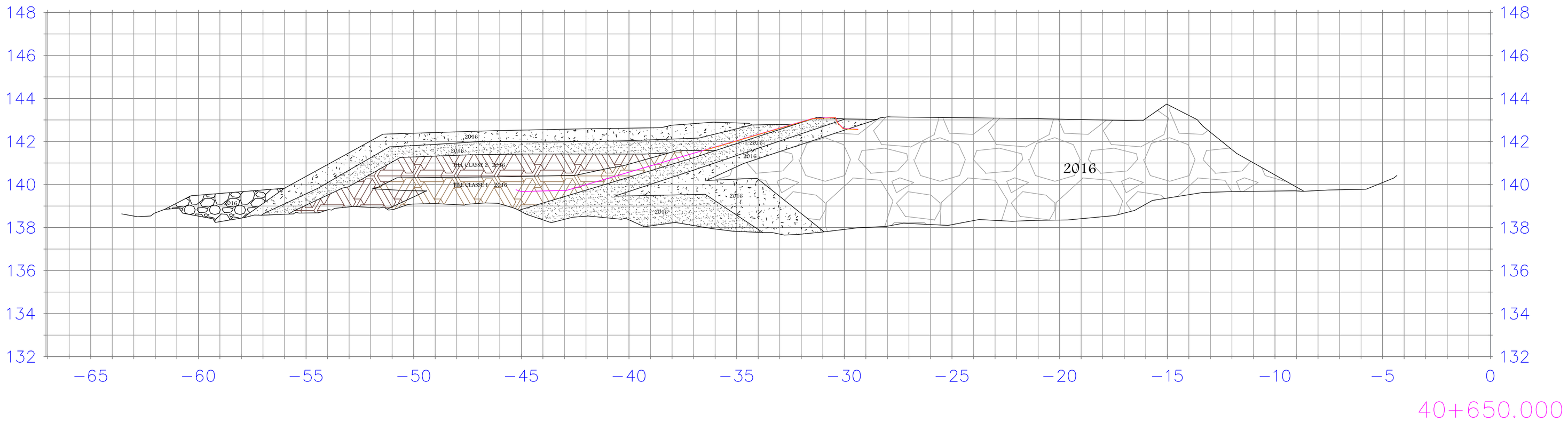
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PROJECT NO.	REVISION: SHEET: 5 / 6

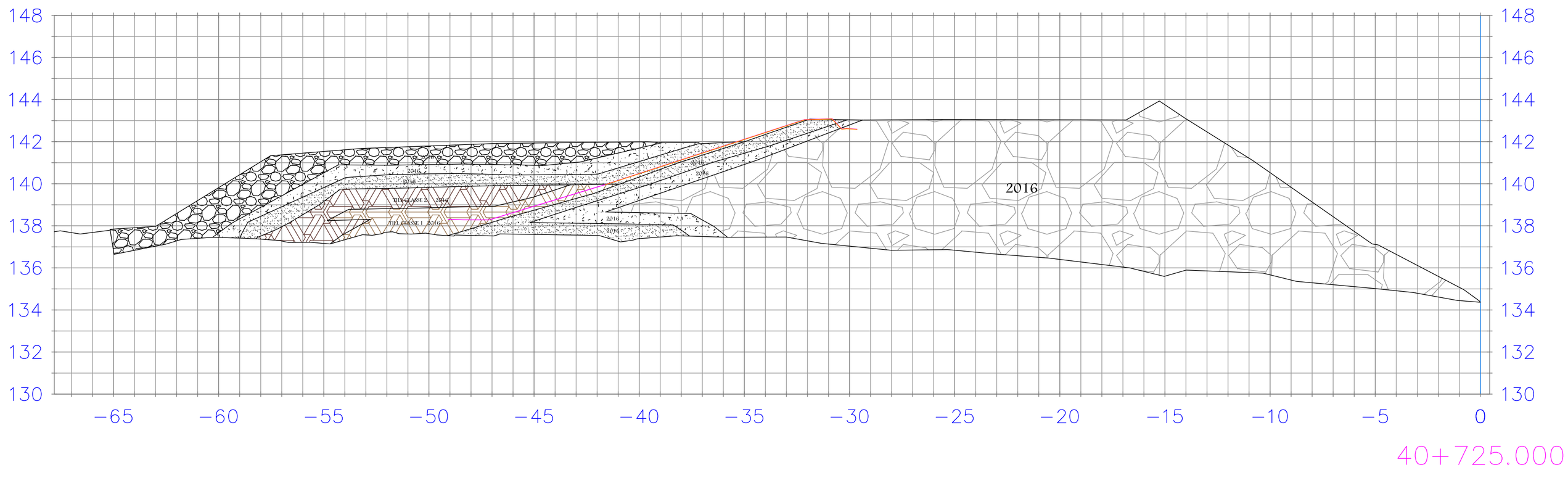
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FILE NO. .DWG

DRAWING NO.

FORMAT ARCHD–LANDSCAPE





ROCKFILL HAUL BY CONTRACTOR

ROCKFILL HAUL BY MINE

FINE ROCKFILL

COMPACTED TILL

0–20MM

0–150MM

GEOTEXTILE

LLDPE

KEY PLAN

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
AS BUILT SADDLE DAM 5 2016
SECTION VIEW (40+650.000 AND 40+725.000)

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APPROVED BY:	
SCALE: N.T.S.	DATE:
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PROJECT NO.	REVISION / SHEET: 6 / 6

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FILE NO. .DWG

APPENDIX A2

AS-BUILT DRAWINGS - SADDLE DAM 3 STAGE 2

DRAWING NO.

FORMAT ARCHD–PORTRAIT

SECTION VIEW 20+600

SECTION VIEW 20+620

SECTION VIEW 20+630

SECTION VIEW 20+700

SECTION VIEW 0+760

20+560

20+580

PC: 20+578.82

Mid: 20+587.05

PT: 20+595.27

20+620

20+640

20+660

20+680

20+700

20+720

20+740

20+760

20+780

20+800

20+820

INSTRUMENT

INSTRUMENT

INSTRUMENT

INSTRUMENT

ELEVATION 143

TILL 2015

CENTER LINE
ELEVATION 150

ACCESS ROAD

ACCESS ROAD

ACCESS ROAD

ACCESS ROAD

N

LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

PROJECTION SYSTEM
UTM ZONE 14 NORTH

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY: AUBREY DESROCHES — DATE: 2016–09–11
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DATE:

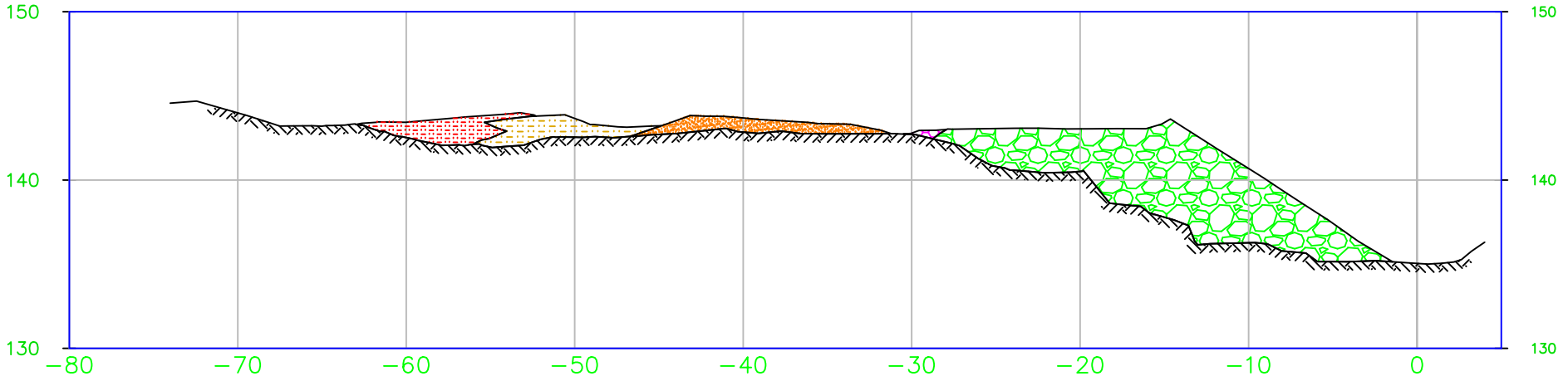
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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3
AS BUILT 2016
PLAN VIEW

SCALE: 1:300 — FILE: SD3_PROGRESS.DWG
DRAWING NO. — REVISION — SHEET: 1 / 6

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20+600.00



LEGEND

TILL CLASS 1	FINE FILTER 0–20MM	DIKE 2015	FINE ROCKFILL
TILL CLASS 2	COARSE FILTER 0–150MM	LLDPE	BEDROCK
TILL CLASS 3	ROCKFILL	GEOTEXTILE	

REV	DATE	DESCRIPTION	BY

REVISIONS

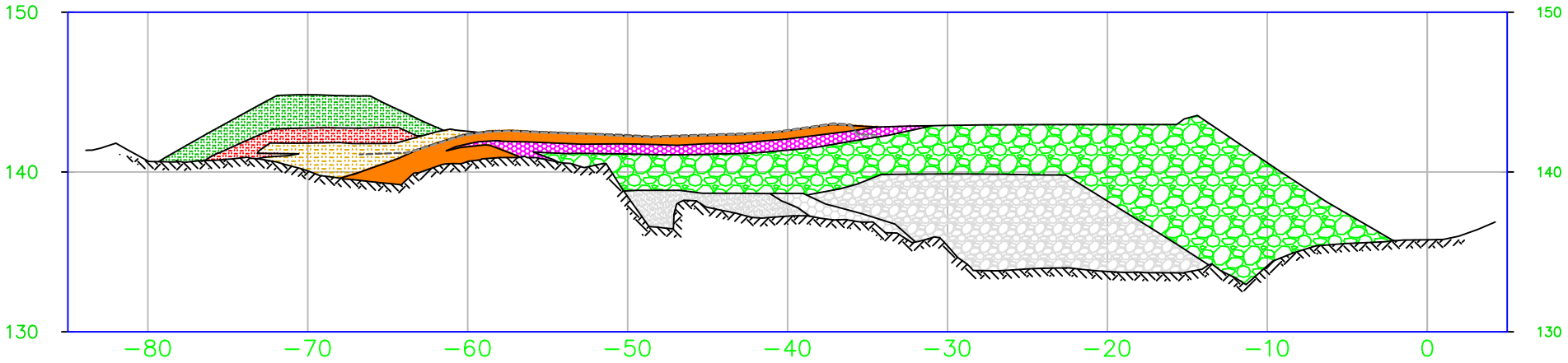
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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD3 AS BUILT 2016
SECTION VIEW 20+600

PROJECT No.	DATE 2016–09–11
DRAWN BY AUBREY DESROCHES	SHEET 2 / 6
APPROVED BY	
DRAWING NO.	REVISION

20+620.00



LEGEND

TILL CLASS 1	FINE FILTER 0–20MM	DIKE 2015	FINE ROCKFILL
TILL CLASS 2	COARSE FILTER 0–150MM	LLDPE	BEDROCK
TILL CLASS 3	ROCKFILL	GEOTEXTILE	

REV	DATE	DESCRIPTION	BY

REVISIONS

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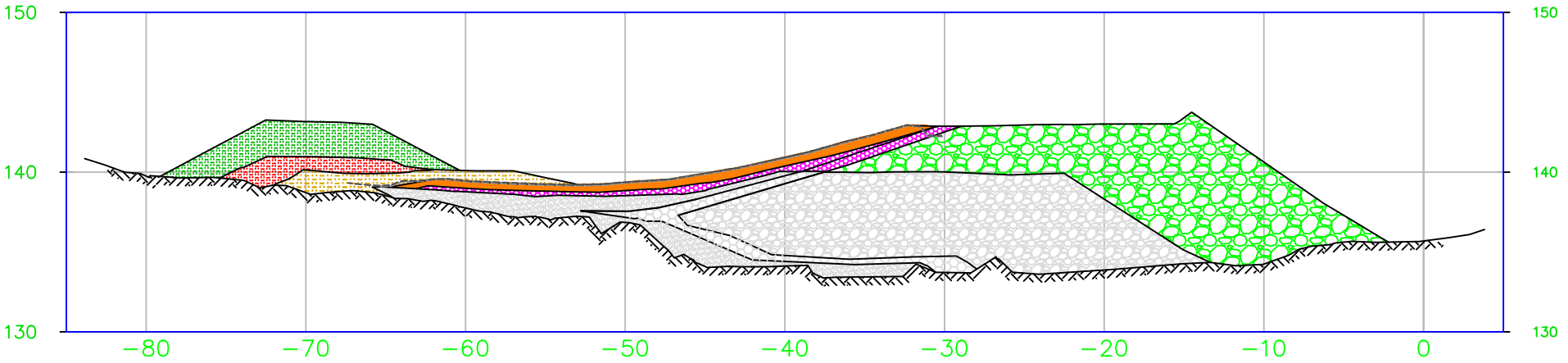
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SD3 AS BUILT 2016
SECTION VIEW 20+620

PROJECT No.	DATE 2016–09–11	
DRAWN BY AUBREY DESROCHES		SHEET 3 / 6
APPROVED BY		
DRAWING NO.		REVISION

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FILE NO. .DWG

20+630.00



LEGEND

TILL CLASS 1	FINE FILTER 0–20MM	DIKE 2015	FINE ROCKFILL
TILL CLASS 2	COARSE FILTER 0–150MM	LLDPE	BEDROCK
TILL CLASS 3	ROCKFILL	GEOTEXTILE	

REV	DATE	DESCRIPTION	BY

REVISIONS

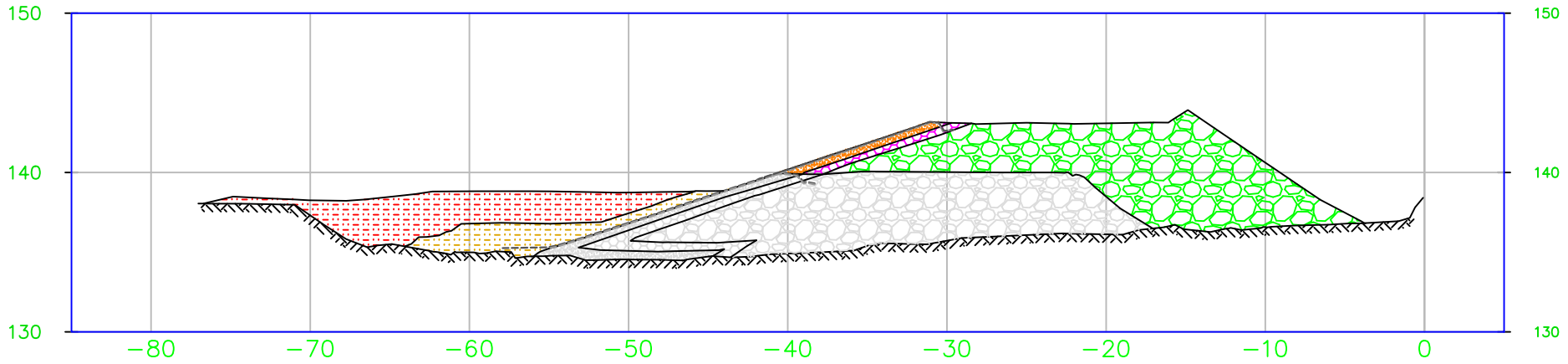
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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD3 AS BUILT 2016
SECTION VIEW 20+630

PROJECT No.	DATE 2016–09–11
DRAWN BY AUBREY DESROCHES	SHEET 4 / 6
APPROVED BY	
DRAWING NO.	REVISION

20+700.00



LEGEND

TILL CLASS 1	FINE FILTER 0–20MM	DIKE 2015	FINE ROCKFILL
TILL CLASS 2	COARSE FILTER 0–150MM	LLDPE	BEDROCK
TILL CLASS 3	ROCKFILL	GEOTEXTILE	

REV	DATE	DESCRIPTION	BY

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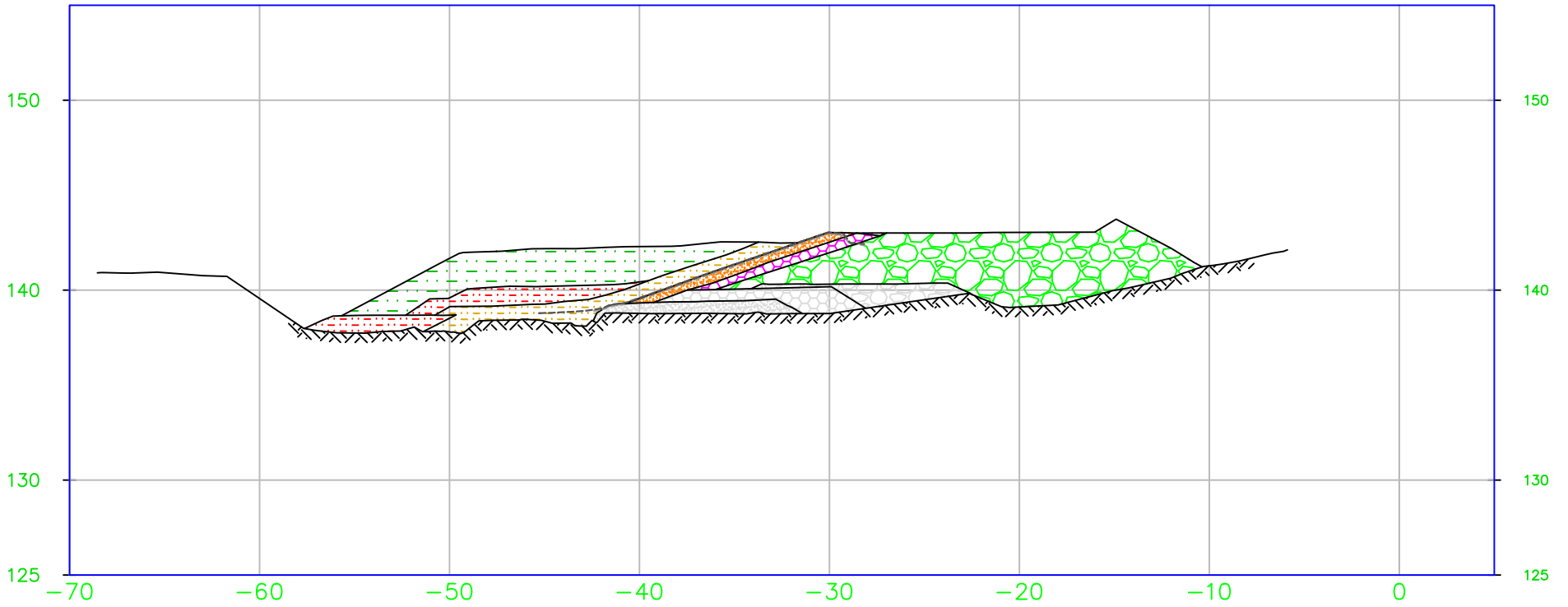
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD3 AS BUILT 2016
SECTION VIEW 20+700

PROJECT No.	DATE 2016–09–11	
DRAWN BY AUBREY DESROCHES		SHEET 5 / 6
APPROVED BY		
DRAWING NO.		REVISION

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FILE NO. .DWG

20+760.00



LEGEND

TILL CLASS 1	FINE FILTER 0–20MM	DIKE 2015	FINE ROCKFILL
TILL CLASS 2	COARSE FILTER 0–150MM	LLDPE	BEDROCK
TILL CLASS 3	ROCKFILL	GEOTEXTILE	

REV	DATE	DESCRIPTION	BY

REVISIONS

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD3 AS BUILT 2016
SECTION VIEW 20+760

PROJECT No.	DATE 2016–09–11	
DRAWN BY AUBREY DESROCHES		SHEET 6 / 6
APPROVED BY		
DRAWING NO.		REVISION

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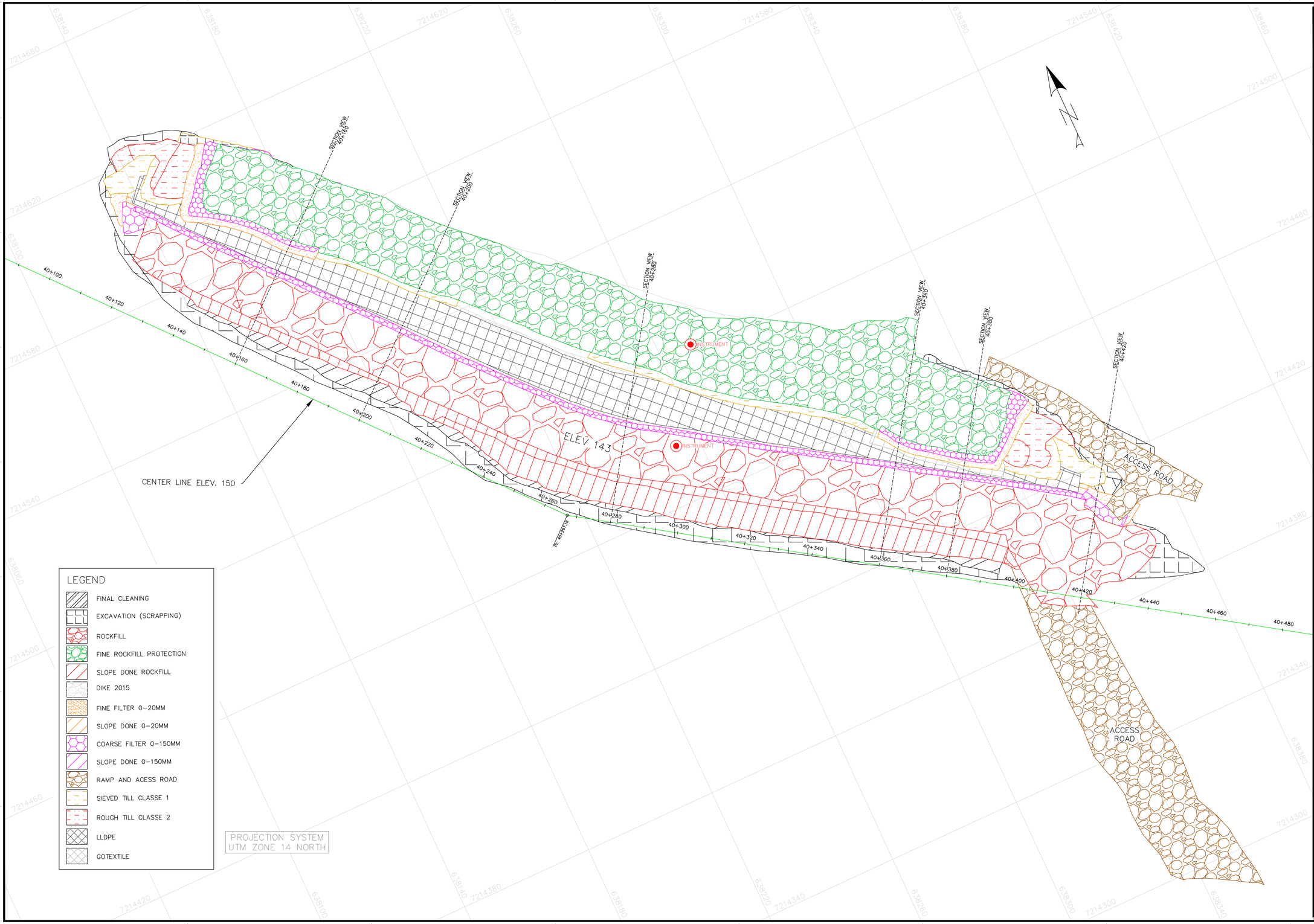
FILE NO. .DWG

APPENDIX A3

AS-BUILT DRAWINGS - SADDLE DAM 4 STAGE 2

DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE
- GOTEXTILE

PROJECTION SYSTEM
UTM ZONE 14 NORTH

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
AS BUILT 2016

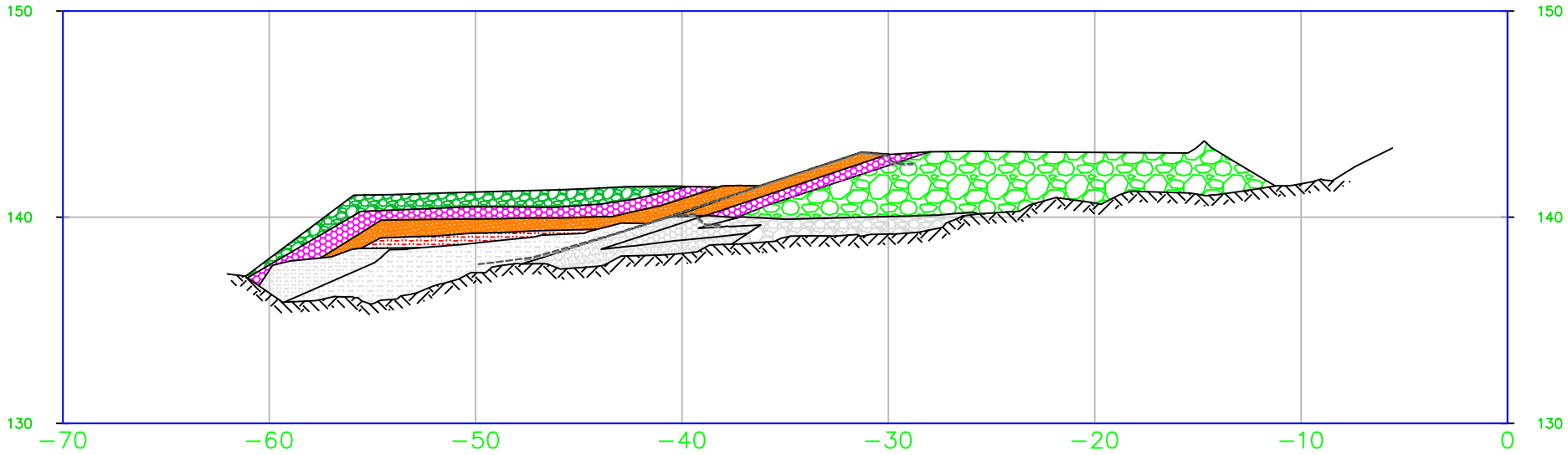
PLAN VIEW

DRAWN BY: AUBREY DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–09–12
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 7

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FILE NO. .DWG

40+160.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

REV	DATE	DESCRIPTION	BY

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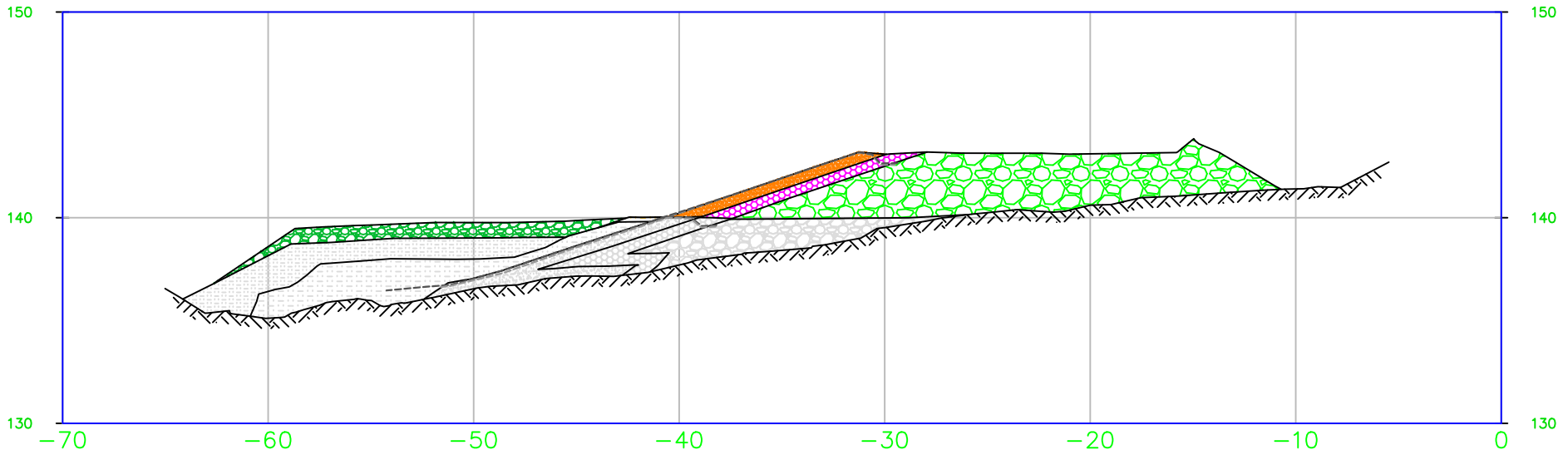
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+160

PROJECT No.	DATE 2016–09–12
DRAWN BY AUBREY DESROCHES	SHEET 2 / 7
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

40+200.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

REV	DATE	DESCRIPTION	BY

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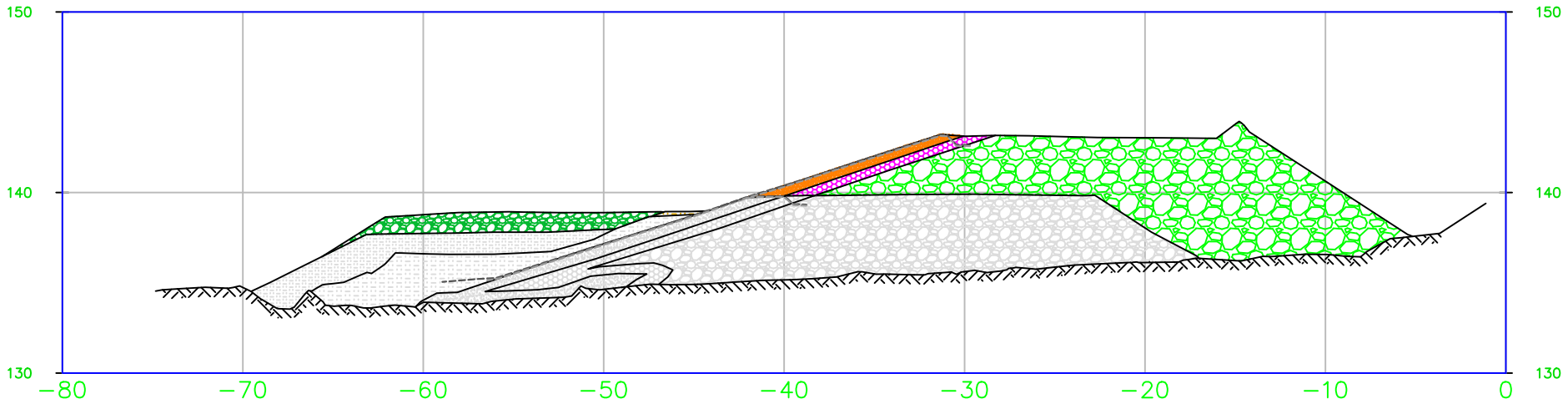
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+200

PROJECT No.	DATE 2016–09–12
DRAWN BY AUBREY DESROCHES	SHEET 3 / 7
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

40+280.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

REV	DATE	DESCRIPTION	BY

REVISIONS

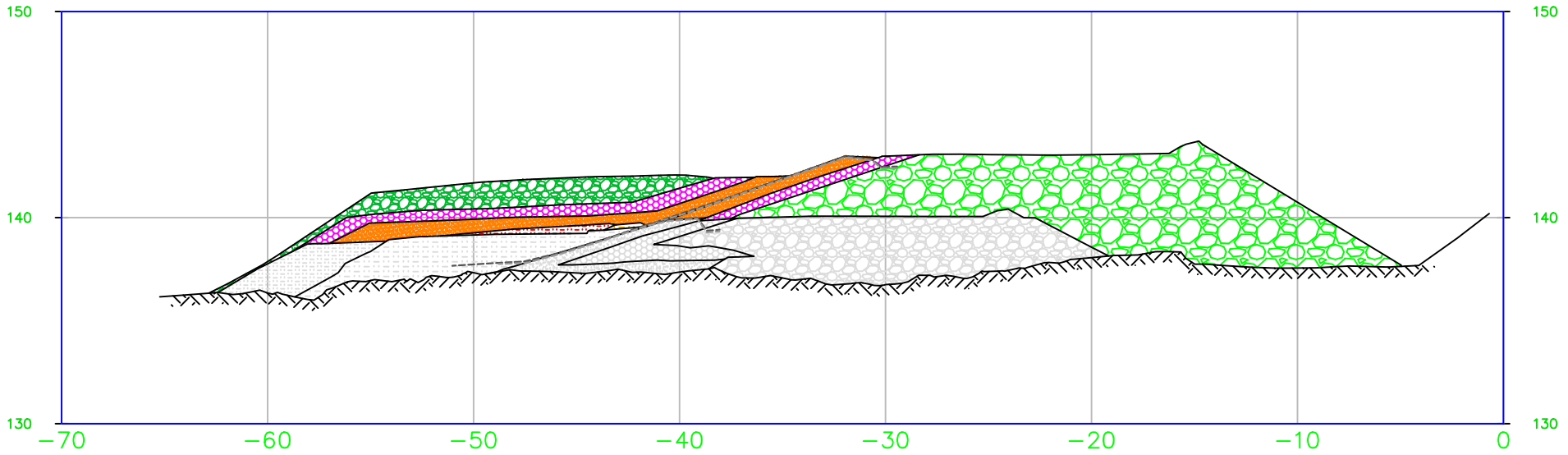
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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+280

PROJECT No.	DATE 2016–09–12
DRAWN BY AUBREY DESROCHES	SHEET 4 / 7
APPROVED BY	
DRAWING NO.	REVISION

40+360.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

REV	DATE	DESCRIPTION	BY

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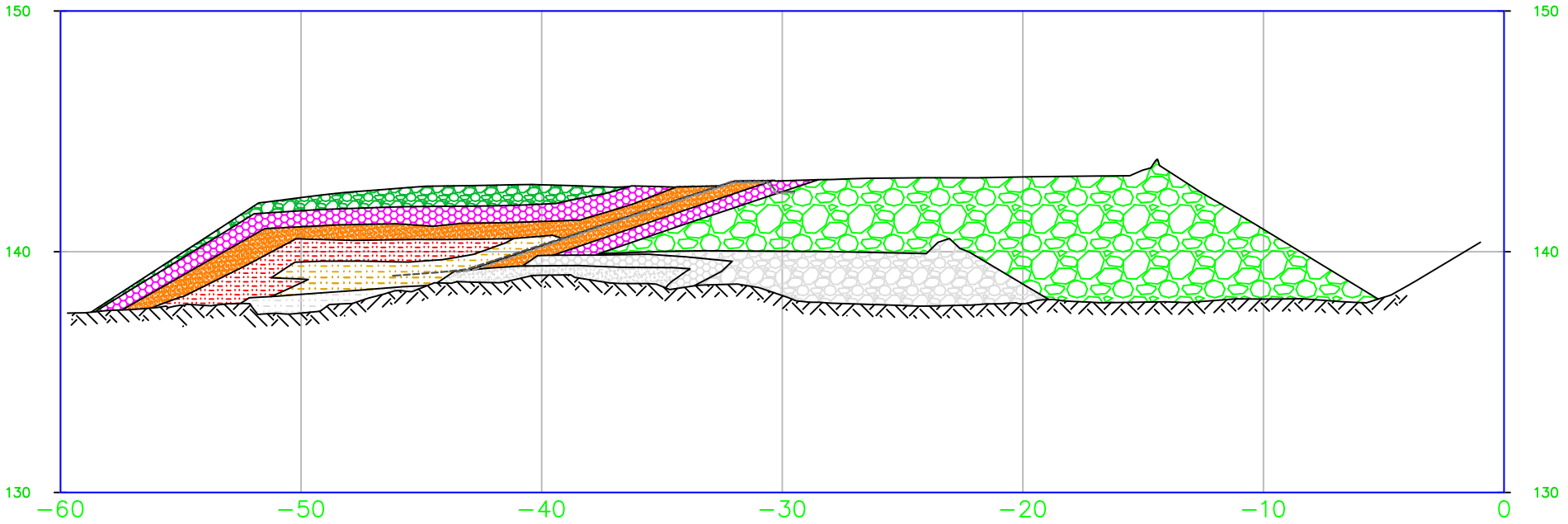
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+360

PROJECT No.	DATE 2016–09–12
DRAWN BY AUBREY DESROCHES	SHEET 5 / 7
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

40+380.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

REV	DATE	DESCRIPTION	BY

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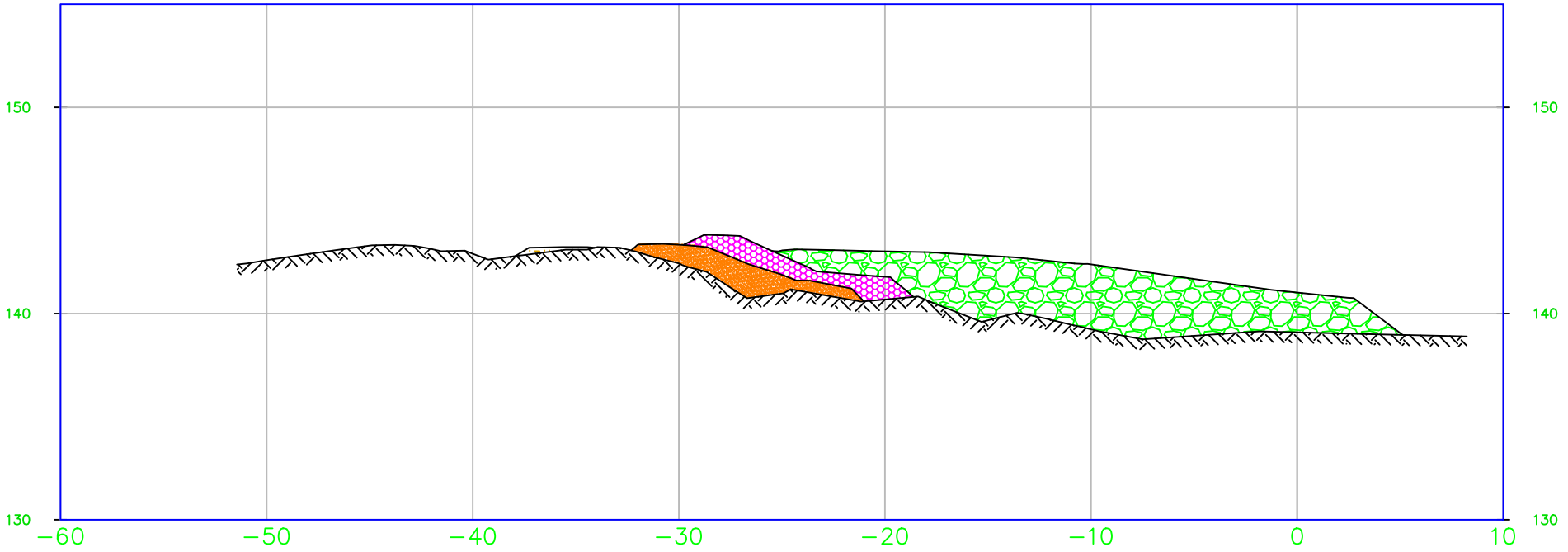
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+380

PROJECT No.	DATE 2016–09–12	
DRAWN BY AUBREY DESROCHES		SHEET 6 / 7
APPROVED BY		
DRAWING NO.		REVISION

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FILE NO. .DWG

40+420.00



LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINE FILTER 0–20MM
- COARSE FILTER 0–150MM
- ROCKFILL
- DIKE 2015
- LLDPE
- GEOTEXTILE
- FINE ROCKFILL
- BEDROCK

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SD4 AS BUILT 2016
SECTION VIEW 40+420

PROJECT No.	DATE 2016–09–12
DRAWN BY AUBREY DESROCHES	SHEET 7 / 7
APPROVED BY	
DRAWING NO.	REVISION

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FILE NO. .DWG

APPENDIX B

DESIGN MODIFICATIONS DOCUMENTS

TECHNICAL MEMORANDUM

DATE August 1, 2016 **REFERENCE No.** Doc 1544-1656047-Rev0

TO Patrice Gagnon and Rebecca Cousineau
AEM

CC Thomas Lépine, Julie Bélanger, Pierre McMullen and Yves Boulianne

FROM Michaël D. Bonin and Frédérick L. Bolduc **EMAIL** mdemersbonin@golder.com

PRESENTATION OF A NEW PARTICLE SIZE ENVELOPE FOR THE SIEVED COMPACTED TILL

INTRODUCTION

This technical memorandum presents a new envelope which aims at defining the gradation limits for the Compacted Sieved Till being used for the construction of the South Cell of the tailings storage facility (TSF) at Meadowbank.

Two types of Compacted Till are defined in the Technical Specifications of Central Dike (CD) and Saddle Dams (SD) 3, 4 and 5. These materials are used to construct the Upstream Toe Liner Tie-In of these structures. In the Technical Specifications, these materials are defined as follows:

- **Compacted Till** which shall have a maximum particle size of 150 mm; and
- **Compacted Sieved Till** that must be used within 0.5 m of the LLDPE geomembrane and shall have a maximum particle size of 50 mm.

Moreover, both types must meet the following requirements:

- They must be well graded;
- They must be plastic; and
- They must contain a minimum of 20-35% of material passing No. 200 sieve.

The Technical Specifications only present the Gradation Limits of the Compacted Till, which are presented in Table 1.

In the past, the gradation limits of the Compacted Till have been used for the Sieved Compacted Till. However, the use of the gradation limits of the Compacted Till for the Compacted Sieved Till can lead to a proper material having non compliant results as it underestimates the percentage passing through the 50 mm sieve. A sieved sample with a maximum particle size of 50 mm will show 100% passing through the 50 mm sieve, whereas an unsieved sample would show a smaller percentage. Therefore, Golder has established a particle size envelope for the Sieved Compacted Till by adjusting the particle size distribution of the Compacted Till distribution for a maximum particle size of 50 mm.

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Table 1: Gradation Limits for Compacted Till

Grain size (mm)	Percentage passing by mass (%)
152.4	100
76.2	90-100
25.4	75-91
12.7	65-84
4.76	53-73
0.425	33-48
0.075	20-35

GRADATION LIMITS FOR SIEVED COMPACTED TILL

A correction was applied to the existing envelope of the Compacted Till to establish the envelope for the Sieved Compacted Till. This correction is based on the criteria that 100% of the material must pass through the 50 mm sieve. Table 2 presents the gradations limits for the Compacted Sieved Till. Figure 1 shows those gradation limits with reference to those of the Compacted Till. The red lines only apply to the Compacted Sieved Till. The gradation limits presented in the Technical Specifications for CD and SD 3, 4 and 5 (Doc 1327 11-1221-00350Rev0 and Doc 1498) still apply to the Compacted Till (black lines).

Table 2: Gradation Limits for Compacted Sieved Till

Grain size (mm)	Percentage passing by mass (%)
50	100
25.4	85-100
12.7	75-94
4.76	63-83
0.425	43-58
0.075	30-45

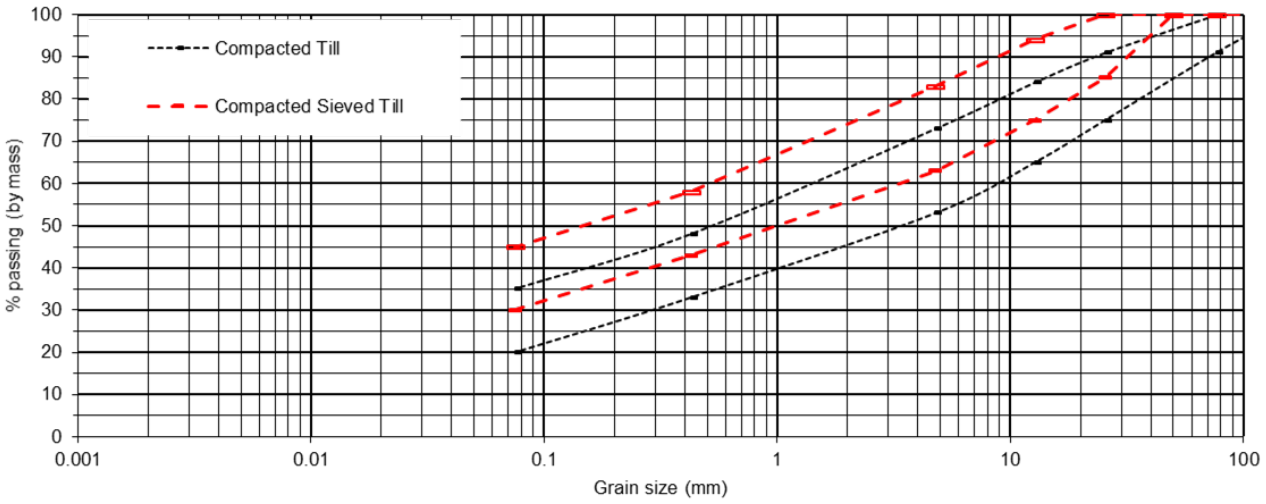


Figure 1: Gradation Limits for Compacted Till and Gradation Limits for Compacted Sieved Till

GOLDER ASSOCIÉS LTÉE

ORIGINAL SIGNED

Michaël D.Bonin, ing, M.Sc.A.
QA Engineer

ORIGINAL SIGNED

Michaël D.Bonin, ing, M.Sc.A.
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng
Associé, Project Director

MDB/FLB/YB/jlm

c:\users\jlacostemccormick\desktop\doc 1544-1656047-rev0 new particle size of sieved till - jlm-yb.docx

TECHNICAL MEMORANDUM

DATE October 17, 2016 **REFERENCE No.** Doc 1545-1606047-Rev0

TO Patrice Gagnon and Rebecca Cousineau
AEM

CC Thomas Lépine, Julie Bélanger, Pierre McMullen and Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

TECHNICAL UPDATES ABOUT THE PLACEMENT OF GOOD QUALITY NON-AG ROCKFILL ON CENTRAL DIKE AT EL. 143 M

Agnico Eagle Mines (AEM) has requested that Golder Associés Ltée (Golder) provide a technical opinion about the modified configuration of Central Dike for its raise to 143 m during the 2016 construction season.

Background

AEM is raising the dikes surrounding the South Cell of the Meadowbank tailings storage facility (TSF) to El. 143 m during the 2016 construction season. AEM's original plan was to use a good quality non-acid generating (AG) rockfill on Central Dike as per the requirements of the technical specifications. At the beginning of the construction season, it became apparent that the quantity of available good quality non-AG rockfill had been overestimated and would not be sufficient. The readily available materials on site were good quality potentially acid generating (PAG) rockfill and ultramafic rockfill (UM). UM rockfill is considered to be a heterogeneous material whose quality is variable and hard to control (quality varying from very poor to competent).

Following discussions between Golder and AEM (held on June 21 and June 23, 2016), it was agreed that well-graded UM rockfill could be placed in the centre of each 2 m-thick raise of Central Dike from El. 137 m to El. 143 m if a shell of good quality rockfill was placed on the upstream side (5 m width) and downstream side (6 m width). It was also agreed that good quality PAG rockfill could be placed in the centre and on the upstream side if AEM's closure requirements were met. Following these discussions, AEM produced a modified cross-section for the construction of Central Dike in 2016 based on the available quantity of each material on site. The configuration drawn by AEM was transmitted on July 12, 2016, and is presented in Figure 1 below.

The objective of placing a 5 m shell of good quality rockfill on the upstream side is to limit the differential settlement of the liner that could occur due to the uncertainty regarding the degradation of the UM rockfill in the long term. The objective of placing a 6 m shell of good quality rockfill on the downstream side is to increase the safety factor against slope instability as the internal friction angle of good quality rockfill is assumed to be higher than the friction angle of degraded UM rockfill.

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Golder Associés Ltée
9200, boul. de l'Acadie, bureau 10, Montréal (Québec) Canada H4N 2T2
Tel: +1 (514) 383 0990 Fax: +1 (514) 383 5332 www.golder.com
Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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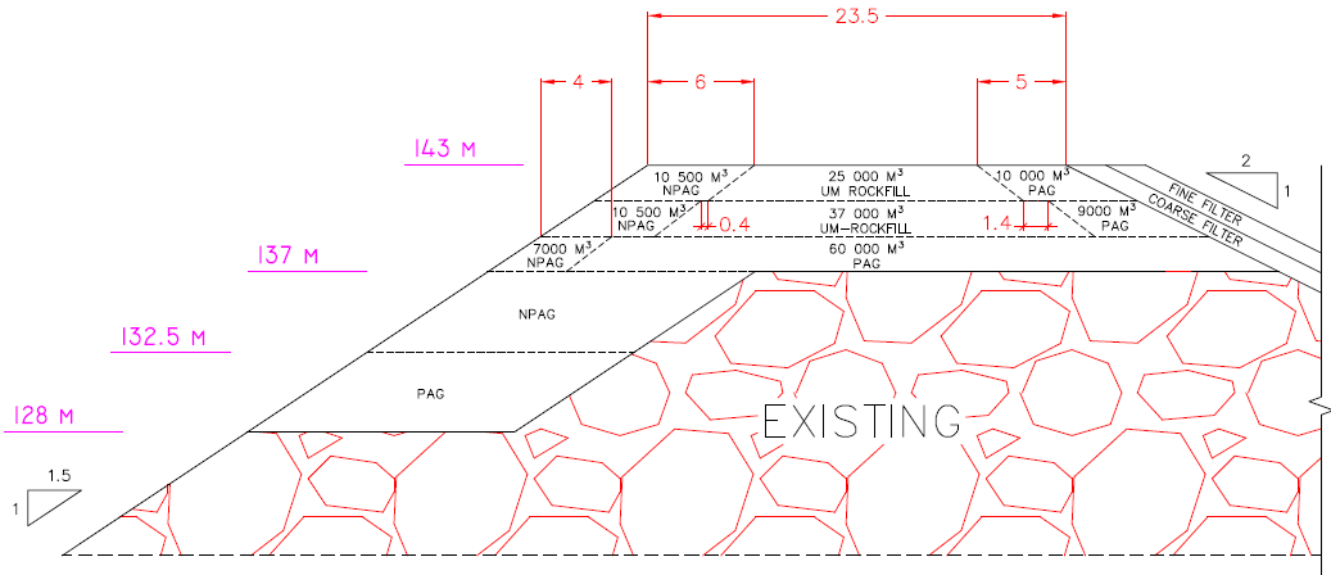


Figure 1: Cross-section for the raise of Central Dike to El. 143 m. The downstream is on the left side.

Assessment of the Central Dike 2016 Configuration

Based on a series of stability analyses for a similar configuration completed in 2015 (Doc 1518-15-28661), our opinion is that the configuration of Central Dike being built this year from El. 128 m to 143 m as shown in Figure 1 does not trigger stability concerns. As a reminder and as done so far on site by the QA team, it is important that the UM rockfill being placed on the dike is well graded and that the cobbles and block particles are in contact with each other and not isolated within a rock powder matrix.

If AEM intends to raise Central Dike higher than El. 143 m, it is very important that Golder be informed and involved early in the discussion to elaborate the rockfill cross-section that would be placed on Central Dike above El. 143 m. It is also recommended to complete the ongoing investigation program on the property of the UM rockfill in order to gather a better understanding of the resistance properties of this material and its resistance to degradation.

The original closure concept of Central Dike was to have a 4 m shell (measured perpendicularly) of non-AG rockfill above the final elevation of Third Portage Lake. The closure concept of Central Dike has recently been reviewed by AEM in collaboration with another consultant. AEM will need to make sure that the proposed changes to the Central Dike configuration will not negatively impact the closure of Central Dike. As the designer of the South Cell of the TSF, we recommend that Golder be informed of any modification to the initial closure strategy of Central Dike to assess if these changes will impact the stability of the structure, its long term performance and the closure of the South Cell.

GOLDER ASSOCIÉS LTÉE

ORIGINAL SIGNED

Frédérick L.Bolduc, P.Eng, M.Sc.A.
Project Manager

ORIGINAL SIGNED

Yves Boulianne, P.Eng
Associate, Project Director

MDB/FLB/YB/

n:\actif\2016\3 proj\1656047 aem qa tsf 2016 meadowbank\5 preparation of deliverables\doc 1545 rockfill cd\rev 0\doc 1545-1656047-rev0 assessment on cd 2016 configuration.docx

TECHNICAL MEMORANDUM

DATE January 19, 2017 **REFERENCE No.** Doc 1546-1606047-Rev0

TO Patrice Gagnon and Rebecca Cousineau
AEM

CC Thomas Lépine, Julie Bélanger, Pierre McMullen and Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

TECHNICAL UPDATES ABOUT THE CONFIGURATION OF THE UPSTREAM TOE LINER TIE-IN ON THE NORTH SIDE OF SADDLE DAM 3 – MEADOWBANK (1656047)

Agnico Eagle Mines (AEM) requested that Golder Associés Ltée (Golder) provide a technical update regarding the configuration of the upstream toe liner tie-in (UTLT-I) on the northern side of Saddle Dam 3.

This memo aims to review the reasons that motivated the new alignment of the UTLT-I during the 2015 and 2016 construction seasons and to provide technical opinion regarding this change to the configuration.

Background

During the 2015 construction season, an abrupt rock face was uncovered at the north side of Saddle Dam 3 (SD3) between elevation (El.) 132.0 m and 141.5 m approximately. The rock face was located between Sta. 20+580 and 20+660 approximately near the SD3 faulted zone. This abrupt rock face was composed of two small plateaus, one at El. 138 m approximately and a second at El. 141 m approximately. The rock underneath the original alignment of the UTLT-I was heavily fractured and jointed and easily removable by an excavator (see Figure 1).

At the end of the 2015 construction season, the UTLT-I had been constructed in a straight line on competent rock and stopped on top of the bedrock plateau at El. 138 m (see Figures 1 and 2). This configuration resulted in an UTLT-I located offset from the toe of the dike. Two configurations were discussed between Golder and AEM (Golder, 2015a) to complete the construction of the UTLT-I over the abrupt area and reconnect it to the dike toe:

- Turn the UTLT-I westward on the plateau at El. 138 m and then go up to El. 141.5 m, which would have involved excavating the heavily fractured bedrock and excavating the Fine Filter already in place; or
- Build the UTLT-I slightly east from its original alignment on the plateau at El. 141.5 m, and then build it westward in a way to catch up its original alignment.

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Figure 1: SD3-058: View of the abrupt rock face, the two plateaux and the heavily jointed bedrock. This picture was taken during the 2015 construction season. The green line shows the original alignment of the UTLT-I.



Figure 2: SD3-90: UTLT-I built during the 2015 construction season (green line) and the original UTLT-I alignment (orange line).

As-built Configuration of the 2016 UTLT-I

At the beginning of the 2016 construction season, it was decided to build the UTLT-I at the northern extremity of SD3 slightly east from its original alignment on the plateau at El. 141.5 m, and then build it westward to catch up to the original alignment. A plan view of the modelled configuration of the UTLT-I for a final crest at El. 150 m for this scenario is attached to this document. In 2016, this configuration was built on the field for a dike crest at El. 143 m. 2016 as-built sections of the north sector are attached to this document.

The configuration of the north sector in 2016 was built as described below:

- The gap between the dike crest and the UTLT-I was filled with rockfill on the plateau from El. 138 m to El. 143 m. This formed a rockfill bump from Sta. 20+640 to 20+660 approximately. The shape of the rockfill bump was made to allow a proper installation of the geomembrane (Figure 3).
- The fine and coarse filter was installed over the rockfill in the location of the rockfill bump (Figure 4). Afterward the bedrock of the UTLT-I in the North Sector was cleaned and mapped prior to the placement of a 0.5 m-thick sieved till in prevision of the geosynthetics installation (as required by the construction drawings).
- During the geomembrane installation, a “U” shape anchor key was made in the middle of the rockfill bump. After the installation of the geomembrane, the geotextile and geomembrane were installed by extrusion weld. (Figure 5).
- The erosion protection layer placed consisted of 2 m thick of Low Quality Till placed on top of the Compacted Till per Golder (2015 b). For ease of resuming the construction work next year, the placement of this layer was partially completed in a stairs configuration so as to not have an elevation higher than El. 143 m (Figure 6). The UTLT-I is scheduled to be completed once the dike is raised to El. 150 m.

If the dike is not raised higher than El. 143 m, the configuration of the northern abutment of the dike will need to be reworked for conformance to the construction drawings.



Figure 3: SD3-128: View of the north abutment of SD3 built in 2016. Placement of coarse filter above the rockfill in the sector where the UTLT-I curve toward the dike.



Figure 4: SD3-131: View of the north abutment of SD3 built in 2016. The coarse and fine filter has been placed over the rockfill bump. Bedrock cleaning of the UTLT-I is ongoing at the time of the picture.



Figure 5: SD3-148 : View of the north abutment of SD3 built in 2016 after the placement of the first 0.5 m of sieved till in the UTLT-I and during the installation of the geosynthetics on the upstream slope. Notice the “U” shape anchor trench for the geomembrane. The exposed fine filter section was later covered with geosynthetic by extrusion weld.



Figure 6: SD3-161: Compaction of the Low Quality Till placed as erosion protection layer on the north abutment of SD3 built in 2016. Notice that material layers are placed in stairs as to not place material above El. 143 m. This sector will have to be closed during a later construction season.

Assessment of the 2016 Upstream Toe Liner Tie-in Configuration North of Saddle Dam 3

It is Golder's opinion that the built UTLT-I configuration in the north area of Saddle Dam 3 satisfies the design intent and results in a more efficient low permeability element than if the original alignment would have been followed. Three main reasons support this opinion:

- The rock under the new alignment is of better quality. It has been observed in the field that the bedrock of the UTLT-I is competent with only few open fractures in comparison to the heavily fractured bedrock in the sector of the original alignment.
- Based on field observations, this configuration allowed for a proper installation of the geomembrane on the upstream slope.
- This new configuration will allow the UTLT-I to easily catch up the toe of the dike if Saddle Dam 3 is raised higher than El. 143 m during potential future construction season. If Saddle Dam 3 is not raised higher, additional work will be required to finalize its closure on the northern abutment.

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n:\actif\2016\3 proj\1656047 aem qa tsf 2016 meadowbank\5 preparation of deliverables\doc 1548 configuration upstream toe liner tie-in sd3\doc 1548-1656047-rev0 config us toe tie-at n of sd3.docx

Attachments:

- Saddle Dam 3 as-built plan view
- 2016 as-built section of the north abutment of SD3 (20+600,20+620,20+630)

REFERENCES

Golder Associés Ltée. 2015a. Key elements for resuming next construction season of the South Cell TSF, Meadowbank Gold Project. Ref. no. 1527-15-28661 MTA Rev0.

Golder Associés Ltée. 2015b. Saddle Dam 3, 4, 5 design changes for upstream toe liner tie-in in backfill, Meadowbank Gold Project. Ref. no. 1514-15-28661 MTA Rev0.

APPENDIX C
CONSTRUCTION PHOTOGRAPHS

APPENDIX C1

CENTRAL DIKE STAGE 5 PHOTOGRAPHS



CD AEM 001 (5/18/2016) Drilling and preparation for the blasting at the north abutment of CD.



CD AEM 002 (5/30/2016) First blast done. Drilling and preparation for the second blast at the north abutment of CD.



CD AEM 003 (6/3/2016) Foundation preparation for the widening of the downstream side of CD. Looking S.



CD AEM 004 (6/4/2016) Foundation preparation for the widening of the downstream side of CD. Looking N.



CD AEM 005 (6/4/2016) Placement of PAG rockfill for the widening of the downstream side of CD. Looking N.



CD AEM 006 (6/4/2016) Compaction of PAG rockfill for the widening of the downstream side of CD. Looking W.



CD AEM 007 (6/5/2016) Foundation preparation on the downstream side of CD. Looking N.



CD AEM 008 (6/5/2016) Blasting preparation and material excavation at the north abutment of CD.



CD AEM 009 (6/6/2016) Placement of PAG rockfill on the downstream side of CD. Looking N.



CD AEM 010 (6/6/2016) Foundation preparation on the south part of the downstream side of CD. Looking S.



CD AEM 011 (6/7/2016) Prepared foundation near the water pond on the downstream side of CD. Looking S.



CD AEM 012 (6/8/2016) Excavator breaking the ice of the water pond at the downstream side of CD. Looking W.



CD AEM 013 (6/8/2016) Dozer pushing PAG rockfill in the water pond downstream of CD. Looking W.



CD AEM 014 (6/8/2016) Excavator removing ice block from the water pond on the downstream side of CD. Looking S.



CD AEM 015 (6/9/2016) Excavator removing ice block from the water pond on the downstream side of CD. Looking SE.



CD AEM 016 (6/9/2016) Drilling of till stockpile on northern abutment of CD.



CD AEM 017 (6/9/2016) Foundation preparation on the northern abutment with a D8 Dozer. Looking S.



CD AEM 018 (6/10/2016) Profiling of the PAG rockfill placed within water pond downstream. Looking S.



CD AEM 019 (6/11/2016) Profiling and compaction of the PAG rockfill placed above the water pond downstream of CD. Looking S.



CD AEM 020 (6/11/2016) Foundation preparation on the downstream side of CD. Looking SW.



CD AEM 21 (6/12/2016) Placement of a lift of PAG rockfill on the downstream side of CD. Looking N.



CD 1667 (6/12/2016) Placement of a 2-m thick lift of PAG rockfill between EL. 120 m and 122 m. Looking N from 0+500.



CD 1668 (6/12/2016) Placement of a 2-m thick lift of PAG rockfill between EL. 120 m and 122 m. Looking S from 0+500.



CD 1669 (6/14/2016) Placement of a 2-m thick lift of PAG rockfill between EL. 122 m and 124 m. Looking N from 0+960/+30.



CD 1670 (6/14/2016) Profiling of the downstream slope from El. 120 m to 122 m. Looking S from 0+280/+30.



CD 1671 (6/14/2016) View of the base of CD on the downstream side for a dike footprint at El. 143 m. Presence of exposed filter at 0+880. Looking N from 0+920/+50.



CD 1672 (6/15/2016) View of segregated rockfill on top of the lift at El. 122 m. This material was spread afterward on the entire lift. Looking S from 0+580/+30.



CD 1673 (6/15/2016) Compaction of the 2-m lift of PAG rockfill at El. 124 m from 0+920 to 0+660. Looking S from 0+660/+30.



CD 1674 (6/15/2016) Profiling of the downstream slope from El. 120 m to 122 m. Looking N from 0+580/+50.



CD 1675 (6/15/2016) Placement of a 2-m lift of PAG rockfill from El. 122 m to 124 m from 0+300 going south. Looking S from 0+280/+30.



CD 1676 (6/15/2016) View of the excavation of till above El. 132 m on the North abutment. Looking NE from 0+120/-20.



CD 1677 (6/16/2016) Approved foundation on the south abutment of Central Dike at El. 124 m. Looking N from 0+962/+5.



CD 1678 (6/16/2016) View of unapproved foundation outside dike footprint but within dike footprint El. 150 m. An access ramp will be located there. Looking S from 0+989/+7.



CD 1679 (6/16/2016) Removal of soft till on the north abutment at around El. 132 m. Looking S from 0+200/+30.



CD 1680 (6/17/2016) View of the downstream side of Central Dike. Placement of rockfill from south to north from El. 124 m to 126 m. Looking S from 0+230/+60.



CD 1681 (6/18/2016) Shovel is reshaping the 2015 downstream slope for a better contact with the newly placed rockfill. Looking N from 0+660/+30.



CD 1682 (6/18/2016) View of downstream rockfill lift placed to El. 126 m. Looking S from 0+300/+30.



CD 1683 (6/19/2016) Placement of rockfill from El. 126 m to 128 m on the south side and profiling of the downstream slope from El. 124 m to 126 m on the north side. Looking S from 0+260/+50.



CD 1684 (6/19/2016) Approved foundation on the downstream side between 0+247 and 0+309. Looking E from 0+240/+10.



CD 1685 (6/19/2016) Placement of NPAG rockfill above EL. 132 m on the north side. Looking N from 0+240/+20.



CD 1686 (6/20/2016) Compaction of the downstream lift at El. 128 m and profiling of the downstream slope. Looking N from 0+960/+10.



CD 1687 (6/20/2016) Placement of rockfill downstream at El. 128 m from the north going south. Looking S from 0+260/+20.



CD 1688 (6/21/2016) Profiling of the downstream slope and placement of PAG rockfill from El. 126 m to 128 m. Looking N from 0+980/+50.



CD 1689 (6/22/2016) Placement of rockfill on the downstream side from El. 128 m to 130 m. Profiling of the downstream slope from El. 126 m to 128 m. Looking N from 0+960.



CD 1690 (6/23/2016) Compaction of rockfill at El. 130 m on the south downstream side. Looking N from 0+980/+30.



CD 1691 (6/23/2016) Placement of PAG rockfil at EL. 130 m on the northern downstream side. Looking S from 0+280/+30.



CD 1692 (6/24/2016) Profiling of the downstream slope up to El. 130 m. Placement of PAG rockfill on the downstream side to El. 130 m. Looking N from 0+960/+50.



CD 1693 (6/25/2016) Excavation of soft till on the north abutment. Profiling of the downstream slope at El. 130 m and placement of PAG rockfill to El. 132 m on the downstream from the south side. Looking S from 0+200/+40.



CD 1694 (6/26/2016) Placement of good quality NPAG from El. 132 m to 133.5 m and profiling of the downstream slope at El. 132 m. Looking N from 0+980/+50.



CD 1695 (6/27/2016) Excavation of soft till on the north abutment. Looking S from 0+190/+40.



CD 1696 (6/27/2016) Placement of PAG rockfill to El. 132 m on the northern downstream side. Looking S from 0+250/+40.



CD 1697 (6/28/2016) Placement of a 1.5-m thick lift of good NPAG rockfill downstream of CD. Looking SE from 0+720/0.



CD 1698 (6/29/2016) Placement of a 1.5-m thick lift of good NPAG rockfill downstream of CD to El. 133.5 m. Looking NE from 0+660/-7.



CD 1699 (6/29/2016) Adjustment of the CD/SD5 downstream slope. Looking NE from 0+950/-5.



CD 1700 (6/29/2016) Excavation of soft till north of CD. Looking NW from 0+210/+21.



CD 1701 (6/30/2016) Placement of a 1.5-m thick lift of NPAG rockfill between El. 133.5 m and 135 m. Looking NE from 0+320/-8.



CD 1702 (7/2/2016) Placement of a 2-m thick lift of good quality NPAG rockfill between El. 135 m and 137 m. Looking S from 0+785/-7.



CD 1703 (7/2/2016) Profiling of the downstream 1.5H:1V slope between El. 133.5 m and 135 m. Looking S from 0+250/+20.



CD 1704 (7/3/2016) Cleaning of bedrock within the footprint of the dike. Looking N from 0+200/-30.



CD 1705 (7/3/2016) Placement of good quality NPAG rockfill between El. 135 m and 137 m. Looking N from 0+580/-5.



CD 1706 (7/3/2016) Scarification of the UM NPAG rockfill surface at El. 137 m. Looking N from 0+680/-15.



CD 1707 (7/4/2016) Placement of PAG rockfill between El. 137 m and 139 m. Looking S from 0+650/-18.



CD 1708 (7/4/2016) UM NPAG rockfill scarified surface on the CD at El. 137 m. Looking N from 0+650/-18.



CD 1709 (7/4/2016) Excavation of fault infill for sampling. Looking E from 0+175/-15.



CD 1710 (7/4/2016) Placement of NPAG rockfill to El. 135 m downstream of CD. Looking W from 0+200/+20.



CD 1711 (7/4/2016) Placement of a 0.5-m thick lift of inverse coarse filter. Looking N from 0+195/-33.



CD 1712 (7/5/2016) Placement of PAG rockfill to El. 139 m. Looking N from 0+450/-2.



CD 1713 (7/5/2016) Placement of a 0.5-m thick lift of inverse fine filter. Looking N from 0+200/-37.



CD 1714 (7/5/2016) 1-m deep sink holes with a diameter of 1 m on the tailings surface at Sta. 0+540/-80. Looking W from 0+530/-45.



CD 1715 (7/5/2016) Placement of a 0.5-m thick lift of inverse coarse filter. Looking S from 0+155/-32.



CD 1716 (7/6/2016) View of the downstream 1.5H:1V slope completed to El. 137 m. Looking SW from 0+205/-25.



CD 1717 (7/6/2016) Placement of a 1-m thick lift of PAG rockfill between El. 136 m and 137 m. Looking S from 0+160/0.



CD 1718 (7/7/2016) Placement of a 1-m thick lift of PAG rockfill between El. 136 m and 137 m. Looking S from 0+120/0.



CD 1719 (7/7/2016) Profiling of the upstream rockfill with a 2H:1V slope between El. 137 and 139 m. Looking N from 0+600/32.



CD 1720 (7/8/2016) Compaction of the rockfill at El. 143 m. Dozer is pushing material for the north access road. Looking N from 0+220/-35.



CD 1721 (7/8/2016) Instrument casings backfilled with UM rockfill for protection. Looking N from 0+860/-30.



CD 1722 (7/9/2016) Profiling of the downstream slope at El. 139 m between 0+170 and 0+200. Looking N from 0+200/-15.



CD 1723 (7/9/2016) Placement of 6-m strip of NPAG on the downstream side between El. 137 m and 139 m. Looking N from 0+580/-15.



CD 1724 (7/10/2016) Placement of a 2-m thick lift of PAG rockfill from El. 137 m to 139 m. Looking N from 0+350/-30.



CD 1725 (7/11/2016) Profiling of the rockfill upstream slope (2H:1V) from El. 137 m to 139 m. Looking S from 0+200/-50.



CD 1726 (7/11/2016) Placement of PAG rockfill to El. 139 m. Looking N from 0+880/-40.



CD 1727 (7/13/2016) Placement of PAG rockfill on CD from EL.137 m to 139 m. Excavator is profiling the rockfill on the upstream slope (2H:1V). Looking N from 40+760/-20.



CD 1728 (7/13/2016) Profiling of the downstream slope from EL.137 m to 139 m (1.5 H:1V). Looking S from 0+200/+22.



CD 1729 (7/13/2016) Placement of good quality NPAG rockfill on the downstream side from El. 137 m to 139 m. Looking N from 0+920.



CD 1730 (7/14/2016) Profiling of the upstream slope (2H:1V). Looking N from 40+700/-33.



CD 1731 (7/14/2016) Cleaning of a tailings deposition finger. Looking N from 0+820/-40.



CD 1732 (7/16/2016) Placement of the second lift of coarse filter and fine filter from El. 137.5 m to 138. Looking S from 0+400/-40.



CD 1733 (7/17/2016) Placement of a 2-m lift of UM rockfill in the centre of the lift from El. 139 m to 141 m. Looking S from 0+480/-50.



CD 1734 (7/17/2016) Placement of a 2-m lift of UM rockfill in the centre of the lift from El. 139 m to 141 m. Looking S from 0+480/-35.



CD 1735 (7/17/2016) Placement of fine filter and coarse filter against the upstream slope. Looking S from 0+200/-60.



CD 1736 (7/18/2016) Placement and compaction of the fine and coarse filter on the upstream slope to EL.139 m. Looking S from 0+100/-36.



CD 1737 (7/19/2016) Filter on the upstream slope completed on the north of Central Dike to El. 139 m. Looking S from 0+140/-30.



CD 1738 (7/19/2016) Placement of UM rockfill on the centre of and PAG rockfill on the upstream side from EL. 139 m to 141 m. Looking S from 0+240/-30.



CD 1739 (7/20/2016) View of the 2-m lift from El. 139 to 141 m. Looking S from 0+150/17.



CD 1740 (7/21/2016) Placement of UM rockfill on the centre of and PAG rockfill on the upstream side from EL. 139 m to 141 m. Looking S from 0+800/-2.



CD 1741 (7/21/2016) Profiling of the upstream slope of PAG rock from EL.139 m to 141 m (2H:1V) from Sta. 0+460 to 0+160. Looking S from 0+160/-40



CD 1742 (7/21/2016) Placement of the third 0.5-m lift of coarse filter on the upstream slope from El. 140 to 140.5 m from Sta.0+430 to 0+180. Looking S from 0+160/-40.



CD 1743 (7/26/2016) Placement of a 2-m lift of UM rockfill in the centre of the lift from El. 141 m to 143 m from Sta. 0+180 to 0+280 (o/s -20 to -5). Looking N from 0+280/-25.



CD 1744 (7/27/2016) UM rockfill has been placed on the downstream side of the south part of Central Dike instead of PAG stone from Sta. 0+966 to 0+874. Looking N from 0+940/-35.



CD 1745 (7/27/2016) Profiling and grading of the fine filter upstream slope from El.139 to 140.5 m from Sta. 0+680 to 0+180 m. Looking N from 0+680/-32.



CD 1746 (7/30/2016) Placement of a 2-m thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+600 to 0+560 (o/s -24 to -5). Looking N from 0+560/-24.



CD 1747 (8/6/2016) Placement of coarse filter on the upstream slope from El. 141 m to 141.5 m. Looking S from 0+130/-40.



CD 1748 (8/7/2016) Bedrock cleaning on the north side of Central Dike. Placement of coarse filter against the upstream slope from El. 141.5 to 142 m. Looking S from 0+100/-40.



CD 1749 (8/9/2016) Profiling of the fine filter of the upstream slope from El. 143 m. Looking S from 0+120/-50.



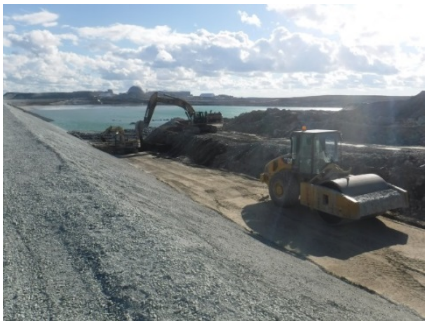
CD 1750 (8/11/2016) Rockfill on the downstream side of Central Dike being profiled from El. 141 m to 143 m. Looking S from 0+080/-10.



CD 1751 (8/13/2016) Bedrock cleaning. An excavator is preparing an access from the north side to the upstream toe liner tie-in. Looking N from 0+200/-30.



CD 1752 (8/16/2016) Slush grouting of the upstream toe liner tie-in on the north side of Central Dike. Looking S from 0+120/-44.



CD 1753 (8/16/2016) Compaction of the sieved till placed to cover the slush grout. Looking S from 0+160/-20.



CD 1754 (8/17/2016) View of the first 0.5-m lift of compacted sieved till placed and compacted. Looking S from 0+140/-40.



CD 1755 (8/19/2016) Placement of slush grout onto the entire bedrock surface in the 5-m wide strip. Looking N from 40+670/-40.



CD 1756 (8/19/2016) Placement of slush grout onto the entire bedrock surface in the 5-m wide strip. Looking W from 40+750/-60.



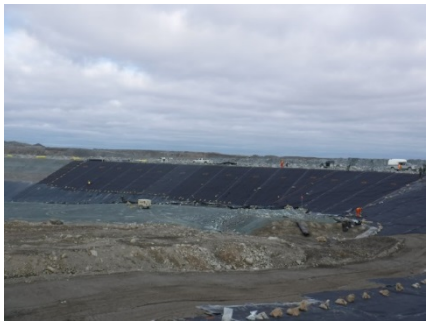
CD 1757 (8/24/2016) Low quality till stockpiles. Looking S from 0+000/-165.



CD 1758 (8/27/2016) Geotextile installation on the upstream 2H:1V slope between El. 137 m and 143 m. Looking NE from 40+645/-22.



CD 1759 (8/27/2016) Fine Filter that was cleaned up. Looking N from 0+955/-46.



CD 1760 (8/28/2016) LLDPE installation on the CD upstream 2H:1V slope between El. 137 m to 143 m. Looking NE from 40+650/-25.



CD 1761 (8/30/2016) Installation of geotextile on the upstream 2H:1V slope between El. 137 m and 143 m. Looking N from 0+820/-30.



CD 1762 (9/1/2016) Geotextile and LLDPE installation on the CD upstream slope between El. 137 m to 143 m. Looking S from 0+490/-26.



CD 1763 (9/4/2016) Extrusion fillet seams on LLDPE on the CD upstream slope between El. 137 m and 143 m. Looking N from 0+360/-33.



CD 1764 (9/5/2016) Geotextile and LLDPE installation on the CD upstream 2H:1V slope between El. 137 m and 143 m. Looking S from 0+120/-35.



CD 1765 (9/6/2016) Placement of a first and second lift of compacted sieved till over the LLDPE membrane on the north part of CD. Looking S from 0+120/-35.



CD 1766 (9/8/2016) Placement of the 0.5-m thick lift of fine filter of the granular protection on the north part of CD from Sta. 0+220 to 0+190. Looking N from 0+220/-26.



CD 1767 (9/8/2016) Placement of the 0.5-m thick lift of coarse filter of the granular protection on the north part of CD. Looking S from 0+140/-26.



CD 1768 (9/9/2016) Placement of the 0.5-m thick lift of coarse filter of the granular protection on the north part of CD. Looking N from 0+210/-26.



CD 1769 (11/9/2016) Compacted 1.0 m-thick lift of fine rockfill of the granular protection on the north part of CD.

APPENDIX C2

SADDLE DAM 3 STAGE 2 PHOTOGRAPHS



SD3 104 (6/29/2016) Existing configuration of the downstream slope at SD3. Looking N from 20+780/-30.



SD3 105 (6/30/2016) Excavation of the materials downstream of SD3 within the dike footprint. Looking N from 20+695/-15.



SD3 106 (7/1/2016) Excavation of materials within the dike footprint. Looking S from 20+650/-73.



SD3 107 (7/9/2016) View of the new access road and an excavator preparing the foundation by removing the till from the dike footprint. Looking N from 20+830/-35.



SD3 108 (7/24/2016) Removal of till and loose rocks. Looking E from 20+800/-30.



SD3 109 (7/25/2016) Till and loose rocks have been removed for the foundation approval on the south part of SD3. Looking N from 20+810/-30.



SD3 110 (7/26/2016) Placement of the 0.5-m lift of inverse filter (fine/coarse) on the upstream slope from El. 141 m to 142 m from Sta.20+800 to 20+760. Looking N from 20+810/-42.



SD3 111 (7/27/2016) Excavation of the foundation of the dike footprint on the downstream side from Sta. 20+600 to 20+650 m at El. 35 m. Looking S from 20+590/-12.



SD3 112 (7/28/2016) Localization of the 2 minor water inflows on SD3 footprint. Looking S from 20+600/-12.



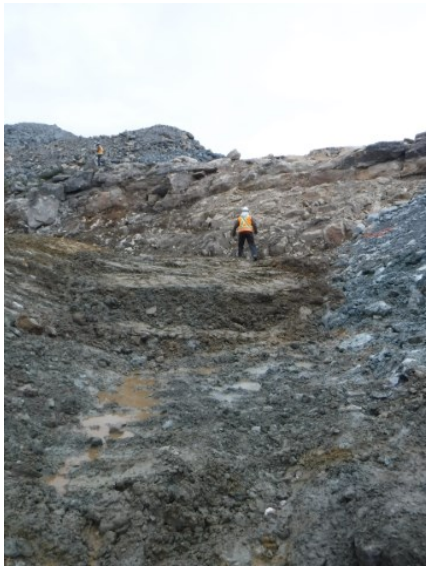
SD3 113 (7/28/2016) Water inflow #1 before the placement of the till plug. The ground surface was cleaned with the excavator only. Notice the presence of loose rocks and ice-poor fault infill material residues. Looking S from 20+620/-12.



SD3 114 (7/28/2016) Water inflow #2 before the excavator cleaning. Looking S from 20+605/-12.



SD3 115 (7/28/2016) Water inflow #1 covered by a rough till plug. The plug is approximately 0.6 m thick, 4.6 m long and 3.21 m wide. Looking S from 20+620/-12.



SD3 116 (7/28/2016) Water inflow #2 covered by a rough till plug. The plug is approximately 1.0 m thick, 6.8 m long and 3.6 m wide. Looking N from 20+620/-12.



SD3 117 (7/28/2016) Excavation of the foundation of the dike footprint on the downstream side of SD3 from Sta. 20+660 to 20+600 m at El. 35 m approximately. Looking S from 20+600/-12.



SD3 118 (7/28/2016) Placement of a 2-m thick lift of UM rockfill on the downstream side of SD3 from El. 134 m to 136 m from Sta. 20+660 to 20+600 (o/s -28 to -3). Looking S from 20+600/-12.



SD3 119 (7/29/2016) Placement of a 2-m thick lift of UM rockfill on the downstream side from El. 138 m to 140 m. Looking NE from 20+700/-5.



SD3 120 (7/30/2016) Profiling of the downstream slope of the UM rockfill on SD3 from El.138 m to 140 m from Sta. 20+720 to 20+600. Looking N from 20+700/-10.



SD3 121 (7/31/2016) Hammer is smoothing the bedrock surface to accommodate the inverse filters on the north part of SD3. Looking W from 20+600/-45.



SD3 122 (8/1/2016) Placement of the first 0.5-m thick lift of fine/coarse filter on the upstream slope from El. 140 m to 140.5 m from Sta. 0+770 to 0+610. Looking N from 20+700/-19.



SD3 123 (8/1/2016) On the north part of SD3, the hammer is smoothing the bedrock surface to accommodate the inverse filters. Looking N from 20+600/-45.



SD3 124 (8/2/2016) Removal of the overburden and loose rocks on the northern part of SD3. Looking E from 20+580/-10.



SD3 125 (8/3/2016) Placement of a 2-m thick lift of UM rockfill from El. 140 m to 141.5 m from Sta. 20+630 to 20+600 (o/s -57 m to -18 m), at the northern part of SD3. Looking S from 20+590/-10.



SD3 126 (8/4/2016) Placement of the fine filter over the approved foundation on the northern extremities. A shovel is profiling the upstream slope from El. 141.5 m to 143 m on the south side. Looking S from 20+600/-50.



SD3 127 (8/5/2016) Placement of rockfill against the coarse filter on the northern extremity of SD3. Looking NW from 20+620/-50.



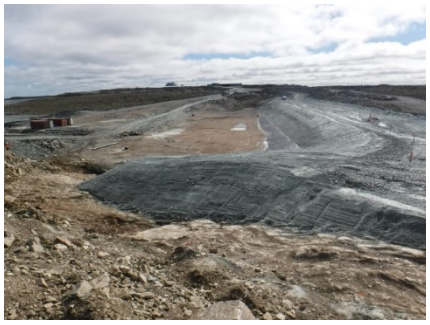
SD3 128 (8/5/2016) Placement of coarse filter on the upstream slope above the rockfill on the northern extremity of SD3. Looking NW from 20+620/-80.



SD3 129 (8/5/2016) Placement of fine filter above the coarse filter on the upstream slope of the northern extremity of SD3. Looking N from 20+650/-30.



SD3 130 (8/6/2016) View of the filter completed on the upstream slope for a dike elevation at 143 m. Looking N from 20+800/-30.



SD3 131 (8/7/2016) The upstream toe liner tie-in on the northern abutment of SD3 cleaned by the CAT307. Looking S from 20+580/-44.



SD3 132 (8/8/2016) Cleaning of the upstream toe liner tie-in on the southern abutment of SD3. Looking S from 20+760/-60.



SD3 133 (8/13/2016) Cleaned bedrock prior to placement of compacted sieved till and grouting. Looking S from 20+600/-50.



SD3 134 (8/13/2016) North abutment after the placement and compaction of the first lift of compacted sieved till. Looking S from 20+600/-50.



SD3 135 (8/13/2016) Placement of a thin lift of compacted sieved till to fill the bedrock depression. Looking N from 20+780/-30.



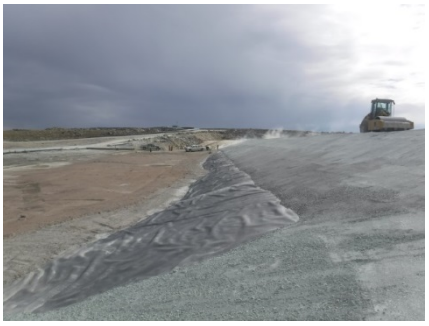
SD3 136 (8/13/2016) Placed and compacted sieved till on the south abutment. Looking N from 20+800/-30.



SD3 137 (8/15/2016) Placement and compaction of a 0.5-m lift of compacted till on the northern part of SD3. Looking S from 20+580/-60.



SD3 138 (8/17/2016) Upstream slope profiled with the roller. Looking N from 20+820/-70.



SD3 139 (8/21/2016) Clean-up of the LLDPE geomembrane. Looking S from 20+620/-40.



SD3 140 (8/21/2016) Corrections on the fine filter slope under the LLDPE geomembrane. Looking E from 20+640/-30.



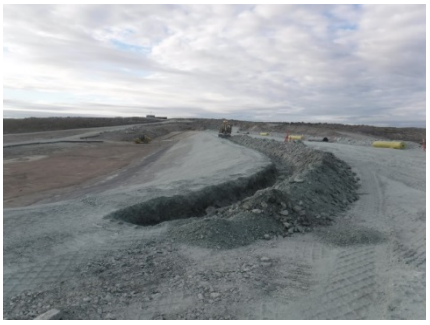
SD3 141 (8/21/2016) LLDPE rolls are lying on a geotextile sheet to avoid damaging them. Looking NW from 20+640/-18.



SD3 142 (8/21/2016) Description of the geotextile.



SD3 143 (8/21/2016) Technical specifications of the LLDPE rolls.



SD3 144 (8/22/2016) Excavation of the geosynthetics anchor trench. Looking S from 20+620/-20.



SD3 145 (8/25/2016) Installation of geotextile over the upstream slope and over the hump north of SD3. Looking N from 20+620/-80.



SD3 146 (8/25/2016) Installation of geotextile over the upstream slope and over the bump north of SD3. Looking W from 20+600/-67.



SD3 147 (8/25/2016) Installation of geotextile over the upstream slope and over the bump north of SD3. Looking SW from 20+650/-30.



SD3 148 (8/25/2016) LLDPE over the bump north of CD. Looking W from 20+620/-84.



SD3 149 (8/25/2016) Geosynthetics anchor trench on top of the hump. Looking W from 20+620/-60.



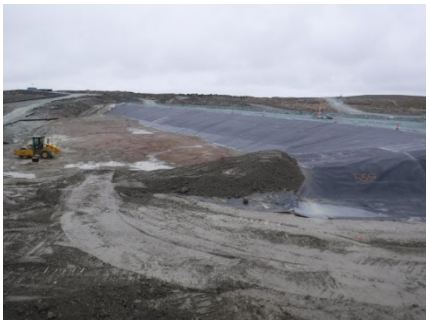
SD3 151 (8/25/2016) LLDPE patch over the geosynthetics anchor trench on top of the hump north of SD3. Looking W from 20+620/-60.



SD3 150 (8/25/2016) Geotextile installation on the upstream slope on SD3. Looking S from 20+610/-45.



SD3 152 (8/26/2016) LLDPE geomembrane installation on the upstream slope between El. 140 m and 143 m. Looking N from 20+800/-49.



SD3 153 (8/27/2016) Placement of a 0.5-m thick lift of compacted 0-50 mm till over the LLDPE geomembrane. Looking SW from 20+600/-73.



SD3 154 (8/29/2016) Upstream toe liner tie-in configuration northern side of the SD3 hump. Looking E from 20+600/-39.



SD3 155 (8/29/2016) Excavation of a humid portion of compacted till that was not meeting Specifications. Looking E from 20+615/-57.



SD3 156 (8/29/2016) The LLDPE was extended upstream within the upstream toe liner tie-in to meet the 3-m wide strip within the till plug. Looking SW from 20+745/-50.



SD3 157 (8/29/2016) Placement of a first 0.5-m thick lift of compacted till 0-150 mm within the upstream toe liner tie-in. Looking E from 20+590/-38.



SD3 158 (8/30/2016) Placement of a first 0.5-m thick lift of compacted sieved till over LLDPE. Looking N from 20+800/-43.



SD3 159 (8/30/2016) Placement of the first 0.5-m thick lift of compacted till 0-150 mm over the compacted sieved till. Looking S from 20+740/-50.



SD3 160 (9/2/2016) Placement of the second 0.5-m thick lift of compacted till 0-150 mm. Looking N from 20+780/-40.



SD3 161 (9/3/2016) Placement of the first 0.5-m thick lift of the granular protection on SD3. Looking S from 20+590/-65.



SD3 162 (9/5/2016) Placement of the first and second 1.0-m thick lift of the granular protection on SD3 south. Looking N from 20+780/-40.

APPENDIX C3

SADDLE DAM 4 STAGE 2 PHOTOGRAPHS



SD4 070 (6/24/2016) Excavation of till within the dike footprint for a crest at El. 143 m. Looking NW from 40+400/-8.



SD4 071 (6/25/2016) Excavation of till within SD4 dike footprint. Looking SE from 40+200.



SD4 072 (7/6/2016) Excavation of the foundation downstream for the dike footprint. Looking NW from 40+405/-15.



SD4 073 (7/8/2016) Excavation of the foundation downstream for the dike footprint at crest El. 143 m. Looking NW from 40+390/-4.



SD4 074 (7/15/2016) Placement of UM rockfill to El. 138 m. Looking SE from 40+270/-15.



SD4 075 (7/16/2016) Placement and profiling of UM rockfill and d/s slope to El. 141.5 m. Looking SW from 40+240/-17.



SD4 076 (7/22/2016) Placement of inverse fine and coarse filter on the upstream slope from Sta.40+140 to 40+110. Looking SE from 40+110.



SD4 077 (7/23/2016) Placement of the third 0.5-m lift of fine filter on the upstream slope of SD 4 from Sta.40+300 to 40+180. Looking NW from 40+300/-28.



SD4 078 (7/23/2016) Placement and compaction of the inverse fine/coarse filter on the upstream slope of SD4 from Sta. 40+400 to 40+440. Looking SE from 40+400/-20.



SD4 079 (7/31/2016) Profiling of the upstream slope of SD4, and placement of the first 0.5-m thick lift of fine filter at El. 140.5 m. Looking E from 40+000/-25.



SD4 080 (8/2/2016) Placement and compaction of a 0.5-m thick lift of fine filter on the upstream slope from El. 139.5 m to 140 m from Sta. 40+160 to 40+120. Looking W from 40+160/-20.



SD4 081 (8/3/2016) Placement and compaction of a 0.5-m thick lift of fine/coarse filter on the upstream slope from El. 139 m to 139.5 m from Sta. 40+420 to 40+370. Looking W from 40+420/-20.



SD4 082 (8/4/2016) Finished filters on the upstream slope. Bedrock cleaning of the upstream toe liner tie-in ongoing. Looking W from 40+420/-10.



SD4 083 (8/5/2016) Bedrock cleaning of the upstream toe liner tie-in on the east abutment. Looking E from 40+380/-30.



SD4 084 (8/12/2016) First 0.5-m lift of sieved till placed and compacted above the bedrock on the west abutment of SD4. Looking W from 40+160/-40.



SD4 085 (8/12/2016) First 0.5 m of sieved till placed and compacted above the bedrock on the east abutment of SD4. Looking W from 40+420/-40.



SD4 086 (8/15/2016) Placement of a 0.5-m lift of compacted till against the placed 5-m wide lift of compacted sieved till of the upstream toe liner tie-in. Looking E from 40+100/-40.



SD4 087 (8/17/2016) The upstream slope profiled with the roller. Looking W from 40+420/-65.



SD4 088 (8/18/2016) Excavation of the geosynthetics 0.5 m deep x 0.5 m wide anchor trench. Looking E from 40+110/-30.



SD4 089 (8/21/2016) Excavation of the geosynthetics anchor trench. Looking W from 40+425/-30.



SD4 090 (8/22/2016) Corrections are needed at SD4 where the fine filter slope intersects the 0-50 mm Compacted Till. Looking W from 40+410/-39.



SD4 091 (8/23/2016) Installation of geotextile and LLDPE geomembrane on the upstream slope between El. 140 m and 143 m. Looking E from 40+100/-32.



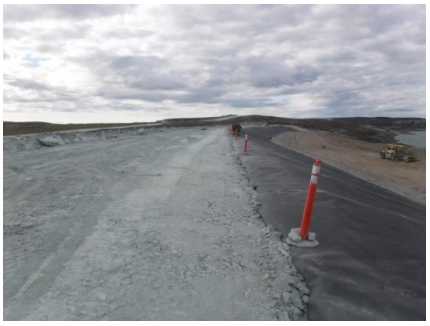
SD4 092 (8/23/2016) Installation of LLDPE geomembrane on the upstream slope between El. 140 m and 143 m. Looking W from 40+275/-38.



SD4 093 (8/23/2016) Extrusion weld between the 2015 and the 2016 LLDPE geomembrane within the upstream toe liner tie-in (West abutment). Looking NE from 40+160/-39.



SD4 094 (8/24/2016) Fine filter to be removed. Looking W from 40+185/-41.



SD4 095 (8/24/2016) Final LLDPE surface on the upstream slope and within the Upstream Toe Liner Tie-in. Looking W from 40+440/-45.



SD4 096 (8/24/2016) Compacted geosynthetics anchor trench. Looking W from 40+385/-31.



SD4 097 (8/26/2016) Placement of the second 0.5-m thick lift of compacted 0-150 mm till within the upstream toe liner tie-in. Looking E from 40+360/-42.



SD4 098 (8/30/2016) Placement of the first 0.5-m thick lift of compacted sieved till above the LLDPE geomembrane. Looking E from 40+105/-30.



SD4 099 (9/2/2016) Placement of a 0.5-m thick lift of compacted sieved till over the LLDPE geomembrane. Looking W from 40+360/-35.



SD4 100 (9/6/2016) Placement of a 0.5-m thick lift of fine filter of the granular protection on the western part of SD4 from Sta. 40+160 to 40+120. Looking E from 40+100/-35.



SD4 101 (9/7/2016) Placement of a 1.0-m thick lift of fine rockfill of the granular protection. Also, the placement of a 0.5-m thick lift of fine filter on the eastern part of SD4. Looking E from 40+120/-35.



SD4 102 (9/8/2016) Placement of a 0.5-m thick lift of coarse filter of the granular protection on the eastern part of SD4 from Sta. 40+400 to 40+360. Looking W from 40+410/-35.



SD4 103 (9/9/2016) Placement of the 1.0-m thick lift of fine rockfill of the granular protection on the eastern part of SD4. Looking W from 40+380/-35.



SD4 104 (9/10/2016) Correction of the top of the lift of the fine rockfill of the granular protection with the excavator on SD4. Looking W from 40+400/-35.

APPENDIX C4

SADDLE DAM 5 STAGE 2 PHOTOGRAPHS



SD5 008 (7/3/2016) Excavation of soft till within the dike footprint. Looking S from 40+760/-50.



SD5 009 (7/7/2016) Approved foundation at SD5 before placement of rockfill. Looking N from 40+756/+30.



SD5 010 (7/8/2016) Placement of UM rockfill up to El. 137 m for an access. Looking SW from 40+800/-20.



SD5 011 (7/9/2016) Removal of the till to bedrock. Looking NW from 40+747/-24.



SD5 012 (7/12/2016) Compaction of the UM lift placed at El. 137 m. Looking NE from 40+640/-20.



SD5 013 (7/13/2016) Profiled downstream slope to El. 137 m. Looking W from 40+740/0.



SD5 014 (7/14/2016) Profiling of the downstream slope made of UM rockfill to El. 137 m. Looking N from 40+760/30.



SD5 015 (7/14/2016) Placement and compaction of the fine filter at SD5. Placement of a 2-m lift of UM rockfill to El. 139 m. Looking E from 40+620/-40.



SD5 016 (7/14/2016) Placement of coarse filter and compaction of the UM rockfill placed at El. 139 m. Looking SW from 0+980/-15.



SD5 017 (7/15/2016) Placement of UM rockfill over the coarse filter and slope profiling. Looking SW from 0+920/-35.



SD5 018 (7/20/2016) Placement of the first lift of fine filter at SD5 from 0+940 to 40+740 from El. 137m to 137.5 m. Looking N from 40+740/-40.



SD5 019 (7/21/2016) Placement of the third lift of fine/coarse filter at SD5 from 0+920 to 40+760 from El.137.5 to 138 m. Looking NE from 40+700/-40.



SD5 020 (7/25/2016) Placement of UM rockfill from El. 141 m to 143 m (o.s. -2 to -28 m). Looking E from 40+600/-29.



SD5 021 (7/29/2016) Placement of the third 0.5-m thick lift of fine and coarse filter on the upstream slope of SD5 from El. 140 to 140.5 m. Looking SW from 40+920/-30.



SD5 022 (8/5/2016) View of the profiled downstream slope to El. 143 m. Looking E from 40+620/0.



SD5 023 (8/8/2016) Placement of fine filter and coarse filter on the upstream slope form El. 141 m to 141.5 m. Looking E from 40+640/-30.



SD5 024 (8/9/2016) Profiling of the fine filter of the upstream slope to El. 143 m. Bedrock cleaning of the upstream toe liner tie-in. Looking S from 0+900/-30.



SD5 025 (8/10/2016) Profiled fine filter upstream slope. Bedrock cleaning of the upstream toe. Looking S from 0+900/-30.



SD5 026 (8/18/2016) Profiling of the upstream slope. Looking SW from 40+800/-45.



SD5 027 (8/19/2016) Placement of slush grout on the bedrock. Looking N from 40+640/-43.



SD5 028 (8/20/2016) Excavation of material within the upstream toe liner tie-in footprint. Looking W from 40+740/-30.



SD5 029 (8/21/2016) Placement of a first 0.5-m thick lift of 0-150 mm compacted till over bedrock within the upstream toe liner tie-in. Looking SW from 0+970/-35.



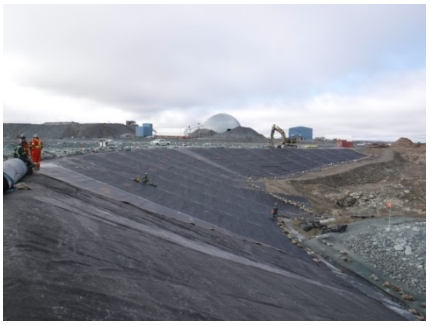
SD5 030 (8/21/2016) Bedrock surface added to FND-SD5 09 following approval. Looking N from 40+630/-7.



SD5 031 (8/21/2016) Placement of a second 0.5-m thick lift of 0-150 mm compacted till within the upstream toe liner tie-in. Looking E from 40+640/-43.



SD5 032 (8/27/2016) Till ledge to be corrected in preparation of the geosynthetics installation. Looking E from 40+650/-42.



SD5 033 (8/28/2016) LLDPE installation on the SD5 upstream slope between El. 137 m and 143 m. Looking SW from 0+955/-30.



SD5 034 (8/29/2016) Clean-up of Fine Filter entrapped in between the LLDPE and the geotextile. Looking N from 40+760/-32.



SD5 035 (8/31/2016) Placement of compacted till 0-150 mm within the upstream toe Liner tie-in. Looking E from 40+620/-34.



SD5 036 (8/31/2016) Fractured bedrock removed before the foundation approval FND-SD5 11. Looking S from 40+750/-50.



SD5 037 (8/31/2016) Placement of fine and coarse filter as a protection against erosion on the upstream toe liner tie-in. Looking W from 40+740/-64.



SD5 038 (8/31/2016) Placement of fine rockfill as the protection against erosion of the upstream toe liner tie-in. Looking E from 40+630/-44.



SD5 039 (9/1/2016) Placement of a first 0.5-m thick lift of compacted sieved till over LLDPE geomembrane. Looking SW from 0+950/-21.



SD5 040 (9/4/2016) Placement of a 0.5-m thick lift of fine filter of the granular protection from Sta. 40+750 to 40+630. Looking SW from 0+950/-21.



SD5 041 (9/8/2016) Placement of a 1.0-m thick lift of fine rockfill of the granular protection on SD5. Looking SW from 0+950/-20.



SD5 042 (9/9/2016) Placement of UM rockfill for the road that connects SD5 and the "pig launcher station". Looking E from 0+580/-30.

APPENDIX D

CONSTRUCTION MEETING MINUTES

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JUNE-05

Time: 9.00 H

Presents:

AEM: J.FB, PG

SANA: PD, HG, VT, PLB

QA:

QC: GL

Health & Safety:

- BE SURE PARK SAFE PLACE FAR OF HAUL TRUCK
- WALK ENOUGH FAR OF Bottom DIKE
- CHANNEL #10 FOR DIKE ONLY

Daily Advance:

SANA:
- SOUTH CLEAN-UP SOFT SOIL
- ACCEPTATION FONDATION
- 2 METRE PAG COVER + COMPACTION VERIFIED BY QC
- PUMP WATER
- RIPPING TOP SOUTH + NORTH FACE

QA: - 16 LOAD PAG SOUTH - 2 BOOD TILL LOAD + 1 LOAD WASTE
GPS FOR QC

OWNER: - 10000 t PAG MUCK MISSING WILL BE FILL BY MINE NEXT WEEK

General Planning/Comments:

SANA: "CLEAN-UP BED ROCK SOUTH FACE # APPROVAL"
- BLAST 12.45 H
- RIPPING NORTH FACE "NIGHT SHIFT"
- ACCES ROAD NORTH "NIGHT SHIFT"

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JUNE-06

Time: 8.30 H

Presents:

AEM: PG, J-FB

SANA: HG. VT, PD,

QA:

QC: GL, SURVEYOR MR,

Health & Safety:

- TURN WITH HUGHE "NEW OPERATOR"
- TAKE CARE ABOUT GREEN CAMP C.D. AND WIRE

Daily Advance:

SANA: - CLEAN-UP BED ROCK SOUTH SIDE + ACCEPTATION
- STOCK PILE TILL NORTH SIDE
- RIPPING NORTH SIDE
- START WORTH ACCESS 12 LOAD NPAG
- 7 LOAD TILL 1 LOAD WASTE DUMP FROM SOUTH

QA: - BLAST 12.45 CLEAN FACE

OWNER:

General Planning/Comments:

SANA: - REMOVED OLD RAMP ± 780
- COMPLETE ACCESS NORTH
- CLEAN-UP TILL AND WASTE NORTH
- CLEAN-UP NORTH
- BLOCK WATER SOUTH FACE

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: June 7th 2016

Time: 8h30

Presents:

AEM: PG-JFB.

SANA: HG-PD-GT, FP,

QA:

QC: GL SURVEY MR.

Health & Safety:

- ~~GLASSES~~ AND HELMET
- BLAST 12.45
- COVER ALL ON HEATHER DRY

Daily Advance:

SANA:
- COMPLETED NORTH ACCESS
- 120 LOAD NPAG 300 M³ 504 T
- START MOVED WASTE NORTH 7 LOAD 175 M³ 294 T
- RIPPING SOUTH AND NORTH
- MUCK TURN AROUND 2 ~~DONE~~

QA:
- FIRST LIFT 2 METRE COMPLETED SOUTH + SCOPED
- DITCHES TO CONTROL WATER DIRECTION
- MOVED TRAILER FROM VAULT TO CENTRAL DIKE, READY TO USE

OWNER:

General Planning/Comments:

SANA:
- CLEAN-UP NORTH + COVER WITH MUCK
- REMOVED ICE AND PLACE MUCK NORTH
- REMOVED TURN AROUND DOWN STREAM
- BLAST 12.45
- REMOVED BLASTED MATERIAL

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 26-JUNE-08

Time: 8.30 H

Presents:

AEM: JFB, PC

SANA: HC, PO, GT, FP

QA:

QC: GL SURVEYOR MR

Health & Safety:

- MESSAGE HAVE BEEN PAST FOR PPI
- SIGNALISATION

Daily Advance:

SANA:
- COMPLETED LIFT 120 ELE COMPACTED 74 LOAD 3108 t 1850 m³
- START 120 LIFT 122 ELE
- MUCK TURN AROUND
- CLEAN UP - NORTH + ACCEPTATION
- PROTECT INSTRUMENTATION

QA:
- RIPPING SOUTH AND NORTH
- PUMP SD3 + NORTH CENTRAL DIKE · ADD ONE SECTION HOSE
- MUCK BLAST 50% ALL WASTE 132 LOAD

OWNER:
- SEALED FILL

General Planning/Comments:

SANA:
- REMOVED TURN AROUND
- RIPPING NORTH AND SOUTH
- WORK IN WATER NORTH SIDE
- MUCK BLAST

QC PROCEDURE BACK FILL IN WATER OK

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016. JUNE -09

Time: 8.30

Presents:

AEM: J-FB, PG

SANA: PD, FP, HG, GT.

QA:

QC: GL SURVEYOR MR

Health & Safety:

→ MISSING 20KM

→ ACCESS SOUTH TO EXCAVATE

→ JHA WORK CLOSE OF WATER BACKOPERATOR

→ CANDLE NEXT LIFT OVER 3 METRE

Daily Advance:

SANA: - CLEAN OVER HANG FINISH
- 5 LOAD OF WASTE
- ALL TURN AROUND REMOVED AND STOPE
- TILL WASTE 107 LOAD
- RIPPING NORTH FACE + SOUTH FACE
- REMOVED ICE AND BACK FILL DOWN STREAM
- COMPACTED OVER INSTRUMENTATION
- TILL SAMPLE

OWNER:

General Planning/Comments:

SANA: → PLACED MUCK IN WATER
→ MUCK NORTH BLAST
→ LIFT 122 ELE
→ RIPPING NORTH FACE
→ CLEAN TILL SOUTH FACE

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2018 JUNE-10

Time: 8.30

Presents:

AEM: J-F B, PG

SANA: DP, GT, PD, FP

QA:

QC: GL SURVEYOR MR

Health & Safety:

→ PROCEDURE CODE I

→ PLANE CALL ON #10

Daily Advance:

SANA: → BLAST EXCAVATION 122 LOAD

→ MUCK ELE 115 76 LOAD 28 LOAD TILL

→ RIPPING NORTH BACO + DOZER

→ SOUTH COMPACTION MUCK

QA:

OWNER: GOOD JOB CLOSE AND IN WATER 115 ELE

General Planning/Comments:

SANA: - RIPPING D2 NORTH
- EXCAVATION SOFT SEDIMENT NORTH
- ENLARGEMENT NORTH FROM ELE 118
- CLEAN NORTH FOR ACCEPTATION
- ELE 115 FINISH JOB IN WATER

QA: - MUCK ELE 122
↳ COMPACTION ELE 112

OWNER: VISIT WITH LUC CHOUINARD, SYLVAIN BARRIAULT

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JUNE-11

Time: 8,30

Presents:

AEM: JFB, PG

SANA: PD, FP, CT, DP

QA:

QC: CL SURVEYOR MR

Health & Safety:

- BUOY INSTALLED CLOSE OF WATER
- ALL SIGNALISATION WILL BE INSTALLED TODAY
- USED TOILET WEST ROAD

Daily Advance:

SANA: - EXCAVATION SOFT SEDIMENT 98 LOAD WASTE 4111t
- COMPACTED ELE 115 9 LOAD MUCK 378t 22 LOAD 924 t TILL
- 40 LOAD EXCAVATION 56 LOAD MUCK
1000m³/1680t 1400m³ 2352T
- SRAPED TILL STOCK PILE

QA: - MUCK PLACEMENT

OWNER:

General Planning/Comments:

SANA: - CLEAN-UP NORTH SIDE + RIPPING + ACCEPTATION
- MUCK PLACEMENT ELE 122 SOUTH
- " " ELE 116.5 + 118 NORTH
- CHECK FOR TILL BLAST

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JUNE-12

Time: 8.30 H

Presents:

AEM: PG, JFB

SANA: PD, DP, GT. FP

QA:

QC: GL SURVEOR MR.

Health & Safety:

- SIGNALISATION OK + BUOY INSTALLED
- NEED INSTALLED SWITCH CHANNEL # 10
- NOTIFICATION WILL BE SENT TO EVERYONE

Daily Advance:

SANA:
- MUCK PLACEMENT NORTH AND SOUTH — D 116 LOAD PAG 4272 t
- NORTH ACCEPTATION — D 21 LOAD TILL 882 t
- CLEAN-UP SOFT SEDIMENT — D 7 LOAD WASTE 294 t
- RIPPING TILL — N 102 LOAD PAG 4284 t
- DRILL DOWN STREAM 3 HOLE x 60 M — N 15 LOAD TILL 630 t

QA:

OWNER:

General Planning/Comments:

SANA:
- ACCEPTATION NORTH
- MUCK SOUTH SIDE
- CLEAN-UP SOFT SEDIMENT + RIPPING
- COMPACTION

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016 - JUNE - 13

Time: 8.30

Presents:

AEM: J.FB PC.

SANA: DP, PD, GT

QA:

QC: GL SURVEYOR MR

Health & Safety:

- CALL FROM AIR CONTROLER START TODAY, AIRCRAFT ACTIVITY
- CALL BLAST on # 10

Daily Advance:

SANA:	CENTRAL DIKE	9 TILL	378t
	- MUCK PLACEMENT	125 PAC	5250t
	- CLEAN-UP TILL + SEALED	96 PAC	4032t
	- RIPPING NORTH	24 TILL	1008t
	- ACCEPTATION NORTH #119	7 WASTE	294t

QA: ELE 122 0+670 TO 0+617
ELE 118 0+410 TO 0+514
ELE 120 0+307 TO 0+40

OWNER:

General Planning/Comments:

SANA:
- MUCK PLACEMENT + COMPACTION
- SLOPPING NORTH AND SOUTH
- SPREAD REJECT TO BUILD CRUSHER PAD
- START ELE 124 on NIGHT SHIFT

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016 JUNE-14

Time: 8.30 H

Presents:

AEM: J-FB. PG

SANA: PD, GT, CG, DP,

QA: FB

QC: CL. SO, SURVEYOR MR

Health & Safety:

→ PICK-UP WINDOW KEEP CLEAN

→ STOP WEST ROAD

→ SHRINK ON ELECTRIC CABLE ACCEPTED

Daily Advance:

SANA: - MUCK PLACEMENT NORTH-SOUTH + COMPACTION / 18 LOAD 4956 t

- SCOPE DOWN STREAM NORTH AND SOUTH 135 LOAD 5670 t
- RIPPING STOCK PILE TILL
- PREPARED PAD FOR CRUSHER
- SEALED TILL

QA: - PUMPING WATER

OWNER: MUCK PAD → MARGINAL STOCK PILE

General Planning/Comments:

SANA: → MUCK PLACEMENT NORTH + SOUTH + COMPACTION

→ RIPPING STOCK PILE

→ SCOPE CORRECTION

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016 June 15

Time: 8:30 H

Presents:

AEM: RC, ST

SANA: DP, CG, GT, FP

QA: FB

QC: SO Surveyor MR, AC

Health & Safety:

Airstrip barrier installed, will add signs
No accidents so far, keep it up
Check ent signs; beware of falling rocks at slope
Life jackets for near water
Coactivity; use radio communication
Rain makes it slippery

Daily Advance:

SANA: 130 loads on D/S (5 for access road), 135 loads on N/S — Elev. S 24, N 22
Continue D/S slope @ S
Rigger in reject stockpile, clean up for crusher
Compaction N & S
Slope correction on N
QA: Pumping water

OWNER: Start adding PAG muck to stock pile

General Planning/Comments:

SANA: Next 24: Muck CD N & S
Slope D/S N
Clean up soft soil elev. 130
Clean up till ice
Compaction 124 on S
QA: Correction for access on N

OWNER:

Report By: Rebecca Cini

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.16

Time: 8:30

Presents:

AEM: Y. Simard. R. Cousineau. S. Tremblay

SANA: G.T. Ch.C. O.P. F.P.

QA: Frederic. B.

QC: Aubry-Cloutier. Michael Racine. SANAS.

Health & Safety:

EVERYTHING. OK. June 23 To June 27 Mine Inspector visit

→ Verify access by Westroad ~~for~~ To Avoid TRANSPORT near The Crusher.

Daily Advance:

SANA: 120 Load Day shift. 12 Till (scraping)

132 Load Pag Night 9 ~~Rock Fill~~ Waste.

Elev. 124. Slop. North and South.

compaction. clean up. North side Road correction.

QA: top. 122 spread The Rock on The platform before put The other Lift

continue To go Inside The Existing slope with The Dozer

up Dating The schedule.

OWNER: Pumping 503

Screening of The Till. Don't mix all Pile When We screan IT. Before We Test IT.

We need 10500 cu m. of Till For This Season.

General Planning/Comments:

SANA: Continue Lift 124 North side and switch on 126

South side. - Cleaning Till South side for The new access for

Rock Fill on South side.

Continue cleaning Till South side for next Lift

Ripper North side. Check mine for Ripper

QA: OK

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.17

Time: 8:30 H.

Presents:

AEM: RC. ST. YS.

SANA: DP. CG. WT, FR.

QA: FB

QC: SO Surveyor ACO.

Health & Safety:

Pickup TRUCK Fire Battery Wire - English Radio communication

Respect SPEED LimiT on WestRoad.

mine Inspector 24 To 28 June.

Daily Advance:

SANA: LasT 24: StarT ELEV 126 (0.99 Loa Pag N.Pag 19 N Pag 8 Load. N-Pag 26 Load T.IL 32 Was 6 Y)

Make access ramp South end - ~~Finish~~ Continue slope 124 StarT LIFT 126.

mine Ripper on T.IL For crusher.

Clean on North side.

QA: All Load of muck Have To be Dump on The Pad in construction

Access To 132 done with The wright 2.IFT.

OWNER: Nothing.

General Planning/Comments:

SANA: NEXT 24: Continue (S. 126 and NORTH 126) Pag.

~~PREPare T.IL with Ripper~~

Sloping The 124 Elev.

PRE Pare Access on North Side.

QA:

OWNER: Discuss about Soapstone in The STOCK P.G. - Verify Survey T.IL STKP.G

To Evaluate and come back Tomorrow With Answer.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.18

Time: 8:30

Presents:

AEM: R.C. YS. ST.

SANA: DP. VT. FP. CG.

QA: F.B.

QC: SO. Surveyor ACD.

Health & Safety:

Safety meeting In The Morning : Safety Burn concern.

Nothing special

NOThing Environment

Daily Advance:

SANA: Last 24: DayShift. 136 l. Pag Lift 126 South. Slope North Side - Access west Road. Clean STAPIG.

N~~ight~~ SHIFT: 136 l. Pag + 36 NPag access Road North Side. continue 126 South START north Side.

~~Start~~ START To pump SD 4

QA: Email To confirm & clarify The situation on Soap Stone and SERGE will Forward To FGL.

OWNER: Ask for The date we will START To place N. Pag on dike.

~~SD4~~ SD3 Dewatering are doing The Pumping.

General Planning/Comments:

SANA: continue Lift 126 North and Slope South Side.

crusher will arrive around Next Tuesday.

QA: Nothing

OWNER: nothing.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016. 06. 19

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: CG. VT. DP.

QA: FB.

QC: SO. Surveyor AED

Health & Safety:

Condition of the Road very Slippery - Mud. Advised the crew and Clean mirror and Window.

Environment: Nothing.

Daily Advance:

SANA: Day shift. Elev. 126 North. 156 Load Slope on south.

Night shift. Finish El. 126 North. Start El. 128 South side 121 Load Pag

14 Load Pag correction access

Did Survey on the Pag in the STK Pile.

QA: Talk about quality of the Pag Pile.

SOS will be with soap stone.

OWNER: Talk about Pag Pile. We will try to find new place for Pag.

General Planning/Comments:

SANA: Continue with 128 southside Slope North side Elev. 126.

TRY Find muck Pag.

clean up North side TO Elev 134. Start N-Pag on North side

clean up Boulder area ito ok To the Waste Dump.

QA: OK

OWNER: Work hard To find Pag.

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.20

Time: 9:30

Presents:

AEM: SC. ST.

SANA: CG. VT.

QA: F.B.

QC: S.O Surveyor ACD

Health & Safety:

Incident : TRUCK HIT THE Poles of the Dozer & Be sure We are advise When IT Happen See Accident declaration Form send.

ENVIRONMENT : Nothing.

Daily Advance:

SANA: Last 24: Day shift: Pag 6 Load ~~West~~ South. N Pag 39 Lo. North.
Till 6. Waste 6 North side.

Night shift: Pag 123 Load Finish North side and Start Continue on Elev. 128 South side. Slope on 126 North.
Cap 122 To 128 Elev on North side.

QA: Accept North side From 122 To 134 around. and The Placement of Non Pag To Pag Transition was good.

OWNER: Tomorrow will Be crusher Installation.
Find Pag Material with Geologie and Eng, South Pit and Waste Pill -

General Planning/Comments:

SANA: Crew change Today - BOT with 1 operator of SS. We will Be able To continue to work, Finish Level 128 on South side and Start 128 on North side.

QA: O.K.

OWNER: Still discussion ongoing With Golder on Pag and N Pag.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.21

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: GT. CG. VT.

QA: F.B.

QC: S.O. Surveyor ACO.

Health & Safety:

Respect The Highest of The Berm For 1.5meter on The Dyke

Environment. Nothing.

Daily Advance:

SANA: Day shift: 132 Pag Load 128 El. South and move on north Slope 128 South side Pumping SD4 - SD3 on going.
Nightshift 143 Pag load. ~~South~~ North side EL. 128 8 Till 5 Waste Dump.
Crusher is arrive

QA: Nothing

OWNER: STill looking For Pag and NPag. Meeting with Golden Today about This concern.

General Planning/Comments:

SANA: Continue Left 128 north. and
Scrap till north side.
Start SD4 as soon we receive 345 Today Maybe we will Start Just Tomorrow on SD4

QA: NOThing

OWNER: OK.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-06-22

Time: 8:30

Presents:

AEM: RC. YS SURVEY ACD.

SANA: VT. GT. CG

QA: FB

QC: SO

Health & Safety:

INCIDENT AT THE CRUSHER, WORKER WHIP HIMSELF WITH A ~~CHAIN~~ CHAIN IN HIS FACE.
REPORT DONE
NOTHING ELSE

Daily Advance:

SANA: DAY SHIFT 127 PAG + 12 WASTE DUMP
BACKFILL 128 NORTH, SLOPE 128 SOUTH SIDE + CLEAN UP EXCAVATE 12 BAGS (WASTE)
NIGHT SHIFT 121 PAG + 4 WASTE DUMP
128 COMPLETED AND START 130 SOUTH
COMPACTION 128 NORTH + CLEAN UP BRING TILL CLOSER FROM THE CRUSHER

QA: - VOLUMES FOR AGGREGATES ARE DONE.

OWNER: CALL YESTERDAY WITH GOLDER, INFO WAS GIVEN TO THEM FOR OPTIONS
NEXT CALL TOMORROW @ 13H00 FOR DECISION.

General Planning/Comments:

SANA: - LIFT 130 SOUTH SIDE, COMPACTION ON 128 NORTH + SLOPING
SIEVE TILL AT CRUSHER AND MAYBE SCREENING

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.23

Time: 8:30

Presents:

AEM: R.C. YS. ST. JC.

SANA: GT. DP. CG. VT.

QA: FB.

QC: SO. Surveyor ACD

Health & Safety:

Accident Between HaulTruck 1516 and Backhoe 12-0303 Investigation In PROGRESS: HAULTRUCK Back ~~up~~ In Backhoe on north side delivered Fine Sto. material for Slope Big Damage Backhoe Operator taking the Plane Today.

Daily Advance:

SANA: Day shift: 117 Load Pag ELEV. 130 South. Slope North 128 EL.
Move some Till for the crusher. Crusher test During The Day.
Night shift: 86 Loads Pag ELEV. 130 South. Till 18 Load North For the crusher Pile
NEW Operator on The Dozer.
crusher For 4 Day at least

QA: Sampling The Till
Volume Till ~~Book~~ AS 2016.06.22
18500 cu m.

OWNER: The Technician will have To go around each 2 Days For ~~Survey~~ monitoring
Instrument at the BOTTOM OC. Central Dyke.

General Planning/Comments:

SANA: Continue LIFT 130 South. slope on North El. 128.
SEAL The Till For The crusher
START SD4 Excavation
~~Advis~~ On going For The crusher.

QA:

meeting Yves Lemoyne For The Membrane on Central Dyke.

OWNER: Advise Control Tower When We START SD4 For The Plane
- VERIFY How To merge SD3 To seal Properly.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016. 06. 24

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: HG. CG.

QA: FB.

QC: SO. Surveyor ACD

Health & Safety:

Complete Investigation Report on 345 Dumper Already Fix on North Side. EL. 130

Environment: Nothing Receive Info From Fanny Laporte came for Meeting with the crew.

Daily Advance:

SANA: Day shift: South EL. 130 Finish. 116 Load PAG Start EL. 130 North. Central Dyke + Compaction 128 South. ~~Start~~ Pag.

Slope North side EL. 128. Continue on Till.

Night shift. North side EL. 130 141 Load Pag. Compaction on South side.

QA: NEED To know at each 1000^3m. To check. For Rate Idea make a sample on Till

OWNER: Central Dyke going on PAG Top Elev. 132 - N Pag Top 137. EL. 2 Lifts of 1.5 m and 1 LIFT of 2 meter Last Lift. ~~Explain The Plan Aff~~

General Planning/Comments:

SANA: Continue on North side with Elev. 130 Day shift

Slope 130 South side. ~~Will~~ Start 132 During The night shift

Start Stripping on SD4 after The slop.

Compaction South side

QA: NEED To ~~Verify~~ go To bedRock Down Stream, Frederic will check and confirm.

OWNER: Explain: The new design above 137 Elev. - And How could be the Design. We will come back with confirmation.

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-06-25

Time: 8H15

Presents:

AEM: YS - RC - ACD (SURVEYOR)

SANA: CG - MG - UT

QA: FB

QC: SO

Health & Safety:

- MINE INJECTION ON MONDAY.
- BOOM of SHOVEL NEAR SD4 MUST BE ~~[illegible]~~ DOWN WHEN NOT WORKING for PLANE
- CHECK BUMPER ON CD DOWNSTREAM
- COMMUNICATION for PLANE WHEN WORKING ON SD4.

Daily Advance:

SANA: D: 199 LOADS P&G - NIGHT 118 LOADS P&G
- BACKFILL 130 NORTH + COMPACTION
- START 132 lift SOUTH SIDE (NIGHT)
- SLOPING 130
- SD4 CLEAN UP - TILL SCREENING + SLEVING

QA: #-SD4 - TO BEDLOCK BECAUSE NO INVESTIGATION WAS DONE for ICE POOR SOIL.
- SD3 - NORTH NEED TO CHECK for NORTH SIDE ICE POOR SOIL.

OWNER: formal EMAIL for 132 TO 137 WAS SENT.

General Planning/Comments:

SANA:
- ROAD 132 SOUTH
- SLOPE 130 NORTH
- CLEAN UP SD4

QA: CHECK for limit of ACCEPTATION of SD4 ACCESS from LAST YEAR

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.06.26

Time: 8:30

Presents:

AEM: RC, ST.

SANA: CG, VT, FB

QA: FB.

QC: ~~Surv~~. Surveyer ACD

Health & Safety:

Build Procedure for shovel operator as spotter

Pass over all STOP and berm Procedure

Daily Advance:

SANA: Day Shift: 12 Load Level 132 - South, SD-4 cleanup. Foot Print clean up North side Centrale Dyke. Compaction Elev. 130 done. Slope 130 North Seal Till STK Pile #1

Night Shift 113 load EL. 132 South. Slope North side - Excavation SD4 - TRY To Haul This STK But It's Too SOFT.

QA: ACCess SD-4 The FOOTPRINT has been approuve Last Year.

OWNER: Explain Email and Double check The Qty For D-Peg and Continue Discussion With Golder after This.

General Planning/Comments:

SANA: Centrale Dyke.
Built Fill 132 North.
Slope 132 South + Compaction.
Hauling Till From North side.
SD 4 Clean-up. Till Down ~~STREAM~~
May be Start D-Pog South of Centrale Dyke 1.5 m high.

QA:

OWNER: Forward The new Drawing for Centrale Dyke.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-06-27

Time: 8h30

Presents:

AEM: RC - JC - YS - ACD (SURVEYOR)

SANA: VT - HT.

QA: FB

QC: SB

Health & Safety:

- 30 Km/H on SD ROAD → PLACE BOULDER TO PROTECT GREEN SLACK
- SIGNS for AIR TRAFFIC.
- MINE INSPECTION INSPECTION TODAY.

Daily Advance:

SANA:
- 130 NORTH SIDE PAG 47 LOAD.
- lift 133.5 → 47 NPAG SOUTH
- HAULING BOULDER 16 LOADS
- 29 LOAD of Till SUP TO SNOW DUMP
- COMPACTION ON 132 + SLOPING
- SEALED TILL STOCKPILE #2
- EXCAVATION AT TRANSITION SD5-CD
- SD4 EXCAVATION

QA:
- BE SURE of APPROBATION LIMIT of CD D/S WHERE THE ACCESS IS NEAR THE TRANSITION
-

OWNER:

General Planning/Comments:

SANA:
- 132 PAG STILL HAULING
- EXCAVATION AT CD - SD5 TRANSITION
- CD CLEAN UP NORTH
- START BACK NPAG IF DONE WITH PAG.
- CLEAN UP SD4
- COMPACTION 132 PAG NORTH

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 28.06.2016

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: HG. VT. PD. CG. FP.

QA: MDB.

QC: [redacted] Surveyor ACD.

Health & Safety:

Mine Inspector visit almost ok couple thing in the crusher to correct Sana Talk shop some correction to do.
at the crusher limit the access

Daily Advance:

SANA: Day shift: Northside: 81 Load Pay. EL. 132 20 load N.Pad. 1160 Bolden.
Night shift: 114 Load PAG. Northside.
South side 59 NPag Waste 19 FROM SDS South Till 3
Excavation of access South side. Compaction North side.
Till will be there for 2 other week at least

QA: Acceptation of Platform North side.

OWNER: Survey the STKP. 2. and start an other Pile.
be sure Sana receive the Email for the new section and IT OK.

General Planning/Comments:

SANA: NPAG 133.5 Elev. South side and start on Northside
Slope 132 North side on Pay
Slope 133.5 South side + compaction.
Clean up SDS foot print To 150 EL.
Move Bolden Pag. and Pay on Waste Dump.

QA: Sampling of the material for FILTER

Be sure the access for South side of C Dyke is at 150 Elev.

OWNER: Nothing More Be careful when we take Filter Material.
Take the right Pile check with Patrice Gagnon.

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 29-06-2016

Time: 8.30H

Presents:

AEM: J.FB. PG, YS

SANA: VT, PO, HG, PLB

QA: MBD

QC: SO. SURVEYOR A.C.O

Health & Safety:

→ WORK ON SD 4-5 CALL FOR PLANT

Daily Advance:

SANA: - BACK 133,5 NORTH AND SOUTH
- SLOPE 132 NORTH
- CLEAN FOOT PRINT CD
- CLEAN BOLDER AND PAG MARGINAL PAD - MUCK TO BE CLEAN BY MINE
- CLEAN SOAP STONE SOS

QA: - 132 LOAN NPAG 27 LOAD BOLDER+PAG 11 LOAD SOAP STONE PIT D
- 224 NPAG NIGHT SHIFT
- TILL SAMPLING

OWNER:

General Planning/Comments:

SANA: - 133.5 NPAG NORTH + COMPACTION + SLOPING
- 135 NPAG SOUTH
- WASTE CD. NORTH

SD3 START CLEAN FOOT PRINT WITH 1250 + PUMPING

SD5 CLEAN-UP FOOT PRINT

QA: TRANSITION CD AND SD-5 OK

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 30-06 2016

Time: 8.30 H

Presents:

AEM: J.FB. PG

SANA: PLB, HG, PD, CT

QA: M-BD

QC: M-H P SURVEYOR: MR, A-C D, CONCASSEUR S R

Health & Safety:

- COACTIVITY HAULING MUCK
- BE SURE VISUAL CONTACT WITH LOADER OPERATEUR CTG

Daily Advance:

SANA: - CLEAN UP FOOT PRINT NORTH SIDE CENTRAL DIKE
- 133.6 Rock FILL DONE COMPACTION + SLOPPE
- Rock FILL 135 NORTH SIDE START & SOUTH DONE
- RIP FOOT PRINT NORTH
- HAULING till TO SNOW DUMP

QA: 365 LOAD NPAG + 27 LOAD TILL WASTE + 3L REJECT
↳ BE SURE SPREAD MUCK

OWNER:

General Planning/Comments:

SANA: C D Rock FILL NORTH FROM EAST DIKE
→ COMPACTION + SLOPPE 135 SOUTH
→ CLEAN UP FOOT PRINT NORTH
→ CLEAN-UP FOOT PRINT SD-5 + SD3

QA:

OWNER: TILL 7 M M3 WILL BE DONE

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY 01

Time: 8.30

Presents:

AEM: JFB, PG,

SANA: PD, RLB, HG, GT

QA:

QC: SURVEYOR MR

Health & Safety:

- AIR PIG TODAY ON C.D.
- COACTIVITY WITH HAUL TRUCK MINE
- CUT ROAD SD3 USE STORMWATER
- CALL PLANE

Daily Advance:

SANA: - NORTH SIDE FOOT PRINT CLEAN-UP C.D. COMPACTION + SLOPPE SOUTH
- ROCK FILL 135 N/S + HAULING TILL SNOW DUMP
- ROCK FILL OVER APPROACH ZONE NORTH
- SOFT SOIL EXCAVATION SD3
- 272 LOAD NPAG 31 LOAD TILL 23 LOAD WASTE

QA:

OWNER: MOVED SEA-CAN N/S C.D. AND ON C.D.

General Planning/Comments:

SANA: - SLOPPE + COMPACTION 135 NORTH + ROCK FILL
- 137 ROCKFILL SOUTH
- CLEAN-UP FOOT PRINT NORTH C DIKE
- TILL CD NORTH
- SD5 CLEAN-UP FOOT PRINT + ACCESS ELE 150 + SD3 CLEAN-UP

QA: - SOAPSTONE WAIT FOR VUES BOULDERS NEW
- TILL SEEM TO BE GOOD HAVE TO CONFIRM
- SD5 WILL BE BUILT SOAP STONE

OWNER: MEETING JULY 2 9.00 H

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-02

Time: 9.00H

Presents:

AEM: JFB, PG,

SANA: PD, HG, P-LB, GT

QA: M.BD

QC: M.HP SURVEYOR MR

Health & Safety:

- YIELD SIGN C-D SOUTH
- 137 ELE ALL VEHICULE ON SAME ELEVATION
- BERM ARE BEEN REMOVED

Daily Advance:

SANA: - NORTH SIDE FOOT PRINT CLEAN-UP 12 LOAD WASTE
- ROCK FILL 135(N) 137(S) + COMPACTION (N) 135 25 LOAD MUCK
- SD3 CLEAN-UP FOUNDATION 56 LOAD WASTE
- BERM REMOVED C.D.
- SD.5 CLEAN-UP 20 LOAD WASTE

QA:

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 137 (S)
- SLOPPE 135 (N)
- C-D NORTH FOOT PRINT CLEAN-UP FOR APPROVAL
- S.D.5 ACCESS RAMP + BED ROCK CLEAN-UP
- S.D.4 DOWN STREAM FOUNDATION CLEAN-UP

QA: → BE SURE COMPACTED OLD BUMPER ELE 137
→ WAITING FOR SOIL STONE CONFIGURATION FROM YVES BOULIANNE AND TILL SCREANING

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-03

Time: 8.30H

Presents:

AEM: J.F B P6

SANA: PD, HG, P-LB, GT

QA: MRD

QC: MH P SURVEYOR: MR.

Health & Safety:

→ YIELD SIGN INSTALLED SOUTH C.D.

→ RESPECT SIGN Y MARGINAL

Daily Advance:

SANA: - ROCK 137 NORTH AND SOUTH + SLOPE 135 DONE

- COMPACTION 137 SOUTH
- CLEAN-UP SOUTH SIDE FOUNDATION C.D.
- 450 LOAD NPAG
- C.D. 4 TILL SOS 28 WASTE CLEAN-UP

QA: → RESULT NO SNOW IN THE MUCK

→ COMPLETED OLD BUMPER ELE 137

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 137 + START 139 SOAPSTONE SOUTH

- CLEAN-UP FOUNDATION NORTH AND SOUTH C.D.
- COMPACTED 137
- CLEAN-UP SOS ACCESS
- CHECK 390 +307 HOOK BOOM

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-04

Time: 8,30 H

Presents:

AEM: JFB - PG

SANA: HG, PD, P-LB, VT

QA: M BD

QC: M-H P SURVEYOR:

Health & Safety:

→DISCUSSION WITH Y. LEVESQUE AND B PARADIS ABOUT MEMBRANE INSTALATION + FINGER

→

Daily Advance:

SANA: - C.D. NORTH SIDE FOOT PRINT CLEAN-UP + RIPPER NEED APPROVAL

- CORRECTION SOAP STONE 75 M + SCARIFIEN + COMPACTED

- ROCK FILL EL 137 + EL 139 PAG SOUTH PART

SD5 CLEAN-UP FOOT PRINT

186 LOAD NPAG
103 LOAD PAG
45 WASTE
10 TILL

QA:

TILL APPROVED BY GOLDER

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 139 + SLOPE 137

- CREW CHANGE

- CD NORTH INVERTED FILTRE + CAPPING NPAG OVER APPROVAL

-SD5 RIPPER + CLEAN-UP SD-3 CLEAN UP FOOT PRINT

QA:

SAMPLING TILL + FILTRE

3/4 PIT D

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-05

Time: 8:30H

Presents:

AEM: J.F.B. PG

SANA: HC, PD, PLB, GT

QA: M BB

QC: M-H P SURVEYOR : MR

Health & Safety:

- PPE DISPATCH PARKING

Daily Advance:

SANA: - NORTH SIDE C.D. CLEAN-UP FOOT PRINT + APPROVAL + NPAG + INVERTED FILTER
- ROCK FILL 139 N + S
- CLEAN-UP SD-5 3 LOAD 0"/6"
- SLOPE 137 SEALED TILL STOCKPILE 323 LOAD MUCK
- ACCESS RAMP NORTH

QA: AVOID TO HAVE SO FINE PART

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 139 (N)
- INVERTED FILTRE (N) SD FINE AND COARSE
- SLOPE 137
- BACKFILL NPAG NORTH SIDE
- SD5 RIPPER + CLEANUP

QA: - SD3 - CLEAN-UP

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-06

Time: 8.30 H

Presents:

AEM: J-FB, PG,

SANA: P-LB, HG, PD, VT

QA: M B.D

QC: MH P SURVEYOR; MR

Health & Safety:

- PROCEDURE BACK-UP WITH HAUL TRUCK TO DOZER WILL BE PRESENTED TO NEW CREW THIS AFTERNOON

Daily Advance:

SANA:
- ROCK FILL 139 N + INVERTED FILTRE STARTED
- SLOPE 137
- RIPPER SD3
- CLEAN-UP SD-4

277 LOAD MUCK
30 LOAD 0-3/4"
26 FILL S-D5
11 LOAD 0-6"

QA:
- 345 ON FINE FILTRE STRAIT-GO
- 0-6 PLACED WITH BUCKET

OWNER:

General Planning/Comments:

SANA:
- ROCK FILL 139
- ROCK FILL NORTH C.D APPROVED ZONE + INVERTED FILTRE
- SLOPE 137 + SD4 FOUNDATION
- PIPE REMOVAL + SD5 RIPPER + CLEANUP + APPROVAL
- SD3 CLEAN-UP

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-07

Time: 8.30 H

Presents:

AEM: J.FB PG

SANA: PD, HG, VT, P-L B.

QA: M B.D.

QC: M-H P SURVEYOR : MR

Health & Safety:

- YIELD FOR CRUSHER VAULT
- PROCEDURE BACK TO DOZER WITH HAUL TRUCK

Daily Advance:

SANA:
- ROCK FILL 139 N+S
- INVERTED FILTRE N C.D. COMPLETED
- CLEAN-UP SD.5 RIPPER SD-3 CLEAN-UP SD.4
- SLOPE 137 COMPLETED
- PIPED ALL MOVED
- 246 LOAD MUCK PAG
- 28 till SD.5
- 5 LOAD 0-6"

QA:
- TILL SAMPLE SNOW DUMP TWO PAL TO BUILD
- TAKE CARE ABOUT BIG BOLDER 1.5 M MAX

OWNER:
- HAVE A LOOCK ON PAG STOCK PILE, BE SURE WE HAVE ENOUGH FOR ELE 139

General Planning/Comments:

SANA:
- ROCK FILL 139 (N)
- ROCK FILL OVER FOUNDATION (N)
- SLOPE UPSTREAM 139 + INSTRUMENT BACKFILL
- SD-3 FOUNDATION CLEAN-UP + ROCK-FILL SD-5 FOUNDATION

QA: -SD-4 NEED APPROVAL

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-08

Time:

Presents:

AEM: J-FB, PG

SANA: PO, HG, GT, P-LB

QA: FB

QC: M-H P SURVEYOR: MR

Health & Safety:

- COMMUNICATION BACK-UP HAUL TRUCK EVERYBODY ADVICED
- SIGN CHANNEL #10 SNOW GUARD
- MEEING SAFETY 7.00 P.M

Daily Advance:

SANA: - ROCK FILL 139 N + OVER FOUNDATION N + INVERTED FILTRE
- CLEAN-UP + APPROVAL + ROCK FILL SD-5
- SLOPE 2:1 UPSTREAM - 343 MUCK
- COMPACTION NORTH C.D. SD-4 CLEAN-UP - 1 WASTE

QA: - SIZE OF BOLDER PAG
- COMPACTION SD 5

OWNER: 3 WEEK MEETING 2.30 P.M.

General Planning/Comments:

SANA: - ROCK FILL 139 N
- BACK FILL INSTRUMENTS
- SD-3 ACCESS BUILD-UP + FOUNDATION CLEAN-UP
- SD-5 COMPACTION + ACCESS BUILD-UP + REMOVED OLD ACCESS
- C.D. NORTH BUILD ACCESS + COMPACTION

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016. JULY -09

Time: 8.30H

Presents:

AEM: J.FB, PG

SANA: P-LB, GT, PD, HG

QA: FB

QC: M-H P SURVEYOR: MC

Health & Safety:

→ MEMBRANE INSTALATION, JHA TO DO

→ STOP SIGN EVERY BODY ADVICED

Daily Advance:

SANA: - INSTRUMENT BACK FILL

- ROCK FILL 139 (N) + OVER FOUNDATION SD5 377 LOAD OF MUCK
- ACCESS ROAD SD-3 + SD4 CLEAN-UP 21 LOAD RESET TILL
- " " NORTH C.D. 37 LOAD SD-3 ACCESS
- SLOPE 2:1 UPSTREAM C.D COMPACTION NORTH C.D.

QA:

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 139 NORTH + SOUTH + NPAP 139 DOWN-STREAM

- SLOPE 2:1 AND 1.5:1 CD
- SD3 ACCESS BUILD-UP + FOUNDATION CLEAN-UP
- SD5 FOUNDATION CLEAN-UP CLOSE OF CENTRAL DIKE

QA: - NPAC WHERE COME FROM

- CHECK FOR 2.3 METRE NPAG DOWN-STREAM WITH Y BOULIANNE

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016 - JULY - 10

Time: 8.30 H

Presents:

AEM: J-FB, PG.

SANA: P-LB, HG, GT

QA: F B

QC: M-H P SURVEYOR: M R

Health & Safety:

→ YIELD SIGN BY PASS NORTH CENTRAL DIKE

Daily Advance:

SANA: - SD-5 OLD ACCESS EXCAVATION DONE 307 LOAD MUCK
- C D ROCK FILL 139 (N) NPAG DOWN STREAM 33 WASTE
- ACCESS ROAD SD-3 + CLEAN-UP FOOT PRINT 14 TILL REJECT
- SLOPE 2:1 UPSTREAM C.D. 1:5/1 DOWNSTREAM 36 ACCESS SD-3
- SD-4 CLEAN-UP FOOT PRINT

QA: - MARK 6 METRE PUSH BUMPER ± 6 METRE FOR NPAG DOWNSTREAM C.D.

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 139 (N-S) + COMPACTION
- SLOPE 2:1 + 1.5:1 C.D
- SD-4 CLEAN-UP
- SD-3 FOUNDATION CLEAN-UP
- SD-5 " "

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-11

Time: 8.30H

Presents:

AEM: J-FB - PG

SANA: HG, PD, GT, P-LB

QA: FB

QC: M-HP SURVEYOR : MR

Health & Safety:

- WORK CARD MISSING "CHECK WAREHOUSE"
- COACTIVITY WITH MINE

Daily Advance:

SANA: - ROCK FILL 139 N-S + COMPACTION 354 PAG
- ACCESS RAMP SD-5 COMPACTION 31 x WASTE
- SCARIFICATION SOUTH C.D. 3 x TILL REJECT
- SD-3 CLEANUP + HAUL WASTE TO DUMP + COMPLETED ACCESS 1K 0-2"
- SD-4 + SD-5 CLEAN-UP

QA: - END OF DIKE STAIN ON TILL PLUG 143

OWNER:

General Planning/Comments:

SANA: - ROCK FILL 139 (S)
- SLOPE 2:1
- SD-4 + SD-5 FOOT PRINT CLEAN-UP

QA: BACK FILL AROUND INSTRUMENTATION C.D.

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016. JULY. 12

Time: 8.30 H

Presents:

AEM: JFB PG

SANA: HG, GT, CG, PD

QA: FB

QC: SURVEYOR : MR

Health & Safety:

→ ADD SIGN SD-3

Daily Advance:

SANA:
- ROCK FILL 139 (N-S) + CLEAN-UP BETWEEN C.D. AND SD-5
- COMPACTION ROCKFILL 139
- SD5 CLEAN-UP + APPROVAL + COVER WITH SOAPSTONE
- C D SOUTH REMOVED TILL
- SLOPPE UP AND DOWN STREAM

234 PAG
101 NPAG
21 TILL
25 WASTE

QA:

DON'T FORGET REMOVED RAMP SD-4

OWNER:

CD NEXT LAYERS

General Planning/Comments:

SANA:
→ NPAG 139 DOWNSTREAM
- SLOPPE 139 2:1
- SCARIFICATION SOUTH C.D.
- SD5 INVERTED FILTRE ZONE - CLEAN-UP
- SD-5 TO CD CLEAN-UP FOUNDATION

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.07.13

Time: 8:30

Presents:

AEM: R.C. SIT

SANA: JG. GT. DP. G.T. CG.

QA: F.B

QC: SO. Surveyor MA.

Health & Safety:

BANa will PUT sign at SD 3. on Road

Be sure we Advise The Operator when we go outside around Machinery.

JHA: For Liner and Finger deposit on going.

Daily Advance:

SANA: Day Shift PAG. 139 Elev. 157 Load ~~Load PAG~~.

Clean up. Fondation SDs' Pushup Stk SD 5

Night shift: Elev 135 NPAG. 169 Load PAG. 2Load 3 Till soundings. Slope. Finish clean up. SDs and CD South side

QA: Notice the NPag we install during the Night looking like PAG But we Assume it's NPAG From Géologie

OWNER: BAought The New DRAW For Central Dyke. For Rockfill. For NPAG.

General Planning/Comments:

SANA: Rockfill PAG CD South. Finish NPAG Downstream Sloping both side.

SD5 Rockfill

Acceptation SDs Inverter filter and CD South small area.

QA: OK

OWNER: OK

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 14-07-2016

Time: 8:30

Presents:

AEM: XS. RC. ST.

SANA: CB. DP. JG. CG. GM)

QA: F.B.

QC: SO. Surveyor MR.

Health & Safety:

Nothing on this.

Daily Advance: CD Dyke.

SANA: Dayshift: ELEV. 139 POG. SE and 75 N.Deg road Slope C.D -
SD5. Slope - Decape foundation clean - SD4 and SD5 BACK FILL
Hole at the Entrance SD5 and C.D.
Night shift: C.D. ELEV 139 Pay III Load N POG. 26 loads Soapstone 36 loads
1 TILL 2 Waste From SD4

QA: SD5: Slop at The Plateau
SD3 Test pit For check The STILL BUT Key look To be on poor
Rock we need a clean up.

OWNER: THE TRANSITION OF SD5 and C.D. in SOAPSTONE
Be sure we don't push Too much stock Inside The Dyke and Be
Sure The Key Trench is right on a Back Fill Stock.

General Planning/Comments:

SANA: Rock Fill SOAPSTONE SD5 - - 3/4 and 6" Inverter Filter SD5
Pay + NPay on C.D.
Night shift: Start Rock Fill SD4 → Coarse Filtre Right North of C.D
Cleaning SD4 South side
Slope Control Dyke Down stream

QA: Acceptation of Foundation SD4 Platform To do.
Inspect soil at SD4 if good For second class.

OWNER: ask surveyor To check QTE of Pay.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 15-07-2016

Time: 8:30

Presents:

AEM: YS. RE. ST.

SANA: DP. CG. GT.

QA: FB.

QC: S.O Surveyor AC. Desroches

Health & Safety:

No Issue : Berm To verify safety meeting this Afternoon
Inspection with Jean Labonte Before The meeting.

Daily Advance:

SANA: Day-shift
Rock fill CD + SD5 ELEV. 139 : 162 Soapstone - NPAG - PAG. CLEANUP. SD4
Inverse filter SD5: 3/4": 34 load, 6": 6 Load Slope CD Downstream
Corse filter CD North.
Night s : 10 NPAG - 19 PAG. 131: SOAPSTONE, 26 - 6"
Rock fill : CD-5-SD5 . Slop.

QA: Just notice a bit of sand in the coarse material, Be carefull The way We Load IT.

OWNER: Nothing To add.

General Planning/Comments:

SANA: Clean up Liner for Cingu., Backfill SD5 over Inverse filter, coarse filter(6") + Fine filter(3/4") on CD (N), Slope CD UPSTREAM. Backfill SD4 Enlargement Slope DOWNSTream CD Dyke South side

QA: Sampling going good.

OWNER: With 3/4" do We take For filter in slope 3/4 SOAPSTone or good one?
CD We use The good 3/4" and SD We use SOAPSTone in The slope.
Cover Properly The Instrument on SD4 on The crest.

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 16.07.2016

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: GT. CG. OP.

QA: F.A.

QC: S.O. Surveyor: ACD.

Health & Safety:

No Issue.

Daily Advance:

SANA: Dayshift. SD4 - CD. 150 Load (Scapstone SD4) Filter CD: 2 Lo 6"
Clean Top Finger CD. 3 Waste 3 Liner. Slope SD5 + Filter CD

Night Shift: 153 SCAPSTONE SD4
6x6" + 12 x 4" CD FILTER. Compaction SD4 - SD5

QA: Verify the QTY For The Low QUALITY Till To Protect The Liner.

OWNER: Pay planning from mine.
is Stop and we are suppose To have all The PAG. For The Job.

General Planning/Comments:

SANA: Continue Backfill SD4. compaction at Protect INSTRUMENT (4) SEE V.
Slope SD-4
Coarse Filter on CD. and Fine Filter.
on CD Start on SCAPSTONE at The NORTH side

QA: Talk To Yves For End of each Dyke of The ABUTment.

OWNER: Talk about The Installation OF The FILTER: The Layer have To be 0.5m and Pack after

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-17

Time: 8:30

Presents:

AEM: RC. JC. YS. ST.

SANA: GT. CG. DP.

QA: FB.

QC: SC. Surveyer Rubrey C.D.

~~***Health & Safety:***~~

Day shift: SD4. 17 Load Elev. 141.5 CD. 14 Load 6", 2 Load 3/4",
SD4 · Slope Downstream CD Coarse & Fine Filter. + Slope Downstream South.
Night shift: SD4: 17 Load Elev. 141.5 CD: Filter 14 Load 6" + 10 Load 3/4"
Compaction SD4 - and Filter.

Daily Advance:

SANA: (H&S) be carefull When We Walk on The Liner on CD. The Liner is very Slippery on The Liner
Without Life Jacket We can't Walk inside 2 meters from The Edge
The Life Jacket is on CD near The Backhoe.

QA: Till at Snow Dump we could Put 1m of that and cover with SCAPSTone on SD. Talk about SCAPSTone on CD: TRY To Bring coarse Material.

OWNER: COVER The Instrument on SD4. (Thermistor P2)

General Planning/Comments:

SANA: CD - Back Fill SCAPSTone + FILTER and Slope.

QA:

OWNER: Survey NPAG Pile. We Will PREPARE To raise The instrument on SD-4 and CD.

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 18.07.2016

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: CC.

QA: FB. MNadim.

QC: SD + Surveyor ACO.

Health & Safety:

Nothing: Haul Truck crossing WestRoad Take care of TL Stop

Daily Advance:

SANA: Day: ELEV 141 CD. 121 L. SCAPStone, 33 PAG, 19.6", 31.3/4"
Back fill Scapstone - PAG - Coarse + Fine Filter North side
Compaction + Sloping filter North side CD.
CD. Night: shift: 123 L. ScaPStone, 45 PAG, 16.6", 11.3/4",
Compaction.

QA: Monitoring Scapstone IT's just on Limit Now.
In case we don't Have enough good NPAG For The 6meter Down Stream
We could Live The Last Lift without ~~the~~ The NPAG in place
For the Future.

OWNER:
Happy with The Golden advise about The NPAG Solution
For The Last Lift.

General Planning/Comments:

SANA: CD - Coarse filter + Fine filter north side.
Continue Back fill Scapstone 141 Elev. Backfill PAG.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 19.07.2016

Time: 8:30

Presents:

AEM: RC. YS. ST. JC.

SANA: CG. VT. DP. PLB.

QA: FB. MN.

QC: SO. Surveyer AGD.

Health & Safety:

Nothing no Issue.

Daily Advance: Crew change Day

SANA: Central Dyke Day: 87 L. EL 141, 20 L. Pag, 8 L-6", 21 L-¾", 3 Reject
To repair Access Road North.
Build Fine and coarse FILTER slope CD.
Night shift: EL. 141 : 140 L. SOAPSTone, 26 PAG, 18 L 6", 12 L-¾".
Continue FILTER in slope.

QA: Be sure To make the FILTER with 500mm THick maybe we will check the THickness of the layer

OWNER: Rebecca Sended the email For the NPAG for The QTy. We JUST need The Julie Delmyre APPROUVAL ABOUT This email Already approuve on site and Thomas RC.YS.ST. Lepine Rebecca will confirm all When Julie APPROUVE.

General Planning/Comments:

SANA: Continue on central Dyke FILTER in slope. Rockfill SOAPSTone and Pag, completion on SDY.

QA:

Jerome will grout and weld is Thermister on central Dyke. Tomorrow 11:00 AM.

OWNER: We will monitor The water come For The NPAG we have Inside The Dyke. IF The water Raise very Fast There, we will have To Take The NPAG FIRST instead The EAST ~~SD~~ Dyke NPAG.

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-20

Time: 8h30

Presents:

AEM: JS - RC - ACD (Jonction)

SANA: DP - PLB - CG - UT -

QA: FB - MN

QC:

Health & Safety:

- Respect speed limit - careful on west road and on dike
- Discussions about liner insulation and concrete blocs is maybe not the good solution. Going with a life line.

Daily Advance:

SANA: - Soap stone + PAG CD north + start up the NPAG north side
- filters on south side
- Shaping SD5
- Compaction SD4.
-

	D	N
	129 Soap	98 Soap
	27 PAG	64 PAG
	14 ~~PAG~~ 6"	5 NPAG
	20 3/4"	21 6"
		19 3/4"

QA: - 3/4 overshoot over 0.5 (0.8) readjusted last night
- Placing fine filter, do not dig the soapstone when scraping the 3/4"
- Check for 6m wide for good NPAG.

OWNER:

Email sent for embutments closure, waiting for answers

General Planning/Comments:

SANA: → Switch back on south side when done with NPAG
→ Slope SD4
→ finish filters on south side.
→ Slope downstream of CD.

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-21

Time:

Presents:

AEM: RC - JS - ACD(SRV)

SANA: DP - VT - CG

QA: FB - MN - [redacted]

QC: SC

Health & Safety:

- GOOD, NOTHING SPECIAL
- CYANIDE TRANSPORT TOMORROW + SATURDAY.

Daily Advance:

SANA: CD - ROCKFILL SOAPSTONE El. 141 (SOUTH) NPAG 141 (NORTH)
COARSE + FINE AT SOUTH SD4 = SLOPE US + DS
SOAPING SD5

SD5 - COARSE + FINE D: 155 NPAG N: 102: SOAP
CLEANING + APPROVAL 20: 6" 11: PAG
19: 3/4" 58: NPAG
1: WASTE 10: 6" 8: 3/4"

QA:

*KEEP CHECKING FOR FINES

OWNER:

General Planning/Comments:

SANA: CD: ROCKFILL SOAPSTONE El 141 SOUTH
" PAG El 141
COARSE + FINE SOUTH
SD5: COARSE + FINE
SD4: SLOPE US + DS, COARSE + FINE, INVERT FILTER.

QA:

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-22

Time: ~~8~~ 8415

Presents:

AEM: YS - RC - ACD (SRU) - JC

SANA: UT - HG - CG -

QA: MN -

QC: SO

Health & Safety:

- DO NOT STOP PROPERLY, SPECIALLY WITH HTR
- CANDLES AT DS
- SAFTY MEETING THIS AFTERNOON.
- REALLY MUDDY + SLIPPERY

Daily Advance:

SANA: CD - Rockfill Soapstone EL 141 (S) PAG 141 (N)
6" South FINE South
- REPAIR ACCESS ROAD SOUTH WITH CRUSHER REJECT.
SD5 - COARSE + FINED
SD4 - SLOPE DS + CLEAN UP FOOTPRINT + 6" + 3/4" (N) + APPROVAL

QA: - 6M WIDTH FOR NPAG, BE SURE.
-

OWNER: - CHECK FOR PAG NUMBERS, SEEMS THAT WE WENT OUT FAST.

General Planning/Comments:

SANA: CD - Rockfill Soapstone + PAG @ EL 141 South
- SLOPE UPSTREAM + DOWNSTREAM

SD4 - CLEAN UP South
- 6" + 4" SLOPE + INVERT FILTERS.

QA:
* LIFE LINE DRAWING UNGOING FOR APPROVAL.

OWNER: - ADD CASING FOR INSTRUMENTS ON CD = JC + WELDER
-

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2017-07-23

Time: 8H30

Presents:

AEM: RC - TS - ACD (SRU)

SANA: PLB - HG - VT - CG

QA: MN

QC: SO

Health & Safety:

- NOTHING SPECIAL
- CYANIDE TRANSPORT TODAY, STAY ALERT FOR TRUCKS.

Daily Advance:

SANA: CD : Rockfill SOAPSTONE El 141 + PAG EL 141 D: 150 - SOAPSTONE U: 56 SOAP
Rockfill NPAG El 141 44 - PAG
SLOPE US + DS 10 - 3/4" 33 - PAG
5 - 6" 62 - NPAG
7 - C"
12 3/4"
SD5 = fine filter
SD4 = INVERTED filter (N) CLEAN UP foot print (S) COARSE + fine filter

QA: → BALANCE IS NOT WORKING, MAYBE THE ELECTRICAL TAPE.
→ A BIT of fine IN THE COARSE ON SD-4, BE CAREFULL.
→ Solution for THE INVERT filters ON THE SD-4 SOUTH SIDE. 5M MINIMUM from THE CREST

OWNER:

General Planning/Comments:

SANA: CD = SLOPE US (S)
- Rockfill NPAG El 141
- CONNECTION fine filter US El 139 (N)
- COARSE + fine filters (N) El 141

SD5 - CLEAN UP foot PRINT SD4: COARSE + fine AND INVERT filters. SD5 - Rockfill SOAPSTONE + ACCESS.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-24

Time: 8h30

Presents:

AEM: JS - RC - ACD (SRV)

SANA: VT - MG - CG - PCB

QA: MN

QC: SO

Health & Safety:

- 2 X CYANIDE TRANSPORT TODAY - ONSITE AROUND 10 AM + 15H00
- YIELD SIGN AT SD4 EXIT + STOP SIGN AT SD ROAD + WEST ROAD

Daily Advance:

SANA: CO → CORRECTIONS 3/4" EL 139 SD4 - INVERT FILTERS (S)
- Rockfill NPAG EL 141 - Rockfill SOAPSTONE EL 143 (1/2 lift)
- Slope US - Backfill THERMISTORS
- COARSE 6" (N) D= 42 - SOAPSTONE - 89 NPAG - 17 3/4" - 11X6"
- SD5 - Rockfill EL 141 N = 168 SOAPSTONE - 19X6" - 3X3/4"

QA: → SD4 COARSE FILTER, THERE'S SOME SOAPSTONE ON IT, NEEDS TO BE CLEAN WHEN STORING
→ BALANCE AT LAB WILL BE FIXED TODAY, ONE FROM ESSAY LAB AS SPARE.
→

OWNER:

General Planning/Comments:

SANA: → COARSE + FINE FILTER (N) EL 141 SD4 - Rockfill EL 143 (NIGHT SHIFT)
- Roacfill EL 141 MAYBE.

SD5 - Rockfill EL 141 + ACCESS
- SD3 - CLEAN UP KEY TRENCH (S) AND FOOTPRINT DS

QA:

OWNER:

Report By: JS

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-25

Time: 8h30

Presents:

AEM: RC - FS - ACD (SOW)

SANA: HG - VT - CG - PLB.

QA: MN

QC: SO

Health & Safety:

- BOARD VISIT TODAY AT THE SITE
- HEAT TRACE JOB SOON ON SD ROAD PIPES
- STOP SIGN AT THE WEST ROAD "Y"
- IF HAUL TRUCK ON SOUTH, ~~NO~~ PICK UPS.

Daily Advance:

SANA: CD: COARSE + FINE (W) D: 18 SOAPSTONE N: 205 - SOAPSTONE
- ROCKFILL SOAPSTONE EL 141 24 X 3/4" PAG + NPAG
SD3: CLEAN UP FOOT PRINT 21 X 6" 6 X 6"
SD5: ROCKFILL SOAPSTONE EL141 COMPLETED 22 X 3/4"
SD4: ROCKFILL SOAPSTONE EL 143

QA: - SD3 - ARMOURATION TODAY, SHOULD BE OK
-

OWNER:

General Planning/Comments:

SANA: CD: ROLL SLOPE (W) SD3 - ACCESS for ROCKFILL + FILTER (S)
- ROCKFILL SOAPSTONE EL 141 (S) - CLEAN UP FOOT PRINT
- ROCKFILL PAG + NPAG EL 141 (S) - INVERSE FILTER (S)
- COARSE + FINE FILTER (W) EL141 SD4 - ROCKFILL SOAPSTONE EL 143.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-26

Time: 8h30

Presents:

AEM: YC. RC. ACD (SRW)

SANA: JT - MG - CG

QA: MN

QC: MMP

Health & Safety:

- LAST lift NEEDS BUMPER SO DO IT ON SOAPSTONE PART.
- WHEN HAUL TRUCK BY STORM, NO PICK UP TRUCKS ON STORM.
- LOTS of DUST.

Daily Advance:

SANA: CD - COARSE + FINE (N)
- Rockfill SOAP + PAG E 141 (S)
- Rockfill PAG + NPAG E 141 (S)
- Roller in slope (N)

CD 141 DONE for Rockfill

SD5 - Compaction
SD3 - EXCAVATION + APPROBATION
SD4 - Rockfill SOAPSTONE 143 ZONE

D: 167 SOAPSTONE
26 WASTE
11 X 6"

N: 73 - SOAPSTONE 15X6"
35 - PAG 15x3/4"
51 NPAG

QA: - CHECK for N SOAPSTONE in THE PAG ZONE.
-

OWNER:

General Planning/Comments:

SANA: CD - Rockfill Soapstone El 143 (N) + PAG AT SAME TIME
- COARSE + FINE FILTERS (N) El 141
- SD3 : CLEAN up footprint (N)
  - INVERSE FILTER
  - START DS Rockfill if possible.

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-JULY-27

Time: 8.30 H

Presents:

AEM: J.FB, PG, YS

SANA: VT, HC, PLB

QA: MN

QC: M.HP SURVEYOR : A-C D

Health & Safety:

- J.H.A FOR MEMBRANE INSTALLATION
- MAIRE BURN OFF

Daily Advance:

SANA:	CD → COARSE AND FINE FILTRE (N)	DAY 18 x 0-6"	NIGHT 29 W
	→ SCARIFICATION	22 x 0-3/4"	14 x 0-6"
	→ EXCAVATION SOAP STONE U/S STREAM REPLACE BY PAG (SOUTH)	119 NPAG	16 x 0-3/4"
	→ ROCK FILL 143 SOAP + PAG	27 PAG	45 x SOAP
	SD-3 CLEAN-UP FOOTPRINT INVERSE FILTRE	186 LOAD	50 x PAG
QA:	S.D-4 COMPACTION DONE 143		154 LOAD

↳ SOAPSTONE FINE

OWNER:

General Planning/Comments:

SANA: C-D. ROCK FILL SOAP + PAG 143 (N) NIGHT SHIFT
COARSE AND FINE FILTRE 141 (N)

SD-3 - ROCK FILL
- CLEAN-UP ICE POOR TILL
- 1 FOOT PRINT NORTH

QA: - COMPACTION SD-3 2 METRE + SCARIFICATION

OWNER: END OF DIKE LET OPEN FOR THIS YEAR "STAIR"

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-28

Time: 8.30 H

Presents:

AEM: PG, JFB

SANA: VT, PL-B, CG

QA: M N

QC: MHP SURVEYOR : MR

Health & Safety:

- BEAR HARVEST
- SOAPSTONE SLIPPERY

Daily Advance:

	DAY	NIGHT
SANA: CO CORSE + FINE FILTER (N)	105 SOAP	69 W
PAG + SOAP STONE EL 143 (N) ROLL SLOP 2:1 250M	32 WASTE	9 0-6"
SD-3 SOAP STONE BACKFILL	9 0-6"	17 0-3/4"
CLEAN UP FOOT PRINT	146 LOAD	32 SOAP
EXCAVATION ICE POOR TILL		10 PAG
SLOPE OS		137
QA: SD-5 SLOPE US		

OWNER:

General Planning/Comments:

SANA: CO → ROCK FILL SOAPSTONE EL 143 (N)
→ ROCK FILL PAG + (APAP) EL 143 (N)
→ COARSE + FINE FILTRE EL 141 (N)
SD3 → CLEAN-UP FOOT PRINT ICE POOR TILL
→ BACK FILL SOAPSTONE
→ SLOPE OS

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-29

Time: 8.30 H

Presents:

AEM: PG. AL. JFB

SANA: PLB. VT. CG. HG

QA: MN

QC: MHP SURVEYOR : MR

Health & Safety:

- CYANIDE SUNDAY

Daily Advance:

		DAY	NIGHT
SANA:	CO → COARSE + FINE FILTRE		
	→ SLOPE DS	132 - SOAPSTONE	10 0.6"
	→ BACKFILL PAG EL 143 (N) + SOAPSTONE	28 - PAG	18 0-3/4"
	SD-3 → BACKFILL SOAPSTONE	14 - 0-6"	118 SOAP
	→ CLEAN-UP FOOT PRINT + SLOPE DS	14 . 0-3/4"	35 PAG
QA:	SD-5 → SLOPE DS + FINE AND COARSE FILTRE	186	186

OWNER:

General Planning/Comments:

SANA: CO → ROCKFILL SOAPSTONE + PAG EL 143 (N)

→ COARSE + FINE FILTRE (N)

SD-3 → CLEAN-UP FOOT PRINT

→ BACKFILL SOAPSTONE EL 140

→ SLOPE DS EL 138

QA: SD-5 → COARSE + FINE FILTRE

↳ PAG PIT D

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-30

Time: 8.30 H

Presents:

AEM: PG. JFB

SANA: PLB, CG, VT, HG

QA: MN

QC: MHP SURVEYOR: MR

Health & Safety:

→ HAUL TRUCK INCIDENT
BLAST PIT A 12.45 H

Daily Advance:

		DAY	NIGHT
SANA:	CD → COARSE + FINE FILTER (S)		
	→ BACKFILL SOAPSTONE + PAG EL 143 (N)	5 x 0-3/4"	12 x 3/4"
	→ SLOPE DS COMPLETED + ROLLER 3/4" US	5 x 0-6"	15 x 0-6"
	SD-3 BACKFILL SOAP EL 140	101 x SOAP	99 x SOAP
	CLEAN-UP FOOTPRINT (N) + HAULING WASTE RMP	36 x PAG	31 x PAG
	SLOPE DS EL 138		
QA:	SD-5 SLOPE DS-US + ROLLER FINE + COARSE FILTRE	21 x WASTE	11 x WASTE
		168	169

OWNER: GEOTEXTILE ON SITE

General Planning/Comments:

SANA: CD → BUMPER DS RAISE
→ ROCK FILL SOAPSTONE EL 143 (N) + PAG
→ COARSE + FINE FILTRE (S)
→ SLOPE 143 US
SD-3 → CLEAN-UP FOOTPRINT (N)
→ BACKFILL SOAPSTONE EL 140 + 141.5
QA: → SLOPE DS EL 140

↳ BE SURE HAUL TRUCK DUMP, GOOD PLACE ON LIFT

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-07-31

Time: 8.30 H

Presents:

AEM: J-FB, PG

SANA: PLB, VT, CG, HG

QA: MN

QC: M-HP SURVEYOR : MR

Health & Safety:

→ SPILL OF FUEL SD-3 NORTH

Daily Advance:

SANA: CO - COARSE AND FINE FILTRE (S) DONE
- BACK FILL SOAPSTONE EL 143 (N)
- BERM NORTH
SD-3 - BACK FILL SOAP 140 + SLOPE AND SCARIFICATION
- CLEAN UP EL 141.5 ONGOING NORTH

QA: SD-4 SLOPE US + DS
SD-5 FINE + COARSE FILTRE DONE

	DAY	NIGHT
	10 x 0-3 1/4"	1 x 0-3"
	15 x 0-6"	0 x 0-6"
	144 SOAP	198 SOAP
	0 PAG	0 PAG
	6 WASTE	0 WASTE
	175	199

OWNER:

GEOTEXTILE IN FRONT OF MARGINAL STOCK PILE

General Planning/Comments:

SANA: CO ROCKFILL SOAPSTONE EL 143 (S)
" " PAG " (S)
SLOPE 143 US (N)
SD-3 - BACK FILL SOAPSTONE EL 141.5
- SLOPE DS + US EL 141.5
SD-4 → SLOPE US + DS EL: 143
→ COARSE + FINE FILTRE

QA:

OWNER:

Report By

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-01

Time: 8.30 H

Presents:

AEM: J.F.B. PG

SANA: C G , V T , P-L B

QA: M N

QC: M-H P SURVEYOR : M R

Health & Safety:

- TRANSPORT CYANIDE ?

Daily Advance:

SANA: CO BACK FILL SOAPSTONE EL : 143

" " PAG EL : 143

SD.3 CLEAN-UP FOOT PRINT + TRAMAK SLOPE U S

SD-4 SLOPE US + DS

QA: COARSE AND FINE FILTRE

↳ CHECK FINE IN 0-6"

	DAY	NIGHT
	198 NPAG	111 NPAG
	7 0-3/4"	67 PAG
	3 0.6"	9 0-3/4"
		8 0-6"
		3 W
	208 LOAD	198 LOAD

OWNER:

General Planning/Comments:

SANA: CO - BACK FILL SOAPSTONE + PAG EL : 143

- SLOPE US (NORTH)

SD-3 COARSE + FINE FILTER

- CLEANUP NORTH

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-02

Time: 8.30 H

Presents:

AEM: J-FB, PG

SANA: HG, CG, NG, FP, GT

QA: MN

QC: M-H P SURVEYOR : M R

Health & Safety:

Daily Advance:

SANA: CD BACKFILL SOAPSTONE + PAG EL:143

SD-3 - CLEAN-UP FOOT PRINT
- THANAK
- FINE + COARSE FILTER

SD-4
FINE + COARSE FILTRE

QA:

DAY		NIGHT	
10	WASTE	121	SOAP
90	mPAG	31	PAG
38	PAG	8	0-6"
13	0-6"	9	0-3/4"
7	0-3/4"		
158		169	

OWNER:

General Planning/Comments:

SANA: CD - BACKFILL SOAPSTONE + PAG EL: 143
- SLOPE US (N)

SD-3 CLEAN-UP FOOT PRINT (N)
↳ INVERTED FILTER → LATER

SD-4 COARSE + FINE FILTER

QA: SD-5 ROCK FILL SOAPSTONE EL: 143
RAISE ACCESS 1ère THING

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-03

Time: 8.30 H

Presents:

AEM: JFB. PG

SANA: GT, CB, NB. FP,

QA: M N

QC: M-H P SURVEYOR: MR

Health & Safety:

- CYANIDE TRANSPORT IN THE MORNING.
- VERY SLIPPERY EVERY WHERE.

Daily Advance:

		DAY	NIGHT
SANA:	CO - BACK FILL SOAPSTONE + PAG EL: 143		
	SD-3 CLEAN-UP FOOT PRINT + ACCEPTATION	93 NPAG	157 NPAG
	FINE + COARSE FILTER	53 PAG	10 REJECT TILL
	SD-4	6 0-6"	14 0-6"
	- COARSE + FINE FILTER	5 0-3/4"	12 0-3/4"
	- ADJUST BUMPER	157	193
QA:	SD-5 SLOPE + SOAPSTONE		

OWNER:

General Planning/Comments:

SANA: CO :

- FINE + COARSE FILTER
- SLOPE US

SD-3 CLEAN-UP FOOT PRINT (N) + ROCKFILL SOAPSTONE + FIXED ACCESS

SD-4 COARSE-FINE FILTER

QA: SD-5 ROCK FILL SOAPSTONE EL: 143

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-04

Time: 8.30H

Presents:

AEM: J-FB, PG

SANA: DP, CG, NG, FP. GT

QA: MN

QC: M-HP SURVEYOR : MR

Health & Safety:

→ INSPECTION DONE EXHAUST 1519 HAUL TRUCK

→ BE SAFE WITH PICK-UP, PARK FAR AWAY.

Daily Advance:

SANA:		DAY		NIGHT
CD	SLOPE US			
SD-3	- BACKFILL@143	8	REJET	144 SOAP
	- CLEAN-UP FOOT PRINT EXCAVATION	02	NPAG	8 0-6"
	- SLOPE US 3/4"	10	0x6"	8 0-3/4"
SD-4	COARSE + FINE FILTRE	12	0x3/4"	
SD-5	BACK FILL@143 (DONE)	132		160

QA:

↳ SD-3 LOOK GOOD

OWNER:

General Planning/Comments:

SANA: CD - SLOPE US

- CLEAN-UP BOULDER

SD-3 - ROCK FILL EL: 143

- FILTER INVERSE
- SLOPE ROCK FILL
- FINE + COARSE FILTER

SD-4 COARSE + FINE FILTER

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-05

Time: 8.30 H

Presents:

AEM: J.FB, PG

SANA: OP, NG, GT

QA: FB

QC: M-HP SURVEYOR : MR

Health & Safety:

- CODE I THIS MORNING VAULT
- SPEED ON DYKE TO BE RESPECT

Daily Advance:

SANA: CD - SLOPE US
- CLEAN-UP BOLDER

SD-3 - BACKFILL 143
- FILTER INVERSE
- SLOPE US 3/4" Rockfill

SD-4. COARSE & FINE FILTER (DONE)
- CLEAN-UP KEY STARTED

SD-5 - SLOPE US

QA: - STOCK PILE GOOD 0-6" NPAG FROM VAULT
→ COMPACTION SD-3-4-5. WITH ROLL. WEEK BEFORE LINER CREW
→ BUMPER DS

OWNER:

General Planning/Comments:

SANA: CD - SLOPE US +0-6" NORTH
- CLEAN-UP BOLDER
- ROCKFILL NPAG DS

SD-4 CLEAN-UP KEY TRENCH + BLOW PIPE

SD-5 - SLOPE ROCKFILL US + DS
- CLEAN UP BOLDER

SD-3 - CLEAN-UP KEY TRENCH
- FILTER INVERSE
- SLOPE ROCKFILL US
- FINE + COARSE FILTER

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-06

Time: 8.30 H

Presents:

AEM: J-F B, PG

SANA: DP, NG, GT

QA: FB

QC: M-H P SURVEYOR: M R

Health & Safety:

- MINE INSPECTOR RECOMMANDATION DONE
+ CODE ONE PROCEDURE "HAVE A LOOK ON SAFETY MEETING MINUTE"

Daily Advance:

SANA: C.D. - SLOPE 0-6" US
- SLOPE US
- CLEAN-UP BOULDER
- ROCKFILL NPAG DS

SD-3 - SLOPE DS
- SLOPE US 0-3/4" + ROCKFILL 0-6"
+ COMPACTION

↳ KEY CLEAN-UP

SD-4 CLEAN-UP KEY

SD-5 SLOPE US

CLEAN-UP BOULDER

DAY	NIGHT
10 BOULDER	123 NPAG
19 0-6"	12 BOULDER
12 0-3/4"	16 0-6"
41	7 0-3/4"
	3 SOAP
	161

QA:

OWNER:

General Planning/Comments:

SANA: CD - SLOPE US 0-6"
- ROCKFILL NPAG DOWNSTREAM

SD-3 - CLEAN-UP KEY TRENCH
- SLOPE ROCK FILL DOWN STREAM
- FINE + COARSE FILTER

SD-4 CLEAN-UP KEY TRENCH

SD-5 NOTHING TODAY

" " TILL PAD FOR TEST NORTH CD

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-07

Time: 8.30 H

Presents:

AEM: J-FB, PG

SANA: DP, VT,

QA: FB

QC: M-H P SURVEYOR : MR

Health & Safety:

→ QUATTREX F.A GARAGE "CHECK WITH ENVIRONMENT DEPARTMENT"

Daily Advance:

SANA: CD - SLOPE FINE + COARSE FILTER SD-4 CLEAN-UP KEY

- TILL PAD TEST
- ROCK FILL DOWN STREAM

SD-3 - SLOPE DOWN STREAM
- SLOPE 0-3/4"
- CLEAN-UP KEY

	DAY	NIGHT
	1 - BOULDER	159 NPAG
	35 0-6"	5 x 0-6"
	10 0-3/4"	58 x 0-3/4"
	46 LOAD	222 LOAD

QA:

→ SD-4 BLOW PIPE KEY TRENCH EAST SIDE WHEN WILL BE DRY

OWNER:

General Planning/Comments:

SANA: CD - SLOPE UPSTREAM + 0-6" + 0-3/4"
- ROCK FILL DOWN STREAM ?

SD-3 - CLEAN-UP KEY TRENCH
- CLEAN-UP WASTE

SD-4 ACCESS KEY

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-08

Time: 8.30 H

Presents:

AEM: J.FB, PG

SANA: GT, FP, NG, DP

QA: FB

QC: MH P SURVEYOR: MR

Health & Safety:

- MINE INSPECTOR VISIT

Daily Advance:

SANA: CD - SLOPE FINE+COARSE FILTRE SD-4 ACCESS KEY

- KEY CLEAN-UP NORTH
- ROCKFILL NPAG DOWNSTREAM

SD-3 - CLEAN-UP WASTE

- CLEAN-UP KEY

	DAY	NIGHT
	48 x 0-6"	63 NPAG
	25 x 0-3/4"	30 0-6"
	73 LOAD	51 0-3/4"
		31 WASTE
		175 LOAD

QA:

→ USE GOOD 0-3/4"

→ MAPPING BED ROCK

OWNER:

General Planning/Comments:

SANA: CD - SLOPE UPSTREAM + 0-6" + 0-3/4" TILL MIXED TO DRY IT EASILY

- CLEAN-UP KEY NORTH

SD-3 - CLEAN-UP KEY

- CLEAN-UP WASTE

SD-4 - ACCESS KEY

QA: - FINAL CLEAN-UP BED ROCK EAST SIDE

→ TILL QUANTITY

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-09

Time: 8.30 H

Presents:

AEM: J-FB,

SANA: OP, NG, FP

QA: FB

QC: SO

Health & Safety:

- MINE INSPECTOR VISIT
- FIXED ROAD IN FRONT OF SUB STATION SD-3 SOUTH

Daily Advance:

SANA: CD - SLOPE FINE + COARSE FILTER + COMPACTION

SD-3 CLEAN-UP KEY TRENCH
CLEAN-UP WASTE UP-STREAM

SD-4 - CLEAN-UP WASTE
- CLEAN-UP KEY DONE

SD-5 - CORRECTION SLOPE ROCKFILL
- SLOPE FINE + COARSE FILTER

QA:

KEY TRENCH SD-4 EAST OK

DAY	NIGHT
49 0-6"	62 WASTE
26 0-3/4"	46 0-6"
75 LOAD	43 0-3/4"
	151 LOAD

OWNER:

General Planning/Comments:

SANA: CD - SLOPE FILTER
- SLOPE DOWN STREAM

SD-3 - CLEAN-UP KEY TRENCH
- CLEAN-UP WASTE

SD-4 CLEAN-UP ? WAIT TO USED A TILL AS A ROUGH TILL

SD-5 SLOPE FINE + COARSE FILTER

QA: - TILL TEST SANA CRUSHER + NORTH CENTRAL DIKE
- MAPPING SD-4

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.09.10

Time: P:30

Presents:

AEM: ST. RB.

SANA: OP. NG. FP.

QA: FB

QC: SD

Health & Safety:

Nothing.

Daily Advance:

SANA: SD-3 Blow Pipe clean up North side. SDy clean-up + Mapping

SD-5 Slope Fine+coarse FILTer Key clean up With cat 307

CD - -Slope Fine + coarse FILTer. 10 load 0-6" 21 load 0-3/4"

-Rockfill NPAG South side Down Stream (complete)

-Move Till PILE Too Humide. 10% and we need 8%

QA:

OWNER:

General Planning/Comments:

SANA: SD.5 Slope Fine+coarse FILTer

SD-3 Clean up Fondation last 12 meter wide

Continue To reduce Humidity in The TILL

CD North PREPare access For The GROUT need clean up

For 1.5m depth on The side To remove The Poor material

Before we Install The second class. STop The NIGHT SHIFT For Trucks

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.08.11

Time: 8:30

Presents:

AEM: RB. YS. ST.

SANA: DP. FP. GT. NG. GT.

QA: FB

QC: SD ACO (Surveyor)

Health & Safety:

NOTHING JUST Follow up.

Daily Advance:

SANA: CD: Slope Down Stream NPag Move Till Pile (DRY) Night 6 NPAG. Bumper.
SD3: Key clean up Blow Pipe SD4. Mapping. one. 11 Load Waste
SD5: Fine Filter Slope - Key clean up - Blow Pipe.

QA: SD3: Mapping South side - no GROUTing.
Question about the GROUT on SD-5 we need to check Before acceptation. Maybe go over the corner.

OWNER:

General Planning/Comments:

SANA: CD. Slope NPag Down Stream Clean up For the Key Trench access. grout.
Move Fill Pile - Key clean up.
SD3: Mapping. and SD5
SD5: Blow Pipe clean Key.
SD4: Start the Till

QA: Mapping SD-3 North.
Make a reference board for the Till We could put a Big Pile With the Till.

OWNER: QA. and QC will be Enough For survey Liner installation and Till installation. Verify over stock Down Stream SD4 and SD5 if we could use upstream as class 5

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-12

Time: 8h30

Presents:

AEM: YS RL ACD (SURVEY)

SANA: DP - CG - GT. NG.

QA: FB

QC: SO

Health & Safety:

→ Ø ISSUES for YESTERDAY

→ WATCH WALKING NEAR DOME WARE HOUSE, LEAVE SPACE for ZOOM BOOM

Daily Advance:

SANA: CO: SLOPE D/S NPAG — SD5: KEY CLEAN UP, BLOW PIPE (DONE)
- MOVE + BREATH TILL PILES. — KEY ACCESS
- SD3: MAPPING
- SD4: ACCESS for KEY D/S

QA: LITTLE BIT of GROUT AT SD4 SOUTH SIDE (ONLY OPEN CRACK)
LITTLE BIT of GROUT AT SD3 NORTH.
9.5% of WATER AT TILL SUMP CRUSHER PILE. * FLOOR of ROAD STONE ACCEPTED for COVERING EROSION PROTECTION

OWNER:

General Planning/Comments:

SANA: CO: SLOPE D/S NPAG — SD3: MAPPING — SD5: - BLOW PIPE
- ACCESS for NORTH KEY — - CLEAN UP KEY
- MOVE TILL PILE — SD4: CONTACT TILL + GROUT. — - MAPPING
- KEY CLEAN UP, BLOW PIPE

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-13

Time: 0830

Presents:

AEM: RC - YS - ACD (SNW)

SANA: DP - CG - GT

QA: PB

QC: SO

Health & Safety:

- SUNSCREEN for SUNBURN
- COACTIVITY REQUIRED ON SMALLER DIKES.
- CAUTIES AT SD3 ACCESS (AWPR)

Daily Advance:

SANA: *CD: - SLOPE DIS NPAG *SD3 - MAPPING *-SD4 - TILL CONTACT GROUTING
- MOVE TILL PIPE
- EXCAVATION KEY NORTH ALONG TRENCH
-

QA: → TILL COMPACTION IS GOOD
→

OWNER:

General Planning/Comments:

SANA: CD - NORTH ACCESS EXCAVATION SD3: - MAPPING SD4: LOW QUALITY TILL MAYBE
- KEY CLEAN UP + BLOW PIPE - GROUTING
- MOVE TILL PIPE - CONTACT TILL SD5: MAPPING MAYBE.
- ACCEPTATION

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.08.14

Time: 8:30

Presents:

AEM: RC. YS. ST.

SANA: DP. GT. CG.

QA: F.B.

QC: SO. ACO.(Surveyor)

Health & Safety:

SPEED and Seat Belt - Security On duty onsite To verify
We add cordell on saddle 3'

Daily Advance:

SANA: CD: clean up Key Blow Pipe - Move Till Pile - Access North For The Key Done
SD3: Mapping Done. - Till contact Done - Grouting Done
10 Load of Waste From CO.
4 Load of Low Quality Till and 24 Load Good Till on SD3

QA: Till was Borderline But Good.

OWNER: Nothing.

General Planning/Comments:

SANA: CD: Move Till Pile
SD3: Low Quality Till installation
SD 4: Low Quality Till West side - clean up Down Stream Pumping Water Down Stream

QA: Mapping SD5. Make a Test Platform for Till Pile CD North.
Need To verify humidity of the second class Till and Make a reference platform for IT

OWNER: What we do with Pile at Snow Dump We have to Verify With Yannick what Kind of Thing we will do there,

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-15

Time: 8h30

Presents:

AEM: RC - TS - ACD (SKU)

SANA: CG - GT - FP - DP

QA: FB

QC: SO

Health & Safety:

JOSH → CONTRACTOR ARE NOW INCLUDED IN HAVLY REPRESENTATIVE IN JOSH COMITY.

Daily Advance:

SANA: → CD: SD5: SD4: SD3:

- KEY CLEAN UP — MAPPING — CLEAN UP WASTE O/S — CLEAN UP WASTE AT NORTH O/S
- MOVE TILL
- MAPPING

QA: - SCANNER IS NOW USE for MAPPING, HELPS A LOT.
- TILL ARE GOOD WITH WATER CONTENT. 1ST CLASS + low QUALITY.

QC: PROCTOR TEST ON GOING.

OWNER:

General Planning/Comments:

SANA: CD: SD5: SD4: SD3:

MAPPING — MAPPING — low QUALITÉ TILL — low QUALITY TILL

SEAL STOCK PILE - CLEAN UP WASTE

QA: # SHIFT T CREW CHANGE.

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-16

Time: 8H30

Presents:

AEM: YS - RC - ACD (SW)

SANA: DP - CG - VT

QA: FB

QC: SO.

Health & Safety:

- JHA for FINGERS
-

Daily Advance:

SANA: CD: MAPPING SD5: CLEAN UP DIS SD4: LOW QUALITY TILL SD3: LOW QUALITY TILL MAPPING

QA: - APPROVE @ CD NORTH + 4M LEFT TO APPROVED.
- COMPACTION AT SD4 IS GOOD ON THE TILL.

OWNER: USING THE SCANNER for MAPPING GIVES A GOOD RESULTS.

General Planning/Comments:

SANA: - CD: - MAPPING SD5: - MAPPING SD4: LOW QUALITY TILL
- GROUTING - CLEAN UP WASTE
- 1ST CLASS TILL NORTH

QA:

OWNER:

Report By: _____

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.08.17

Time: 8:30

Presents:

AEM: YS. RC. ST.

SANA: VT. CG. HG.

QA: RD

QC: ABC Surveyor

Health & Safety:

Asking for Info on Storm - Just in The Pit in case of Lighting.
Wearing The mask for The mixing grout.

Daily Advance:

SANA: CO. Mapping Slush grout compact Till 17 Load 1ST Till
SD 4 Low Quality Till
SD 5 Mapping Clean up Waste 12 Load Waste

QA: Everything Good Compaction is good Find good reccipe with The packer.

OWNER: Meeting with H&S for JHA LLOPIE
Reject is not good To cap the Till and we check The soap stone
To cap the till as second class.

General Planning/Comments:

SANA: CO. Finish Till North side
SD5- Mapping - slush grout If we could dipend of wheather.
SD3 - SD4 - Roller in The slope.
Till Stock Pile Sana crusher
SD5 Finish The waste

QA: OK

OWNER: OK

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-20

Time: 8H30

Presents:

AEM: YS. ST-RC - ACD(SRU)

SANA: HG - NG

QA: MB

QC: SO

Health & Safety:

- DUSTY, CALL WHEN GOING UP THE CD ACCESS (BLIND HILL)

Daily Advance:

SANA: - CD
ANCHOR KEY.

SD5:
- SLUSH GROUT
- CONTACT TILL (1ST SEQ)
- 7m CLEAN UP.

QA: - FOUNDATION APPROVAL FOR 7m CLEAN UP
- SD3 WHERE IS THE BULK, WE WILL HAVE TO RAKE THE SLOPE WHERE THE 3/4 COULDN'T BE PACKED.

OWNER: * TALK WITH ZTG FOR THE HUMP COVERING

General Planning/Comments:

SANA: - CD
- ANCHOR TRENCH
- CASING INFORMATION

SD5:
- 7m CLEAN UP
- 2ND CLASS TILL.

SD3 + SD4:
- BRING LINER + GEOTEXTILE

QA:

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-21

Time: 8H30

Presents:

AEM: RC - JS - ACD (SRW)

SANA: FP - VT - JG - NG

QA: MB

QC: SO

Health & Safety:

SPEED LIMIT AT 20 Km/HR ON DIKES.

Daily Advance:

SANA: CD:
- ANCHOR KEY
- 2/4 CASINGS INSTALLED
- LIFE WIRE + CONCRETE BLOCKS

SDS: - FINAL CLEAN UP
- FOUNDATION APPROVAL

SD3 - SD4 : LINER + GEOTEXTILE WAS BROUGHT ON SITE.

QA: → KEY TRENCH AND 2ND CLASS FILL DISCUSSION.
→ MEMO WILL BE ISSUED FOR THE CAPPING FINISH

OWNER:

General Planning/Comments:

SANA: CD: SDS: SECOND CLASS FILL SD3: CONNECTION 3/4 SLOPE
- ANCHOR KEY
- CASING

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.09.22

Time: 8:30

Presents:

AEM: YS. RC. ST.

SANA: VT. N.G. HG. FP.

QA: MB

QC: SO AGD

Health & Safety:

Before cleaning CO Membrane, we need to use The Life line To do The Job. ZTG come Today Verify if we have EVERY Thing here for this Job.

Daily Advance:

SANA: AD - Anchor Key - Casing are done - STILL one cable to Install Life wire 7/8"

SD 3 - Correction on The slope. - Clean de Bottom of South side Blow Pipe on LLDPE for the

SD 4 - Anchor Key done. SD 5 - Intall First layer of Second Class

QA: Did The Test in STOCK Pile D and C for Second Class for granulometrie

OWNER: STOCK Pile survey on Second Class

General Planning/Comments:

SANA: CO: Life Wire + Block concrete Prepare LLDPE + GeoTextile. Key Trench.

SD: 3 Key Trench.

SD: 4 Finish The Preparation for Ztech

QA: Michael will check for all Transition Between every kind of Material To fit in the field

OWNER: We will make survey on Till First Class To be sure we have enough STOCK need to be careful with This Material

Report By: KY

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 23.08.2016

Time: 8:30

Presents:

AEM: YS. RC. ST.

SANA: GT. JG. VT. NG. AG. PLB. HG. SC (ZTG)

QA: MB. MD.

QC: GL. MR (Surveyor)

Health & Safety:

Tomorrow will do The Presentation of JHA To ZTG For Lifeline Measure The Wind to be control Before Installation.

Daily Advance:

SANA: CO - Anchor Key Done. SD3 : Key Trench Done.
Life Wire Installed SD4 : Prepare all Stock
EVERYThing is in Place. SD5 : Anchor Key IS done,
EVERYThing is Ready for Liner INSTallation.

QA: Correction To be done on SD-4 South and IT's done.
contact YNUS this Morning for granular Protection
Question about Horizontal Seal on The slope.

OWNER: To save LLDPE We need To use all The material we Have so We want To do Horizontal ~~cut~~ We need To use each left over on each Roll.

General Planning/Comments:

SANA: Panel on SD4 install membrane.

QA: Verify Con Horizontal
Two sample To do on ROLL ~~SEAM~~ TILL By QC.

OWNER: ~~Be Fast~~ ~~Not~~ The TILL is very Tigh - So we need To do a good survey on Till Because We will be short so we To confirm

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-24

Time: 8.30 H

Presents:

AEM: J.FB, YS

SANA: VT, SC "ZTG" HG, GT, JG

QA: MN, MBO

QC: GL SURVEYOR: MR

Health & Safety:

- JHA PRÉSENTATION DONE "MEMBRANE INSTALLATION CENTRAL DIKE"

Daily Advance:

SANA: SD-4 GEOTEXTILE + LLDPE INSTALATION STARTED
180 M 160 M
± 2000 M²

QA: - BE SURE GEOTEXTILE IS CLEAN BEFORE INSTALL LLDPE
- DISUSSION ABOUT TILL 2ME CLASS

OWNER:

General Planning/Comments:

SANA: - SD-4 GEOTEXTILE + LLDPE
- SD-3 " "

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-AUG-25

Time: 8.30

Presents:

AEM: J-FB, PG

SANA: VT, HG ZTG: SC

QA: MN, MBD

QC: GL SURVEYOR: MR

Health & Safety:

- BE SURE VISUAL CONTACT WITH 345 OPERATOR
- HIGH WIND
- TAKE CARE WITH LLDPE MANUTENTION

Daily Advance:

SANA: SD-4 GEOTEXTILE + LLDPE COMPLETED, TO BE TESTED

ALL MATERIAL MOVED TO SD-3 READY TO USE
± 2300 m²

QA:

LINER EXTRUTION AS AEM WANT

OWNER:

General Planning/Comments:

SANA: SD-3 GEOTEXTILE + LLDPE INSTALATION

- CLEAN-UP BETWEEN SD-5 AND PLS + APPROVAL AND SOAP BACK FILL

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-AUG 26

Time: 8.30 H

Presents:

AEM: J-PB - PG M A SURVEYOR

SANA: HG, NG, P-LB, VT, AC, SC ZTC

QA: MB.D

QC: GL

Health & Safety:

- TAKE CARE WHEN HAUL TRUCK BACK-UP
- PARK PICK-UP ENOUGH FAR OF HAUL TRUCK

Daily Advance:

SANA: CD PREPARATION GEO + LLDPE

SD 3 GEOTEX + LLDPE INSTALLATION FINGER DONE

SD.4 SHOP VAC TEST DONE APPROVAL

SD 5 CLEAN-UP BED ROCK PIG LAUNCHER ACCESS

QA:

SD.4 TEST APPROVAL

OWNER:

General Planning/Comments:

SANA: SD.3 GEOTEX + LLDPE INSTALLATION

SD-4 CONTACT TILL + 2ND CLASS TILL

SD.4 FILTRE

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08.27

Time: 8.30 H

Presents:

AEM: J.F B - PG - MR

SANA: HG - VT - NG - PLB - ZTG : SC

QA: MBD

QC: GL

Health & Safety:

- WEEKLY SAFETY MEETING
- membrane is slippery when wet, be careful

Daily Advance:

SANA: SD-3

GEOTEXTILE + LLDPE INSTALLATION DONE

tested and corrected

SD-4

CONTACT TILL + 2nd CLASS TILL 39 LOAD

~~South~~ East side

SD-5 PREPARATION

GEOTEXTILE + LLDPE

Geotext started

QA:

Till is OK, liner too

Never put till on wet surface

~~OWNER:~~ More clean up required at SD 5 at contact with protection

General Planning/Comments:

SANA: SD-3 CONTACT TILL + 2nd CLASS TILL North

SD-4 CONTACT TILL + 2nd CLASS TILL ?

SD-5 GEOTEXTILE + LLDPE INSTALLATION?

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-AUG-28

Time:

Presents:

AEM: JFB, PG. SURVEYOR MR SC "ZTC"

SANA: HG, PLB, NC, UT

QA:

QC:

Health & Safety:

- JHA TO INSTALLED LINER CDIKE TO BE PASS EVERY WORKER

Daily Advance:

SANA: S-D 3 CONTACT TILL UNTIL 9.00H 6 LOAD TILL

S-D-5 GEOTEX

CD GEOTEX

QA:

- LINER SD-3 CONNECTION WITH LAST YEAR SOUTH TO BE CHECK

OWNER:

General Planning/Comments:

SANA: - SD-5 GEOTEX + LLDPE

- NO TILL, SO WET FOR THE MOMENT

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-29

Time:

Presents:

AEM: J.FB SC (2TG)

SANA: HG, NB, VT

QA: M B.D

QC: GL

Health & Safety:

- SHA WITH A NEW CREW AND TOOL UTILISATION

Daily Advance:

SANA: SD-5 GEOTEX + LLDPE INSTALLATION > 3800 M²
CD SOUTH " " "

QA:

OWNER: SD-3 LLDPE CORRECTION TO BE DONE

General Planning/Comments:

SANA: SD-3 CONTACT TILL + 2ND CLASS
LLDPE CORRECTION
SD-4 TILL
CD IKE GEOTEX + LLDPE INSTALLATION

QA: - NEED TO DO A CORRECTION ON SD-3
- TILL SD-3 TO BE CHECK

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-30

Time: 8.30 H

Presents:

AEM: JFB - PG MR: SURVEYOR

SANA: HG. NG VT SC: ZTG

QA: M B.D

QC: G L

Health & Safety:

- ALL OK WITH HARNEST ON CENTRAL DIKE
- BE SURE TO LOCK THE SHAKEL WITH WIRE

Daily Advance:

SANA: CD GEOTEX + LLDPE SD-5 EXTHUSION

SD-3 TILL CONTACT + 2ND CLASS
LLDPE CORRECTION DONE

QA: → 2100 KS/M MAX HUMIDITY 9 %

OWNER: USED BENTONITE IF TILL HUMIDITY SO HIGH

General Planning/Comments:

SANA: C D GEOTEX + LLDPE SD-4 . CONTACT TILL NORTH
- TILL 2ND CLASS ?

SD-3 CONTACT TILL
TILL 2ND CLASS ?

QA: SD-3 TAKE CALE WITH 3ND CLASS TILL PLACEMENT

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-08-31

Time: 8.30 H

Presents:

AEM: I-FB - PG MR: SURVEYOR

SANA: HG - VT - FP SC: ZTG

QA: M BD

QC: GL

Health & Safety:

- ALL RUNNING GOOD WITH HARNEST ON CD

Daily Advance:

SANA: CD GEOTEX + LLODE SD-4 TILL CONTACT NORTH
BLOW PIPE DONE ALL ALONG DIKE
SD-3 TILL CONTACT
TILL 2ND CLASS

QA: - MIXED 2 STOCK PILE 2ND CLASS TILL
- 0-5cm 3RD CLASS TILL

TILL CONTACT
33 LOAD
TILL 2ND CLASS
11 LOAD
44 LOAD

OWNER:

General Planning/Comments:

SANA: CD GEOTEX + LLOPE SD-4 TILL 2ND CLASS

SD-3 TILL 2ND CLASS SD-5 . TILL CONTACT
- PROTECTION FILTER

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-01

Time: 8.30H

Presents:

AEM: J-FB, PG

SANA: HG, NG, FP, VT, SC ! ZTG

QA: M BD.

QC: GL MR: SURVEYOR

Health & Safety:

→ CEMENT BLOC TO BE MOVED

Daily Advance:

SANA: CD GEOTEX + LLDPE

- MIXED STOCKPILE #1 + #2 2ND CLASS
- SORTING TILL CLASS #3

SD-4

TILL 2ND CLASS WEST + COMPACTION

SD-5

CORRECTION TILL 2ND CLASS

0-6" + 0-3/4" + FINE ROCK FILL

- COMPACTION TO BE DONE

QA:

SD-4 6 TILL 2ND CLASS

SD-5 8 TILL 2ND CLASS

6 x 0-3/4"

7 x 0-6"

14 x MUCK FINE

OWNER:

General Planning/Comments:

SANA: C.D GEOTEX + LLDPE

SD-4 TILL 2ND CLASS

SD-5 - TILL CONTACT

- TILL 2ND CLASS

QA:

OWNER: TILL REJECT AVAILIBILITY

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-02

Time: 9.30 H

Presents:

AEM: J-FB MR ; SURVEYOR

SANA: DP, NG, GT SC ; ZTG

QA: MN

QC: GL

Health & Safety:

→ FINGER TO BE BUILD PROBABLY WITHOUT 0-3/4 AND 0-6"

Daily Advance:

SANA: CD GEOTEX + LLDPE ± 2300M²

- SORTING TILL CLASS #3

SD-5

TILL CONTACT

TILL 2ND CLASS

SD-5 20 TILL 1ST CLASS

49 TILL 2ND CLASS

1 x 0-3/4"

1 x 0-6"

71

QA:

OWNER:

General Planning/Comments:

SANA: - CD - GEOTEX + LLDPE

SORTING TILL CLASS #3

SD-4 TILL 2ND CLASS

TILL CONTACT

SD-5

- FINGER ROCK FILL

- TILL 2ND CLASS

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-03

Time: 8.30 H

Presents:

AEM: J.FB MR: SURVEYOR

SANA: DP, NG, GT, SC ! ZTG

QA: MN

QC: GL

Health & Safety:

→ ALL PROCEDURE ARE ON CONTROL AND RESPECT

RAIN TODAY - COACTIVITY WITH MINE HAUL TRUCK SD-3

Daily Advance:

SANA: CD - GEOTEX + LLDPE

- SORTING TILL 2ND CLASS
- BACKFILL KEY 0-6"

SD-3 TILL 2ND CLASS

SD-4 TILL 2ND CLASS AND CONTACT TILL CORRECTION

SD-5 TILL CONTACT
TILL 2ND CLASS

SD-5 11 TILL CONTACT
32 TILL 2ND CLASS
1 0-6"
44

QA:

- APPROVAL UNDER 2ND CLASS SD-3 + SD-4 O.K.
- SD-4 WEST SIDE CLEAN-UP TO BE DONE BEFORE FILTRE PLACEMENT
- SD-3 NORTH SAME THING

OWNER:

General Planning/Comments:

SANA: CD -LLDPE EXTRUSION

- SORTING TILL 3RD CLASS
- BACK FILL KEY 0-6"

SD-3
TILL 2ND CLASS + 3RD CLASS

SD5
RAIN ? 0-3/4"

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-04

Time: 8.30 H

Presents:

AEM: J.F.B. PG MR: SURVEYOR

SANA: D P, NG, UT, SC: ZTG

QA: M N

QC: G L

Health & Safety:

→ TAKE CARE ABOUT MUD EVERY WHERE

→ TRAFFIC TOOT ON SADDLE ROAD

Daily Advance:

SANA: CD

- BACKFILL KEY 0-6"
- SORTING TILL 3RD CLASS

SD-3
TILL 2ND CLASS
3RD CLASS

SD-5
CFOTEX
READY FOR FILTRE

SD-3
4 TILL 1ST CLASS
8 TILL 2ND CLASS
55 TILL 3RD CLASS
2 WASTE
69

QA:

→ DO NOT BACK SO CLOSE OF SLOPE WITH HAUL TRUCK

→ TIE IN TO BE CHECK CD. NORTH

OWNER:

General Planning/Comments:

SANA: CD LLDPE WELDING
SORTING TILL 3RD CLASS

SD-5 0-3/4" PLACEMENT
0-6" "
MUCK "

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-05

Time: 8.30 H

Presents:

AEM: J-FB - PG MR: SURVEYOR

SANA: PG, NC, GT SC: ZTG

QA: MN

QC: GL

Health & Safety:

- NO SAFETY ISSUE

Daily Advance:

SANA: CO GEOTEX + LLDPE SD-5 51 X 0.3X4"
- SORTING TILL 3RD CLASS 20 X 0-6"
71 TOTAL

SD-5 - GEOTEX DONE
- FINE FILTER
- COARSE FILTER

QA:

- BE SURE THE DOZER WILL NOT GO OVER THE LINER

OWNER:

General Planning/Comments:

SANA: CO - GEOTEX + LLDPE SD-3
- WELDING TILL 3RD CLASS
- SORTING TILL 3RD CLASS

SD-5
COARSE FILTER

QA:

2ND CLASS SNOW DUMP TO BE CHECK

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-06

Time: 8.30 H

Presents:

AEM: J.F.B. P.G. A.C.D : SURVEYOR

SANA: D.P, C.G, G.T, S.C : ZTG

QA: M.N

QC: F.R

Health & Safety:

- INSTALLED CANDLE 2 METRE FROM L'LOPE
- COACTIVITY WITH 100 t

Daily Advance:

SANA: CO - GEOTEX + LLOPE DONE
- WELDING
- SORTING TILL 3RD CLASS
- BACKFILL KEY

SD-3 TILL 3RD CLASS

SD-5 26 x 0.6"

SD-3 57 X TILL 3RD CLASS
83 LOAD

QA: - TILL SD-3 BE SURE NO ROCK ON TILL 1ST CLASS
- TILL 1ST CLASS INSTEAD 2ND CLASS CO NORTH

OWNER:

General Planning/Comments:

SANA: CO LLOPE WELDING
- SORTING TILL 3RD CLASS
- CONTACT TILL 1ST CLASS WITH

SD-3 TILL 3RD CLASS

SD. 4
0-3/4"

QA:

OWNER:

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.09.07

Time: 8:30

Presents:

AEM: ST. RC.

SANA: GT(1) CG. OP. GT(1) SC(2) F.F.

QA: M N

QC: F R (Aubry C)

Health & Safety:

Signalisation with candle keep. 2 meter from the edge and all fix.

Daily Advance:

SANA: CD. Welding LLDPE Extrusion.
Contact Till North. 2 Lay
SD3 Liner Quality is done.
SD4 Start 3/4 Liner cover.

QA: Just Be sure The
Done North Part of LLDPE for This Part

OWNER: Great Job on Liner JUST 1 Last Dep

General Planning/Comments:

SANA: Fine Rock fill on SD5
Finish Fine 3/4 on SD4 on Move on 6" on SD4 Westside First and
Welding on CD Eastside After.
SD3 - Finish compaction South side. need 3 Past.

QA: Approved on CD LLDPE Today
We have enough Second class Till for CD North.

OWNER:

Report By: [signature]

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-08

Time:

Presents:

AEM: RC-YS-ST

SANA: CG-GT-GT-DP-FP

QA: MN

QC: FR ACD (Surveyor)

Health & Safety:

Nothing for us.

Daily Advance:

SANA: CO : Welding - Till on North side Liner Finish.

SD4: 3/4 - 6" - Rock Fill Fine (55 Load Nbag - 21 Load 3/4 - 26 Load 0-6")

SD5: Fine Rock Fill (44 Load NBAG)

QA: Finish approval For the liner CO. Paper will Be complete today For ZTG.

OWNER:

Nothing.

General Planning/Comments:

SANA: CO - contact Till CL#1 + CL#2 Last Lift

SD4 Fine Rock Fill - 0-3/4 - 0-6"

All The cable will Be remove.

- casing CO - ~~new~~ PUT grout in IT.
- Acceptation OF Platform SD3 To go To Pig Launcher

QA:

OWNER: SD3 - check Topo First Class Down Stream area To avoid Ponding - Talk about Finger with Engineers (Yannick)

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016.09.09

Time: 8:30

Presents:

AEM: YS. ST.

SANA: DP. CG.

QA: MN

QC: FR ACD (Surveyor)

Health & Safety:

ZTG Labourer Twist is Back When He pulled a cable.
Investigation In Progress
Never Walk on Geotextile over The LLDPE TO slyppery.

Daily Advance:

SANA: CD : North Install Geotextile Contact Till 26 Load CdJan d 2 - 0.3/4"(22 Load)
SD4 : 0.3/4" 0.6" Fine Rock Fill (31 Load 6" - 10 Load 3/4")(163 NPAG)
SD5 : Slope Fine . Rock Fill correction
SD3 : Complet The compaction on North side.

QA: Last approval For LLDPE EVERY Thing is done

OWNER: Nothing.

General Planning/Comments:

SANA: CD ; 0.3/4" - 0.6" - Maybe Fine Rock Fill
SD4: Fine Rock Fill
SD5: Slope Fine Rock Fill correction. Complet access Road with Fine Rockfill To The Pig Launcher.
Complete The Clean up.

QA:

Nothing.

OWNER: Nothing

Report By:

DAILY CONSTRUCTION MEETING

CENTRAL DIKE/SD 3,4,5

AGNICO EAGLE
MEADOWBANK

Date: 2016-09-10

Time: 8:30

Presents:

AEM: YS RC ST

SANA: GT GG DP FP

QA: MN

QC: FR ACD

Health & Safety:

000 on Safety ISSUE - Good Performance.

JHA "To Be Sign For The Finger BUILDing" PROCEDURE

Daily Advance:

SANA: CD : 0-3/4, 8S Load - 0.6" - 2 Load

SD5 To Pig Launcher Road access 5 Load N Dog 5 WASTE clean up.

SD4 : Fine Rock Fill 55 NPAG and START The Slopping.

QA: ALMOST Done

OWNER: APPROVAL - For Finger WITH 0-3/4 SCAPSTONE

APPROVAL - For TILL RETRIEVAL

General Planning/Comments:

SANA: ~~0-1"~~ CD : 0-6" - Rock Fill

SD4 : Finish Slope on Rock Fill

SD3 : TRY to Fix The Small Pound with TILL

Remove all The pump at The BOTTOM Down STream of SD-3

~~Dust~~ and SD4.

QA: Don't Forget To compact The Key Trench of SLOPE on CD.

OWNER:

Report By: _____

APPENDIX E
QA REPORTING

APPENDIX E1
QA WEEKLY REPORTS

TECHNICAL MEMORANDUM

DATE August 1, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JUNE 20TH TO JUNE 26TH, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from June 20 to 26, 2016, inclusive, related to the construction activities of the Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L. Bolduc	QA manager

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was discussed that an incident happened on June 19, 2016. A haul truck backed up on a dozer at CD, breaking one of its GPS posts.
- It was discussed that an incident happened on June 21. While setting up the crusher on CD, a worker accidentally hit himself in the face with a chain and sustained minor injury.
- It was discussed that an incident happened on June 22 on the night shift. An excavator on CD was profiling the downstream slope at El. 128 m when the operator asked for a haul truck to bring him fine material for slope correction. When the haul truck arrived, the excavator operator got out of the shovel to guide the haul truck operator. While backing up, the haul truck operator lost visual contact with the shovel operator and the

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haul trucks collided with the excavator cabin. The shovel operator was out of the machine and no one was hurt during the incident. The haul truck cabin got heavily damaged and the excavator will be unavailable until mid-August. After this incident, a procedure was developed by the contractor for when the shovel operator is also acting as a spotter to guide haul truck backing-up.

- It was reminded at various time that safety berms on CD must have a minimum height of 1.5 m.
- The QA manager assisted the mining department monthly safety meeting on June 24. Subjects discussed were CD construction, risks of slipping, tripping and falling, and blasting misholes.
- Construction work recently began on Saddle Dam 4. This sector is near the airstrip; a refresher was given on safety procedures. Information about incoming planes will be shared on the construction radio channel beginning on June 27.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. Frédérick L. Bolduc of Golder attended the meetings. The following items were discussed:

Central Dike – Rockfill

- Conference calls were held between Golder and AEM (June 21 and 23) to discuss placement of UM rockfill on the CD due to a shortage of available good quality non-AG material for this construction season. After the first conference call, AEM sent Golder the available lab data on UM rockfill as well as a proposed cross-section. During the second conference call, Yves Boulianne from Golder explained that he reviewed the available lab data and that it would be possible to develop a configuration that would allow placement of UM rockfill on the CD this year. Further discussion will be needed with AEM to complement the testing program of UM rockfill. It was discussed that PAG could be placed up to El. 132.5 m and that UM rockfill would need to be encapsulated by good quality non-AG material within the core of the CD.

  AEM and Golder agreed to place good quality non-AG rockfill on the downstream slope from El. 132 m to El. 137 m in two 1.5 m lifts (132-133.5 and 133.5-135) and a 2 m lift (135-137 m). Above El. 137 m, the UM rockfill will be encapsulated inside the dike by a 6 m shell of good quality non-AG on the downstream and a 5 m shell on the upstream side. On June 25, AEM sent typical cross-sections with an estimate of the available non-AG quantity for the agreed scenario. AEM mentioned that the quantity of available good quality non-AG rockfill is preliminary and will be reassessed while the CD is raised with good quality non-AG from El. 132 m to 137 m.

Central Dike – Other

- AEM clarified to the QA manager that the downstream side of the CD has been widened from 9 m to 15 m at the beginning of the construction season for haul truck access. As a results, the downstream raise up to El. 137 m is being done for a dike footprint corresponding to a final crest elevation at El. 147 m approximately. If the CD is raised to El. 150 m, the planned final dike footprint will probably need to be extended for constructability.
- The QA manager asked about the quantity of fine and coarse filter available for this construction season. AEM answered that there was enough crushed aggregate. Some of this aggregate is made of good quality rock and some is made of ultramafic rockfill. The quantity of available material will be verified by AEM but is not expected to be an issue.

Laboratory testing

- When taking field samples for particle size distribution, it is possible to sample less material than specified by the ASTM Standard C136-06. According to C136-06, 60 kg of till and 300 kg of coarse filter should be taken for each sample. As discussed in past years between AEM and Golder, sampling smaller quantities is allowed (such as 10-20 kg of till) as long as care is taken to obtain a representative sample while minimising segregation.

Saddle Dams – Foundation Preparation

- The foundation of the Saddle Dams for this construction season must be excavated to ice-poor till or bedrock. If till is left in place on the downstream side of the centreline for a dike at El. 150 m, it will be important to do an investigation to quantify and document the ice content to make sure that it is an ice-poor material. The foundation on the upstream side of the centreline for a dike El. at 150 m must be stripped to bedrock.

Saddle Dam 3 – Upstream Toe Liner Tie-In

- Discussions have been held on how to continue the upstream toe liner tie-in in the north part of SD3. The as-built documents from last year have been reviewed and a preliminary configuration has been modeled. This configuration will be implemented on the field.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA manager; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	■ Excavation of till on the downstream side from 0+150 to 0+250.
Downstream slope	■ The old downstream slope was pushed back before rockfill placement to have a better contact with the newly placed material. The contractor usually does this operation with the dozer but also used an excavator for some segments. The technique is adequate to prevent placement of rockfill against a continuous weak layer. The results with the shovel are similar to those with the dozer. ■ Placement with a dozer of 2 m-thick lifts of good quality PAG rockfill downstream for a final dike footprint at El. 143 m. The material is dumped on a flat surface and pushed with the dozer. The material comes from the Portage PAG stockpile and the mine stockpile and is well graded. Three lifts were placed between El. 126 and 132 m (0+300 to 0+955). Rockfill must be placed from Sta 0+665 to 0+430 to finish the lift at El. 132 m. Compaction is adequately done with eight passes of the compactor in vibratory mode. ■ Placement with a dozer of 1.5 m-thick lift of good quality non-AG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and comes from the non-AG stockpile at CD. The lift from 132 m to 133.5 m was

Activity or Area	Comments
	placed from 0+930 to 0+825. ■ The downstream slope of the newly placed rockfill was profiled after each 2 m lift with a 1.5 H:1V slope by the excavator between El. 126 and El. 132 m. The slope is visually adequate after the profiling.
Foundation preparation	■ Removal of soft till on the downstream side to reach bedrock for a dike footprint at El. 147 m between 0+250 and 0+150. The material is hauled to the snow dump and will be used later as low quality till.
Central Dike stockpile	■ The crusher was installed and started sieving till on June 22. ■ Sieving of till. Stockpile #1 of sieved till has been sealed and stockpile #2 is beginning. 2,050 m^3 of sieved till have been produced since the start of the 2016 sieving operation.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Pumping of water on the downstream side of SD3.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Pumping of water on the downstream side of SD4.
Foundation preparation	■ Excavation of till within the El. 143 m footprint from 40+400 to 40+200 approximately. The till is being excavated to bedrock.

5.0 FOUNDATION APPROVAL

No foundation approvals were done during this reporting period.

6.0 SAMPLING AND LABORATORY TESTING

The QA Manager reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Tables 5 and 6. The samples taken by the QA will be tested once the QA assistant arrived on site.

The QC took samples of sieve till from the CD stockpile. The results show that the sieved till in stockpile #1 conforms to specifications.

Table 5: Samples taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-14	23/06/2016	-	Sieved till	Central Dike stockpile #1	Gradation, water content	-

Table 6: Samples taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
353	23/06/2016	26/06/2016	Sieved till	Central Dike stockpile #1	Gradation, water content	Conform
354	25/06/2016	-	Sieved till	Central Dike stockpile #1	Gradation, water content	-

7.0 PHOTOGRAPHS



Photograph CD-1686: From Sta.0+960/+20 looking N. Compaction of the downstream lift at El. 128 m and profiling of the downstream slope.



Photograph CD-1687: From Sta.0+260/+20 looking S. Placement of rockfill downstream at El. 128 m from the north going south.



Photograph CD-1688: From Sta.0+980 looking N. Profiling of the downstream slope from and placement of PAG rockfill from El. 126 m to El. 128 m. A shovel is excavating till on the north abutment.



Photograph CD-1689: From Sta.0+960 looking N. Placement of rockfill on the downstream side from El. 128 m to 130 m. Profiling of the downstream slope from El. 126 m to 128 m.



Photograph CD-1690: From Sta.0+980/+30 looking N. Compaction of rockfill at El. 130 m on the south downstream side. An excavator is removing big particles to prepare for sloping.



Photograph CD-1691: From Sta.0+280/+30 looking S. Placement of PAG rockfill at El. 130 m on the northern downstream side.



Photograph CD-1692: From Sta.0+960/+50 looking N. Profiling of the downstream slope up to El. 130 m. Placement of PAG rockfill on the downstream side to El. 130 m.



Photograph CD-1693: From Sta.0+200/+40 looking S. Excavation of soft till on the north abutment. Profiling of the downstream slope at El. 130 m and placement of PAG rockfill to El. 132 m on the downstream from the south side.



Photograph CD-1694: From Sta.0+980/+50 looking N. Beginning of placement of good quality non-AG from El. 132 m to 133.5 m. A shovel is profiling the downstream slope at El. 132 m.



Photograph SD4-070: From Sta.40+400/-8 looking W. Excavation of till within SD 4 footprint for a crest elevation at 143 m.



Photograph SD4-071: From Sta.40+200 looking SE. Excavation of till within SD4 footprint for a crest El. at 143 m.

8.0 SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

Original Signed

Frédérick L.Bolduc, P.Eng., M.Sc.A
QA Engineer

Original Signed

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

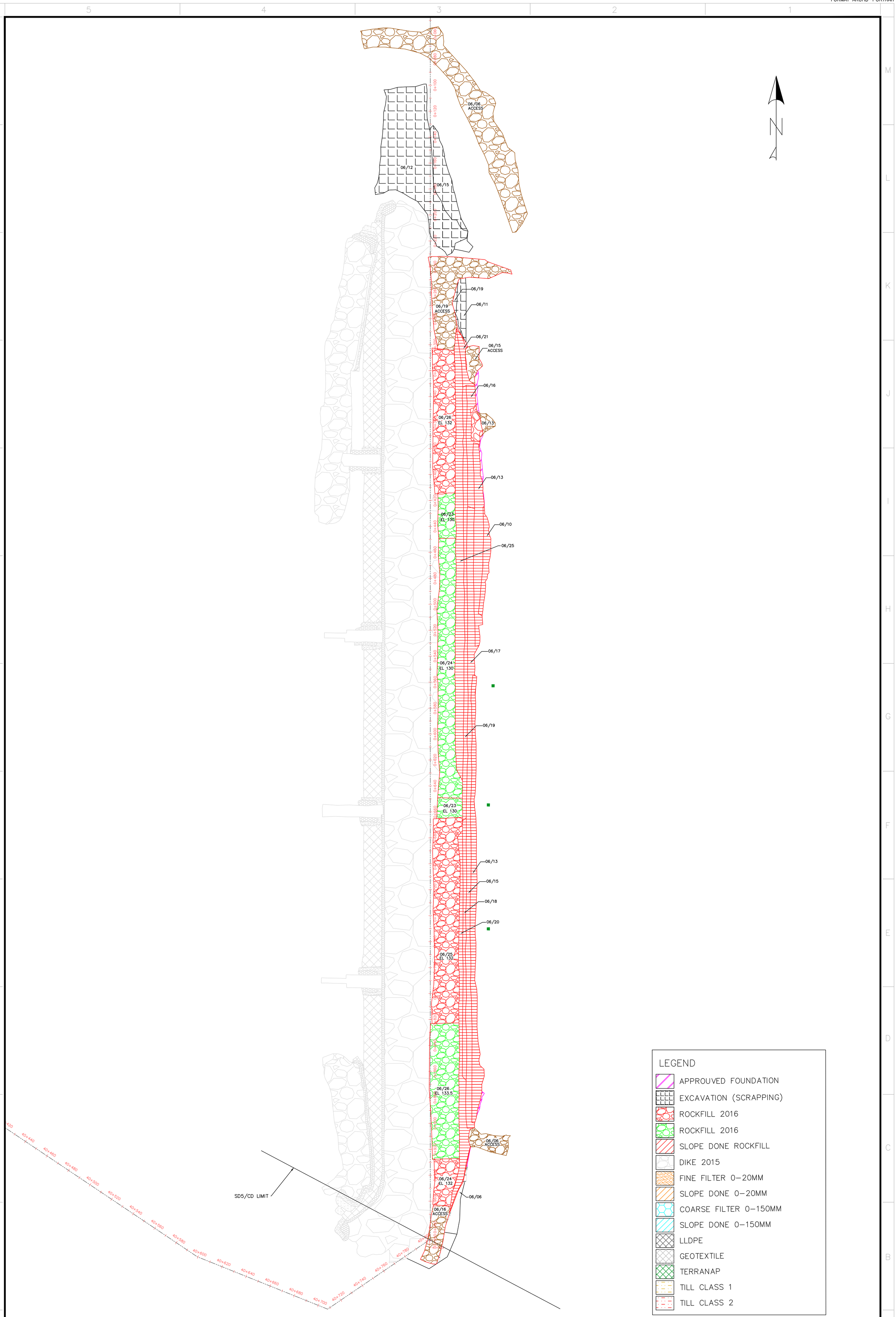
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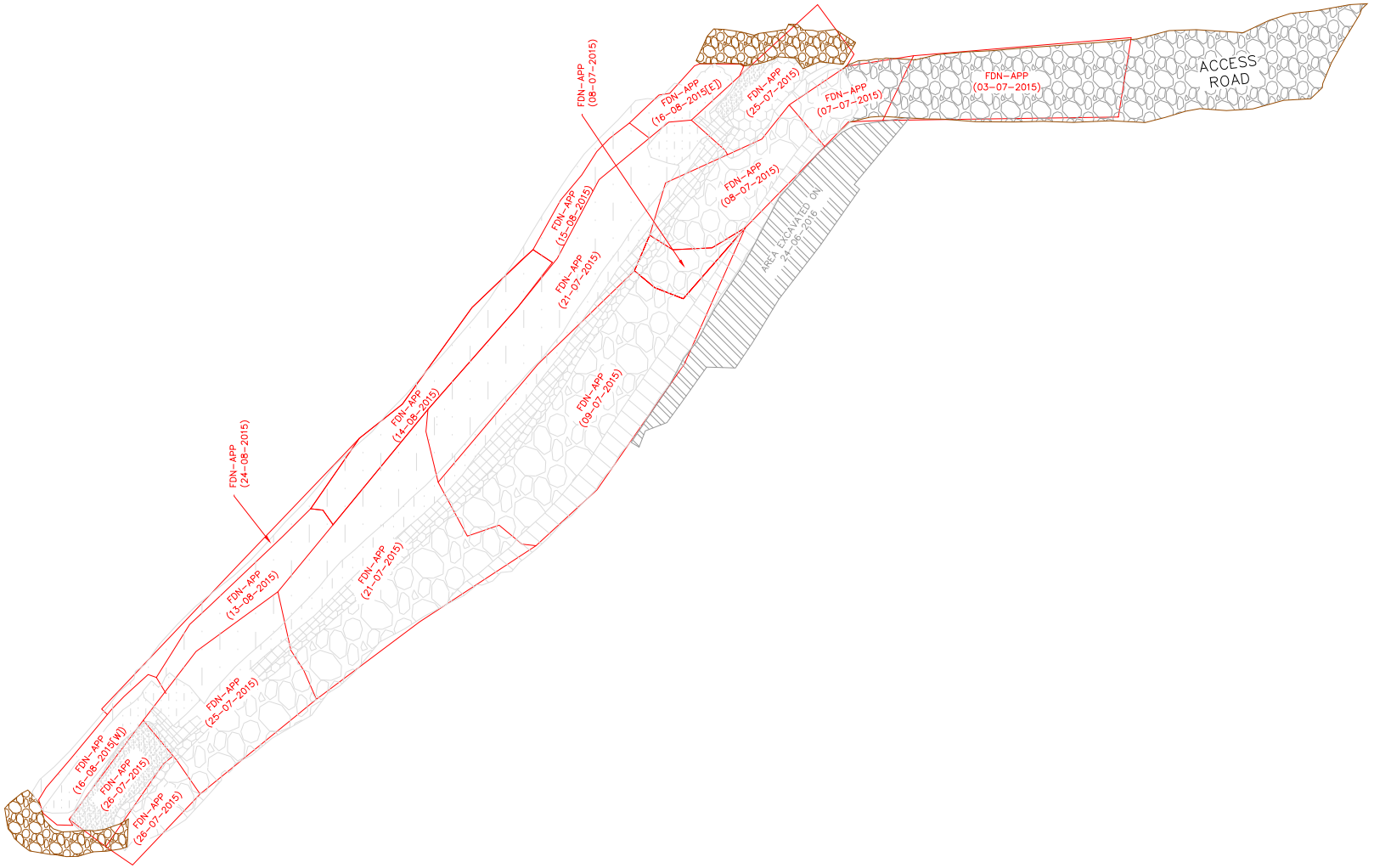
Attachments: Construction Progress Drawings from AEM as of June 26, 2016 for Central Dike

c:\users\jlacostemccormick\desktop\doc 1543 1656047 rev0 qa weekly report 2016-06-20 to 2016-06-26_yb.docx

DRAWING NO.

FORMAT ARCHD–PORTRAIT





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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION

SD4 FOUNDATION APPROVALS OF 2015

PROJECT No.	DATE 25–06–2014
DRAWN BY AUBREY C.–DESROCHES	SHEE 1 /
APPROVED BY	
DRAWING NO.	REVIS

C:\Users\systeme78.GEOLOCATION\Desktop\SD4_FOUNDATION APPROVAL_2015.dwg, 25 Jun 2016

FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE August 1, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

RE: QA WEEKLY REPORT FROM JUNE 27TH TO JULY 6TH, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from June 27th to July 6th, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified otherwise, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The symbols "+" and "-" indicate the location of the work towards the downstream and upstream of centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michaël Demers Bonin	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's office on site. The key H&S elements for the reporting period were as follows:

- The Mine inspector carried out a site visit on June 27th. No H&S concern has been identified during the visit regarding the TSF South cell construction activities.

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- A warning was given that the flight coordinator must call plane's takeoffs and landings on channel 10 to ensure no workers circulate on the road to SD4-SD3.
- The foreman of the crusher cautioned to make eye contact with loader operators when going to that area.
- There was more coactivity on CD due to the placement of the good quality non-AG Rockfill to El. 137 m on the downstream side. Haul trucks were passing on the CD crest at El. 137 m. Radio communication or eye contact with operators is necessary as well as observance of the new road sign toward the crest.
- The 1 m-high safety berm was removed from the crest of CD at El. 137 m to allow for the placement of the good quality non-AG Rockfill downstream. Vehicles may stay clear of the downstream slope at El. 137 m.
- A yield sign was installed on CD (South side) on July 2nd.
- A reminder was issued stating that light vehicles and haul trucks shall pass on the right side of the tire N of the West Road when going to Sana Crusher or to East Dike from CD.
- Some instrumentation casings were left on CD at El. 137 m. Safe driving is required in these areas.
- The contractor's H & S coordinator confirmed that the geosynthetic installers could be secured to concrete blocks when working on the upstream 2H:1V slope.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. Michaël Demers Bonin of Golder attended the meetings. The following items were discussed during the construction meetings:

General

- The needed amount of Sieved Till was finally estimated at 7,000 m³ following a review of the projected quantities by both the Owner's and the Contractor's surveyors. The sieving of Sieved Till was stopped on July 4th with a total amount of 7,650 m³. There are still 2,500 m³ available in the 2015 stockpile at SANA Crusher as a back-up.
- The QA Engineer and the Owner's Representatives checked the Pit D non-AG Rockfill stockpile. There was an area of UM Rockfill which could not be used, but the remaining materials appeared of good quality and well graded. However, this stockpile was quickly excavated and the excavator was moved to the East Dike stockpile.
- The Dike's designer approved the gradation limits developed for the Compacted Sieved Till. The new gradation limits were shared with the Owner's Representative, the contractor and the QC. A memo will be issued shortly on this topic. Samples of Compacted Sieved Till collected before the development of the new gradation limits were reviewed by the QA/QC.
- The Owner's Representative confirmed that the compactor currently used by the Contractor (CAT CS76) weighs 10 t at the drum.
- The QA Engineer accepted that the excavator circulate in a straight line over the 0.5 m-thick lift of Inverse Fine Filter over bedrock. The Coarse Filter was unloaded onto the Fine Filter surface and the excavator then

manually placed the material to avoid segregation. The QA Engineer and the QC Engineer ensured that the Fine Filter surface underneath was not remoulded by the excavator.

- The stockpile of Rough Till (Unsieved) North of CD was surveyed, and the amount of material was estimated at 6,200 m³.

Central Dike

- The owner representative and the contractor explained how the excavation of the SD5/CD access ramp will be carried out to maintain an access South of CD.
- The QA Engineer reminded the contractor that the non-AG Rockfill must be well graded. Two loads of finer material were placed on CD at Sta. 0+880 approximately.
- A portion of the area contained within FND-CD-132 was contaminated by aggregates during the placement of the Inverse Filters North of CD. The QA Engineer and the Owner's Representative asked that the bedrock surface be cleaned up before the Rockfill placement to ensure a good contact between Rockfill and Bedrock.
- The Fault Infill sample collected at CD at Sta. 0+175 approximately has a gravimetric water content of 8.6%. Moreover, no supernatant water was observed on top of the decanted sample. These results confirm that the Fault Infill is an ice-poor material. See section 5.0 for further details.
- In view of the Rockfill placement between El. 135 m and 137 m on CD, the downstream 1-m high berm of UM non-AG Rockfill was moved down from the lift at El. 137 m onto the lift at El. 135 m with a loader as a means of limiting segregation. However, a reminder was issued stating that the bigger UM Rockfill stockpiles lying on the lift at El. 137 m should not be moved down onto the lift at El. 135 m as only good quality non-AG Rockfill should be placed downstream CD above El. 132 m.
- The QA Engineer noted that the portion of UM non-AG Rockfill underneath the removed safety berm should be compacted on CD at El. 137 m once the downstream lift at El. 137 m is completed.
- The contractor confirmed that the UM non-AG Rockfill lift at El. 137 m (placed last year) will be scarified before the placement of the next Rockfill lift on CD.
- AEM asked if it was possible to adapt the temporary UM non-AG Rockfill upstream and downstream slopes contained within the good quality non-AG shell in order to avoid profiling these slopes with the excavator (as per Figure 1). This proposed configuration is based on the natural deposition slope of 1.3:1V of the UM non-AG Rockfill. This would result in an additional quantity of 5,000 m³ of good quality non-AG Rockfill (represented by the red area in Figure 1). This was accepted by the Dike's Designer.
- Different configurations for the Rockfill placement above El. 137 m on CD were proposed by the Owner's Representative during the reporting period. These configurations focused on sparing the use of non-AG Rockfill as there might be a shortage of this material. The adopted configuration during the reporting period is shown in attachment. One of the main elements of this configuration is the use of PAG Rockfill between El. 137 and 139 m. The good quality non-AG shell upstream was removed underneath the Filters as the material is a good quality Rockfill. According to the Owner's Representative, this configuration still meets the closure plan and the required thickness of non-AG material over the PAG Rockfill. The second lift or Rockfill between El. 139 and 141 m may be either in UM non-AG Rockfill or in PAG Rockfill depending on the

availability of PAG material. A 5-m wide shell of good quality non-AG will be placed upstream if the second lift is built with UM non-AG Rockfill.

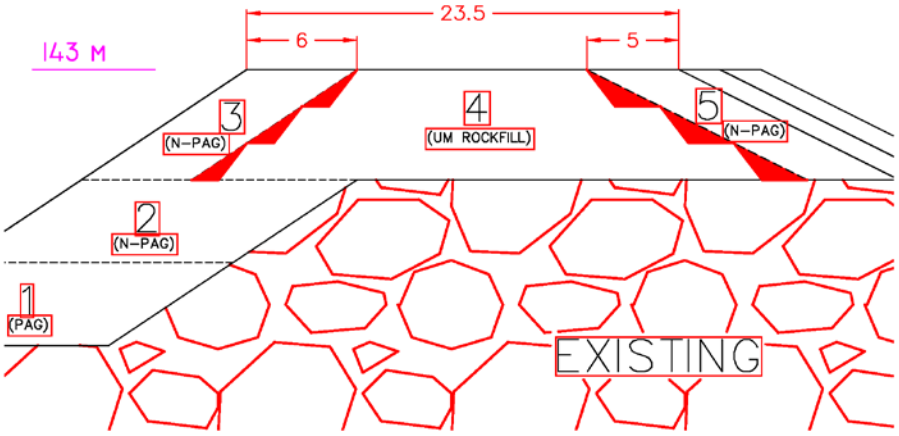


Figure 1: Proposed configuration of the UM non-AG Rockfill above EL. 137 m to avoid profiling the upstream and downstream slopes of UM Rockfill.

- According to the contractor, there might be a shortage of good quality non-AG Rockfill and the remaining stockpiles may contain some UM non-AG Rockfill. The contractor proposed reducing the width of the good quality Rockfill shell. The QA Engineer noted that the downstream shell width could not be reduced as it provides a safety buttress for the UM non-AG lift. The Owner's Representative would like to review the good quality non-AG quantities today before making any change to the actual configuration.
- The Contractor asked whether UM non-AG Rockfill could be used Downstream CD from Sta. 0+ 200 to 0+240 above El. 136 m. The Owner's Representative suggested the use of PAG Rockfill rather than the latter. The QA Engineer confirmed that PAG Rockfill may be used above El. 136 m if a good quality non-AG shell is to be placed downstream.

Saddle Dam 3

- Some discussions were held about the planning of the excavation of materials at SD3 within the footprint for a dike crest El. at 143 m. The Owner's Representative would like to avoid the fault infill melting downstream. The Owner's Representative asked whether the QA engineer would accept placing the Rockfill over the fault infill downstream without proceeding with soundings as many were performed last year in this area. Last year's results showed that the fault infill was ice-poor based on samples taken between El. 138.5 m and 133.5 m (doc 1515-15-28661 MTA Rev0). If the excavation over the faulted zone reaches those elevations downstream SD3, Golder agrees not to carry out additional soundings. However, if the fault infill elevation downstream of CD is above 138.5 m or below 133.5 m, soundings may be required to validate the ice content of the fault infill.
- AEM suggested bending the Upstream Toe Liner Tie-in approximately at El. 143 m on the top of the rock wall at SD3. This would be discussed in the field shortly with all contributors.
- The southern extension of SD3 for a dike crest elevation at 150 m was surveyed in the field. This limit is very close to Quarry 23 (less than 5 m). The QA Engineer noted that as per Saddle Dams drawings

(1416081/2000), the SD3 alignment may need to be adjusted due to the Quarry. This will be discussed further in detail later on.

Saddle Dam 5

- The QA Engineer confirmed that the SD5 configuration does not include a good and sound non-AG shell around the UM non-AG Rockfill. It has been accepted in the past that the Saddle Dams could be build using UM non-AG Rockfill only.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	■ Excavation of soft Till on the downstream side to reach bedrock for a dike footprint for a crest at El. 143 m between 0+200 and 0+150. The material was hauled to the snow dump and will be used later as low quality till.
Downstream slope	■ Placement with a dozer of a 2-m thick lift of good quality PAG Rockfill downstream for a dike footprint for a crest El. at 147 m. The material was well graded. The lift from El. 130 m to 132 m was placed from Sta. 0+260 to 0+660. ■ Compaction of the lift of PAG Rockfill at El. 132 m from Sta. 0+260 to 0+660. Compaction was carried out with 8 passes of the compactor in vibratory mode. ■ Placement and compaction of a 1.5-m thick lift of good quality non-AG Rockfill downstream for a dike footprint for a crest El. at 147 m. The material was well graded and comes from the non-AG stockpile at Central Dike. The lift from El. 132 m to 133.5 m was placed from Sta. 0+900 to 0+240 and from Sta. 0+930 to 0+970. Compaction was carried out with 8 passes of a 10-t compactor in vibratory mode. ■ Placement of a 2-m thick lift of good quality non-AG Rockfill downstream for a dike footprint for a crest El. at 147 m. The material was well graded. The lift was placed over the approved foundation (FND-CD-130) between El. 133.5 m and 135 m from Sta. 0+210 to 0+230. ■ Placement and compaction of a 1.5-m thick lift of good quality non-AG Rockfill downstream for a dike footprint for a crest at El.147m. The material was well graded. The lift was placed between El. 133.5 m and 135 m from Sta. 0+960 to 0+640 and from Sta. 0+250 to 0+640. Compaction was carried out with 8 passes of the 10-t compactor in vibratory mode. ■ Placement and compaction of a 2-m thick lift of good quality non-AG Rockfill downstream. The lift from El.135 m to 137 m was placed from Sta. 0+880 to

Activity or Area	Comments
	0+240. The non-AG Rockfill was hauled from Pit D and East Dike stockpiles. Compaction was carried out with 8 passes of the 10-t compactor in vibratory mode. ■ Placement and compaction of a 2-m thick lift of good quality non-AG Rockfill from Sta. 0+240 to 0+200/-15/+10. The Rockfill was well graded and was placed at El. 135 m. Compaction was carried out with 8 passes of the 10-t compactor in vibratory mode. ■ Placement and compaction of a 2-m thick lift of good quality non-AG Rockfill from Sta. 0+240 to 0+210/-15/+10. The Rockfill was generally well graded and was placed at El. 137 m. Some loads were poorly graded and the contractor was told to place a well-graded Rockfill. Compaction was carried out with 8 passes of the 10-t compactor in vibratory mode. ■ Profiling of the downstream 1.5H:1V slope with the excavator at El. 132 m from Sta. 0+280 to 0+660. ■ Profiling of the downstream 1.5H:1V slope with the excavator at El. 133.5 m from Sta. 0+955 to 0+250. ■ Profiling of the downstream 1.5H:1V slope with the excavator at El. 137 m from Sta. 0+955 to 0+250. ■ Removal of the 1 m-high bumper made of UM non-AG Rockfill from the lift at El. 137 m down to the lift at El.135 m from Sta. 0+940 to 0+250 approximately. ■ Compaction of the UM non-AG Rockfill underneath the removed safety berm at El. 137 m from Sta. 0+260 to 0+900. ■ Placement of a 1-m thick lift of PAG Rockfill from Sta. 0+210/-15/+5 to 0+200. The material was well graded. ■ Excavation of an access ramp downstream of CD North at Sta. 0+150 approximately.
Crest	■ Scarification of the UM non-AG Rockfill surface at El. 137 m from Sta. 0+560 to 0+820. ■ Placement of a 0.5-m thick lift of PAG to correct the crest surface at El. 137 m between Sta. 0+560 and 0+660. ■ Compaction of the 0.5-m thick lift of PAG Rockfill between Sta. 0+560 and 0+660. Compaction was conducted in accordance with the Technical Specifications. ■ Placement of a 2-m thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+820 to 0+700 and from 0+350 to 0+550. The Rockfill was well graded. A 5-m wide strip was kept free of Rockfill downstream for the placement of the

Activity or Area	Comments
	good quality non-AG shell. The PAG Rockfill lift was extended 3 m upstream from Sta.0+350.
Central Dike stockpile	■ Sieving of Till. During the reporting period, the material was placed in stockpiles #3, #4 and #5. Stockpile #3 was sealed on June 29th. Stockpiles #4 and #5 were sealed on July 1st. Stockpile #6 was sealed on July 3rd. Sieved Till material was placed in the stockpile #7 on July 3rd and 4th. This stockpile was sealed on July 4th. The total amount of Sieved Till contained within those stockpiles is 7650 m³.
Water management	■ Pumping of water North of CD within the footprint for a dike crest El. at 147 m.
Foundation preparation	■ Excavation and ripping of soft Till North of CD downstream at Sta. 0+190 approximately.
Inverse Filters	■ Placement of a 0.5-m thick lift of Inverse Coarse Filter from Sta. 0+195/-33 to 0+115/-15 approximately. Compaction was carried out with four passes of a 10-t compactor in the vibratory mode. The material was wetted before the compaction. ■ Placement and compaction of a 0.5-m thick lift of Inverse Fine Filter from Sta. 0+195/-33 to 0+115/-21 approximately. Compaction was carried out with four passes of a 10-t compactor in the vibratory mode. The material was wetted before the compaction. ■ Placement and compaction of a 0.5-m thick lift of Inverse Coarse Filter from Sta. 0+195 to 0+120 approximately. Compaction was carried out with 4 passes of a 10-t compactor with the vibratory mode.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Pumping of water downstream.
Foundation preparation	■ Excavation of materials downstream of SD3 on the South side of the fault area from Sta. 20+650 to 20+780 approximately.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Pumping of water downstream.
Foundation preparation	■ Excavation of materials within the SD4 footprint for a dike crest El. at 143 m from Sta. 40+100 to 40+400.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Excavation of an existing ramp in view of the foundation preparation at 40+800 approximately. The excavation was carried out for a dike footprint for a crest El. at 148 m. The bedrock facing towards the S-E thus the footprint was excavated for a Dike crest El. at 148 m approximately. The excavated materials were hauled to the Rough Till stockpiles and the rejected Till stockpile as of July 2nd.
Downstream slope	■ A slight adjustment was carried out between the SD5/CD downstream slopes.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

A small fault characterized by a fault infill similar to that observed at SD3 was found at Sta. 0+175 within the footprint of FND-CD-132. The fault aperture is approximately 1 m and the infill is made of crushed rocks, gouge and till-like material. The fault is surrounded on both sides by a good quality bedrock. A sample was collected at a depth of 10 cm to estimate the ice content and the water content of the fault infill. The foundation was approved by the QA Engineer and the Owner's representative due to the limited width of the fault. No visible ice lenses was found in the material. No supernatant water was found on top of the decanted samples after 2 days. The measured gravimetric water content was 8.6 %.

Table 3: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-CD-130	CD	From sta. 0+210/-1.5/12.2 to 0+230/-1.5/12.2	27/06/2016	Downstream side of CD, North abutment
FND-CD-131	CD	From 0+161.56/-14 to 0+192.23/-5.86	30/06/2016	Foundation approval within the CD footprint underneath Rockfill, North abutment
FND-CD-132	CD	0+105/-26 to 0+210/+12	04/07/2016	Foundation approval within the dike footprint for a crest El. at 143 m.

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by QC. The location of the samples taken by QA and QC and tests results can be found in Tables 6 and 7. Samples taken by QA will be tested once the QA assistant arrives on site.

Table 4: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-10	30/06/2016	-	Fine Filter	Stockpile 2, SANA Crusher	Gradation	Not tested yet
STCK-11	04/07/2016	-	Fine Filter	Stockpile, Pit D	Gradation	Not tested yet
STCK-15	02/07/2016	-	Sieved Till	Stockpile #6, CD	Gradation, water content	Not tested yet
STCK-05	03/07/2016	-	Coarse Filter	Stockpile 1, SANA crusher	Gradation	Not tested yet
STCK-11	04/07/2016	-	Fine Filter	Stockpile, Pit D	Gradation	Not tested yet
CD-540	05/07/2016	-	Fine Filter	As placed +143.5/-15.71, El. 141.06 m	Gradation	Not tested yet
CD-539	06/07/2016	-	Coarse Filter	As placed, CD 160.4/-23.5, El. 140.6 m	Gradation	Not tested yet
STCK-16	06/07/2016	-	Compacted Till (Rough Till)	Stockpile North CD	Gradation, water content	Not tested yet

Table 5: Sample Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
354	23/06/2016	27/06/2016	Sieved till	Stockpile 1, CD	Gradation, water content	Compliant
355	27/06/2016	29/06/2016	Sieved Till	Stockpile 2, CD	Gradation, water content	Compliant
356	29/06/2016	30/06/2016	Sieved Till	Stockpile 3, CD	Gradation, water content	Compliant
357	30/06/2016	02/07/2016	Sieved Till	Stockpile 4, CD	Gradation, water content	Compliant
358	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
359	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
360	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
361	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
362	02/07/2016	05/07/2016	Compacted Sieved Till	Stockpile #6, N of CD	WC, Gradation	Compliant
363	03/07/2016	-	Coarse Filter	Stockpile 1-SANA crusher	Gradation	Not tested yet
364	03/07/2016	-	Coarse Filter	Stockpile 1-SANA crusher	Gradation	Not tested yet

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
365	03/07/2016	-	Coarse Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet
366	03/07/2016	05/07/2016	Coarse Filter	Stockpile #2, SANA Crusher	Gradation	Compliant
367	04/07/2016	-	Sieved Till	Stockpile #7, North CD	WC, gradation	Not tested yet
368	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
369	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
370	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
371	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
372	05/07/2016	-	Fine Filter	As placed +143.5/-15.71, El. 141.06 m	Gradation	Not tested yet
373	06/07/2016	-	Coarse Filter	As placed, CD 160.4/-23.5, El. 140.6 m	Gradation	Not tested yet

Figure 2 presents the new gradation limits, the gradation limits for the Compacted Till and the grain size results for some of the QC samples of Compacted Sieved Till tested so far. Figure 2 shows that these tested samples are compliant with the new gradation limits.

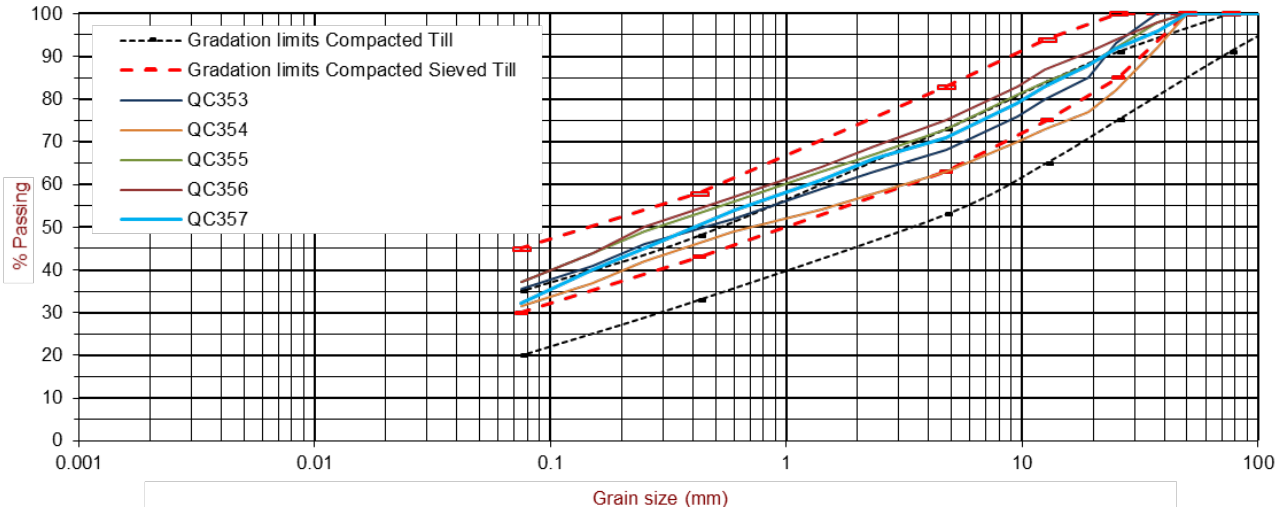


Figure 2: Grain size results for Compacted Sieved Till and gradation limits

7.0 PHOTOGRAPHS



Photograph CD-1695: From Sta. 0+190/+40 looking S. Excavation of soft till on the North abutment to reach the bedrock.



Photograph CD-1696: From Sta. 0+250/+40 looking S. Placement of PAG rockfill to El. 132 m on the Northern downstream side.



Photograph CD-1698: From Sta. 0+660/-7 looking NE. Placement of a 1.5-m thick lift of good non-AG rockfill lift downstream of CD to EL. 133.5 m.



Photograph CD-1701: From Sta. 0+320/-8 looking NE. Placement of a 1.5-m thick lift of non-AG Rockfill between El. 133.5 m and 135 m. The Rockfill is now from the East Dike stockpile, which explains the new colour of the material.



Photograph SD3-106: From Sta. 20+650/-73 looking S. Excavation of materials downstream of SD3 within the dike footprint for a crest El. at 143 m.



Photograph CD-1703: From Sta. 0+250/+20 looking S. Profiling of the downstream 1.5H:1V slope between El. 133.5 m and 135 m.



Photograph SD5-008: From Sta. 40+760/-50 looking S. Excavation of soft Till within the Dike footprint for a dike crest El. at 148 m.



Photograph CD-1704: From Sta. 0+200/-30 looking N. Cleaning of the bedrock within the footprint for a dike crest El. at 143 m.



Photograph CD-1705: From Sta. 0+580/-5 looking N. Placement of good quality non-AG Rockfill between El. 135 m and 137 m. The safety berm downstream was removed from the crest at El. 137 m.



Photograph CD-1707: From Sta. 0+650/-18 looking N. Placement of PAG Rockfill between El. 137 m and 139 m and view of the final scarified surface at El. 137 m



Photograph CD-1708: From Sta. 0+650/-18 looking S. View of the UM non-AG Rockfill scarified surface on CD at El. 137 m.



Photograph CD-1709: From Sta. 0+175/-15 looking N. Excavation of the fault infill for sampling. The fault is approximately 1-m wide.



Photograph CD-1710: From Sta. 0+200/+20 looking W. Placement of non-AG Rockfill to El. 135 m downstream of CD.



Photograph CD-1711: From Sta. 0+195/-33 looking N. Placement of a 0.5-m thick lift of inverse Coarse Filter.



Photograph CD-1707: From Sta. 0+450/-2 looking N. Placement of PAG Rockfill between El. 137 m and 139 m.



Photograph CD-1713: From Sta. 0+200/-37 looking N. Placement of a 0.5-m thick lift of Inverse Fine Filter.



Photograph CD-1715: From Sta. 0+155/-32 looking S. Placement of a 0.5-m thick lift of Inverse Coarse Filter.



Photograph CD-1716: From Sta. 0+205/-25 looking S. View of the downstream 1.5H:1V slope completed to El. 137 m.



Photograph SD4-072: From Sta. 40+405/-15 looking NW. Excavation of the foundation downstream for a Dike crest El. at 143 m.



Photograph CD-1717: From Sta. 0+160/0 looking S. Placement of a 1-m thick lift of PAG Rockfill between El. 136 m and 137 m.

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michaël Demers Bonin, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

MDB/YB/kd

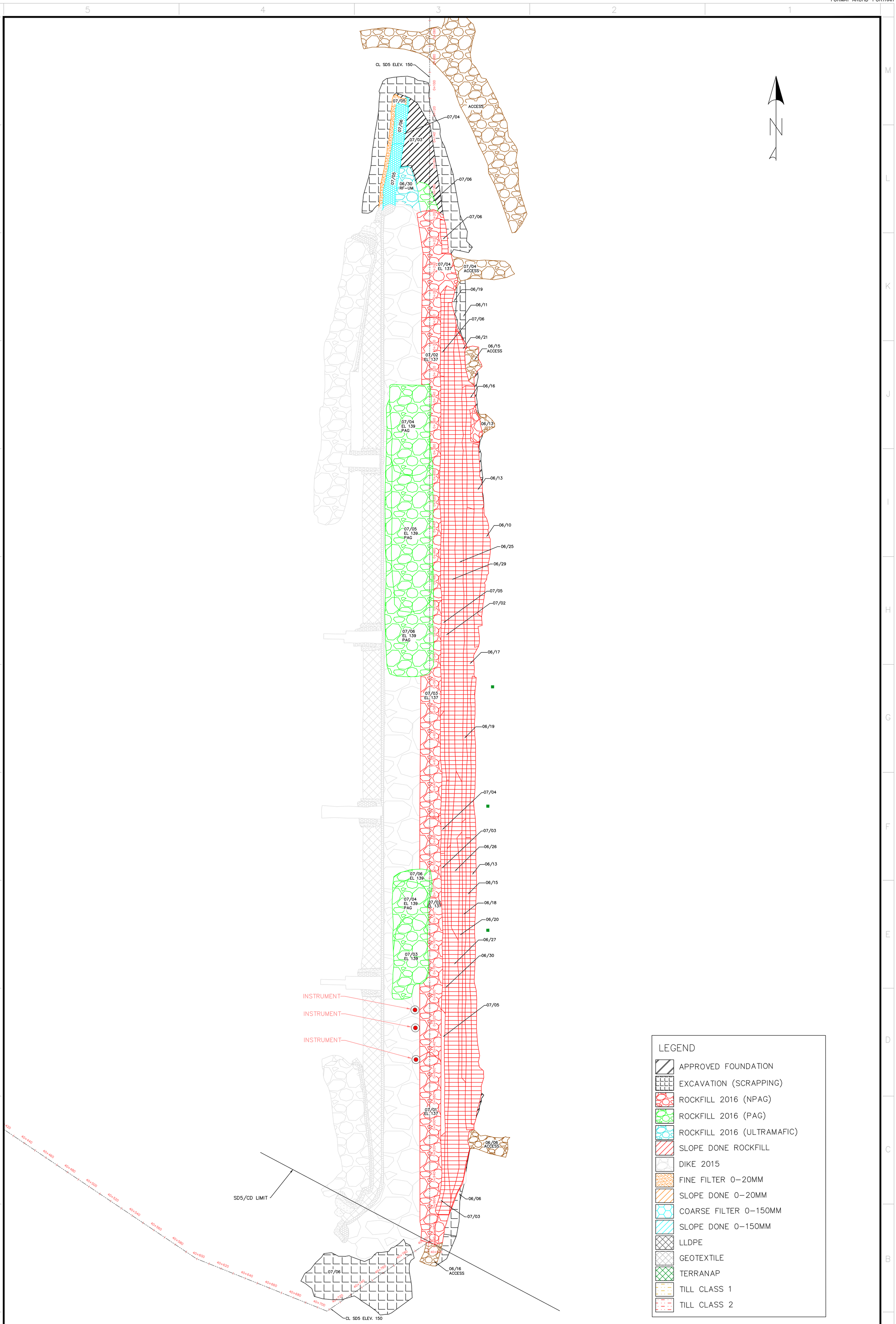
Attachments:

-Construction Progress Drawings from AEM as July 6th, 2016

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAEL RACINE	DATE	2016–07–06
CHECKED BY			
APPROVED BY			
PROJECT NO.			
DATE			

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- TRAMAK EXCAVATION
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONEB ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE
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TITLE
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SADDLE DAM 3 PROGRESS

SCALE	FILE
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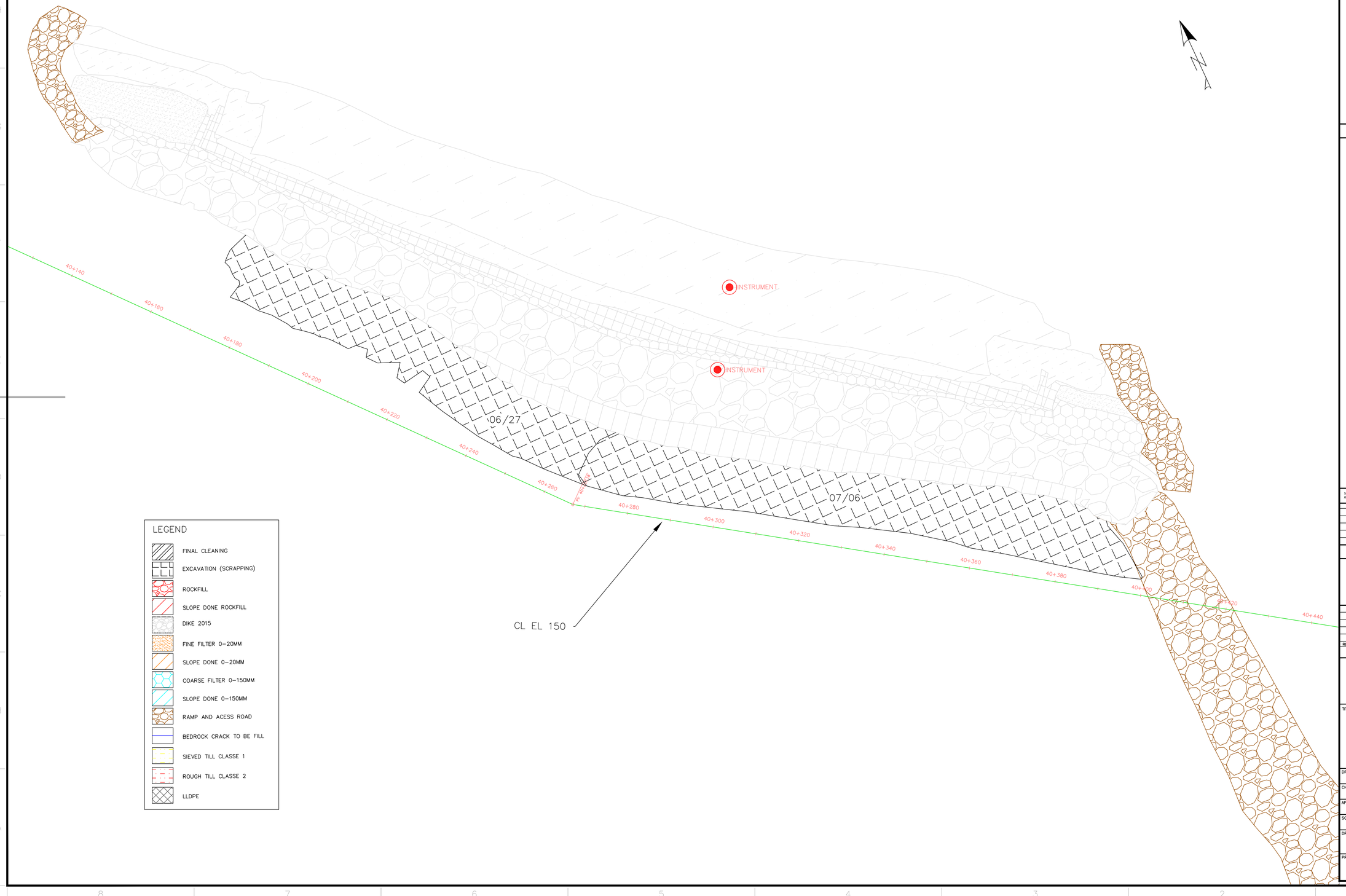
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FORMAT ARCHD–LANDSCAPE

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H G F E D C B A



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAEL RACINE	DATE:
CHECKED BY:	
APPROVED BY:	
SCALE: 1:400	DATE: 2016–07–06
DRAWING NO.	
PROJECT NO.	REVISION: / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE August 1, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JULY 7 TO 13, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from July 7 to 13, 2016, inclusive, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L. Bolduc	QA Engineer
Michael Demers-Bonin	QA Engineer, left site on July 7

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was reiterated that vehicles must come to a full stop at stop signs.
- There is co-activity at CD. It was reiterated that haul trucks and heavy equipment have priority. The pickup truck must park in a safe location (not behind them) and must communicate with heavy equipment operators by radio when passing nearby.

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- A procedure is being developed to retain the geomembrane worker and the CAT 307 in prevision of working on the 2H:1V upstream slope for the geomembrane installation and construction of the tailings deposition fingers.
- Signs were added by the FGL H/S representative in the construction area. A yield sign was added near the northern access of CD and a stop sign was installed at the bottom of the new access at SD3.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- The QA Engineer mentioned that the unsieved compacted till stockpile at the snow dump will soon be sampled and tested. This material appears to be too dry and too coarse. It was suggested that the stockpile north of CD be used first.
- There is an ongoing discussion on site on how to close dike extremities at the end of this construction season. In past construction seasons, the extremities of the dikes were left open and material was placed to form steps to avoid digging the inverse filter the next year. AEM might want the extremities of the dikes to be closed this year as there is a possibility that the dikes will not be raised further. For this scenario, till plugs will have to be constructed at the extremities of each dike.
- The QA manager observed that some piles of loose material were located on the upstream side of CD and SD5. It was reminded that the upstream toe liner tie-in in backfill must be placed against natural ground. AEM asked that loose piles of material be removed from the construction areas.

Central Dike – Rockfill

- AEM proposed to reduce the thickness of the good non-AG lift on the downstream side when the remainder of the lift is made of PAG rockfill. The QA manager answered that this can be done from a physical stability point of view as the PAG rockfill is hard and durable. AEM confirmed that a non-AG thickness of 4 m on the downstream side would be sufficient for closure purpose. It was then communicated to the Contractor that the thickness of the good quality non-AG on the downstream side would be reduced from 6 m to 4 m when the lift is made of good quality PAG rockfill. The rockfill lifts from El. 139 to 143 m would be composed of 5 m of PAG rockfill on the upstream. If CD is not raised to El. 150 m, the PAG rockfill on the crest would be covered later by AEM with UM rockfill. The QA manager reminded that caution will need to be taken with the bumper of UM or PAG rockfill to make sure that the accepted width on the upstream and downstream sides are respected. It was then discussed that the lift at El. 143 m might make the crest of CD too narrow for the haul truck to be able to turn and that a turnaround might need to be constructed with good quality rockfill for that lift.
- The QA manager observed that part of the berm made of PAG on CD at El. 139 m was being pushed by the dozer on the downstream edge of the slope during the placement of non-AG rockfill in a zone where only non-AG material must be placed. The QA Engineer reiterated that there must be no PAG material placed within the active layer of the dike. The PAG material was then removed from this zone.

- The QA Engineer reminded that the maximum size for the rockfill is 1.3 m. Some oversized rockfill particles were spotted in the lift from El. 137 m to El. 139 m on CD. Care was then taken by the Contractor to avoid sending oversize rockfill to the construction area.
- The QA manager reminded that the lift of UM rockfill must be scarified before the placement of material.

Saddle Dam 3

- It was discussed that the first 5 m of the upstream toe liner tie-in must be excavated to bedrock. For a toe liner tie-in in backfill configuration, the foundation of the other material of the upstream toe liner tie-in can be built on ice-poor till. The QA manager reiterated that testing will need to be done to ensure the remaining soil is an ice-poor material. This investigation can either be done with a drill or with an excavator if the excavator is able to reach the bedrock.

Saddle Dam 5 – Rockfill

- There is a plateau at El. 143 m located at the extremity of SD5. It was discussed that the rockfill and the filter will be placed to the edge of this plateau for this year. It was verified on the field that there are no continuous depression lower than El. 143 m.
- The QA manager confirmed that the transition from CD to SD5 to El. 137 m (a 10 m wedge) can be made of UM rockfill.
- Some localised depressions were observed that are too narrow for the compactor to access. The QA manager approved that rockfill and fine filter be placed in those depressions in lift of 0.5 m compacted with the bucket of the excavator.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	■ Excavation of soft till that has melted within an approved area on the downstream slope from Sta. 0+200 to 0+190.
Downstream slope	■ Removal of PAG rockfill within the good quality non-AG shell zone from Sta. 0+200 to 0+190. The PAG Rockfill lift had been extended too far downstream. ■ Clean up of fine filter lying on the approved bedrock surface downstream of the inverse filters from Sta. 0+160 to 0+115. ■ Profiling of the downstream slope (1.5H:1V) with the excavator from Sta. 0+170 to 0+340.
Crest	■ Placement of one lift of good quality non-AG rockfill to the north abutment extremity. The lift had a maximum thickness of 2 m from Sta. 0+200 to 0+120

Activity or Area	Comments
	(o/s 0 to -35) from El. 137 m to El. 143 m. The compaction was done with 8 passes of compactor in vibratory mode. ■ Placement of a 2-m-thick lift of PAG Rockfill (VI) between El. 137 and 139 m from Sta. 0+720 to 0+940, from 0+530 to 0+570, and from 0+270 to 0+340 (o/s 0 to -35). The rockfill was well graded. A 6-m-wide strip was kept free of rockfill downstream in prevision of the placement of the good quality non-AG shell. The compaction was done with 8 passes of compactor in vibratory mode. ■ Placement of a 6 m shell of good quality non-AG rockfill in a 2 m lift on the downstream side from Sta. 0+340 to 0+900. The compaction was done with 8 passes of a compactor in vibratory mode. ■ Construction of an access on the north side of CD to El. 143 m approximately. The access was made with sieving reject outside of the dike footprint and with good quality non-AG for the connection with the dike. ■ The instruments casing between Sta. 0+810 and 0+850 were backfilled to El. 139 m with UM rockfill. ■ Scarification with the loader of the UM rockfill at El. 137 m from 0+900 to 0+980.
Upstream slope	■ Profiling of the PAG rockfill upstream slope (2H:1V) from El. 137 m to El. 139 m between 0+200 and 0+880 in preparation for placement of the inverse filter.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Pumping of water downstream.
Foundation preparation	■ Construction of a new access road outside the dike footprint for a crest at El. 143 m. ■ Excavation of material within the SD3 footprint. Competent material has not yet been reached.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Pumping of water downstream.
Foundation preparation	■ Excavation of materials within the SD4 footprint for a dike crest at El. 143 m from Sta. 40+280 to 40+250 and on the east abutment. Bedrock has been

Activity or Area	Comments
	reached and the foundation will be approved shortly. ■ Removal of the access over non approved foundation.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Excavation of materials within the SD5 footprint for a dike crest El. at 143 m. The foundation was approved from 40+789 to 40+619 over the rockfill and inverse filter area. ■ Removal of UM rockfill from an access ramp lying over non-approved foundation and within the area where CD turn toward SD5.
Crest	■ Compaction of the two 2 m lifts of UM rockfill placed from 40+670 to 40+750 for the new access ramp. The compaction was done with 8 passes of compactor in vibratory mode. ■ Placement and compaction of a 2 m lift of UM rockfill placed to El. 137 m from Sta. 40+737 to 40+650. The compaction was done with 8 passes of 10T compactor in vibratory mode.
Downstream slope	■ Profiling of the downstream slope with a 1.5H:1V slope from 40+680 to 40+760.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-003	SD5	40+789 to 40+746 o/s 8 to 16	07/07/2016	Approved
FND-SD5-004	SD5	40+737 40+650 o/s 36 to 4	11/07/2016	Approved
FND-SD5-005	CD/SD5	0+972 to 40+783 o/s -20 to 2	13/07/2016	Approved
FND-SD5-006	SD5	40+747 to 40+619 o/s -50 to -29	13/07/2016	Approved

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Tables 7 and 8. The samples taken by the QA will be tested once the QA assistant arrived on site.

A small error was found in the Excel file being used by the QC for the fine filter and the coarse filter. The QC fixed this error and gave the modified results for sample 366 and 368 to 372 to the QA Manager. The QA Manager verified that these results were still compliant and replaced the old results with the new ones.

More material was collected from the pad for sample 374 as there was not enough soil in the current sample. Sample 375 was cancelled as the volume of soil collected was insufficient and the sampling pad was no longer available.

The QC results of samples 363 to 365 has been given to the QA manager for the samples of coarse filter from Stockpile #1 and #2. One sample from each stockpile was compliant while the other did not comply with the technical specifications, as the fine fraction is higher than the gradation limits. This difference in results might be due to the sampling technique or segregation in the pile. Care will need to be taken when handling this material and placing it.

Table 7: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-16	07/07/2016	-	Compacted till (unsieved)	Stockpile north of CD	WC, Gradation	Not tested yet

Table 8: Sample taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
363	03/07/2016	11/07/2016	Coarse filter	Stockpile 1	Gradation	Compliant
364	03/07/2016	10/07/2016	Coarse filter	Stockpile 1	Gradation	Fine fraction above gradation limits
365	03/07/2016	09/07/2016	Coarse filter	Stockpile 2	Gradation	Fine fraction above gradation limits
367	04/07/2016	07/07/2016	Sieved Till	Stockpile #7, north CD	WC, gradation	Compliant
368	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
369	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
370	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
371	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
372	05/07/2016	08/07/2016	Fine Filter	In place CD Sta. 0+143,5 o/s -15.7 El. 141	WC, Gradation	Compliant
373	06/07/2016	13/07/2016	Coarse filter	CD in situ Sta .0+160 o/s -23 El. 140,6 m	Gradation	Acceptable, a little bit too sandy
374	03/07/2016	-	Till	Stockpile north of CD	WC, Gradation	Not tested yet

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
	07/07/2016		(unsieved)			
375	06/07/2016	Cancelled due to insufficient material sampled				
377	07/07/2016	-	Till (unsieved)	Stockpile, snowdump	WC, gradation	Not tested yet
378	07/07/2016	-	Till (unsieved)	Stockpile, snowdump	WC, gradation	Not tested yet

7.0 PHOTOGRAPHS



Photograph CD-1718: From Sta. 0+120/0 looking S. Placement of a 1 m-thick lift of PAG Rockfill between El. 136 m and 137 m.



Photograph CD-1719: From Sta. 0+600/-32 looking N. Profiling of the rockfill upstream with a 2H:1V slope between El. 137 and 139 m in preparation for the filter placement.



Photograph CD-1720: From Sta. 0+220/-35 looking N. Compaction of the lift of rockfill placed on the north abutment following the bedrock up to El. 143 m. A dozer is pushing material for the north access road.



Photograph CD-1721: From Sta. 0+860/-30 looking N. View of the instruments casing backfilled with UM rockfill for protection.



Photograph CD-1722: From Sta. 0+200/-15 looking N. Profiling of the downstream slope at El. 139 m between 0+170 and 0+200.



Photograph CD-1723: From Sta. 0+580/-15 looking N. Placement of 6 m of non-AG on the downstream side between El. 137 m and El. 139 m. The PAG bumpers are not being pushed within 3 m of the edge of the slope.



Photograph CD-1724: From Sta. 0+350/-30 looking N. Placement of a 2-m-thick lift of PAG rockfill from El. 137 m to El. 139 m to form a shell inside CD.



Photograph CD-1725: From Sta. 0+200/-50 looking S. Profiling of the rockfill upstream slope (2H:1V) From El. 137 m to El. 139 m.



Photograph CD-1726: From Sta. 0+880/-40 looking N. Placement of PAG rockfill to El. 139 m. Good non-AG will be placed 6 m from the downstream slope.



Photograph CD-1727: From Sta. 40+760/-20 looking N. Placement of PAG rockfil on CD from El.137 to El.139. An excavator is profiling the rockfill of the upstream slope (2H:1V) in preparation for the filter placement.



Photograph CD-1728: From Sta. 200/20 looking S. Profiling of the downstream slope from El.137 m to El. 139 m (1.5H:1V).



Photograph CD-1729: From Sta. 920/0 looking N. Placement of good quality non-AG rockfill on a 4 m width band on the downstream side from El. 137 m to El. 139 m. The compaction is being done with a 10T compactor in vibratory mode.



Photograph SD5-009: From Sta. 40+756/30 looking N. View of the approved foundation at SD5 before placement of rockfill.



Photograph SD5-010: From Sta. 40+800/-20 looking SW. Placement of UM rockfill up to El. 137 m for an access.



Photograph SD5-011: From Sta. 40+747/-24 looking NW. View of an excavator preparing the foundation by removing the till to bedrock.



Photograph SD5-012: From Sta. 40+640/-20 looking NE. Compaction of the UM lift placed to El. 137 m. An excavator is preparing the foundation in the zone of the inverse filter.



Photograph SD5-013: From Sta. 40+740/0 looking W. View of the profiled downstream slope to El. 137 m.



Photograph SD4-073: From Sta. 40+390/-4 looking NW. Excavation of the foundation downstream for a Dike crest El. at 143 m.



Photograph SD3-107: From Sta. 20+830/-35 looking N. View of the new access road and an excavator preparing the foundation by removing the till for a dike footprint at El. 143 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Frédérick L. Bolduc, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

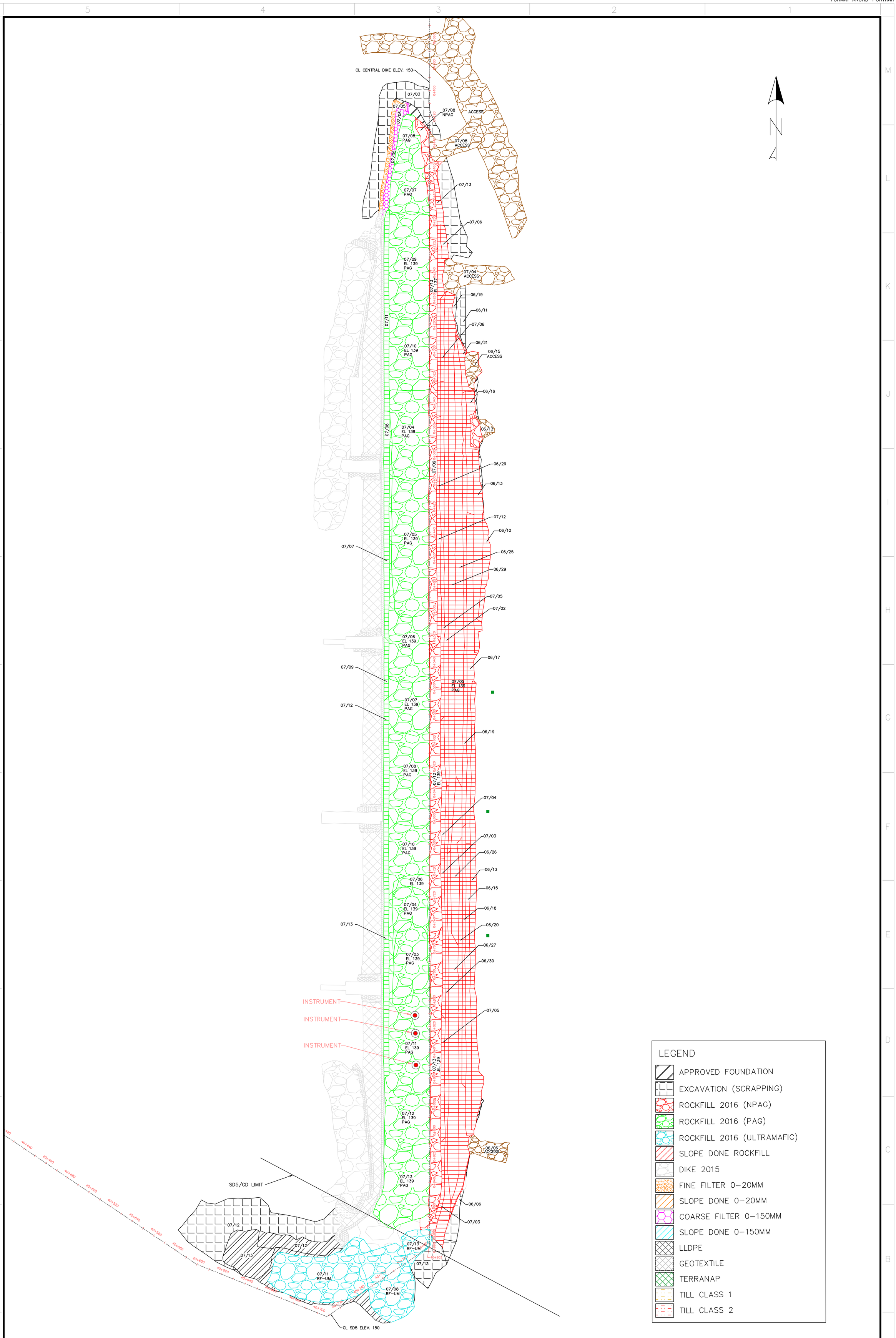
MDB/YB/jlm

Attachments: Construction Progress Drawings from AEM as July 14th, 2016

c:\users\jlacostemccormick\desktop\doc 1543 1656047 rev0 qa weekly report 2016-07-07 to 2016-07-13_jl.docx

DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE MEADOWBANK

DRAWN BY	MICHAEL RACINE
DATE	2016–07–13
CHECKED BY	
APPROVED BY	
PROJECT NO.	
DATE	

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
1:1250	CD_EX_PROGRESS.DWG

DRAWING NO.	REVISION	SHEET
		1 / 1

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAEL RACINE	DATE	2016–07–10
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PROJECT NO.			
DATE			

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

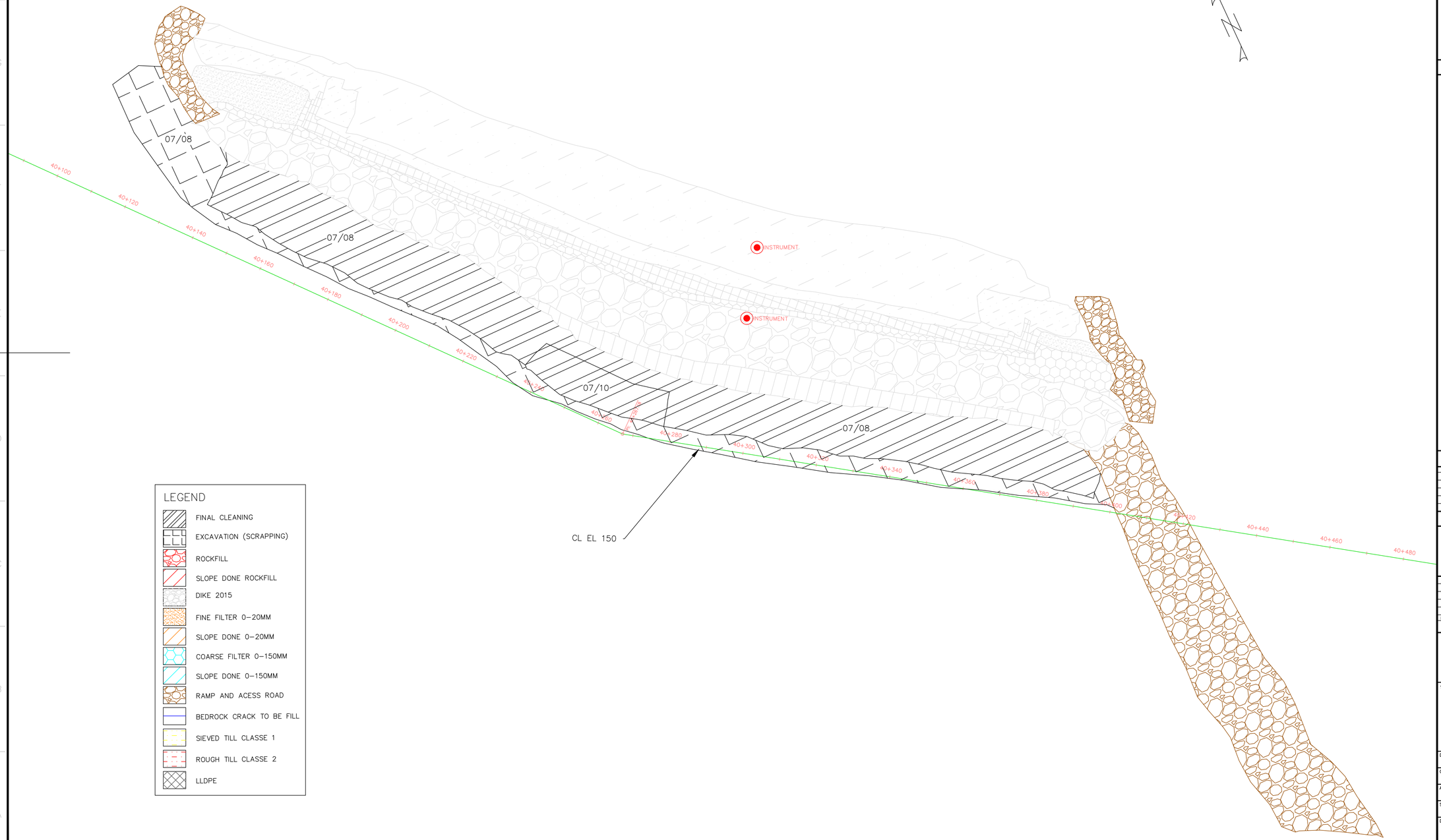
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DRAWING NO.	REVISION	SHEET
		1 / 1

C:\MEADOWBANK\DIKE 2016\SD3\PLAN\SD3_PROGRESS_0709.dwg, 11 Jul 2016

DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAEL RACINE	DATE:
CHECKED BY:	
APPROVED BY:	
SCALE: 1:500	DATE: 2016–07–10
DRAWING NO.	
PROJECT NO.	REVISION: / SHEET: 1 / 1

C:\MEADOWBANK\DIKE 2016\SD4\PLAN\SD4_PROGRESS_0710.dwg, 11 Jul 2016

FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE August 1, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JULY 14 TO 20, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from July 14 to 20, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L. Bolduc	QA Engineer
Michael Nadon	QA Assistant, arrived July 15

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The QA personnel assisted the weekly dike safety meeting. It was discussed that UM rockfill can become slippery when wet. It was also discussed that people doing footwork on the dike must be very careful when working near heavy equipment.
- It was reminded to avoid stepping on the smooth geomembrane joints when walking on the geomembrane as they can be very slippery.
- It is required to wear a life jacket when walking closer than 2 m from the upstream slope of Central Dike.

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- It was discussed that a dangerous occurrence happened during the night shift between a vehicle on the West Road and a haul truck that did not completely stop at the Central Dike/West Road junction. It was reminded that vehicles on the West Road have the right of way and that vehicles must completely immobilize at stop signs.
- In preparation of the liner installation on Central Dike, a fall restraint system will be put in place. The workers will attach themselves on concrete blocks or on the casing drilled in the dike.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- AEM asked that the pile of loose material at SD4 and SD5 be removed and hauled to the waste dump instead of spread in the South Cell of the TSF.
- Some of the available fine filter and coarse filter material in the stockpile is made from crushed UM rockfill. The QA manager asked that the filter material placed on CD and over the foundation be made of good quality rockfill. The filter material made of UM rockfill can be used on the upstream slope of the Saddle Dams if a good compaction can be attained and if the compaction effort does not change the particle size distribution of the material.
- The QC results show that the snow dump till stockpile does not meet the gradation limits of the unsieved till. The material from that stockpile is coarser than the gradation limit of unsieved till. This material cannot be used in the till plug but could be used to substitute the low quality till used as an erosion protection layer for the Saddle Dam. The 2 m-thick lift of low quality till in the backfill configuration could be replaced by 1 m of material from the snow dump stockpile and 1 m of UM rockfill. The QA manager reiterated that Golder considers the initial design of the erosion protection layer more robust than the substitution with low quality till. The use of such a substitution will require AEM to take measures to protect the till plug during tailings deposition to mitigate the risk of erosion.
- The QA manager explained that the geomembrane must be installed to El. 143 m to consider the dike closed at that elevation. It is recommended to close the dike with steps as in previous years if there is a possibility that the dike be brought to a higher elevation next year. It is also possible to build the entirety of the upstream toe liner tie-in for a geomembrane installed at El. 143 m (which would result in an upstream toe liner tie-in higher than the dike on the abutments). AEM is currently analyzing how they will close the dike this year.

Central Dike – Rockfill

- The QA manager reiterated that the placement of UM rockfill on Central Dike has been allowed with some limitations. One of those limitations was that the material is composed of a well-graded UM rockfill (0-900 mm). The QA manager has observed that the material currently being placed on CD is coming from free dumped stockpile of approximately 0-300 mm with lots of fine particles. The amount of fine particles in the rockfill must be limited so that the resistance of the material is not controlled by the finer fraction. The contractor is trying to load the truck to obtain a well-graded material, but this is hard to accomplish due to

the source of the material. The UM rockfill being placed was observed as being heterogeneous with acceptable loads and some loads containing a significant amount of fine particles and small rockfill (rock powder, 0-300 mm rockfill). Effort must be taken to ensure that the quantity of rock powder does not increase.

- AEM confirmed that they would like to postpone the placement of the 6 m of good quality NPAG material on the downstream side of CD from El. 141 m to 143 m if the mine has an insufficient quantity of good quality NPAG. Golder agrees that the proposed configuration will not negatively impact the stability of the structure if the closure requirements are met. Golder will emit a technical memorandum on this subject.
- The QA manager reiterated that a minimum width of 6 m of good quality rockfill must be placed on the downstream side of the lift. Care must be taken to avoid pushing the UM bumper within that zone.

Central Dike – Filter

- The QA manager observed that some localized loads of coarse filter placed on CD contained a high proportion of fine particles. Some samples taken in the stockpiles contained too many sandy particles. Care will have to be taken during handling and loading to avoid sending segregated coarse filter on the dike. The loader will mix the pile before loading the trucks to avoid segregation of coarse filter.
- The QA manager reiterated that the maximum lift thickness of fine and coarse filter placement is 0.5 m. It was observed during the morning that the lift of fine and coarse filter placed during the night shift on the upstream slope of Central Dike had a thickness of 0.7 to 0.8 m after compaction. This was observed on a length of approximately 200 m (starting at Sta.0+940). This over thickness of material was compensated by lowering the thickness of the second lift. The contractor warned the night shift crew to carefully follow the line marked on the field.
- During the night shift, the QC observed that the shovel operator placing fine filter on the upstream slope of Central Dike was mixing the fine filter with the dike rockfill while loading material from the bottom of the fine filter pile. The operator was warned to avoid scraping the floor of the pile and the biggest rockfill particles were manually removed from the filter zone. The QA manager reiterated at the construction meeting that the shovel operator needs to be careful not to mix the filter with unsuitable material.

Saddle Dam 5

- It was discussed that the erosion protection layer of the upstream toe liner tie-in at SD5 is planned to be built this year using the same configuration as Central Dike.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	■ Profiling of the downstream slope (1.5 H:1V) from El. 137 m to 139 m from Sta. 0+520 to 0+750 and from 0+780 to 0+910.
Crest	■ Compaction of the PAG and good quality NPAG placed from Sta. 0+915 to 0+960 to El. 139 m. The compaction was done with 8 passes of a 10T compactor in vibratory mode. ■ Placement of a 2 m lift of UM rockfill in the centre of the lift from El. 139 m to 141 m from Sta. 0+590 to 180 (o/s -20 to -5). The material comes from a stockpile made by free dumping and is mainly composed of 0-300 mm particles and some rock powder. The material quality is very heterogeneous with acceptable loads and some loads that seem to contain much too fine particles. ■ Placement of 2 m lift of good quality PAG rockfill on the upstream slope (5 m wide horizontally) from El. 139 m to 141 m from Sta. 0+590 to 390. ■ Placement of 2 m lift of good quality NPAG rockfill on the downstream slope (6 m wide horizontally) from El. 139 m to 141 m from Sta. 0+180 to 0+460. ■ Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+440 to 0+600. The compaction was done with 8 passes of a 10T compactor in vibratory mode.
Upstream slope	■ Profiling of the PAG rockfill upstream slope (2H:1V) from El. 137 m to El. 139 m between 0+860 and 0+900 in prevision of the placement of the inverse filter. ■ Cleaning of the four tailings deposition fingers to expose the liner. This operation was done with an excavator and the labourers. ■ Placement of four 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The lifts were placed from El 137 m to El. 139 m from 0+140 to 0+620 and from 0+820 to 0+940. The third lift from El. 138 to 138.5 m was placed from 0+600 to 0+800 for the coarse filter and 0+660 to 0+800 for the coarse filter. The compaction of each lift was done with 4 passes of a 10T compactor in vibratory mode. ■ Profiling of the fine filter upstream slope (2H:1V) to El.139 m from Sta. 0+140 to 0+620 and from 0+820 to 0+940.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	■ Pumping of water downstream.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	■ Pumping of water downstream.
Foundation preparation	■ Removal of till to reach bedrock on the east abutment and removal of the access over non-approved foundation on the east side.
Crest	■ Placement of a 1.5 m lift of UM rockfill to El. 138 m and El. 140 m from Sta. 40+440 to 40+280 (o/s -3 to -13). The compaction was done with 8 passes of compactor in vibratory mode. Placement of UM rockfill to El. 140 m is planned for the night shift. ■ Placement of a 1.5 m lift of UM rockfill to El. 141.5 m from Sta. 40+400 to 40+260 approximately. The placed UM material was heterogeneous with a mix of fine load and well-graded load. The compaction was done during the night shift. ■ Extension of the thermistance cable.
Downstream slope	■ Profiling of the downstream slope (1.5H:1V) to El. 140 m.
Upstream slope	■ Profiling of the upstream slope (3H:1V) from El. 140 m to 141.5 m in prevision of the filter placement from 40+380 to 40+350.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	■ Cleaning of the foundation to bedrock in the sector of the inverse filter from Sta. 40+757 to 40+752. The foundation was approved.
Crest	■ Compaction of the UM rockfill placed in the CD/SD5 transition to EL. 137 m from 0+960 to 40+780. The compaction was done with 8 passes of a compactor in vibratory mode. ■ Placement of a thin lift of UM rockfill up to the dike abutment at El. 143 m from 40+760 to 40+620. Afterwards, a 2 m lift of UM rockfill was placed up to El. 139 m from 40+760 to 40+660. Compaction was done with 8 passes of a compactor in vibratory mode. ■ Placement of the fine filter on the bedrock within the inverse filter location from 40+760 to 40+620. A minimum thickness of 0.5 m was placed. The fine filter was compacted with 4 passes of a compactor in vibratory mode.

Activity or Area	Comments
	■ Beginning of placement of the coarse filter on the bedrock within the inverse filter location from 40+760 to 40+720. A minimum thickness of 0.5 m was placed.
Downstream slope	■ Profiling of the downstream slope with a 1.5H:1V slope from 0+960 to 40+680 up to El. 139 m.
Upstream slope	■ Placement of UM rockfill above the coarse filter to form the upstream slope from El. 137 m to 139 m. The compaction was then done with 8 passes of compactor in vibratory mode. ■ Profiling of the rockfill upstream slope (3H:1V) from 0+990 to 40+740 in preparation for the filter installation. ■ Placement of fine filter in a depression from El. 137 to 139 m from Sta. 40+757 to 40+752. The depression was backfill in lift of 0.5 m compacted with the excavator bucket. ■ Placement of a 0.5 m lifts of filter on the upstream slope from El. 137 m to 137.5 m in the CD/SD5 transition. Fine filter was placed from Sta. 0+940 to 40+680 and the coarse filter from 0+940 to 40+760.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-019	SD4	40+398 to 40+101 o/s -4 to -45	14/07/2016	Approved
FND-SD4-020	SD4	Sta. 40+454 to 40+401 o/s -5 to -47	14/07/2016	Approved
FND-SD5-07	SD5	40+757 to 40+751 o/s -50 to -58	20/07/2016	Approved

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Tables 7 and 8.

It was discovered that the QC used the wrong gradation limit for the sample of rough till. The gradation limits of the coarse filter was used instead. The results of sample 374 were updated and reviewed. Sample 374 is now totally out of the gradation curve of till and instead meets the gradation curve of coarse filter. The QC retook another sample from this pile (sample 381) as the obtained results seemed unreliable.

Samples 377 and 378 from the snow dump rough till stockpile have been tested by the QC. The samples do not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit. This material will not be able to be used for the first 2 m of the upstream toe liner tie-in.

The QA assistant tested samples STCK-14, STCK-15, STCK-16 STCK-18 and CD-540 of fine filter and sieved till taken in the stockpiles and of fine filter from CD. The results obtained are compliant with the technical specifications.

The QA assistant tested sample CD-541 of coarse filter placed on CD. The results obtained show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimize segregation. It is judged that the performance of the filter will still be adequate.

Table 7: Samples Tested by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-14	23/06/2016	19/07/2016	Sieved till	Stockpile sieved till CD	Gradation, WC	Compliant
STCK-15	30/06/2016	17/07/2016	Fine filter	Stockpile Sana Crusher	Gradation	Compliant
STCK-16	02/07/2016	18/07/2016	Sieved till	Stockpile sieved till CD	Gradation, WC	Compliant
STCK-18	04/07/2016	17/07/2016	Fine filter	Stockpile Pit D	Gradation	Compliant
CD-540	05/07/2016	17/07/2016	Fine filter	In place CD, 0+143.5/-15.7 El. 141.06	Gradation	Compliant
CD-541	06/07/2016	20/07/2016	Coarse filter	CD Sta. 0+160/-23 El. 140.6 m	Gradation	Coarse OK, sandy particle out of gradation

Table 8: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
374	07/07/2016	13/07/2016 Reviewed 17/07/2016	Rough till	CD North	Gradation	Not compliant
377	07/07/2016	16/07/2016	Rough till	Snow dump stockpile	Gradation	Not compliant
378	07/07/2016	17/07/2016	Rough till	Snow dump stockpile	Gradation	Not compliant
379	14/07/2016	-	Fine filter	SD5 in situ St.40+700 o/s -23 El. 137,6 m	Gradation	Not tested yet
380	14/07/2016	15/07/2016	Coarse Filter	SD5, 40+685, inverse filter	Gradation	Not tested yet
381	07/18/2016	-	Rough till	North CD stockpile	Gradation, WC	Not tested yet
382	20/07/2016	-	Fine filter	CD Sta. 0+876 o/s -20 El. 139.2	Gradation	Not yet tested

7.0 PHOTOGRAPHS



Photograph CD-1730: From Sta.40+700/-33 looking N. Profiling of the upstream slope (2H:1V) on Central Dike. Cleaning of the tailings deposition fingers in the background.



Photograph CD-1731: From Sta.0+820/-40 looking N. Cleaning of a tailings deposition finger to expose the geomembrane.



Photograph CD-1732: From Sta.0+400/-40 looking S. Placement of the second lift of coarse filter and fine filter from El. 137.5 m to 138. The lift width is such as to have 1 m of each material perpendicular to the slope.



Photograph CD-1733: From Sta.0+480/-50 looking S. Placement of a 2 m lift of UM rockfill in the centre of the lift from El. 139 m to 141 m. The material is mainly composed of 0-300 mm and fine particles.



Photograph CD-1734: From Sta.0+480/-35 looking S. Placement of a 2 m lift of UM rockfill in the centre of the lift from El. 139 m to 141 m. The material is mainly composed of 0-300 mm and fines. A 5 m shell of PAG rockfill is being placed on the US side.



Photograph CD-1735: From Sta.0+200/-60 looking S. Placement of fine filter and coarse filter against the upstream slope in 0.5 m thick lift placed horizontally. Placement from El. 137 to 139 m.



Photograph CD-1736: From Sta.0+100/-36 looking S. View of the placement and compaction of the fine and coarse filter on the upstream slope to El.139 m. Placement in the background of UM and PAG rockfill to El. 141 m.



Photograph CD-1737: From Sta.0+140/-30 looking S. View of the filter on the upstream slope completed on the north of Central Dike to El. 139. Placement of UM rockfill in the centre of the lift from El. 139 m to 141 m to Sta. 0+260. Placement of PAG on the upstream side to Sta.0+280.



Photograph CD-1738: From Sta.0+240/-30 looking S. Placement of UM rockfill on the centre of the lift and of PAG rockfill on the usptream side from El. 139 m to 141. The UM rockfill is heterogenous and contains lots of fine particles.



Photograph CD-1739: From Sta.0+150/17 looking S. View of the 2 m lift from El. 139 to 141 m. A 6 m stripe was placed on the downstream side. The centre of the lift is made of UM rockfill.



Photograph SD4-074: From Sta.40+270/-15 looking SE. Placement of UM rockfill to El. 138 m.



Photograph SD4-075: From Sta.40+240/-17 looking SW. Placement of UM rockfill to El. 141.5 m. The downstream slope has been profiled up to El. 140 m. Notice the cone on the crest to protect the extension of the thermistance cable.



Photograph SD5-014: From Sta.40+760/-30 looking N. Profiling of the downstream slope made of UM rockfill to El. 137 m.



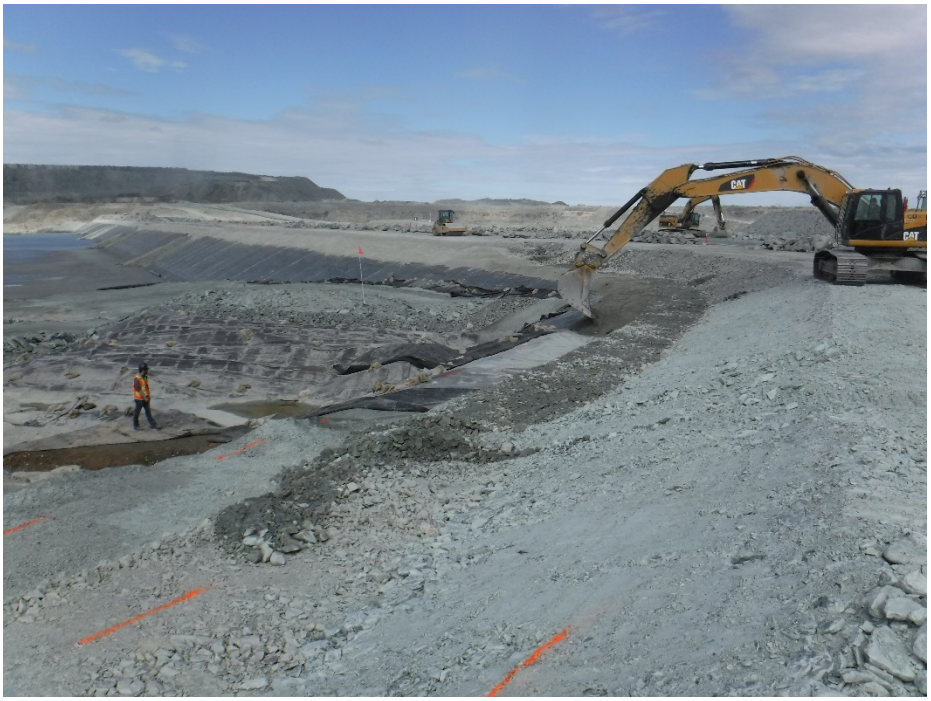
Photograph SD5-015: From Sta.40+620/-40 looking E. Placement and compaction of the fine filter at SD5. Placement of a 2 m lift of UM rockfill to El. 139 m.



Photograph SD5-016: From Sta.0+980/-15 looking SW. Placement of coarse filter at SD5. Compaction of the UM rockfill placed to El. 139 m



Photograph SD5-017: From Sta.0+920/-35 looking SW. Placement of UM rockfill over the coarse filter and profiling of the slope (3H:1V).



Photograph SD5-018: From Sta.40+740/-40 looking N. Placement of the first lift of fine filter at SD5 from 0+940 to 40+740 from El. 137 to 137.5 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Frédérick L. Bolduc, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

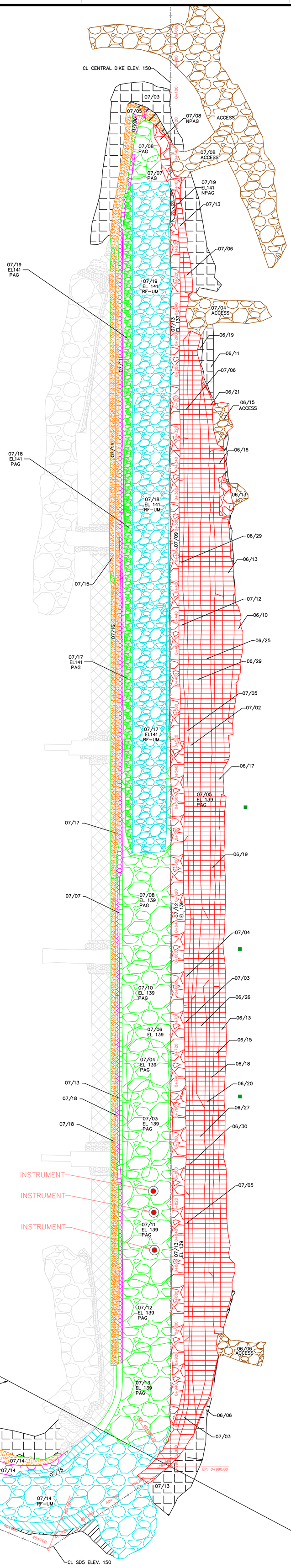
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Attachments: Construction Progress Drawings from AEM as July 20th, 2016

c:\users\jlacostemccormick\desktop\doc 1543 1656047 rev0 qa weekly report 2016-07-14to 2016-07-20_yb_jl.docx

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE
MEADOWBANK

DRAWN BY: AUBREY DESROCHES — DATE: 2016–07–19
CHECKED BY:
APPROVED BY:
PROJECT NO.:
DATE:

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TITLE: AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

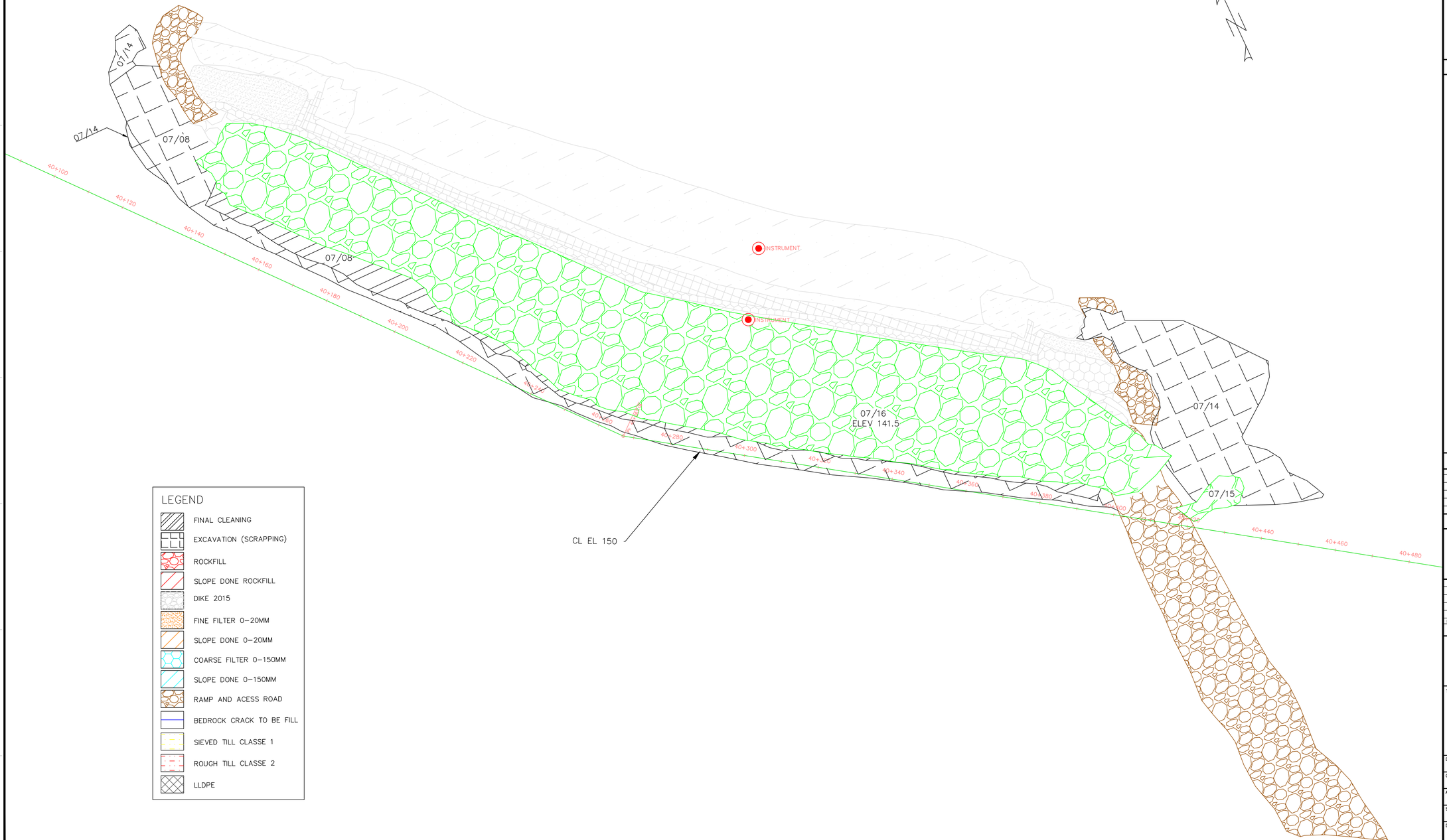
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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: AUBREY C.–DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–07–16
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE August 5, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michael Nadon, reviewed by Yves Boulianne **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JULY 21 TO 27, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from July 21 to 27, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was discussed that the cyanide transportation of July 23-24 requires vigilance on road. It is strongly suggested to not use the all-weather private road, and to synchronize radios to the mine or to channel nº 9 when the transport is around.

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- It was reminded that vehicles must come to a complete stop at stop signs, and to be careful with the new signage on SD road. A yield and stop signs have been added.
- The rain transforms the UM rockfill into a muddy and slippery surface. Be wary of slipping when walking or driving on it.
- More vehicles take the SD and the Stone Water road because of rockfill and filter material transportation on SD3. It is important to be careful when driving and respect all signage.
- Dust continues to be an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation.
- The berms of the last lift (El.143 m) on CD have been raised to ensure the security.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- It was discussed that the mine is running out of PAG rockfill, but we should be able to have more from the pit. A new surveys on PAG rockfill quantity will be carried out shortly. It is important to monitor the 5 m width of PAG rockfill along the central dyke in such a way that we take only what is strictly necessary.
- Sample 381 from the stockpile north of CD has been tested by the QC. The sample does not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit. This material will not be able to be used for the first 2 m of the upstream toe liner tie-in, but can be used for the erosion protection layer on SD3 and SD4.
- The QA manager reiterated that it is important that the UM rockfill particles be well graded where cobbles and blocks particles are in contact with each other and not be completely surrounded within a rock powder matrix. The UM rockfill being placed on SD3 and CD was observed as being acceptable but not ideal as it was heterogeneous and contained high fine particles. Care must be taken to ensure that the quantity of rock powder does not increase.

Central Dike – Rockfill

- During a night shift, UM rockfill was placed on the upstream side of the south part of CD instead of PAG rockfill from Sta. 0+966 to 0+874. The QA manager reiterated that a 5 m width of PAG rockfill is required on the upstream side of CD. The UM rockfill was removed during the following night shift.
- The QA manager reiterated that a minimum width of 6 m of good non-AG rockfill must be placed on the downstream side of the lift. Care must be taken to avoid pushing the UM bumper within that zone.

Saddle Dam 4

- The QA manager observed that some loads of coarse filter placed on SD4 contained a high proportion of fine particles. Some samples taken in the stockpiles show fine particles above the specified upper limit. Care will have to be taken to avoid carrying segregated coarse filter on the dike. The loader will try mixing the pile

before loading the trucks to avoid coarse filter segregation. The excavator will also try mixing the pile on the dyke before the installation.

- A portion of the inverse filters around Sta. 40+430 to 40+460 is in contact with a steep bedrock face that drops from El. 143 to 141 m. Instead of filling up the gap with fine filter between the top and the bottom of the bedrock, putting rockfill in this area was accepted, only once the inverse filter has a minimum length of 5 m. The QA manager mentioned that this option is accepted because of the good quality of the bedrock in this local area.
- During the night shift of July 24, a certain quantity of UM rockfill has been dumped on the inverse coarse filter by accident on the south part of the upstream slope of SD4. The UM rockfill has been removed during the day shift.

Saddle Dam 3

- The QA manager mentioned that the footprint of SD3 needs to be cleaned of overburden and loose rock before the foundation approval.
- The presence of a big rock on the footprint of the south part of SD3 from Sta. 20+770 to 20+790 interferes with the placement of inverse filter. The rock was removed by an excavator.
- Care must be taken with the foundation preparation of SD3 on the downstream side around the faulted zone from Sta. 0+650 to 0+600. The QA manager reiterated that the foundation of the dike does not have to be excavated to bedrock over the faulted area of SD3. The dike can be built on ice-poor fault infill materials. According to the July 2015 drilling campaign, the minimum excavation depth to ensure that the footprint is sitting on ice poor fault infill materials is at El. 38.5 m.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Downstream	■ Placement of 2 m thick lift of good non-AG rockfill on the downstream slope from El. 139m to 141 m from Sta. 0+ 760 to 0+580.
Crest	■ Placement of a 2 m thick lift of UM rockfill in the centre of the lift from El. 139 m to 141 m from Sta. 0+850 to 0+620 (o/s -24 to -4). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. ■ Placement of a 2 m lift of UM rockfill in the center of the lift from El. 141 to 143 m from Sta. 0+180 to 0+280 (o/s -20 to -5). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles.

Activity or Area	Comments
	■ Placement of 2 m thick lift of PAG rockfill, 5 m width on the upstream slope from El. 139 m to 141 m from Sta. 0+ 850 to 0+620. ■ Profiling of the PAG rockfill upstream slope (2H:1V) from El. 139 to 141 m from Sta. 0+700 to 0+160 ■ Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+360 to 0+310 and from 0+920 to 0+860.
Upstream slope	■ Placement of the first, second and third 0.5 m thick lift of fine filter on the upstream slope. It was placed and compacted from El. 139 to 140.5 m from Sta. 0+750 to 0+180. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the first, second and third 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 139 to 140.5 m from Sta. 0+850 to 0+180. ■ Placement of the fourth 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 140.5 to 141 m from Sta.0+500 to 0+180. ■ Profiling and rolling of the fine filter upstream slope (2H:1V) from El.139 to 140.5 m from Sta. 0+680 to 0+180 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation approval	■ Removal of till and loose rocks with an excavator to reach a good quality bedrock for the dike footprint from Sta. 20+790 to 20+655 m. Also, a big rock from Sta. 20+770 to 20+790 has to be removed. ■ Excavation of the foundation of the dike on the downstream side of SD3 from Sta. 20+55 to 20+600 m at El.35 m approximatively.
Downstream	■ Placement of two lifts of 2 m thick of UM rockfill on the downstream side from El. 136 to 140 m from Sta. 20+770 to 20+660 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles.
Upstream	■ Placement of the 0.5 m thick lift of inverse filters (fine/coarse) on the upstream slope. It was placed and compacted from El. 141 to 143 m from Sta. 20+800 to 20+760. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	■ Cleaning of the foundation to bedrock in the sector of the inverse filters from Sta. 40+121 to 40+110 (o/s -26 to -42). The foundation was approved.
Crest	■ Scarification with the dozer of the UM rockfill at El. 141.5 m from Sta. 40+400 to 40+140 in preparation for the next lift. ■ Placement of a 2 m thick lift of UM rockfill in the middle of the lift from El. 141 to 143 m from Sta. 40+240 to 40+220.
Upstream slope	■ Placement and compaction of inverse filters (fine/coarse) on the upstream slope from El. 141 to 142 from Sta. 40+300 to 40+110 and from Sta. 40+400 to 40+440. The placed material was visually adequate.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	■ Scarification with the dozer of the UM rockfill at El. 141 m from Sta. 40+800 to 40+620 in preparation for the next lift. ■ Placement of a 2 m thick lift of UM rockfill in the centre of the lift from El. 141 to 143 m from Sta. 40+760 to 40+660 (o/s -42 to -2).
Upstream slope	■ Placement of 0.5 m thick lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The lifts were placed and compacted from El. 137.5 to 139 m from Sta. 0+920 to 40+760 in the CD/SD5 transition. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Profiling of the fine filter upstream slope (2H:1V to 3H:1V) in the CD/SD5 transition from El. 137 m to 138 m from 0+920 to 40+760. ■ Profiling of the upstream slope (3H:1V) from El. 138 m to 140 m from 40+760 to 40+640.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-21	SD4	40+121 to 40+110 o/s -26 to -42	21/07/2016	Approved
FND-SD4-22	SD4	40+430 to 40+438 o/s -25 to -32	23/07/2016	Approved
FND-SD3-15	SD3	20+655 (o/s -3), 20+654 (o/s -11), 20+791 (o/s -20), 20+770 (o/s -41)	26/07/2016	Approved

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and the QC and tests results can be found in Tables 7 and 8.

Sample 381 from the stockpile north of CD has been tested by the QC. The sample does not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit. This material will not be able to be used for the first 2 m of the upstream toe liner tie-in, but can be used for the erosion protection layer on SD3 and SD4. Samples 379 and 382 of fine filter have been tested by the QC and are compliant. Sample 383 was collected but has not yet been tested.

The QA assistant tested sample STCK-17 of coarse filter taken in the Sana crusher stockpile. The results obtained show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimise segregation. It is judged that filter performance will still be adequate.

Table 7: Sample Tested by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-17	06/07/2016	21/07/2016	Coarse filter	Stockpile Sana Crusher	Gradation	Coarse ok, sandy particle out of gradation

Table 8: Sample Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
379	13/07/2016	24/07/2016	Fine filter	SD5 (in place) Sta. 40+700	Gradation	Compliant
381	18/07/2016	24/07/2016	Rough till	Stockpile north of CD	Gradation	Not compliant
382	20/07/2016	24/07/2016	Fine filter	CD (in place) Sta. 0+876	Gradation	Compliant
383	26/07/2016	-	Coarse filter	CD, (in place) Sta. 0+485.	Gradation	Not tested yet

7.0 PHOTOGRAPHS



Photograph CD 1741: From Sta. 0+160 /-40 looking south. Profiling of the upstream slope of PAG rockfill of CD from El.139 m to El. 141 m (2H:1V) from Sta. 0+460 to 0+160.



Photograph CD 1742: From Sta. 0+160 /-40 looking south. Placement of the third 0.5 m lift coarse filter on the upstream slope. It was placed from El. 140 to 140.5 m from Sta. 0+430 to 0+180.



Photograph CD-1743: From Sta.0+280/-25 looking north. Placement of a 2 m lift of UM rockfill in the center of the lift from El. 141 to 143 m from Sta. 0+180 to 0+280 (o/s -20 to -5). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles.



Photograph CD-1744: From Sta. 0+940/-30 looking north. UM rockfill has been placed on the upstream side of the south part of CD instead of PAG rockfill from Sta. 0+966 to 0+874.



Photograph CD-1745: From Sta. 0+680/-22 looking north. Profiling and rolling of the fine filter upstream slope (2H:1V) from El. 139 to 140.5 m from Sta. 0+680 to 0+180 m.



Photograph SD3 108: From Sta. 40+800 /-30 looking north. Removal of till and loose rocks with an excavator to reach a good quality bedrock for a dike footprint. Notice water puddles probably due to ice melting.



Photograph SD3-109: From Sta. 20+810/-30 looking north. Till and loose rocks have been removed for the foundation approval on the south part of SD3. Also, a big rock from Sta. 20+770 to 20+790 has to be removed.



Photograph SD3-110: From Sta. 20+810 /-42 looking north. Placement of the 0.5 m lift of inverse filter (fine/coarse) on the upstream slope. It was placed and compacted from El. 141 to 143 m from Sta. 20+800 to 20+760.



Photograph SD3-111: From Sta. 20+590 /-12 looking south. Excavation of the foundation of SD3 on the downstream side from Sta. 20+600 to 20+650 m at El. 35 m approximatively. Also, placement of a 2 m thick lift of UM rockfill on the downstream side from El. 138 to 140 m from Sta. 20+770 to 20+660 (o/s -28 to -3).



Photograph SD4-076: From Sta. 40+110 looking south east. Placement of inverse fine and coarse filter on the upstream slope of SD4 from Sta. 40+140 to 40+110.



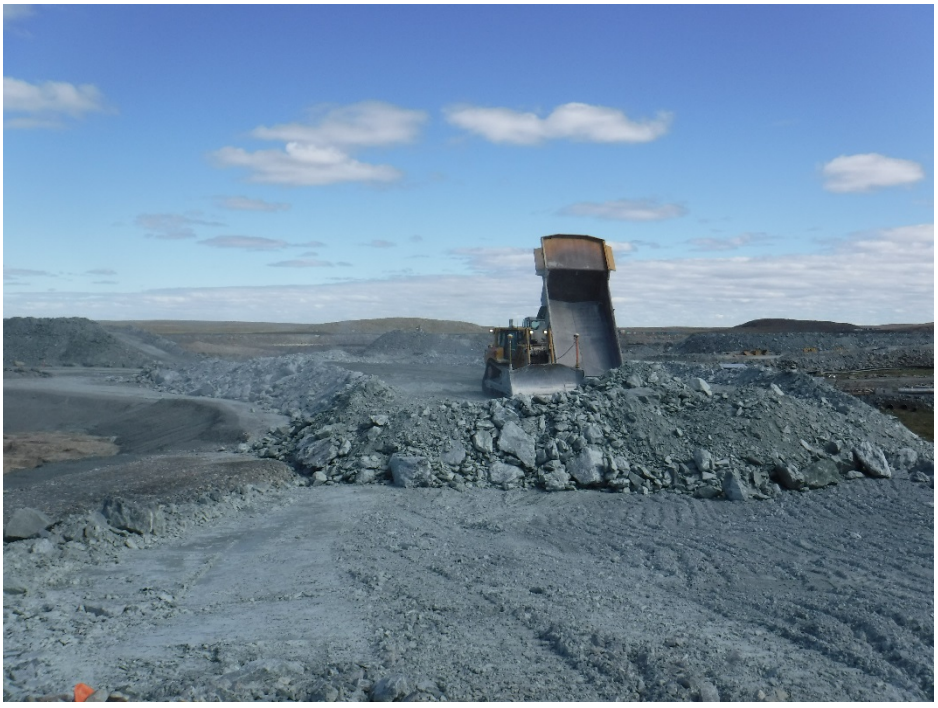
Photograph SD4 077: From Sta. 40+300 /-18 looking north east. Placement of the third 0.5 m lift of fine filter on the upstream slope of SD4 from Sta. 40+300 to 40+180.



Photograph SD4-078: From Sta. 40+400/-20 looking south-east. Placement and compaction of the inverse fine/coarse filter on the south part of the upstream of SD4 from Sta. 40+400 to 40+440. A 5 m width of inverse filter has been placed on the top of the bedrock.



Photograph SD5-19: From Sta. 40+700/-40 looking north-east. Placement of the third lift of fine/coarse filter at SD5 from 0+920 to 40+760 from El. 137.5 to 138.5 m. Also, the view of the 2 m lift from El. 139 to 141 m at CD from Sta. 0+850 to 0+800. A 5 m strip of PAG rockfill was placed on the west side of the lift, and the center is made of UM rockfill.



Photograph SD5-020: From Sta. 40+600/-29 looking east. Placement of the UM rockfill from the El. 141 to 143 m (o.s. -2 to -28 m) from Sta. 40+760 to 40+660.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michael Nadon, Jr. Eng.
QA Engineer

ORIGINAL SIGNED

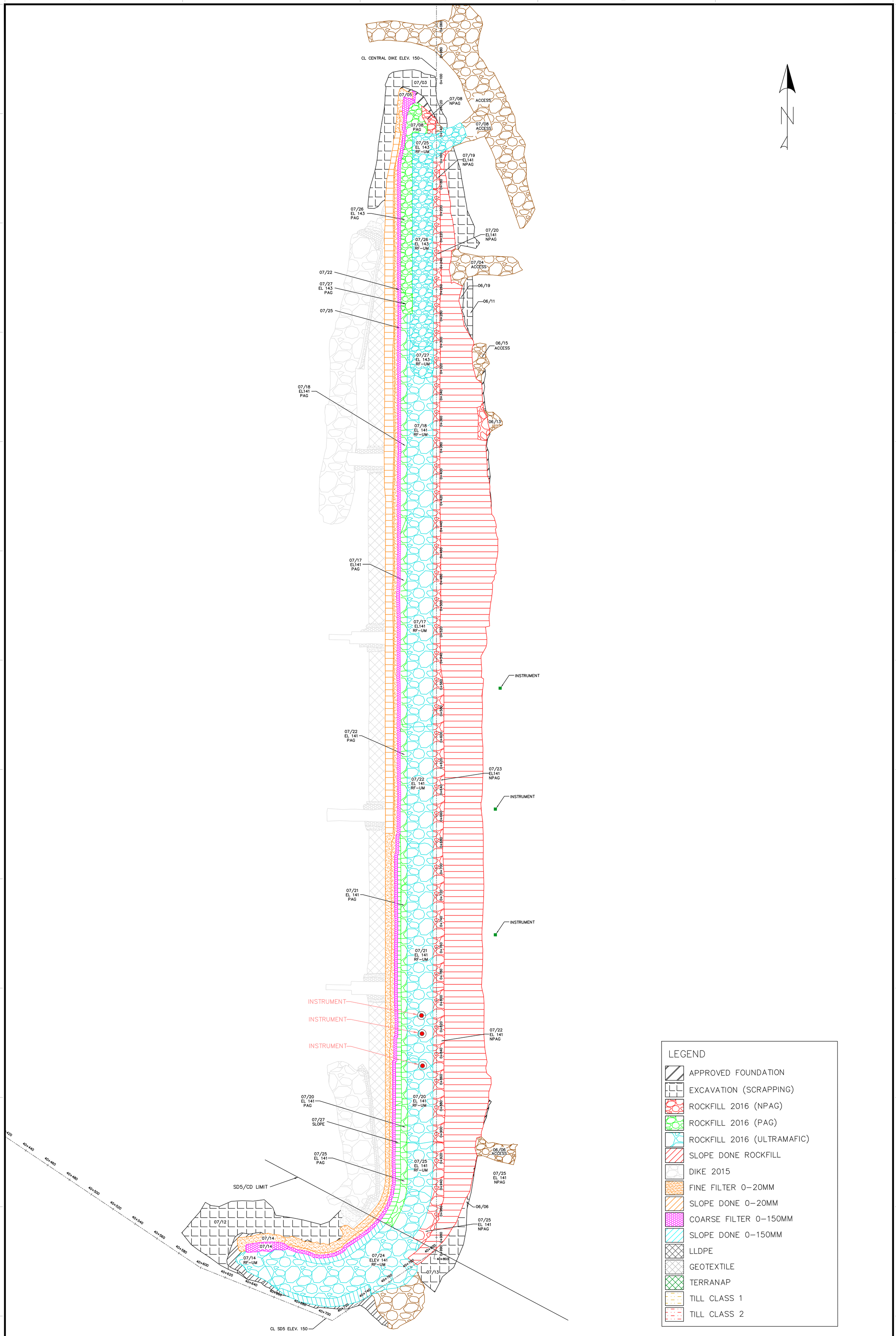
Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

MDB/YB/jlm

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CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
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SADDLE DAM 3 PROGRESS

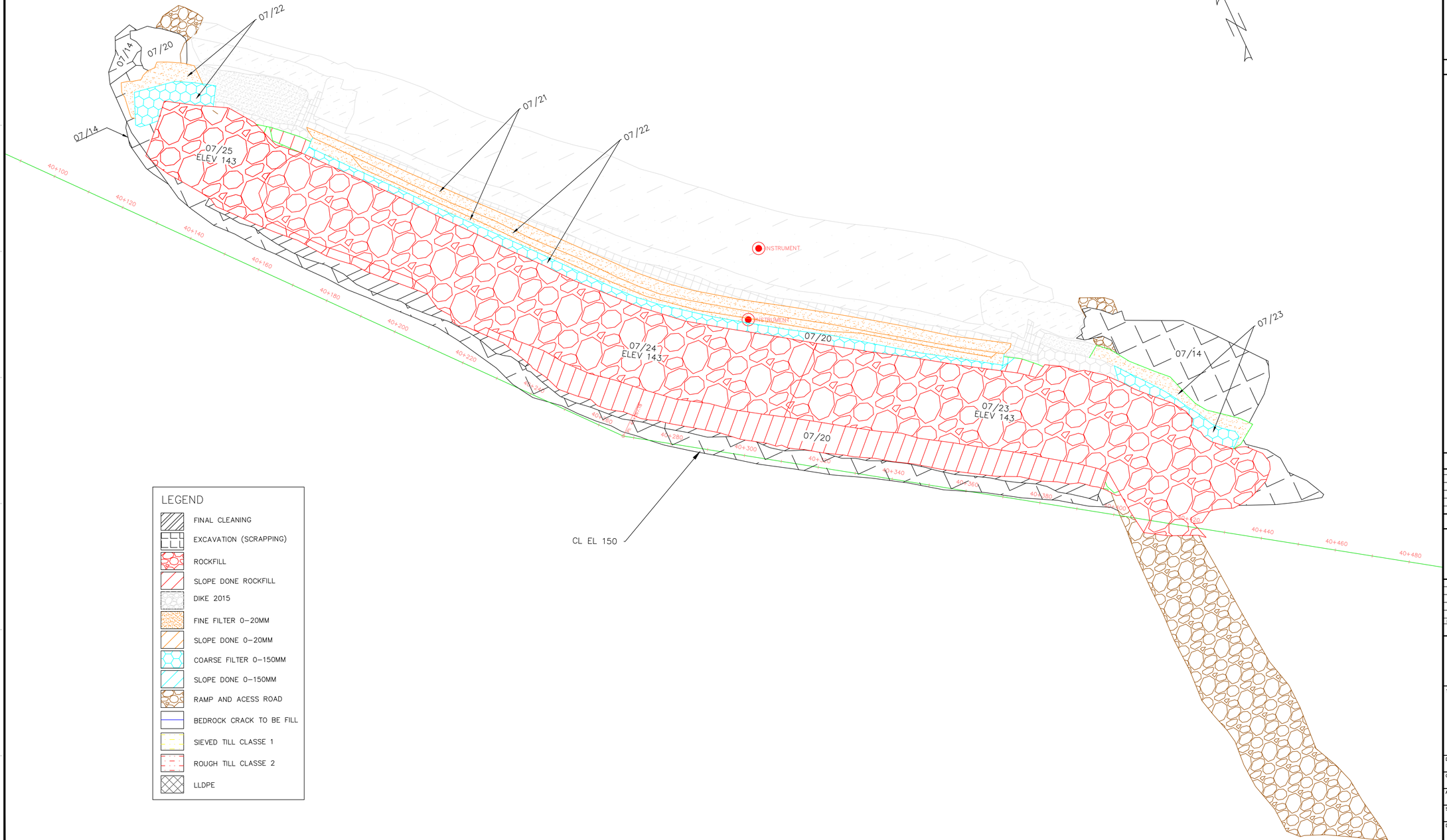
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DRAWING NO.	REVISION	SHEET
		1 / 1

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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: AUBREY C.–DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–07–25
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 8, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michael Nadon, reviewed by Yves Boulianne **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JULY 28 TO AUGUST 3, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from July 28 to August 3, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The UM rockfill surface becomes muddy and slippery when it's raining. Be careful of slipping hazard when walking or driving on it. Make sure that the lights and mirrors of vehicles are cleared of mud.

Golder, Golder Associés et le concept GA sur son logo sont des marques de commerce de Golder Associates Corporation.

- In preparation for the liner installation on CD, a fall restraint system has been designed and approved by an engineer. The safety harness model is still under consideration.
- It was discussed that the cyanide transportation on July 31 and August 2 requires vigilance on the road. It is strongly suggested to not use the all-weather private road, and to synchronize radios to the mine or to channel nº 9 when the transport is around.
- During the night shift of July 30, the operator of a haul truck hauling rockfill on the crest of CD lost consciousness. As a result, the haul truck went through the safety berm and stopped on a bench of the dike 2 m below. This “close call” caused no damage or injury. Berms on CD will be raised with good quality rockfill.
- During the night shift of July 31, a fuel spill occurred on SD3. The spill was cleaned immediately.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- The QA manager reminded that it is important that the haul truck dump the material on the horizontal surface of the pad. This method prevents segregation of the material.
- The QC analyzed sample 383 and it does not meet the gradation limits of the coarse filter. The majority of the sample is out of the gradation curve. The sandy fraction and a portion of the fine gravel are finer than the gradation limits. The QA asked the QC to retake another sample from this location to double-check the results. Furthermore, the QA manager observed that some localized loads of coarse filter placed on SD3 and SD4 contained a high proportion of fine particles. Care will have to be taken to avoid carrying segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter.

Central Dike – Rockfill

- There was a shortage of PAG rockfill to place on CD during the night shift of July 28. Good quality non-AG rockfill has been used instead from Sta.0+310 to 0+260 approximately. The 5 m width of good quality rockfill on the upstream side of CD has been respected.
- There was a shortage of PAG rockfill from Pit D during the night shift of July 29. The placement of PAG rockfill stopped until the following morning. The next source of PAG rockfill will be the ramp of Portage pit.
- AEM confirmed that 10 000 m^3 of good non-AG rockfill will become available. A haul truck will begin to transport the material from the pit to the pad north of CD tomorrow morning. This way, the 6 m width of good non-AG rockfill on the downstream slope of CD could be completed.

Central Dike – Filter

- The QA manager observed that some localized loads of coarse filter placed on CD contained a high proportion of fine particles. Some samples taken in the stockpiles contained too much sandy particles. Care

will have to be taken to avoid sending segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter.

Saddle Dam 4

- It was discussed that the crest of SD4 was not large enough and haul trucks have difficulty turning around. The berms will be reorganized to enlarge the crest.

Saddle Dam 3

- During the foundation preparation of SD3, two minor inflows of water were localized at the downstream toe (Sta. 20+609 o/s -13 and Sta. 20+630 o/s -12). Both were plugged with a 1 and 0.6 m thick till plug, respectively. The excavation of the foundation has reached the ice-poor fault infill materials at El. 135 m approximatively. The foundation has been approved. See photographs and Appendix 1.
- The presence of a faulted rock mass on the footprint of the north part of SD3 (Sta. 40+620 to 40+580/o.s. -35 to -5 approximately) interferes with the placement of inverse filters. The hydraulic hammer (Tramac) has been used to remove the rock.
- The planning of the activities on the north part of SD3 was discussed with Golder and AEM representatives. The preliminary version of the configuration of the upstream toe liner tie-in and inverse filters seems to be adequate. Discussions about the final elevation of the till plug are still undergoing.
- It was discussed that the accumulation of water just beside the dike toe of the downstream side of SD3 will have to be pumped. The dike toe must not be in permanent contact with water.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m thick lift of UM rockfill in the centre of the lift from El. 141 m to 143 m from Sta. 0+750 to 0+460 (o/s -23 to -5), Sta. 0+370 to 0+330 (o/s -23 to -3) and Sta. 0+900 to 40+800 (o/s -20 to -7). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. ■ Placement of 2 m thick lift of PAG rockfill, 5 m width on the upstream slope from El. 141 m to 143 m from Sta. 0+ 850 to 0+460. ■ Compaction of the UM rockfill placed from El. 141 to 143 m from Sta. 0+980 to 0+740. The compaction was done with 8 passes of a 10T compactor in vibratory mode. ■ Scarification of the UM rockfill at El. 141 from Sta.0+660 to 0+330 in prevision of the placement of the next lift to have a good contact between each lift.

Activity or Area	Comments
Upstream	■ Placement of the second 0.5 m thick lift of fine filter on the upstream slope. It was placed and compacted from El. 139.5 to 140 m from Sta. 0+820 to 0+740. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the first 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta. 0+870 to 0+850. ■ Placement of the fourth 0.5 m- thick lift of fine and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. They were placed from El. 140.5 to 141 m from Sta. 0+820 to 40+780. The placed material was visually adequate. ■ Profiling of the upstream slope of PAG rockfill (2H:1V) from El. 141 to 143 m from Sta. 0+320 to 0+280 and Sta.0+700 to 0+590. ■ Profiling and rolling of the upstream slope of fine filter (2H:1V) from El.139 to 140.5 m from Sta. 0+980 to 0+680 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ The excavation of the foundation of the downstream side of SD3 from Sta. 0+660 to 0+600 has reached the ice-poor fault infill materials at El. 135 m approximatively. ■ Two minor water inflows (water flow less than 10 L/min) were localized on the downstream dike toe (Sta. 20+609 o/s -13 and Sta. 20+630 o/s -12). ■ It was decided by Patrice Gagnon to plug the two water inflows with a till plug. The ground surface was cleaned with the excavator and the two till plugs were placed on a surface that had a presence of loose rocks and ice-poor fault infill material residue. The till used for the plug was a rough till that came from the excavation of the foundation preparation done previously on SD3. A sample has been taken (30/07/2016). ■ The hydraulic hammer (Tramac) broke the rocks that interfered with the placement of inverse filters at the north extremity of SD3.
Foundation approval	■ Removal of the overburden and loose rocks to reach a good quality bedrock for the dike footprint on the north part of SD3. The foundation was approved.
Downstream	■ Placement of a 2 m thick lift of UM rockfill on the downstream side from El. 134 to 136 m from Sta. 20+660 to 20+600 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles.

Activity or Area	Comments
	■ Placement of a 2 m-thick lift of UM rockfill on the downstream side from El. 138 to 140 m Sta. 20+770 to 20+600 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. ■ Profiling of the downstream slope of the UM rockfill from El.136 to 138 m from Sta. 20+720 to 20+600. ■ Profiling of the downstream slope of the UM rockfill from El.138 to 140 m from Sta. 20+720 to 20+600. ■ Compaction and scarification of the UM rockfill at El.136 m from Sta. 20+660 to 20+600.
Crest	■ Scarification of the UM rockfill at El.138 m from Sta. 20+760 to 20+600. ■ Placement of a 2 m-thick lift of UM rockfill on the middle of the lift from El. 140 to 141.5 m Sta. 20+800 to 20+680 and Sta.20+630 to 20+600. The UM rockfill is heterogeneous and contains high fine particles but also contains a good quantity of block- and cobble-sized particles. ■ Compaction of the UM rockfill placed at El. 141.5 m from Sta. 0+770 to 0+600. The compaction was approved.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Profiling of the downstream slope of UM rockfill (3H:1V) from El. 141 to 143 m from Sta. 40+320 to 40+220. The berms of the downstream slope have been modified to enlarge (2 m) the crest from Sta. 40+240 to 40+120.
Upstream	■ Profiling of the upstream slope of UM rockfill (3H:1V) from El. 141 to 143 m from Sta. 40+420 to 40+120. ■ Placement of 0.5 m-thick lift of fine/coarse filter on the upstream slope. The lift was placed and compacted from El. 139 to 139.5 m from Sta. 40+420 to 40+370. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of 0.5 m-thick lift of fine filter on the upstream slope. The lift was placed and compacted from El. 139.5 to 140 m from Sta. 40+160 to 40+120. ■ Placement of the first 0.5 m-thick lift of fine filter on the upstream slope. The lift was placed and compacted from El. 140 to 140.5 m from Sta. 40+420 to 40+370.

Activity or Area	Comments
	■ Placement of 0.5 m-thick lift of coarse filter on the upstream slope. The lift was placed and compacted from El. 141 to 141.5 m from Sta. 40+180 to 40+120.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	■ Scarification with the dozer of the UM rockfill at El. 141 m from Sta. 40+800 to 40+620 in preparation for the next lift. ■ Placement of a 2 m thick lift of UM rockfill in the centre of the lift from El. 141 to 143 m from Sta. 40+760 to 40+660 (o/s -42 to -2).
Upstream	■ Placement of the first 0.5 m thick lift of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The lifts were placed and compacted from El. 139 to 139.5 m from Sta. 40+800 to 40+740 and Sta. 40+700 to 40+660. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the second 0.5 m thick lift of fine and coarse filter on the upstream slope. It was placed and compacted from El. 139.5 to 140 m from Sta. 40+740 to 40+700. The placed material was visually adequate. ■ Placement of the third 0.5 m-thick lift of fine and coarse filter on the upstream slope. It was placed and compacted from El. 140 to 140.5 m from Sta. 40+790 to 40+640. The placed material was visually adequate. ■ Profiling and compaction of the fine filter upstream slope (3H:1V) from El.139 to 140.5 m from Sta. 40+790 to 40+640 m. The surface was approved.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-16	SD3	Sta. 20+655 to 20+589, o/s -1.5 to -18.5	28/07/2016	Approved
FND-SD3-17	SD3	20+613 (o/s -65), 20+627 (o/s -66), 20+589 (o/s -31), 20+590 (o/s -5)	02/08/2016	Approved
FND-SD3-18	SD3	20+586 to 20+590, o/s -11 to -17	03/08/2016	Approved

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and the QC and tests results can be found in Tables 7 and 8.

The QA Engineer took a sample of rough till (SD3-04) on the stockpile near of SD3 dike toe on the downstream side. The rough till was used to plug the two water inflows of SD3 downstream foot print.

Sample 380 of coarse filter from CD has been analyzed by the QC. The results obtained show that a sandy fraction is finer than the gradation limits. Sample 383 does not meet the gradation limits of the coarse filter. The majority of the sample is out of the gradation curve. The sandy fraction and a portion of the fine gravel are finer than the gradation limits. Sample 384 of fine filter is compliant.

Table 7: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD5-01	29/07/2016	-	Fine filter	SD5, (in place) Sta. 40+760/ o.s. -36 m El.141 m	Gradation	Not tested yet
SD3-04	30/07/2016	-	Rough till	Stockpile near SD3 d.s. dike toe. Sta. 20+620/ o.s. -9 m	Gradation	Not tested yet
SD4-05	31/07/2016	-	Fine filter	SD4 (in place) Sta. 40+420/ o.s. -34 m El. 140.5 m	Gradation	Not tested yet
SD4-06	31/07/2016	-	Coarse filter	SD4 (in place) Sta. 40+380/ o.s. -31 m El. 140.5 m	Gradation	Not tested yet
SD3-05	01/08/2016	-	Coarse filter	SD3 (in place) Sta. 20 +700/ o.s.-18 m El.140.5 m	Gradation	Not tested yet
SD3-06	01/08/2016	-	Fine filter	SD3 (in place) Sta. 20+700/ o.s.-19 m El.140.5 m	Gradation	Not tested yet

Table 8: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
380	26/07/2016	28/07/2016	Coarse filter	CD (in place) Sta. 0 + 685 m.	Gradation	Coarse ok, sandy particle out of gradation
383	25/07/2016	31/07/2016	Coarse filter	CD (in place) Sta. 0+480 El. 140 m	Gradation	Not compliant
384	29/07/2016	31/07/2016	Fine filter	CD (in place) Sta. 0+780 El. 141 m	Gradation	Compliant
385	31/07/2016	-	Fine filter	SD4 (in place) Sta. 40+340 El. 141.5 m	Gradation	Not tested yet

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
386	31/07/2016	-	Coarse filter	SD4 (in place) Sta. 40+360 El. 142 m	Gradation	Not tested yet
387	01/08/2016	-	Fine filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Not tested yet
388	01/08/2016	-	Coarse filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Not tested yet

7.0 PHOTOGRAPHS



Photograph SD3-112: From Sta. 20+600 /-12 looking south. Localisation of the two minor water inflows on SD3 footprint.



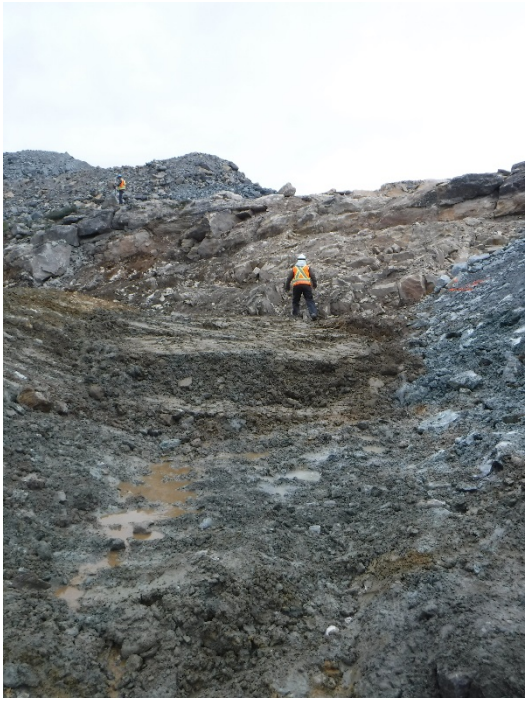
Photograph SD3-113: From Sta. 20+620 /-12 looking south. Water inflow #1 before the placement of the till plug. The ground surface was cleaned with the excavator only. Notice the presence of loose rocks and ice-poor fault infill material residue.



Photograph SD3-114: From Sta. 20+605 /-12 looking south. Water inflow #2 before the excavator cleaning.



Photograph SD3-115: From Sta. 20+620 /-12 looking south. Water inflow #1 covered by a rough till plug. The plug is approximately 0.6 m thick, 4.6 m long and 3.2 m wide.



Photograph SD3-116: From Sta. 20+620 /-12 looking north. Water inflow #2 covered by a rough till plug. The plug is approximately 1.0 m thick, 6.8 m long and 3.6 m wide.



Photograph SD3-117: From Sta. 20+600 /-12 looking south. Excavation of the foundation of the dike on the downstream side of SD3 from Sta. 20+660 to 20+600 m at El.135 m approximatively. Notice the two till plugs located on two minor water inflows.



Photograph SD3-118: From Sta.20+600/-12 looking south. Placement of a 2 m-thick lift of UM rockfill on the downstream side of SD3 from El. 134 to 136 m from Sta. 20+660 to 20+600 (o/s -28 to -3).



Photograph SD3-119: From Sta.20+700/-5 looking south. Placement of a 2 m-thick lift of UM rockfill on the downstream side of SD3 from El. 138 to 140 m. The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. Notice the excavator cleaning the north part of SD3.



Photograph SD3-120: From Sta. 20+700 /-10 looking north. Profiling of the downstream slope of the UM rockfill on SD3 from El. 138 to 140 m from Sta. 20+720 to 20+600. Notice the scarification of level 140 m.



Photograph SD3-121: From Sta. 20+600/-45 looking west. Hydraulic hammer (Tramac) breaking rocks that interfere with the placement of inverse filters on the north part of SD3.



Photograph SD3-122: From Sta. 20+700/-19 looking north. Placement of the first 0.5 m-thick lift of fine/coarse filter on the upstream slope of SD3 from El. 140 to 140.5 m from Sta. 0+770 to 0+610.



Photograph SD3-123: From Sta. 20+600/-45 looking north. On the north part of SD3, the hydraulic hammer (Tarmac) is breaking rocks that interfere with the placement of inverse filters.



Photograph SD3-124: From Sta. 20+580/-10 looking east. Removal of the overburden and loose rocks with the excavator to reach a good quality bedrock for the dike footprint on the north part of SD3.



Photograph SD3-125: From Sta. 20+590/-10 looking south. Placement of a 2 m-thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 20+630 to 20+600 (o/s -57 to -18 m), at the northern part of SD3. The rockfill connects with the rock.



Photograph SD4-079: From Sta. 40+000/-25 looking east. Profiling of the upstream slope of SD4, and placement of the first 0.5 m-thick lift of fine filter at El. 140.5 m.



Photograph SD4-080: From Sta. 40+160/-20 looking west. Placement of 0.5 m-thick lift of fine filter on the upstream slope of SD4. The lift was placed and compacted from El. 139.5 to 140 m from Sta. 40+160 to 40+120.



Photograph SD4-081: From Sta. 40+420/-20 looking west. Placement of 0.5 m-thick lift of fine/coarse filter on the upstream slope. The lift was placed and compacted from El. 139 to 139.5 m from Sta. 40+420 to 40+370.



Photograph SD5-021: From Sta. 40+920 /-30 looking south west. Placement of the third 0.5 m-thick lift of fine and coarse filter on the upstream slope of SD5 from El. 140 to 140.5 m. Notice the profiling and the rolling of the slope.



Photograph CD-1746: From Sta. 0+560 /-24 looking north. Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+600 to 0+560 (o/s -24 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michael Nadon, .Eng.
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

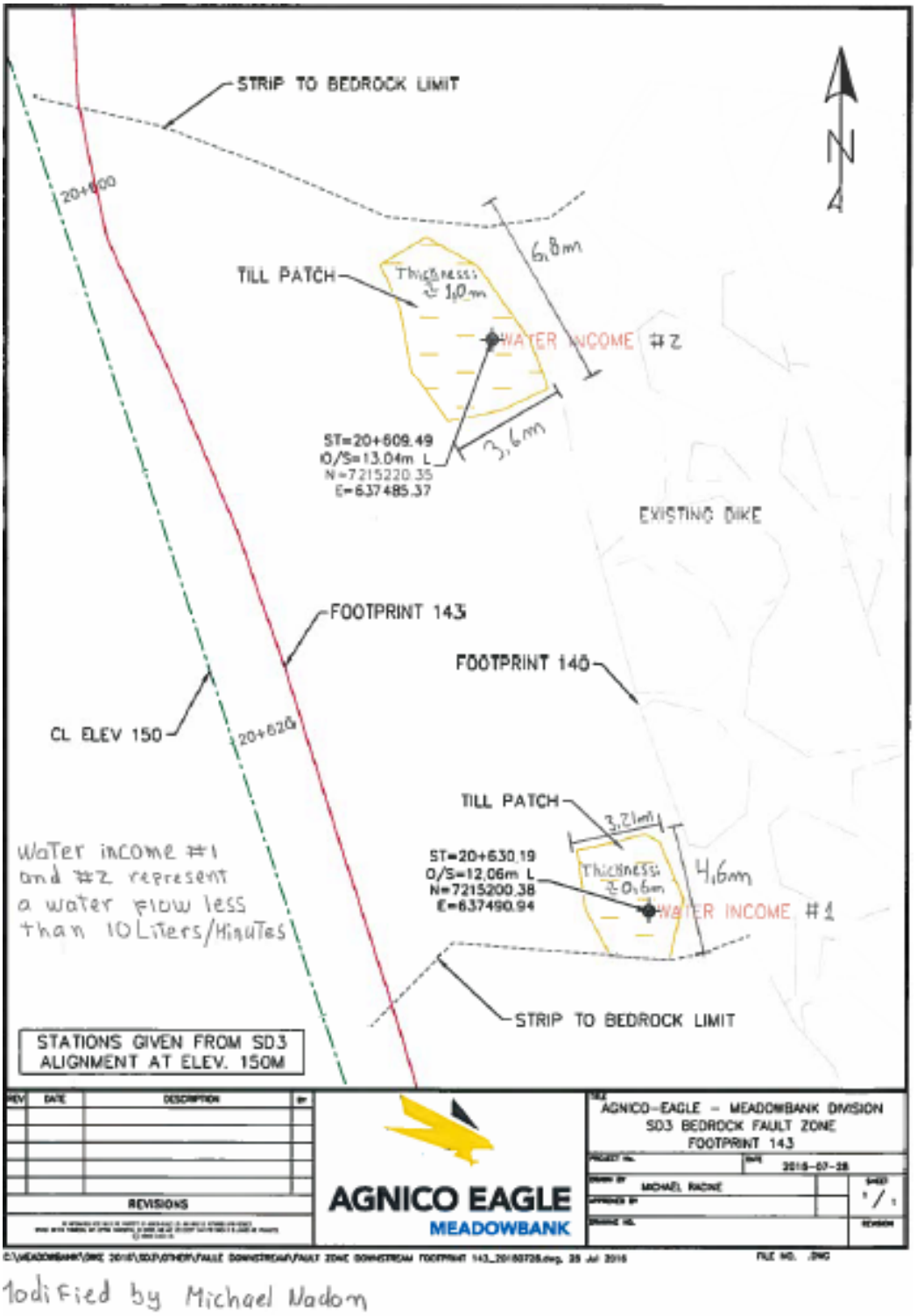
Attachments: Appendix 1

Construction Progress Drawings from AEM as of August 3, 2016

MDB/YB/jlm

\\golder.gds\gal\montreal\actif\2016\3 proj\1656047 aem qa tsf 2016 meadowbank\5 preparation of deliverables\doc. 1543 weekly reports\rev0\2016-07-28 to 2016-08-03\doc 1543 1656047 rev0 qa weekly report 2016-07-28to 2016-08-03_yb.docx

8.0 APPENDIX 1

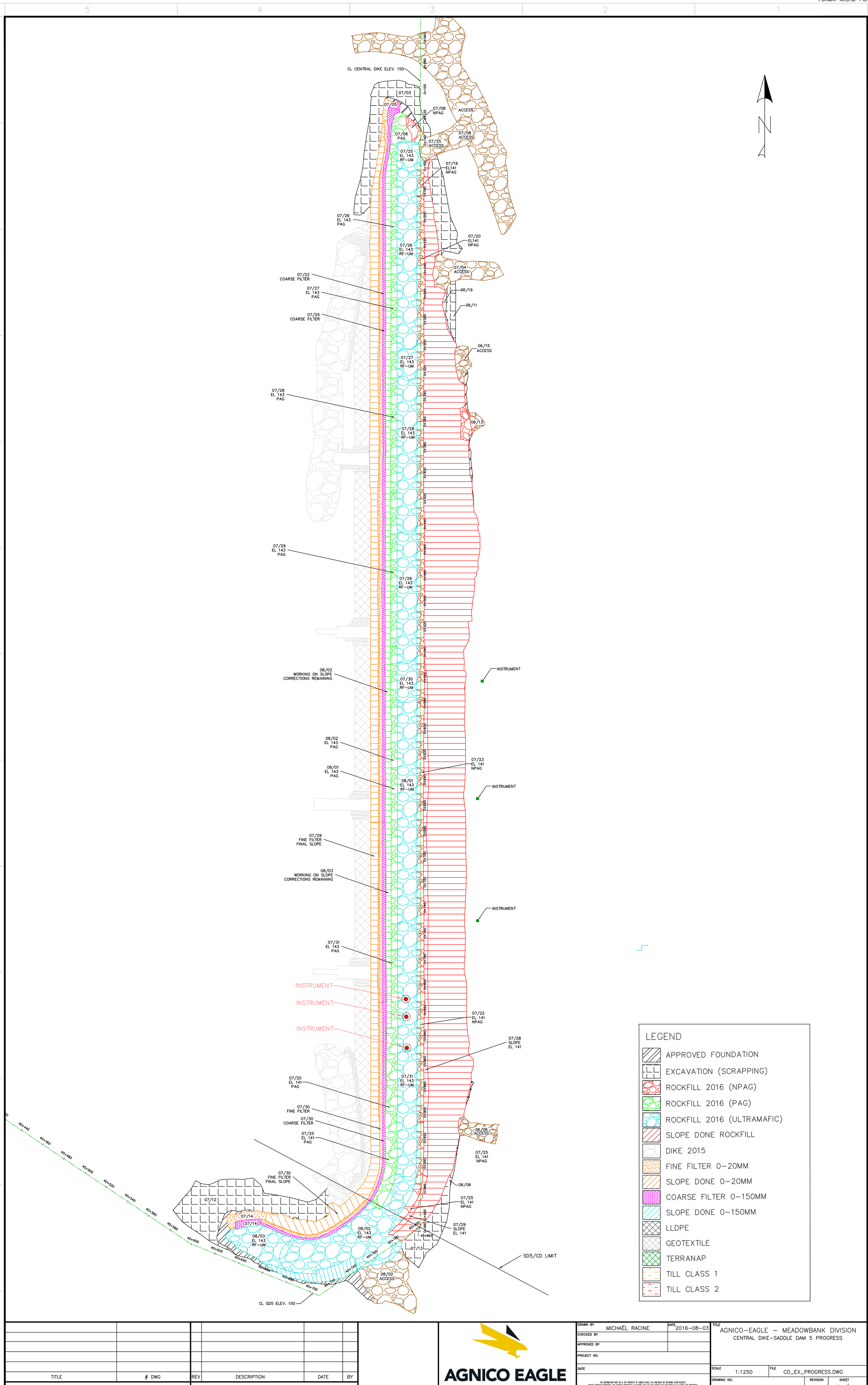


Modified by Michael Nadon

Plan view of SD3 bedrock fault zone footprint with two till plugs.

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAËL RACINE
DATE	2016–08–03
CHECKED BY	
APPROVED BY	
PROJECT NO.	
DATE	

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
1:1250	CD_EX_PROGRESS.DWG

DRAWING NO.	REVISION	SHEET
		1 / 1

C:\MEADOWBANK\DIKE 2016\CD_SD5\PLAN\CD_PROGRESS_07802.dwg, 04 Aug 2016

DRAWING NO.

FORMAT ARCHD–PORTRAIT

07/28
FINAL CLEANING

08/02
BEDROCK

07/30
EXCAVATION

08/01
EXCAVATION

08/01
BEDROCK

08/02
BEDROCK

08/03
EL 141.5

08/03
SLOPE

08/01
SLOPE

07/29
SLOPE

07/30
SLOPE

INSTRUMENT

INSTRUMENT

08/01
FINE
EL 141.5

08/01
COARSE
EL 141.5

INSTRUMENT

INSTRUMENT

08/03
EL 143

07/28
SLOPE

07/24

07/27

07/25

07/08
ACCESS

07/27
ACCESS

07/09
ACCESS

CL EL 150

PC: 20+578.82

Mid: 20+587.05

PT: 20+595.27

20+580
20+600
20+620
20+640
20+660
20+680
20+700
20+720
20+740
20+760
20+780
20+800
20+820

LEGEND

- TRAMAK EXCAVATION
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE
MEADOWBANK

DRAWN BY: MICHAËL RACINE — DATE: 2016–08–03
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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

SCALE: 1:300 — FILE: SD3_PROGRESS.DWG
DRAWING NO. — REVISION — SHEET: 1 / 1

C:\MEADOWBANK\DIKE 2016\SD3\PLAN\SD3_PROGRESS_0803.dwg, 04 Aug 2016

DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAËL RACINE	DATE:
CHECKED BY:	
APPROVED BY:	
SCALE: 1:500	DATE: 2016–08–03
DRAWING NO.	
PROJECT NO.	REVISION: SHEET: 1 / 1

C:\MEADOWBANK\DIKE 2016\SD4\PLAN\SD4_PROGRESS_0802_recover.dwg, 04 Aug 2016

FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 8, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM AUGUST 4 TO 10, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from August 4 to 10, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The “+” and “-” symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L. Bolduc	QA Engineer, arrived on site August 4
Michael Nadon	QA Engineer, left site on August 4

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder’s on-site office. The key H&S elements for the reporting period were as follows:

- It was discussed that haul trucks have the priority on site. Also, vehicles must come to a full stop at stop signs.

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- There was a Code 1 on the radio on the morning of the 5th. The equipment in the South Cell construction area stopped the work during the Code 1 event. After the incident it was reminded that pickup trucks must also park on the side during a Code 1.
- The QA manager assisted the weekly dike construction safety meeting. The high importance incident involving the haul truck on Central Dike was discussed. Other topic discussed included the location of the defibrillators on site, the safe use of air compressors and an incident involving a truck that lost an oxygen bottle on Vault Road.
- The access to the crest of Saddle Dams 3 and 4 have been blocked with candles. If authorised personnel have to go on these structures they must reposition the candles once they leave the structure.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- A reference board for the sieved till was done. The water content of the tested till from stockpile SP-01 varied from 9.5-10%. The water content of the till was too wet and did not allow a proper compaction. It was discussed that the till stockpiles will need to be unsealed and mixed during warm weather to dry them. A new reference board will have to be conducted once the water content of the till has decreased.
- The contractor asked if the stockpiles of sieved till north of Central Dike could be mixed together to form a bigger pile when they will be unsealed and stirred to promote drying. The QA manager agreed.
- The QA manager observed that the key area of the upstream toe liner tie-in being cleaned was inferior to 5 m as the line had been implemented from the theoretical upstream toe of the dike. It was reminded that 5 m of exposed bedrock measured horizontally from the toe of the dike must be cleaned. New lines were then implemented on the field using a measuring tape.

Central Dike

- During the night shift, fine filter made from ultramafic rockfill was placed by error on Central Dike at El. 141.5 m from Sta. 0+735 to Sta. 0+902 and from Sta. 0+160 to Sta. 0+573. It was reminded that fine filter made of UM rockfill should not be placed on Central Dike. The material placed during the night shift can remain in place but caution must be taken to avoid placing more UM filter on CD. During the upstream slope profiling, the contractor will mix the UM filter of the upstream slope with fine filter made of good quality rockfill.

Saddle Dams

- Filter compaction on the upstream slope of the Saddle Dam was done horizontally after the placement of each 0.5 m lift (same as for Central Dike). It was discussed that the upstream slope will also be compacted with the compactor to obtain a smooth surface in preparation for the LLDPE installation.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	■ Profiling of the rockfill on the upstream slope (2H:1V) from El. 141 to 143 m. ■ Placement of 0.5 m lifts of coarse filter and fine filter on the upstream slope from El. 141 m to 143 m from Sta. 0+160 to 0+960. The width of the material is such to obtain a 1 m thickness perpendicular to the slope. The compaction was done with 4 passes of a 10T compactor in vibratory mode. ■ Profiling of the fine filter placed on the upstream slope (2H:1V) from El. 141 m to 143 m.
Downstream slope	■ Placement during the night shift of 6 m of good quality N-AG rockfill on the downstream slope from El. 141 to El. 143 m. The rockfill is finished being placed on Central Dike for a crest El. at 143 m.
Till stockpiles	■ Unsealing and stirring of the till stockpile to promote its drying.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	■ Completion of the profiling of the rockfill downstream slope (1.5H:1V) from El. 141 m to 143 m (from Sta. 40+780 to 40+620 approximately).
Upstream slope	■ Completion of the profiling of the rockfill upstream slope (3H:1V) from El. 141 m to 143 m (from Sta. 40+800 to 40+620 approximately). ■ Placement of 0.5 m lifts of coarse filter and fine filter on the upstream slope from Sta. 40+620 to 40+800 from El. 141 to 143 m. The compaction was done with 4 passes of the compactor in vibratory mode. ■ Profiling of the fine filter upstream slope (3H:1V) from El. 141 m to 143 m from Sta. 40+620 to 40+800. The profiling of the fine filter slope of SD5 is completed.
Toe liner tie-in	■ Bedrock cleaning with the CAT 307 and compressed air.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Placement of rockfill on the crest to El. 143 m from Sta. 20+580 to 20+600. Placement of rockfill on SD3 is completed for this year.

Activity or Area	Comments
	■ Compaction of the rockfill placed on the crest at El. 143 m from Sta. 20+770 to 20+580. The compaction was done with 8 passes of compactor in vibratory mode.
Upstream Slope	■ Profiling of the rockfill on the upstream slope (3H:1V) from El. 141.5 to 143 m from 20+680 to 20+770. ■ Placement of the inverse filter (fine filter and coarse filter) over the approved foundation on the northern extremities over the abrupt bedrock area. The material was placed to have a minimum thickness of material of 0.5 m and a width of 10 m. The compaction was done with 4 passes of the compactor in vibratory mode. ■ Placement of rockfill against the coarse filter from Sta. 20+600 to 20+620. The rockfill on the upstream slope was then compacted with 8 passes of the compactor in vibratory mode. ■ Placement of 0.5 m of coarse filter and fine filter on the upstream slope from Sta. 20+600 to 20+620 and from 20+760 to 20+780. The compaction was done with 4 passes of the compactor in vibratory mode.
Toe liner tie-in	■ Bedrock cleaning on the south side. The cleaned bedrock surface is 5 m wide. ■ Bedrock mapping of the cleaned bedrock on a width of 5 m on the south side from Sta. 20+771 to 20+795. ■ Construction of an access to the base of the upstream toe liner tie-in on the north and south side.
Downstream slope	■ Profiling of the rockfill of the downstream slope (1.5 H:1V) to El. 143 m from Sta. 20+600 to 20+700. The downstream slope is totally profiled for a crest at El. 143 m.
Water management	■ Pumping of water at the downstream toe.

Table 5: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ The placement of fine and coarse filter on the upstream slope has been completed from El. 141.5 to 143 m. Afterward the upstream slope was profiled (3H:1V).
Toe liner tie-in	■ Bedrock cleaning on the east abutment (40+401 to 40+420) and west abutment (40+102 to 40+121). Bedrock cleaning was done with a CAT 307 and compressed air.

Activity or Area	Comments
	■ Bedrock mapping of the cleaned toe liner tie-in from 40+121 to 40+102 and from 40+383 to 40+419.

5.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping by segments of 10 m. Bedrock mapping has been completed at Saddle Dam 4. No joints having an opening equal or greater to 10 mm have been identified on SD4 and on the south side of SD3.

Table 6: Bedrock mapping by QA manager

Structure	Station and Offset of the Upstream Toe Liner Centreline
SD4	From 40+121.5/-46 to 40+112.1/-42
SD4	From 40+102.6/-31 to 40+106.7.1/-33
SD4	40+106.7 /-34 to 40+112.1/-42
SD4	From 40+383.0/-47.65 to 40+392.6/-46.98
SD4	From 40+392.6/-46.98 to 40+401.97/-43.89
SD4	From 40+401.97/-43.89 to 40+411.17/-40.36
SD4	From 40+411.17/-40.36 to 40+419.54.1/-34.94
SD3	From 20+771.3/-43.74 to 20+776.85/-38.98
SD3	From 20+776.85/-38.98 to 20+786.33/-36.28
SD3	From 20+786.33/-36.28 to 20+795.84/-33.14

6.0 SAMPLING AND LABORATORY TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Tables 7 and 8. The samples taken by the QA manager will be tested once the QA assistant arrives on site.

The samples of coarse filter taken on location were judged acceptable even if parts of the samples were a little bit finer than the gradation limit.

The QC took water content samples and water content measurements with the nucleodensimeter for the till stockpile at Sana Crusher and from three till stockpiles north of Central Dike. Results from the nucleodensimeter testing show that the water content of the till is currently too high. Results from the sampling show lower water content. It was later discovered that there was a water content offset programmed in the nucleodensimeter. The result in Table 7 are the reported results and have not been corrected following the discovery of the offset.

Table 7: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD5-02	08/07/2016	-	Coarse filter	In place, Saddle Dam 5, St. 40+732/-35 El. 141.5 m	Gradation	-
CD-542	09/08/2016	-	Fine filter	CD in place, 0+578.3/-13.38 El. 143 m	Gradation	-

Table 8: Sample taken and tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
386	31/07/2016	08/08/2016	Coarse filter	In place, Saddle Dam 4, St. 40+360 El. 142 m	Gradation	Ok, little bit too many fine particles
387	01/08/2016	04/08/2016	Fine filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Compliant
388	01/08/2016	10/08/2016	Coarse Filter	SD3, 20+680 El. 140.5 m	Gradation	Ok, a little too fine
389	06/08/2016	-	Sieved till	Stockpile SP-01	Proctor	-
390	06/08/2016	-	Coarse filter	CD 0+301 /-27.7 El. 141.5	Gradation	-
391	07/08/2016	10/08/2016	Fine filter	CD, 0+894/-29 El. 141.5 m	Gradation	Compliant
393	09/08/2016	10/08/2016	Sieved till	Stockpile Sana Crusher	Water content	7.5%
393 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile Sana Crusher	Water content (nucleo)	9.7-10.9
394	09/08/2016	10/08/2016	Sieved till	Stockpile 1, CD	Water content	8%
394 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 1, CD	Water content (nucleo)	10.4-10.8
395	09/08/2016	10/08/2016	Sieved till	Stockpile 2, CD	Water content	9.8%
395 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 2, CD	Water content (nucleor)	9.5-11.1%
396	09/08/2016	10/08/2016	Sieved till	Stockpile 6, CD	Water content	7%
396 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 6, CD	Water content (nucleo)	8.8-9.2%

7.0 PHOTOGRAPHS



Photograph SD3-126: From Sta. 20+600/-50 looking south. Placement of fine filter over the approved foundation on the northern extremities in the sector where the upstream toe liner begins to curve toward the dike. A shovel is profiling the upstream slope from El. 141.5 to 143 m on the south side.



Photograph SD3-127: From Sta. 20+620/-50 looking NW. Placement of rockfill against the coarse filter (inverse filter) on the northern extremity of Central Dike where the upstream toe liner tie-in curves toward the dike.



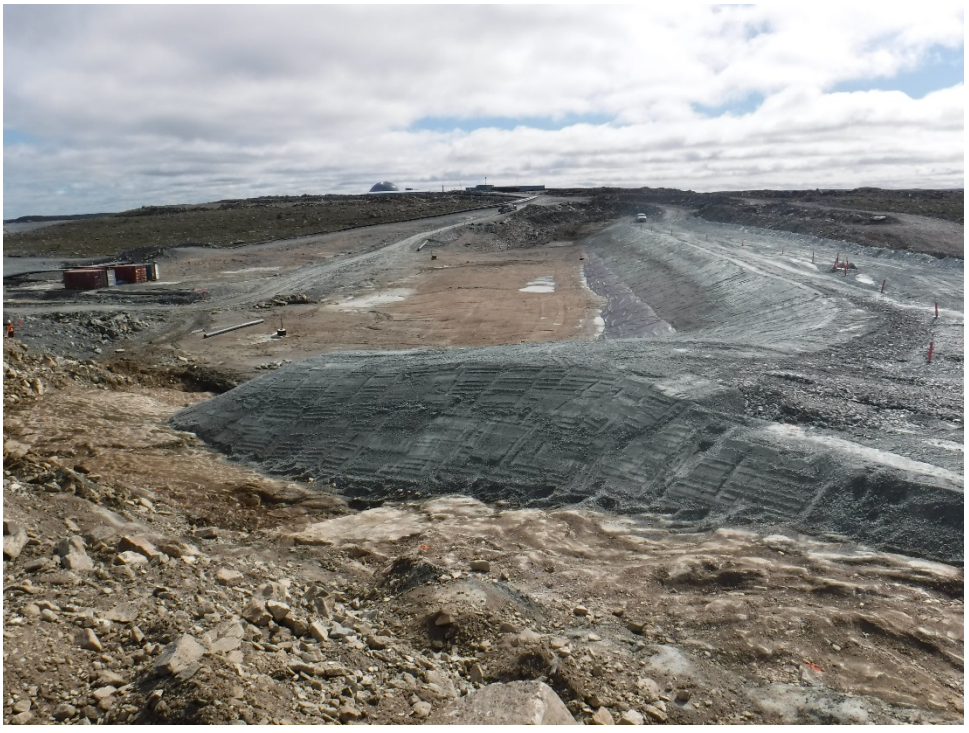
Photograph SD3-128: From Sta. 20+620/-80 looking NW. Placement of coarse filter on the upstream slope above the rockfill in the sector where the upstream toe liner tie-in curves toward the dike.



Photograph SD3-129: From Sta. 20+650/-30 looking N. Beginning of placement of fine filter above the coarse filter on the upstream slope where the upstream toe liner tie-in curves toward the dike.



Photograph SD3-130: From Sta. 20+800/-30 looking N. View of the filter completed on the upstream slope for a dike elevation at 143 m. Profiling of the downstream slope.



Photograph SD3-131: From Sta. 20+580/-44 looking S. The upstream toe liner tie-in on the north side of SD3 has been cleaned with CAT307 and will soon be cleaned with compressed air.



Photograph SD3-132: From Sta. 20+760/-60 looking S. Cleaning of the upstream toe liner tie-in on the south side of SD3.



Photograph SD4-082: From Sta. 40+420/-10 looking W. View of the finished inverse filter on the upstream slope. Beginning of bedrock cleaning for the east abutment of the upstream toe liner tie-in.



Photograph SD4-083: From Sta. 40+380/-30 looking E. Bedrock cleaning of the upstream toe liner tie-in on the east side using a small excavator and compressed air.



Photograph SD5-022: From Sta. 40+620/0 looking E. View of the profiled downstream slope to El. 143 m.



Photograph SD5-023: From Sta. 40+640/-30 looking E. Placement of fine filter and coarse filter on the upstream slope of Saddle Dam 5 from El. 141 to 141.5 m.



Photograph SD5-024: From Sta. 0+900/-30 looking S. Profiling of the fine filter of the upstream slope (3H:1V) to El. 143 m. Bedrock cleaning of the upstream toe liner tie-in with the CAT307.



Photograph SD5-025: From Sta. 0+900/-30 looking S. View of the profiled fine filter upstream slope. Bedrock cleaning of the upstream toe.



Photograph CD-1747: From Sta. 0+130/-40 looking S. Placement of coarse filter on the upstream slope form El. 141 to 141.5 m.



Photograph CD-1748: From Sta. 0+100/-40 looking N. Beginning of bedrock cleaning on the north side of Central Dike. Placement of coarse filter against the upstream slope from El. 141.5 to 142 m.



Photograph CD-1749: From Sta. 0+120/-50 looking S. Profiling of the fine filter of the upstream slope (2H:1V) to El. 143 m.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Frédérick L. Bolduc, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

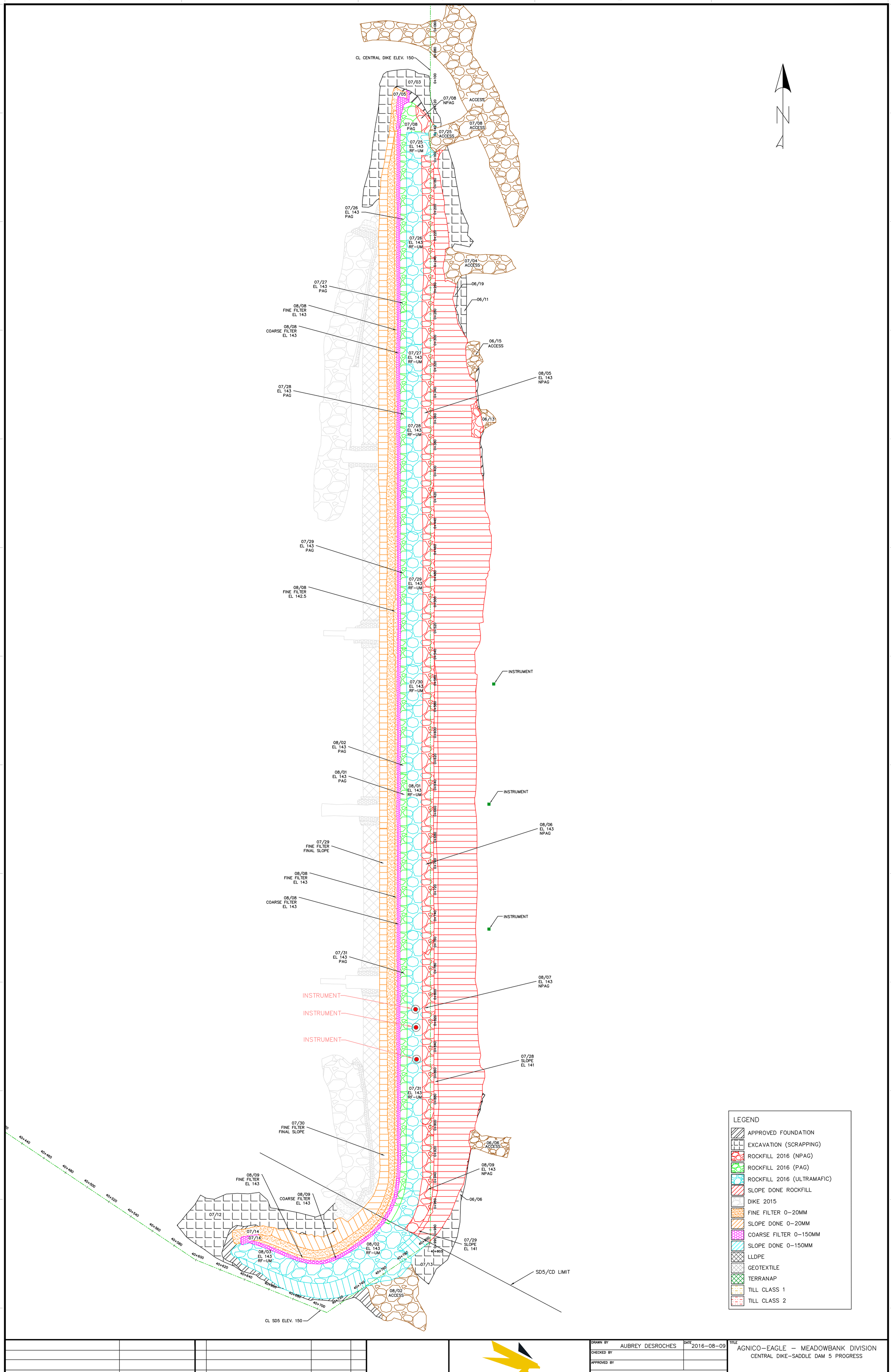
Attachments: Construction Progress Drawings from AEM as August 10th, 2016

FLB/YB/jlm

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE
MEADOWBANK

DRAWN BY	AUBREY DESROCHES
DATE	2016–08–09
CHECKED BY	
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PROJECT NO.	
DATE	

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
1:1250	CD_EX_PROGRESS.DWG

DRAWING NO.	REVISION	SHEET
		1 / 1

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DRAWING NO.

FORMAT ARCHD–PORTRAIT

07/30
EXCAVATION

08/02
BEDROCK

08/05
COARSE INVERT FILTER

08/07
KEY CLEANING

08/04
INVERT
FILTER

08/04
EL 143

08/01
EXCAVATION

08/06
FINE FILTER
SLOPE

PC: 20+578.82

20+580

Mid: 20+587.05

PT: 20+595.27

20+600

20+620

07/29
SLOPE

07/30
SLOPE

20+640

INSTRUMENT

08/05
FINE
EL 143

08/05
COARSE
EL 143

INSTRUMENT

20+660

08/06
SLOPE

08/03
EL 143

20+680

07/28
SLOPE

20+700

INSTRUMENT

08/04
FINE
EL 143

08/04
COARSE
EL 143

20+720

07/24

20+740

20+760

07/08
ACCESS

07/27

08/07
KEY CLEANING

07/24

07/25
INVERT FILTER

07/27
ACCESS

20+800

07/09
ACCESS

CL EL 150

20+820

LEGEND

- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY: MICHAËL RACINE — DATE: 2016–08–07
CHECKED BY:
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PROJECT NO.:
DATE:

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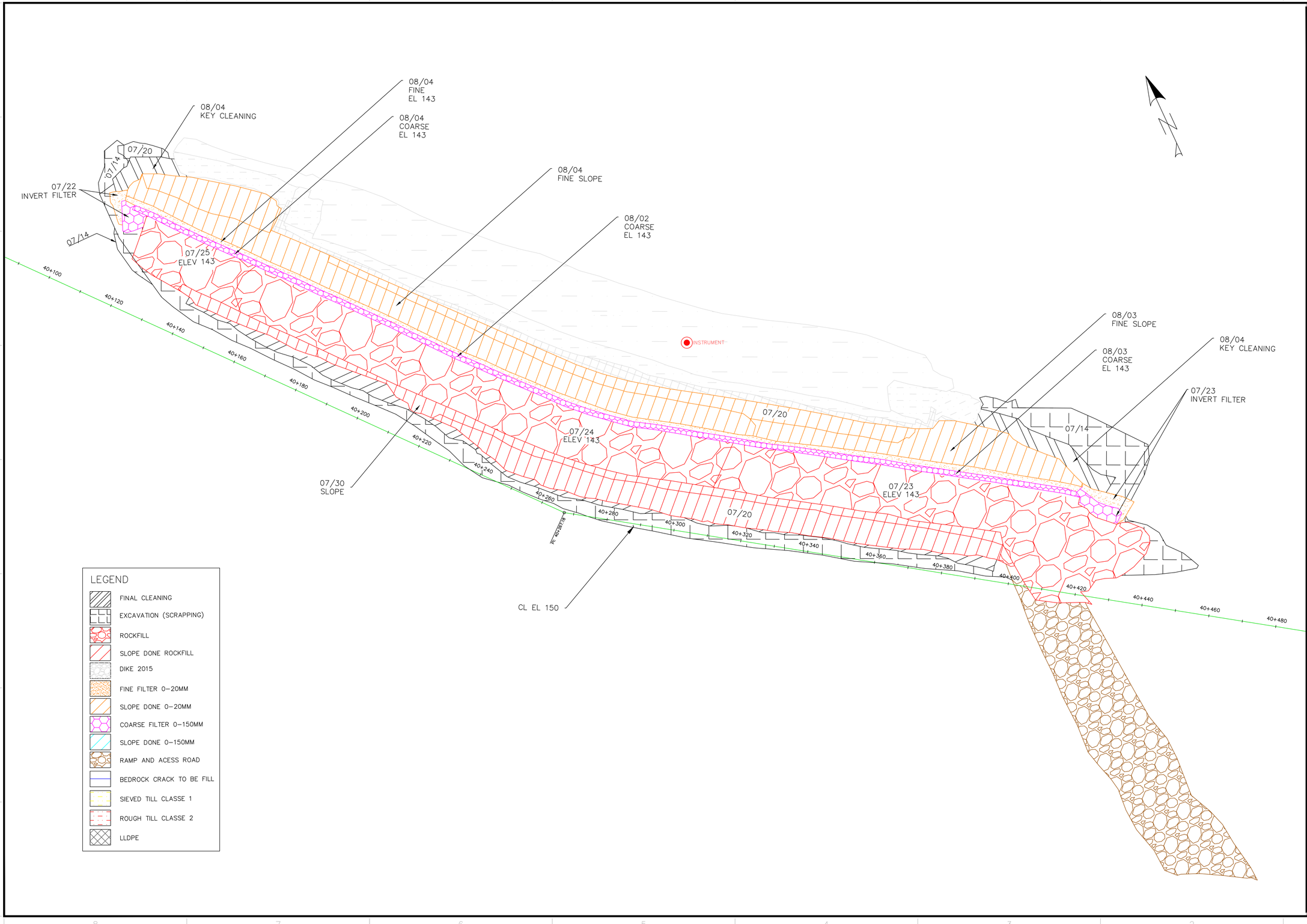
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AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

SCALE: 1:300 — FILE: SD3_PROGRESS.DWG
DRAWING NO. — REVISION — SHEET: 1 / 1

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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAËL RACINE	DATE:
CHECKED BY:	
APPROVED BY:	
SCALE: 1:500	DATE: 2016–08–04
DRAWING NO.	
PROJECT NO.	REVISION: / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 8, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM AUGUST 11 TO 17, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from August 11 to 17, 2016 inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The “+” and “-” symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L. Bolduc	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder’s on-site office. The key H&S elements for the reporting period were as follows:

- Wear sunscreen and stay hydrated.
- Everyone was reminded that many construction activities were ongoing simultaneously, thus the importance of being vigilant and being visible to the heavy equipment operator.
- It is mandatory to wear seatbelts and to obey the speed limit while driving on site.

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- Radio communication must be conducted in English.
- During slush grouting, employees near the cement mixer must wear respiratory protection.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- The contractor was reminded about the slush grout recipe used in the past year. The following recipe gave satisfactory results in the past :
  - 1 to $1^{1/3}$ of cement by volume ;
  - 2 portions of sand by volume ;
  - 2 portions of water.
- The QA Manager observed that the snow dump material was mixed with a lots of boulders and cobbles. As a result, this material is no longer suitable to be used as erosion protection material. The QA Manager mentioned that alternatively the erosion protection at Saddle Dam 3 and 4 could be made of 1 m of UM rock powder and 1 m of competent UM rockfill. However, it was emphasized that this configuration is less robust than the initial design and that AEM will need to take measures to protect the upstream toe liner tie-in during tailings deposition. AEM then reported that they would not be able to provide UM rock powder to be used for erosion protection layer without sorting the material. As a result, AEM decided that the erosion protection layer on SD3 and SD4 would be built according to the original design which is more robust (0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill).
- It was discussed that a new till reference board will have to be done before the placement of till at Saddle Dam 5. A reminder was issued that the compaction and the water content of the unsieved till must be controlled during placement and compaction. Following these discussions, reference boards were prepared for these materials.
- It was emphasized that the erosion protection layer of the upstream toe liner tie-in built at Saddle Dam 3 and Saddle Dam 4 last year did not have a thickness of 2 m everywhere. Therefore, part of the erosion protection at Saddle Dam 3 and 4 will need to be completed this year.

Saddle Dam 5

- It was discussed that the grouting at SD5 will not be done on a systematic basis as was done for Central Dike. Slush grout will be applied on the cleaned bedrock on the CD/SD5 transition (curved area) and in areas where open discontinuities greater than 10 mm are observed.
- A new technique was proposed for the bedrock mapping. Instead of manually mapping the bedrock, it was proposed to scan the surface with a LIDAR survey to generate a 3D surface of the bedrock from which the joint dip and dip direction can be extracted using software such as Maptek. This technique has been used at Meadowbank for the bedrock mapping of the pit wall for some time. The QA Manager and AEM accepted to try this technique for the cleaned bedrock at SD5. The QA manager reviewed the LIDAR scan and judged it to be very detailed and acceptable. The scan is in mine coordinates and there is a 20 degree difference

between the north of the mine coordinate and the UTM north. The QA Manager did spot check for the discontinuity orientation measured from the Lidar scan and the orientation measured in the field. Afterwards, the QA Manager did an accelerated bedrock mapping at SD5 by only manually measuring joints that met the criteria for grouting (opening larger than 10 mm).

- It was discussed that a deep discontinuity was present at SD5 which could cause a preferential channel if the till was not efficiently placed and compacted in that area. After discussion, the bedrock in that area was removed with an excavator to widen the opening so that the placement and compaction of till in that sector could be performed more efficiently.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	■ Beginning of profiling of the upstream slope with the excavator roller to make a smooth surface in view of geosynthetics installation.
Downstream slope	■ Completion of the profiling of the rockfill on the downstream slope (1.5H:1V) from El. 141 m to 143 m. This was mainly done during the night shift.
Toe liner tie-in	■ Construction of an access on the north side to the upstream toe liner tie-in area. ■ Bedrock cleaning on the north side with compressed air. Bedrock mapping was then done by the QA Manager from 0+105 to 0+198. ■ Foundation approval of the upstream toe liner tie-in of CD between 0+105 to 0+198 in view of grouting and placement of sieved till. ■ Grouting of the entire cleaned bedrock surface between 0+105 and 0+198. The grout was quickly covered with a thin lift of till to fill the depression and to allow a good contact before the grout dried. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. ■ Placement of the 0.5 m lift of sieved till above the till covering the slush grout from 0+105 to 0+198. A minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10-T compactor in vibratory mode and an additional 4 passes in static mode. The compaction was accepted as it was visually acceptable and 94% - 96% of the optimal dry density was reached. The excavator cleaned the slope of boulders against which the sieved till was placed to ensure it was composed of natural soil.
Till stockpiles	■ Unsealing and stirring of the till stockpile to promote its drying. Afterwards, the stockpiles were resealed.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Toe liner tie-in	■ Bedrock cleaning with the CAT 307 and compressed air. Afterwards, a Lidar scan was done and the QA Manager performed bedrock mapping from 40+615 to 40+748. ■ An excavator removed some bedrock of the upstream toe liner tie-in where a deep discontinuity prevented the till from being placed and compacted effectively. Afterwards, that segment of bedrock was cleaned again with compressed air. ■ Foundation approval of the cleaned bedrock in view of slush grouting and installation of the first 0.5 m lift of sieved till.
General	■ Removal of piles of unsuitable material (till mixes with boulders and cobbles) on the downstream side.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream slope	■ Profiling of the upstream slope with the excavator roller to make a smooth surface in view of geosynthetics installation.
Toe liner tie-in	■ Bedrock mapping of the cleaned bedrock on a width of 5 m on the north side from Sta. 20+593 to 20+626. ■ Foundation approval of the cleaned bedrock of the upstream toe liner tie-in on the north side (St. 20+592 to 20+618) and south side (20+770 to 20+797). ■ Slush grouting of open joints on the north and south side. A ratio by volume of 1-$1^{1/3}$ cement: 2 sand: 2 water was used. ■ Placement of a minimum thickness of 0.5 m of sieved till on the north and south abutment (from Sta. 20+600 to 20+620 and from 20+760 to 20+800). A first thin lift was placed and compacted to fill the bedrock depression, then another lift of 0.5 m was placed and compacted. The compaction was controlled by the QC with a nucleodensimeter. The optimal compaction was usually obtained after 6 to 8 passes of a 10-T compactor in vibratory mode. The compaction was visually adequate and the placed material was wet enough to be plastic. The achieved degree of compaction varied between 95% and 97% from the reference board optimal degree of compaction. The compaction was accepted.

Activity or Area	Comments
	■ Clean-up of material in view of the installation of a first lift of unsieved till in the upstream toe liner tie-in (passed the first 5 m of the key). ■ Placement of unsieved till on the north side of SD3 for a upstream toe liner tie-in in backfill configuration. A minimum thickness of 0.5 m of till was placed against the first lift of sieved till placed on a width of 5 m. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10-T compactor in vibratory mode. The compaction was visually acceptable and 97% of the optimal dry density from the reference board was reached.

Table 5: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	■ Profiling of the upstream slope with the excavator roller to make a smooth surface in view of geosynthetics installation.
Toe liner tie-in	■ Foundation approval of the cleaned bedrock of the upstream toe liner tie-in on the west side (St. 40+385 to 40+41) and east side (40+106 to 40+120). ■ Slush grouting of open joints greater than 10 mm on the east abutment. A ratio by volume of 1-$1^{1/3}$ cement: 2 sand: 2 water was used. ■ Placement of a minimum thickness of 0.5 m of sieved till on the west and east abutment (from Sta. 40+106 to 40+160 and from 40+360 to 40+415). The compaction was controlled by the QC with a nucleodensimeter. The optimal compaction was usually obtained after 6 passes of a 10-T compactor in vibratory mode. The compaction was visually adequate and the placed material was wet enough to be plastic. A dry density after compaction of 2000 and 2200 kg/m^3 approximately was obtained. The achieved degree of compaction varied between 95% and 104% from the reference board. The compaction was accepted. ■ Placement of unsieved till on the east side and west side of SD4 for a upstream toe liner tie-in in backfill configuration. A minimum thickness of 0.5 m of till was placed against the first lift of sieved till placed on a width of 5 m. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10-T compactor in vibratory mode. The compaction was visually acceptable and 100% of the optimal dry density from the reference board was reached.
General	■ Cleanup of piles of material on the downstream side of SD4.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out for the upstream toe liner tie-in before the placement of sieved till.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-23	SD4	Sta. 40+385 to 40+415 off. -38 to -49	12/08/2016	Approved
FND-SD4-24	SD4	St. 40+106 to 40+120 off. -39 to -42	12/08/2016	Approved
FND-SD3-19	SD3	20+592 to 20+618 off -38 to -73	13/08/2016	Approved
FND-SD3-20	SD3	20+770 to 20+797 off -30 to -50	13/08/2016	Approved
FND-CD-133	CD	Sta. 0+105 to 0+198 off. -26 to -46	16/08/2016	Approved
FND-SD5-08	SD5	Sta. 40+614 to 40+752 off. -32 to -57	17/08/2016	Approved

6.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping by segment of 10 m. Bedrock mapping was completed at Saddle Dam 3, Central Dike and Saddle Dam 5. It will be necessary to refer to the Lidar scan for complete details about the discontinuity orientation at Saddle Dam 5.

Table 7: Bedrock Mapping by QA Manager

Structure	Station and Offset of the Upstream Toe Liner Centreline
SD3	20+596/-46 to 20+626.3 /-71
Central Dike - North	From 0+105.1 / -30 to 0+198.5 / -43.9
SD5	From 40+748.4 / -57.8 to 40+615.5.1 / -34.8

7.0 SAMPLING, LABORATORY AND FIELD TESTING

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Tables 8 and 9. The samples taken by the QA manager will be tested once the QA assistant arrives on site.

The QC gave the testing results of the Proctor test done on sieved till (Sample 389). The last two points of the curve have an unusual shape. The QA Manager asked that another test be done. From the first three points of the curve test, the optimum dry density without correction seem to be 2054 kg/m^3 for a water content of 8%. The results of the second Proctor was acceptable with a non-corrected optimum dry density of 2148 kg/m^3 for an optimal water content of 6.6%.

Two reference boards were taken by the QC during the night shift (one on sieved till and one on unsieved till). The optimum dry density was reached between 4-6 passes of compactor and was around 2100 kg/m^3 for a water content around 8%.

It was observed that the water content measured with the nucleodensimeter was always several percentages higher than the one measured in the laboratory. Visual observation of the material seemed to confirm that the nucleodensimeter overestimated the water content of the material. As a result, the QA Manager asked that more samples be taken for water content in the laboratory.It was later discovered that there was a water content offset programmed in the nucleodensimeter.

The sample and field measurements taken on the sieved and unsieved till show that the material met the gradation limit. An acceptable compaction was able to be met in the field and the placement water content measured in the laboratory showed that it was within 0-3% higher than the optimal as per the technical specifications.

Table 8: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-007	13/08/2016	-	Sieved till	SD3 as placed, 20+780 /-15 El. 142.5 m	Gradation, WC	-
CD-543	16/08/2016	-	Sieved till	CD, in place, first lift upstream toe liner tie-0+148.4 /-34.1 El. 140.7	Gradation, WC	-

Table 9: Sample Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
385	31/07/2016	31/07/2016	Fine filter	SD4 in place, St. 40+340 El. 141.5 m	Gradation	Conformed
389	06/08/2016	13/08/2016	Sieved till	Stockpile SP-01	Proctor	Unusual shape, test to be redone
390	06/08/2016	12/08/2016	Coarse Filter	CD in place, St. 0+301 El. 141.5 m	Gradation	Conformed
392	09/08/2016	12/08/2016	Fine filter	CD in place. St.0+540 EL. 143 m	Gradation	Conformed
397-A-B	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content - nucleo	11.2-11.7 %
397-C-H	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content – nucleo	9.2-12.7 %
398	12/08/2016	12/08/2016	Sieved till	SD4 from 40+120 to 40+160 first 0.5 m lift	In situ density and WC (nucleo)	Conformed (2215-2225 kg/m^3)
399	12/08/2016	15/08/2016	Sieved till	SD4, in place, upstream toe liner tie-40+139 El. 141.3	Gradation, WC	Gradation conform, WC 7.9 %

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
400	12/08/2016	12/08/2016	Sieved till	SD4 from 40+360 to 40+400 first 0.5 m lift	In situ density and WC (nucleo)	WC : 3.7-12.6 % Dry density : 1996-2222 kg/m^3
401	12/08/2016	17/08/2016	Sieved till	SP-02	Proctor	Optimum at 2148 kg/m^3 at 6.6% WC.
402	13/08/2016	13/08/2016	Sieved till	SD3 from 20+780 to 20+789 first 0.5 m lift	In-situ density and WC (nucleo)	Conformed (2027-2040 kg/m^3)
403	13/08/2016	16/08/2016	Sieved till	SD3 from 20+602 - 52 El. 142. m	Gradation, WC	Conformed
404	13/08/2016	13/08/2016	Sieved till	SD3 from 20+600 to 20+620 first 0.5 m lift	In-situ density and WC (nucleo)	Conformed (2003-2054 kg/m^3)
405-A	14/08/2016	14/08/2016	Sieved till	CD Stockpile SP-06	WC	7.8%
405-B	14/08/2016	14/08/2016	Unsieved till	CD stockpile	WC	10.1%
405-C	14/08/2016	14/08/2016	Unsieved till	CD stockpile	WC	6.7%
406	15/08/2016	15/08/2016	Sieved till	Stockpile SP-06, Central Dike	Reference board	Optimum dry density of 2079 kg/m^3 after 6 passes at WC of 7.5%
407	15/08/2016	15/08/2016	Unsieved till	Stockpile Central Dike	Reference board	Optimum dry density of 2126 kg/m^3 after 4 passes at WC of 7.6%
408	15/08/2016	16/08/2016	Unsieved till	In place SD3, 20+600 unsieved till first lift	WC	7.9%
409	15/08/2016	15/08/2016	Unsieved till	SD3 north side, first lift unsieved till	Compaction (nucleo)	Conform (2054 kg/m^3)
410	15/08/2016	15/08/2016	Unsieved till	SD4, first lift unsieved till	Compaction (nucleo)	Conform (2087-2226 kg/m^3)
411	16/08/2016	-	Sieved till	CD in place, St. 0+186 el. 138.3 o/f - 40.3	Gradation, WC	-
412	16/08/2016	17/08/2016	Sieved till	CD in place, St. 0+128.1, el. 142.2 m o/f – 31.9	WC	7.3%
413	16/08/2016	16/08/2016	Unsieved till	SD 4 first lift 40+108 and 40+391	Compaction (nucleo)	Conformed (2097 to 2127 kg/m^3)

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
414	16/08/2016	16/08/2016	Sieved till	CD, 0+118 to 0+191	Compaction (nucleo)	Conformed (2007 to 2040 kg/m^3)
415	16/08/2016	17/08/2016	Sieve till	CD first 0.5 m lift 0+128 to 0+180	Compaction (nucleo)	Conformed (2025 to 2036 kg/m^3)

8.0 PHOTOGRAPHS



Photograph CD-1750: From Sta. 0+080/-10 looking S. View of the rockfill on the downstream side of Central Dike being profiled from El. 141 m to 143 m.



Photograph CD-1751: From Sta. 200/-30 looking N. Bedrock cleaning. An excavator is making an access on the north side to the upstream toe liner tie-in.



Photograph CD-1752: From Sta. 0+120/-44 looking S. Slush grouting of the upstream toe liner tie-in on the north side of Central Dike. An excavator is immediately covering the slush grouted area with sieved till.



Photograph CD-1753: From Sta. 0+160/-20 looking S. Compaction of the sieved till placed to cover the slush grout. Additional till is placed to obtain a minimum thickness of 0.5 m. The excavator is removing unsuitable material on the natural slope.



Photograph CD-1754: From Sta. 0+140/-40 looking N. View of the first lift of sieved till placed and compacted having a minimum thickness of 0.5 m. An excavator is profiling the upstream slope with a roller in view of the geosynthetics installation.



Photograph SD3-133: From Sta. 20+600/-50 looking S. View of the cleaned bedrock prior to placement of sieved till and grouting.



Photograph SD3-134: From Sta. 20+600/-50 looking S. View of the north abutment after the placement and compaction of the first lift of sieved till.



Photograph SD3-135: From Sta. 20+780/-30 looking N. Placement of a thin lift of sieved till to fill the bedrock depression.



Photograph SD3-136: From Sta. 20+800/-30 looking N. View of the placed and compacted sieved till on the south abutment. A minimum thickness of 0.5 m was put down.



Photograph SD3-137: From Sta. 20+580/-60 looking S. Placement and compaction of a 0.5 m lift of unsieved till on the north of SD3 against the first 5 m width lift of sieved till.



Photograph SD3-138: From Sta. 20+820/-70 looking N. View of the upstream slope profiled with the roller in view of the geosynthetics installation.



Photograph SD4-084: From Sta. 40+160/-40 looking W. View of the first 0.5 m of sieved till placed and compacted above the bedrock on the west abutment of SD4.



Photograph SD4-085: From Sta. 40+420/-40 looking W. View of the first 0.5 m of sieved till placed and compacted above the bedrock on the east abutment of SD4.



Photograph SD4-086: From Sta. 40+100/-40 looking W. Placement of a 0.5 m lift of unsieved till against the placed 5 m wide lift of sieved till of the upstream toe liner tie-in.



Photograph SD4-087: From Sta. 40+420/-65 looking W. View of the upstream slope profiled with the roller in view of the geosynthetics installation.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Frédérick L. Bolduc, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

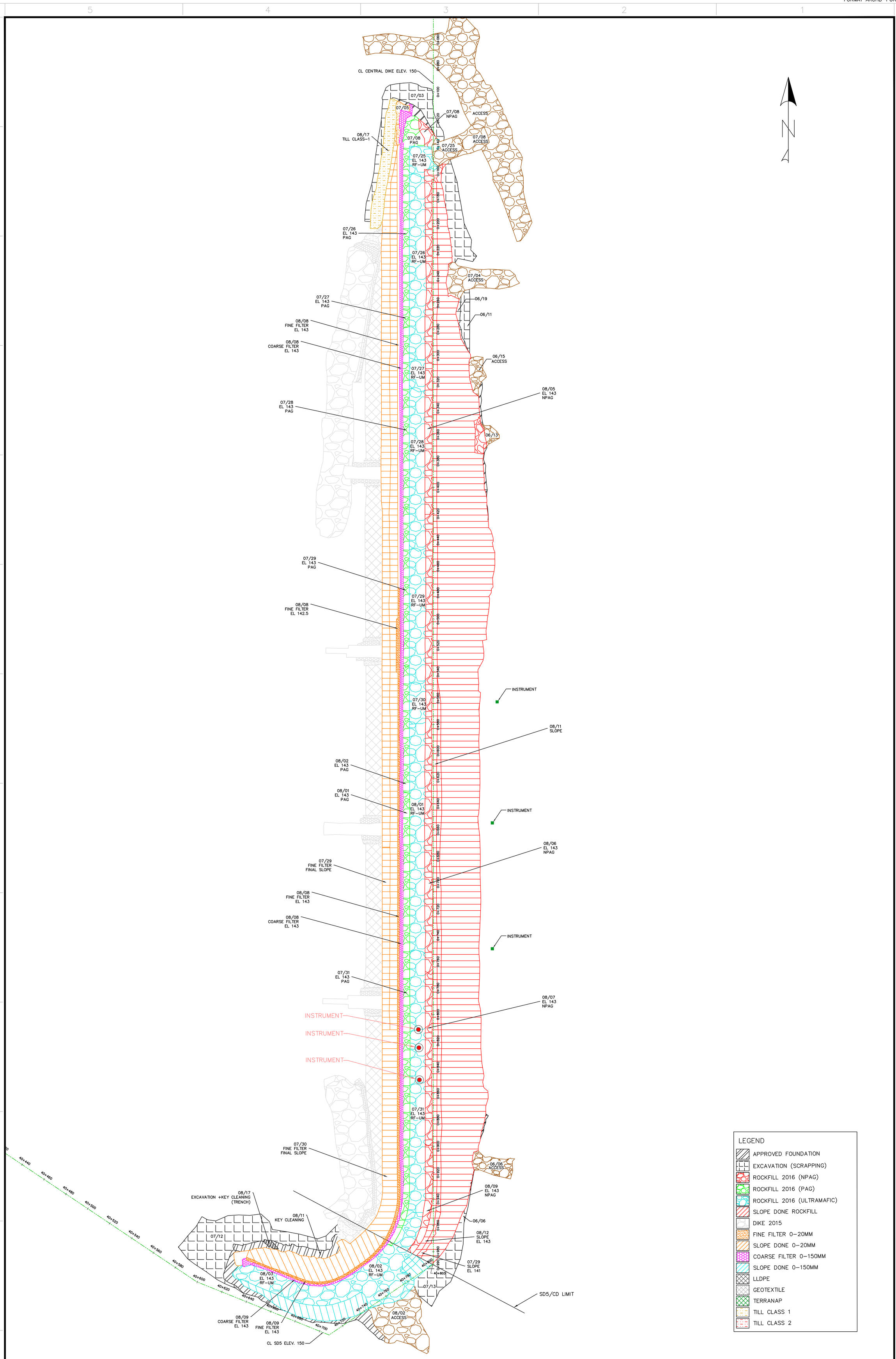
Attachments: Construction Progress Drawings from AEM, August 17, 2016

FLB/YB/jlm

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE MEADOWBANK

DRAWN BY	AUBREY DESROCHES	DATE 2016–08–17
CHECKED BY		
APPROVED BY		
PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE	REVISION	SHEET
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DRAWING NO.

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DRAWING NO.

FORMAT ARCHD–PORTRAIT

08/07
KEY CLEANING

08/02
BEDROCK

08/12
EXCAVATION

08/05
COARSE INVERT FILTER

08/04
INVERT
FILTER

08/13

08/15

08/14
EXCAVATION

08/04
EL 143

08/06
FINE FILTER
SLOPE

PC: 20+578.82

20+580

Mid: 20+587.05

PT: 20+595.27

20+600

20+620

07/29
SLOPE

07/30
SLOPE

20+640

INSTRUMENT

INSTRUMENT

INSTRUMENT

20+660

08/06
SLOPE

08/05
FINE
EL 143

08/05
COARSE
EL 143

08/03
EL 143

20+680

07/28
SLOPE

20+700

08/04
FINE
EL 143

08/04
COARSE
EL 143

INSTRUMENT

20+720

20+740

07/24

20+760

07/08
ACCESS

07/27

08/13

08/13

08/12
ACCESS

20+780

07/24

07/27
ACCESS

08/07
KEY CLEANING

07/25
INVERT FILTER

07/09
ACCESS

20+800

CL EL 150

20+820

LEGEND

- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY: AUBREY DESROCHES
DATE: 2016–08–16
CHECKED BY:
APPROVED BY:
PROJECT NO.:
DATE:

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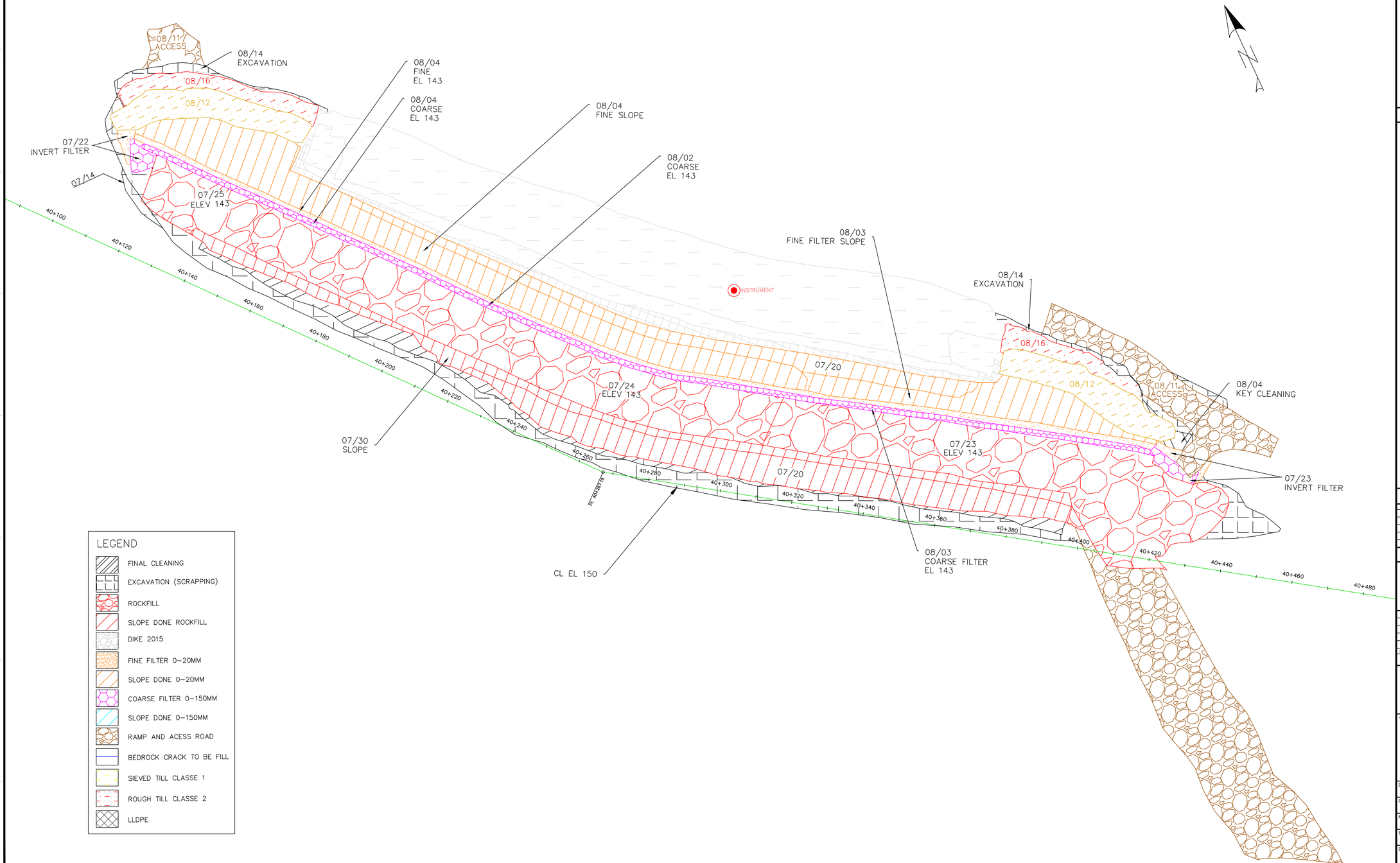
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

SCALE: 1:300
FILE: SD3_PROGRESS.DWG
DRAWING NO.:
REVISION:
SHEET: 1 / 1

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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: AUBREY DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–08–16
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 9, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michaël D. Bonin **EMAIL** mdemersbonin@golder.com

QA WEEKLY REPORT FROM AUGUST 18 TO AUGUST 26, 2016 – TSF SOUTH CELL CONSTRUCTION-MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from August 18 to 26, 2016, inclusive, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michaël D.Bonin	QA Engineer
Michael Nadon	QA Technician (August 18 to August 25)

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- The QA Engineer noted that the CD/SD5 access ramp is dangerous when it is dusty as pick-up trucks going up the hill can't see if there are other vehicles coming down.
- On August 21, the QA Engineer signed the Job Hazard Analysis worksheet (JHA) of the Contractor to use the lifeline and the related safety equipment along the CD crest for the installation of the geosynthetics on the upstream 2H:1V slope. The lifeline must be completely installed along the CD crest before the workers start cleaning the LLDPE in view of the LLDPE installation.

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- The access to SD4 is narrow and haul trucks are going backwards from the airstrip road. Pick-up trucks must avoid trafficking the access when haul trucks are hauling.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- There was no daily construction meeting on August 18 and 19, 2016.
- The Owner's Representative confirmed that the geosynthetics tie-in must be excavated within the coarse filter instead of in the fine filter to provide a better anchor. As it was done in previous years. The QA Engineer agrees with this approach as it provides a better tie-in to the geosynthetics.
- QA/QC Engineers made a verification and realized that the QC portable nuclear gauge (PNG) applied a positive 4% offset on every moisture readings. This was corrected. Following this, it was decided not to keep going with additional water content test by oven drying on compacted till. The QC Engineer reviewed all the PNG moisture readings and added a note on the reports regarding the 4% offset that was applied on readings before August 19, 2016. This will ensure that all the paperwork is up to date.
- The QA engineer recalled that the upstream fine filter slopes at SD3-4-5 and CD need to be approved before the geosynthetics installation. The upstream slopes at SD3 and SD4 were approved during the reporting period.
- The contractor was told to place a geotextile underneath LLDPE rolls waiting for their installation to avoid damaging them. This condition was met during all the reporting period.
- The configuration of the upstream toe liner tie-in in backfill at SD 3-4 and 5 was explained during the daily construction meeting to ensure that all contributors understand it. It was recalled that the fine and coarse filters should be seated on bedrock if not seated on ice-poor in situ till.
- It was recalled that any surface that need to be cleaned up underneath the upstream toe liner tie-in must be approved before any material is placed on it.
- There might be a shortage of compacted 0-150 mm till to complete the upstream toe liner tie-in according to the estimate provided by the surveyor. With this in mind, the Owner's Representative identified two rough till stockpiles (B and C) north of CD that might be used for compacted 0-150 mm till. The QC Engineer collected samples (see Table 8) in each of them and gradation results will be presented shortly.
- Arrival of the liner installer on August 23.
- The Owner's Representatives want to do horizontal seams on the LLDPE geomembrane for the purpose of saving LLDPE. The QA Engineer recalled that no horizontal seams should be carried out on the LLDPE on the upstream slope per technical specifications. Following a discussion with the dike designer, Golder still considers that horizontal seams shall not be conducted on the LLDPE geomembrane per technical specifications. It should be noted that the International Association of Geosynthetics Installers (IAGI) stated that this does not meet the state of practice. It is believed that this kind of seam weakens the LLDPE

behavior in tension on the upstream slope of the structures and that it may contribute to damaging the LLDPE once the tailings weigh downward on it.

- The QA Engineer recalled that the compacted 0-150 mm till shall have a maximum particle size of 150 mm. The materiel shall be placed in a way to avoid its contamination.

Erosion Protection over the Upstream Toe Liner Tie-In

- The QA Engineer recalled that there are some areas where low quality till is missing at SD3 and SD4 on the upstream toe liner tie-in built last year. The Owner's Representative confirmed that this will be corrected during this construction season. However, the Owner's Representative estimated that there might be a shortage in low quality till. Consequently, it was decided that the erosion protection layers of the upstream toe liner tie-in placed during this construction season at SD 3-4 and 5 will be built with granular layers as it was done on CD, i.e. two 0.5 m-thick layers of fine and coarse filters and one 1 m-thick lift of fine rockfill. Transitions filters will be required to ensure a proper transition between the low quality till placed last year and the erosion protection layers that are going to be placed this season. The QA Engineer had a discussion with the dike designer about the proposed transition from a protection against erosion made of low quality till to a protection made of granular materials. This was accepted as long as materials compatibility is respected, which means that the low quality till can be in contact with the fine filter only. A layer of coarse filter should be placed in between the fine rockfill and the fine filter layers.

- On August 26, the Owner's Representative noted that he would have preferred that the low quality till be covered with a 1 m-thick lift of fine rockfill at SD4. The QA Engineer confirmed that the use of a 1 m-thick lift of fine rockfill could be suitable over the low quality till placed last year. It has not been decided yet whether low quality till or fine rockfill will be used to complete the erosion protection of the SD3-SD4 upstream toe liner tie-In. The owner's Representative will communicate his choice shortly.

- The Owner's Representative asked if the material north of CD could be used as low quality till to complete the erosion protection layers over the low quality till placed last year on SD3 and SD4. The QA Engineers checked the material and confirmed that it could be used as low quality till to complete the erosion protection layers over the upstream toe liner tie-in at SD3 and SD4. However, it is important to note that the use of low quality till as an erosion protection layer over the upstream toe liner tie-in is not as robust as the initial configuration involving the granular protection. Nonetheless, Golder acknowledges that the Owner has been implementing good practices regarding the tailings deposition to avoid damaging the upstream toe liner tie-in. Hence, the use of low quality till as an erosion protection layer must be associated to good tailings deposition practices, which was supported by the Owner's Representative.

- The contractor asked if SD3 and SD5 erosion protections could be seated on 0-150 mm till placed over bedrock per Figure 1 to provide a platform for heavy equipment. This configuration was not accepted because it does not allow for good protection against erosion for the compacted 0-150 mm till. The QA Engineer told the contractor that the compacted 0-150 mm till shall be covered with the erosion protection layers, i.e. fine filter, coarse filter and fine rockfill where it was not started last year with low quality till. The QA Engineer recalled the configuration of the upstream toe liner tie-in when seated on bedrock. The Owner's Representative asked if it is possible to seat the fine rockfill lift on the excavated materials downstream per Figure 2 and this was accepted as long as fine and coarse filters are properly seated on bedrock.

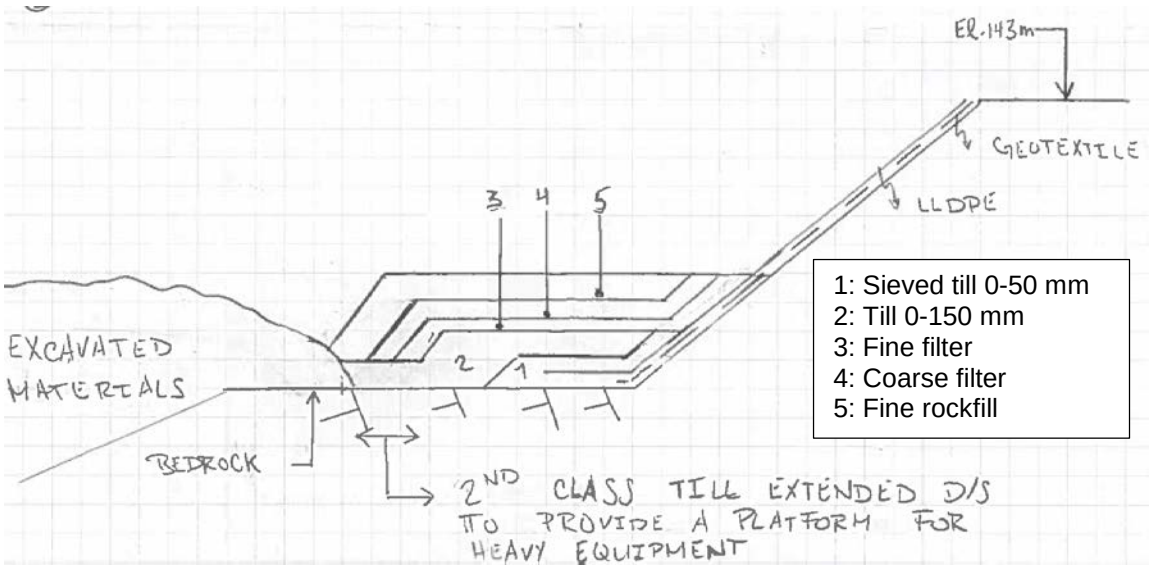


Figure 1: Proposed configuration of the upstream toe liner tie-in at SD3 and SD5

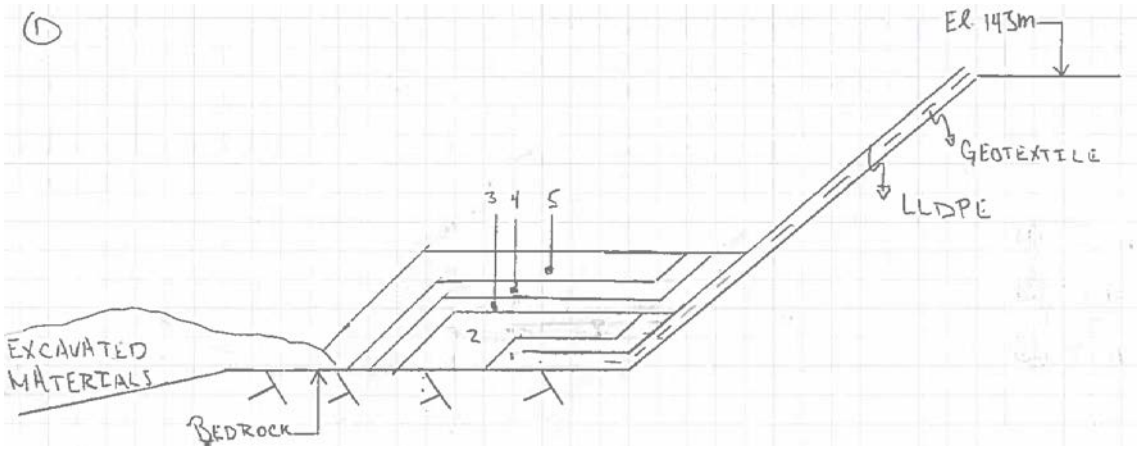


Figure 2: Configuration of the upstream toe liner tie-in per Saddle Dam and Central Dike drawings

- Following the previous point, the Owner's Representatives and the QA Engineers checked the actual configuration of the excavation downstream of the upstream toe liner tie-in at SD3 and SD4 to evaluate whether some excavation is needed or whether the material downstream is suitable for a proper connection. The main elements that emerged from that visit are presented in the following paragraphs:
  - **SD3/South end:** The material in surface downstream of the upstream toe liner tie-in appears not to be suitable to provide a proper connection. This must be confirmed once the contractor starts excavating this area.
  - **SD3/North end:** The material in place downstream of the upstream toe liner tie-in is definitely not suitable to provide a proper connection. Consequently, the entire upstream toe liner tie-in must be seated on bedrock. The surveyor and the Owner's Representative confirmed that the actual exposed bedrock surface is wide enough to build the entire erosion protection layers.

- **SD4/South and North ends:** The SD4 upstream toe liner tie-in involves a configuration in backfill. The entire upstream toe liner tie-in must be seated on bedrock. The surveyor and the Owner's Representative confirmed that the actual exposed bedrock surface is wide enough to build the entire erosion protection layers.

Central Dike

- A warning was given that water from melting materials is ponding on the compacted sieved till lift over bedrock north of CD. This water ponding should be removed before the placement of the next lift of compacted sieved till. The material underneath the ponding might need to be removed if too soft.

Saddle Dam 5

- The QA Engineer ensured the slush grout consistency met specifications before and during slush grouting and a request was made to thicken the mixture during the works at SD5.
- The contractor was told to place the compacted 0-150 mm till in 0.5 m-thick lift maximum. A lift was placed thicker at SD5, but was corrected afterwards.
- The Owner's Representative told the QA Engineer that there might be a foundation approval needed for the bedrock under an access road between SD5 and the pipeline gauge launch pad. This will avoid excavating this area again next construction season.
- The QA Engineer made request that the till over bedrock placed last year at SD5 be scarified at the connection with the newly compacted till placed this year to allow a proper contact between both layers.

Saddle Dam 3

- The contractor was told that some corrections are warranted before the LLDPE installation on the fine filter upstream slope at SD3. Those corrections were made before the geosynthetics installation.
- The QA Engineer requested that the compacted sieved till surface be sealed once again at SD3 where the excavator slightly damaged the surface. A fine filter spill should be cleaned up as well before the LLDPE installation.
- All contributors including the liner contractor checked the SD3 upstream toe liner tie-in on the north side to find a way to install the LLDPE geomembrane properly in the area of the hump. The proposed configuration is shown below. The liner contractor proposed to dig a 0.5 m-deep tie-in trench in the middle on top of the hump. All LLDPE panels from both sides of the hump would be tied in the trench. Following the backfill of the trench, a LLDPE patch would then be applied on top to seal it by an extrusion weld. The LLDPE geomembrane was finally installed this way (see Photographs SD3-145 to SD3-151).

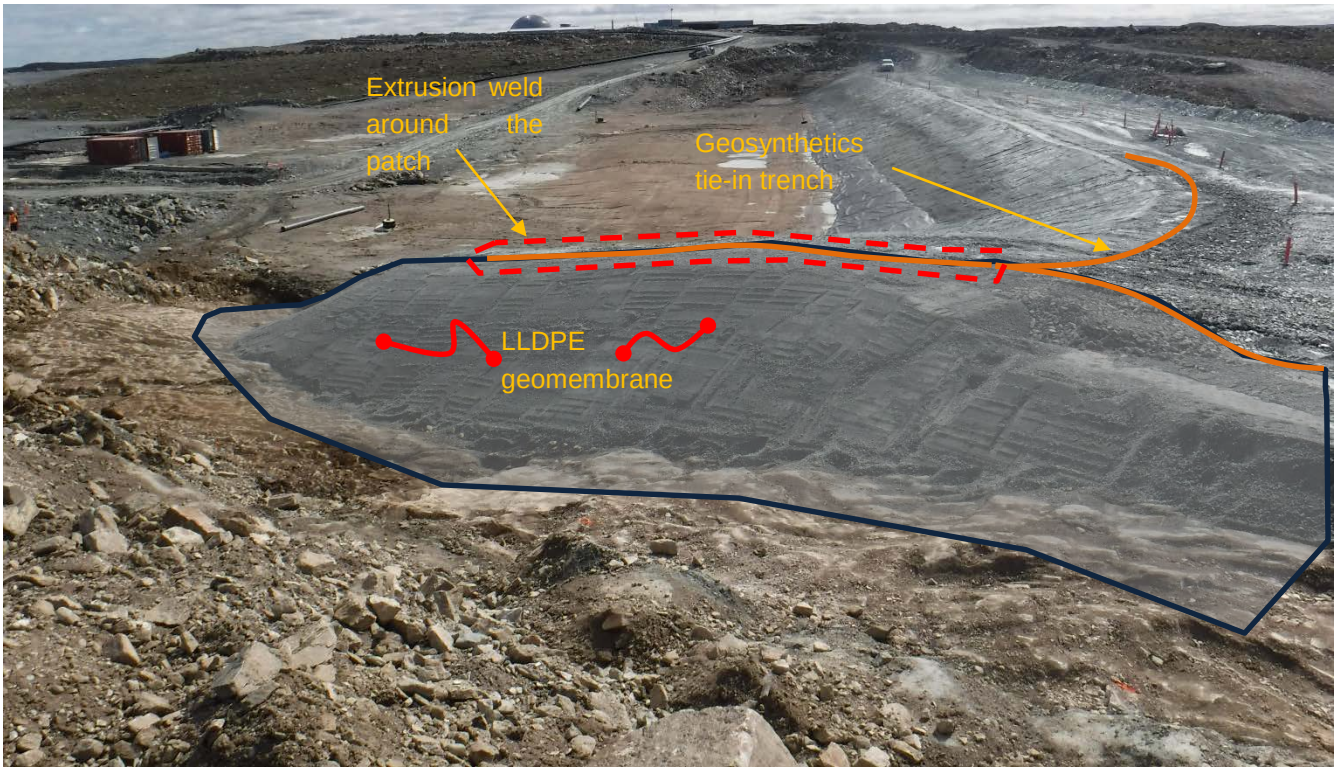


Figure 3: Proposed configuration for the LLDPE geomembrane installation on top of the hump north of SD3 (looking south).



Figure 4: Proposed configuration for the LLDPE geomembrane installation on top of the hump north of SD3 (looking west).

Saddle Dam 4

- The QA Engineer requested that the low quality till surface be scarified at SD4 before the new lift placement to ensure a good contact between both layers.
- The QA Engineer recalled that the extrusion weld between LLDPE geomembranes installed in 2015 and 2016 must be tested before placing the 0-50 mm sieved till at SD4.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	■ Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation. ■ Excavation of the geosynthetics tie-in from Sta. 0+140 to 0+850. ■ Five casings were drilled 3 m deep in the rockfill from the CD crest at El. 143 m. Those casings are going to be used to hold the life line which will be used by workers working on the 2H:1V LLDPE slope. Casings were drilled at Sta. 0+300, 0+455, 0+620, 0+770 and 0+900. Casings were cemented.
Upstream Toe Liner Tie-In	■ Grouting of the entire cleaned bedrock surface between Sta. 40+670 and 40+750. The grout was quickly covered with compacted sieved till to prevent its drying and allow a good contact. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. The slush grout consistency was good. ■ Placement of the first lift of compacted sieved till above the bedrock from Sta. 40+670 to 40+750. A maximum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock to fill bedrock depressions. The compaction was conducted with a 10 t smooth-drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 8. All readings met specifications. ■ Placement of the second 0.5 m-thick lift of compacted sieved till from Sta. 40+670 to 40+750. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 8. All readings met specifications. ■ Placement of the third 0.5 m-thick lift of compacted sieved till from Sta. 40+670/-35 to 40+720/-40 to reach the correct elevation over bedrock. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 8. All readings met specifications.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	■ Profiling of the upstream slope with the excavator roller to make a smooth surface in preparation for geosynthetics installation. ■ Excavation of the geosynthetics tie-in from Sta. 40+615 to 0+850 (on CD).
Upstream Toe Liner Tie-In	■ Partial grouting of the cleaned bedrock surface between 40+630/-35 and 40+670/-40. Joints with an aperture width greater than 10 mm were grouted. The grout was quickly covered with compacted sieved till to prevent its drying and allow a good contact. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. The slush grout consistency was good. ■ Placement of the first lift of compacted sieved till above the bedrock from Sta. 40+630/-35 to 40+670/-40. A maximum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock to fill bedrock depressions. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 8. All readings met specifications. ■ Placement of the second 0.5 m-thick lift of compacted sieved till from Sta. 40+630/-35 to 40+670/-40. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 8. All readings met specifications. ■ Excavation of materials to bedrock within the footprint of the upstream toe liner tie-in from Sta. 40+630 to 40+750. This was done to ensure the upstream toe liner tie-in is not in contact with an unsuitable material. ■ Excavation of materials to bedrock within the footprint of the upstream toe liner tie-in from Sta. 40+620 to 40+615. This area was added in FND-SD5-09 and a revision of the FND survey was issued. ■ Placement of a first and second 0.5 m-thick lift of compacted 0-150 mm till within the upstream toe liner tie-in from Sta. 40+760/-67 to approximately 40+615/-45. Both lifts were compacted with a 10 t smooth-drum compactor using the vibratory mode. Both lifts were tested with a PNG. PNG readings met specifications (see Table 8).
Foundation preparation	■ Excavation to bedrock within the dike footprint for a crest El. at 150 m between SD4 and the pipeline gauge launch pad. This area is being cleaned up to place rockfill for a road linking SD4 and the launch pad which will be used next winter. This is being carried out in view of the next construction season to avoid having to excavate this area next year.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream slope	■ Clean up of the LLDPE geomembrane in view of the extrusion weld with the 2015 LLDPE. ■ Corrections on the fine filter slope at Sta. 20+620/-45 approximately in view of the geosynthetics installation. ■ Excavation of the geosynthetics tie-in from Sta. 20+620/-20 to 20+775/-20 and on top of the hump north of the faulted area approximately at Sta. 20+610/-60/-45. ■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 20+590 to 20+780. The entire upstream fine filter slope and the compacted sieved till surface under the LLDPE within the upstream toe liner tie-in were approved (FND-SD3-21).
Upstream Toe liner tie-in	■ Clean up of fine filter on the compacted sieved till surface within the upstream toe liner tie-in approximately at Sta. 20+745/-25 in view of the geosynthetics installation.
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from Sta. 20+610 to 20+790 and over the hump north of SD3. The geotextile surface was inspected before being covered with the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream 3H:1V between El. 140 m and 143 m from Sta. 20+610 to 20+790 and over the hump north of SD3. The LLDPE was free of folds and holes. Seam tests were carried out under the supervision of the QA Engineer and results met technical specifications. The vacuum box tests met technical specifications. Some leaks were found during the air tests and the vacuum tests. Leaks were repaired by the liner installer. No horizontal seam was made on the LLDPE installed on the upstream 3H:1V slope at SD3. ■ AM and PM calibration results met technical specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from technical specifications. ■ Destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 20+640/-33 and 20+720/-29. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from technical specifications. Samples were kept for the Owner's Representative. ■ Backfilling of the geosynthetics tie-in on the hump north of SD3. The backfill material (fine filter) was compacted with a vibrating plate since this area could

Activity or Area	Comments
	not be trafficked by the 10 t smooth-drum compactor. ■ Backfilling and compaction of the geosynthetics tie-in from Sta. 20+620 to 20+790. The compaction was carried out with 4 passes of a 10 t smooth-drum vibratory compactor and supervised by the QC.

Table 5: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	■ Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation. ■ Excavation of the geosynthetics tie-in from Sta. 40+110/-30 to 40+420/-30. ■ Clean up of the LLDPE geomembrane in view of the extrusion weld with the 2015 LLDPE. ■ Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+440 to 40+100. The entire upstream fine filter slope and the compacted sieved till surface under the LLDPE within the upstream toe liner tie-in were approved (FND-SD4-25). Some corrections were made at the toe of the fine filter slope to provide a smooth surface for the LLDPE geomembrane approximately at Sta. 40+400/-45 (see Photograph SD4-090).
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from Sta. 40+110 to 40+380 and within the upstream toe liner tie-in up to El. 143 m from Sta. 40+380 to 40+415. ■ Installation of the LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m from Sta. 40+110 to 40+380 and within the upstream toe liner tie-in up to El. 143 m from Sta. 40+380 to 40+415. The LLDPE was free of folds and holes. Air seam tests were carried out under the supervision of the QA Engineer and results met technical specifications. The extrusion weld between LLDPE placed last year at El. 140 m and the new LLDPE was completed. ■ AM and PM calibration results met technical specifications. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from technical specifications. ■ Three horizontal seams were made on the LLDPE geomembrane at Sta. 40+170/-32, 40+240/-35 and 40+320/-32. Golder wants to note that horizontal seams shall not be carried out on the LLDPE geomembrane per technical specifications as it is believed that it does not meet the state of practice since it contributes to weaken the LLDPE geomembrane.

Activity or Area	Comments
	■ Four destructive tests were carried out on samples collected at Sta. 40+170/-34, 40+253/-40, 40+350/-34 and 40+405/-31. Loads at failure in peel and shear were greater than minimum values presented in Table 6-2 from technical specifications. Failure values were greater than minimum values. Samples were kept for the Owner's Representative. ■ Backfilling and compaction of the geosynthetics tie-in from Sta. 40+240 to 40+415. The compaction was conducted with 4 passes of a 10 t smooth-drum vibratory compactor under the supervision of the QC. The compactor kept a safe distance from the LLDPE geomembrane. ■ Vacuum tests on extrusion welds and patches were carried out from Sta. 40+110 to 40+415. A leak was found during the vacuum tests on August 25, 2016. The leak was corrected on August 26.
Upstream Toe liner tie-In	■ Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane from Sta. 40+370/-40 to 40+415/-25. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG testing was done on the compacted sieved till. All results met specifications (see Table 8). ■ Placement of a second and third 0.5 m-thick lifts of compacted 0-150 mm till over the LLDPE geomembrane from Sta. 40+362/-40 to 40+415/-25. The lifts were compacted using a 10 t smooth-drum vibratory compactor. The equipment kept a safe distance to ensure a minimum thickness of 1 m over the LLDPE. PNG testing was done on the compacted sieved 50 mm till. All results met specifications (see Table 8).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-09	SD5	Sta. 40+756/-67 to approximately 40+615/-45	21/08/2015	Foundation within the upstream toe liner tie-in. Foundation to bedrock.
FND-SD3-21	SD3	Sta. 20+600.86/-49.78 to 20+780.7/-35.77	22/08/2016	Foundation approval in view of the geosynthetics installation.
FND-SD4-25	SD4	Sta. 40+108/-36.3 to 40+409.96/-36.76	22/08/2016	Foundation approval in view of the geosynthetics installation.

6.0 SAMPLING, LABORATORY AND FIELD TESTING

The QA Engineer reviewed the laboratory test results completed by the QC and compiled those completed by the QA Technician. The location of the samples taken by the QA and QC and tests results can be found in Tables 7 and 8.

All QA compacted sieved till samples tested during the reporting period were compliant. The compacted 0-150 mm till sample STCK-19 is slightly too fine in its coarse fraction, however it was accepted as is. Sample SD3-04 was collected in the rough till used to plug water inflows during the foundation approval downstream of SD3 within the fault area. The QA engineer present at that time judged that this material was suitable to act as a low permeability till.

Most of the QA fine filter samples showed a slightly too coarse fraction. However, they were accepted as is since gradation curves were not significantly out of the grain size envelopes.

The gradation curve of the QA coarse filter sample SD3-05 is not compliant, but has been accepted as is since the QC gradation curve conducted on the coarse filter sample from SD3 was compliant. The gradation curve of the coarse filter sample SD4-06 is slightly too fine but was accepted as is because it is not significantly out of the grain size envelopes.

Table 7: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-19	06/07/2016	23/08/2016	Compacted till 0-150 mm	Unsieved till stockpile, north of CD	Gradation, WC	Coarse fraction is slightly too fine
CD-542	09/08/2016	23/08/2016	Fine filter	CD, Sta. 0+578/-13.38, El. 143 m	Gradation	Coarse fraction is slightly too fine
CD-543	16/08/2016	20/08/2016	Sieved till	Sta. 0+148.4/-34.1, El.140.7 m	Gradation and WC	Compliant
SD3-04	30/07/2016	24/08/2016	Compacted till 0-150 mm	SD3, Sta. 20+620/-9	Gradation, WC	Coarse fraction is slightly too fine
SD3-05	01/08/2016	19/08/2016	Coarse filter	Sta. 20+700/-18, El. 140.5 m	Gradation	Too much fines, but accepted as is
SD3-06	01/08/2016	23/08/2016	Fine filter	SD3, Sta. 20+700/-19, El. 140.5 m	Gradation	Coarse fraction is slightly too fine
SD3-07	13/08/2016	21/08/2016	Sieved till	Sta. 20+780/-15.5, El.140.7 m	Gradation and WC	Compliant
SD4-05	31/07/2016	22/08/2016	Fine filter	Sta. 40+420/-34, El. 140.5 m	Gradation	Compliant
SD4-06	31/07/2016	21/08/2016	Coarse filter	Sta. 40+380/-31, El.140.5 m	Gradation	Slightly too fine, but accepted as is
SD4-07	26/08/2016	--	Compacted sieved till	Sta. 40+368.9/-41.8, El. 140.1 m	Gradation, WC	Not tested yet
SD5-01	29/07/2016	23/08/2016	Fine filter	SD5, Sta. 40+760/-36, El. 141 m	Gradation	Coarse fraction is slightly too fine
SD5-02	08/08/2016	22/08/2016	Coarse filter	Sta. 40+732/-35.3, El. 141.5 m	Gradation	Compliant
SD5-03	19/08/2016	23/08/2016	Sieved till	SD5, Sta. 40+632.6/-39.7, El. 140.7 m	Gradation, WC	Compliant

Table 8 presents the samples collected or tested by the QC as well as PNG field results carried out on the compacted sieved till and on the compacted 0-150 mm till. All PNG tests met technical specifications.

Table 8: Sample Taken and Tested by the QC and Field Results

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
411	16/08/2016	18/08/2016	Sieved till	As-placed CD Sta. 0+186, El. 138.3 m	Gradation	Compliant
416	19/08/2016	--	Sieved till	Sta. 40+633.1/-38.7, El. 150.9 m	Gradation	Not tested yet
417 (A to H)	19/08/2016	19/08/2016	Sieved till	Sta. 40+692 to 40+750, El. 137.5 m to 139.7 m (SD5 and CD)	Dry density, WC (PNG)	Dry density: 2,100 to 2,176 kg/m^3, WC: 6.5 to 8.4%
418 A to D	21/08/2016	21/08/2016	0-150 mm till	40+642/-50 to 40+730/-54	Dry density, WC (PNG)	Dry density: 2,068 to 2,238 kg/m^3, WC: 6.5 to 8.3%
419	21/08/2016	--	0-150 mm till	Stockpile C, North CD	Gradation, WC	Not tested yet
420	21/08/2016	--	0-150 mm till	Stockpile B, North CD	Gradation, WC	Not tested yet
421 A to D	26/08/2016	26/08/2016	Compaction 0-50 mm till	Sta. 40+372/-49.1 to 40+398/-46.0, El. 139 to 141 m	Dry density, WC (PNG)	Dry density: 2,056 to 2,227 kg/m^3, WC: 7.0 to 8.4%
422 A to H	26/08/2016	26/08/2016	Compaction 0-150 mm till	Sta. 40+362/-45 to 40+397/-43	Dry density, WC (PNG)	Dry density: 2,140 to 2,340 kg/m^3, WC: 6.0 to 7.6%

7.0 PHOTOGRAPHS



Photograph SD4-088: From Sta. 40+110/-30 looking E. Excavation of the geosynthetics tie-in (0.5 m-deep, 0.5 m-wide).



Photograph SD5-026: From Sta. 40+800/-45 looking SW. Profiling of the upstream slope with the excavator roller to make a smooth surface in view of geosynthetics installation.



Photograph SD5-027: From Sta. 40+640/-43 looking N. Placement of slush grout over bedrock.



Photograph CD-1755: From Sta. 40+670/-40 looking N. Placement of slush grout over the entire bedrock surface of the 5 m-wide strip in the upstream toe liner tie-in.



Photograph SD5-028: From Sta. 40+740/-30 looking W. Excavation of materials within the upstream toe liner tie-in footprint to ensure the liner tie-in is not in contact with an unsuitable material. The excavation was carried out within the footprint of the erosion protection layers.



Photograph SD3-140: From Sta. 20+640/-30 looking E. Corrections on the fine filter slope under the LLDPE geomembrane.



Photograph SD3-141: From Sta. 20+640/-18 looking NW. LLDPE rolls are lying on a geotextile sheet to avoid damaging them. This measure was met during all the reporting period.



Photograph SD4-090: From Sta. 40+410/-39 looking W. Some corrections were needed at SD4 where the fine filter slope intersects the compacted sieved till. A ledge was smoothed to allow a good contact between the LLDPE geomembrane and the till within the upstream toe liner tie-in.



Photograph SD4-091: From Sta. 40+100/-32 looking E. Installation of geotextile sheets and LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m.



Photograph SD4-092: From Sta. 40+275/-38 looking W. Installation of LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m.



Photograph SD4-093: From Sta. 40+160/-39 looking NW. Extrusion weld between the 2015 and the 2016 LLDPE geomembranes within the upstream toe liner tie-in (west side).



Photograph SD4-095: From Sta. 40+440/-45 looking W. Final LLDPE surface on the upstream 3H:1V slope and within the upstream tie liner tie-in.



Photograph SD3-145: From Sta. 20+620/-80 looking W. Installation of geotextile over the upstream 3H:1V slope and over the hump north of SD3.



Photograph SD3-146: From Sta. 20+600/-67 looking S. Installation of geotextile over the upstream 3H:1V slope and over the hump north of SD3.



Photograph SD3-147: From Sta. 20+650/-30 looking N. Installation of geotextile over the upstream 3H:1V slope and over the hump north of SD3.



Photograph SD3-148: From Sta. 20+620/-84 looking W. LLDPE over the hump north of SD3.



Photograph SD3-149: From Sta. 20+620/-60 looking W. Geosynthetics tie-in on top of the hump.



Photograph SD3-151: From Sta. 20+620/-60 looking W. LLDPE patch placed to seal the geosynthetics tie-in on top of the hump north of SD3.



Photograph SD3-150: From Sta. 20+610/-45 looking S. Geotextile installation on the upstream 3H:1V slope on SD3 between El. 140 m and 143 m.



Photograph SD3-152: From Sta. 20+800/-49 looking N. LLDPE geomembrane installation on the upstream 3H:1V slope between El. 140 m and 143 m and within the upstream toe liner tie-in.



Photograph SD4-097: From Sta. 40+360/-42 looking E. Placement of the second 0.5 m-thick lift of compacted 0-150 mm till within the upstream toe liner tie-in.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michaël D. Bonin, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

MDB/YB/jlm

Attachments: Central Dike/Saddle Dam 5 Construction Progress Drawings from AEM as of August 21, 2016.

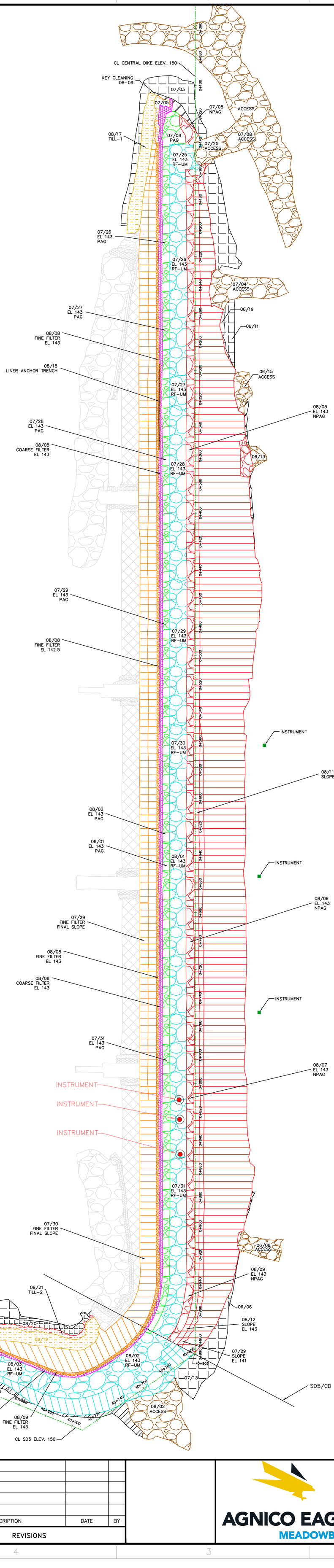
Saddle Dam 3 Construction Progress Drawings from AEM as of August 26, 2016.

Saddle Dam 4 Construction Progress Drawings from AEM as of August 26, 2016.

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE MEADOWBANK

DRAWN BY	AUBREY DESROCHES
DATE	2016–08–21
CHECKED BY	
APPROVED BY	
PROJECT NO.	
DATE	

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

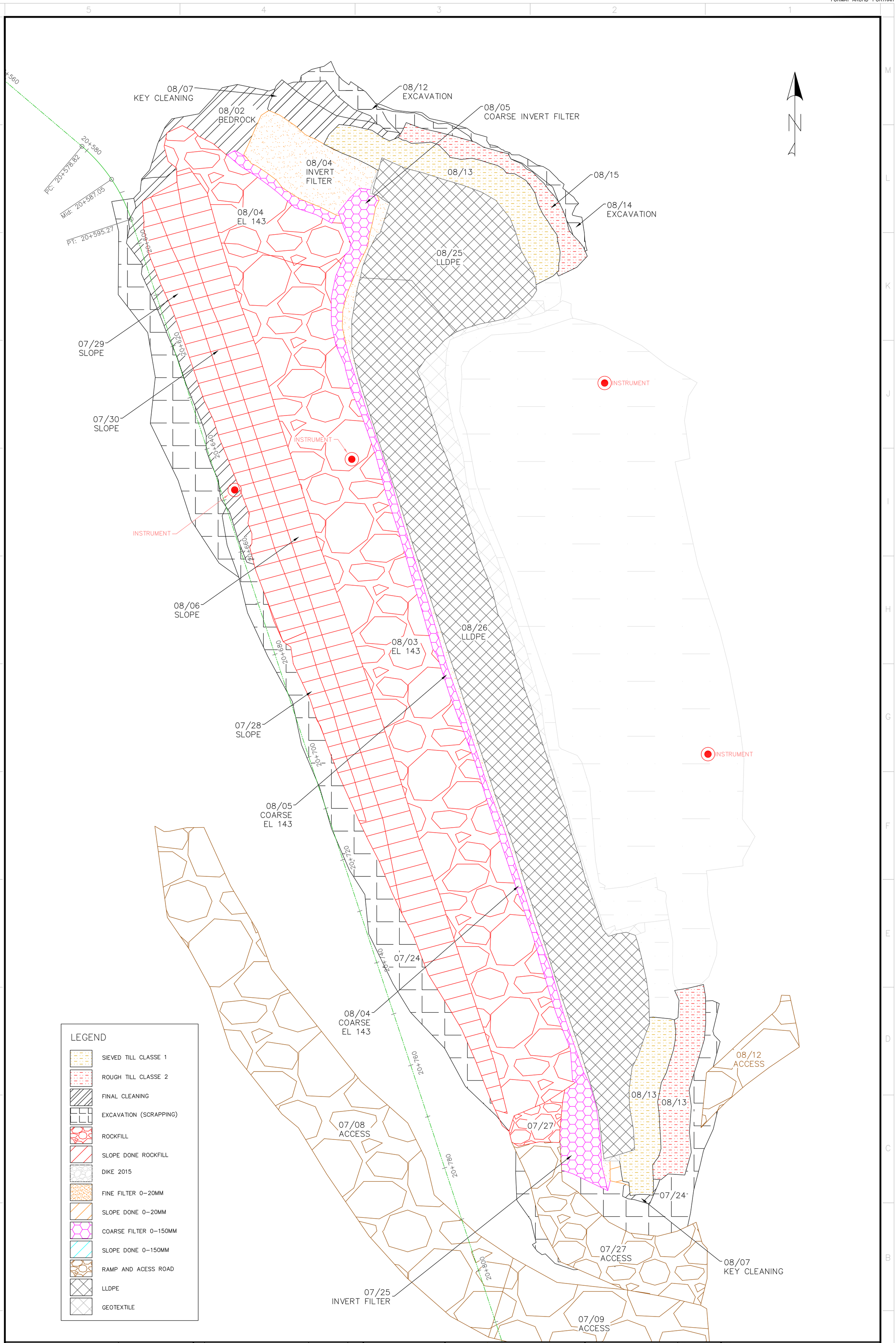
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DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAËL RACINE	DATE 2016–08–26
CHECKED BY		
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PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

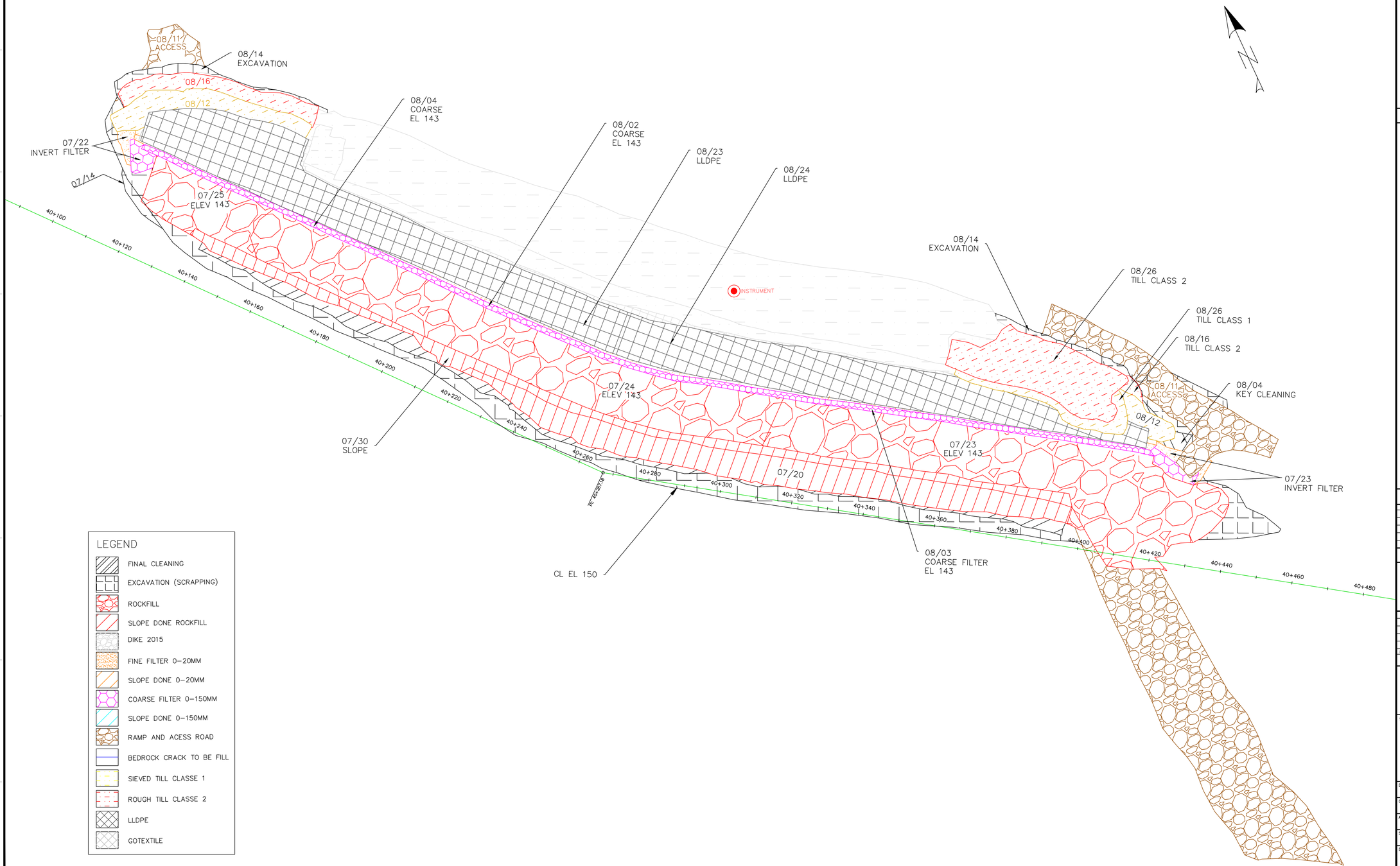
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DRAWING NO.	REVISION	SHEET
		1 / 1

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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE
- GOTEXTILE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAËL RACINE	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–08–26
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 9, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michaël D. Bonin **EMAIL** mdemersbonin@golder.com

QA WEEKLY REPORT FROM AUGUST 27 TO AUGUST 31, 2016 – TSF SOUTH CELL CONSTRUCTION-MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from August 27 to 31, 2016, inclusive, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michaël D. Bonin	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was reminded that the LLDPE geomembrane is slippery due to rain.
- The presentation/training about the use of the safety equipment (lifeline and safety harness) was presented to workers who worked on the upstream CD 2H:1V slope along the South Cell tailings pond.

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3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- The QA Engineer recalled that no till placement should be carried out if it is rainy.
- On August 27, geotextile and compacted till placement was stopped before lunch due to rain. No LLDPE geomembrane placement was made during that day.
- The QA Engineer measured the LLDPE specimen widths. Those specimens are used to measure the load at failure in peel and shear according to ASTM standard D6392. According to this standard, specimen widths shall be 1 inch. Specimen widths were generally between 1.05 to 1.15 inches instead of 1 inch. Loads at failure that were measured so far were thus normalized for a width of 1 inch with the help of the QC and they still meet technical specifications.
- The Owner's Representative asked if some overburden stockpiles at the waste dump could be used as low quality till. QA/QC checked the material and concluded that it was not suitable to be used as low quality till.
- According to the QC, two distinct Proctor values should have been defined for the compacted sieved till and the compacted 0-150 mm till. Moreover, a correction that accounts for the stone fraction should have been applied according to ASTM standard D698. If a correction is applied, optimum dry densities of about 2,225 kg/m³ and 2,270 kg/m³ are obtained, respectively for the sieved and the unsieved till. Actually, an optimum dry density of 2,100 kg/m³ was selected with an optimum water content of 8.5 % based on a Proctor test with no stone correction and a field test pad, both carried out earlier this season. This single value has been selected historically for both the compacted sieved till for and the compacted unsieved till. Although it does not meet the ASTM standard, it was decided during the daily construction meeting to keep going with a single value with no stone correction as it has been done so far. It is important to note that based on field observations, the resulting till behaviour during the compaction with those criteria is still good for both types of till.
- According to the QC, some moisture contents of the compacted 0-150 mm till are slightly too high (~9 %) which makes till placement difficult. However, PNG results still meet technical specifications based on optimum dry density and water content respectively of 2,100 kg/m³ and 8.5 %. It was thus decided during the daily construction meeting to keep going when optimum criteria are met. In the event moisture contents would be greater than 9.5 %, the Owner's Representative suggested that bentonite clay be added within the till to lower the moisture content. The QA Engineer and the QC Representative noted that this approach might make quality control more difficult as it is a new material and that the bentonite/till mix might be variable.
- Rough till stockpiles B and C were mixed together as recommended by the QA Engineer and the QC Representative based on laboratory QC results 419 and 420.
- The QA Engineer reminded that per Doc1514 1528661 TME Rev0 - *SDs Change US toe liner Backfill,* the low quality till could be placed in lifts of 1 m and the material should not contain particles exceeding 500 mm.

- There might be a shortage of compacted till 0-150 mm to complete the upstream toe liner tie-in this season. The Owner's Representative agreed to use compacted sieved till instead of compacted till 0-150 mm when the latter will be depleted.
- There was no geosynthetics installation in the afternoon on August 31 due to strong winds.

Central Dike

- All LLDPE geomembrane rolls stored at CD are lying on a geotextile sheet to avoid damaging them.
- At Sta. 0+620/CD, the QA Engineer asked to remove fine filter over the geotextile before LLDPE installation.
- The Owner's Representative presented the layout of the CD deposition points that will be built this year. This layout includes the following (see Figure 1 below):
  - A geotextile sheet over the existing LLDPE geomembrane installed on the upstream 2H:1V slope;
  - 2 additional layers of LLDPE geomembrane welded to the underlying LLDPE geomembrane;
  - Used conveyor belts overlying the additional LLDPE sheets.

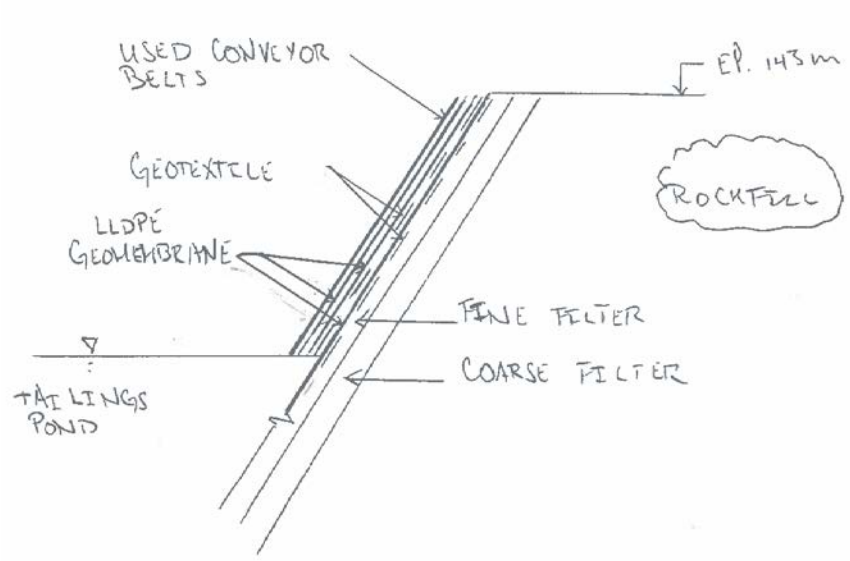


Figure 1: Proposed layout for CD tailings deposition points

Saddle Dam 5

- The contractor was told to clean up the fine filter entrapped between the geotextile underlying the erosion protection layers and the LLDPE at El. 137 m on SD5/CD. This has been carried out all along SD5 and CD during the reporting period.
- The liner installer told the contractor to clean the till ledge at the toe of the fine filter slope at SD5 in view of the geosynthetics installation (See Photograph SD5-032). This was corrected.

Saddle Dam 3

- The Owner's Representative confirmed that he wants to complete the erosion protection layers with low quality till over the SD3 upstream toe liner tie-in started last year as well as for the portion built this season.
- The surveyor noted that the LLDPE geomembrane was not long enough within the upstream toe liner tie-in at SD3/South side. The liner installer came back to SD3 to extend it upstream within the till plug (see Photograph SD3-156).
- The contributors had a discussion about the configuration of the upstream toe liner tie-in north of the hump at SD3. The actual layout of the hump north of SD3 results in a low quality till layer that is higher in elevation than the LLDPE geomembrane in this area. As low quality till can't be in contact with the LLDPE geomembrane, a compacted sieved till layer would have been required underneath. In order to save on compacted sieved till, it was decided to stop the low quality till lift at the crest of the hump. The proposed configuration is showed in Photograph SD3-154. This configuration meets technical specifications.
- AT SD3, the QC Technician made request that some soft spots of compacted sieved till be excavated and replaced by a suitable till and then compacted once again (see Photograph SD3-155). This area of compacted sieved till was placed on August 27 before till placement had been stopped due to rain. The corrections were made.
- There were some discussions about where to stop the compacted sieved till on top of the hump north of SD3 to ease the extrusion weld with the LLDPE for next construction season. The liner installer suggested the location of the extrusion weld to be carried out next construction season and the compacted sieved till over LLDPE was stopped according to his advice.
- The QA Engineer noted that some precautions must be taken at SD3 when placing the low quality till to prevent boulders from falling down on the LLDPE geomembrane. Per Doc1514 1528661 TME Rev0 - *SDs Change US toe liner Backfill,* the low quality till could be placed in lifts of 1 m and the material should not contain particles exceeding 500 mm.
- At SD3, the QA Engineer asked to remove fine filter onto the compacted sieved till lift before the placement of the next lift and this was done.

Saddle Dam 4

- The Owner's Representative confirmed that he wants to complete the erosion protection layer with a 1 m-thick lift of fine rockfill over the SD4 upstream toe liner tie-in started last year. The QA Engineer reminded that the material shall be well graded. The upstream toe liner tie-in that was built this season will be made of granular materials per drawings. Following this, the configuration showed in Figure 2 was adopted to complete the protection against erosion over the 1m-thick lift of low quality till placed last year at SD4.

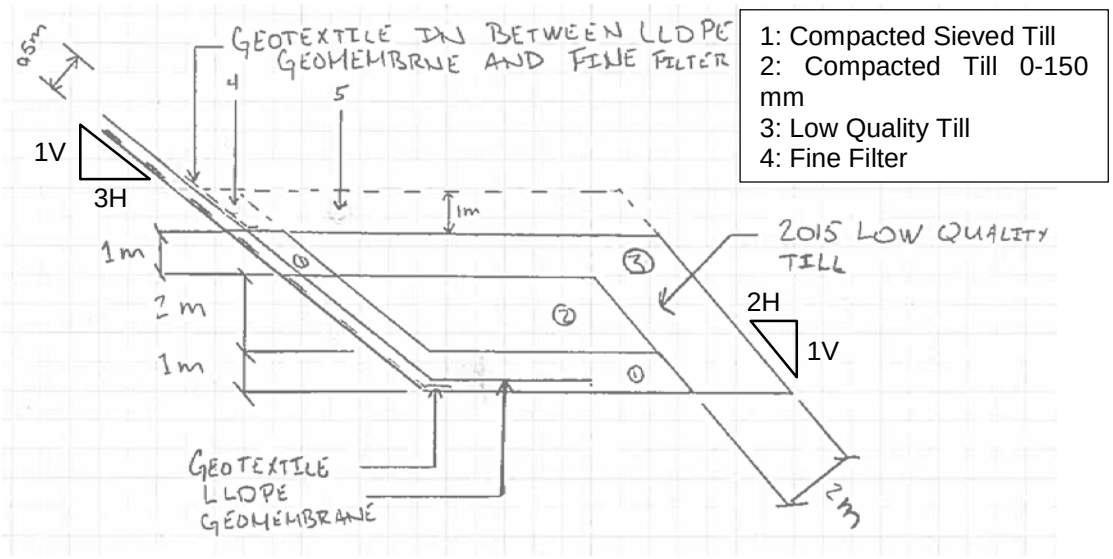


Figure 2: Configuration of the SD4 protection against erosion over the low quality till placed last year.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+980 to 0+630. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Cleanup of the fine filter lying on the LLDPE Geomembrane at El. 137 m in view of the geosynthetics installation. ■ Installation of the LLDPE on the upstream 2H:1V between El. 137 m and 143 m from Sta. 0+980 to 0+635. The LLDPE was free of folds and holes. Air channel tests were carried out under the supervision of the QA Engineer and results met technical specifications. ■ Vacuum box tests were conducted from Sta. 0+880 to 0+690. One leak was found. The leak was repaired and tested once again. ■ AM and PM calibration results met technical specifications during the entire reporting period. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from technical specifications. ■ Six destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+970/-32 (DT-55), 0+915/-30 (DT-56), 0+835/-31 (DT-57), 0+790/-25 (DT-58), 0+730/-30 (DT-59) and 0+680/-30 (DT-60). Tests results met

Activity or Area	Comments
	technical specifications. Samples were kept for the Owner's Representative. ■ Two horizontal seams were carried out on the LLDPE geomembrane during the reporting period approximately at Sta. 0+850 and 0+795.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Completion of the placement of compacted till 0-150 mm within the upstream toe liner tie-in from Sta. 40+750 to 40+640. The lift was compacted with a 10 t smooth-drum vibratory compactor on top and with the bucket of the excavator on the slope. No PNG test was conducted since the lift was not wide enough. ■ Placement of a 0.5 m-thick lift of fine filter as erosion protection within the upstream toe liner tie-in from Sta. 40+750 to 40+640. The material was compacted on the slope with the bucket of the excavator and on top with 4 passes of a 10 t smooth-drum vibratory compactor. The material was seated on bedrock. ■ Placement of a 0.5 m-thick lift of coarse filter as erosion protection within the upstream toe liner tie-in from Sta. 40+750 to 40+640. The material was compacted on the slope with the bucket of the excavator and on top with 4 passes of a 10 t smooth-drum vibratory compactor. The material was seated on bedrock. ■ Placement of a 1.0 m-thick lift of fine rockfill as erosion protection within the upstream toe liner tie-in from Sta. 40+750 to 40+640. The material has not been compacted yet. The material was seated on the excavated materials upstream.
Foundation preparation	■ Excavation of the fractured bedrock that needed to be removed in view of the foundation approval FND-SD5-11 under the granular protection against erosion approximately at Sta. 40+750/-50.
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 3H:1V to 2H:1V slope between El. 137 m and 143 m from Sta. 40+803 to 40+630. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of the LLDPE on the upstream 3H:1V up to El. 143 m from Sta. 40+630 to 40+803. The LLDPE was free of folds and holes. Air channel tests were carried out under the supervision of the QA Engineer and results met technical specifications. Vacuum box tests were conducted from Sta. 40+630 à 40+803. No leak has been identified. ■ AM and PM calibration results met technical specifications during the entire reporting period. Loads at failure in peel and shear were greater than minimum

Activity or Area	Comments
	values in Table 6-2 from technical specifications. ■ Two destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 40+665/-27 (DT-53) and 40+775/-30 (DT-54). Tests results met technical specifications. Samples were kept for the Owner's Representative. ■ Some additional LLDPE sheets were placed onto the till within the upstream toe liner tie-in to ease the welding of the panels as the till surface was humid after the rain on August 27. ■ Backfilling and compaction of the geosynthetics tie-in from Sta. 40+630 to 40+803. The compaction was conducted with 4 passes of a 10 t smooth-drum vibratory compactor under the supervision of the QC. The compactor kept a safe distance from the LLDPE geomembrane. ■ No horizontal seam was made on the LLDPE geomembrane installed at SD5.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe liner tie-in	■ Placement of a first 0.5 m-thick lift of compacted sieved (0-50mm) till over the LLDPE geomembrane from Sta. 20+620/-61 to 20+635/-64. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane from Sta. 20+595/-45 to 20+625/-65. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a first 0.5-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in from Sta. 20+595/-45 to 20+625/-65. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane from Sta. 20+745 to 20+790. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a first 0.5-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in from Sta. 20+740 to 20+780. The lift was compacted with a 10 t

Activity or Area	Comments
	smooth-drum vibratory compactor while keeping a minimum thickness of 1 m in between the LLDPE geomembrane and the drum. PNG tests were conducted and results met technical specifications (see Table 7).
Geotextile and LLDPE geomembrane	■ The LLDPE geomembrane was extended 1 m upstream within the compacted sieved till plug to meet a width of 3 m at Sta. 20+760/-63 (See Photograph SD3-156).

Table 5: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe liner tie-In	■ Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane from Sta. 40+160 to 40+115. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a first 0.5 m-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in from Sta. 40+160 to 40+115 over the compacted sieved till. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream while ensuring a minimum thickness of 1 m in between the LLDPE and the drum. PNG tests were conducted and results met technical specifications (see Table 7).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of the Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-SD5-02	SD5	Sta. 40+638.4/-38.35 to approximately 40+784.01/-35.45	30/08/2016	Geosynthetics approval
FND-SD5-11	SD5	Details to come	31/08/2016	Foundation under the granular protection against erosion within the upstream toe liner tie-in
FND-CD-134	CD	Sta. 0+132 /-25 to 0+970/-51	29/08/2016	Surface in prevision of geosynthetic
LLDPE-CD-27	CD	Sta. 0+820.5/-41.58 to 0+970.97/-35.96	31/08/2016	Geosynthetics approval

6.0 SAMPLING, LABORATORY AND FIELD TESTING

The QA Engineer reviewed the laboratory test results completed by the QC.

Table 7 presents the samples collected or tested by the QC as well as PNG field results carried out on the compacted sieved till and on the compacted 0-150 mm till.

Results of sample 416 collected as-placed on SD5 were compliant. Results from sample 419 are compliant, but results from sample 420 showed a material slightly too fine with a compliant water content. Based on laboratory results from samples collected in stockpiles B and C, it was recommended to mix those two stockpiles as they were quite small (350 m³ each).

Table 7: Samples Taken and Tested by the QC and Field Results

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
423 A to D	29/08/2016	29/08/2016	Compacted sieved till	SD3/Sta. 20+600/-55 to 20+665/-70, El. 140 m to 143 m	Dry density, WC (PNG)	Dry density: 2,081 to 2,157 kg/m³, WC: 8.3 to 8.8%
424 A to D	29/08/2016	29/08/2016	Compacted 0-150 mm till	SD3/Sta. 20+600/-55 to 20+665/-70, El. 140 m to 143 m	Dry density, WC (PNG)	Dry density: 2,037 to 2,117 kg/m³, WC: 8.4 to 9.8 %
416	19/08/2016	29/08/206	Compacted sieved till	SD5/40+633.1/-39.7, El. 140.6 m	Gradation, WC	Compliant
419	21/08/2016	30/08/206	Compacted till 0-150 mm	Stockpile C North CD	Gradation, WC	Compliant
420	21/08/2016	30/08/206	Compacted till 0-150 mm	Stockpile B North CD	Gradation, WC	Gradation slightly too fine but WC compliant
425 A to D	30/08/2016	30/08/2016	Compacted sieved till	SD3/Sta. 20+752/-50.7 to 20+784/-37.2, El. 138.8 m to 143.5 m	Dry density, WC (PNG)	Dry density: 2,046 to 2,120 kg/m³, WC: 8.4 to 9.2%
426 A to D	30/08/2016	30/08/2016	Compacted 0-150 mm till	SD3/Sta. 20+749/-50.0 to 20+772/-41.3, El. 139.1 m to 142.0 m	Dry density, WC (PNG)	Dry density: 2,078 to 2,120 kg/m³, WC: 8.7 to 9.6%
427 A to D	30/08/2016	30/08/2016	Compacted sieved till	SD4/Sta. 40+117/-45.4 to 40+151/-53.6, El. 138.1 m to 141.1 m	Dry density, WC (PNG)	Dry density: 2,138 to 2,188 kg/m³, WC: 7.3 to 8.4%
428 A to D	31/08/2016	31/08/2016	Compacted 0-150 mm till	SD4/Sta. 40+118/-43.3 to 40+153/-54, El. 138.5 m to 141.0 m	Dry density, WC (PNG)	Dry density: 2,121 to 2,243 kg/m³, WC: 6.9 to 8.7%

7.0 PHOTOGRAPHS



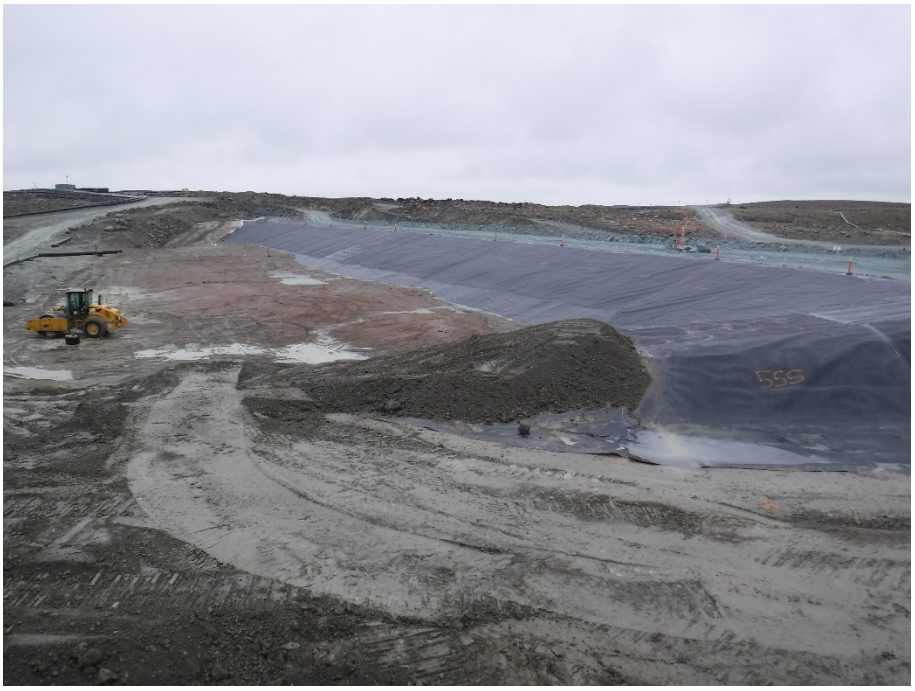
Photograph SD5-032: From Sta. 40+650/-42 looking E. Till ledge to be corrected in view of the geosynthetics installation.



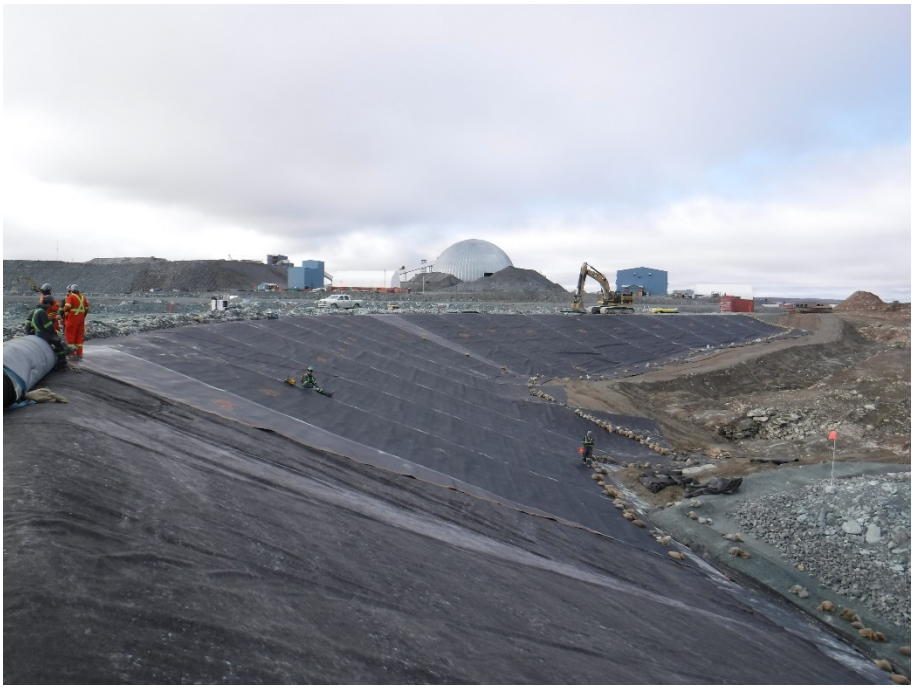
Photograph CD-1758: From Sta. 40+645/-22 looking NE. Installed geotextile on the upstream slope (transition from CD 2H:1V to SD5 3H:1V slope) between El. 137 and 143 m.



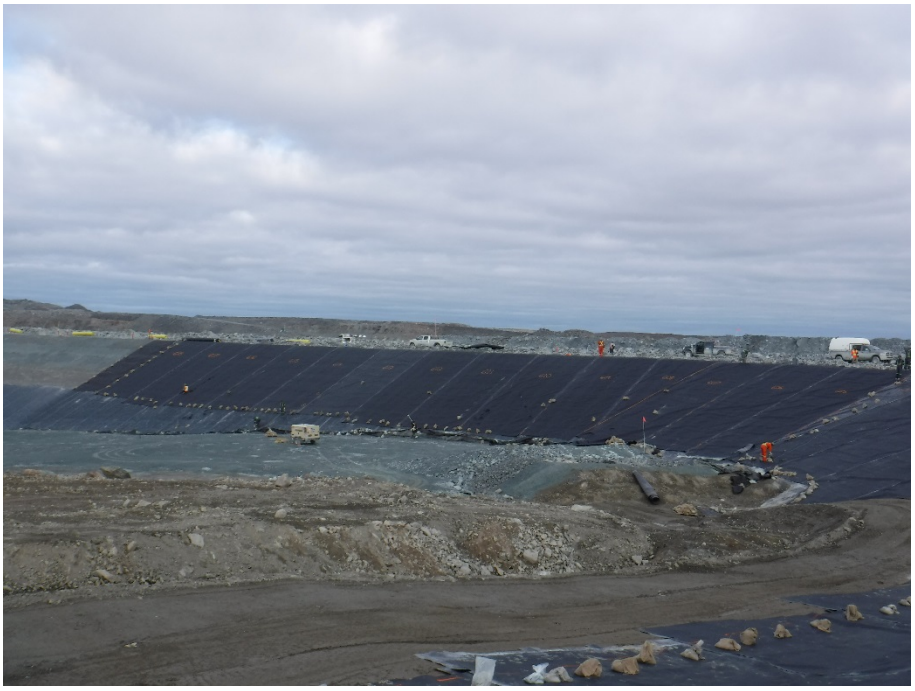
Photograph CD-1759: From Sta. 0+955/-56 looking N. Fine filter lying on the LLDPE geomembrane that was cleaned up during the reporting period (see also Photograph SD5-034).



Photograph SD3-153: From Sta. 20+600/-73 looking SW. Placement of a 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane.



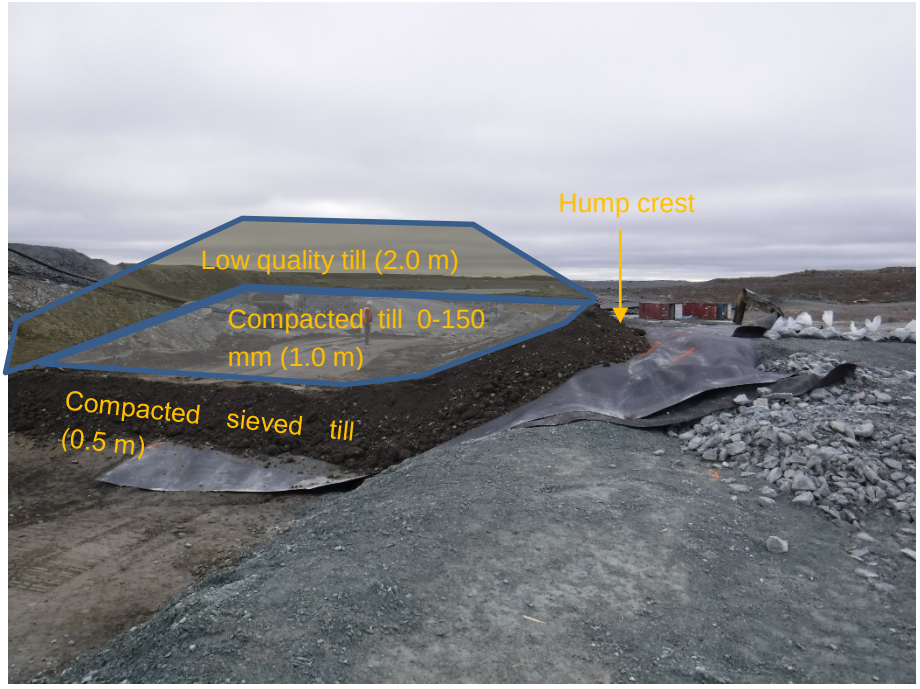
Photograph SD5-033: From Sta. 0+955/-30 looking SW. LLDPE installation on the SD5 upstream 3H:1V slope between El. 137 m to 143 m.



Photograph CD-1760: From Sta. 40+650/-25 looking NE. LLDPE installation on the CD upstream 2H:1V slope between El. 137 m to 143 m.



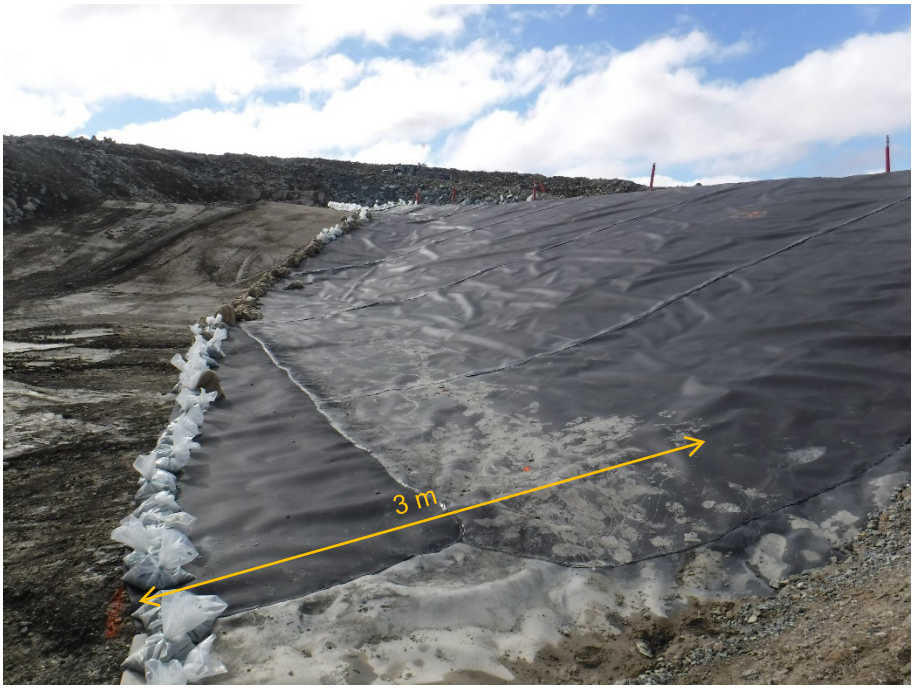
Photograph SD5-034: From Sta. 40+760/-32 looking N. Cleanup of fine filter entrapped between the LLDPE geomembrane and the geotextile.



Photograph SD3-154: From Sta. 20+600/-39 looking E. Upstream toe liner tie-in configuration north side of the SD3 hump.



Photograph SD3-155: From Sta. 20+615/-57 looking E. Compacted sieved till that was excavated at QC's request. The material was too soft to be compacted after the rain on August 27. It was replaced by a competent till and compacted afterwards.



Photograph SD3-156: From Sta. 20+745/-50 looking SW. The LLDPE was extended upstream within the upstream toe liner tie-in to meet the 3 m-wide strip within the till plug.



Photograph SD3-157: From Sta. 20+590/-38 looking E. Placement of a first 0.5 m-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in.



Photograph CD-1761: From Sta. 0+820/-30 looking N. Installation of geotextile on the CD upstream 2H:1V slope between El. 137 m and 143 m.



Photograph SD3-158: From Sta. 20+800/-43 looking N. Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane within the upstream toe liner tie-in and onto the upstream 3H:1V slope.



Photograph SD3-159: From Sta. 20+740/-50 looking S. Placement of the first 0.5 m-thick lift of compacted 0-150 mm till over the compacted sieved till within the upstream toe liner tie-in.



Photograph SD4-098: From Sta. 40+105/-30 looking E. Placement of the first 0.5 m-thick lift of compacted sieved till above the LLDPE geomembrane within the upstream toe liner tie-in.



Photograph SD5-035: From Sta. 40+620/-34 looking E. Placement of compacted till 0-150 mm within the upstream toe liner tie-in in view of the placement of the granular protection against erosion.



Photograph SD5-036: From Sta. 40+750/-50 looking S. Fractured bedrock that was removed in view of the foundation approval FND-SD5-11 under the granular protection against erosion.



Photograph SD5-037: From Sta. 40+740/-64 looking W. Placement of 0.5 m-thick lifts of fine and coarse filter as a protection against erosion onto the slope of the upstream toe liner tie-in. Both materials were compacted with the bucket of the excavator on the slopes and with a 10 t smooth-drum vibratory compactor on top. Both materials were seated on bedrock.



Photograph SD5-038: From Sta. 40+640/-44 looking W. Placement of fine rockfill as the erosion protection of the upstream toe liner tie-in. The fine rockfill was seated on the excavated materials upstream.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michaël D. Bonin, P.Eng., M.Sc.A
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

MDB/YB/jlm

Attachments: Central Dike/Saddle Dam 5 Construction Progress Drawings from AEM as of August 30, 2016.

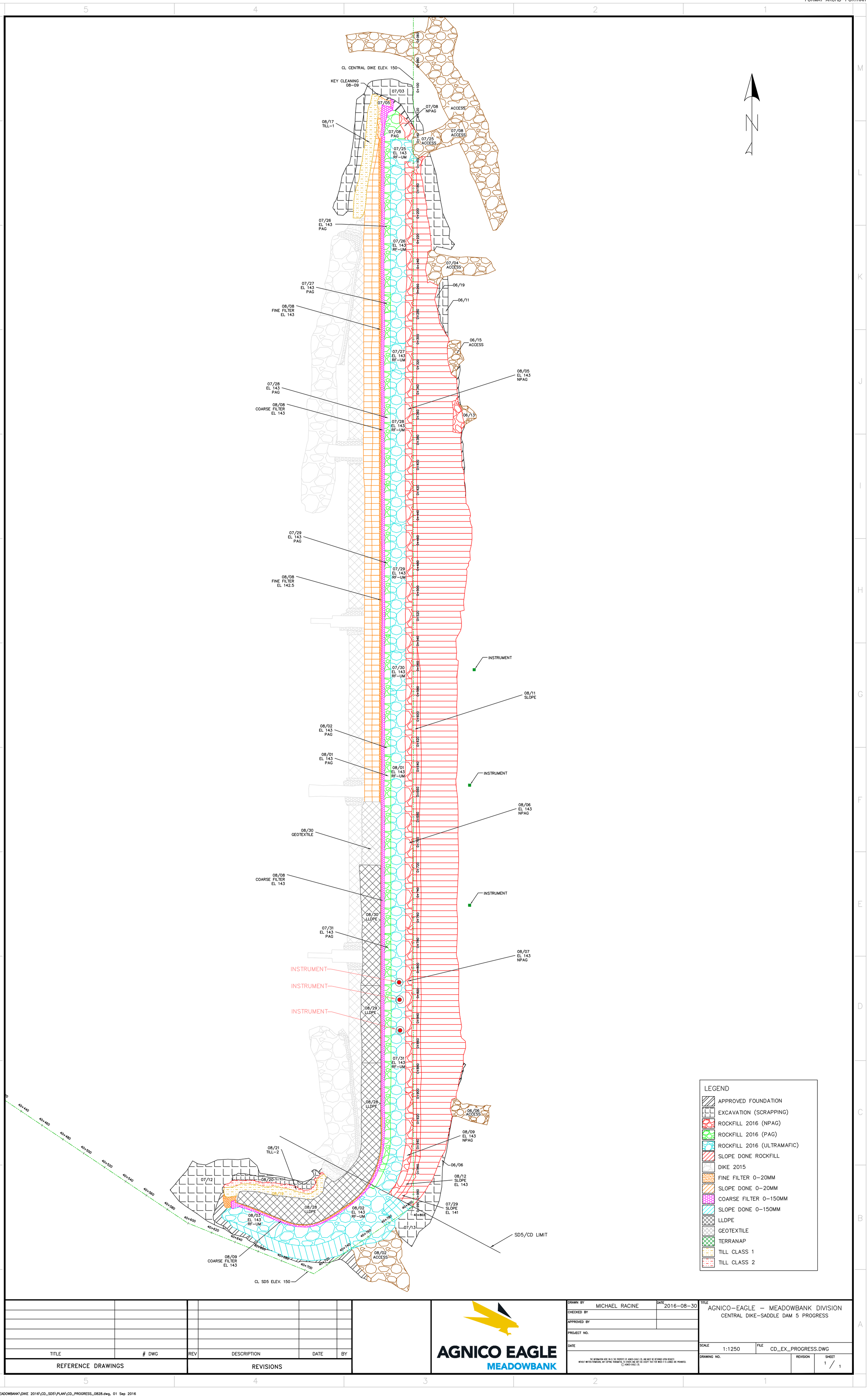
Saddle Dam 3 Construction Progress Drawings from AEM as of August 30, 2016.

Saddle Dam 4 Construction Progress Drawings from AEM as of August 30, 2016.

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAEL RACINE	DATE 2016–08–30
CHECKED BY		
APPROVED BY		
PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

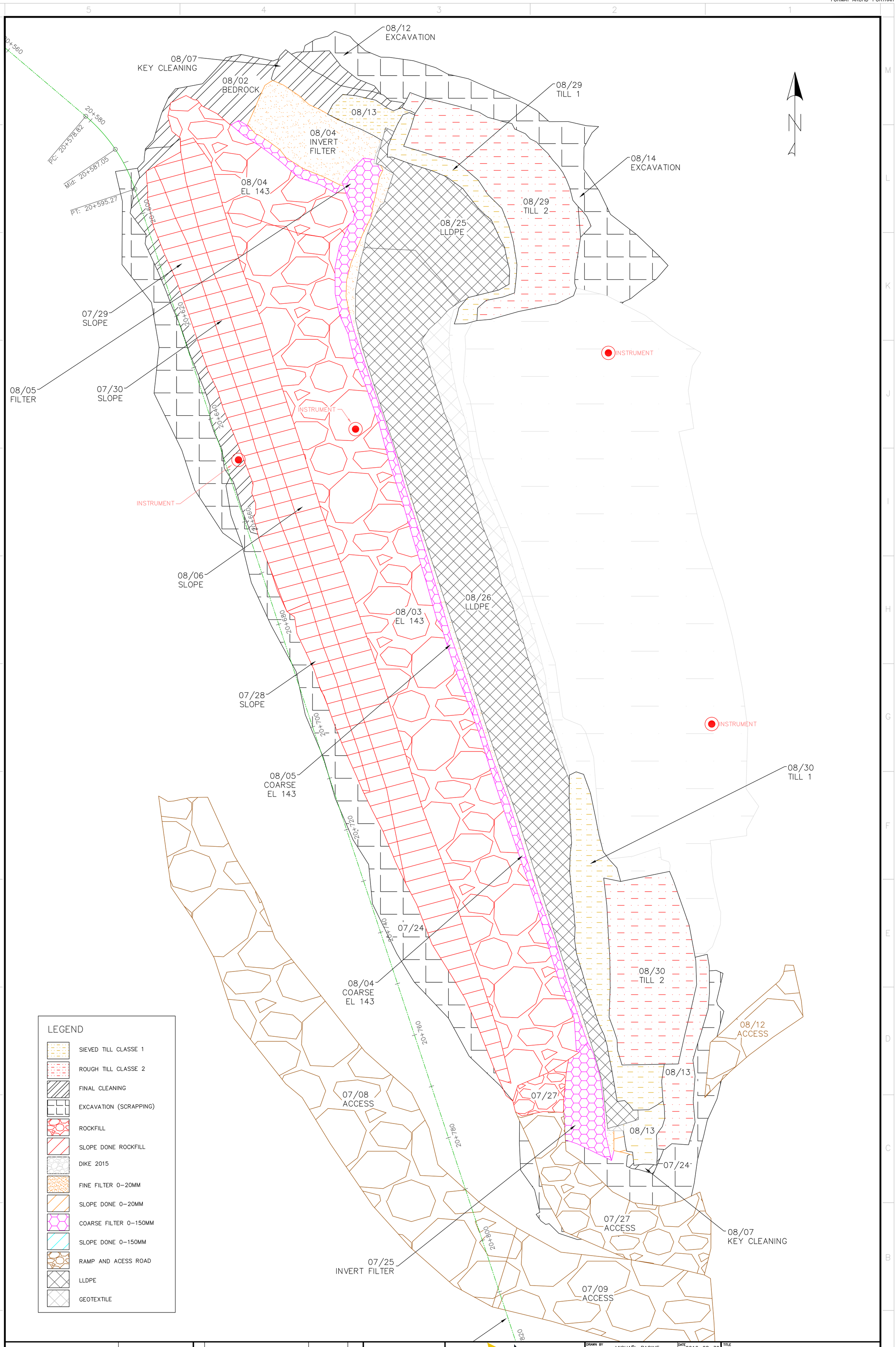
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		1 / 1

C:\MEADOWBANK\DIKE 2016\CD_SD5\PLAN\CD_PROGRESS_0828.dwg, 01 Sep 2016

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	MICHAËL RACINE	DATE 2016–08–30
CHECKED BY		
APPROVED BY		
PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

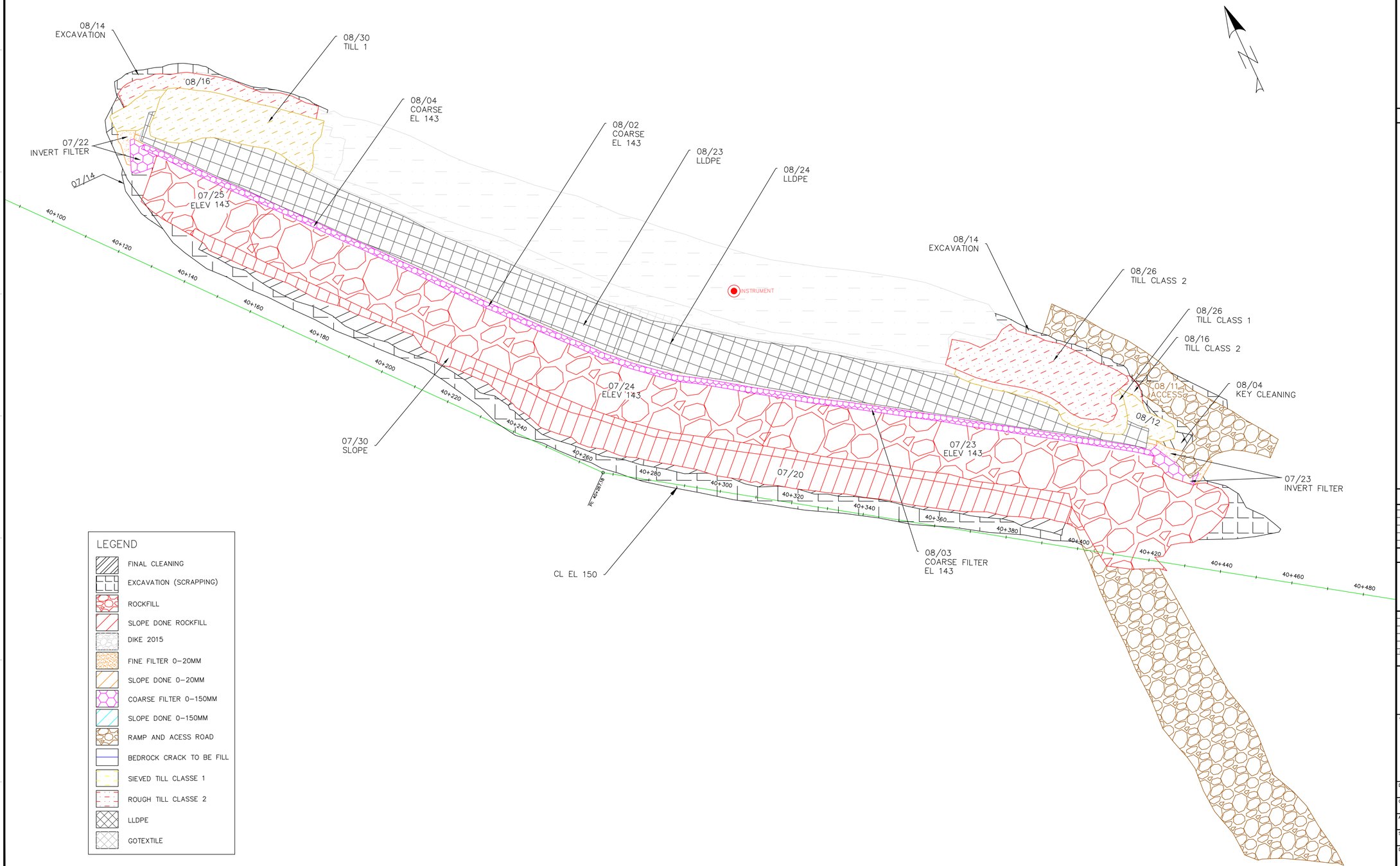
SCALE	FILE
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DRAWING NO.	REVISION	SHEET
		1 / 1

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DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- BEDROCK CRACK TO BE FILL
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE
- GOTEXTILE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: MICHAËL RACINE	DATE:
CHECKED BY:	
APPROVED BY:	
SCALE: 1:500	DATE: 2016–08–30
DRAWING NO.	
PROJECT NO.	REVISION: / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 8, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 1 TO 7, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from September 1 to 7, 2016, inclusively, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period is summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- It was mentioned that the workers on CD are doing a good work with the lifeline system. They must continue to work properly and safely.
- Mitigation activities on Stormwater Dike has begun. As co-activities on SD road will increase considerably for the next few days, care must be taken.

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- The rain turns the UM rockfill in a muddy and slippery surface. Pay attention to avoid slipping when walking or driving on it. Be sure that lights and mirrors of vehicles are cleaned of mud. Also, the LLDPE geomembrane is a very slippery surface when it is wet. Be careful when walking on it.
- As soon as the placement of the geosynthetics is done, candles on CD crest have to be replaced at 2 m from the edge of the upstream slope.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period and were attended by the QA manager. The following items were discussed:

General

- Erratum:
  - Some geoxtextile installation was done on August 31. Geotextile was approximately installed on the CD upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+670 to 0+630.
  - The LLDPE geomembrane installation ended up at Sta. 0+635 instead of 0+670 as noted in the daily report for August 31, 2016.
- Sorting of the till stockpile (0-150 mm) located north of CD was done on September 3.
- Due to rain, no geotextile and LLDPE geomembrane was placed on September 3.
- The QA manager reiterated that the compaction of the granular protection has to be supervised like it was for the other dike structures.
- For granular protection placement, it was discussed that haul trucks must not circulate on the compacted till 0-150 mm of the upstream toe liner tie-in because it is too humid and malleable. Haul trucks have to dump the fine and coarse filters next to the structure and the excavator will place it.
- The QA manager reiterated that, for granular protection placement, geotextile protection on the LLDPE shall extend to a maximum of 0.5 m on the compacted till 0-150 mm.
- The QA manager reiterated that 50-ton trucks or D8 dozer must not circulate over the LLDPE geomembrane if it does not have 4.0 m of material above it. The surveyor will mark the LLDPE geomembrane boundary.
- The QA manager informed the owner's representatives that it would not be acceptable to sort the compacted till 0-500 mm into a compacted till 0-150 mm if it is only sorted with the excavator bucket.

Saddle Dam 4

- It was decided to use compacted sieved till over the LLDPE geomembrane to complete the protection against erosion placed last year at SD4 (see Figure 1 below). Initially, a geotextile sheet and fine filter were to be placed as shown in Figure 1.

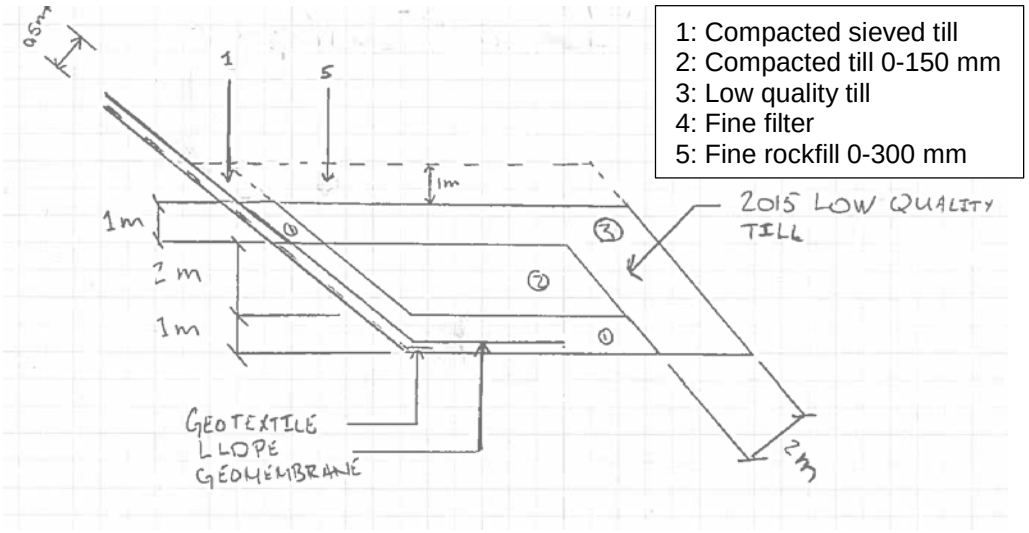


Figure 1: Configuration to complete SD4 protection against erosion started last year with low quality till.

- The QA manager reminded that a strip approximately 2 m wide needs to be excavated down to the rock on the west part of SD4 (from Sta. 40+100 to 40+160). The fine and coarse filters of granular protection must end on the rock surface.
- The QA manager reiterated how the SD4 transition has to be done to ensure a progressive transition between the fine rockfill of the center of the dike and the compacted till 0-150 mm at each end of the dike.

Saddle Dam 3

- It was accepted by the owner's representatives and Golder to use low quality till (0-500 mm) for the SD3 erosion protection layer.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+630 to 0+150. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of LLDPE geomembrane on the upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+635 to 0+160. The LLDPE was free of folds and holes. Air channel tests were carried out under the supervision of the QA Engineer and results met technical specifications.

Activity or Area	Comments
	■ AM and PM calibration results met technical specifications during the entire reporting period. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from technical specifications. ■ Nine destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+630/-26 (DT-61), 0+575/-26 (DT-62), 0+515/-26 (DT-63), 0+455/-26 (DT-64), 0+395/-26 (DT-65), 0+360/-26 (DT-66), 0+300/-26 (DT-67), 0+240/-26 (DT-68), 0+180/-26 (DT-69). Tests results met technical specifications. Samples were kept for the owner's representatives. ■ Four horizontal seams were carried out on the LLDPE geomembrane approximately at Sta. 0+560, 0+490, 0+440 and 0+380. ■ Vacuum box tests were carried out from Sta. 0+690 to 0+140. One leak was detected and corrected afterward. ■ Backfilling and compaction of the geosynthetic tie-ins from Sta. 0+860 to 0+780.
LLDPE geomembrane placement acceptation	■ The LLDPE geomembrane has been walked and approved from Sta. 0+380/-40 to 0+136/-26.
Upstream toe liner tie-in	■ Placement of a first 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane on the north part of CD from Sta. 0+220 to 0+140. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a second 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane on the north part of CD from sta. 0+220 to 0+140. The lift will be compacted later because it was too humid.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of a second 0.5 m-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in on the south part of SD3 from Sta. 20+780 to 20+740. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a second 0.5 m-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in on the north part of SD3 from Sta. 20+630 to 20+600. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7).

Activity or Area	Comments
	■ Placement of the two lifts of 1.0 m-thick compacted low quality till 0-500 mm of the protection against erosion on the north part of SD3 from Sta. 20+640 to 20+600. The lifts were compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of the two lifts of 1.0 m-thick of compacted low quality till 0-500 mm of the protection against erosion on the south part of SD 3 from Sta. 20+780 to 20+740. The lifts were compacted with four passes of a 10 t smooth-drum vibratory compactor.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of a second 0.5 m-thick lift of compacted till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 40+120 to 40+180. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a 1.0 m-wide and 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane to complete the protection against erosion placed last year from Sta. 40+180 to 40+220 and from Sta. 40+300 to 40+360. The lift was compacted using the bucket of the excavator. ■ A strip approximately 2 m wide has been excavated to the rock/natural soil on the west part of SD4 (from Sta. 40+100 to 40+140) for the placement of the fine/coarse filters of granular protection. ■ Placement of a 0.5 m-thick lift of fine filter of granular protection on the west part of SD4 from Sta. 40+160 to 40+120. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 0.5 m-thick lift of coarse filter of granular protection on the west part of SD4 from Sta. 40+160 to 40+120. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ A strip approximately 2 m wide has been excavated to the rock/natural soil on the east part of SD4 (from Sta. 40+400 to 40+360) for the placement of the fine/coarse filters of granular protection. ■ Placement of a 0.5 m-thick lift of fine filter of granular protection on the east part of SD4 from Sta. 40+400 to 40+360. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 1.0 m-thick lift of fine rockfill of granular protection on the existing protection against the erosion of compacted till 0-150 mm from Sta. 40+220 to 40+180. The lift will be compacted soon.

Table 5: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream toe liner tie-in	■ Placement of an initial 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane from Sta. 0+970 to 40+640. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of the two 0.5 m-thick lifts of compacted till 0-150 mm within the upstream toe liner tie-in from Sta. 0+970 to 40+640. The lifts were compacted with a 10 t smooth-drum vibratory compactor. PNG tests were conducted and results met technical specifications (see Table 7). ■ Placement of a 0.5 m-thick lift of fine filter of granular protection from Sta. 0+970 to 40+640. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 0.5 m-thick lift of coarse filter of granular protection from Sta. 0+970 to 40+640. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 6: Details of Foundation Approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-11	SD5	Sta. 40+745/-63 to 40+758/-64 and 40+750/-67 to 40+760/-68	31/08/2016	Foundation under the granular protection against erosion within the upstream toe liner tie-in
LLDPE-CD-029	CD	Sta. 0+380/-26, 0+380/-40, 0+136/-26 and 0+136/-33.	06/09/2016	Geosynthetics approval

6.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 7 presents the samples collected or tested by the QC as well as PNG field results carried out on the compacted sieved till and on the compacted till 0-150 mm.

Table 7: Samples Taken and Tested by the QC and Field Results

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
429 A to F	01/09/2016	01/09/2016	Compacted sieved till	SD5/Sta. 40+757/-57.4 to 40+639/-46.8 El. 136 to 140.0 m	Dry density, WC (PNG)	Dry density: 2,106 to 2,163 kg/m^3, WC: 7.5 to 8.6%
430 A to F	01/09/2016	01/09/2016	Compacted till 0-150 mm	SD5/Sta.40+757/-59.3 to 40+636/-45.5 El. 137 to 141.4 m	Dry density, WC (PNG)	Dry density: 2,096 to 2,195 kg/m^3, WC: 7.3 to 9.1%
431 A to H	02/09/2016	02/09/2016	Compacted till 0-150 mm	SD5/Sta. 40+761/-59 to 40+640/-40,6 El. 137.5 to 141.9.0 m	Dry density, WC (PNG)	Dry density: 2,105 to 2,242 kg/m^3, WC: 6.0 to 8.1%
432 A to D	02/09/2016	02/09/2016	Compacted till 0-150 mm	SD4/Sta.40+160/-47.8 to 40+122/-39.3 El. 139.3 to 141.8 m	Dry density, WC (PNG)	Dry density: 2,155 to 2,301 kg/m^3, WC: 5.4 to 8.2%
433 A to C	03/09/2016	03/09/2016	Compacted till 0-150 mm	SD3/Sta. 20+770/-42 to 20+750/-51.7 El. 142 to 139.8 m	Dry density, WC (PNG)	Dry density: 2,192 to 2,330 kg/m^3, WC: 5.9 to 8%
434 A to D	03/09/2016	03/09/2016	Compacted till 0-150 mm	SD3/Sta.20+633/-66 to 20+607/-56.7 El. 140.4 to 143.9 m	Dry density, WC (PNG)	Dry density: 2,174 to 2,325 kg/m^3, WC: 7.5 to 8.2%
435 A to F	07/09/2016	07/09/2016	Compacted sieved till	CD north/ sta. 0+141.3/-35.9 to 0+196/-45.7 El.138.2 to 142.3 m	Dry density, WC (PNG)	Dry density: 2,080 to 2,152 kg/m^3, WC: 7.1 to 8.3%

7.0 PHOTOGRAPHS



Photograph CD-1762: From Sta. 0+490/-26 looking S. Geotextile and LLDPE installation on the CD upstream 2H:1V slope between El. 137 m and 143 m.



Photograph CD1763: From Sta. 0+360/-33 looking N. Extrusion fillet seams on LLDPE on the CD upstream 2H:1V slope between El. 137 m and 143 m.



Photograph CD-1764: From Sta. 0+120/-35 looking S. Geotextile and LLDPE installation on the CD upstream 2H:1V slope between El. 137 m and 143 m. Notice that the installation of the geosynthetics has reached the end of CD.



Photograph CD-1765: From Sta. 0-120/-35 looking S. Placement of a first and second lift of compacted sieved till over the LLDPE membrane on the north part of CD.



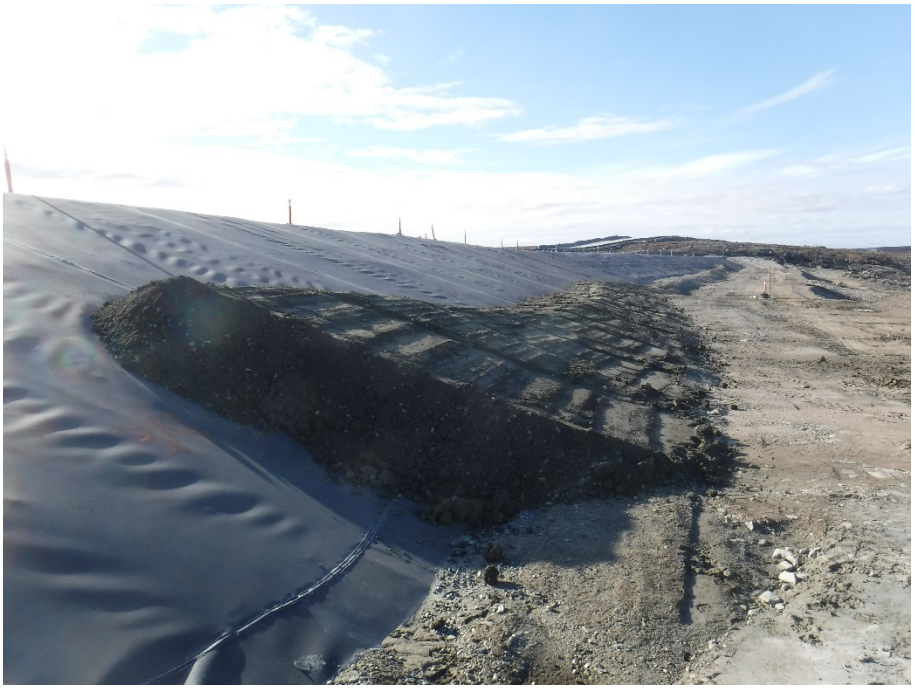
Photograph SD5-039: From Sta. 0+950/-21 looking SW. Placement of a first 0.5 m-thick lift of compacted sieved till over the LLLDPE geomembrane.



Photograph SD5-040: From Sta. 0+950/-21 looking SW. Placement of a 0.5 m-thick lift of fine filter of granular protection on SD5 from Sta. 40+750 to 40+630.



Photograph SD5-041: From Sta. 0+950/-20 looking SW. Placement of a 1.0 m-thick lift of fine rockfill of granular protection on SD5.



Photograph SD4-099: From Sta. 40+360/-35 looking W. Placement of a 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane to complete the protection against erosion placed last year.



Photograph SD4-100: From Sta. 40+100/-35 looking E. Placement of a 0.5 m-thick lift of fine filter of granular protection on the west part of SD4 from Sta. 40+160 to 40+120.



Photograph SD4-101: From Sta. 40+120/-35 looking E. Placement of a 1.0 m-thick lift of fine rockfill of granular protection on the existing compacted till 0-150 mm in the middle of SD4. Also, the placement of a 0.5 m-thick lift of fine filter on the east part of SD4.



Photograph SD3-160: From Sta. 20+780/-40 looking S. Placement of the second 0.5 m-thick lift of compacted till 0-150 mm on the south part of SD3.



Photograph SD3-161: From Sta. 20+590/-65 looking S. Placement of the first 1.0 m-thick lift of protection against the erosion on SD3. Notice that the material used is a compacted low quality till 0-500 mm.



Photograph SD3-162: From Sta. 20+780/-40 looking N. Placement of the first and second 1.0 m-thick lift of protection against the erosion on the south part of SD3. Notice that the material used is a compacted low quality till 0-500 mm.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michael Nadon, Jr, .Eng.
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

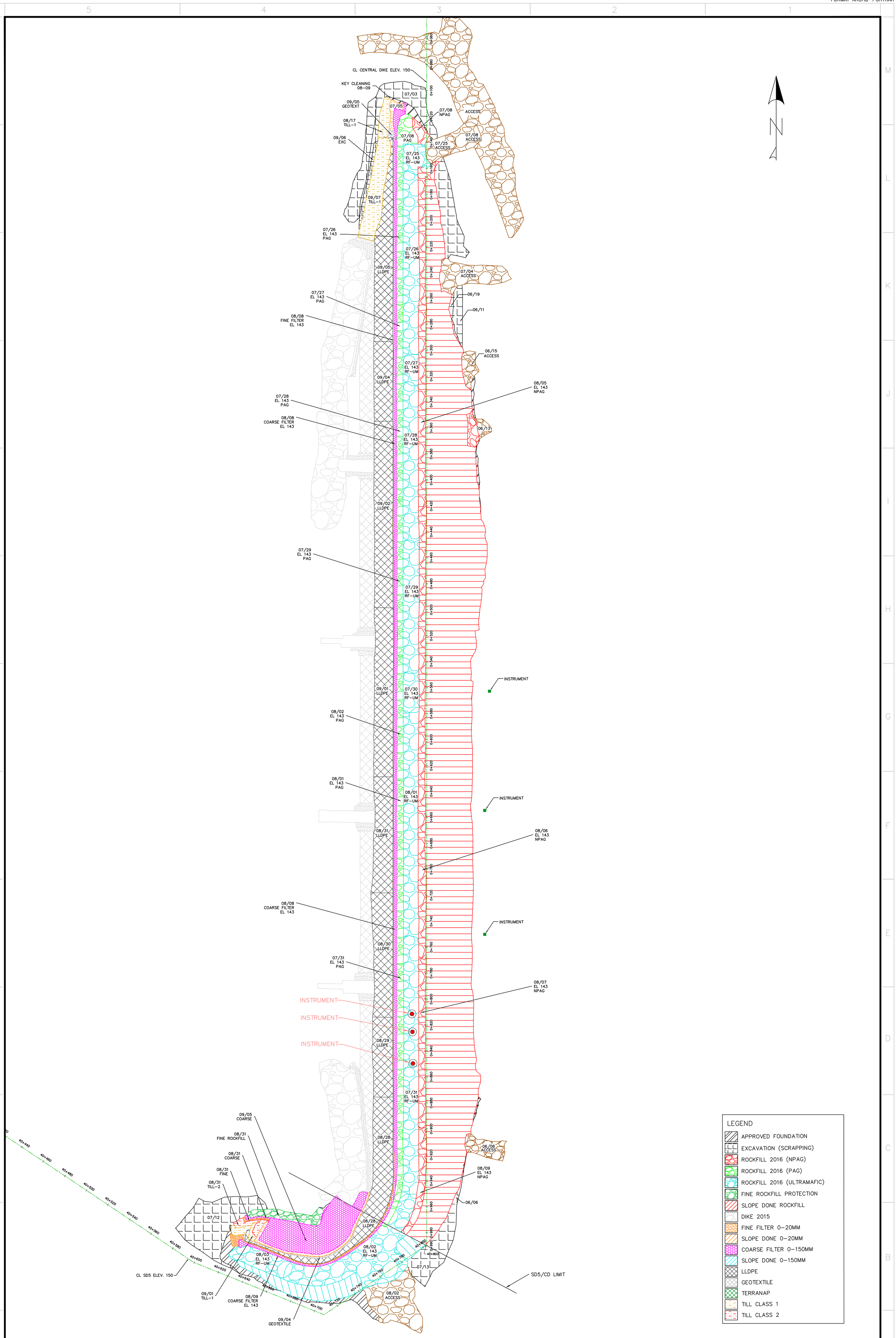
Attachments: Construction Progress Drawings from AEM, September 7, 2016

MDB/YB/jlm

\\golder.gds\gal\montreal\actif\2016\3 proj\1656047 aem qa tsf 2016 meadowbank\5 preparation of deliverables\doc. 1543 weekly reports\rev0\2016-09-01 to 2016-09-07\doc 1543 1656047 rev0 qa weekly report 2016-09-01 to 2016-09-07_yb.docx

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO EAGLE
MEADOWBANK

DRAWN BY	AUBREY DESROCHES	DATE 2016–09–07
CHECKED BY		
APPROVED BY		
PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
1:1250	CD_EX_PROGRESS.DWG

DRAWING NO.	REVISION	SHEET
		1 / 1

C:\MEADOWBANK\DIKE 2016\CD_SD5\PLAN\CD_PROGRESS_0907.dwg, 08 Sep 2016

DRAWING NO.

FORMAT ARCHD–PORTRAIT

08/12 EXCAVATION
08/29 TILL 1
08/29 TILL 2
09/03 TILL 2
09/03 EXCAVATION
08/07 KEY CLEANING
08/02 BEDROCK
08/13
08/04 INVERT FILTER
09/03 TILL 3 1ST LAYER
09/03 EXCAVATION
08/04 EL 143
08/25 LLDPE
09/06 TILL 3 FINAL LAYER
09/03 TILL 1
08/05 COARSE INVERT FILTER
INSTRUMENT
INSTRUMENT
INSTRUMENT
08/26 LLDPE
08/03 EL 143
INSTRUMENT
08/05 COARSE EL 143
09/06 TILL 3
08/04 COARSE EL 143
07/24
09/02 TILL 2
08/30 TILL 2
08/12 ACCESS
08/30 TILL 1
08/13 TILL 2
07/27
08/13
07/24
07/08 ACCESS
07/27 ACCESS
08/07 KEY CLEANING
07/25 INVERT FILTER
07/09 ACCESS
20+560
20+580
PC: 20+578.82
Mid: 20+587.05
PT: 20+595.27
20+600
20+620
20+640
20+660
20+680
20+700
20+720
20+740
20+760
20+780
20+800
820

LEGEND

- TILL CLASS 1
- TILL CLASS 2
- TILL CLASS 3
- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- LLDPE
- GEOTEXTILE

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE MEADOWBANK

DRAWN BY: AUBREY DESROCHES — DATE: 2016–09–06
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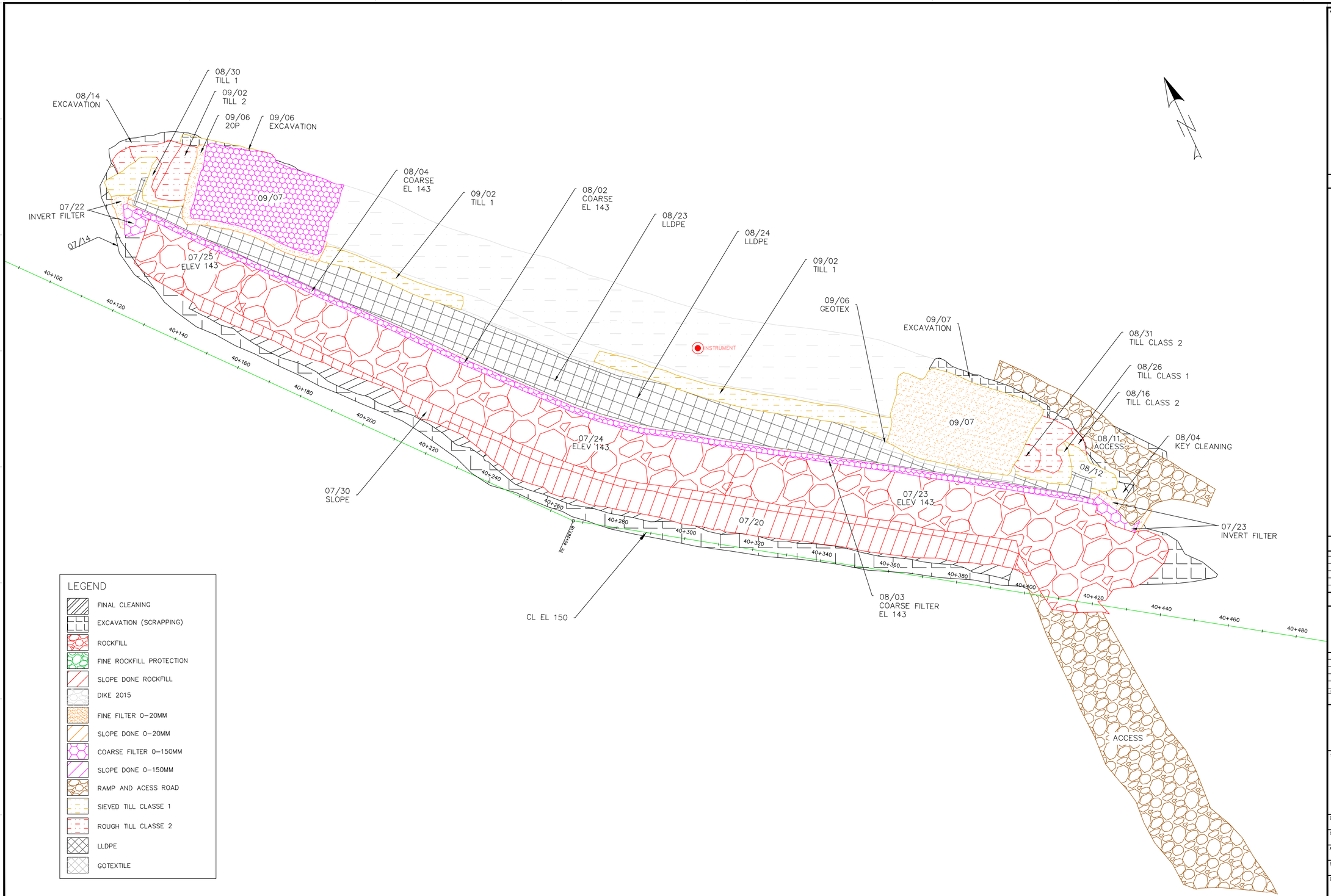
TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 3 PROGRESS

SCALE: 1:300 — FILE: SD3_PROGRESS.DWG
DRAWING NO. — REVISION — SHEET: 1 / 1

C:\MEADOWBANK\DIKE 2016\SD3\PLAN\SD3_PROGRESS_0906.dwg, 07 Sep 2016

DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE
- GOTEXTILE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: AUBREY DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–09–07
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE November 8, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA WEEKLY REPORT FROM SEPTEMBER 8 TO 13, 2016 – TSF SOUTH CELL CONSTRUCTION-MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from September 8 to 13, 2016, inclusive, related to the construction activities of Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of the centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Michael Nadon	QA Engineer

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- A worker hurt himself on CD while lifting cables. It is important to be very careful when lifting heavy object and use good methods of lifting.
- Be careful when walking on geotextile placed over LLDPE, as it can be very slippery.

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3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. The QA manager attended the meetings. The following items were discussed:

General

- The QA manager, with the agreement of the Owner's Representatives, went out of the construction field for one day and a half (September 10-11) because he was needed for a short-term task. For this reason, the QA manager refers to the QC in some parts of the report.
- On September 8, Extrusion Fillet Seams were done on CD. This completed the geosynthetics installation for the 2016 construction season.
- September 10 was the last daily construction meeting.
- The last lift of fine rockfill of the granular protection on CD was done on the morning of September 11. This marked the end of activities concerning the regular dike construction season.
- The construction of the fingers started on September 11. The fingers will be made of fine filter only and will be constructed under AEM supervision.

Central Dike

- It was discussed that the casings on CD, which have been used for the safety line, will be cut at the surface elevation and filled up with grout.

Saddle Dam 5

- The access road supposed to connect SD5 to the "pig launch" doesn't need to be approved by the QA manager, because the road goes over the future inverse filters of SD5. Thus, the road will have to be re-excavated next year for the foundation approval of the inverse filters.

Saddle Dam 3

- On SD3, it was discussed that more sieved till has to be placed on the north extremity to fill void on the slope. This approach aims to avoid the water ponding at the base of the slope. The placement of the compacted sieved till will be done with the CAT 307 excavator as the work to be done is very close to the LLDPE.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Engineer; these are summarized in the tables below.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
LLDPE geomembrane placement acceptation	■ The LLDPE geomembrane has been walked and approved from Sta. 0+820/-41.58 to 0+380/-26.
Upstream toe liner tie-in	■ Compaction of the second 0.5 m-thick lift of compacted sieved till over the LLDPE geomembrane on the north part of CD from Sta. 0+220 to 0+140. The lift was

Activity or Area	Comments
	compacted with a 10 t smooth-drum vibratory compactor. PNG tests were conducted and results met technical specifications (see Table 6). ■ Placement of an initial 0.5 m-thick lift of compacted till 0-150 mm within the upstream toe liner tie-in over the compacted sieved till on the north part of CD from Sta. 0+220 to 0+140. The lift was compacted with a 10 t smooth-drum vibratory compactor. PNG tests were conducted and results met technical specifications (see Table 6). ■ Placement of a 0.5 m-thick lift of fine filter granular protection on the north part of CD from Sta. 0+220 to 0+140. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 0.5 m-thick lift of coarse filter granular protection on the north part of CD from Sta. 0+220 to 0+145. According to the QC, the lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ According to the QC, a 1.0 m-thick lift of fine rockfill granular protection was placed and compacted on the north part of CD from Sta. 0+220 to 0+150 on the morning of September 11. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

Table 3: QA Observation for Saddle Dam 4

Activity or Area	Comments
Upstream toe liner tie-in	■ Compaction of a 0.5 m-thick lift of fine filter granular protection on the east part of SD4 from Sta. 40+400 to 40+360. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 0.5 m-thick lift of coarse filter granular protection on the east part of SD4 from Sta. 40+400 to 40+360. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 1.0 m-thick lift of fine rockfill granular protection from Sta. 40+380 to 40+140. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Correction of the top of the lift of fine rockfill granular protection with the excavator from Sta. 40+380 to 40+140.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period.

Table 4: Details of Foundation Approval

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-CD-028	CD	Sta. 0+380/-26 to 0+820/-41.58	08/09/2016	Geosynthetics approval

6.0 SAMPLING, LABORATORY AND FIELD TESTING

The QA Engineer reviewed the laboratory test results completed by the QC.

Table 5 presents the samples collected or tested by the QC and the QA as well as PNG field results carried out on the compacted sieved till and on the compacted 0-150 mm till.

Results of samples 438/439 collected by the QC as placed on SD4 and CD were compliant. Results of sample SD4-07 collected by the QA as placed on SD4 was compliant.

Table 5: Samples Taken and Tested by the QC and the QA and Field Results

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
438	08/09/2016	11/09/2016	Fine filter	Sta. 40+391/-43.6 El.142	Gradation	Compliant
439	09/09/2016	12/09/2016	Fine filter	Sta. 0+160.3/-35.7 El.142.4	Gradation	Compliant
SD4-07	26/08/2016	12/09/2016	Compacted sieved till	Sta. 40+368.9/-41.8 El. 140.1 m	Gradation + WC	Compliant
436 A to D	08/09/2016	08/09/2016	Compacted sieved till	CD north/Sta. 0+143.8/-31.5 to 0+202.6/-44.7 El. 137.6 to 142.6 m	Dry density, WC (PNG)	Dry density: 2,068 to 2,126 kg/m^3, WC: 7.3 to 9.4%
437 A to D	08/09/2016	08/09/2016	Compacted till 0-150 mm	CD north/Sta. 0+154.9/-33.6 to 0+203.1/-44.2 El. 138 to 142.2 m	Dry density, WC (PNG)	Dry density: 2,054 to 2,137 kg/m^3, WC: 7.9 to 9.8%

7.0 PHOTOGRAPHS



Photograph CD-1766: From Sta. 0+220/-26 looking N. Placement of the 0.5 m-thick lift of fine filter granular protection on the north part of CD from Sta. 0+220 to 0+190.



Photograph CD-1767: From Sta. 0+140/-26 looking S. Placement of the 0.5 m-thick lift of coarse filter granular protection on the north part of CD.



Photograph CD-1768: From Sta. 0+210/-26 looking N. Placement of the 0.5 m-thick lift of coarse filter granular protection on the north part of CD.



Photograph CD-1769: From Sta. 0+160/-26 looking S. The final 1.0 m-thick lift of fine rockfill granular protection on the north part of CD has been compacted.



Photograph SD5-042: From Sta. 0+580/-30 looking E. Placement of UM rockfill for the road that connects SD5 and the "pig launch."



Photograph SD4-102: From Sta. 40+410/-35 looking W. Placement of a 0.5 m-thick lift of coarse filter granular protection on the east part of SD4 from Sta. 40+400 to 40+360.



Photograph SD4-103: From Sta. 40+380/-35 looking W. Placement of the 1.0 m-thick lift of fine rockfill granular protection on the west part of SD4.



Photograph SD4-104: From Sta. 40+400/-35 looking W. Correction of the top of the lift of fine rockfill granular protection with the excavator on SD4.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Reviewed by:

ORIGINAL SIGNED

Michael Nadon, Jr, Eng.
QA Engineer

ORIGINAL SIGNED

Yves Boulianne, P.Eng (QC,NU)
Associate, Dike Designer

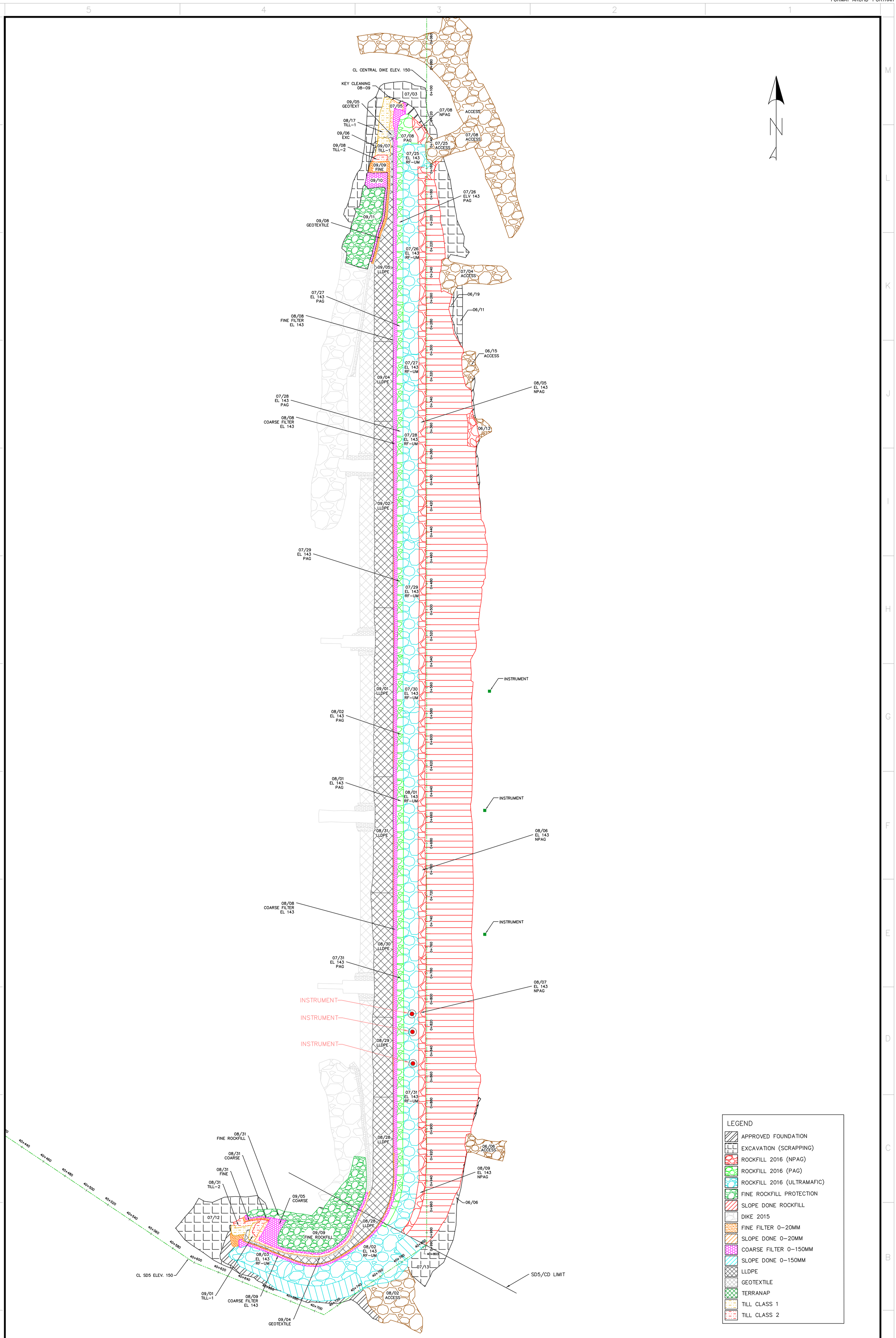
Attachments: Construction Progress Drawings from AEM, September 13, 2016

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DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016 (NPAG)
- ROCKFILL 2016 (PAG)
- ROCKFILL 2016 (ULTRAMAFIC)
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	AUBREY DESROCHES	DATE 2016–09–11
CHECKED BY		
APPROVED BY		
PROJECT NO.		
DATE		

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

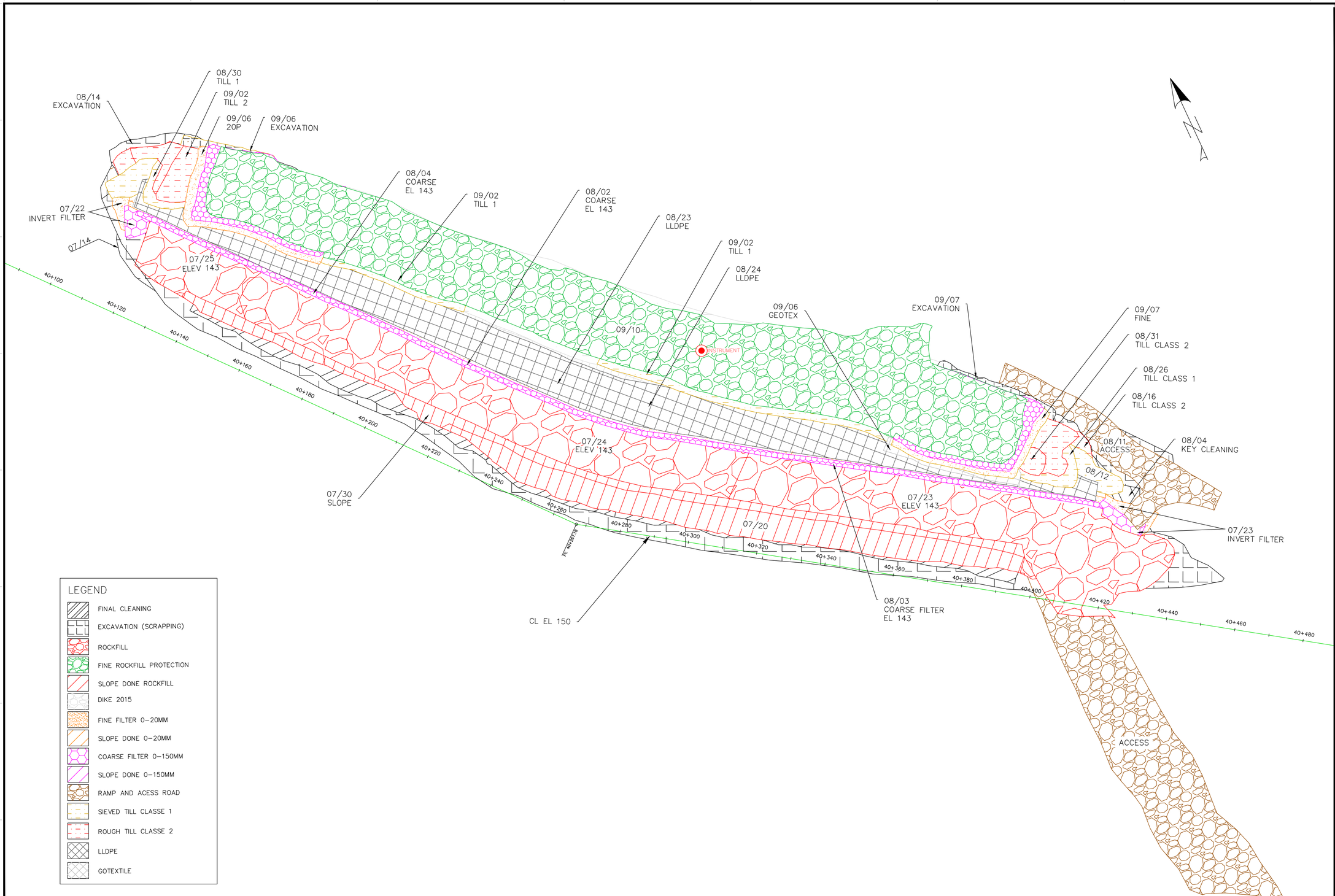
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DRAWING NO.	REVISION	SHEET
		1 / 1

C:\MEADOWBANK\DIKE 2016\CD_SD5\PLAN\CD_PROGRESS_0911.dwg, 11 Sep 2016

DRAWING NO.

FORMAT ARCHD–LANDSCAPE



LEGEND

- FINAL CLEANING
- EXCAVATION (SCRAPPING)
- ROCKFILL
- FINE ROCKFILL PROTECTION
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- RAMP AND ACESS ROAD
- SIEVED TILL CLASSE 1
- ROUGH TILL CLASSE 2
- LLDPE
- GOTEXTILE

KEY PLAN

GENERAL NOTES

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TITLE	# DWG

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REV.	DATE	DESCRIPTION	BY	APP.	CLIENT

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
SADDLE DAM 4
DIKE
PROGRESS

DRAWN BY: AUBREY DESROCHES	DATE
CHECKED BY	
APPROVED BY	
SCALE: 1:500	DATE: 2016–09–10
DRAWING NO.	
PROJECT NO.	REVISION / SHEET: 1 / 1

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FILE NO. .DWG

TECHNICAL MEMORANDUM

DATE June 20, 2016 **REFERENCE No.** 1656047
Doc. 1543 Rev 0

TO Rebecca Cousineau, Patrice Gagnon, Thomas Lépine, Julie Bélanger, Pierre McMullen
Agnico-Eagle Mines Limited Meadowbank Division

CC Yves Boulianne

FROM Frédérick L. Bolduc **EMAIL** fbolduc@golder.com

QA WEEKLY REPORT FROM JUNE 13TH TO JUNE 19TH, 2016 – TSF SOUTH CELL CONSTRUCTION MEADOWBANK (1656047)

This document summarizes QA activities performed by Golder from June 13 to 19, 2016, inclusive related to the construction activities of the Central Dike (CD) and Saddle Dams 3, 4 and 5 (SD) at the Meadowbank mine site.

Unless specified, the construction activities use the centreline of the structures for a Dike crest El. 150 m for reference (refer to the Drawings). The description of activities refers to the stations and offsets from the centreline (e.g., Sta. 0+500/-50 m). The "+" and "-" symbols indicate the location of the work towards the downstream and upstream of centreline, respectively.

1.0 GOLDER PERSONNEL ON SITE

The Golder personnel on site during this reporting period are summarized in Table 1.

Table 1: Golder Personnel on Site

Name	Comments
Frédérick L.Bolduc	QA manager, arrived on site June 13

2.0 HEALTH AND SAFETY

H&S meetings were held with AEM and FGL/Sana during the daily construction meetings. Minutes from these meetings are recorded and stored in Golder's on-site office. The key H&S elements for the reporting period were as follows:

- SOP course for the QA and QC personnel on the 14th to review the site procedure.
- Personnel working on the downstream slope of the CD near the water accumulation must wear a lifejacket.

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- The bottom of the downstream slope of the CD has a temporary steep angle during the placement of rockfill lifts. Personnel on foot must be aware of the danger of falling rock and stay 10 m away from the abrupt face.
- An incident happened on the downstream side of the CD on the 16th around 9:30 AM. The surveyor pickup began to catch fire due to a bad connection with the battery wire. The fire started out small but the surveyor was not able to remove the safety pin holding the extinguisher in his pickup truck as it was installed backward. The QA manager, who was nearby, helped him remove the pin, after which the fire was safely extinguished.

3.0 SUMMARY OF MAIN DISCUSSIONS IN CONSTRUCTION MEETINGS

Construction meetings were held daily during the reporting period. Frédérick L. Bolduc of Golder attended the meetings. The following items were discussed during the construction meetings:

Central Dike – Foundation Approval

- Rockfill was placed on June 9 on the downstream area of the CD at Sta. 0+400 approximately in the area where an accumulation of water and ice (2-5 m) was present due to the CD seepage. The ice was removed and soft till in the bottom of the pond was excavated under Patrice Gagnon's supervision. When Patrice validated that the soft till and ice had been removed, rockfill was deposited in the water using a shovel. According to Patrice, the transition from soft till to the filter was very clear by looking at the content of the excavator bucket. There was no QA on site during this operation, but Golder previously agreed to this procedure. AEM documented in writing the procedure that was used for this operation and included relevant pictures.
- Rockfill was placed on the downstream side of the CD while the QA manager was not yet on site. The foundation had previously been accepted and documented by Patrice. As per Golder's recommendation, Patrice made sure that the inverse filters in that area were completed and did not need to be extended. This was accomplished by reviewing past construction documentation and by probing the filter with the excavator bucket in the area where water was ponding. The exposed filters in the south abutment at Sta. 0+880 do not need to be extended as they were placed in 2012 before the key trench was transitioned to an upstream toe liner tie-in from 0+800 to 0+850.
- The QA manager and the surveyor (Michael Racine) reviewed the location of the rockfill access road placed in 2015 over non-approved foundation within the footprint of the CD and SD5. A segment of an access road on the south abutment will need to be removed to prepare the foundation; it was marked on the field.
- An access road was made on the south abutment using rockfill. Part of this access road is on an unapproved foundation that is outside the dike footprint for a crest elevation at El. 147 m but inside the footprint for a crest elevation at El. 150 m. It was discussed that this access road at 40+800 (SD5 station) would have to be removed if the CD is raised to El. 150 m.

Central Dike – Rockfill

- Rockfill segregation was observed on top of the lift at El. 122 m at 0+600. Large rockfill particles had been stacked in a narrow lane when the excavator reprofiled the downstream slope from El. 118 to 122 m in that area. It was discussed with the contractor (Danny Pageau) that these accumulations should be spread out with the shovel on the whole width of the lift to minimise segregation. This was done and the contractor

mentioned that the downstream slope is now profiled every lift, which will prevent this kind of segregation from happening in the future.

- The QA manager explained that it was a good procedure to widen every rockfill lift towards the existing downstream slope with the dozer blade. This prevents the placement of rockfill against a continuous plane of uncompacted rockfill. This procedure is currently being done in the field to maintain a sufficient lift width and will be continued.
- It was observed that some rockfill loads were not dumped on a flat surface and pushed with the dozer but free dumped in the slope of the lift. To minimize segregation, the rockfill must be dumped on a flat surface and then pushed with a dozer.
- AEM told the QA manager that the quantity of available good quality N-AG rockfill for the 2016 constructions season is being re-evaluated and seems to be lower than expected. The QA manager reminded AEM that it is possible to place PAG rockfill 2 m above the Third Portage Lake elevation. A 4 m shell of N-AG rockfill was planned to be placed on the crest and downstream slope for closure purpose. AEM will need to reconfirm the closure strategy before placing PAG rockfill above the final elevation of Third Portage Lake.
- The contractor reported that the CD PAG stockpile is too mixed with ultramafic rockfill to be used. AEM has been trying to find alternate sources of good quality PAG rockfill; sources have been identified in the waste dump and in the pit.

Central Dike – Other

- The stockpiled till at the CD will be sieved once the crusher is installed on the northern side of the CD. The QA manager reminded AEM that samples of sieved till will need to be taken by the QC every 1,000 m^3. Precautions need to be taken if the sieved till is frozen to promote drainage of water when it thaws.

Saddle Dam 3

- It was discussed that an additional pump might need to be installed downstream of SD3 to remove the water accumulation in that sector. The downstream water accumulation is probably due to the freshet as the thermistors installed at SD3 indicate that SD3's foundation is frozen.

Saddle Dam 5

- It was confirmed by the QA manager that the entirety of SD5 can be constructed using well-graded ultramafic rockfill.

4.0 SUMMARY OF CONSTRUCTION ACTIVITIES AND TEST RESULTS

Periodic QA inspections to monitor the construction activities and progress were performed by the QA Lead; these are summarized in the tables below.

Table 2: QA Observations for the Central Dike

Activity or Area	Comments
Foundation preparation	- Soft till was removed from the south abutment. The foundation was exposed to bedrock and approved from 0+920 to 0+989 (FND-CD-128).

Activity or Area	Comments
	An excavator started to remove soft till to expose bedrock around El. 137 m on the north abutment of the CD around 0+160. The removed material is stockpiled on the north side of the CD. Till was excavated from Sta. 0+247 to 0+309 on the downstream side for a dike footprint at a crest El. of 147 m. Foundation was exposed to bedrock above El. 132 m and to competent till below El. 132 m. Details of the acceptation can be found in FND-CD-129. The till was hauled to the CD till stockpile.
Downstream slope	The rockfill material placed with a shovel at 0+600 on top of the lift at El. 122 m during slope profiling was spread out with a shovel to minimize segregation. The old downstream slope was pushed back before rockfill placement to ensure better contact with the newly placed material. The contractor usually does this operation with the dozer but also used an excavator for some segments. The technique is adequate to prevent placement of rockfill against a continuous weak layer. The results with the shovel are similar to those with the dozer. Placement with a dozer of 2 m-thick lifts of PAG IF rockfill downstream for a final dike footprint at El. 147 m. The material is dumped on a flat surface and pushed with the dozer. The material comes from the CD PAG stockpile and the mine stockpile, and is well graded. 4 lifts were placed between El.118 and 126 m (0+330 to 0+920). The lift from El. 126 m to El. 128 m has been placed from 0+820 to 0+920. 2 m of rockfill was placed as an access pad from 0+247 to 0+260 (El. 134 to El. 126 m). Good quality N-AG rockfill was placed above El. 132 m and IF PAG rockfill was placed below El. 132 m. Compaction is done after the placement of each lift with 8 passes of a compactor in vibratory mode. The downstream slope of the newly placed rockfill was profiled after each 2 m lifts with a 1.5H:1V slope by the excavator from 0+330 to 0+920 between El. 120 to El. 126 m. The slope is visually adequate after the profiling. A truck turnover was made by placing rockfill over a non-approved foundation at 0+245. This turnover will need to be removed before placing rockfill in this location.
CD stockpile	An excavator and a dozer reworked the frozen till stockpile to promote unfreezing in preparation for till sieving. The crusher should be ready for till sieving around June 21. Construction of a northern access to the West Road near the stockpile to prepare for crusher installation.

5.0 FOUNDATION APPROVAL

Foundation approvals were done on the north abutment on the downstream side of the CD for a dike footprint with a crest elevation at El. 147 m. Patrice filled out some foundation approvals while the QA manager was not on site (FND-CD-124 to FND-CD-127). These completed foundation approvals were reviewed by the QA Manager and were found to be compliant.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-124	CD	From Sta. 0+858/+28 to 0+933/+12 between	04-06-2016	Downstream side of CD, approved by AEM
FND-CD-125	CD	From Sta. 0+401/+28 to 0+427/+40	07-06-2016	Downstream side of CD, approved by AEM
FND-CD-126	CD	From Sta. 0+351/+18 to 0+400/+40	11-06-2016	Downstream side of CD, approved by AEM
FND-CD-127	CD	From Sta. 0+351/+18 to 0+401/+40	12-06-2016	Downstream side of CD, approved by AEM
FND-CD-128	CD	From Sta. 40+801/+1 to 0+933/+28	16-06-2016	Downstream side of CD, south abutment
FND-CD-129	CD	From Sta. 0+247/+17 to 0+309/+10	19-06-2016	Downstream side of CD, north abutment

6.0 SAMPLING AND LABORATORY TESTING

Before the arrival of the QA on site, the QC representative took two samples of till stockpile from the CD excavation. The QA Manager reviewed the laboratory test results completed by the QC. The location of the samples taken by the QC and the tests results can be found in Table 4. One stockpile was compliant while another was too fine and will need to be mixed before being used.

Table 4: Sample taken and tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
351	04/06/2016	07/06/2016	Till stockpile	Stockpile 1	GR,WC	Compliant
352	06/06/2016	08/06/2016	Till stockpile	Stockpile 3	GR, WC	Not compliant; too sandy

7.0 PHOTOGRAPHS



Photograph CD-1669: From Sta.0+960/+30 looking N. Placement of a 2 m thick lift of PAG rockfill between El. 122 m and 124 m on the downstream side for a dike footprint at El. 147 m.



Photograph CD-1670: From Sta.0+280/+30 looking S. Profiling of the downstream slope for a dike footprint at El. 147 m from El. 120 m to 122 m with a 1.5 H:1V slope.



Photograph CD-1671: From Sta.0+920/+50 looking N. View of the base of the CD on the downstream side for a dike footprint at El. 147 m. Presence of exposed filter at 0+880 before the key trench was changed to an upstream toe liner tie in at 0+850.



Photograph CD-1672: From Sta.0+580/+30 looking S. View of segregated rockfill on top of the lift at El. 122 m. The rockfill came from the profiling of the slope. The rockfill was spread on the whole lift before being covered.



Photograph CD-1673: From Sta.0+660/+30 looking S. Compaction of the 2 m lift of PAG rockfill at El. 124 m from 0+920 to 0+660.



Photograph CD-1674: From Sta. 0+580/+50 looking N. Profiling of the downstream slope from El. 120 to El. 122 m.



Photograph CD-1675: From Sta.0+280/+30 looking S. Placement of a 2 m lift of PAG rockfill from El. 122 m to El. 124 m from 0+300 going south.



Photograph CD-1676: From Sta.0+120/-20 looking NE. View of the excavation of till above El. 132 m to reach the bedrock for a dike footprint at El. 147 m.



Photograph CD-1677: From Sta.0+962/+5 looking N. Approved foundation on the south abutment of the CD. View of the d/s rockfill lift at El. 124 m.



Photograph CD-1678: From Sta.0+989/+7 looking S. View of unapproved foundation outside a dike footprint for a crest El. at 147m but within a dike footprint at El. 150 m. An access ramp will cover the area outside of the dike footprint for El. 147 m.



Photograph CD-1679: From Sta.0+200/+30 looking S. Removal of soft till on the north abutment at around El. 131 m. View of the downstream lift of rockfill at El. 124 m.



Photograph CD-1680: From Sta.0+230/+60 looking S. View of the downstream side of the CD. Placement of rockfill from south to north from El. 124 m to El. 126 m. An excavator is profiling the downstream slope.



Photograph CD-1681: From Sta.0+660/+30 looking N. The shovel is reshaping the old downstream slope before rockfill placement for a better contact with the newly placed rockfill. The dozer is pushing rockfill from El. 124 to 126 m.



Photograph CD-1682: From Sta.0+300/+30 looking S. View of downstream rockfill lift placed to El. 126 m.



Photograph CD-1683: From Sta.0+240/+50 looking S. Placement of rockfill from El. 126 to El. 128 m on the south side on profiling of the downstream slope from El. 124 to 126 m on the north side.



Photograph CD-1684: From Sta.0+280/+10 looking E. View of the approved foundation on the downstream side between 0+247 and 0+309 for a dike footprint at El. 147 m



Photograph CD-1685: From Sta.0+240/+20 looking N. Beginning of placement of N-AG rockfill downstream above El. 132 m on the north side.

SIGNATURES

GOLDER ASSOCIÉS LTÉE

Original signed

Frédérick L. Bolduc, P.Eng., M.Sc.A
QA Engineer

Original signed

Yves Boulianne, P.Eng (QC, NU)
Associate, Dike Designer

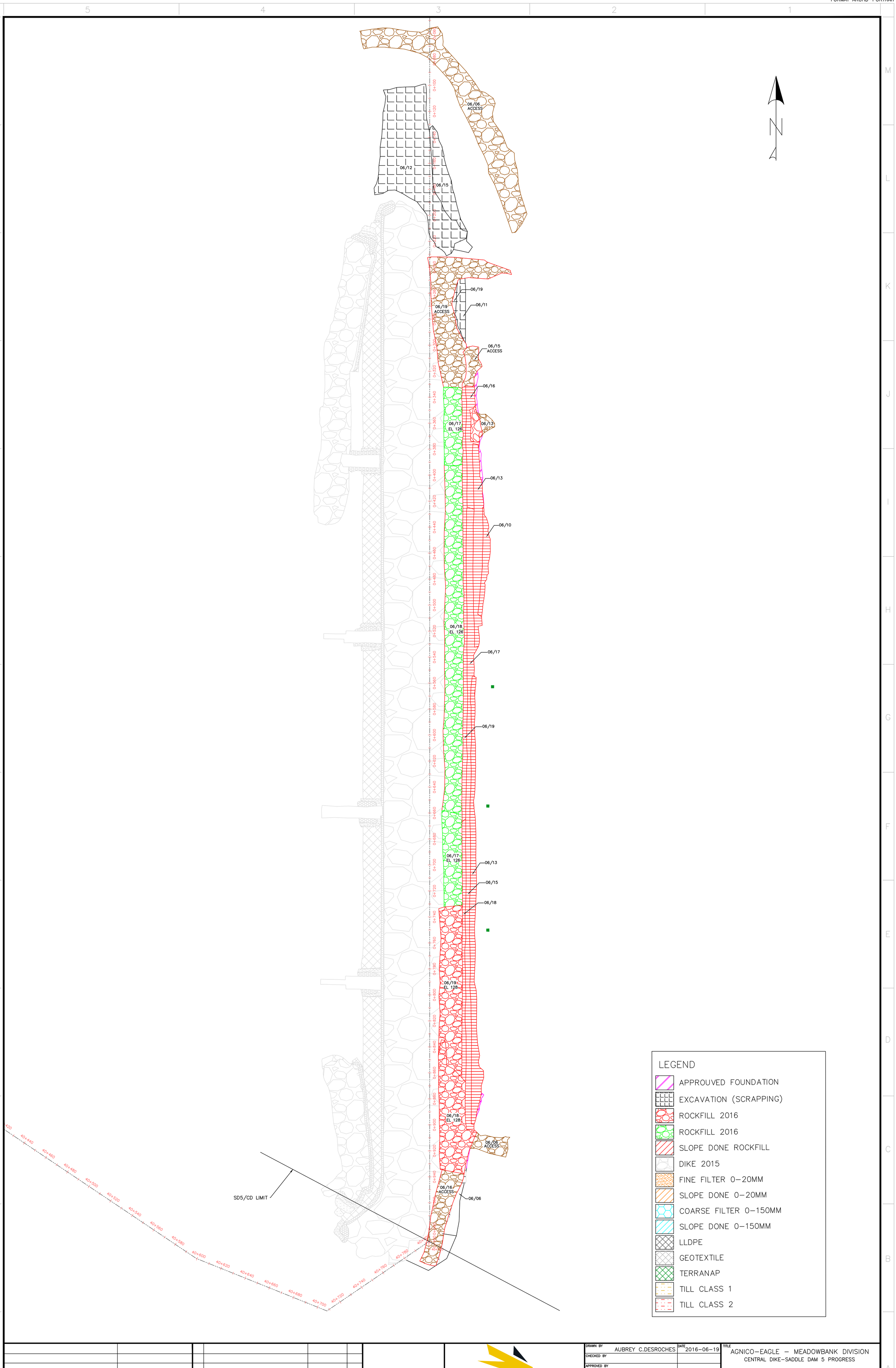
FLB/YB/jlm

Attachments: Construction Progress Drawings from AEM as of June 19, 2016 for Central Dike

c:\document frederick\campagne terrain\meadowbank - qa tsf 2016\qa database 2016\6) qa deliverables\qa weekly report\doc 1543 1656047 rev0 qa weekly report 2016-06-13 to 2016-06-19_yb.docx

DRAWING NO.

FORMAT ARCHD–PORTRAIT



LEGEND

- APPROUVED FOUNDATION
- EXCAVATION (SCRAPPING)
- ROCKFILL 2016
- ROCKFILL 2016
- SLOPE DONE ROCKFILL
- DIKE 2015
- FINE FILTER 0–20MM
- SLOPE DONE 0–20MM
- COARSE FILTER 0–150MM
- SLOPE DONE 0–150MM
- LLDPE
- GEOTEXTILE
- TERRANAP
- TILL CLASS 1
- TILL CLASS 2

TITLE	# DWG

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY	AUBREY C.DESROCHES	DATE	2016–06–19
CHECKED BY			
APPROVED BY			
PROJECT NO.			
DATE			

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
CENTRAL DIKE–SADDLE DAM 5 PROGRESS

SCALE	FILE
1:1250	CD_EX_PROGRESS.DWG

DRAWING NO.	REVISION	SHEET
		1 / 1

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APPENDIX E2

QA DAILY REPORTS

QA DAILY REPORT

DATE June 14, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 13-14TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, rainy

2.0 HEALTH AND SAFETY

- Arrival of Frédérick L.Bolduc as QA manager on site on the 13th.
- SOP course for the QA and QC personnel on the 14th to review the site procedure.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Rockfill was placed on June 9 on the downstream side of Central Dike at Sta. 0+400 approximately in the area where an accumulation of water and ice (2-5 m) was present due to Central Dike seepage. The ice was removed and soft till in the bottom of the pond were excavated under Patrice supervision. When Patrice Gagnon identified that the soft till and ice had been removed, the rockfill was deposited in the water using a shovel. According to Patrice, the transition from soft till to the filter was very clear by looking at the content of the excavator bucket. There was no QA on site during this operation, but Golder previously agreed to this procedure. AEM will documents in writing the procedure that was used for this operation and include relevant pictures.
- Rockfill was placed on the downstream side of Central Dike while the QA manager had not arrived on site. The foundation had previously been accepted and documented by Patrice. As per Golder recommendation, Patrice made sure that the inverse filters in that area were completed and did not need to be extended. This was accomplished by reviewing past construction documentation and by probing the filter with the excavator bucket in the area where water was ponding. The exposed filter in the south abutment at Sta. 0+880 do not

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need to be extended as they were placed in 2012 before the key trench was transitioned to an upstream toe liner tie-in from 0+800 to 0+850.

- The QA manager and the surveyor (Michael Racine) reviewed the location of the rockfill access road placed in 2015 over non approved foundation within the footprint of Central Dike and SD5. A segment of an access road on the south abutment will need to be removed to prepare the foundation and was marked on the field.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	- Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final dike footprint at El. 143 m. The material come from the Central Dike PAG stockpile and is well graded. Lifts were placed from El.118 to 120 (0+420 to 0+560) between El. 120 m and 122 m (0+300 to 0+600) and from El. 122 m to 124 m (0+760 to 0+920) from Sta. 0+360 to 0+660 m. Compaction was done after the placement of each lift with 8 passes of compactor in vibratory mode. - The downstream slope of the newly placed rockfill was profiled with a 1.5 H:1V slope by the excavator from 0+380 to 0+920 to EL. 122 m. The slope is visually adequate after the profiling.
Central Dike stockpile	- An excavator reworked the frozen till stockpile to promote unfreezing.

5.0 FOUNDATION APPROVAL

Patrice Gagnon filled the foundation approval of Central Dike while the QA manager was not on site. These completed foundation approval were reviewed by the QA Manager and are conforms.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-124	CD	From Sta. 0+858/+28 to 0+933/+12 between	04-06-2016	Downstream side of CD
FND-CD-125	CD	From Sta. 0+401/+28 to 0+427/+40	07-06-2016	Downstream side of CD
FND-CD-126	CD	From Sta. 0+351/+18 to 0+400/+40	11-06-2016	Downstream side of CD
FND-CD-127	CD	From Sta. 0+351/+18 to 0+401/+40	12-06-2016	Downstream side of CD

6.0 LABORATORY

Before the arrival of the QA on site, the QC represent took two samples of the till stockpile from the excavation of Central Dike. The location of the samples taken by the QC and tests results can be found in Table 3. One stockpile was conform while another had too much fine and will need to be mixed before being used.

Table 5: Sample taken and tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
351	04/06/2016	07/06/2016	Till stockpile	Stockpile 1	GR,WC	conform
352	06/06/2016	08/06/2016	Till stockpile	Stockpile 3	GR, WC	Not conform too sandy

7.0 PHOTOGRAPH



Photograph CD-1669: From Sta.0+960/+30 looking N. Placement of a 2 m thick lift of PAG rockfill between El. 122 m and 124 m on the downstream side for a dike footprint at El. 143 m.



Photograph CD-1670: From Sta.0+280/+30 looking S. Profiling of the downstream slope for a dike footprint at El. 143 m from El. 120 m to 122 m with a 1.5 H : 1V slope.



Photograph CD-1671: From Sta.0+920/+50 looking N. View of the base of CD on the downstream side for a dike footprint at El. 143 m. Presence of exposed filter at 0+880 from before the key trench was changed to a upstream toe liner tie in at 0+850.

QA DAILY REPORT

DATE June 15, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 15TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, rainy

2.0 HEALTH AND SAFETY

- Personnel working on the downstream slope near the water accumulation of Central Dike must wear a lifejacket.
- The bottom of the downstream slope of Central Dike as temporary steep angle during the placement of rockfill lifts. Personnel on foot must be aware of the danger of falling rock and stay 10 m away from the abrupt face.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Rockfill segregation was observed on top of the lift at El. 122 m at 0+600. Large rockfill particles had been stacked in a narrow lane when the excavator reprofiled the downstream slope from El. 118 to 122 m in that area. It was discussed with the contractor (Danny Pageau) that these accumulations should be spread with the shovel on the whole width of the lift to minimise segregation. This was done and the contractor mentioned that the downstream slope is now profiled every lift which will prevent this kind of segregation to happen in the future.
- It was discussed that additional pump might need to be installed downstream of SD3 to remove the water accumulation in that sector. The downstream water accumulation is probably due to the freshet as the thermistors installed at SD3 are indicating that the foundation of SD3 is frozen.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	The rockfill material placed with a shovel at 0+600 on top of the lift at El. 122 m during the profiling of the slope was spread with a shovel to minimise segregation. Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final dike footprint at El. 143 m. The material come from the Central Dike PAG stockpile and is well graded. Lifts are placed and compacted up to El. 122. During the day shift the lift from El. 122 m to 124 m was placed from 0+700 to 0+663 and from 0+309 to 0+365. Compaction of the lift at El. 124 m was done and approved from 0+920 to 0+660 with 8 passes of compactor in vibratory mode. The downstream slope of the rockfill was profiled with a 1.5 H:1V slope by the excavator from 0+420 to 0+560 from El. 120 to EL. 122 m. Afterward the slope was profiled from 0+910 to 0+885 from El. 122 m to El. 124 m.
Foundation preparation	An excavator started to remove soft till to expose bedrock around El. 137 m on the north abutment of Central Dike around 0+160. The removed material is stockpile on the north side of Central Dike.
Central Dike stockpile	An excavator reworked the frozen till stockpile to promote unfreezing in prevision of sieving of the till in the upcoming day.

5.0 LABORATORY

No sample were taken today.

Table 5: Sample taken and tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1672: From Sta.0+580/+30 looking S. View of segregated rockfill on top of the lift at El. 122 m. The rockfill came from the profiling of the slope. The rockfill was spread on the whole lift before being covered.



Photograph CD-1673: From Sta.0+660/+30 looking S. Compaction of the 2 m lift of PAG rockfill at El. 124 m from 0+920 to 0+660.



Photograph CD-1674: From Sta.0+580/+50 looking N. Profiling of the downstream slope from El. 120 to El. 122 m.



Photograph CD-1675: From Sta.0+280/+30 looking S. Placement of a 2 m lift of PAG rockfill from El. 122 m to El. 124 m from 0+300 going south.



Photograph CD-1676: From Sta.0+120/-20 looking NE. View of the excavation of till above El. 132 m to reach the bedrock for a dike footprint at El. 143 m.

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QA DAILY REPORT

DATE June 16, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 16TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, sunny with rainy episodes

2.0 HEALTH AND SAFETY

- An incident happened on the downstream side of the dike around 9:30 am. The surveyor pickup began to catch fire due to a bad connection with the battery wire. The fire started small but the surveyor was not able to remove the safety pin holding the extinguisher of its pickup truck as it was installed backward. The QA manager, who was nearby, helped him remove the pin and afterward the fire was safely extinguish.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The stockpiled till at Central Dike will be sieved once the crusher is installed on the northern side of CD. The QA manager reminded that sample of sieved till will need to be taken by the QC every 1000 m^3. Precaution need to be taken if the sieved till is frozen to promote drainage of water when it unfroze.

- The QA manager explained that it was a good procedure to widen every rockfill lift toward the existing downstream slope with the dozer blade. This prevent the placement of rockfill against a continuous plane of uncompacted rockfill. This procedure is currently being done on the field to maintain a sufficient width of the lift and need to be continued.

- An access road was made on the south abutment using rockfill. Part of this access road is on an unapproved foundation that is outside the dike footprint for a crest elevation at El. 143 m but inside the footprint for a crest elevation at El. 150 m. It was discussed that this access road at 40+800 (SD5 station) would have to be removed if Central Dike is raised to El. 150 m.

- It was observed that some rockfill load were not dumped on the lift and pushed with the dozer but free dumped in the slope of the lift. To minimise segregation the rockfill must be dumped on a flat surface and then pushed with a dozer.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structure.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final dike footprint at El. 143 m. Couple of rockfill loads were free dumped. The material come from the Central Dike PAG stockpile and is well graded. During the day shift, the lift from El. 122 m to 124 m was finalised by placing rockfill from 0+545 to 0+663. The compaction at El. 124 m was then finalise from 0+310 to 0+500 with 8 passes of compactor in vibratory mode. An access road made of NAG material was made on the south abutment to be able to cover the accepted foundation with NAG rockfill.
Foundation preparation	Soft till was removed from the south abutment. The foundation was exposed to bedrock and approved from 0+920 to 0+989. Soft till was removed from the north abutment at around El. 131 m. The material was sent to the Central Dike stockpile.
Central Dike stockpile	An excavator reworked the frozen till stockpile to promote unfreezing in prevision of sieving of the till.

5.0 FOUNDATION APPROVAL

A foundation approval was done on the south abutment on the downstream side of Central for a footprint for a crest elevation at El. 143 m. The foundation approval certificate will be emitted shortly

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-128	CD	From Sta. 40+801/+1 to 0+933/+28	16-06-2016	Downstream side of CD, south abutment

6.0 LABORATORY

No sample were taken today.

Table 3: Sample taken and tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

7.0 PHOTOGRAPH



Photograph CD-1677: From Sta.0+962/+5 looking N. Approved foundation on the south abutment of Central Dike. View of the d/s rockfill lift at El. 124 m.



Photograph CD-1678: From Sta.0+989/+7 looking S. View of unapproved foundation outside a dike footprint for a crest El. at 143 m but within a dike footprint at El. 150 m. An access ramp will cover the area outside of the dike footprint for El. 143 m.



Photograph CD-1679: From Sta.0+200/+30 looking S. Removal of soft till on the north abutment at around El. 131 m. View of the downstream lift of rockfill at El. 124 m.

QA DAILY REPORT

DATE June 18, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 17TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, cloudy with rainy episodes

2.0 HEALTH AND SAFETY

- Radio communication must be done in english

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed with AEM and the contractor that no ultramafic rockfill is to be placed on Central Dike during this construction season. Good quality PAG rockfill will be placed below El. 132 m and good quality NPAG rockfill will be placed above El. 132 m. Ultramafic rockfill can be used for the construction of the Saddle Dams. The type of rockfill to be used in the transition from Saddle 5 to Central Dike is currently being reviewed.

- AEM will confirm if there is enough good quality NPAG rockfill currently stockpiled to raise Central Dike from El. 132 m to El. 143 m. It also seems that part of the PAG stockpile is mixed with ultramafic rockfill. The contractor will have to use the past dumping information provided by AEM to extract the PAG rockfill from the Central Dike stockpile.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final dike footprint at El. 143 m. The material is well graded. During the day shift, the lift from El. 124 m to 126 m was placed from 0+860 to 0+720. Profiling of the downstream slope from El. 122 to 124 with a 1.5H:1V slope from 0+380 to 0+600 approximately.
Central Dike stockpile	A dozer reworked the frozen till stockpile to promote unfreezing in prevision of sieving of the till. Construction of a northern access to the West Road near the stockpile in prevision of the installation of the crusher.

5.0 LABORATORY

No sample were taken today.

Table 2: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1680: From Sta.0+230/+60 looking S. View of the downstream side of Central Dike. Placement of rockfill from south to north from El. 124 m to El. 126 m. An excavator is profiling the downstream slope.

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QA DAILY REPORT

DATE June 19, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 18TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, cloudy and windy

2.0 HEALTH AND SAFETY

- -

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was confirmed by the QA manager that the entirety of Saddle Dam 5 can be constructed using well graded ultramafic rockfill.
- AEM told the QA manager that the quantity of available good quality N-PAG rockfill for the 2016 constructions season are being re-evaluated and seems to be lower than expected. The QA manager reminded that it is possible to place PAG rockfill 2 m above the Third Portage Lake elevation. A 4 m shell of N-PAG rockkfill was planned to be placed on the crest and downstream slope for closure purpose. AEM will need to reconfirm the closure strategy before placing PAG rockfill above the final elevation of Third Portage Lake.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final dike footprint at El. 143 m. The material is well graded and come from the Central Dike and the mine stockpile. During the day shift, the lift from El. 124 m to 126 m was placed from 0+390 to 0+600. Profiling of the downstream slope from El. 124 to 126 with a 1.5H:1V slope from 0+660 to 0+920 approximately. An excavator is removing part of the old downstream slope before rockfill placement to have a better contact with the newly placed material. The contractor usually does this operation with the dozer. The results with the shovel is similar than with the dozer.
Central Dike stockpile	Construction of a northern access to the West Road near the stockpile in prevision of the installation of the crusher.

5.0 LABORATORY

No sample were taken today.

Table 2: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1681: From Sta.0+660/+30 looking N. The shovel is reshaping the old downstream slope before rockfill placement for a better contact with the newly placed rockfill. The dozer is pushing rockfill from El. 124 to 126 m.



Photograph CD-1682: From Sta.0+300/+30 looking S. View of downstream rockfill lift placed to El. 126 m.

QA DAILY REPORT

DATE June 20, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 19TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, cloudy and rainy

2.0 HEALTH AND SAFETY

- The site is very muddy due to the rain of the past days. Drive slowly and walk carefully.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The contractor reported that the Central Dike PAG stockpile is too mixed with ultramafic rockfill to be used. AEM has been trying to find alternate source of good quality PAG rockfill. Sources have been identified in the waste dump and in the pit.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Foundation Preparation	- Excavation of the till from Sta.0+247 to 0+309 on the downstream side for a dike footprint at a crest El. of 143 m. Foundation was exposed to bedrock above El. 132 m and to competent till below El. 132 m. The foundation was approved. Details of the acceptation can be found in FND-CD-129. The till was hauled to the till stockpile.
Downstream slope	- Placement with a dozer of 2 m-thick lift of PAG IF rockfill downstream for a final

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Activity or Area	Comments
	dike footprint at El. 143 m. The material is well graded and come from the waste dump and the mine stockpile. During the day shift, the lift from El. 126 m to 128 m was placed from 0+820 to 0+920. Good quality NPAG rockfill was also placed was placed from 0+247 to 0+260 as an access from El. 132 to El. 126 m. Good quality NPAG rockfill was placed above El. 132 m and IF PAG rockfill was placed below El. 132 m. - Profiling of the downstream slope from El. 124 to 126 with a 1.5H:1V slope from 0+390 to 0+600 approximately. - A truck turnover was made by placing rockfill over a non approved foundation at 0+245. This turn over will be removed when it will be time to place rockfill lift in this location.

5.0 FOUNDATION APPROVAL

A foundation approval was done on the north abutment on the downstream side of Central for a dike footprint for a crest elevation at El. 143 m.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-129	CD	From Sta. 0+247/+17 to 0+309/+10	19-06-2016	Downstream side of CD, north abutment

6.0 LABORATORY

No sample were taken today.

Table 2: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

7.0 PHOTOGRAPH



Photograph CD-1683: From Sta.0+240/+50 looking S. Placement of rockfill from El. 126 to EL. 128 m on the south side on profiling of the downstream slope from El. 124 to 126 m on the north side.



Photograph CD-1684: From Sta.0+280/+10 looking E. View of the approved foundation on the downstream side between 0+247 and 0+309 for a dike footprint at El. 143 m



Photograph CD-1685: From Sta.0+240/+20 looking N. Beginning of placement of NPAG rockfill downstream above EL. 132 m on the north side.

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QA DAILY REPORT

DATE June 21, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 20TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, cloudy and foggy

2.0 HEALTH AND SAFETY

- At the safety meeting it was discussed that an incident happened on the 19th. A haul truck backed up on the dozer at Central Dike, breaking one of its GPS post.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that a small rockfill platform was placed on an unapproved foundation on the north side of Central Dike. This was done to facilitate the truck access and this platform will be removed later to approve the foundation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	- Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 143 m. The material is well graded and come from Portage stockpile and the mine. During the day shift, the lift from El. 126 m to 128 m was placed from 0+740 to 0+680 and from 0+280 to 0+340. - Compaction of the lift at El. 128 m was done from Sta. 0+820 to 0+740 with 8

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Activity or Area	Comments
	passes of compactor in vibratory mode. Profiling of the downstream slope from El. 126 to 128 with a 1.5H:1V slope from 0+933 going north and from 0+300 to 0+340 from El. 124 to El. 126 m.
Central Dike Stockpile	Installation of the crusher in prevision of till sieving

5.0 LABORATORY

No sample were taken today.

Table 2: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1686: From Sta.0+960/+20 looking N. Compaction of the downstream lift at El. 128 m and profiling of the downstream slope.



Photograph CD-1687: From Sta.0+260/+20 looking S. Placement of rockfill downstream at El. 128 m from the north going south.

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QA DAILY REPORT

DATE June 22, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 21TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- At the safety meeting, it was reminded that the safety berms on Central Dike must have a minimum height of 1.5 m. Some berms do not meet that height.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM clarified to the QA manager that the downstream side of Central Dike has been widened from 9 m to 15 m at the beginning of the construction season for haul truck access. As a results, the downstream raise up to El. 137 m is being done for a dike footprint corresponding to a final crest elevation at El. 147 m approximately. If Central Dike is raised to El. 150 m, the planned final dike footprint will probably need to be extended for constructability.

- There was a conference call in the morning between Golder and AEM on the use of UM rockkfill on Central Dike due to a shortage of good quality NPAG material. AEM will send to Golder a summary of the available lab data on UM rockkfill as well as a cross-section showing where UM would be placed on Central Dike. Yves Boulianne will review the available information before proposing a path to forward. Minutes of this meeting have been taken by AEM.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Foundation preparation	Excavation of till on the downstream side from 0+200 to 0+240.
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 126 m to 128 m was placed from 0+470 to 0+600. Profiling of the downstream slope from El. 126 to 128 with a 1.5H:1V slope from 0+740 to 0+860.
Central Dike Stockpile	Installation of the crusher in prevision of till sieving. Excavators are reworking the till stockpile in prevision of till sieving.

Table 2: QA Observations for Saddles Dam 3 and 4

Activity or Area	Comments
Water management	Pumping of water on the downstream side of SD3 and SD4.

5.0 LABORATORY

No sample were taken today.

Table 3: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1688: From Sta.0+980 looking N. Profiling of the downstream slope from and placement of PAG rockfill from El. 126 m to El. 128 m. A shovel is excavating till on the north abutment.

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QA DAILY REPORT

DATE June 23, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 22TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, cloudy

2.0 HEALTH AND SAFETY

- At the safety meeting, it was discussed that an incident happened on June 21st. A worker accidentally hit himself in the face with a chain and sustained minor injury while setting up the crusher on Central Dike.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager asked about the quantity of fine and coarse filter available for this construction season. AEM answered that there were enough crushed aggregate. Some of these aggregates are made of good quality rock and other are made of ultramafic rockfill. The quantity of available material will be checked by AEM but is not expected to be an issue.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 128 m to 130 m was placed from 0+930 to 0+820. Compaction of the lift of PAG rockfill placed at from EL. 126 to 128 m from 0+390 to 0+660. The compaction was done with 8 passes of compactor in vibratory mode and was visually adequate. Profiling of the downstream slope from El. 126 to 128 with a 1.5H:1V slope from 0+260 to 0+560.
Central Dike Stockpile	Excavators moved some till stockpile next to the crusher in prevision of the sieving. Installation of the crusher. Sieving of till started at 5:00 pm.

Table 2: QA Observations for Saddles Dam 3 and 4

Activity or Area	Comments
Water management	Pumping of water on the downstream side of SD3 and SD4.

5.0 LABORATORY

No sample were taken today.

Table 3: Sample taken and tested by QA/QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1689: From Sta.0+960 looking N. Placement of rockfill on the downstream side from El. 128 m to 130 m. Profiling of the downstream slope from El. 126 m to 128 m.

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QA DAILY REPORT

DATE June 24, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 23TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy

2.0 HEALTH AND SAFETY

- At the safety meeting, it was discussed that an incident happened on June 22nd on the night shift. An excavator on Central Dike was profiling the downstream slope at El. 128 m. The operator asked for fine material for the slope correction. When the haul truck arrived the operator got out of the shovel to guide him by hand while backing up which is against the backing up procedure.. At some point during the backup operation the haul truck operator lost visual contact with the shovel operator and the haul trucks collided with the excavator cabin. The shovel operator was out of the machine and no one was hurt during the incident. The haul truck cabin got heavily damaged and the excavator is planned to be unavailable until mid august.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- When taking field sample for particle size distribution, it is allowed to sample less material than specified by the ASTM Standard C136-06. According to C136-06, 60 kg of till and 300 kg of coarse filter should be taken for each sample. As discussed in past years, it is allowed to sample lower quantity (such as 10-20 kg of till) as long as care is taken to obtain a representative sample while minimising segregation.

- A conference call was held between Golder and AEM to discuss placement of UM rockfill on Central Dike. Yves explained that he reviewed the available lab data and that it would be possible to place UM rockfill on Central Dike this year. He also explained that further conversation will be needed with AEM to complement the testing program of UM rockfill. It was agreed between AEM and Golder that PAG would be placed up to

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El. 132.5 m and that UM rockfill would be encapsulated by good quality NPAG material within the core of Central Dike. It was proposed to have a 6 m shell of good quality NPAG on the downstream shell above El. 137 m and a 5 m shell on the upstream side. AEM will reassess the quantity needed for such an option. For the moment, it was agreed that good quality NPAG rockfill will be placed on the downstream side from El. 132.5 m to El. 137 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 128 m to 130 m was placed from 0+750 to 0+660 and from 0+280 to 0+320. Compaction of the lift of PAG rockfill placed at from El. 128 to 130 m from 0+920 to 0+840. The compaction was done with 8 passes of compactor in vibratory mode and was visually adequate. An excavator started to remove big particle on the slope at EL. 130 m around 0+900 in prevision of sloping.
Central Dike Stockpile	Sieving of till.

Table 2: QA Observations for Saddles Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side of SD3

5.0 LABORATORY

The QC took a sample of sieve till produced at Central Dike stockpile. The QA also took a sample of sieved till. The sample taken by the QA will be tested once the QA assistant arrived on site.

Table 3: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-14	23/06/2016	-	Sieved till	Central Dike stockpile	Gradation, water content	-

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
353	23/06/2016	-	Sieved till	Central Dike stockpile	Gradation, water content	-

6.0 PHOTOGRAPH



Photograph CD-1690: From Sta.0+980/+30 looking N. Compaction of rockfill at El. 130 m on the south downstream side. An excavator is removing big particle in prevision of sloping.



Photograph CD-1691: From Sta.0+280/+30 looking S. Placement of PAG rockfil at EL. 130 m on the northern downstream side.

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QA DAILY REPORT

DATE June 25, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 24TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny

2.0 HEALTH AND SAFETY

- The QA manager assisted to the mining department monthly safety meeting. Subject discussed were Central Dike construction, removing AEM property from the site, slip trip and fall and miss-holes during blasting.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was communicated to the Contractor that good quality NPAG rockfill will be placed on the downstream side of Central Dike starting from El. 132 m to El. 137 m. Two 1.5 m lifts (132-133.5 and 133.5-135) and a 2 m lift (135-137 m) will be placed.
- It was discussed that the foundation of the Saddle Dams this year must be excavated to ice-poor till or bedrock. If till is left in place, it will be important to do an investigation to quantify its ice content to make sure that it is a ice poor material.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 128 m to 130 m was placed from 0+450 to 0+620. An excavator profiled the downstream slope (1.5 H : 1V) from El. 128 m to 130 between 0+950 and 0+660.
Central Dike Stockpile	Sieving of till.

Table 2: QA Observations for Saddles Dam 4

Activity or Area	Comments
Foundation preparation	Excavation of till within the El. 143 m footprint from 40+400 to 40+300 approximately. The till is being excavated to bedrock.

5.0 LABORATORY

Sample 353 is currently being tested by the QC. The results will be available soon.

Table 3: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPH



Photograph CD-1692: From Sta.0+960/+50 looking N. Profiling of the downstream slope up to El. 130 m. Placement of PAG rockfill on the downstream side to El. 130 m.



Photograph SD4-070: From Sta.40+400/-8 looking W. Excavation of till within SD 4 footprint for a crest elevation at 143 m.

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QA DAILY REPORT

DATE June 26, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 25TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- Work has recently began on Saddle Dam 4. Safety procedure due to the proximity of that sector with the airstrip have been reviewed. Information about incoming plane will be shared on the construction radio channel beginning on June 27th.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Discussion have been held on how to continue the upstream toe liner tie-in in the north part of SD3. The as built document from last year have been reviewed and a preliminary configuration has been modeled. This configuration will be implemented on the field.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 128 m to 130 m was placed from 0+884 to 0+790. An excavator profiled the downstream slope (1.5 H : 1V) from El. 128 m to 130 between 0+310 and 0+560.
Foundation preparation	Removal of soft till on the downstream side up to El. 137 m between 0+250 and 0+200.
Central Dike Stockpile	Sieving of till. Stockpile 1 of sieved till has been sealed and stockpile 2 is beginning.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	Excavation of till within the El. 143 m footprint from 40+300 to 40+200 approximately. The till is being excavated to bedrock.

5.0 LABORATORY

The following sample as been taken by the QC during the night shift.

Table 3: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
354	25/06/2016	-	Sieved till	Stockpile 1, CD	Gradation, water content	-

6.0 PHOTOGRAPH



Photograph CD-1693: From Sta.0+200/+40 looking S. Excavation of soft till on the north abutment. Profiling of the downstream slope at El. 130 m and placement of PAG rockfill to El. 132 m on the downstream from the south side.



Photograph SD4-071: From Sta.40+200 looking SE. Excavation of till within SD4 footprint for a crest EL. at 143 m.

QA DAILY REPORT

DATE June 27, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JUNE 26TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny

2.0 HEALTH AND SAFETY

- A procedure has been developed by the Contractor when the shovel operator is also acting as a spotter to guide haul truck backing-up.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM sent typical cross-section of the planned configuration of Central Dike including NPAG rockfill with an estimate of the available NPAG quantity. It seems that there will be enough good quality NPAG to encapsulate the UM rockfill with a 6 m shell on the downstream side and a 5 m shell on the upstream side. It was discussed that the quantity of good NPAG will be reassessed in the coming week as the downstream side of Central Dike is raised with good quality NPAG from El. 132 m to 137 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the mine. During the day shift, the lift from El. 130 m to 132 m was placed going south up to 0+320. The lift is left incomplete (340 m remaining) as the 1250 shovel is down, which led to a shortage of PAG rockfill. The compaction of the downstream PAG lift at El. 132 m was done from 0+965 to 0+660. The compaction was done with 8 passes of compactor in vibratory mode and was adequate. An excavator profiled the downstream slope (1.5 H : 1V) from El. 130 m to 132 between 0+965 and 0+660. Placement with a dozer of 1.5 m-thick lift of good quality NPAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and come from the NPAG stockpile at Central Dike. The lift from 132 m to 133.5 m was placed from 0+955 to 0+900.
Foundation preparation	Removal of soft till on the downstream side to reach bedrock for a dike footprint at El. 147 m between 0+250 and 0+200. The material is hauled to the snow dump and will be used later as low quality till.
Central Dike Stockpile	Sieving of till. The material is put in stockpile #2.

5.0 LABORATORY

The QC gave the results of the sample of sieved till (353) to the QA manager. The sample is conform to the specifications.

Table 2: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
353	23/06/2016	26/06/2016	Sieved till	Stockpile 1, CD	Gradation, water content	Conform

6.0 PHOTOGRAPH



Photograph CD-1694: From Sta.0+980/+50 looking N. Beginning of placement of good quality NPAG from El. 132 m to 133.5 m. A shovel is profiling the downstream slope at El. 132 m.

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QA DAILY REPORT

DATE June 28, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JUNE 27TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, rainy

2.0 HEALTH AND SAFETY

- QA manager cross-shit today. Michaël Demers Bonin has arrived on site. He reviewed the construction site layout with Rebecca Cousineau and the QC.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- None.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarise the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of a 2 m-thick lift of good quality PAG rockfill downstream for a dike footprint at El. 147 m. The material is well graded and comes from the mine. The lift from El. 130 m to 132 m was placed from 0+415 to 0+660. Placement with a dozer of a 1.5 m-thick lift of good quality NPAG rockfill downstream for a dike footprint at El. 147 m. The material was well graded and comes from the NPAG stockpile at Central Dike. The lift from 132 m to 133.5 m was placed from 0+900 to 0+750. Placement of a 2 m-thick lift of good quality NPAG rockfill downstream for a dike footprint at El.147 m. The material was well graded. The lift was placed over the approved foundation (FND-CD-130) between El. 133 m and 135 m from Sta. 0+210 to 0+230. Compaction of the lift of PAG rockfill at EL. 132 m from Sta. 0+260 to 0+380. The compaction was carried out with 8 passes of the compactor in vibratory mode.
Foundation preparation	Excavation of soft till on the downstream side to reach bedrock for a dike footprint at El. 147 m between 0+200 and 0+150. The material is hauled to the snow dump and will be used later as low quality till.
Central Dike Stockpile	Sieving of till. The material is put in stockpile #2.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	Excavation of till within the footprint for a dike crest El. at 143 m from Sta. 40+200 to 40+100 approximately. The till is being excavated to bedrock. This activity was stopped in PM since no operator was available.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of an existing ramp in prevision of the foundation preparation at 40+800 approximately. The rockfill was excavated to the frozen material. The excavation must be completed to bedrock.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out North of CD for a dike footprint for a crest elevation at El. 143 m. A verification was made to make sure the bedrock has been reached under the water ponding.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-130	CD	From sta. 0+210/-1.5/12.2 to 0+230/-1.5/12.2	27-06-2016	Downstream side of CD, North abutment

6.0 LABORATORY

The QC gave the results of the sample of sieved till (354) to the QA manager. The sample is conform to the specifications. Sample 355 was tested during the night shift in stockpile 2 of sieved till, however the results are not available yet.

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
354	23/06/2016	27/06/2016	Sieved till	Stockpile 1, CD	Gradation, water content	Conform
355	27/06/2016	-	Sieved till	Stockpile 2, CD	Gradation, water content	-

7.0 PHOTOGRAPH



Photograph CD-1695: From Sta.0+190/+40 looking S. Excavation of soft till on the north abutment to reach the bedrock.



Photograph CD-1696: From Sta.0+250/+40 looking S. Placement of PAG rockfil to El. 132 m on the northern downstream side.

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QA DAILY REPORT

DATE June 29, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JUNE 28TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- The Mine inspector carried out a site visit on June 27th. No H&S concern has been identified during the visit regarding the TSF South cell activities.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager told that the NPAG Fine and Coarse Filters stockpiles would need to be sampled shortly.
- The owner representative and the contractor explained how the excavation of the SD5/CD access ramp will be carried out to maintain an access North of CD.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of a 1.5 m-thick lift of good quality NPAG Rockfill downstream for a dike footprint at El. 143 m. The material was well graded and comes from the NPAG stockpile at Central Dike. The lift from El.132 m to 133.5 m was placed from Sta. 0+750 to 0+660 and from Sta. 0+240 to 0+620. Compaction of the lift of PAG Rockfill at El. 132 m from Sta. 0+380 to 0+660. The compaction was carried out with 8 passes of the compactor in vibratory mode. Compaction of the lift of PAG Rockfill at El. 133.5 m from Sta. 0+955 to 0+660. The compaction was carried out with 8 passes of the compactor in vibratory mode. Profiling of the downstream 1.5H:1V slope with the excavator to El. 132 m from Sta. 0+280 to 0+660. Profiling of the downstream 1.5H:1V slope with the excavator to El. 133.5 m from Sta. 0+955 to 0+660.
Central Dike Stockpile	Sieving of Till. The material is placed in stockpile #3.
Foundation preparation	Excavation of soft Till North of CD approximately at Sta. 0+190/-30.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of an existing ramp in prevision of the foundation preparation at Sta. 40+775 approximately. The Rockfill was excavated to the frozen material. The excavation must be completed to bedrock.

5.0 FOUNDATION APPROVAL

No foundation approval was carried out during the reporting period.

Table 2: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

Sample 355 was tested during the night shift. This sample comes from stockpile #2 and is not compliant. Stockpile #2 is now sealed.

Sample 356 was sampled during the night shift from stockpile #3 (sieved Till), but it has not been tested so far.

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
355	27/06/2016	29/06/2016	Sieved Till	Stockpile 2, CD	Gradation, water content	w and Gr-Not compliant, too fine
356	29/06/2016	-	Sieved Till	Stockpile 3, CD	Gradation, water content	-

7.0 PHOTOGRAPH



Photograph CD-1697: From Sta.0+720/0 looking SE. Placement of a 1.5 m-thick lift of good NPAG rockfill lift downstream of CD.

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QA DAILY REPORT

DATE June 30, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JUNE 29TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny (AM), cloudy (PM).

2.0 HEALTH AND SAFETY

- It was reminded that the flight coordinator must call plane's takeoffs and landings on channel 10 to make sure no workers are allowed to circulate on the road to SD4-SD3.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC engineer presented the non-compliant result of the gradation done on sample 355 from the sieved Till stockpile #2. Everybody agreed to wait for the results from the sieved Till stockpile #3 to see if measures are warranted.
- Some discussions were held about the planning of the excavation of materials at SD3 within the footprint for a dike crest El. at 143 m. The owner's representative would like to avoid the fault infill melting downstream. The owner's representative asked if the QA engineer would accept to place the Rockfill over the fault infill downstream without proceeding to soundings as many were performed last year in this area. The last year's results showed that the fault infill was ice-poor from samples taken between El. 138.5 m and 133.5 m (doc 1515-15-28661 MTA Rev0). If the excavation over the faulted zone reaches those elevations downstream SD3, Golder agrees not to carry out additional soundings. However, if the fault infill elevation downstream of CD is above 138.5 m, soundings may be required to validate the ice content of the fault infill.
- AEM suggested to bend the Upstream Toe Liner Tie-in approximately at El. 143 m on the top of the rock wall at SD3. This would be discussed in the field shortly with all contributors.

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- The QA manager reminded the contractor that NPAG Rockfill only must be placed above El. 132 m downstream of CD.
- The QA manager reminded the contractor that the NPAG Rockfill must be well graded. Two loads of finer material were placed on CD at Sta. 0+880 approximately.
- The contractor's surveyor explained the approach to build the SD5/CD downstream slope transition. A slight adjustment was required.
- The contractor proposed a new approach for the Rockfill placement downstream of SD3 because of the narrow working area. The downstream excavation will be 4.5 m-wide which is not wide enough to allow a dozer and a haul truck to work at the same time within this room (see Photograph SD3-104). The contractor asked to dump the Rockfill loads from the SD3 crest at El. 140 m down the excavation and then to place the Rockfill with the dozer. The QA manager shall discuss this topic with the dike designer.
- The southern extension of SD3 for a dike crest elevation at 150 m was surveyed in the field. This limit is very close to the Quarry 23 (less than 5 m). The QA manager reminded that as per Saddle Dams drawings (1416081/2000), the SD3 alignment may need to be adjusted due to the Quarry. This will be discussed further in details shortly.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	- Placement with a dozer of a 1.5 m-thick lift of good quality NPAG Rockfill downstream for a dike footprint at El. 147 m. The material was well graded and comes from the NPAG stockpile at Central Dike. The lift from El.132 m to 133.5 m was placed from Sta. 0+620 to 0+660 and from Sta.0+970 to 0+930. - Placement with a dozer of a 1.5 m-thick lift of good quality NPAG Rockfill downstream for a dike footprint at El. 147 m. The material was well graded and comes from the NPAG stockpile at Central Dike. The lift from El.133.5 m to 135 m was placed from Sta. 0+960 to 0+640. - Compaction of the lift of NPAG Rockfill at El. 133.5 m from Sta. 0+240 to 0+660. The compaction was carried out with 8 passes of the compactor in vibratory mode. - Profiling of the downstream 1.5H:1V slope with the excavator to El. 133.5 m from Sta. 0+240 to 0+660.
Central Dike Stockpile	- Sieving of Till. The material is placed in stockpile #3. This stockpile was then sealed in PM due to the weather forecast.

Activity or Area	Comments
Foundation preparation	Excavation of soft Till North of CD approximately at Sta. 0+190/-30 for a dike footprint for a crest El. at 147 m.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of an existing ramp in prevision of the foundation preparation at Sta. 40+775 approximately. The Rockfill was excavated to frozen materials. The excavation must be completed to bedrock.
Downstream slope	A slight adjustment was carried out between the SD5/CD downstream slopes.

5.0 FOUNDATION APPROVAL

No foundation approval was carried out during the reporting period.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

None

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
None						

7.0 PHOTOGRAPH



Photograph CD-1698: From Sta.0+660/-7 looking NE. Placement of a 1.5 m-thick lift of good NPAG rockfill lift downstream of CD to EL. 133.5 m.



Photograph CD-1699: From Sta.0+950/-5 looking NE. Adjustment of the CD/SD5 downstream slope.



Photograph CD-1700: From Sta.0+210/+21 looking NW. Excavation of soft Till North of CD.



Photograph SD3-104: From Sta.20+780/-30 looking N. Existing configuration of the downstream slope at SD3.

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QA DAILY REPORT

DATE July 1st, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JUNE 30TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- The foreman of the crusher reminded to get an eye contact with dozer's operators when going in that area.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The contractor told the QA manager that there is no need to change the NPAG Rockfill placement method downstream of SD3 since the width of the extension is 13.5 m rather than 4.5 m. Consequently, there is room enough to allow the dozer and the haul truck to work within the same area safely.
- The QA manager reminded the contractor that the NPAG Rockfill must be well graded.
- The QC engineer presented the results of the grain size 356 which is not compliant (too fines). Another QC sample was collected on the stockpile #4. The owner's representatives agree that adjustments might be warranted shortly to get a compliant grain size curve.
- The needed quantities of sieved till was finally estimated to 7000 m³ following a review of the projected quantities by both the owner's and the contractor's surveyors.
- The QA manager confirmed that there will be no need to carry out additional soundings to confirm the ice content of the fault infill downstream of SD3 as long as the downstream fault surface elevation is between 138.5 m and 133.5 m. Those elevations correspond to the elevation of the samples collected last year.

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- AEM asked if it is possible to adapt the approved CD configuration for the NPAG UM Rockfill. AEM would like to remove the sound and good quality NPAG Rockfill wrapping the NPAG UM Rockfill at the southern abutment of CD. This would allow saving on quantities of sound and good quality NPAG Rockfill. This topic must be discussed further in details with the dike's designer.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	- Placement with a dozer of a 1.5 m-thick lift of good quality NPAG Rockfill downstream for a dike footprint at El. 147 m. The material was well graded and is now from the NPAG stockpile at East Dike. The lift from El.133.5 m to 135 m was placed from Sta. 0+250 to 0+520. - Profiling of the downstream 1.5H:1V slope with the excavator to El. 135 m from Sta. 0+960 to 0+660. - Placement of a 2 m-thick lift and less of UM NPAG Rockfill from sta 0+160 to 0+190 (FND-CD-131).
Central Dike Stockpile	- Sieving of Till. The material is placed in stockpiles #4 and #5. A QC sample was collected on stockpile #4.
Foundation preparation	- Excavation of soft Till North of CD approximately at Sta. 0+190/-30 for a dike footprint for a crest El. at 147 m.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	- Excavation of materials downstream of SD3 on the South side of the fault area from Sta 20+650 to 20+700 approximately.

5.0 FOUNDATION APPROVAL

FND-CD-131 was carried out today. Details regarding this approval can be found in table 4.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-131	CD	From 0+161.56/-14 to 0+192.23/-5.86	2016/06/30	Foundation approval within the CD footprint underneath Rockfill

6.0 LABORATORY

The QC sample 356 shows a non-compliant grain size curve since it is too fine. Another QC sample of sieved till (357) was collected in stockpile #4 North of CD. This sample has not been tested yet.

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
356	29/06/2016	30/06/2016	Sieved Till	Stockpile 3, CD	Gradation, water content	Gr-Not compliant, too fine
357	30/06/2016	-	Sieved Till	Stockpile 4, CD	Gradation, water content	Not tested yet
358	30/06/2016	-	Fine Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet
359	30/06/2016	-	Fine Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet
360	30/06/2016	-	Fine Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet
361	30/06/2016	-	Fine Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet

A QA sample of Fine Filter was collected in the stockpile 2 at SANA crusher. This sample has not been tested yet.

Table 5: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-10	30/06/2016	-	Fine Filter	Stockpile 2,SANA Crusher	Gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph SD3-105: From Sta.20+700/-15 looking N. Excavation of materials downstream of SD3 within the dike footprint for a crest El. at 143 m.



Photograph CD-1701: From Sta.0+320/-8 looking NE. Placement of a 1.5 m-thick lift of NPAG Rockfill between El. 133.5 m and 135. The Rockfill is now from the East Dike stockpile, which explained the new color of the material.

QA DAILY REPORT

DATE July 2nd, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 1ST, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- The Pipeline inspection gauge was used today. The CD area was closed from 9:00 to 9:30 AM.
- Temporary closure of the saddle road for the next few days to excavate within the footprint for a dike crest El. at 143 m.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer confirmed that the SD5 configuration doesn't include a good and sound NPAG shell around the UM NPAG Rockfill. The initial design of SD5 is based on the use of UM NPAG Rockfill only.
- In prevision of the Rockfill placement between El. 135 m and 137 m on CD, the downstream 1 m-high berm of UM NPAG Rockfill was moved down from the lift at El. 137 m onto the lift at El. 135 m with a loader in a way to limit segregation. However, it was reminded that the bigger UM Rockfill stockpiles lying on the lift at El. 137 m should not be moved down onto the lift at El. 135 m as only good quality NPAG Rockfill should be placed downstream CD above El. 132 m.
- AEM asked if it is possible to adapt the upstream and downstream slopes of the CD UM NPAG Rockfill above El.137 m to avoid profiling those slopes with the excavator (as per figure 1). This proposed configuration is based on the natural deposition slope (1.3H:1V) of the UM NPAG Rockfill. That would result in an additional

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quantity of 5,000 m³ of UM Rockfill (represented by the red area in figure 1). This topic must be discussed further with the dike's designer.

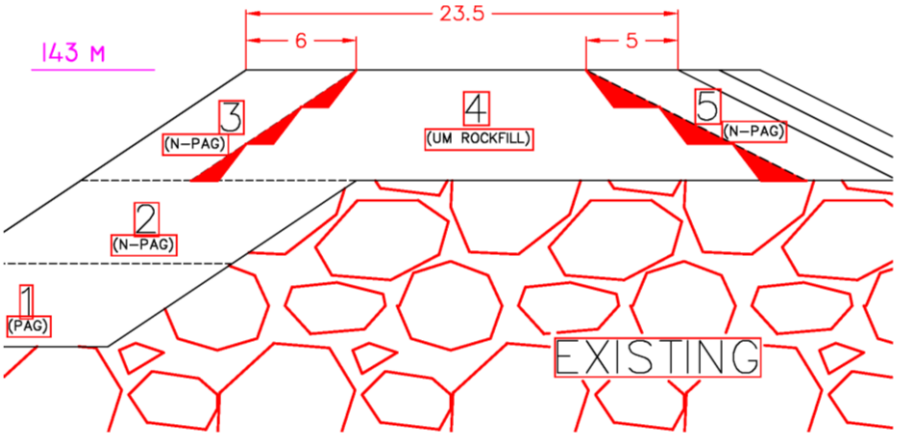


Figure 1: Proposed configuration of the UM NPAG Rockfill above El. 137 m to avoid profiling the upstream and downstream slopes of the UM Rockfill core.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of a 1.5 m-thick lift of good quality NPAG Rockfill downstream. The material was well graded and is now from the NPAG stockpile at East Dike. The lift from El.133.5 m to 135 m was placed from Sta. 0+520 to 0+640. Profiling of the downstream 1.5H:1V slope with the excavator to El. 135 m from Sta. 0+250 to 0+660. Compaction of the lift of UM NPAG Rockfill at El. 135 m from Sta. 0+250 to 0+940. The compaction was carried out with 8 passes of the compactor in vibratory mode. Placement with a dozer of a 2 m-thick lift of good quality NPAG Rockfill downstream. The lift from El.135 m to 137 m was placed from Sta. 0+980 to 0+880.

Activity or Area	Comments
	Removal of the 1 m-high bumper made of UM NPAG Rockfill from the lift at El. 137 m down to the lift at El.135 m from Sta. 0+940 to 0+660 approximately.
Central Dike Stockpile	Sieving of Till. The material is placed in stockpiles #5.
Foundation preparation	Excavation of soft Till North of CD approximately at Sta. 0+190/0 for a dike footprint for a crest El. at 147 m.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	Excavation of materials downstream of SD3 on the South side of the fault area from Sta. 20+650 to 20+780 approximately.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of the access ramp within the SD5 footprint for a dike footprint at a crest El. at 150 m.

5.0 FOUNDATION APPROVAL

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

None

7.0 PHOTOGRAPH



Photograph SD3-106: From Sta.20+650/-73 looking S. Excavation of materials downstream of SD3 within the dike footprint for a crest El. at 143 m.

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QA DAILY REPORT

DATE July 3rd, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 2ND, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- There was more coactivity on CD due to the placement of the good quality NPAG Rockfill to El. 137 m on the downstream side. Haul trucks are passing on the CD crest at El. 137 m. Make sure to get a radio communication or an eye contact with operators. Respect the new road sign toward the crest.
- The 1 m-high safety berm was removed from the crest of CD at El. 137 m to allow for the placement of the good quality NPAG Rockfill downstream. Keep away from the downstream slope at El. 137 m with vehicles.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer and the Owner's representatives went to have a look at the Pit D NPAG Rockfill stockpile. There is an area of UM Rockfill which should not be used, but the remaining materials appears of good quality and well graded.
- It was reminded that no UM NPAG Rockfill should be placed downstream CD within the portion of good quality NPAG Rockfill.
- The QA Engineer reminded that the portion of UM NPAG Rockfill underneath the removed safety berm should be compacted on CD at El. 137 m once the downstream lift at El. 137 m is completed.
- The contractor confirmed that the UM NPAG Rockfill lift at El. 137 m (placed last year) will be scarified before the placement of the next Rockfill lift on CD.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Profiling of the downstream 1.5H:1V slope with the excavator to El. 135 m from Sta. 0+250 to 0+660. Placement with a dozer of a 2 m-thick lift of good quality NPAG Rockfill downstream. The lift from El.135 m to 137 m was placed from Sta. 0+880 to 0+550 and from Sta. 0+250 to 0+480. The NPAG Rockfill was hauled from the Pit D and East Dike stockpiles. Compaction of the 2 m-thick lift of good quality NPAG Rockfill lift between El. 135 m and 137 m from Sta. 0+980 to 0+550 downstream. The compaction was carried out with 8 passes of the compactor in vibratory mode. Removal of the 1 m-high bumper made of UM NPAG Rockfill from the lift at El. 137 m down to the lift at El.135 m from Sta. 0+660 to 0+250 approximately.
Central Dike Stockpile	Sieving of Till. The material is placed in stockpiles #6. Stockpiles 4 and 5 were sealed on July 1st. The total amount of Sieved Till contained within the stockpiles is now 5875 m³.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of the access ramp within the SD5 footprint for a dike footprint at a crest El. at 150 m. The excavated materials are hauled to the Rough Till stockpiles.

5.0 FOUNDATION APPROVAL

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

A QA sieved Till sample was collected from the stockpile #6 North of CD. The sample will be tested once the QA technician is on site.

Table 4: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-15	02/07/2016	-	Sieved Till	Stockpile #6, CD	Gradation, water content	Not tested yet

A QC sieved Till sample was collected from the stockpile #6 North of CD.

Table 5: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
362	02/07/2016	-	Sieved till	Stockpile #6, CD	Gradation, water content	Not tested yet

7.0 PHOTOGRAPH



Photograph CD-1702: From Sta.0+785/-7 looking S. Placement of a 2 m-thick lift of good quality NPAG Rockfill lift between El. 135 m and 137 m.



Photograph CD-1703: From Sta.0+250/+20 looking S. Profiling of the downstream 1.5H:1V slope between El. 133.5 m and 135 m.

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QA DAILY REPORT

DATE July 4th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 3RD, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- A yield sign was installed on CD (South side) on July 2nd. We must respect that sign.
- It was reminded that light vehicles and haul trucks shall pass on the right side of the tire N of the West Road when going to Sana Crusher or to East Dike from CD.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC reminded that the UM NPAG Rockfill must be compacted underneath the former 1 m-high safety berm at El. 137 m.
- The contractor and the Owner's representative discussed the possible approaches to build the tailings deposition points on CD.
- AEM decided to change the Rockfill configuration above El. 137 m as shown in figure 1. This new configuration was approved by the Dike's designer. AEM suggested this configuration following a review of the good quality NPAG quantities. Since there might be a shortage of this material, AEM chose to substitute the UM NPAG Rockfill core and consequently to remove the upstream good quality NPAG shell.
- The Dike's designer approved the gradation limits developed for the Compacted Sieved Till. The new gradation limits will be shared with the owner and the QC. A memo will be issued shortly about this topic and samples of Compacted Sieved Till will be reviewed by the QA/QC with the new limits.

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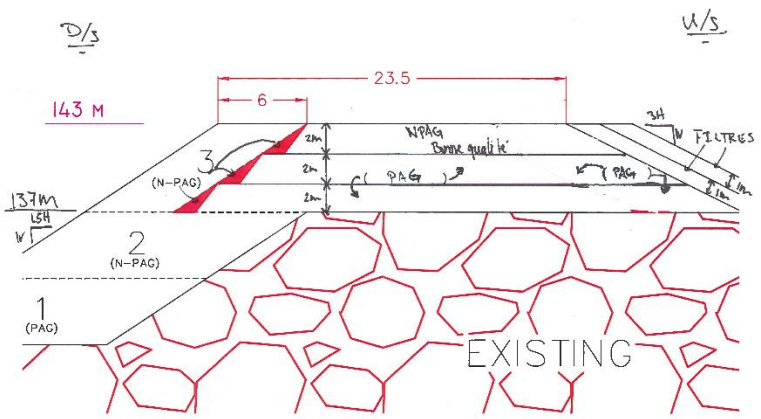


Figure 1: Proposed Rockfill configuration above El. 137 m.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Placement with a dozer of a 2 m-thick lift of good quality NPAG Rockfill downstream. The lift from El.135 m to 137 m was placed from Sta. 0+480 to 0+670. The NPAG Rockfill was hauled from the East Dike stockpile. Compaction of the 2 m-thick lift of good quality NPAG Rockfill at El. 137 m from Sta. 0+260 to 0+670 downstream. The compaction was carried out with 8 passes of the compactor in vibratory mode. Compaction of the UM NPAG Rockfill underneath the removed safety berm at El. 137 m from Sta. 0+260 to 0+670.
Crest	Scarification of the UM NPAG Rockfill surface at El. 137 m from Sta. 0+560 to 0+780. Placement of a 0.5 m-thick lift of PAG to correct the crest surface to El. 137 m between Sta. 0+560 to 0+660. Compaction of the 0.5 m-thick lift of PAG Rockfill between Sta. 0+560 to 0+660. Placement of a 2 m-thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+820 to 0+780. The Rockfill was well graded. A 5 m-wide strip was kept free of Rockfill downstream for the placement of the good quality NPAG shell.

Activity or Area	Comments
Foundation preparation	Excavation and ripping of soft Till North of CD downstream at Sta. 0+190 approximately.
Central Dike Stockpile	Sieving of Till. The material was placed in the stockpile #6. The total amount of Sieved Till contained within all stockpiles was 6325 m³ in the morning.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation of the access ramp within the SD5 footprint for a dike footprint at a crest El. at 150 m. The excavated materials are hauled to the Rough Till stockpiles.

5.0 FOUNDATION APPROVAL

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

A QA sample of Coarse Filter was collected from the stockpile 1 at Sana Crusher. The sample will be tested once the QA technician is on site.

Table 4: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-05	03/07/2016	-	Coase Filter	Stockpile 1, SANA crusher	Gradation	Not tested yet

The table 5 presents the results of the tested QC samples as well as the collected samples during the reporting period. The sample 357 of Sieved Till is compliant according to the new gradation limits. Samples 358 to 361 of Fine Filter are compliant as well.

Table 5: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
357	30/06/2016	02/07/2016	Sieved Till	Stockpile 4, CD	Gradation, water content	Compliant
358	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
359	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
360	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
361	30/06/2016	02/07/2016	Fine Filter	Stockpile 2-SANA crusher	Gradation	Compliant
363	03/07/2016	-	Coarse Filter	Stockpile 1-SANA crusher	Gradation	Not tested yet
364	03/07/2016	-	Coarse Filter	Stockpile 1-SANA crusher	Gradation	Not tested yet
365	03/07/2016	-	Coarse Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet
366	03/07/2016	-	Coarse Filter	Stockpile 2-SANA crusher	Gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph SD5-008: From Sta.40+760/-50 looking S. Excavation of soft Till within the Dike footprint for a dike crest El. at 150 m.



Photograph CD-1704: From Sta.0+200/-30 looking N. Cleaning of the bedrock within the footprint for a dike El. at 143 m.



Photograph CD-1705: From Sta.0+580/-5 looking N. Placement of good quality NPAG Rockfill between El. 135 m and 137 m. The safety berm downstream was removed from the crest at El. 137 m.



Photograph CD-1706: From Sta.0+680/-15 looking N. Ongoing scarification of the UM NPAG Rockfill surface at El. 137 m.

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QA DAILY REPORT

DATE July 5th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 4TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny in AM and cloudy in PM.

2.0 HEALTH AND SAFETY

- Some instrumentation casings were left on CD at El. 137 m. We must drive carefully in those areas.
- The contractor's H & S coordinator confirmed that the geosynthetics workers could be attached to concrete blocks when working on the upstream 2H:1V slope.
- There was a crew change in the contractor's team today.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer presented the new gradation limits for the Compacted Sieved Till and confirmed that samples 353 to 357 are compliant according to this new limits.
- The Owner's Representative described the proposed configuration for the Rockfill placement on CD above El. 137 (see figure in attachment). The second lift or Rockfill between El. 139 and 141 m may be either in UM NPAG Rockfill or in PAG Rockfill depending on the availability of the PAG. A 5 m-wide shell of good quality NPAG will be placed upstream if the second lift is built with UM NPAG Rockfill.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Profiling of the downstream 1.5H:1V slope to El. 137 m from Sta. 0+820 to 0+700. Placement and compaction of a 2 m-thick lift of good quality NPAG Rockfill from Sta. 0+240 to 0+200/-15/+10. The Rockfill was well graded and was placed to El. 135 m. The compaction was carried out with 8 passes of the compactor with the vibratory mode. Placement and compaction of a 2 m-thick lift of good quality NPAG Rockfill from Sta. 0+240 to 0+200/-15/+10. The Rockfill was generally well graded and was placed to El. 137 m. Some loads were poorly graded and the contractor was told to place a well graded Rockfill. The compaction was carried out with 8 passes of the compactor with the vibratory mode.
Crest	Placement of a 2 m-thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+750 to 0+700 and from 0+350 to 0+400. The Rockfill was well graded. Some loads contain a mixture of UM NPAG and PAG Rockfill. A 6 m-wide strip was kept free of Rockfill downstream in prevision of the placement of the good quality NPAG shell.
Foundation preparation	Pumping of water North of CD. FND-CD-132 (See table 3 for further details).
Inverse Filters	Placement of a 0.5 m-thick lift of Inverse Coarse Filter from Sta. 0+195/-33 to 0+140/-15 approximately.
Central Dike Stockpile	Sieving of Till. The material was placed in the stockpile #7 which was then sealed at the end of the day. The total amount of Sieved Till contained within all stockpiles was 7575 m³ in the morning. The production of Sieved Till was stopped today since the required amount was reached.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation and ripping of materials within the SD5 footprint for a dike crest El. at 150 m.

5.0 FOUNDATION APPROVAL

The table 3 presents the details regarding FND-CD-132. A small fault characterized by a fault infill similar to that observed at SD3 was found at Sta. 0+175. The fault aperture is approximately 1 m and the infill is made of crushed rocks, gouge and till-like material. The fault is surrounded on both sides by a good quality bedrock. A sample was collected at a depth of 10 cm to estimate the ice content and the water content of the fault infill. The foundation was approved by the QA Engineer and the Owner's representative due to the limited width of the fault. No visible ice lenses was found in the material.

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-CD-132	CD	0+105/-26 to 0+210/+12	04/07/2016	Foundation approval within the dike footprint for a crest El. at 143 m.

6.0 LABORATORY

A QA sample of Fine Filter was collected from the stockpile at Pit D. The sample will be tested once the QA technician is on site.

Table 4: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-11	04/07/2016	-	Fine Filter	Stockpile, Pit D	Gradation	Not tested yet

The table 5 presents the sample collected by the QC during the reporting period. Result will be presented as soon as they are available.

Table 5: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
367	04/07/2016	-	Sieved Till	Stockpile #7, North CD	WC, gradation	Not tested yet
368	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
369	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
370	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet
371	04/07/2016	-	Fine Filter	Stockpile Pit D	Gradation	Not tested yet

The table 6 presents the results of the tested QC samples of Compacted Sieved Till according to the new gradation limits. All tested samples are compliant. The figure 1 presents the new gradation limits, the gradation limits for the Compacted Till and the grain size results of all the QC samples tested so far.

Table 6: Previous QC samples of Compacted Sieved Till QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
353	23/06/2016	26/06/2016	Sieved till	Stockpile 1, CD	Gradation, water content	Compliant
354	23/06/2016	27/06/2016	Sieved till	Stockpile 1, CD	Gradation, water content	Compliant
355	27/06/2016	29/06/2016	Sieved Till	Stockpile 2, CD	Gradation, water content	Compliant
356	29/06/2016	30/06/2016	Sieved Till	Stockpile 3, CD	Gradation, water content	Compliant
357	30/06/2016	02/07/2016	Sieved Till	Stockpile 4, CD	Gradation, water content	Compliant

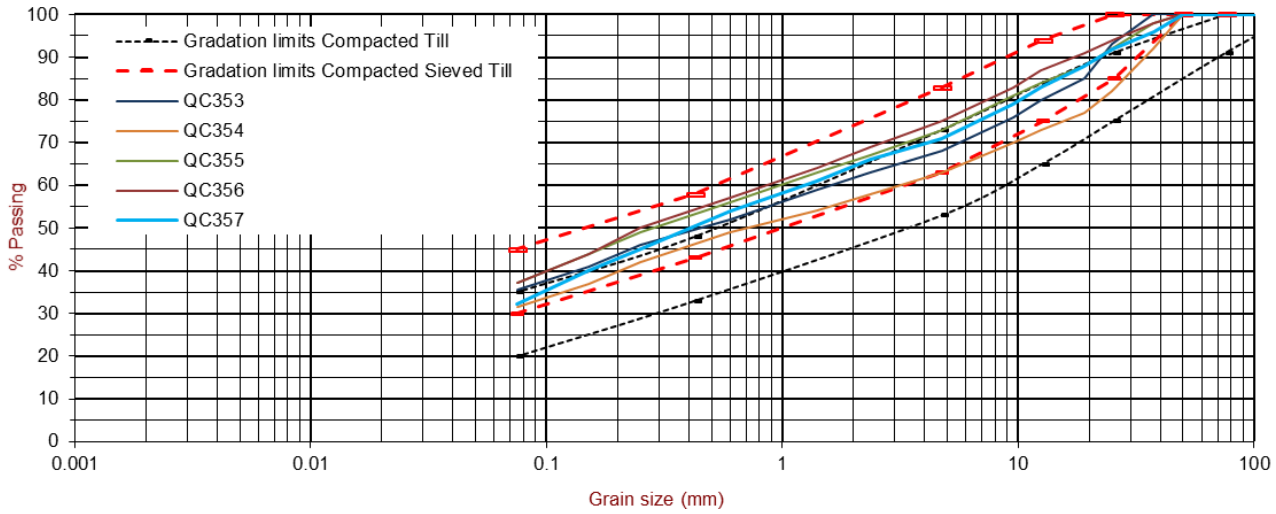


Figure 1: Grain size results of Compacted Sieved Till and gradation limits

7.0 PHOTOGRAPH



Photograph CD-1707: From Sta.0+650/-18 looking N. Placement of PAG Rockfill between El. 137 m and 139 m.



Photograph CD-1708: From Sta.0+650/-18 looking S. View of the UM NPAG Rockfill scarified surface on CD at El. 137 m.



Photograph CD-1709: From Sta.0+175/-15 looking N. Excavation of the fault infill for sampling. The fault is approximately 1 m-wide.



Photograph CD-1710: From Sta.0+200/+20 looking W. Placement of NPAG Rockfill to El. 135 m downstream of CD.

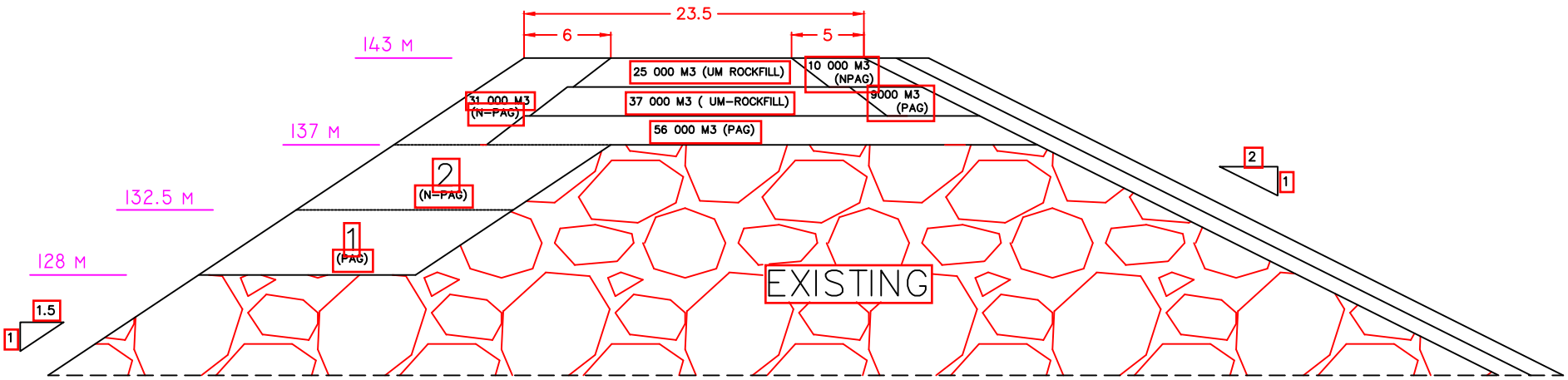


Photograph CD-1711: From Sta.0+195/-33 looking N. Placement of a 0.5 m-thick lift of inverse Coarse Filter.

Attachment: Volume estimation Central Dike-Last Configuration for Rockfill placement (2016-07-04)

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FORMAT A – LANDSCAPE



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MEADOWBANK

TITLE
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VOLUME ESTIMATION CENTRAL DIKE

PROJECT No.	
DATE	2016-07-04
DRAWN BY	MICHAEL RACINE
APPROVED BY	
DRAWING NO.	
SHEET	1 / 1
REVISION	

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FILE NO. .DWG

QA DAILY REPORT

DATE July 6th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 5TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny in AM and cloudy in PM.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was reminded that the Rockfill shall be well graded and free of snow.
- According to the contractor, there might be a shortage of good quality NPAG Rockfill and the remaining stockpiles may contain some UM NPAG Rockfill. The contractor proposed to reduce the width of the good quality Rockfill shell. The QA Engineer reminded that the downstream shell width could not be reduce as it provides a safety buttress to the UM NPAG lift. The Owner's Representative would like to review the good quality NPAG quantities today before making any change to the actual configuration.
- The Contractor asked if UM NPAG Rockfill could be used Downstream CD from Sta. 0+ 200 to 0+240 above El. 136 m. The Owner's Representive rather suggested the use of PAG Rockfil. The QA Engineer confirmed that PAG Rockfill may be used above El. 136 m if a good quality NPAG shell is to be placed downstream.
- The Owner's Representative made a verification and the Compactor currently used by the Contractor (CAT CS76) weighs 10 t at the drum.
- The QA Engineer accepted that the excavator circulates in straight line over the 0.5 m-thick lift of Inverse Fine Filter over bedrock. The Coarse Filter were unloaded onto the Fine Filter surface and the excavator was

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then placing the material manually to avoid segregation. The QA Engineer and the QC made sure the Fine Filter surface underneath was not remoulded by the excavator.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Profiling of the downstream 1.5H:1V slope to El. 137 m from Sta. 0+580 to 0+260. Some parts of the slope within this portion still need to be profiled.
Crest	Placement of a 2 m-thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+400 to 0+500/0/-30. The Rockfill was well graded. Some loads contain a mixture of UM NPAG and PAG Rockfill. A 6 m-wide strip was kept free of Rockfill downstream in prevision of the placement of the good quality NPAG shell.
Inverse Filters	Placement of a 0.5 m-thick lift of Inverse Coarse Filter from Sta. 0+140/-15 to 0+115/-21 approximately. This lift was placed on a 1 m-wide strip to serve as a buttress for the Inverse Fine Filter placement. Placement and compaction of a 0.5 m-thick lift of Inverse Fine Filter from Sta. 0+195/-33 to 0+115/-21 approximately. The compaction was carried out with four passes of the compactor in the vibratory mode. The material was wetted before the compaction. Placement and compaction of a 0.5 m-thick lift of Inverse Coarse Filter from Sta. 0+195 to 0+150 approximately. The compaction has not been carried out yet.
Central Dike Stockpile	No more Till sieving today. The total amount of Sieved Till is 7650 m³.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation and ripping of materials within the SD5 footprint for a dike crest El. at 150 m. Most of the excavated Till was hauled to the swow dump stockpile.

5.0 FOUNDATION APPROVAL

None

Table 3: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

A QA sample of as-placed Fine Filter was collected on CD. The sample will be tested once the QA technician is on site.

Table 4: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-540	05/07/2016	-	Fine Filter	As placed +143.5/-15.71, El. 141.06 m	Gradation	Not tested yet

The table 5 presents the sample collected by the QC during the reporting period. Result will be presented as soon as they are available.

Table 5: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
372	05/07/2016	-	Fine Filter	As placed +143.5/-15.71, El. 141.06 m	Gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph CD-1707: From Sta.0+450/-2 looking N. Placement of PAG Rockfill between El. 137 m and 139 m.



Photograph CD-1713: From Sta.0+200/-37 looking N. Placement of a 0.5 m-thick lift of Inverse Fine Filter.



Photograph CD-1715: From Sta.0+155/-32 looking S. Placement of a 0.5 m-thick lift of inverse Coarse Filter.

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QA DAILY REPORT

DATE July 7th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël Demers Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR JULY 6TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- A new crew is arriving today for the contractor. The H&S coordinator is going to brief them about the incident between the haul truck and the excavator. A new procedure will be presented to the crew as well.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer reminded that it is accepted that the Coarse Filter be unloaded on the Inverse Filter. However, the excavator must place manually the material in a way to avoid segregation. Moreover, the excavator must avoid remoulding the compacted Fine Filter underneath. The excavator can circulate onto the inverse Fine Filter surface in straight line only.
- A portion of the area contained witin FND-CD-132 was contaminated by aggregates during the placement of the Inverse Filters North of CD. The QA Engineer asked that the bedrock surface be cleaned up before the Rockfill placement to ensure a good contact between Rockfill and Bedrock.
- The stockpile of Rough Till (Unsieved) North of CD was surveyed, and the amount of material is estimated to 6200 m³.
- The Fault Infill sample collected at CD at Sta. 0+175 approximately has a gravimetric water content of 8.6 %. Moreover, no supernatant water was observed on top of the decanted sample. Those results confirm that the Fault Infill is an ice-poor material.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Profiling of the downstream 1.5H:1V slope to El. 137 m from Sta. 0+580 to 0+260. The profiling of the downstream 1.5H:1V slope is now completed to El. 137 m. Placement of a 1 m-thick lift of PAG Rockfill from Sta. 0+210/-15/+5 to 0+200. The material was well graded. Excavation of an access ramp downstream of CD North at Sta. 0+150 approximately.
Crest	Placement of a 2 m-thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+500 to 0+550/0/-30 and from 0+700 to 0+710/0/-30. The Rockfill was well graded. A 6 m-wide strip was kept free of Rockfill downstream in prevision of the placement of the good quality NPAG shell. The PAG Rockfill lift was extended 3 m upstream from Sta.0+350.
Foundation preparation	Pumping of water North of CD.
Inverse Filters	Placement and compaction of a 0.5 m-thick lift of Inverse Coarse Filter from Sta. 0+150 to 0+115 approximately. The compaction was carried out with 4 passes of the 10 t compactor with the vibratory mode.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	Excavation of materials within the SD4 footprint for a dike crest El. at 143 m from Sta. 40+280 to 40+400.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation and ripping of materials within the SD5 footprint for a dike crest El. at 148 m. Finally, the bedrock elevation appears to be going down toward S-E thus the footprint will be excavated for a Dike crest El. at 148 m approximately.

5.0 FOUNDATION APPROVAL

None

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
None				

6.0 LABORATORY

A QA sample of as-placed Inverse Coarse Filter was collected on CD. The sample will be tested once the QA technician is on site.

Table 5: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-539	06/07/2016	-	Coarse Filter	As placed, CD 160.4/-23.5, El. 140.6 m	Gradation	Not tested yet

The table 5 presents the samples collected and tested by the QC during the reporting period. Result of the samples that have not been tested yet will be presented as soon as they are available.

The results of samples 362 and 366 are compliant with reference to their respective gradation limits. The water content of the Compacted Sieved Till is within the accepted range.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
362	02/07/2016	05/07/2016	Compacted Sieved Till	Stockpile #6, N of CD	WC, Gradation	Compliant
366	03/07/2016	05/07/2016	Coarse Filter	Stockpile #2, SANA Crusher	Gradation	Compliant
373	06/07/2016	-	Coarse Filter	As placed, CD 160.4/-23.5, El. 140.6 m	Gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph CD-1716: From Sta.0+205/-25 looking S. View of the downstream 1.5H:1V slope completed to El. 137 m.



Photograph SD4-072: From Sta.40+405/-15 looking NW. Excavation of the foundation downstream for a Dike crest El. at 143 m.



Photograph CD-1717: From Sta.0+160/0 looking S. Placement of a 1 m-thick lift of PAG Rockfill between El. 136 m and 137 m.

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QA DAILY REPORT

DATE July 8th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 7TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- Change of shift for the QA manager. Michael Demers left the site and Frédérick L.Bolduc arrived on site. Frederick has familiarised himself with the new layout of the construction area.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer told the contributors that the compacted Till Stockpile at the snow dump will be tested shortly. At first glance, the material appears too dry and too coarse. It was suggested that the stockpile North of CD be used first.
- The QA Engineer reminded that the maximum size for the Rockfill is 1.3 m. Some oversized rockfill particle were spotted in the lift from El. 137 m to El. 139 m on Central Dike.
- The QA Engineer and the Owner's Representative agreed that no UM Rockfill must be placed upstream of CD underneath the Filters between El. 137 m and 139 m.
- The Owner's Representatives told the contractor that the PAG quantities will need to be followed up to make sure there is enough PAG Rockfill to complete the lift between El. 137 m and 139 m.
- The QA Engineer reminded that the Western and the Eastern accesses going down to the Upstream Toe Liner Tie-in at SD4 lie on non-approved foundations.

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- It was discussed that the first 5 m of the upstream toe liner tie-in must be excavated to bedrock. The remainder of the upstream toe liner tie-in can be built on ice-poor till. The QA manager reminded that testing will need to be done to make sure that the remaining soil is a ice-poor material.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	- Excavation of soft till that has melted within an approved area from Sta. 0+200 to 0+190. - Removal of PAG Rockfill within the good quality NPAG shell zone from Sta. 0+200 to 0+190. The PAG Rockfill lift had been extended too far downstream. - Clean up of Fine Filter lying on the approved bedrock surface downstream of the Inverse Filters from Sta. 0+160 to 0+115.
Crest	- Placement of a 1 m-thick lift of PAG Rockfill from Sta. 0+200 to 0+160 to EL. 137 m. - Placement of a 2 m-thick lift of PAG Rockfill between El. 137 and 139 m from Sta. 0+530 to 0+570/-5/-35. The Rockfill was well graded. A 6 m-wide strip was kept free of Rockfill downstream in prevision of the placement of the good quality NPAG shell.
Upstream slope	- Profiling of the PAG rockfill upstream slope with a 2H:1V slope between 0+480 and 0+530 in prevision of the placement of the filter.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	- Excavation of till on the south side

Table 3 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	- Excavation of materials within the SD5 footprint for a dike crest El. at 148 m. The foundation was approved from 40+789 to 40+746.

5.0 FOUNDATION APPROVAL

A foundation approval was done at SD5 in prevision of the construction of an access. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approval

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-003	SD5	40+789 /7.7 to 40+746/16.3	07/07/2016	Approved

6.0 LABORATORY

A QA sample was collected at the Compacted Till stockpile (unsieved) North of CD. The sample will be tested once the QA technician is on site.

Table 5: Sample taken by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-16	07/07/2016	-	Compacted Till (Unsieved)	Stockpile North of CD	WC, Gradation	Not tested yet

The table 6 presents the samples collected and tested by the QC during the reporting period. The results of sample 367 to 371 has been given to the QA manager and are compliant with the Specifications.

More material was collected from the pad for sample 374 as there was not enough soil in the current sample. Sample 375 was cancelled as the volume of soil collected was insufficient and the sampling pad was no longer available.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
367	04/07/2016	07/07/2016	Sieved Till	Stockpile #7, North CD	WC, gradation	Compliant
368	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
369	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
370	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
371	04/07/2016	07/07/2016	Fine Filter	Stockpile Pit D	Gradation	Compliant
374	03/07/2016 07/07/2016	-	Till (unsieved)	Stockpile North of CD	WC, Gradation	Not tested yet
375	06/07/2016	Cancelled due to insufficient material sampled				
377	07/07/2016	-	Till (unsieved)	Stockpile, snowdump	WC, gradation	Not tested yet
378	07/07/2016	-	Till (unsieved)	Stockpile, snowdump	WC, gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph CD-1718: From Sta.0+120/0 looking S. Placement of a 1 m-thick lift of PAG Rockfill between El. 136 m and 137 m.



Photograph CD-1719: From Sta.0+600/-32 looking N. Profiling of the rockfill upstream with a 2H:1V slope between El. 137 and 139 m in prevision of the filter placement



Photograph SD5-009: From Sta.40+756/30 looking N. View of the approved foundation at SD5 before placement of rockfill.

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QA DAILY REPORT

DATE July 9th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 8TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded that vehicles must completely stop at stop signs.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During placement of rockfill on the approved foundation of Saddle Dam 5, there was a localised depressions which would have complicated the access for the compactor. The QA Manager approved that rockfill be placed in that localised depression in lift of 0,5 m and then compacted with the bucket of the excavator.
- The QA manager reminded that the lift of UM rockfill must be scarified before the placement of material.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	Placement of a lift of good quality NPAG rockfill having a maximum thickness of 2 m from Sta. 0+160 to 0+120 up to El. 143 m. Compaction of the PAG and NPAG rockfill lift placed on the north abutment up to El. 143 m from 0+180 to 0+120. The compaction was done with 8 passes of compactor in vibratory mode. Compaction of the PAG rockfill placed from El. 137 m to 139 m from 0+350 to 0+435 off -35 to -15. The compaction was started from 0+435 to 0+500. The compaction was done with 8 passes of compactor in vibratory mode. Construction of an access on the North side of Central Dike to El. 143 m approximately. The access was made with sieving reject outside of the dike footprint and with good quality NPAG for the connection with the dike. The instruments casing between Sta. 0+810 and 0+850 were backfilled with UM rockfill.
Upstream slope	Completion of the profiling of the upstream slope of the PAG rockfill placed from El. 137 m to El. 139 m from 0+330 to 0+590.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	Construction of a new access road outside the dike footprint for a crest at El. 143 m.
Water management	Pumping of water on the downstream side

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation preparation	Excavation of till on the downstream side from 40+280 to 40+250
Water management	Pumping of water on the downstream side

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Rockfill placement	Compaction of the first 2 m lift of UM rockfill placed from 40+789 to 40+746 for the new access ramp. The compaction was done with 8 passes of compactor in vibratory mode.

Activity or Area	Comments
	The first lift of UM rockfill placed from 40+789 to 40+746 was scarified. Another lift having a maximum thickness of 2 m of UM rockfill was then placed to reach El. 137 m with the access road.

5.0 LABORATORY

The QC results of sample 372 has been given to the QA manager and are compliant with the Specifications.

Table 5: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
372	05/07/2016	08/07/2016	Fine Filter	In place CD st. 0+143,5 o/s - 15.7 El. 141	WC, Gradation	Compliant

6.0 PHOTOGRAPH



Photograph CD-1720: From Sta.0+220/-35 looking N. Compaction of the lift of rockfill placed on the north abutment following the bedrock up to EL. 143 m. A dozer is pushing material for the north access road.



Photograph CD-1721: From Sta.0+860/-30 looking N. View of the instruments casing backfilled with UM rockfill for protection.



Photograph SD5-010: From Sta.40+800/-20 looking SW. Placement of UM rockfill up to El. 137 m for an access.



Photograph SD4-073: From Sta.40+390/-4 looking NW. Excavation of the foundation downstream for a Dike crest El. at 143 m.

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QA DAILY REPORT

DATE July 10th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 9TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- A procedure is being developed to retain the geomembrane worker and the CAT 307 in prevision of working on the 2H:1V upstream slope for geomembrane installation and construction of the tailings deposition fingers.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was proposed by AEM to reduce the thickness of the good NPAG lift on the downstream side from 6 m when the remainder of the lift is made of PAG rockfill. The QA manager answered that this can be done from a physical stability point of view as the PAG rockfill is hard and durable. AEM will need to confirm if this configuration is compatible with the closure strategy from a chemical stability point of view before implementing this change in the field. Patrice Gagnon then proposed to reduce the good NPAG lift on the downstream side from 6 m to 4 m when the remainder of the lift is made of good quality PAG rockfill. The QA manager agreed with this proposition. AEM will model the quantity of good NPAG needed for this configuration.

- The QA manager observed that part of the berm made of PAG on Central Dike at El. 139 m was being pushed by the dozer on the downstream edge of the slope during the placement of NPAG rockfill in a zone where only NPAG material must be placed. The QA Engineer reminded that there must be no PAG material placed within the active layer of the dike. The PAG material was then removed from this zone.

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- The QA manager observed that some good quality NPAG being placed is darker than usual. AEM confirm that the material is coming from a stockpile that had been classified as NPAG.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	
Upstream slope	Profiling of the upstream slope of the PAG rockfill placed from El. 137 m to El. 139 m from 0+540 to 0+660.
Downstream slope	Placement of a 6 m shell of good quality NPAG rockfill in a 2 m lift on the downstream side from Sta. 0+340 to 0+520. Profiling of the downstream slope (1.5 H:1V) with the excavator from Sta. 0+170 to 0+200.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	Construction of a new access road outside the dike footprint for a crest at El. 143 m. Removal of till from the dike footprint to reach bedrock.
Water management	Pumping of water on the downstream side

Table 3 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Removal of UM rockfill from an access ramp lying over non-approved foundation and within the area where CD turn toward SD5.

5.0 LABORATORY

The QC results of sample 365 has been given to the QA manager. This sample of coarse filter from stockpile #2 is not conform to the Technical Specifications as the fine fraction is higher than the gradation limits.

A small error was found in the Excel file being used by the QC for the fine filter and the coarse filter. The QC fixed this error and gave the modified results for sample 366 and 368 to 372 to the QA Manager. The QA Manager verified that these results were still conform and replaced the old results with the new one.

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
365	03/07/2016	09/07/2016	Coarse filter	Stockpile 2	Gradation	Non conform, fine fraction above gradation limits

6.0 PHOTOGRAPH



Photograph CD-1722: From Sta.0+200/-15 looking N. Profiling of the downstream slope at El. 139 m between 0+170 and 0+200.



Photograph CD-1723: From Sta.0+580/-15 looking N. Placement of 6 m of NPAG on the downstream side between El. 137 m and El. 139 m. The PAG bumper are not being pushed within 3 m of the edge of the slope.



Photograph SD3-107: From Sta.20+830/-35 looking N. View of the new access road and an excavator preparing the foundation by removing the till for a dike footprint at El. 143 m.

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QA DAILY REPORT

DATE July 11th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 10TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 25 ° C, sunny.

2.0 HEALTH AND SAFETY

- A yield sign was added near the northern access of Central Dike where the crusher was installed as haul trucks are now using this access.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was communicated to the Contractor that the thickness of the good quality NPAG on the downstream side would be reduced from 6 m to 4 m when the lift is made of good quality PAG rockfill. However, the PAG rockfill will continue to be placed 6 m from the edge of the downstream slope to avoid placing PAG rockfill within 4 m of the edge of the downstream slope when pushing the PAG bumper.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	Compaction of the PAG rockfill placed at EL. 139 from Sta. 0+560 to 0+660, 0+170 to 0+240 and from Sta. 0+720 to 0+800 (o/s -35 to 0). The compaction was done with 8 passes of a 10T compactor in vibratory mode. Placement with a D8 dozer of a 2 m lift of good quality PAG rockfill from EL. 137 m to El. 139 m from Sta. 0+270 to 0+340 (o/s -35 to 0). The lift is placed 6 m form the downstream slope to left room to place good quality NPAG rockfill.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	Removal of material with an excavator to reach bedrock for a dike footprint at El. 143 m.

Table 3 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Removal of UM rockfill from an access ramp lying over non-approved foundation and within the area where CD turn toward SD5. Removal of till with an excavator to reach bedrock for a dike footprint at El. 143 m.
Rockfill	Compaction of the access ramp up to El. 137 m within the dike footprint from 40+670 to 40+750. The compaction was done with 8 passes of a 10T compactor in vibratory mode.

5.0 LABORATORY

The QC results of sample 364 has been given to the QA manager. This sample of coarse filter from stockpile #1 is not conform to the Technical Specifications as the fine fraction is higher than the gradation limits.

Table 4: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
364	03/07/2016	10/07/2016	Coarse filter	Stockpile 1	Gradation	Non conform, fine fraction above gradation limits

6.0 PHOTOGRAPH



Photograph CD-1724: From Sta.0+350/-30 looking N. Placement of a 2 m lift thick of PAG rockfill from El. 137 m to El. 139 m to form a shell inside CD.



Photograph SD5-011: From Sta.40+747/-24 looking NW. View of an excavator preparing the foundation by removing the till to bedrock.

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QA DAILY REPORT

DATE July 12th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 11TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 25 ° C, sunny.

2.0 HEALTH AND SAFETY

- There is presently lots of co-activity in the Central Dike area. It is important to stay vigilant and use good communication.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed how the extremity of the structures will be closed this year. In past construction seasons, the extremities were left open as the material was placed to form steps to avoid digging the filter in subsequent year. For the moment, AEM want that the extremities of the dikes be final. It was discussed that till plugs will have to be constructed at the extremities of each dikes. More discussions on this subject will be held in the coming days.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	Placement with a D8 dozer of a 2 m lift of good quality PAG rockfill from EL. 137 m to El. 139 m from Sta. 0+790 to 0+840 (o/s -35 to 0). The lift is placed 6 m from the downstream slope where good quality NPAG rockfill will be placed. Compaction of PAG rockfill at El. 139 m from 0+660 to 0+820 (o/s -35 to 0). The compaction was done with 8 passes of 10T compactor in vibratory mode.
Upstream slope	An excavator profiled the PAG rockfill placed on the upstream slope from Sta. 0+200 to 0+350 from El. 137 m to El. 139 m with a 2H:1V slope.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	Pumping of water on the downstream side

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Removal of till with an excavator to reach bedrock for a dike footprint at El. 143 m. The foundation for the rockfill placement was approved from 40+650 to 40+737 (see FND-SD5-004 for details).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out at SD5. The certificate of approval will be emitted shortly.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-004	SD5	40+737 40+650 offset 36 to 4	11/07/2016	Approved

6.0 LABORATORY

The QC results of sample 363 has been given to the QA manager. This sample of coarse filter from stockpile #1 is conform to the Technical Specifications.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
363	03/07/2016	11/07/2016	Coarse filter	Stockpile 1	Gradation	Conform

7.0 PHOTOGRAPH



Photograph CD-1725: From Sta.0+200/-50 looking S. Profiling of the rockfill upstream slope (2H:1V) From EL. 137 m to El. 139 m.



Photograph CD-1726: From Sta.0+880/-40 looking N. Placement of PAG rockfill to El. 139 m. Good NPAG will be placed 6 m from the downstream slope.

QA DAILY REPORT

DATE July 13th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 12TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 25 ° C, sunny.

2.0 HEALTH AND SAFETY

- The FGL H/S representative is going to add signalisation at the bottom of the new access at SD3.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM sent an update on the proposed configuration of the rockfill at Central Dike with a volume estimation. This configuration has been accepted by the QA Manager. The rockfill lifts from El. 139 to 143 m would be composed of 5 m of PAG rockfill on the upstream slope and 6 m of good quality NPAG on the downstream slope. The remainder of these lifts would be composed of UM rockfill. If CD is not raised to El. 150 m the PAG rockfill on the crest would be covered later by AEM with UM rockfill. The QA manager reminded that caution will need to be taken with the bumper of UM rockfill to make sure that the accepted width on the upstream and downstream side are respected.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	Placement of a 2 m lift of good quality PAG rockfill from El. 137 m to El. 139 m from Sta. 0+850 to 0+900 (o/s -35 to 0). The lift is placed 6 m from the downstream slope where good quality NPAG rockfill will be placed. Scarification with the loader of the UM rockfill at El. 137 m from 0+900 to 0+980.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	Pumping of water on the downstream side

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Compaction of the UM rockfill placed to El. 137 m from St. 40+737 to 40+650. The compaction was done with 8 passes of 10T compactor in vibratory mode. Removal of till with an excavator to reach bedrock for a dike footprint at El. 143 m in the sector of the inverse filter.

5.0 LABORATORY

No sample taken today.

6.0 PHOTOGRAPH



Photograph SD5-012: From Sta.40+640/-20 looking NE. Compaction of the UM lift placed to El. 137 m. An excavator is preparing the foundation in the zone of the inverse filter.

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QA DAILY REPORT

DATE July 14th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 13TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded that haul truck have priority on the dike. Pickup truck must park in a safe location (not behind them) and must communicate with them by radio when passing nearby.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager confirmed that the transition from CD to SD5 (a 10 m wedge) can entirely be made of UM rockfill.
- The QA manager confirmed that an investigation will have to be done to determine the ice content of the till left in place at SD3. This investigation can either be done with a drill or with an excavator if the excavator is able to reach the bedrock.
- The QA manager observed that some pile of loose material were located on the upstream side of Central Dike and SD5. It was reminded that the upstream toe liner tie-in in backfill must rest against natural ground. Those loose pile of material will have to be removed before the construction of the upstream toe liner tie-in.
- There is a plateau at El. 143 m located at the extremity of SD5. It was discussed that the rockfill and the filter will be placed to the edge of this plateau for this year. It was verified on the field that there are no channel lower than El. 143 m on that plateau.

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- AEM presented the proposed rockfill configuration of CD to FGL which include portion made of good quality PAG, good quality NPAG and UM rockfill. It was discussed that the lift at El. 143 might make the crest of CD too narrow for the haul truck to be able to turn. It was discussed that turnaround constructed with good quality rockfill might need to be constructed for that lift.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	- Placement of a 2 m lift of good quality PAG rockfill from El. 137 m to El. 139 m from Sta. 0+900 to 0+940 (o/s -35 to 0). - Compaction of the good quality NPAG placed on the downstream side of the crest from Sta. 200 to 0+340 and from 0+520 to 0+900. Compaction of the PAG placed on the upstream side from 0+820 to 0+900. The compaction was done with 8 passes of a 10T compactor in vibratory mode. - Placement of good quality NPAG 6 m from the downstream slope from Sta. 0+760 to 0+930.
Upstream slope	- Profiling of the rockfill upstream slope (2H :1V) slope from 0+720 to 0+880 in prevision of the inverse filter installation.
Downstream slope	- Profiling of the rockfill downstream slope (1.5H :1V) slope from 0+200 to 0+340.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	- Pumping of water on the downstream side.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	- Pumping of water on the downstream side.
Foundation preparation	- Removal of till to reach bedrock on the east abutment and removal of the access over non approved foundation.

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Removal of till with an excavator to reach bedrock for a dike footprint at El. 143 m for the rockfill and the inverse filter. The foundation was accepted (details in FND-SD5-005 and FND-SD6-006).
Downstream slope	Profiling of the downstream slope with a 1.5H :1V slope from 40+680 to 40+760.

5.0 FOUNDATION PREPARATION

The following foundation approvals were carried out at SD5 and at the junction of CD/SD5. The certificate of approval will be emitted shortly.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-005	CD/SD5	0+972 to 40+783 o/s -20 to 2	13/07/2016	Approved
FND-SD5-006	SD5	40+747 to 40+619 o/s -50 to -29	13/07/2016	Approved

6.0 LABORATORY

The QC completed testing of the coarse filter placed at CD (sample 373). The sample has been judged acceptable by the QA manager. The sand fraction is a little bit finer than the gradation limits.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
373	06/07/2016	13/07/2016	Coarse filter	CD in-situ St.0+160 o/s -23 El. 140,6 m	Gradation	Acceptable, a little bit too sandy

7.0 PHOTOGRAPH



Photograph CD-1727: From Sta.40+760/-20 looking N. Placement of PAG rockfil on CD from EL.137 to El.139. An excavator is profiling the rockfill of the upstream slope (2H:1V) in prevision of the filter placement.



Photograph CD-1728: From Sta.200/20 looking S. Profiling of the downstream slope from EL.137 m to El. 139 m (1.5 H:1V).



Photograph CD-1729: From Sta.920/0 looking N. Placement of good quality NPAG rockfill on a 4 m width band on the downstream side from El. 137 m to El. 139 m. The compaction is being done with a 10T compactor in vibratory mode.



Photograph SD5-013: From Sta.40+740/0 looking W. View of the profiled downstream slope to El. 137 m.

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QA DAILY REPORT

DATE July 15th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 14TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- Call by radio heavy equipment operator when walking near them.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM asked that the pile of loose material at SD4 and SD5 be removed and hauled to the waste dump instead of spreading them in the South Cell of the TSF.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	Compaction of the PAG and good quality NPAG placed from Sta. 0+915 to 0+960. The compaction was done with 8 passes of a 10T compactor in vibratory mode.
Downstream slope	Profiling of the downstream slope (1.5H:1V) up to 0+750, going south.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Water management	Pumping of water on the downstream side.
Foundation preparation	Removal of till to reach bedrock on the east abutment and removal of the access over non approved foundation on the east side.

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	Compaction of the UM rockfill placed in the CD/SD5 transition to EL. 137 m from 0+960 to 40+780. The compaction was done with 8 passes of compactor in vibratory mode. Placement of a thin lift of UM rockfill up to the dike abutment at El. 143 m from 40+760 to 40+620. Afterward a 2 m lift of UM rockfill was placed up to El. 139 m from 40+760 to 40+660. Compaction was done with 8 passes of compactor in vibratory mode. Placement of the fine filter on the bedrock within the inverse filter location from 40+760 to 40+620. A minimum thickness of 0.5 m was placed. The fine filter was compacted with 4 passes of compactor in vibratory mode. Beginning of placement of the coarse filter on the bedrock within the inverse filter location from 40+760 to 40+720. A minimum thickness of 0.5 m was placed.
Downstream slope	Profiling of the downstream slope with a 1.5H :1V slope from 0+960 to 40+780 up to El. 137 m.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out at SD4 for the whole zone where rockfill will be placed this year. The certificate of approval will be emitted shortly.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-019	SD4	40+100 to 40+440 approximately	14/07/2016	Approved

6.0 LABORATORY

The following sample have been collected and tested by the QC.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
374	07/07/2016	14/07/2016	Rough till	Stockpile Central Dike North	Gradation	Compliant
379	14/07/2016	-	Fine filter	CD in-situ St.40+700 o/s -23 El. 137,6 m	Gradation	Not tested yet

7.0 PHOTOGRAPH



Photograph SD5-014: From Sta.40+760/-30 looking N. Profiling of the downstream slope made of UM rockfill to El. 137 m



Photograph SD5-015: From Sta.40+620/-40 looking E. Placement and compaction of the fine filter at SD5. Placement of a 2 m lift of UM rockfill to El. 139 m



Photograph SD5-016: From Sta.0+980/-15 looking SW. Placement of coarse filter at SD5. Compaction of the UM rockfill placed to El. 139 m

QA DAILY REPORT

DATE July 16th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 15TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- The QA personnel assisted the weekly dike safety meeting. It was discussed that UM rockfill can become slippery when wet. It was also discussed that people doing footwork on the dike must be very careful when walking near heavy equipment.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Some of the available fine filter and coarse filter material in the stockpile are made from crushed UM rockfill. The QA manager asked that the filter material placed on Central Dike and on the bedrock be made of good quality rockfill. The filter material made of UM rockfill can be used on the upstream slope of the Saddle Dams if a good compaction can be attained and if the compaction effort do not change the particle size distribution of the placed filter.

- The QA manager observed that some localised load of coarse filter placed on Central Dike contained a high proportion of fine particle. Some samples taken in the stockpiles contained too much sandy particles. Care will have to be taken to avoid sending segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope (2H:1V) from 0+860 to 0+990. Cleaning of the four tailings deposition finger to expose the liner. This operation was done with an excavator and the laborers.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Crest	Placement of a 1.5 m lift of UM rockfill to El. 138 m from Sta. 40+440 to 40+280 (o/s -3 to -13). The compaction was done with 8 passes of compactor in vibratory mode. Placement of UM rockfill to El. 140 m is planned for the night shift.

Table 4 QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Placement of UM rockfill above the coarse filter to form the upstream slope from El 137 m to 139 m. The compaction was then done with 8 passes of compactor in vibratory mode. Profiling of the upstream slope (3H:1V) from 0+990 to 40+740

5.0 LABORATORY

The following sample has been collected by the QC.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
380	14/07/2016	15/07/2016	Coarse Filter	SD5, 40+685, inverse filter	Gradation	Not tested yet

6.0 PHOTOGRAPH



Photograph CD-1730: From Sta.40+700/-33 looking N. Profiling of the upstream slope (2H:1V) on Central Dike. Cleaning of the tailings deposition fingers in the background



Photograph CD-1731: From Sta.0+820/-40 looking N. Cleaning of a tailings deposition finger to expose the geomembrane.



Photograph SD4-074: From Sta.40+270/-15 looking SE. Placement of UM rockfill to El. 138 m.



Photograph SD5-017: From Sta.0+920/-35 looking SW. Placement of UM rockfill over the coarse filter and profiling of the slope (3H:1V)

QA DAILY REPORT

DATE July 17th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 16TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC results shows that the snow dump till stockpile does not meet the gradation limits of the unsieved till. The material of the snow dump stockpile is coarser than the gradation limit form the Technical Specifications. This material cannot be used in the till plug but could be used to substitute the low quality till used as erosion protection layer of the Saddle Dam in the backfill configuration and act as a filter type filter. The 2 m of low quality till could be replaced by 1 m of the snow dump stockpile and 1 m of UM rockfill. The QA manager reminded that Golder consider the initial design of the erosion protection in backfill more robust than the substitution with low quality till. The use of such substitution will require AEM to take measure to protect the till plug during tailings deposition to mitigate the risk of erosion of the till plug.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of two 0.5 m lift of fine filter and coarse filter on the upstream slope. The lift were placed horizontally with a width to obtain a 1 m thickness perpendicular to the slope. The first lift was placed from El. 137 to 137.5 from Sta. 0+200 0+620. The second lift was placed from El. 137.5 m to 138 m from Sta. 0+420 to 0+600. The compaction of the fist lift was done with 4 passes of a 10T compactor in vibratory mode.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Water management	Pumping of water on the downstream side.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Crest	Placement of a 1.5 m lift of UM rockfill to El. 141.5 m from Sta. 40+400 to 40+260 approximately. The placed UM material was heterogeneous with a mix of fine load and well graded load. Extension of the thermistance cable.
Downstream slope	Profiling of the downstream slope (1.5H:1V) to EL. 140 m

5.0 LABORATORY

It was discovered that the QC used the wrong gradation limit for the sample of rough till. The gradation limits of the coarse filter was used instead. The results of sample 374 was updated and reviewed.

Sample 374 is now totally out of the gradation curve of till and instead meet the gradation curve of coarse filter. The QA manager asked the QC to retake a sample from this pile as this results seems unreliable.

Sample 377 has been tested by the QC. The sample dos not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit.

Table 6: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
374	07/07/2016	13/07/2016 Reviewed 17/07/2016	Rough till	Central Dike North	Gradation	Not conform
377	07/07/2016	16/07/2016	Rough till	Snow dump stockpile	Gradation	Not conform

6.0 PHOTOGRAPH



Photograph CD-1732: From Sta.0+400/-40 looking S. Placement of the second lift of coarse filter and fine filter from El. 137.5 m to 138. The lift width is such as to have 1 m of each material perpendicular to the slope.



Photograph SD4-075: From Sta.40+240/-17 looking SW. Placement of UM rockfill to El. 141.5 m. The downstream slope has been profiled up to El. 140 m. Notice the cone on the crest to protect the extension of the thermistance cable.

QA DAILY REPORT

DATE July 18th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 17TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded to avoid stepping on the smooth geomembrane joints when walking on the geomembrane as they can be very slippery.
- It is required to wear a lifejacket when walking closer than 2 m from the upstream slope of Central Dike.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that the placement of UM rockfill on Central Dike has been allowed with some limitations. One of those limitations was that the material be composed of a well graded UM rockfill (0-900 mm). The QA manager has observed that the material currently being placed on Central Dike is coming from free dumped stockpile and approximately a 0-300 mm with lots of fine particles. The amount of fine particles in the rockfill must be limited so that the resistance of the material is not controlled by the finer fraction. The contractor is trying to load the truck to obtain a well graded material but it is hard to accomplish due to the source of the material. The QA manager is closely monitoring the material being placed.
- The QA manager explained that the geomembrane must be installed to El. 143 m to consider the dike closed to that elevation. It is recommended to close the dike with step as in previous year if there is a possibility that the dike be brought to a higher elevation next year. It is also possible to build the entirety of the upstream toe liner tie-in for a geomembrane installed at El. 143 m (which would result in an upstream toe liner tie-in higher than the dike on the abutments).

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- It was discussed that the erosion protection layer of the upstream toe liner tie-in at SD5 is planned to be built this year using the same configuration as Central Dike.
- The QC will take another sample of rough till at the North Central Dike stockpile in the coming day as the result from the sample taken from that stockpile has been rejected.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	- Placement of 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The fourth lift was placed from El. 138.5 to 139 from Sta. 0+420 0+620. The second and third lift were placed from El. 137.5 m to 138.5 m from Sta. 0+420 to 0+200. The compaction of each lift was done with 4 passes of a 10T compactor in vibratory mode. - Profiling of the fine filter upstream slope (2H:1V) to El.139 m from Sta. 0+420 to 0+620.
Crest	- Placement of a 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m from Sta. 0+590 to 505 (o/s -20 to -5). The material come from a stockpile made by free dumping and is mainly composed of 0-300 mm particles and some rock powder. - Placement of 2 m lift of PAG rockfill 5 m on the upstream slope from El. 139 m to 141 m from Sta. 0+590 to 505.

5.0 LABORATORY

Sample 378 has been tested by the QC. The sample dos not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit.

The QA assistant tested samples STCK-15, STCK-18 and CD-540 of fine filter taken in the stockpile and on Central Dike. The results obtained are conform to the Technical Specifications.

Table 2: Sample tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
378	07/07/2016	17/07/2016	Rough till	Snow dump stockpile	Gradation	Not conform

Table 3: Sample tested by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-15	30/06/2016	17/07/2016	Fine filter	Stockpile Sana Crusher	Gradation	Conform
STCK-18	04/07/2016	17/07/2016	Fine filter	Stockpile Pit D	Gradation	Conform
CD-540	05/07/2016	17/07/2016	Fine filter	In place CD, 0+143.5/-15.7 El. 141.06	Gradation	Conform

6.0 PHOTOGRAPH



Photograph CD-1733: From Sta.0+480/-50 looking S. Placement of a 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m. The material is mainly composed of 0-300 mm and fines.



Photograph CD-1734: From Sta.0+480/-35 looking S. Placement of a 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m. The material is mainly composed of 0-300 mm and fines. A 5 m shell of PAG rockfill is being placed on the US side.



Photograph CD-1735: From Sta.0+200/-60 looking S. Placement of fine filter and coarse filter against the upstream slope in 0.5 m thick lift placed horizontally. Placement from El. 137 to 139 m.

QA DAILY REPORT

DATE July 19th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 18TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was discussed that a dangerous occurrence happened during the night shift between a vehicle on the West Road and a haul truck that did not completely stop at the Central Dike/West Road junction. It was reminded that vehicles on the West Road have the right of way and that vehicles must completely immobilise at stop signs.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that it could be possible to postpone the placement of the 6 m stripe of good quality NPAG rockkfill from El. 141 m to 143 m if the mine has insufficient quantity good NPAG. The final crest width would be wide enough to allow the operation of Central Dike without that 6 m stripe.

- The quality of the UM rockfill on Central Dike is being monitored. The QA manager communicated that it is important that the UM rockfill particles be well graded and in contact with each other and not be completely surrounded within a rock powder matrix. The UM rockfill being placed was observed as being acceptable but not ideal as it contains a significant amount of fine particles and small rockfill (rock powder, 0-300 mm rockfill). Effort must be taken to ensure that the quantity of rock powder does not increases.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The fourth lift was placed and compacted from El. 138.5 to 139 from Sta. 0+420 0+220. The second lift was placed and compacted from El. 137.5 to 138 m. The third lift was placed from El. 138 to 138.5 m from Sta. 0+220 to 0+140. The compaction of each lift was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. Profiling of the fine filter upstream slope (2H:1V) to El.139 m from Sta. 0+420 to 0+220.
Crest	Placement of a 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m from Sta. 0+430 to 0+390 (o/s -20 to -5). The material is mainly composed of 0-400 mm particles and some rock powder. The material is acceptable but not ideal. Placement of 2 m lift of PAG rockfill 5 m on the upstream slope from El. 139 m to 141 m from Sta. 0+430 to 0+390.

5.0 LABORATORY

The QC took a sample of unsieved till in the North Central Dike stockpile as results from sample 374 in that stockpile have been rejected.

The QA assistant tested samples STCK-16. The results obtained are conform to the Technical Specifications.

Table 2: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
381	07/18/2016	-	Rough till	North Central Dike stockpile	Gradation, WC	Not tested yet

Table 3: Sample tested by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-16	02/07/2016	18/07/2016	Sieved till	Stockpile sieved till Central Dike	Gradation, WC	Conform

6.0 PHOTOGRAPH



Photograph CD-1736: From Sta.0+100/-36 looking S. View of the placement and compaction of the fine and coarse filter on the upstream slope to El.139 m. Placement in the background of UM and PAG rockfill to El. 141 m.

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QA DAILY REPORT

DATE July 20th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 19TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM confirmed that they would like to postpone the placement of the 6 m of good quality NPAG material on the downstream side of CD from El. 141 m to 143 m if the mine has insufficient quantity of good quality NPAG. AEM sent the details by e-mail. Golder agree that the proposed configuration will not negatively impact the stability of the structure if the closure requirements are met. Golder will emits a technical memorandum on this subject.

- The QA manager reminded that the maximum lift thickness of fine and coarse filter placement is 0.5 m. It was observed during the morning that the lift of fine and coarse filter placed during night shift on the upstream slope of Central Dike had a thickness from 0.7 to 0.8 m after compaction. This was observed on a length of approximately 200 m (starting at Sta.0+940). This over thickness of material was compensated by lowering the thickness of the second lift. The contractor will warn the night shift crew to carefully follow the line marked on the field.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The final lift was placed and compacted from El. 138.5 to 139 from Sta. 0+140 to 0+220. A first lift of coarse and fine filter was placed and compacted from El. 137 to 137.5 m from 0+660 to 0+780. A second lift of coarse and fine filter was placed from El. 137.5 m to 138 m from Sta. 0+940 to 0+820. A third lift of coarse filter was placed from 0+838 to 0+940. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. Profiling of the fine filter upstream slope (2H:1V) to El.139 m from Sta. 0+220 to 0+140.
Crest	Placement of a 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m from Sta. 0+290 to 0+210 (o/s -20 to -5). The material is mainly composed of 0-300 mm particles and rock powder. The material quality is very heterogeneous with some good load and some load that are judged to be too fine. Placement of 2 m lift of good quality PAG rockfill 5 m on the upstream slope side from El. 139 m to 141 m from Sta. 0+340 to 0+230.
Downstream slope	Profiling of the downstream slope (1.5H:1V) from El. 137 m to 139 m from Sta. 0+960 to 0+910.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	Profiling of the downstream slope (1.5H:1V) from El. 137 m to 139 m from Sta. 40+680 to 40+740.

5.0 LABORATORY

The QA assistant tested sample STCK-14 of sieved till from Central Dike stockpile. The results obtained is conform to the Technical Specifications.

Table 3: Sample tested by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-14	23/06/2016	19/07/2016	Sieved till	Stockpile sieved till Central Dike	Gradation, WC	Conform

6.0 PHOTOGRAPH



Photograph CD-1737: From Sta.0+140/-30 looking S. View of the filter on the upstream slope completed on the north of Central Dike to El. 139 . Placement of UM rockfill in the center of the lift from El. 139 m to 141 m to Sta. 0+260 and. Placement of PAG on the upstream side to Sta.0+280.



Photograph CD-1738: From Sta.0+240/-30 looking S. Placement of UM rockfill on the center of the lift and of PAG rockfill on the usptream side from EL. 139 m to 141. The UM rockfill is heterogenous and contains lots of fine particles.

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QA DAILY REPORT

DATE July 21th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR JULY 20TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- In prevision of the liner installation on Central Dike, a fall restrain system will be put in place. The worker will attach themselves on concrete block or on casing drilled in the dike.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the night shift, it was observed by the QC that the shovel operator placing fine filter on the upstream slope of Central Dike was mixing the fine filter with the dike rockfill when he was loading material from the bottom of the fine filter pile. The operator was warned to avoid scraping the floor of the pile and the bigger rockfill particles were manually removed from the filter zone. The QA manager reminded at the construction meeting that the shovel operator need to be careful to not mix the filter with unsuitable material.

- The QA manager reminded that a minimum width of 6 m of good quality rockfill must be placed on the downstream side of the lift. Care must be taken to avoid pushing the UM bumper within that zone.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The fourth lift was placed and compacted from El. 138.5 to 139 from Sta. 0+940 to 0+820. A third lift of coarse and fine filter was placed and compacted from El. 138 to 138.5 m. The coarse filter was placed from 0+600 to 0+800 and the fine filter from 0+660 to 0+800. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. Profiling of the fine filter upstream slope (2H:1V) to El.139 m from Sta. 0+820 to 0+940.
Crest	Placement of 2 m lift of good quality NPAG rockfill on the downstream slope (6 m wide horizontally) from El. 139 m to 141 m from Sta. 0+180 to 0+460. Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+440 to 0+600.
Downstream slope	Profiling of the downstream slope (1.5H:1V) from El. 137 m to 139 m from Sta. 0+800 to 0+780.

Table 2 : QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation Preparation	Cleaning of the foundation to bedrock in the sector of the inverse filter from Sta. 40+757 to 40+752. The foundation was approved
Upstream slope	Placement of fine filter in a depression from El. 137 to 139 m from Sta. 40+757 to 40+752. The depression was backfill in lift of 0.5 m compacted with the excavator bucket. Placement of a 0.5 m lifts of filter on the upstream slope from El. 137 m to 137.5 m in the CD/SD5 transition. Fine filter was placed from Sta. 0+940 to 40+680 and the coarse filter from 0+940 to 40+760.

Table 3 : QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope (3H:1V) from El. 140 m to 141.5 m in prevision of the filter placement from 40+380 to 40+350.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD5-07	SD5	40+757 to 40+751 o/s -50 to -58	20/07/2016	Approved

6.0 LABORATORY

The QA assistant tested sample CD-541 of coarse filter placed on Central Dike. The results obtained show that a sandy fraction is finer than the gradation limits.

The QC took a sample of fine filter in place at Central Dike.

Table 5: Sample tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
382	20/07/2016	-	Fine filter	CD Sta. 0+876 o/s -20 El. 139.2	Gradation	Not yet tested

Table 6: Sample tested by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-541	06/07/2016	20/07/2016	Coarse filter	CD Sta. 0+160/-23 El. 140.6 m	Gradation	Coarse ok, sandy particle out of gradation

7.0 PHOTOGRAPH



Photograph CD-1739: From Sta.0+150/17 looking S. View of the 2 m lift from El. 139 to 141 m. A 6 m stripe was placed on the downstream side. The center of the lift is made of UM rockfill



Photograph SD5-018: From Sta.40+740/-40 looking N. Placement of the first lift of fine filter at SD5 from 0+940 to 40+740 from El. 137 to 137.5 m

QA DAILY REPORT

DATE July 22th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 21TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- In prevision of the cyanide transport of tomorrow, precautions have been mentioned: do not use the all-weather road, on your radio synchronise the mine or the #9 channel when the transport will be around the mine site. More information will be provided tomorrow morning.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that a minimum width of 6 m of good quality rockfill must be placed on the downstream side of the lift. Care must be taken to avoid pushing the UM bumper within that zone.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m from Sta. 0+850 to 0+800 (o/s -4 to -26). The UM rockfill is heterogeneous and contains high fine particles but yet contain a good quantity of block and cobbles size particles. ■ Placement of 2 m lift of PAG rockfill, 5 m on the upstream slope from El. 139m to 141 m from Sta. 0+ 850 to 0+800. ■ Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+360 to 0+310.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	■ Placement of 0.5 m lifts of fine filter and coarse filter on the upstream slope. The lifts were placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. The third lift of coarse and fine filter was placed and compacted from El. 137.5 to 138.5 m from Sta. 0+920 to 40+760 in the CD/SD5 transition. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Profiling of the fine filter upstream slope (2H:1V to 3H:1V) in the CD/SD5 transition from El. 137 m to 138 m from 0+920 to 40+760. ■ Profiling of the upstream slope (3H:1V) from El. 138 m to 140m from 40+760 to 40+640.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Foundation Preparation	■ Cleaning of the foundation to bedrock in the sector of the inverse filter from Sta. 40+121 to 40+110 (o/s -26 to -42). The foundation was approved.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-21	SD4	40+121 to 40+110 o/s -26 to -42	21/07/2016	Approved

6.0 LABORATORY

The QA assistant tested sample STCK-17 of coarse filter placed on Central Dike. The results obtained show that a sandy fraction is finer than the gradation limits.

Table 5: Sample tested by QA

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
STCK-17	06/07/2016	21/07/2016	Coarse filter	Stockpile Sana Crusher	Gradation	Coarse ok, sandy particle out of gradation

7.0 PHOTOGRAPH



Photograph SD5-19: From Sta. 40+700/-40 looking north-east. Placement of the third lift of fine/coarse filter at SD5 from 0+920 to 40+760 from El.137.5 to 138.5 m. Also, the view of the 2 m lift from El. 139 to 141 m at Central dyke from Sta. 0+850 to 0+800. A 5 m stripe of PAG was placed on the west side of the lift, and the center is made of UM rockfill.



Photograph CD 1740: From Sta. 0+800 /-2 looking south. Placement of UM rockfill on the center of the lift from EL. 139 m to 141. The UM rockfill is heterogeneous and contains high fine particles but yet contain a good quantity of block and cobbles size particles.

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QA DAILY REPORT

DATE July 23th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 22TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was discussed that vehicles must completely immobilise at stop sign.
- Candles have been put on the right side of the south central dyke ramp to avoid taking the road just beside. There is work in progress in this area.
- The rain of yesterday night turns the UM rock fill in a muddy and slippery surface. Pay attention to do not slip when walking or driving on.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that effort must continue to be taken with the UM stone to ensure that the quantity of rock powder does not increases.
- It was discussed that we are running out of PAG stone, but we should be able to have more from the pit. Surveys on real quantity of PAG stone will be done soon. It is important to monitor the 5 m width of PAG stone along the central dyke in the way that we take only what is strictly necessary.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of 2 m lift of UM rockfill in the center of the lift from El. 139 m to 141 m from Sta. 0+750 to 0+620 (o/s -5 to -26). The UM rockfill is heterogeneous and contains high fine particles but yet contain a good quantity of block and cobbles size particles. ■ Placement of 2 m lift of PAG rockfill, 5 m on the upstream slope from El. 139m to 141 m from Sta. 0+ 750 to 0+620. ■ Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+920 to 0+860.
Upstream	■ Profiling of the PAG stone upstream slope (2H:1V) from El. 139 to 141 m from Sta. 0+460 to 0+160.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	■ Placement of 0.5 m lift of fine filter on the upstream slope. The fourth lift was placed horizontally with a width such as to obtain a 1 m thickness perpendicular to the slope. It was placed and compacted from El. 138.5 to 139 m from Sta. 0+940 to 40+760 in the CD/SD5 transition. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement and compaction of inverse fine and coarse filter on the upstream slope from El. 141 to 141.5 from Sta. 40+140 to 40+110.

5.0 LABORATORY

No sample has been collected by the QA or the QC.

6.0 PHOTOGRAPH



Photograph CD 1741: From Sta. 0+160 /-40 looking south. Profiling of the upstream slope of PAG stone of central dyke from EL.139 m to El. 141 m (2H:1V) from Sta. 0+460 to 0+160.



Photograph SD4-076: From Sta.40+110 looking south east. Placement of inverse fine and coarse filter on the upstream slope of saddle dam 4 from Sta.40+140 to 40+110.

QA DAILY REPORT

DATE July 24th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 23TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the transport of cyanide today and tomorrow will require vigilance on road. It is strongly suggested to do not use the all-weather private road. Also, on your radio synchronise the mine or the #9 channel when the transport will be around.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The balance in the lab is broken, probably an electrical problem. Yannick is going to fix it by tomorrow. Until then, lab activities are stand by.
- The QA manager observed that some loads of coarse filter placed on Saddle Dam 4 contained a high proportion of fine particle. Some samples taken in the stockpiles show fine particles over the specified upper limit. Care will have to be taken to avoid carrying segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter. The excavator will also try mixing the pile on the dyke before the installation.
- A portion of the inverses filters around Sta.40+430 to 40+460 is in contact with a steep bedrock face that is dropping from El.143 to 141 m. Instead of filling-up the gap with fine filter between the top and the bottom of the bedrock, it has been accepted to put rock fill in this area only as soon as the inverse filter has a minimum length of 5 m. The QA manager mentioned that this option is accepted because of the good quality of the bedrock in this local area.

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- The QA manager mentioned that the footprint of Saddle Dam 3 needs to be cleaned from the soft till before the foundation approval.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Compaction of the PAG and UM rockfill placed from El. 139 to 141 m from Sta. 0+920 to 0+860.
Upstream	■ Profiling of the PAG stone upstream slope (2H:1V) from El. 139 to 141 m from Sta. 0+460 to 0+700.
Downstream	■ Placement of 2 m lift of good N- PAG rockfill on the downstream slope from El. 139m to 141 m from Sta. 0+ 760 to 0+580.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	■ Scarification with de dozer of the UM rockfill at El.141 m from Sta.40+800 to 40+620 in prevision of the next lift.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of 0.5 m lift of fine/coarse inverse filter on the upstream slope. It was placed and compacted from El. 141 to 141.5 m from Sta. 40+300 to 40+180. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement and compaction of the fine and coarse inverse filter from Sta. 40+400 to 40+440.
Crest	■ Scarification with de dozer of the UM rockfill at El.141,5 m from Sta.40+400 to 40+140 in prevision of the next lift.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD4-22	SD4	40+430 to 40+438 o/s -25 to -32	23/07/2016	Approved

6.0 LABORATORY

No sample has been collected or analysed by the QA or the QC.

7.0 PHOTOGRAPH



Photograph SD4 077: From Sta. 40+300 /-18 looking north east. Placement of the third 0.5 m lift of fine filter on the upstream slope of Saddle Dam 4 from Sta.40+300 to 40+180.



Photograph SD4-078: From Sta.40+400/-20 looking south east. Placement and compaction of the inverse fine/coarse filter on the south part of the upstream of Saddle Dam 4 from Sta. 40+400 to 40+440. A 5 m width of inverse filter has been placed on the top of the bedrock.

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QA DAILY REPORT

DATE July 25th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 24TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was discussed that the transport of cyanide of today will be at 10h00 A.M. and 15h00 P.M. It is strongly suggested to do not use the all-weather private road. Also, on your radio synchronize the mine or the #9 channel when the transport will be around.
- Pay attention to respect the new signalization, a yield sign has been installed on SD4 and a stop sign has been installed on Saddle Dam road.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that the maximum lift thickness of fine and coarse filter placement is 0.5 m. It was observed during the morning that the lift of fine and coarse filter placed during night shift on the upstream slope of Central Dike had a thickness from 0.6 to 0.3 m after compaction. This was observed on a length of approximately 100 m. This over/lower thickness of material will be adjusted by the placement of the second lift. The contractor will warn the night shift crew to carefully follow the line marked on the field.
- It was discussed that a certain quantity of UM rockfill has to be removed from the inverse coarse filter on the south part of the upstream slope of Saddle Dam 4. This way, we will ensure the 1 m thickness of filters along the dike.

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- Sample 381 from the stockpile north of Central Dike has been tested by the QC. The sample do not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit. This material will not be able to be used for the first 2 m of the upstream toe liner tie-in, but can be used as erosion protection layer on SD3 and SD4.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the first and second 0.5 m lift of fine filter on the upstream slope. It was placed and compacted from El. 139 to 140 m from Sta.0+240 to 0+180. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the second 0.5 m lift of coarse filter on the upstream slope. It was placed and compacted from El. 139.5 to 140 m from Sta.0+240 to 0+180.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	■ Placement of a 2 m lift of UM rockfill in the centre of the lift from El. 141 to 143 m from Sta. 40+760 to 40+660 (o/s -37 to -2).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Removal of till and loose rocks with an excavator to reach a good quality bedrock for the dike footprint.

5.0 LABORATORY

Samples 379, 381 and 382 have been tested by the QC. The sample 381 does not meet the gradation limits of the unsieved till. The material is coarser than the gradation limit. Samples 379 and 382 of fine filters are conform. Results are shown in table 5.

Table 4: Sample tested by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
379	13/07/2016	24/07/2016	Fine filter	SD5 (in place) 40+700	Gradation	Conform

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
381	18/07/2016	24/07/2016	Rough till	Stockpile north of Central dike	Gradation	Not conform
382	20/07/2016	24/07/2016	Fine filter	Central Dike (in place) 0+876	Gradation	Conform

6.0 PHOTOGRAPH



Photograph SD3 108: From Sta. 40+800 /-30 looking north. Removal of till and loose rocks with an excavator to reach a good quality bedrock for a dike footprint. Notice water puddles probably due to ice melting.



Photograph SD5-020: From Sta.40+600/-29 looking east. Placement of the UM rockfill from the El. 141 to 143 m (o.s. -2 to -28 m) from Sta. 40+760 to 40+660.

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QA DAILY REPORT

DATE July 26th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 25TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- More vehicles will take the Saddle Dam road for the next days. It is important to be careful when driving and respect the signalisation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The presence of a big rock on the footprint of the south part of Saddle Dam 3 from Sta. 20+770 to 20+790 interferes with the placement of inverse filter. The rock will be removed by an excavator.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the third 0.5 m lift of fine/coarse filter on the upstream slope. It was placed and compacted from El. 140 to 140.5 m from Sta.0+430 to 0+180. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Profiling and compacting the upstream slope from El. 139 to 140.5 m from Sta.0+430 to 0+180.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Crest	■ Placement of a 2 m lift of UM rockfill on the upstream side from El. 141 to 143 m from Sta. 40+760 to 40+660 (o/s -37 to -42).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Crest	■ Placement of a 2 m lift of UM rockfill on the upstream side from El. 141 to 143 m from Sta. 40+240 to 40+220.

Table 4: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ Removal of till and loose rocks with an excavator to reach a good quality bedrock for the dike footprint. Also, a big rock from *Sta. 20+770 to 20+790* has to be removed.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-15	SD3	20+655 (o/s -3), 20+654 (o/s -11), 20+791 (o/s -20), 20+770 (o/s -41)	26/07/2016	Approved

6.0 LABORATORY

No sample has been collected or analysed by the QA or the QC.

7.0 PHOTOGRAPH



Photograph CD 1742: From Sta. 0+160 /-40 looking south. Placement of the third 0.5 m lift coarse filter on the upstream slope. It was placed from El. 140 to 140.5 m from Sta.0+430 to 0+180.



Photograph SD3-109: From Sta.20+810/-30 looking north. Till and loose rocks have been removed for the foundation approval on the south part of SD3. Also, a big rock from Sta. 20+770 to 20+790 has to be removed.

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QA DAILY REPORT

DATE July 27th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 26TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- More vehicles will take the Saddle Dam and the Stone Water road for the next days because of the transportation of the rockfill and the filters material on Saddle Dam 3. It is important to be careful when driving and respect the signalization.
- Dust continues to be an issue on the construction field, be vigilant by remaining out of the dust cloud near construction activities and road circulation.
- The berms of the last lift on Central Dike have to be raised to ensure the security.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the night shift, UM rockfill has been placed on the upstream side of the south part of Central Dike instead of PAG stone from Sta. 0+966 to 0+874. The QA manager reminded that a 5 m width of PAG stone is required on the upstream side of Central Dike. The UM rockfill will be removed during the night shift.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m-thick lift of fine filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta.0+700 to 0+410. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the first and second 0.5 m-thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 139 to 141 m from Sta.0+700 to 0+560.
Crest	■ Placement of a 2 m-thick lift of UM rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+180 to 0+280 (o/s -20 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Placement of the 0.5 m-thick lift of inverse filters (fine/coarse) on the upstream slope. It was placed and compacted from El. 141 to 143 m from Sta.20+800 to 20+760. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Excavation of the overburden and loose rocks at the far north of SD3.

5.0 LABORATORY

The following sample has been collected by the QC.

Table 3: Sample taken by QC

Sample ID	Date sampled	Date tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
383	26/07/2016	-	Coarse Filter	CD, (in place) Sta. 0 + 485 m. El.141 m	Gradation	Not tested yet

6.0 PHOTOGRAPH



Photograph SD3-110: From Sta. 20+810 /-42 looking north. Placement of the 0.5 m-thick lift of inverse filters (fine/coarse) on the upstream slope. It was placed and compacted from El. 141 to 143 m from Sta.20+800 to 20+760.



Photograph CD-1743: From Sta.0+280/-25 looking north. Placement of a 2 m-thick lift of UM rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+180 to 0+280 (o/s -20 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of blocks and cobbles size particles.



Photograph CD-1744: From Sta.0+940/-30 looking north. UM rockfill has been placed on the upstream side of the south part of Central Dike instead of PAG stone from Sta. 0+966 to 0+874.

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QA DAILY REPORT

DATE July 28th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 27TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that PAG rockfill stock pile at the north of Central Dike is almost empty. The next stockpile of PAG rockfill will be the West dump.
- The QA manager reminded that it is important that the UM rockfill particles be well graded where cobbles and blocks particles are in contact with each other and not be completely surrounded within a rock powder matrix. The UM rockfill being placed on SD3 was observed as being acceptable but not ideal as it was heterogeneous and contained high fine particles. Effort must be taken to ensure that the quantity of rock powder does not increase.
- Care must be taken with the foundation preparation of Saddle Dam 3 on the downstream side around the faulted zone from Sta. 0+650 to 0+600. The QA manager reminded that the foundation of the dike does not have to be excavated to bedrock over the faulted area of Saddle Dam 3. The dike can be built on ice-poor fault infill materials. According to the drilling campaign of July 2015, the minimal depth of excavation to ensure that the footprint is sitting on ice poor fault infill materials is at El. 38.5 m.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m thick lift of fine filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta.0+750 to 0+720. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the first 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta.0+850 to 0+720. ■ Placement of the fourth 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 140.5 to 141 m from Sta.0+420 to 0+500. ■ Profiling and rolling of the fine filter upstream slope (2H:1V) from El.139 to 140.5 m from Sta. 0+680 to 0+180 m.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Placement of two lifts of 2 m thick of UM rockfill on the downstream side from El. 136 to 140 m from Sta. 20+770 to 20+660 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.
Foundation preparation	■ Excavation of the foundation of the dike on the downstream side of SD3 from Sta 20+600 to 20+650 m at El.35 m approximatively.

5.0 LABORATORY

No sample has been taken by the QA or the QC.

6.0 PHOTOGRAPH



Photograph SD3-111: From Sta. 20+590 /-12 looking south. Excavation of the foundation of Saddle Dam 3 on the downstream side from Sta 20+600 to 20+650 m at El.35 m approximatively. Also, the placement of a 2 m thick lift of UM rockfill on the downstream side from El. 138 to 140 m from Sta. 20+770 to 20+660 (o/s -28 to -3)



Photograph CD-1745: From Sta.0+680/-22 looking north. Profiling and rolling of the fine filter upstream slope (2H:1V) from El.139 to 140.5 m from Sta. 0+680 to 0+180 m.

QA DAILY REPORT

DATE July 29th, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 28TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The rain of yesterday night turns the UM rockfill in a muddy and slippery surface. Pay attention to do not slip when walking or driving on.
- In prevision of the liner installation on Central Dike, a fall restrain system has been designed and approved by an engineer. The safety harness model is still under consideration.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The night shift ran out of PAG rockfill on Central Dike. Good quality N-PAG rockfill has been used to fix the problem from Sta.0+310 to 0+260 approximately. The 5 m width of good rock on the upstream side of Central Dike has been respected. For the next days, it is planned that the Pit D will be the source of PAG rockfill.
- During the foundation preparation of Saddle Dam 3, 2 minor water inflows were localised at the downstream dike toe (Sta. 20+609 o/s -13 and Sta. 20+630 o/s -12). Both were plugged with a 1 and 0.6 m thick till plug respectively. The excavation of the foundation has reached the ice-poor fault infill materials at El. 135 m approximatively. The foundation has been approved. See photographs and Annexe 1.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+370 to 0+330 (o/s -23 to -3). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. ■ Scarification of the UM rockfill at El. 141 from Sta.0+660 to 0+330.
Upstream	■ Placement of the second 0.5 m thick lift of fine filter on the upstream slope. It was placed and compacted from El. 139.5 to 140 m from Sta.0+820 to 0+740. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the first 0.5 m thick lift of coarse filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta.0+850 to 870.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m thick lift of fine and coarse filter on the upstream slope. It was placed and compacted from El. 139 to 139.5 m from Sta.40+800 to 40+740 and Sta.40+700 to 40+660. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Placement of the second 0.5 m thick lift of fine and coarse filter on the upstream slope. It was placed and compacted from El. 139.5 to 140 m from Sta.40+740 to 40+700.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation preparation	■ The excavation of the foundation of the downstream side of SD3 from Sta. 0+660 to 0+600 has reached the ice-poor fault infill materials at El. 135 m approximatively.

Activity or Area	Comments
	■ 2 minor water inflows which represent a water flow less than 10 liters/minutes were localised on the downstream dike toe (Sta. 20+609 o/s -13 and Sta. 20+630 o/s -12). ■ Patrice Gagnon decided to plug the two water inflows with a till plug. The ground surfaces were cleaned with the excavator only. The two till plugs were placed on a surface which had a presence of loose rocks and ice-poor fault infill materials residue. The till used for the plug seemed to be a rough till and came from the excavation of the foundation preparation done previously on SD3. A sample has been taken (30/07/2016).
Downstream	■ Placement of a 2 m-thick lift of UM rockfill on the downstream side from El. 134 to 136 m from Sta. 20+660 to 20+600 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. ■ Compaction and scarification of the UM rockfill at El.136 m from Sta.20+660 to 20+600.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-16	SD3	Sta. 20+655 to 20+589, o/s -1.5 to -18.5	28/07/2016	Approved

6.0 LABORATORY

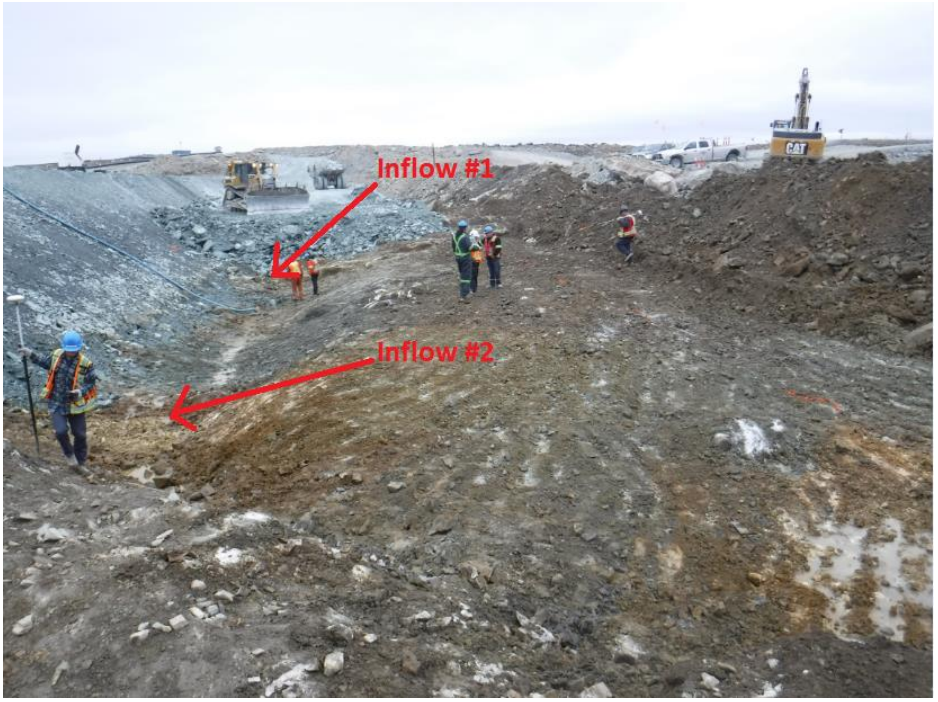
The QA Engineer reviewed the laboratory test results completed by the QC. The location and the results of the sample taken by the QC can be found in Table 5.

The QC tested sample 380 of coarse filter taken on CD. The results obtained show that a sandy fraction is finer than the gradation limits. Additional care will have to be taken during the loading and handling to minimise segregation. It is judged that filter performance will still be adequate.

Table 5: Sample tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
380	26/07/2016	28/07/2016	Coarse Filter	CD, (in place) Sta. 0 + 685 m.	Gradation	Coarse ok, sandy particle out of gradation

7.0 PHOTOGRAPHS



Photograph SD3-112: From Sta. 20+600 /-12 looking south. Localisation of the 2 minor water inflows on SD3 footprint.



Photograph SD3-113: From Sta. 20+620 /-12 looking south. Water inflow #1 before the placement of the till plug. The ground surface was cleaned with the excavator only. Notice the presence of loose rocks and ice-poor fault infill materials residues.

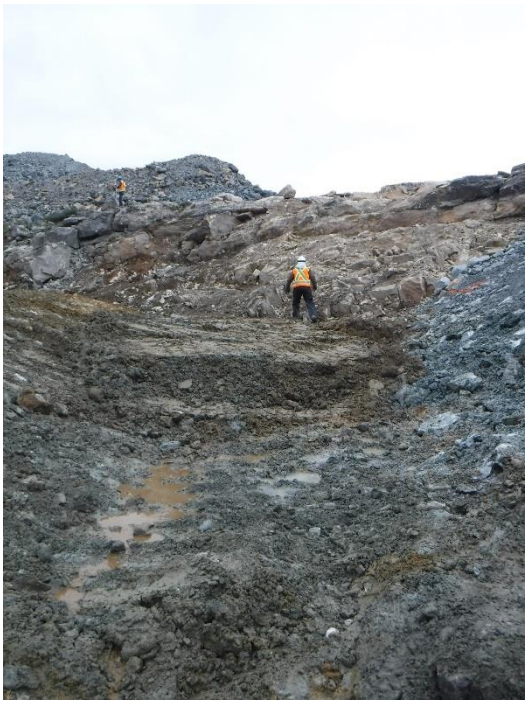


Photograph SD3-114: From Sta. 20+605 /-12 looking south. Water inflow #2 before the excavator cleaning.

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Photograph SD3-115: From Sta. 20+620 /-12 looking south. Water inflow #1 covered by a rough till plug. The plug is approximately 0.6 m thick, 4.6 m long and 3.2 m large.



Photograph SD3-116: From Sta. 20+620 /-12 looking north. Water inflow #2 covered by a rough till plug. The plug is approximately 1.0 m thick, 6.8 m long and 3.6 m large.

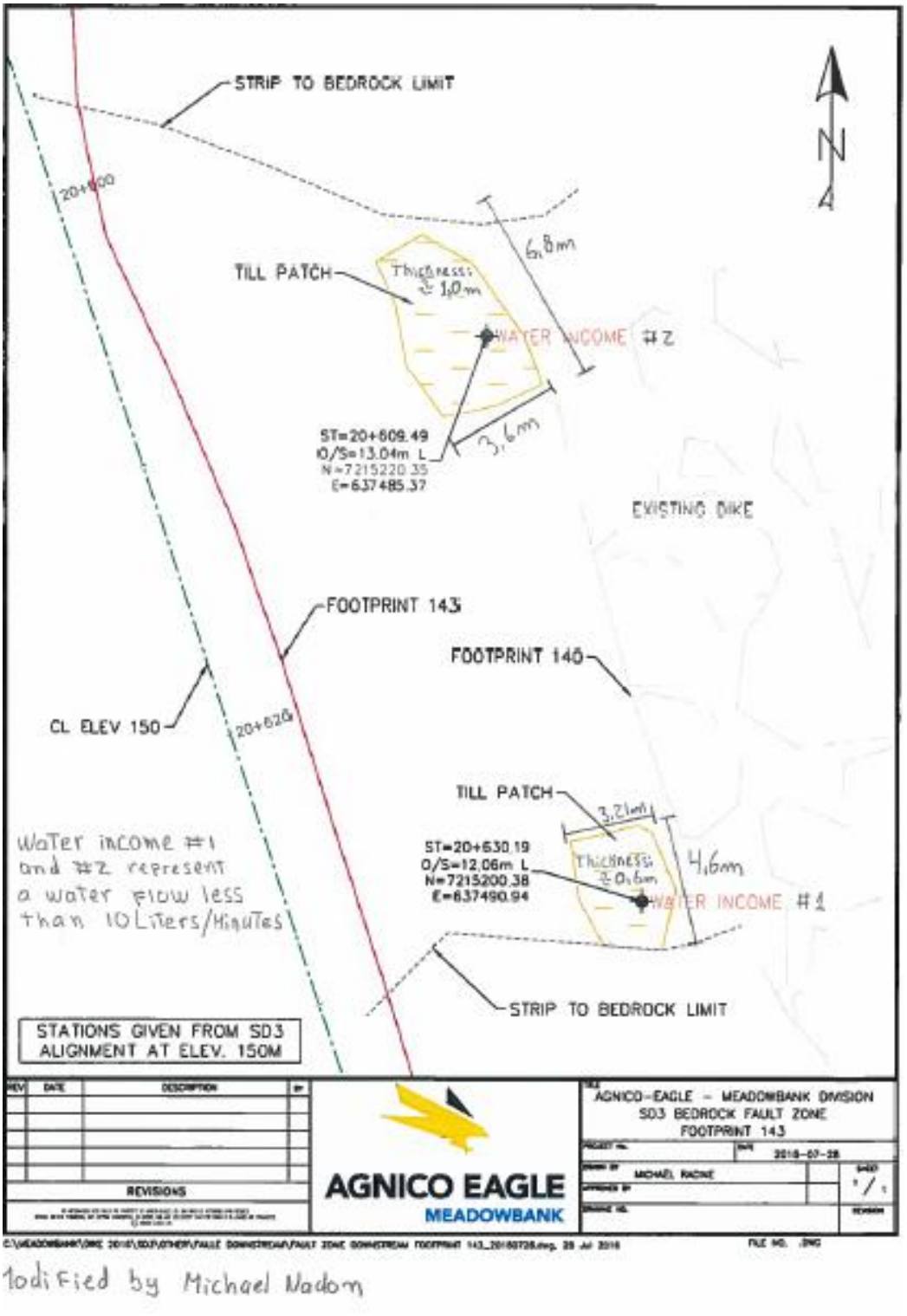


Photograph SD3-117: From Sta. 20+600 /-12 looking south. Excavation of the foundation of the dike on the downstream side of SD3 from Sta. 20+660 to 20+600 m at El.135 m approximatively. Notice the two till plugs localised on 2 minor water inflows.



Photograph SD3-118: From Sta.20+600/-12 looking south. Placement of a 2 m-thick lift of UM rockfill on the downstream side of SD3 from El. 134 to 136 m from Sta. 20+660 to 20+600 (o/s -28 to -3).

8.0 ANNEXE 1



View plan of SD3 bedrock fault zone footprint with two till plugs.

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QA DAILY REPORT

DATE July 30, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 29TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the next cyanide transport will be on the July 31st and the August 1st. More information will be provided soon.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the night shift, Pit D ran out of PAG rockfill. The placement of PAG rockfill stopped until the following morning. For the next days, it is planned that the next source of PAG rockfill will be in the ramp of Portage pit.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+500 to 0+460 (o/s -23 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.
Upstream	■ Profiling and rolling of the upstream slope of CD from El. 139 to 140.5 m from Sta. 0+980 to 0+680. The rolling was approved.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream	■ Placement of the third 0.5 m-thick lift of fine and coarse filter on the upstream slope. It was placed and compacted from El. 140 to 140.5 m from Sta.40+790 to 40+640. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate. ■ Profiling and rolling of the upstream slope of SD5 from El. 139 to 140.5 m from Sta. 40+790 to 40+640 m. The rolling was approved.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Scarification of the UM rockfill at El.138 m from Sta.20+760 to 20+600.
Downstream	■ Placement of a 2 m-thick lift of UM rockfill on the downstream side from El. 138 to 140 m Sta. 20+770 to 20+670 (o/s -28 to -3). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. ■ Profiling of the downstream slope of the UM rockfill from El.136 to 138 m from Sta. 20+720 to 20+600.

5.0 LABORATORY

The location of the samples taken by the QA and the QC can be found in Tables 4 and 5.

Table 4: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD5-01	29/07/2016	-	Fine Filter	SD5, (in place) Sta. 40 + 760 m o/s -36 m at El.141 m	Gradation	Not tested yet

Table 5: Sample Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
384	29/07/2016	-	Fine Filter	CD, (in place) Sta. 0 + 780 m. El.141 m	Gradation	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD5-021: From Sta. 40+920 /-30 looking south west. Placement of the third 0.5 m-thick lift of fine and coarse filter on the upstream slope of SD5 from El. 140 to 140.5 m. Notice the profiling and the rolling of the slope.



Photograph SD3-114: From Sta.20+700/-5 looking south. Placement of a 2 m-thick lift of UM rockfill on the downstream side of SD3 from El. 138 to 140 m. The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. Noticed the excavator cleaning the north part of SD3.

QA DAILY REPORT

DATE July 31, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 30TH, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- During the night shift, an operator of a haul truck hauling muck to the dozer on CD lost consciousness and woke up on the slope of the dike, 2 m below. This “close call” occur no damage or injury. Berms on CD will be raised with a good quality rockfill.
- A blast is planned at 12h45 P.M..

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that it is important that the haul truck dump the material on the horizontal surface of the pad. This method avoid the segregation of the material.
- The QA manager observed that some localized load of coarse filter placed on Central Dike contained a high proportion of fine particle. Some samples taken in the stockpiles contained too much sandy particles. Care will have to be taken to avoid sending segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+600 to 0+560 (o/s -24 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.
Upstream	■ Placement of the fourth 0.5 m- thick lift of fine and coarse filter on the upstream slope. It was placed from El. 140.5 to 141 m from Sta. 0+820 to 40+780. The placed material was visually adequate. ■ Profiling of the upstream slope of CD from El. 140 to 141 m Sta. 0+820 to 40+780.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill on the middle of the lift from El. 140 to 141.5 m Sta. 20+800 to 20+680. The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles. ■ Compaction and scarification of the UM rockfill placed from El. 138 to 140 m from Sta. 0+770 to 0+600.
Downstream	■ Placement of a 2 m-thick lift of UM rockfill on the downstream side from El. 138 to 140 m Sta. 20+640 to 20+600 (o/s -28 to -3). ■ Profiling of the downstream slope of the UM rockfill from El.138 to 140 m from Sta. 20+720 to 20+600.

5.0 LABORATORY

The QA Engineer took a sample of rough till on the stockpile near of SD3 dike toe on the downstream side. The rough till was used to plug the two water inflows of SD3 downstream foot print. The location of the sample taken by the QA can be found in Table 3.

Table 3: Sample Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-04	30/07/2016	-	Rough Till	Stockpile near SD3 d.s. dike toe. Sta. 20 + 620/o.s. -9 m	Gradation	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD3-120: From Sta. 20+700 /-10 looking north. Profiling of the downstream slope of the UM rockfill on SD3 from El. 138 to 140 m from Sta. 20+720 to 20+600. Notice the scarification of the level 140 m.



Photograph CD-1746: From Sta. 0+560 /-24 looking north. Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+600 to 0+560 (o/s -24 to -5). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.

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QA DAILY REPORT

DATE August 1, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, révisé par Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR JULY 31, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 12 ° C, cloudy.

2.0 HEALTH AND SAFETY

- During the night shift, it had a fuel spill on SD3. The spill was cleaned immediately.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The planning of the activities on the north part of SD3 was discussed. A preliminary version of the configuration of the upstream toe liner tie-in and the inverse filters was done on field. Discussions with AEM and Golder are undergoing. Following those discussions, a final planning of the activities will be emitted.
- The presence of a faulted rock mass on the footprint of the north part of SD3 (Sta. 40+620 to 40+580/o.s. -35 to -5 approximately) interferes with the placement of inverse filters. The hammer (Tarmac) will be used to profile the rock.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill and PAG rockfill in the centre of the lift from El. 141 to 143 m from Sta. 0+900 to 40+800 (o/s -20 to -7). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	■ Compaction of the UM rockfill placed at El. 141.5 m from Sta. 0+770 to 0+600. The compaction was approved.
Foundation preparation	■ At the end of the day shift, the hammer (Tarmac) went on SD3 to break rocks which interfere with the placement of inverse filters.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Downstream	■ Profiling of the downstream slope of UM rockfill (3H:1V) from El. 141 to 143 m from Sta. 40+320 to 40+220.
Upstream	■ Profiling of the upstream slope of UM rockfill (3H:1V) from El. 141 to 143 m from Sta. 40+420 to 40+280. ■ Correction of the upstream slope of UM rockfill (3H:1V) from El. 141 to 143 m from Sta. 40+280 to 40+120. The slope angle was too acute. ■ Placement of the first 0.5 m-thick lift of fine filter on the upstream slope. The lift was placed and compacted from El. 140 to 140.5 m from Sta. 40+420 to 40+370. The compaction was done with 4 passes of a 10T compactor in vibratory mode. The placed material was visually adequate.

5.0 LABORATORY

The QA and the QC took samples of fine and coarse filters on the upstream side of SD4. The location of the samples taken by the QA and the QC can be found in Tables 4-5.

Table 4: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-05	31/07/2016	-	Fine filter	SD4 (in place) Sta. 40+420/o.s. -34 El. 140.5 m	Gradation	Not tested yet

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-06	31/07/2016	-	Coarse filter	SD4 (in place) Sta. 40+380/o.s. -31 El. 140.5 m	Gradation	Not tested yet

Table 5: Samples Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
385	31/07/2016	-	Fine filter	SD4 (in place) Sta. 40+340 El. 141.5 m	Gradation	Not tested yet
386	31/07/2016	-	Coarse filter	SD4 (in place) Sta. 40+360 El. 142 m	Gradation	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD4-079: From Sta. 40+000/-25 looking east. Profiling of the upstream slope of SD4, and placement of the first 0.5 m-thick lift of fine filter at El. 140.5 m.



Photograph SD3-121: From Sta. 20+600/-45 looking west. Hammer (Tarmac) breaking rocks which interfere with the placement of inverse filters on the north part of SD3.

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QA DAILY REPORT

DATE August 2nd, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, reviewed by Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 1, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the next cyanide transportation will be on the August 2nd. More information will be provided soon.
- There was a crew change in the contractor's team today.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC analysed sample 383 and it does not meet the gradation limits of the coarse filter. The majority of the sample is out of the gradation curve. The sandy fraction and a portion of the fine gravel are finer than the gradation limits. The QA asked the QC to retake another sample from this location to double-check the results. Furthermore, the QA manager observed that some localised load of coarse filter placed on SD3 and SD4 contained a high proportion of fine particle. Care will have to be taken to avoid sending segregated coarse filter on the dike. The loader will try mixing the pile before loading the trucks to avoid segregation of coarse filter.
- The planning of the activities on the north part of SD3 was discussed with Golder and AEM representatives. The preliminary version of the configuration of the upstream toe liner tie-in and inverse filters seems to be correct. However, discussions about the final elevation of the till plug and the finishing of the dike are still undergoing.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick lift of UM rockfill and PAG rockfill on the centre of the lift from El. 141 to 143 m from Sta. 0+750 to 0+700 (o/s -23 to -8). The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.
Upstream	■ Profiling of the upstream slope of PAG rockfill (2H:1V) from El. 141 to 143 m from Sta. 0+300 to 0+280.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream	■ Placement of the first 0.5 m-thick lift of fine/coarse filter on the upstream slope. The lift was placed and compacted from El. 140 to 140.5 m from Sta. 0+770 to 0+610. The compaction was done with 4 passes of a 10T compactor in vibratory mode.
Foundation preparation	■ The hammer (Tarmac) went on the north part of SD3 to break rocks which interfere with the placement of inverse filters. ■ Clean-up foundation of the north part of SD3 with the excavator.

5.0 LABORATORY

The QA Engineer reviewed the laboratory test results completed by the QC. The location of the samples taken by the QA and QC and tests results can be found in Table 3-4.

Sample 383 does not meet the gradation limits of the coarse filter. The majority of the sample is out of the gradation curve. The sandy fraction and a portion of the fine gravel are finer than the gradation limits. Sample 384 of fine filter is compliant.

Table 3: Samples Analysed and Taken by QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
383	25/07/2016	31/07/2016	Coarse filter	CD (in place) Sta. 0+480 El. 140 m	Gradation	Not compliant
384	29/07/2016	31/07/2016	Fine filter	CD (in place) Sta. 0+780 El. 141 m	Gradation	Compliant
387	01/08/2016	-	Fine filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Not tested yet
388	01/08/2016	-	Coarse filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Not tested yet

Table 4: Samples Taken by QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-05	01/08/2016	-	Coarse filter	SD3 (in place) Sta. 20 +700/ o.s.-18 m El.140.5 m	Gradation	Not tested yet
SD3-06	01/08/2016	-	Fine filter	SD3 (in place) Sta. 20+700/ o.s.-19 m El.140.5 m	Gradation	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD3-122: From Sta. 20+700/-19 looking north. Placement of the first 0.5 m-thick lift of fine/coarse filter on the upstream slope of SD3 from El. 140 to 140.5 m from Sta. 0+770 to 0+610.



Photograph SD3-123: From Sta. 20+600/-45 looking north. On the very north part of SD3, the hammer (Tramac) is breaking rocks which interfere with the placement of inverse filters.

QA DAILY REPORT

DATE August 3, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, reviewed by Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 2, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the cyanide transportation of today requires vigilance on road. It is strongly suggested to not use the all-weather private road, and to synchronize radios to the mine or to nº 9 channel when the transport is around.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the crest of SD4 is not enough large to work properly. Haul truck has difficulty to turn around. The berms will be reorganized to enlarge the crest.
- It was discussed that good non-AG rockfill could be available within the next few days. This way, the 6 m width of good non-AG rockfill on the downstream slope of CD could be done. A confirmation will be emitted shortly.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Crest	■ Placement of a 2 m-thick and 5 m-width lift of PAG rockfill from El. 141 to 143 m from Sta. 0+700 to 0+570 ■ Compaction of the UM rockfill at El.143 m from Sta. 0+980 to 0+740.
Upstream	■ Profiling of the upstream slope of PAG rockfill (2H:1V) from El. 141 to 143 m from Sta. 0+320 to 0+280.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation approval	■ Removal of the overburden and loose rocks with the excavator to reach a good quality bedrock for the dike footprint on the north part of SD3. The foundation was approved.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of 0.5 m-thick lift of fine filter on the upstream slope. The lift was placed and compacted from El. 139.5 to 140 m from Sta. 40+160 to 40+120. The compaction was done with 4 passes of a 10T compactor in vibratory mode.
Downstream	■ The berms of the downstream slope have been reorganized to enlarge (2 m) the crest from Sta. 40+240 to 40+120.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. The certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-17	SD3	20+613 (o/s -65), 20+627 (o/s -66), 20+589 (o/s -31), 20+590 (o/s -5)	02/08/2016	Approved

6.0 LABORATORY

No sample has been taken or tested by the QA or the QC.

7.0 PHOTOGRAPHS



Photograph SD3-124: From Sta. 20+580/-10 looking east. Removal of the overburden and loose rocks with the excavator to reach a good quality bedrock for the dike footprint on the north part of SD3.



Photograph SD4-080: From Sta. 40+160/-20 looking west. Placement of 0.5 m-thick lift of fine filter on the upstream slope of SD4. The lift was placed and compacted from El. 139.5 to 140 m from Sta. 40+160 to 40+120.

QA DAILY REPORT

DATE August 4, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon, reviewed by Yves Boulianne **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR AUGUST 3, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, rainy.

2.0 HEALTH AND SAFETY

- The heavy rain of today and yesterday night turns the UM rock fill in a muddy and slippery surface. Pay attention to do not slip when walking or driving on. Also, be sure that lights and mirrors of vehicles are cleaned from mud.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the accumulation of water just beside the dike toe of the downstream side of SD3 will have to be pumped. The dike toe must not be in permanent contact with water.
- AEM confirmed that 10 000 cubic meters of good non-AG rockfill will be available from tomorrow. Haul truck will begin to transport the material from the pit to the pad at the north of CD tomorrow morning.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream	■ Profiling of the upstream slope of PAG rockfill (2H:1V) from El. 141 to 143 m from Sta. 0+700 to 0+590.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Foundation approval	■ Removal of the overburden and loose rocks with the excavator to reach a good quality bedrock for the dike footprint on the north-west part of SD3. The foundation was approved.
Crest	■ Placement and compaction of a 2 m-thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 20+630 to 20+600 (o/s -57 to -18 m), at the north part of SD3 to connect with the rock. The UM rockfill is heterogeneous and contains high fine particles but contains a good quantity of block and cobbles size particles.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	■ Placement of 0.5 m-thick lift of coarse filter on the upstream slope. The lift was placed and compacted from El. 141 to 141.5 m from Sta. 40+180 to 40+120. The compaction was done with 4 passes of a 10T compactor in vibratory mode. ■ Placement of 0.5 m-thick lift of fine/coarse filter on the upstream slope. The lift was placed and compacted from El. 139 to 139.5 m from Sta. 40+420 to 40+370.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. The coordinates and certificate of approval will be emitted shortly.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-18	SD3	-	03/08/2016	Approved

6.0 LABORATORY

No sample has been taken or tested by the QA or the QC.

7.0 PHOTOGRAPHS



Photograph SD3-125: From Sta. 20+590/-10 looking south. Placement of a 2 m-thick lift of UM rockfill from El. 140 to 141.5 m from Sta. 20+630 to 20+600 (o/s -57 to -18 m), at the north part of SD3. The rockfill is connecting with the rock.



Photograph SD4-081: From Sta. 40+420/-20 looking west. Placement of 0.5 m-thick lift of fine/coarse filter on the upstream slope. The lift was placed and compacted from El. 139 to 139.5 m from Sta. 40+420 to 40+370.

QA DAILY REPORT

DATE August 5, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 4, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, windy.

2.0 HEALTH AND SAFETY

- It was discussed that haul trucks have the priority on road. Also, at stop sign, be careful that the vehicle is completely immobilised.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There was an unexpected mill shut-down yesterday during the night shift. The mining schedule as been reorganised and as a results it is possible that there will be a delay in the transport of the good non-AG material from the pit to the pad at the north of CD.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream Slope	Profiling of the rockfill on the upstream slope (2H:1V) from El. 141 to 143 m from Sta. 0+880 to 0+890.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Crest	End of placement of rockfill on the crest to El. 143 m from Sta. 20+580 to 20+600. Compaction of the rockfill placed on the crest at El. 143 m from Sta. 20+770 to 20+620. The compaction was done with 8 passes of compactor in vibratory mode.
Upstream Slope	Profiling of the rockfill on the upstream slope (3H:1V) from El. 141.5 to 143 m from 20+680 to 20+770. Installation of the fine filter over the approved foundation on the northern extremities over the abrupt bedrock area. The material was placed to have a minimum thickness of material of 0.5 m and a width of 10 m. The compaction was done with 4 passes of compactor in vibratory mode.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream	The inverse filter on the upstream slope from El. 141.5 to 143 m have been completed and profiled (3H:1V).
Toe liner tie-in	Beginning of bedrock cleaning for the till plug on the east side and west side of SD4.

5.0 FOUNDATION APPROVAL

The coordinate for the foundation approval FND-SD3-18 were given to the QA manager and the certificate of approval was emitted.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and offset	Date of approval	Comment
FND-SD3-18	SD3	20+586 to 20+590 offset -11 to -17	03/08/2016	Approved

6.0 LABORATORY

The QC gave the QA manager the results of sample 387.

Table 5: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
387	01/08/2016	04/08/2016	Fine filter	SD3 (in place) Sta. 20+680/ o.s.-42 m El. 140.5 m	Gradation	Conform

7.0 PHOTOGRAPHS



Photograph SD3-126: From Sta. 20+600/-50 looking south. Placement of the fine filter over the approved foundation on the northern extremities in the sector where the upstream toe liner begin to curve toward the dike. A shovel is profiling the upstream slope from El. 141.5 to 143 m on the south side.



Photograph SD4-082: From Sta. 40+420/-10 looking west. View of the finished inverse filter on the upstream slope. Beginning of bedrock cleaning for the east abutment of the upstream toe liner tie-in.

QA DAILY REPORT

DATE August 6, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 5, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, windy.

2.0 HEALTH AND SAFETY

- There was a code 1 on the radio this morning. The equipment in the South Cell construction area stopped working during its duration.
- The QA manager assisted the weekly dike construction safety meeting. The high importance incident involving the haul truck on Central Dike was discussed. Other topics included the location of the defibrillators on site, the use of air compressor and an incident involving a truck that lost an oxygen bottle on Vault Road.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Following the safety incident at CD involving a haul truck, the safety berms on the downstream side were increased. These berms where raised with the already placed material by increasing the setback on the downstream side. No excess of UM rockfill from the bumper should be required to be removed to ensure that the 6 m on the downstream side are made of good quality non-AG rockfill.
- The compaction of the filter on the upstream slope of the Saddle Dam was done horizontally after the placement of each 0.5 m lift (same as for Central Dike). It was discussed that the upstream slope will also be compacted with the compactor to obtain a smooth surface in prevision of the LLDPE installation.
- It was discussed that a reference board and a Proctor will have to be done in prevision of the placement and compaction of the sieved till to determine its optimal water content and density.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Downstream slope	End of the profiling of the rockfill downstream slope (1.5H:1V) from El. 141 m to 143 m (from Sta. 40+780 to 40+620 approximately).
Upstream slope	End of the profiling of the rockfill upstream slope (3H:1V) from El. 141 m to 143 m (from Sta. 40+780 to 40+620 approximately).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Slope	Installation of the coarse filter (inverse filter) over the approved foundation on the northern extremities over the abrupt bedrock area from Sta. 20+600 to 20+620. The material was placed to have a minimum thickness of material of 0.5 m. The compaction was done with 4 passes of compactor in vibratory mode. Placement of rockfill against the coarse filter from Sta. 20+600 to 20+620. The rockfill on the upstream slope was then compacted with 8 passes of compactor in vibratory mode. Placement of 0.5 m of coarse filter on the upstream slope from Sta. 20+600 to 20+620 above the rockfill. The compaction was done with 4 passes of compactor in vibratory mode. Beginning of placement of 0.5 m of fine filter above the coarse filter placed from Sta. 20+600 to 20+620.
Crest	End of compaction of the rockfill on the crest at El. 143 m on the north side from 20+580 to 20+620. The compaction was done with 8 passes of compactor in vibratory mode.
Toe liner tie-in	Beginning of the bedrock cleaning on the south side from 20+780 to 20+770 approximately.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning for the till plug on the east side and west side of SD4.Compressor air was used on the east side from Sta. 40+380 to 30+420.

5.0 LABORATORY

No results today

Table 5: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
-	-	-	-	-	-	-

6.0 PHOTOGRAPHS



Photograph SD3-127: From Sta. 20+620/-50 looking NW. Placement of rockfill against the coarse filter (inverse filter) on the north extremity of Central Dike where the upstream toe liner tie-in curve toward the dike



Photograph SD3-128: From Sta. 20+620/-80 looking NW. Placement of coarse filter on the upstream slope above the rockfill in the sector where the upstream toe liner tie-in curve toward the dike



Photograph SD3-129: From Sta. 20+650/-30 looking N. Beginning of placement of fine filter above the coarse filter on the upstream slope where the upstream toe liner tie-in curve toward the dike



Photograph SD4-083: From Sta. 40+380/-30 looking E. Bedrock cleaning of the upstream toe liner tie-in on the east side using a small excavator and compressed air.



Photograph SD5-022: From Sta. 40+620/0 looking E. View of the profiled downstream slope to El. 143 m.

QA DAILY REPORT

DATE August 7, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 6, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was confirmed that pickup truck must park on the side of the road during a Code 1.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that more bedrock cleaning with compressed air and using the crowbar is required at Saddle Dam 4 before bedrock mapping can be done.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m of coarse filter on the upstream slope from El 141 m to 141.5 m from Sta. 0+240 to 0+860. The width of the material is such to obtain a 1 m thickness perpendicular to the slope.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Slope	Placement of 0.5 m of fine filter above the coarse filter placed from Sta. 20+600 to 20+620 and from 20+760 to 20+780. The filter on the upstream slope of SD3 are completed.
Toe liner tie-in	Bedrock cleaning with a CAT 307 on the south side and on the north side.
Downstream slope	Profiling of the rockfill (1.5 H:1V) to El. 143 m from Sta. 20+600 to 20+700. The downstream slope is totally profiled for a crest at El. 143 m.
Water management	Pumping of water at the downstream toe

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning for the till plug on the east side and west side of SD4 using the compressed air. The west side is finished cleaning from 40+102 to 40+121 Bedrock mapping of the cleaned toe liner tie-in from 40+121 to 40+112

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of the upstream toe liner centreline
SD4	From 40+121.5/-46 to 40+112.1/-42

6.0 LABORATORY

The following samples have been taken by the QC.

Table 5: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
389	06/08/2016	-	Sieved till	Stockpile SP-01	Proctor	-
390	06/08/2016	-	Coarse filter	0+301 /-27.7 El. 141.5	Gradation	-

7.0 PHOTOGRAPHS



Photograph SD3-130: From Sta. 20+800/-30 looking N. View of the filter completed on the upstream slope for a dike elevation at 143 m. Profiling of the downstream slope



Photograph CD-1747: From Sta. 0+130/-40 looking S. Placement of coarse filter on the upstream slope form El. 141 to 141.5 m.

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QA DAILY REPORT

DATE August 8, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 7, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that part of the safety bumper on Saddle Road between Saddle Dam 3 and Saddle Dam 4 will need to be repaired as it was damaged by a haul truck.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A reference board for the sieved till was done during the night shift. The water content of the tested till from stockpile SP-01 varied from 9.5-10 %. The water content of the till was too wet and did not allow a proper compaction. It was discussed that the till stockpiles will need to be unsealed and mixed during warm weather to dry them. A new reference board will have to be conducted once the water content of the till has decreased.

- During the night shift, fine filter made from ultramafic rockfill was placed by error on Central Dike at El. 141.5 m from Sta. 0+735 to Sta. 0+902 and from Sta. 0+160 to Sta. 0+573. It was reminded that fine filter made of UM rockfill should not be placed on Central Dike. The material placed during the night shift can remain in place but caution must be taken to avoid placing more UM filter on CD. During the profiling of the upstream slope the contractor will mix the UM filter of the upstream slope with fine filter made of good quality rockfill.

- The QA manager observed that the key area of the upstream toe liner tie-in being cleaned was inferior to 5 m as the line had been implemented from the theoretical upstream toe of the dike. It was reminded that 5 m of exposed bedrock measured horizontally from the toe of the dike must be cleaned. New line were implemented on the field using a tape.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m of fine filter on the upstream slope from Sta. 0+575 to 0+735 to finish the lift to El. 141.5 m. Compaction of the 0.5 m lift of fine and coarse filter from El. 141 to 141.5 m from Sta. 0+160 to 0+960. The compaction was done with 4 passes of a 10T compactor in vibratory mode. Placement of 0.5 m of coarse filter on the upstream slope from El 141.5 m to 142 m from Sta. 0+160 to 0+960. Placement of 0.5 m of fine filter on the upstream slope from El 141.5 m to 142 m from Sta. 0+160 to 0+220. The width of the material is such to obtain a 1 m thickness perpendicular to the slope.
Toe liner tie-in	Cleaning of 5 m of the upstream toe liner tie-in on the north side with the CAT 307.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning with a CAT 307 on the north side. Bedrock cleaning with the laborers on the south side.
Water management	Pumping of water on the downstream toe.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the 5m stripe of cleaned toe liner tie-in from Sta. 40+112 to Sta. 40+102.

5.0 BEDROCK MAPPING

The following segment on the west side of SD4 were mapped by the QA manager.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of the upstream toe liner centreline
SD4	From 40+102.6/-31 to 40+106.7.1/-33
SD4	40+106.7 /-34 to 40+112.1/-42

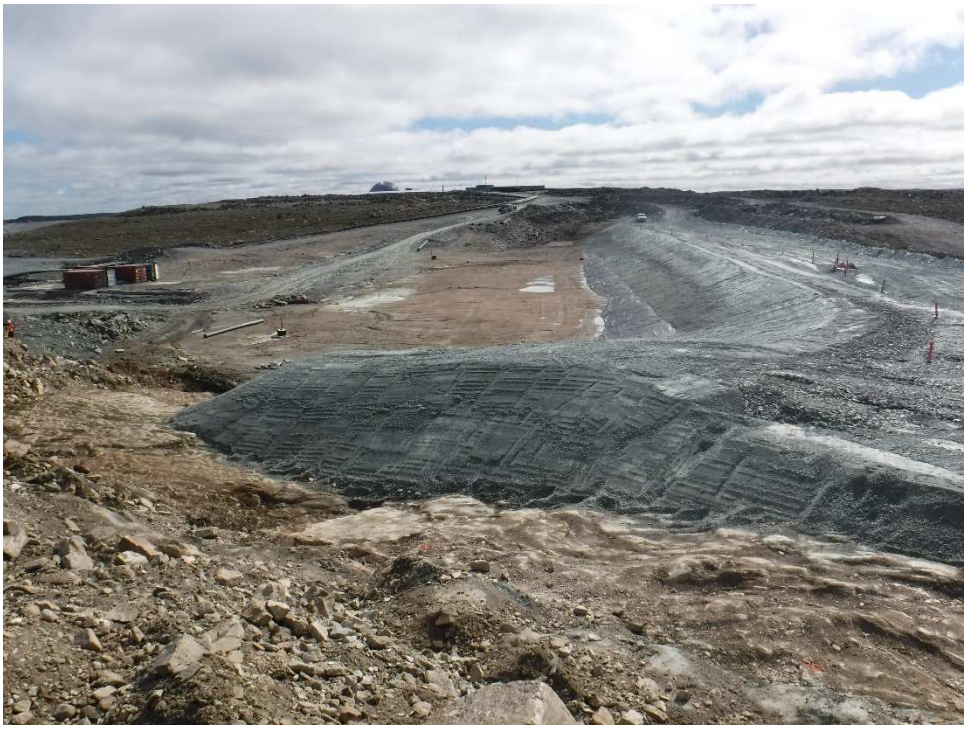
6.0 LABORATORY

The QC took a sample of UM fine filter placed by error on CD during the night shift.

Table 5: Samples Taken and Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
391	07/08/2016	-	Fine filter (UM)	CD as placed, Sta. 0+839.9 /-29.3 EL. 141.5 m	Gradation	-

7.0 PHOTOGRAPHS



Photograph SD3-131: From Sta. 20+580/-44 looking S. The upstream toe liner tie-in on the north side of SD3 has been cleaned with the CAT307 and will soon be cleaned with compressed air.



Photograph CD-1748: From Sta. 0+100/-40 looking N. Beginning of bedrock cleaning on the north side of Central Dike. Placement of coarse filter against the upstream slope from El. 141.5 to 142 m.

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QA DAILY REPORT

DATE August 9, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 8, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The contractor asked if the stockpiles of sieve till on the north of Central Dike could be mixed together to form bigger pile when they will be unsealed and stirred to promote drying. The QA manager agreed with the proposition.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Placement of 0.5 m of coarse filter on the upstream slope from Sta. 0+920 to 0+960 from El. 142 to 142.5 m. Placement of 0.5 m of fine filter on the upstream slope from Sta. 0+200 to 0+960 from El. 142 to 142.5 m. The compaction of the fine and coarse filter placed from El. 141.5 m to 142 was done with 4 passes of compactor in vibratory mode.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Placement of 0.5 m of coarse filter and fine filter on the upstream slope from Sta. 0+960 to 40+640 from El. 141 to 141.5 m. The compaction was done with 4 passes of compactor in vibratory mode Placement of 0.5 m of coarse filter on the upstream slope form Sta. 0+960 to 0+980 from EL. 141.5 m to 142 m.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning on the south side with the CAT 307 and compressed air
Water management	Pumping of water on the downstream toe.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Final bedrock cleaning with compressed air on the east side from Sta. 400+383 to 40+419. The cleaned section of bedrock has a width of 5 m and is ready for bedrock mapping.

5.0 LABORATORY

The QC gave the test result of sample 386 of coarse filter to the QA manager. The result was judged acceptable even if there is a little bit too much fine particles.

The QA manager took a sample of the coarse filter placed at SD5.

Table 5: Samples Taken by the QA manager

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD5-02	08/07/2016	-	Coarse filter	In place, Saddle Dam 5, St. 40+732/-35 El. 141.5 m	Gradation	-

Table 6: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
386	31/07/2016	08/08/2016	Coarse filter	In place, Saddle Dam 4, St. 40+360 El. 142 m	Gradation	Ok, little bit too much fine particles

6.0 PHOTOGRAPHS



Photograph SD3-132: From Sta. 20+760/-60 looking S. Cleaning of the upstream toe liner tie-in on the south side of SD3



Photograph SD5-023: From Sta. 40+640/-30 looking E. Placement of the fine filter and coarse filter on the upstream slope of Saddle Dam 5 from El. 141 to 141.5 m.

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QA DAILY REPORT

DATE August 10, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 9, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The access to the crest of Saddle Dam 3 and Saddle Dam 4 have been blocked with candles. If authorised personnel have to go on these structures they must reposition the candle once they leave the structure.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The contractor wants to start using the leftover till at Sana Crusher from the 2015 construction season for the placement of till. The QC testing showed that the water content of that pile is too high. The contractor will unseal it and stir it to promote drying.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	End of the compaction of the 0.5 m lift of fine filter and coarse filter placed at El. 143 m. The compaction was done with 4 passes of compactor in vibratory mode. Profiling of the fine filter placed on the upstream slope (2H:1V) from El. 141 m to 143 m from Sta. 0+120 to 0+300.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Placement of 0.5 m of coarse filter and fine filter on the upstream slope from Sta. 0+960 to 40+640 from El. 141.5 to 143 m. The compaction was done with 4 passes of compactor in vibratory mode. The filter are finished being placed on Saddle Dam 5. Beginning of the profiling of the fine filter upstream slope (3H:1V)
Toe liner tie-in	Bedrock cleaning with the CAT 307

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	End of bedrock cleaning on the south side. The cleaned bedrock surface is 5 m wide and ready for bedrock mapping. Bedrock cleaning on the north side with compressed air.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the cleaned bedrock on a width of 5 m from Sta. 40+401 to 40+419.

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From 40+401.97/-43.89 to 40+411.17/-40.36
SD4	From 40+411.17/-40.36 to 40+419.54.1/-34.94

6.0 LABORATORY

The QC and the QA took a sample of fine filter being placed on Central Dike.

The QC took water content sample and water content measurement with the nucleodensimeter for the till stockpile at Sana Crusher and from 3 till stockpile on the north of Central Dike. The results from the nucleodensimeter testing show that the water content of the till is currently too high.

Table 6: Samples Taken by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-542	09/08/2016	-	Fine filter	CD in place, 0+578.3/-13.38 El. 143 m	Gradation	-

Table 7: Samples Taken by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
393	09/08/2016	-	Sieved till	Stockpile Sana Crusher	Water content	-
393 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile Sana Crusher	Water content (nucleodensimeter)	9.7-10.9
394	09/08/2016	-	Sieved till	Stockpile 1, CD	Water content	-
394 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 1, CD	Water content (nucleodensimeter)	10.4-10.8
395	09/08/2016	-	Sieved till	Stockpile 2, CD	Water content	-
395 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 2, CD	Water content (nucleodensimeter)	9.5-11.1
396	09/08/2016	-	Sieved till	Stockpile 6, CD	Water content	-
396 a-b	09/08/2016	09/08/2016	Sieved till	Stockpile 6, CD	Water content (nucleodensimeter)	8.8-9.2

7.0 PHOTOGRAPHS



Photograph CD-1749: From Sta. 0+120/-50 looking S. Profiling of the fine filter of the upstream slope (2H:1V) to El. 143 m.



Photograph SD5-024: From Sta. 0+900/-30 looking S. Profiling of the fine filter of the upstream slope (3H:1V) to El. 143 m. Bedrock cleaning of the upstream toe liner tie-in with the CAT307.

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QA DAILY REPORT

DATE August 11, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 10, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There was no construction meeting today due to the start-up meeting for the Amaruk road construction.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Correction to the profiling of the fine filter placed on the upstream slope (2H:1V) from El. 141 m to 143 m. Cleaning up on the north side.
Till stockpile	Unsealing and stirring of the till stockpile to promote its drying.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Profiling of the fine filter upstream slope (3H:1V) from El. 141 m to 143 m from Sta 40+620 to 40+800. The profiling of the fine filter slope of SD5 is completed.
Toe liner tie-in	Bedrock cleaning with the CAT 307 and compressed air.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	End of bedrock cleaning on the north side. The cleaned bedrock surface is 5 m wide and ready for bedrock mapping. Bedrock mapping of the cleaned bedrock on a width of 5 m on the south side from Sta. 20+771 to 20+795.
Access	A shovel is creating an access to the base of the upstream toe liner tie-in on the north and south side.

Table 4: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the cleaned bedrock on a width of 5 m from Sta. 40+383 to 40+401. The bedrock mapping is completed at SD4.

5.0 BEDROCK MAPPING

The QA manager did the following bedrock mapping.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD4	From 40+383.0/-47.65 to 40+392.6/-46.98
SD4	From 40+392.6/-46.98 to 40+401.97/-43.89
SD3	From 20+771.3/-43.74 to 20+776.85/-38.98

Structure	Station and offset of centreline of the mapped section
SD3	From 20+776.85/-38.98 to 20+786.33/-36.28
SD3	From 20+786.33/-36.28 to 20+795.84/-33.14

6.0 LABORATORY

The QC gave the following testing results to the QA Manager. Sample 388 of coarse filter is acceptable even if the fine fraction is a little bit out of the gradation limit.

Table 7: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
388	01/08/2016	10/08/2016	Coarse Filter	SD3, 20+680 El. 140.5 m	Gradation	Ok, a little too fine
391	07/08/2016	10/08/2016	Fine filter	CD, 0+894/-29 El. 141.5 m	Gradation	Conform
393	09/08/2016	10/08/2016	Sieved till	Sana Crusher stockpile	Water content	7.5 %
394	09/08/2016	10/08/2016	Sieved till	Stockpile 1	Water content	8 %
395	09/08/2016	10/08/2016	Sieved till	Stockpile 2	Water content	9.8 %
396	09/08/2016	10/08/2016	Sieved till	Stockpile 6	Water content	7 %

7.0 PHOTOGRAPH



Photograph SD5-025: From Sta. 0+900/-30 looking S. View of the profiled fine filter upstream slope. Bedrock cleaning of the upstream toe

QA DAILY REPORT

DATE August 12, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 11, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that the grouting at SD5 will not be done on a systematic basis as for Central Dike. Slush grout will be applied on the cleaned bedrock on the CD/SD5 transition (curved area) and in area where open discontinuity greater than 10 mm are observed.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Downstream slope	Profiling of the rockfill on the downstream slope (1.5H:1V) from EL. 141 m to 143 m from Sta. 0+460 to 0+660.
Till stockpile	Unsealing and stirring of the till stockpile to promote its drying.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning with the CAT 307 and compressed air.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the cleaned bedrock on a width of 5 m on the south side from Sta. 20+601 to 20+626.

5.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of SD3.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	20+601/-55 to 20+608 /-63
SD3	20+608 /-63 to 20+616.4 /-69
SD3	20+616.4 /-69 to 20+626.3 /-71

6.0 LABORATORY

The QC took other water content measurement of the till stockpile with the nucleodensimeter. A portion of the Sana Crusher till stockpile as a water content suitable to be placed. The remaining stockpile will need to dry further.

Table 5: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
397-A	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content - nucleo	11.2 %
397-B	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content – nucleo	11.7 %

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
397-C	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content – nucleo	9.5 %
397-D	11/08/2016	11/08/2016	Sieved till	Sana crusher stockpile	Water content – nucleo	9.2 %
397-E	11/08/2016	11/08/2016	Sieved till	Central Dike stockpile	Water content – nucleo	12.7 %
397-F	11/08/2016	11/08/2016	Sieved till	Central Dike stockpile	Water content – nucleo	12.2 5
397-G	11/08/2016	11/08/2016	Sieved till	Central Dike stockpile	Water content – nucleo	11.7 %
397-H	11/08/2016	11/08/2016	Sieved till	Central Dike stockpile	Water content – nucleo	10.5 %

7.0 PHOTOGRAPH



Photograph CD-1750: From Sta. 0+080/-10 looking S. View of the rockfill on the downstream side of Central Dike being profiled from El. 141 m to 143 m

QA DAILY REPORT

DATE August 13, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 12, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was decided to apply slush grout to a portion of the bedrock of the upstream toe liner of Saddle Dam 4 on the east abutment where joint larger than 10 mm were identified. These joints were filled with soil but it was still decided by the QA and AEM to grout them as a precaution.

- The slush grout recipe used in the past year was reminded to the contractor. The following recipe gave satisfactory results in the past :

  - 1 to $1^{1/3}$ of cement by volume ;
  - 2 portions of sand by volume ;
  - 2 portions of water.

- The QA Manager observed that the snow dump material was now mixed with a lots of boulders and cobbles. As a results this material is too coarse and no longer suitable to be used as erosion protection material. The QA Manager mentioned that alternatively the erosion protection at Saddle Dam 3 and 4 could be made of 1 m of UM rock powder and 1 m of competent UM rockfill. However, it was reminded that this configuration is

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less robust than the initial design and that AEM will need to take measure to protect the upstream toe liner tie-in during tailings deposition.

- It was reminded that the erosion protection layer of the upstream toe liner tie-in built at Saddle Dam 3 last year did not have a thickness of 2 m everywhere as it was built up to the crest El. at 140 m. Therefore, part of the erosion protection at Saddle Dam 3 will need to be increased this year.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Toe liner tie-in	- Bedrock cleaning on the north side with compressed air.
Till stockpile	- Unsealing and stirring of the till stockpile to promote its drying.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	- Foundation approval of the cleaned bedrock of the upstream toe liner tie-in on the west side (St. 40+385 to 40+41) and east side (40+106 to 40+120). - Slush grouting of open joint on the east abutment. A ratio by volume of 1-$1^{1/3}$ cement: 2 sand: 2 water was used. - Placement of a minimum thickness of 0.5 m of sieved till the west and east abutment (from Sta. 40+106 to 40+160 and from 40+360 to 40+415). The compaction was controlled by the QC with a nucleodensimeter. The optimal compaction was usually obtained after 6 passes of a 10 T compactor in vibratory mode. The compaction was visually adequate and the placed material was wet enough to be plastic. A dry density after compaction of 2000 and 2200 kg/m^3 was obtained for a water content of 3 % and 11.5 % approximately. The achieved degree of compaction varied between 95 % and 104 %. Due to the high degree of compaction achieved and the visual behavior of the material during the compaction, the QA accepted the compaction even if most of the water content measured with the nucleodensimeter was not 0 to 3 % higher than the optimum water content (8.5 %).

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the cleaned bedrock on a width of 5 m on the south side from Sta. 20+601 to 20+596.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out for the upstream toe liner tie-in before the placement of sieved till. It was decided during the foundation approval to grout some open joint on the east abutment of SD4.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD4-23	SD4	Sta. 40+385 to 40+415 off. -38 to -49	12/08/2016	Approved
FND-SD4-24	SD4	St. 40+106 to 40+120 off. -39 to -42	12/08/2016	Approved

6.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of SD3.

Table 5: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	From 20+596 /-46 to 20+601 /-55

7.0 LABORATORY

The QC gave the testing results of two sample of fine filter and a sample of coarse filter. All samples were conforms.

The QC took several dry density and water content measurement after the compaction of the sieved till on Saddle Dam 4. The QC also took a sample of the placed material. The dry density of the tested material varied from 2000 kg/m^3 to 2200 kg/m^3 (degree of compaction from 95 % to 104 %).

Table 6: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
385	31/07/2016	31/07/2016	Fine filter	SD4 in place, St. 40+340 El. 141.5 m	Gradation	Conform
390	06/08/2016	12/08/2016	Coarse Filter	CD in place, St. 0+301 El. 141.5 m	Gradation	Conform
392	09/08/2016	12/08/2016	Fine filter	CD in place. St.0+540 EL. 143 m	Gradation	Conform
398	12/08/2016	12/08/2016	Sieved till	SD4 from 40+120 to 40+160 first 0.5 m lift	In-situ density and WC (nucleo)	WC : 2.6-3.1 % Dry density : 2215-2225 kg/m^3
399	12/08/2016	-	Sieved till	SD4, St. 40+139 /-18 El. 141.3 m	Gradation, WC	-
400	12/08/2016	12/08/2016	Sieved till	SD4 from 40+360 to 40+400 first 0.5 m lift	In-situ density and WC (nucleo)	WC : 3.7-12.6 % Dry density : 1996-2222 kg/m^3

8.0 PHOTOGRAPH



Photograph SD4-084: From Sta. 40+160/-40 looking W. View of the first 0.5 m of sieved till placed and compacted above the bedrock on the west abutment of SD4.



Photograph SD4-085: From Sta. 40+420/-40 looking W. View of the first 0.5 m of sieved till placed and compacted above the bedrock on the east abutment of SD4

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QA DAILY REPORT

DATE August 14, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 13, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- Due to the warm weather, it was reminded to wear sunscreen and to stay hydrated.
- It was reminded that there is lots of co activity going on presently. It is important to be vigilant and to be visible to the operator of the heavy equipment.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that a new till reference board will have to be done before the placement of till at Saddle Dam 5.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Toe liner tie-in	Bedrock cleaning on the north side with compressed air. Construction of an access on the north side to the upstream toe liner tie-in area.
Till stockpile	Unsealing and stirring of the till stockpile to promote its drying.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping of the cleaned bedrock on a width of 5 m on the south side from Sta. 20+593 to 20+596. Bedrock mapping has been completed at SD3. Foundation approval of the cleaned bedrock of the upstream toe liner tie-in on the north side (St. 20+592 to 20+618) and south side (20+770 to 20+797). Slush grouting of open joint on the north and south side. A ratio by volume of 1-$1^{1/3}$ cement: 2 sand: 2 water was used. Placement of a minimum thickness of 0.5 m of sieved till on the north and south abutment (from Sta. 20+600 to 20+620 and from 20+760 to 20+800). A first thin lift was placed and compacted to fill the bedrock depression then another lift of 0.5 m was placed and compacted. The compaction was controlled by the QC with a nucleodensimeter. The optimal compaction was usually obtained after 6 to 8 passes of a 10 T compactor in vibratory mode. The compaction was visually adequate and the placed material was wet enough to be plastic. A dry density after compaction of approximately 2000 kg/m^3 was obtained for a water content of 12 % approximately. The achieved degree of compaction varied between 95 % and 97 %. Due to the degree of compaction achieved and the visual behavior of the material during the compaction, the QA accepted the compaction even if most of the water content measured with the nucleodensimeter was higher than 0 to 3 % of the optimum water content (8.5 %).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out for the upstream toe liner tie-in before the placement of sieved till. It was decided during the foundation approval to grout some open joint on the east abutment of SD4.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
SD3-19	SD3	20+592 to 20+618 off -38 to -73	13/08/2016	Approved
SD3-20	SD3	20+770 to 20+797 off -30 to -50	13/08/2016	Approved

6.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of SD3. Bedrock mapping is finished at SD3.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD3	From 20+596.73 / -46.73 to 20+593.55 / -40.15

7.0 LABORATORY

The QC gave the testing results of the Proctor test done on sieved till. The last two points of the curve have an unusual shape. The QA Manager asked that another test be redone. From the first three point of the curve test the optimum dry density seem to be 2054 kg/m^3 for a water content of 8 % without correction and 2283 kg/m^3 for a water content of 6.3 % with correction.

The QC took several dry density and water content measurement after the compaction of the sieved till on Saddle Dam 3. The QC also took a sample of the placed material. The dry density of the tested material varied from 2000 kg/m^3 to 2050 kg/m^3 (degree of compaction from 95 % to 97 %).

Table 5: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-007	13/08/2016	-	Sieved till	SD3 as placed, 20+780 /-15 El. 142.5 m	Gradation, WC	-

Table 6: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
389	06/08/2016	13/08/2016	Sieved till	Stockpile SP-01	Proctor	Unusual shape, test to be redone
402	13/08/2016	13/08/2016	Sieved till	SD3 from 20+780 to 20+789 first 0.5 m lift	In-situ density and WC (nucleo)	WC : 12-12.6 % Dry density : 2027-2040 kg/m^3
403	13/08/2016	-	Sieved till	SD3 from 20+602 - 52 El. 142. m	Gradation, WC	-
404	13/08/2016	13/08/2016	Sieved till	SD3 from 20+600 to 20+620 first 0.5 m lift	In-situ density and WC (nucleo)	WC : 10.8-12.9 % Dry density : 2003-2054 kg/m^3

8.0 PHOTOGRAPH



Photograph CD-1751: From Sta. 200/-30 looking N. Bedrock cleaning. An excavator is making an access on the north side to the upstream toe liner tie-in



Photograph SD3-133: From Sta. 20+600/-50 looking S. View of the cleaned bedrock prior to placement of sieved till and grouting



Photograph SD3-134: From Sta. 20+600/-50 looking S. View of the north abutment after the placement and compaction of the first lift of sieved till



Photograph SD3-135: From Sta. 20+780/-30 looking N. Placement of a thin lift of sieved till to fill the bedrock depression



Photograph SD3-136: From Sta. 20+800/-30 looking N. View of the placed and compacted sieved till on the south abutment. A minimum thickness of 0.5 m was placed

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QA DAILY REPORT

DATE August 15, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 14, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded to it is mandatory to wear seatbelt and to respect speed limit while driving on site

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manger reminded that the compaction and the water content of the unsieved till must be controlled during placement and compaction. A reference board will also have to be taken for that material.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Toe liner tie-in	- Bedrock mapping on the north side from 0+168 to 0+198.
Till stockpile	- Unsealing and stirring of the till stockpile to promote its drying.

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Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Cleanup of material in prevision of the installation of a first lift of unsieved till in the upstream toe liner tie-in (past the first 5 m of the key).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Cleanup of pile of material left on the downstream side of SD4.

5.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of SD3. Bedrock mapping is finished at SD3.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
Central Dike - North	From 0+198.5 / -43.9 to 0+188.7 / -42.1
Central Dike - North	From 0+188.7/ -42.1 to 0+178.71 / -40.9
Central Dike - North	From 0+178.71 / -40.9 to 0+168.9 / -39.2

6.0 LABORATORY

The QC took water content measurement in the till Central Dike stockpile for the unsieved and sieved till. The water content of these samples was measured in the laboratory. Following the results it was decided to go forward with a reference board for the sieved and unsieved till stockpile.

Table 5: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
405-A	14/08/2016	14/08/2016	Sieved till	CD Stockpile SP-06	WC	7.8 %
405-B	14/08/2016	14/08/2016	Unsieved till	CD stockpile	WC	10.1 %
405-C	14/08/2016	14/08/2016	Unsieved till	CD stockpile	WC	6.7 %

QA DAILY REPORT

DATE August 16, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 15, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The reference board for the till are completed. The till from Central Dike stockpiles is ready to be put in place.
- A new technique was proposed for the bedrock mapping. Instead of manually mapping the bedrock, it was proposed to scan the surface with a LIDAR survey to generate a 3D surface of the bedrock form which the joint dip and dip direction can be extracted using software such as Maptek. This technique has been used for a while at Meadowbank for the bedrock mapping of the pit wall. The QA Manager and AEM accepted to try this technique for the cleaned bedrock at SD5. The QA Manager will then review the generated surface. If the surface is judged acceptable, the QA Manager will do an accelerated bedrock mapping at SD5 by only manually measuring joint that meet the criteria for grouting (more open than 10 mm) and by referring to the scan for the other discontinuity.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping by the QA manager on the north side from 0+109 to 0+168.
Till stockpile	Sealing of the till stockpile

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Toe liner tie-in	Placement of unsieved till on the north side of SD3 for a upstream toe liner tie-in in backfill configuration. A minimum thickness of 0.5 m of till was placed against the first lift of sieved till placed on a width of 5 m. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10 T compactor in vibratory mode. The compaction was visually acceptable. 97 % of the optimal dry density was reached.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	Placement of unsieved till on the east side and west side of SD4 for a upstream toe liner tie-in in backfill configuration. A minimum thickness of 0.5 m of till was placed against the first lift of sieved till placed on a width of 5 m. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10 T compactor in vibratory mode. The compaction was visually acceptable. 100 % of the optimal dry density was reached.

Table 4: QA Observations for Saddle Dam 5

Activity or Area	Comments
Toe liner tie-in	Lidar scanning of the cleaned bedrock by the survey department.
General	Removal of pile of unsuitable material (till mixes with boulder and cobbles) on the downstream side.

5.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of CD.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
Central Dike - North	From 0+168.9 / -39.2 to 0+159.2 / -37.2
Central Dike - North	From 0+159.2 / -37.2 to 0+149.4 / -35.8
Central Dike – North	From 0+149.4 / -35.8 to 0+139.5 / -34.1
Central Dike – North	From 0+139.5 / -34.1 to 0+129.6 / -33.1
Central Dike – North	From 0+129.6 / -33.1 to 0+119.6 / -33
Central Dike – North	From 0+119.6 / -33 to 0+109.7 / -31.5

6.0 LABORATORY AND FIELD MEASUREMENTS

The QC gave the results of the sample of sieved till taken during placement at SD4. The gradation is conform and the water content is near the optimum water content.

Two reference board were taken by the QC during the night shift (one on sieved till and one on unsieved till). The optimum dry density is reached between 4-6 passes of compactor and is around 2100 kg/m^3 for a water content around 8 %.

Table 5: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
399	12/08/2016	15/08/2016	Sieved till	SD4, in place, upstream toe liner tie-40+139 El. 141.3	Gradation, WC	Gradation conform, WC 7.9 %
406	15/08/2016	15/08/2016	Sieved till	Stockpile SP-06, Central Dike	Reference board	Optimum dry density of 2079 kg/m^3 after 6 passes at WC of 7.5 %
407	15/08/2016	15/08/2016	Unsieved till	Stockpile Central Dike	Reference board	Optimum dry density of 2126 kg/m^3 after 4 passes at WC of 7.6 %
408	15/08/2016	15/08/2016	Unsieved till	In place SD3, 20+600 unsieved till first lift	WC	-
409	15/08/2016	15/08/2016	Unsieved till	SD3 north side, first lift unsieved till	Compaction (nucleo)	Conform (2054 kg/m^3)
410	15/08/2016	15/08/2016	Unsieved till	SD4, first lift unsieved till	Compaction (nucleo)	Conform (2087-2226 kg/m^3)

7.0 PHOTOGRAPHS



Photograph SD3-137: From Sta. 20+580/-60 looking S. Placement and compaction of a 0.5 m lift of unsieved till on the north of SD3 against the first 5 m width lift of sieved till.



Photograph SD4-086: From Sta. 40+100/-40 looking W. Placement of a 0.5 m lift of unsieved till against the placed 5 m wide lift of sieved till of the upstream toe liner tie-in.

QA DAILY REPORT

DATE August 17, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 16, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was reminded that radio communication must be done in english

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The surveyor finished the LIDAR scanning of the cleaned bedrock at SD5 and showed it to the QA Manager. The scan surface is very detailed and the QA Manager is able to easily extract the joint information from the surface. The QA Manager will do additional verification but is planning to use this surface.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Toe liner tie-in	Bedrock mapping by the QA manager on the north side from 0+109 to 0+105. The bedrock mapping is completed on the north of CD. Foundation approval of the upstream toe liner tie-in of CD between 0+105 to 0+198 in prevision of grouting and placement of sieved till. Grouting of the entire cleaned bedrock surface between 0+105 and 0+198. The grout was quickly covered with till to prevent it drying and allow a good contact. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. Placement of the first lift of sieved till above the bedrock from 0+105 to 0+198. A minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10 T compactor in vibratory mode and an additional 4 passes in static mode. The compaction was visually acceptable. 96 % of the optimal dry density was reached. The excavator cleaned the slope of boulders in which the sieved till was put against to make sure it was composed of natural soil.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Toe liner tie-in	End of placement of unsieved till on the west side of SD4 for a upstream toe liner tie-in in backfill configuration. A minimum thickness of 0.5 m of till was placed against the first lift of sieved till placed on a width of 5 m. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10 T compactor in vibratory mode. The compaction was visually acceptable. 100 % of the optimal dry density was reached.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out for the upstream toe liner tie-in before the placement of sieved till.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-CD-133	CD	Sta. 0+105 to 0+198 off. -26 to -46	16/08/2016	Approved

6.0 BEDROCK MAPPING

The QA manager completed the following bedrock mapping on the north side of CD.

Table 4: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
Central Dike - North	From 0+109.7 / -31.5 to 0+105.1 / -30

7.0 LABORATORY AND FIELD MEASUREMENTS

The QC gave the results of the sample of sieved till taken during placement at SD3. The gradation is conform and the water content is near the optimum water content.

Table 5: Samples Taken by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-543	16/08/2016	-	Sieved till	CD, in place, first lift upstream toe liner tie-0+148.4 /-34.1 El. 140.7	Gradation, WC	-

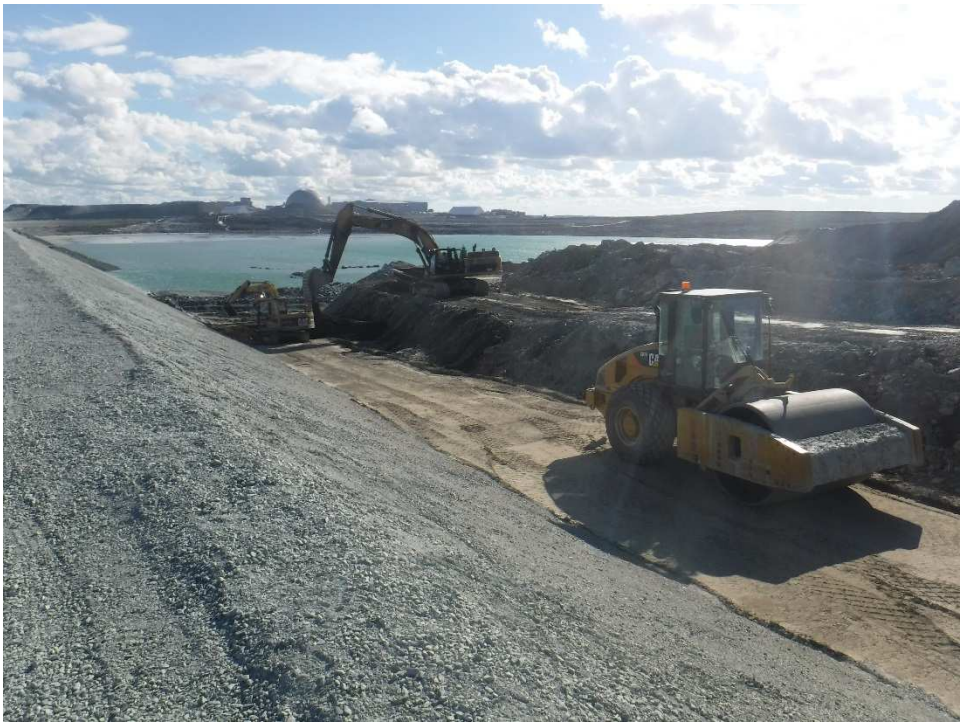
Table 6: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
403	13/08/2016	16/08/2016	Sieved till	SD3 from 20+602 - 52 El. 142. m	Gradation, WC	Conform
408	15/08/2016	16/08/2016	Unsieved till	In place SD3, 20+600 unsieved till first lift	WC	7.9 %
411	16/08/2016	-	Sieved till	CD in place, St. 0+186 el. 138.3 o/f - 40.3	Gradation, WC	-
412	16/08/2016	-	Sieved till	CD in place, St. 0+128.1, el. 142.2 m o/f – 31.9	WC	-
413	16/08/2016	16/08/2016	Unsieved till	SD 4 first lift 40+108 and 40+391	Dry density, WC (nucleo)	Dry density 2097 to 2127 kg/m^3
414	16/08/2016	16/08/2016	Sieved till	CD, 0+118 to 0+191	Dry density, WC (nucleo)	Dry density 2007 to 2040 kg/m^3

8.0 PHOTOGRAPHS



Photograph CD-1752: From Sta. 0+120/-44 looking S. Slush grouting of the upstream toe liner tie-in on the north side of Central Dike. An excavator is immediately covering the slush grouted area with sieved till.



Photograph CD-1753: From Sta. 0+160/-20 looking S. Compaction of the sieved till placed to cover the slush grout. Additional till is placed to obtain a minimum thickness of 0.5 m. The excavator is removing unsuitable material on the natural slope.

QA DAILY REPORT

DATE August 18, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Frédérick L.Bolduc **EMAIL** fbolduc@golder.com

QA DAILY REPORT FOR AUGUST 17, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15 ° C, sunny with some rain.

2.0 HEALTH AND SAFETY

- During slush grouting, employee near the cement mixer must wear respiratory protection.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that a deep discontinuity was present at SD5 which could cause a preferential channel if the till was not efficiently placed and compacted in that area. After discussion, the bedrock in that area was removed with an excavator to widen the opening so that the placement and compaction of till in that sector would be done more efficiently.
- AEM reported that they would not able to provide UM rock powder to be used for erosion protection layer without sorting the material. As a result, AEM decided that the erosion protection layer on SD3 and SD4 will be built according to the original design (0.5 m of fine filter, 0.5 m of coarse filter and 1 m of fine rockfill).

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Beginning of profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation.
Toe liner tie-in	Placement of sieved till above first thin lift of sieved till placed from 0+105 to 0+198 to ensure minimum thickness of 0.5 m of till was placed on the 5 m of cleaned bedrock and against natural ground. The compaction was controlled by the QC with a nucleodensimeter. The maximum dry density was achieved after approximately 6 passes of a 10 T compactor in vibratory mode and an additional 4 passes in static mode. The compaction was visually acceptable. 94 % of the optimal dry density was reached and the compaction was judged acceptable. The excavator cleaned the slope of boulders in which the sieved till was put against to make sure it was composed of natural soil.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetic installation.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetic installation.

Table 4: QA Observations for Saddle Dam 5

Activity or Area	Comments
Toe liner tie-in	An excavator removed some bedrock of the upstream toe liner tie-in where a deep discontinuity was present so that the till will be able to be placed and compacted effectively. Afterward, that segment of bedrock was cleaned again with compressed air. Bedrock mapping by the QA manager from 40+615 to 40+748. The bedrock mapping was done to complement and verify the information from the Lidar scan. Foundation approval of the cleaned bedrock in prevision of slush grouting and installation of the first 0.5 m lift of sieved till.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out for the upstream toe liner tie-in of SD5 in prevision of slush grouting and the placement of sieved till.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-08	SD5	Sta. 40+614 to 40+752 off. -32 to -57	17/08/2016	Approved

6.0 BEDROCK MAPPING

The QA manager completed the bedrock mapping of SD5. It will be necessary to refer to the Lidar scan for complete details about the discontinuity orientation.

Table 6: Bedrock mapping by QA manager

Structure	Station and offset of centreline of the mapped section
SD5	From 40+748.4 / -57.8 to 40+615.5.1 / -34.8

7.0 LABORATORY AND FIELD MEASUREMENTS

The QC completed the Proctor test on sieved till. The results is acceptable with a non-corrected optimum dry density at 2148 kg/m^3 for an optimal water content of 6.6 %.

The water content testing and nucleodensimeter results on the sieved till placed at Central Dike indicate a degree of compaction of 94 % with a water content within 0-3 % above the optimal water content.

Table 7: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
401	12/08/2016	17/08/2016	Sieved till	SP-02	Proctor	Optimum at 2148 kg/m^3 at 6.6% WC.
412	16/08/2016	17/08/2016	Sieved till	CD in place, St. 0+128.1, el. 142.2 m o/f – 31.9	WC	7.3 %
415	16/08/2016	17/08/2016	Sieve till	CD first 0.5 m lift 0+128 to 0+180	Dry density, WC (nucleo)	Dry density 2025 to 2036 kg/m^3 (94 % of optimum)

8.0 PHOTOGRAPHS



Photograph SD3-138: From Sta. 20+820/-70 looking N. View of the upstream slope profiled with the roller in prevision of the geosynthetics installation.



Photograph SD4-087: From Sta. 40+420/-65 looking W. View of the upstream slope profiled with the roller in prevision of the geosynthetics installation.



Photograph CD-1754: From Sta. 0+140/-40 looking N. View of the first lift of sieved till placed and compacted having a minimum thickness of 0.5 m. An excavator is profiling the upstream slope with a roller in prevision of the geosynthetics installation.

QA DAILY REPORT

DATE August 19, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 18, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10-15 ° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There has been no daily construction meeting today.
- The Owner's representative confirmed that the geosynthetics anchor trench must be excavated within the Coarse Filter instead of in the Fine Filter to provide a better anchor. This was done this way the previous years. The QA manager agrees with this approach as it provide a better anchor to the geosynthetics geomembrane.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation. Excavation of the geosynthetics anchor trench from Sta. 0+280 to 0+320.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	Excavation of the geosynthetics anchor trench from Sta. 40+110/-30 to 40+200/-30.

Table 4: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation.

5.0 FOUNDATION APPROVAL

None.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
None				

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 7 presents the QC laboratory and field results. Sample 411 was collected as-placed on August 16th on CD at Sta. 0+186, El. 138.3 m. The gradation curve is compliant with the grain size envelope.

Table 7: Samples Tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
411	16/08/2016	18/08/2016	Sieved Till	As-placed CD Sta. 0+186, El. 138.3 m	Gradation	Compliant

7.0 PHOTOGRAPHS



Photograph SD4-088: From Sta. 40+110/-30 looking E. Excavation of the geosynthetics 0.5 m-deep x 0.5 m-wide anchor trench.



Photograph SD5-026: From Sta. 40+800/-45 looking SW. Profiling of the upstream slope with the excavator roller to make a smooth surface in prevision of geosynthetics installation.

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QA DAILY REPORT

DATE August 20, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 19, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5-10 ° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- There has been no Daily Construction Meeting today.
- QA/QC Engineers made a verification and realized that the QC Portable Nuclear Gauge (PNG) applied a positive 4 % offset on every moisture readings, which resulted in 4 % higher readings. This was corrected. Following this, it was decided not to keep going with additional water content test by oven drying on Compacted Till.
- The QA manager made request that the Till over bedrock placed last year be scarified at the connection with the newly Compacted Till placed this year to allow a proper contact between both layers.
- The QA manager made sure the slush grout consistency met specifications before and during slush grouting and a request was made to thicken the mixture during the works.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Excavation of the geosynthetics anchor trench from Sta. 0+380 to 0+450 approximately.
Upstream Toe Liner Tie-in	Grouting of the entire cleaned bedrock surface between 40+670 and 40+750. The grout was quickly covered with Compacted Sieved Till to prevent its drying and allow a good contact. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. The slush grout consistency was good. Placement of the first lift of Compacted Sieved Till above the bedrock from 40+670 to 40+750. A maximum thickness of 0.5 m of Till was placed on the 5 m of cleaned bedrock to fill bedrock depressions. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 6. All readings met specifications. Placement of the second 0.5 m-thick lift of Compacted Sieved Till from 40+670 to 40+750. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 6. All readings met specifications.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-in	Partial grouting of the cleaned bedrock surface between 40+630/-35 and 40+670/-40. Joints with an aperture width greater than 10 mm were grouted. The grout was quickly covered with Compacted Sieved Till to prevent its drying and allow a good contact. A recipe by volume of $1^{1/3}$ cement, 1 sand and 1 water was used. The slush grout consistency was good. Placement of the first lift of Compacted Sieved Till above the bedrock from 40+630/-35 to 40+670/-40. A maximum thickness of 0.5 m of Till was placed on the 5 m of cleaned bedrock to fill bedrock depressions. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC

Activity or Area	Comments
	with a PNG. Density and moisture readings are presented in Table 6. All readings met specifications. - Placement of the second 0.5 m-thick lift of Compacted Sieved Till from 40+630/-35 to 40+670/-40. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 6. All readings met specifications. - Placement of the third 0.5 m-thick lift of Compacted Sieved Till from 40+670/-35 to 40+720/-40 to reach the correct elevation over bedrock. The compaction was conducted with a 10 t smooth drum compactor and was controlled by the QC with a PNG. Density and moisture readings are presented in Table 6. All readings met specifications.

5.0 FOUNDATION APPROVAL

None.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
None				

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the QC laboratory and field results.

Table 4: Summary of PNG tests carried out by the QC on Compacted Till

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
416	19/08/2016	--	Sieved Till	40+633.1/-38.7, El. 150.9 m	Gradation	Not tested yet
417 (A to H)	19/08/2016	19/08/2016	Sieved Till	40+692 to 40+750, El. 137.5 m to 139.7 m (SD5 and CD)	Dry density, WC (PNG)	Dry density: 2100 to 2176 kg/m^3, WC: 6.5 to 8.4 %

A Compacted Sieved Till sample was collected as-placed by the QA Engineer on the first lift of this material placed in the Upstream Toe Liner Tie-in at SD5.

Table 5: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

SD5-003	19/09/2016	--	Compacted Sieved Till	As-placed (Sta. 40+632.6/-39.7, El. 140.6 m)	Gradation/WC	Not tested yet

7.0 PHOTOGRAPHS



Photograph SD5-027: From Sta. 40+640/-43 looking N. Placement of slush grout over bedrock.



Photograph CD-1755: From Sta. 40+670/-40 looking N. Placement of slush grout over the entire bedrock surface of the 5 m-wide strip in the Upstream Toe Liner Tie-in.



Photograph CD-1756: From Sta. 40+750/-60 looking W. Placement of slush grout over the entire bedrock surface in the 5 m-wide strip in the Upstream Toe Liner Tie-in.

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QA DAILY REPORT

DATE August 21, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 20, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15-20 ° C, cloudy and windy.

2.0 HEALTH AND SAFETY

- The QA Engineer noted that the CD/SD5 access ramp is dangerous when it is dusty as pick-up trucks going up the hill can't see if there are other vehicles coming down.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- A warning was given that water from melting materials is ponding on the Sieved Till lift over bedrock North of CD. This water ponding should be removed before the placement of the next lift of Sieved Till. The material underneath the ponding might need to be removed if too soft.
- The QA engineer recalled that the upstream Fine Filter slopes at SD3-4-5 and CD need to be approved before the geosynthetics installation.
- The LLDPE installation North of SD3 will need to be discussed with the Liner Contractor upon his arrival.
- The Contractor was told that some corrections are warranted before the LLDPE installation on CD and SD3 on the Fine Filter upstream slope.
- The Contractor was told to place a geotextile underneath LLDPE rolls waiting for their installation to avoid damaging them.

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- The QA Engineer recalled that there are some areas where Low Quality Till is missing at SD3 and SD4 on the Upstream Toe Liner Tie-in built last year. The Owner's Representative confirmed that this will be corrected during this construction season.

- However, there might be a shortage in Low Quality Till. Consequently, the erosion protection layers of the Upstream Toe Liner Tie-In placed during this construction season at SD 3-4 and 5 will be built with granular layers as it was done on CD, i.e. two 0.5 m-thick layers of Fine and Coarse Filters and one 1 m-thick lift of Fine Rockfill. Transitions filters will be required to ensure a proper transition between the Low Quality Till placed last year and the erosion protection layers that are going to be placed this season. The QA Engineer should discuss this with the Dike's designer as soon as possible.

- The contractor asked if SD3 and SD5 Upstream Toe Liner Tie-In could be seated on 0-150 mm Till placed over bedrock as per Figure 1 to provide a platform for heavy equipment. The QA Engineer didn't accept this configuration because it does not allow a good protection against erosion for the 0-150 mm Till. The QA Engineer told the Contractor that the 0-150 mm Till shall be covered with the erosion protection layers, i.e. Fine Filter, Coarse Filter and Fine Rockfill. The QA Engineer recalled the configuration of the Upstream Toe Liner Tie-in when seated on bedrock. The Owner's Representative asked if it possible to seat the Fine Rockfill lift on the excavated materials downstream as per Figure 2 and this was accepted as long as Fine and Coarse Filters are properly seated on bedrock.

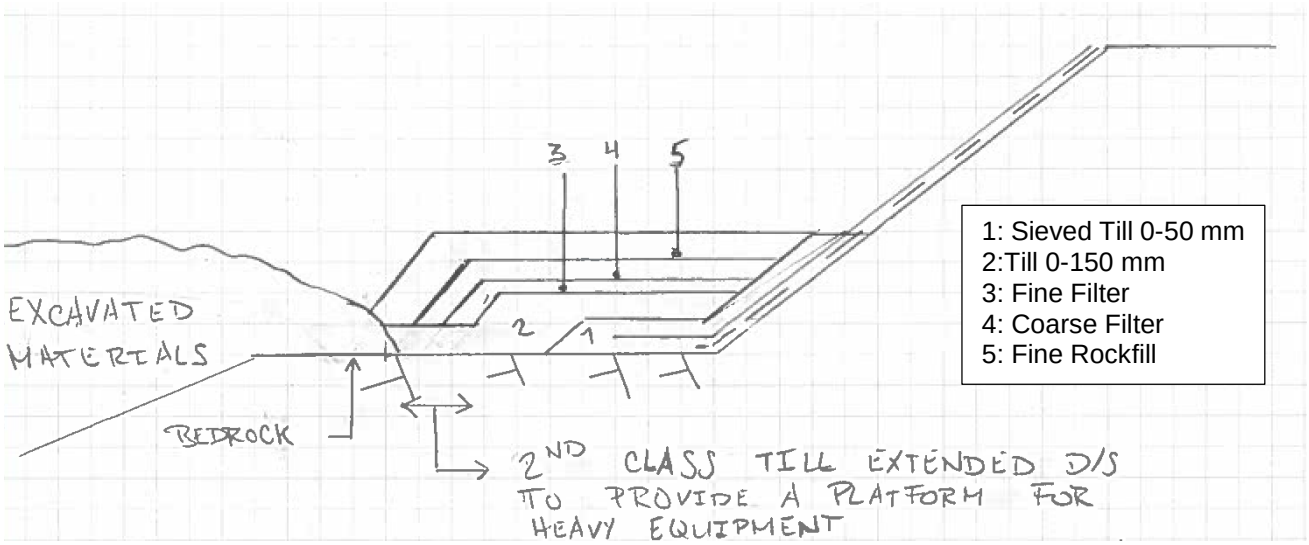


Figure 1: Proposed configuration of the Upstream Toe Liner Tie-in at SD3 and SD5

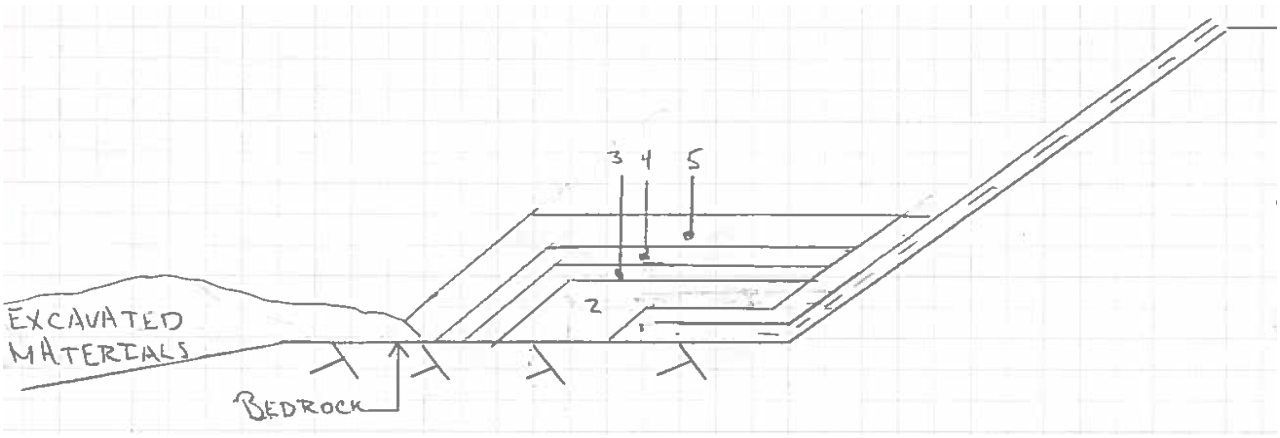


Figure 2: Configuration of the Upstream Toe Liner Tie-in as per Saddle Dam drawings

- Following the previous point, the Owner's Representatives and the QA/QC engineers checked the actual configuration of the excavation downstream of the Upstream Toe Liner Tie-In at SD3 and SD4 to evaluate whether some excavation are needed or whether the material downstream is suitable for a proper connection. The main elements that emerged from that visit are presented in the following paragraphs:

  - **SD3/South end:** The material in place downstream of the Upstream Toe Liner Tie-in appears not to be suitable to provide a proper connection. Consequently, approximately 1 m still need to be excavated to reach bedrock underneath the erosion protection layers of the Upstream Toe Liner Tie-In. A foundation approval will need to be done once the bedrock is cleaned in this area.

  - **SD3/North end:** The material in place downstream of the Upstream Toe Liner Tie-in is definitely not suitable to provide a proper connection. Consequently, the entire Upstream Toe Liner Tie-in must be seated on bedrock. The surveyor and the Owner's Representative confirmed that the actual exposed bedrock surface is wide enough to build the entire erosion protection layers.

  - **SD4/South and North ends:** The SD4 Upstream Toe Liner Tie-in involves a configuration in backfill. The entire Upstream Toe Liner Tie-in must be seated on bedrock. The surveyor and the Owner's Representative confirmed that the actual exposed bedrock surface is wide enough to build the entire erosion protection layers.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	- Excavation of the geosynthetics anchor trench from Sta. 0+450 to 0+700 approximately and from 0+850 to 0+700. The anchor trench met the Technical Specifications.

Activity or Area	Comments
	Drilling of 1 casing along the Dike crest at El. 143 m at Sta. 0+320 to install the safety system for Liner Installers working in the slope.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-in	Excavation of materials to bedrock within the footprint of the Upstream Toe Liner Tie-in from Sta. 40+630 to 40+750. This was done to ensure the Upstream Toe Liner Tie-in is not in contact with an unsuitable material.

5.0 FOUNDATION APPROVAL

FND-SD5-009 was carried out today within the footprint of the Upstream Toe Liner Tie-in downstream of the Sieved Till.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-09	SD5	Details to come	20/09/2016	Foundation approval within the Upstream Toe Liner Tie-in footprint downstream of the Sieved Till

6.0 LABORATORY AND FIELD MEASUREMENTS

Samples listed in table 4 were tested by the QA Technician. The results of the Sieved Till are compliant. The gradation curve of the Coarse Filter is not compliant, but has been accepted as is since the QC gradation curve conducted on the Coarse Filter sample from SD3 was compliant.

Table 4: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
CD-543	16/08/2016	20/08/2016	Sieved Till	Sta 0+148.4/-34.1, El.140.7 m	Gradation and WC	Compliant
SD3-05	01/08/2016	19/08/2016	Coarse Filter	Sta.20+700/-18, El.140.5 m	Gradation	Too much fines, but accepted as is

7.0 PHOTOGRAPHS



Photograph SD5-028: From Sta. 40+740/-30 looking W. Excavation of excavated materials within the Upstream Toe Liner Tie-In footprint to ensure the Liner Tie-in is not in contact with an unsuitable material.

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QA DAILY REPORT

DATE August 22, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 21, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10-20 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The QA Engineer signed the Job Hazard Analysis (JHA) of the Contractor to use the life wire along the CD crest. This JHA explains how to use the life wire and the related safety harness to work on the upstream 2H:1V slope with the Liner Contractor.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC Engineer reviewed all the PNG moisture readings and added a note on the reports regarding the 4 % offset that was applied on readings before August 19, 2016. This will ensure that all the paperwork is up to date.
- The configuration of the Upstream Toe Liner Tie-in in backfill at SD 3-4 and 5 was explained during the Daily Construction Meeting to ensure that all contributors understand it. It was recalled that the Fine and Coarse Filters should be seated on bedrock.
- It was recalled that any surface that need to be cleaned up underneath the Upstream Toe Liner Tie-In must be approved before any material is placed on it.
- The QA Engineer requested that the Sieved Till surface be sealed once again at SD3 where the excavator slightly damaged the surface. A Fine Filter spill should be cleaned up as well before the LLDPE installation.

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- The QA Engineer recalled that the 0-150 mm Till shall have a maximum particle size of 150 mm. The materiel shall be placed in a way to avoid its contamination.
- The Owner's Representative told the QA Engineer that there might be a Foundation approval needed for the bedrock under an access road between SD5 and the pipeline gauge launch pad. This will avoid excavating this area again next construction season.
- The contractor was told to place the 0-150 mm Till in 0.5 m-thick lift maximum. A lift was placed thicker, but was corrected afterwards.
- The Owner's Representative identified two Rough Till stockpiles (B and C) North of CD that might be used for 0-150 mm Till. The QC Engineer collected samples (see Table 5) in each of them and gradation results will be presented shortly.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	At all, five casings were drilled 3 m deep in the Rockfill from the CD crest at El. 143 m. Those casings are going to be used to hold the life wire which will be used by workers working on the 2H:1V LLDPE slope. Casings were drilled at Sta. 0+300, 0+455, 0+620, 0+770 and 0+900. Casings were cemented.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream slope	Clean up of the LLDPE geomembrane in view of the extrusion weld with the 2016 LLDPE. Corrections on the Fine Filter slope before the LLDPE installation at Sta. 20+620/-45 approximately.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	Clean up of the LLDPE geomembrane in view of the extrusion weld with the 2016 LLDPE. Excavation of the geosynthetics anchor trench from Sta.40+200 to 40+420.

Table 4: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-in	• Excavation of materials to bedrock within the footprint of the Upstream Toe Liner Tie-In from Sta. 40+620 to 40+615. This area was added in FND-SD5-09 and a revision of the FND survey was issued. • Placement of a first and second 0.5 m-thick lift of 0-150 mm Till within the Upstream Toe Liner Tie-In from Sta. 40+760/-67 to approximately 40+615/-45. Both lifts were compacted with a 10 t smooth drum compactor using the vibratory mode. Both lifts were tested with a Portable Nuclear Gauge (PNG). PNG readings met Specifications (see Table 5).

5.0 FOUNDATION APPROVAL

FND-SD5-009 was extended 5 m westward from the area approved on August 20, 2016. A revised drawing was issued, although the ID was maintained.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-009	SD5	Sta. 40+756/-67 to approximately 40+615/-45	21/08/2015	Foundation within the Upstream Toe Liner Tie-In. Foundation to bedrock.

6.0 LABORATORY AND FIELD MEASUREMENTS

Samples listed in table 5 were tested by the QA Technician. The results of the Sieved Till are compliant. The gradation curve of the Coarse Filter is slightly too fine but was accepted as is.

Table 6: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD3-07	13/08/2016	21/08/2016	Sieved Till	Sta 20+780/-15.5, El.140.7 m	Gradation and WC	Compliant
SD4-06	31/07/2016	21/08/2016	Coarse Filter	Sta 40+380/-31, El.140.5 m	Gradation	Slightly too fine, but accepted as is

Table 6 presents the PNG tests results and the samples collected by the QC during the reporting period.

Table 7: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

418 A to D	21/08/2016	21/08/2016	0-150 mm Till	40+642/-50 to 40+730/-54	Dry density, WC (PNG)	Dry density: 2068 to 2238 kg/m^3, WC: 6.5 to 8.3 %
419	21/08/2016	--	0-150 mm Till	Stockpile C, North CD	Gradation, WC	Not tested yet
420	21/08/2016	--	0-150 mm Till	Stockpile B, North CD	Gradation, WC	Not tested yet

7.0 PHOTOGRAPHS



Photograph SD5-029: From Sta. 0+970/-35 looking NW. Placement of a first 0.5 m-thick lift of 0-150 mm Till over bedrock within the Upstream Toe Liner Tie-In.



Photograph SD5-030: From Sta. 40+630/-7 looking N. Bedrock surface added to FND-SD5-09 following its approval. This zone was approved in order to extend the 0-150 mm Till lift to compact it with the smooth drum compactor.



Photograph SD5-030: From Sta. 40+640/-43 looking E. Placement of a second 0.5 m-thick lift of 0-150 mm Till within the Upstream Toe Liner Tie-In.



Photograph SD4-089: From Sta. 40+425/-30 looking W. Clean up of Fine Filter on the LLDPE geomembrane and excavation of the geosynthetics anchor trench.



Photograph SD3-139: From Sta. 20+620/-40 looking S. Clean up of the LLDPE geomembrane in view of the extrusion weld.



Photograph SD3-140: From Sta. 20+640/-30 looking E. Corrections on the Fine Filter slope under the LLDPE geomembrane.



Photograph SD3-141: From Sta. 20+640/-18 looking NW. LLDPE rolls are lying on a geotextile sheet to avoid damaging them.

QA DAILY REPORT

DATE August 23, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 22, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 15-20 ° C, sunny.

2.0 HEALTH AND SAFETY

- The life line must be completely installed along the CD crest before the workers start cleaning the LLDPE in view of the LLDPE installation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QC Engineer said that 2 samples were collected in Rough Till stockpiles B and C North of CD. The results will be issued shortly.
- The Owner's Representatives told the Contractor and the surveyors that a follow up is required regarding the quantities of 0-50 mm Till and 0-150 mm Till to make sure there will be no shortage of these materials this season.
- The QA Engineer briefly presented a possible configuration for the transition of the erosion protection layers from Low Quality Till to granular materials. This needs to be confirmed with the Dike's designer.
- Arrival of the Liner Contractor today. Geosynthetics installation should start on August 23rd.
- All contributors including the Liner Contractor checked the SD3 UTLT-I on the North side to find a way to install the LLDPE geomembrane properly in the area of the hump. The proposed configuration is shown below. The Liner Contractor proposed to dig a 0.5 m-deep tie-in trench in the middle on top of the hump. All

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LLDPE panels from both sides of the hump would be tied-in in the trench. Following the backfill of the trench, a LLDPE patch would then be applied on top to seal it by an extrusion weld.

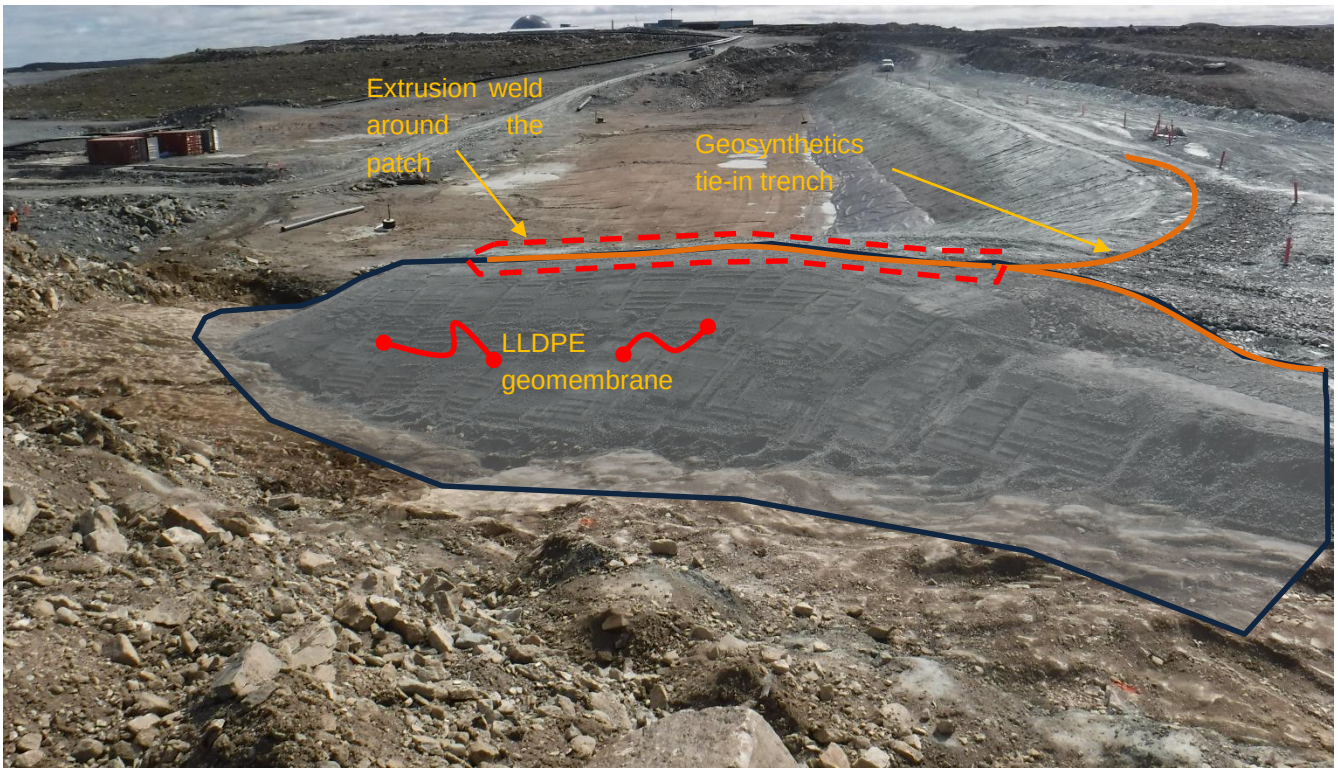


Figure 1: Proposed configuration for the LLDPE geomembrane installation on top of the hump North of SD3 (looking South).



Figure 2: Proposed configuration for the LLDPE geomembrane installation on top of the hump North of SD3 (looking West).

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream slope	Excavation of the geosynthetics anchor trench from Sta. 0+280 to 0+140.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream slope	Excavation of the geosynthetics anchor trench from Sta. 20+620/-20 to 20+775/-20 and on top of the hump North of the faulted area approximately at Sta. 20+610/-60/-45. Approbation of the foundation under geosynthetics in view of their installation from Sta. 20+590 to 20+780. The entire upstream Fine Filter slope and the Compacted 0-50 mm Till surface under the LLDPE within the Upstream Toe Liner Tie were approved.
Upstream Toe Liner Tie-In	Clean up of Fine Filter on the 0-50 mm Till surface within the Upstream Toe Liner Tie-in approximately at Sta. 20+745/-25 in view of the geosynthetics installation.

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream slope	Approbation of the foundation under geosynthetics in view of their installation from Sta. 40+440 to 40+100. The entire upstream Fine Filter slope and the Compacted 0-50 mm Till surface under the LLDPE within the Upstream Toe Liner Tie-In were approved. Some corrections are needed at the toe of the fine filter slope to provide a smooth surface for the LLDPE geomembrane approximately at Sta. 40+400/-45 (see photograph SD4-090).

Table 4: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream slope	Excavation of the geosynthetics anchor trench from Sta. 40+615 to 0+850 (on CD).

5.0 FOUNDATION APPROVAL

Foundations under the geosynthetics were approved with the Liner Contractor and the Owners' Representative at SD3 and SD4.

Table 5: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-21	SD3	Details to come	22/08/2016	Foundation approval in view of the geosynthetics installation
FND-SD4-25	SD4	Details to come	22/08/2016	Foundation approval in view of the geosynthetics installation

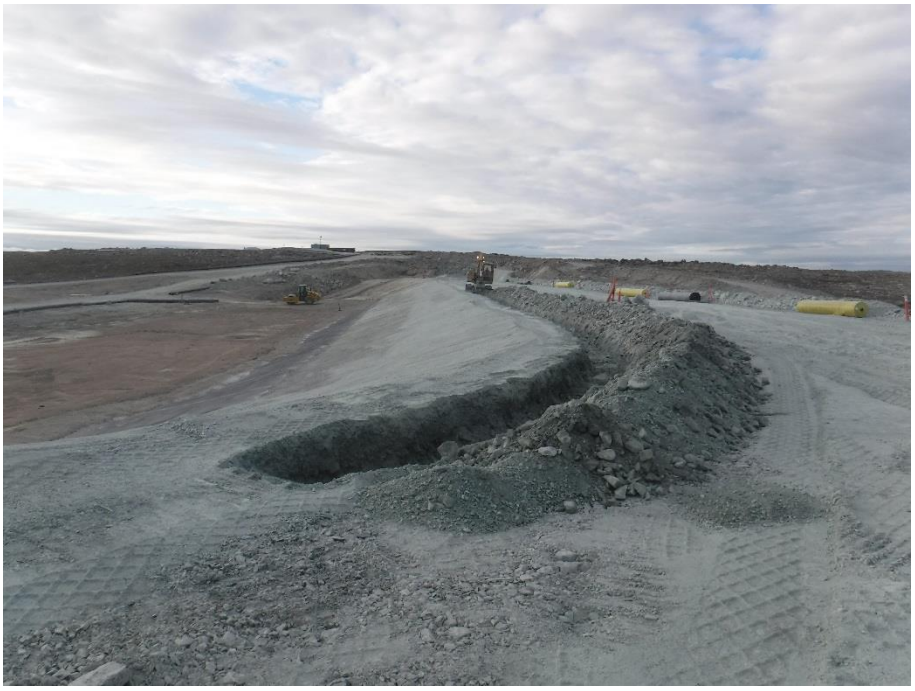
6.0 LABORATORY AND FIELD MEASUREMENTS

Samples listed in table 5 were tested by the QA Technician.

Table 6: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-05	31/07/2016	22/08/2016	Fine Filter	40+420/-34, El. 140.5 m	Gradation	Compliant
SD5-02	08/08/2016	22/08/2016	Coarse Filter	40+732/-35.3, El. 141.5 m	Gradation	Compliant

7.0 PHOTOGRAPHS



Photograph SD3-144: From Sta. 20+620/-20 looking S. Excavation of the geosynthetics anchor trench.



Photograph SD4-090: From Sta. 40+410/-39 looking W. Some corrections are needed at SD4 where the Fine Filter slope intersects the 0-50 mm Compacted Till.

QA DAILY REPORT

DATE August 24, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 23, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10-25 ° C, sunny.

2.0 HEALTH AND SAFETY

- It was recalled that geomembrane installation must be halted if wind speed exceeds 40 km/h.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Contractor told that the corrections needed on the 0-50 mm Compacted Sieved Till were made in view of the geosynthetics installation.
- The Owner's Representative told the Contributors that there might be a shortage in 0-150 mm Compacted Till.
- The Owner's Representatives want to do horizontal seams on the LLDPE geomembrane for the purpose of saving LLDPE. The QA Engineer recalled that no horizontal seams should be carried out on the LLDPE on the upstream slope as per Technical Specifications. The QA Engineer will discuss this topic with the Dike's Designer, but the Owner's Representative said that horizontal seams will made to save LLDPE.
- The QA Engineer had a discussion with the Dike's Designer about the proposed transition from a protection against erosion made of Low Quality Till to a protection made of granular materials. This was accepted as long as materials compatibility is respected, which means that the Low Quality Till can be in contact with the Fine Filter only. A layer of Coarse Filter should be placed in between the Fine Rockfill and the Fine Filter layers.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	• Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from sta. 40+110 to 40+280. • Installation of the LLDPE geomembrane on the upstream 3H:1V between El. 140 m and 143 m from sta. 40+110 to 40+260 under the supervision of the QA Engineer. The LLDPE geomembrane was free of fold and hole. Seam test results were tested under the supervision of the QA Engineer and results met Technical Specifications. The extrusion weld between LLDPE placed last year at El. 140 m and the new LLDPE was finished. The vacuum box tests have not been performed yet. They will be performed on Thursday. • One destructive test was carried out on a sample collected at Sta. 40+170/-34 on the seam between panels 517B and 518. Failure values in peel and shear met Technical Specifications. Failure values were greater than minimum values. A part of the sample was kept for the Owner's Representative. Another sample between panels 529 and 530 was collected at Sta. 40+253/-40 but destructive tests have not been carried out so far on that sample. • AM and PM calibration results met Technical Specifications. Peel and shear failure values were greater than minimum values. • Two horizontal seams were carried out on the LLDPE geomembrane at Sta. 40+170/-32 and 40+240/-35

5.0 FOUNDATION APPROVAL

None.

Table 2: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
None				

6.0 LABORATORY AND FIELD MEASUREMENTS

Samples listed in table 5 were tested by the QA Technician.

Table 3: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

7.0 PHOTOGRAPHS



Photograph SD4-091: From Sta. 40+100/-32 looking E. Installation of geotextile and LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m.



Photograph SD4-092: From Sta. 40+275/-38 looking W. Installation of LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m..



Photograph SD4-093: From Sta. 40+160/-39 looking NW. Extrusion weld between the 2015 and the 2016 LLDPE geomembrane within the Upstream Toe Liner Tie-In (West side).

QA DAILY REPORT

DATE August 25, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 24, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 20-25 ° C, sunny.

2.0 HEALTH AND SAFETY

- The job hazard analysis related to the use of special equipment along the CD crest was presented to the workers who will have to contribute to the geosynthetics installation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Owner's Representative asked if the material North of CD could be used as Low Quality Till to complete the erosion protection layers on SD3 and SD4. The QA/QC Engineers checked the material and confirmed that it could be used as Low Quality Till to complete the erosion protection layers over the Upstream Toe Liner Tie-In at SD3 and SD4. However, it is important to note that the use of Low Quality Till as an erosion protection layer over the Upstream Toe Liner Tie-in is not as robust as the initial configuration involving the granular protection. Nonetheless, Golder acknowledge that the Owner has been implemented good practices regarding the tailings deposition to avoid damaging the Upstream Toe Liner Tie-in. Hence, the use of Low Quality Till as an erosion protection layer must be associated to good tailings deposition practices.

- Following a discussion with the Dikes' designer, Golder still believed that horizontal seams shall not be conducted on the LLDPE geomembrane as per Technical Specifications. It should be noted that the International Association of Geosynthetics (IAGI) stated that it does not meet the state of practice. It is believed that this kind of seams weaken the LLDPE behavior in tension on the upstream slope of the structures and that it may contribute to damage the LLDPE once the tailings will weigh downward on it.

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- The QA Engineer recalled that the extrusion weld between LLDPE geomembranes installed in 2015 and 2016 must be tested before placing the 0-50 mm Sieved Till at SD4.
- The QA Engineer requested that the Low Quality Till surface be scarified at SD4 before the new lift placement to ensure a good contact between both layers.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	- Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from sta. 40+280 to 40+380 and within the Upstream Toe Liner Tie-in up to El. 143 m from Sta. 40+380 to 40+415. - Installation of the LLDPE geomembrane on the upstream 3H:1V slope between El. 140 m and 143 m from sta. 40+260 to 40+380 and within the Upstream Toe Liner Tie-In up to El. 143 m from Sta. 40+380 to 40+415. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The extrusion weld between LLDPE placed last year at El. 140 m and the new LLDPE was completed. The vacuum box tests have not been performed yet. They will be performed on Thursday. - Three destructive tests were carried out on samples collected at Sta. 40+253/-40, 40+350/-34 and 40+405/-31. Failure values in peel and shear met Technical Specifications. Failure values were greater than minimum values. Samples were kept for the Owner's Representative. - AM and PM calibration results met Technical Specifications. Peel and shear failure values were greater than minimum values. - One horizontal seam was carried out on the LLDPE geomembrane at Sta. 40+320/-32 between panels 539 A and B. Golder wants to note that horizontal seams shall not be carried out on the LLDPE geomembrane as per Technical Specifications as it is believed that it does not meet the state of practice as it contributes to weaken the LLDPE geomembrane. - Backfilling of the geosynthetics anchor trench from Sta. 40+240 to 40+415. - Compaction of the geosynthetics anchor trench from Sta. 40+240 to 40+415. The compaction was conducted with 4 passes of a 10 t smooth-drum vibratory compactor. The compactor kept a safe distance from the LLDPE geomembrane.

5.0 FOUNDATION APPROVAL

Foundations under the geosynthetics were approved on August 22, 2016. However, details of the foundation approvals are provided below.

Table 2: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD3-21	SD3	Sta. 20+600.86/-49.78 to 20+780.7/-35.77	22/08/2016	Foundation approval in view of the geosynthetics installation
FND-SD4-25	SD4	Sta. 40+108/-36.3 to 40+409.96/-36.76	22/08/2016	Foundation approval in view of the geosynthetics installation

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 2 presents the results of the QA laboratory tests. The Sieved Till sample is compliant. Fine Filter samples are slightly too fine but they were accepted as is. The unsieved Till sample STCK-19 is slightly too fine in its coarse fraction, however it was accepted as is. Sample SD3-04 was collected in the unisieved Till used to plug water inflows during the foundation approval downstream of SD3 within the fault area. The QA engineer present at this time judged that this material was suitable to act as a low permeability Till.

Table 3: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD5-03	19/08/2016	23/08/2016	Sieved Till	SD5, Sta. 40+632.6/-39.7, El. 140.7 m	Gradation, WC	Compliant
SD3-06	01/08/2016	23/08/2016	Fine Filter	SD3, Sta. 20+700/-19, El. 140.5 m	Gradation	Coarse fraction is slightly too fine
SD5-01	29/07/2016	23/08/2016	Fine Filter	SD5, Sta. 40+760/-36, El. 141 m	Gradation	Coarse fraction is slightly too fine
CD-542	09/08/2016	23/08/2016	Fine Filter	CD, Sta. 0+578/-13.38, El. 143 m	Gradation	Coarse fraction is slightly too fine
SD3-04	30/07/2016	24/08/2016	Compacted Till 0-150 mm	SD3, Sta. 20+620/-9	Gradation, WC	Coarse fraction is slightly too fine
STCK-19	06/07/2016	23/08/2016	Compacted Till 0-150 mm	Unsieved Till stockpile, North of CD	Gradation, WC	Coarse fraction is slightly too fine

7.0 PHOTOGRAPHS



Photograph SD4-094: From Sta. 40+185/-41 looking W. Fine Filter to be removed before the Compacted 0-50 mm Till lift is placed over the LLDPE geomembrane to complete the Upstream Toe Liner Tie-In started in 2015.



Photograph CD-1757: From Sta. 0+000/-165 looking S. Low Quality Till stockpiles that could be used to complete the Upstream Toe Liner Tie-in at SD3 and SD4. Stockpiles are actually located North of CD.



Photograph SD4-095: From Sta. 40+440/-45 looking W. Final LLDPE surface on the upstream 3H:1V slope and within the Upstream Tie Liner Tie-in.



Photograph SD4-096: From Sta. 40+385/-31 looking W. Compacted geosynthetics anchor trench.

QA DAILY REPORT

DATE August 26, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 25, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5-10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was reminded that we must get a visual contact or a radio communication with the excavator's operator working on the geosynthetics installation.
- Additional precautions must be taken for workers handling the suspended geosynthetics rolls since a retaining strap broke yesterday.
- The Liner Installer noted that the windy conditions make slightly more difficult the installation of the geosynthetics at SD3. The geosynthetics installation was halted before the end of the day because of the wind.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer confirmed that the Low Quality Till located North of CD could be used to complete the erosion protection layers at SD3 and SD4. It was also reminded that the use of Low Quality Till as an erosion protection layer over the Upstream Toe Liner Tie-In is not as robust as the initial configuration involving the granular protection. Nonetheless, Golder acknowledge that the Owner has been implemented good practices so far regarding the tailings deposition to avoid damaging the Upstream Toe Liner Tie-In. Hence, the use of Low Quality Till as an erosion protection layer must be associated to good tailings deposition practices. The Owner's Representative noted that the tailings deposition will not be carried out on the Upstream Toe Liner Tie-In too avoid damaging it.

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- There might be a shortage of Compacted Till 0-150 mm to complete the Upstream Toe Liner Tie-In according to the estimate provided by the surveyor. Looking for other sources, the QC Engineer should collect a sample on a stockpile located North of CD to assess whether this material could be used.
- The QA Engineer made a brief comeback about horizontal seams on the LLDPE installed on upstream slopes. He told that this approach does not meet the state of practice and that it is believed that this kind of seams weaken the LLDPE behavior in tension on the upstream slopes of the structures and that it may contribute to damage the LLDPE once the tailings will weigh downward on it.
- The QA Engineer summarized the different Upstream Toe Liner Tie-In configurations that could be built depending on the material upstream:
  - **SD3/South**: The material upstream of the Upstream Toe Liner Tie-In appears to be an *in situ* Till on which the Tie-In could be connected. Some excavation is still needed to reach the *in situ* Till.
  - **SD3/North**: The material upstream of the Upstream Tie Liner Tie-In is not suitable for a proper connection. Some excavation is still needed to reach the bedrock to complete the Upstream Toe Liner Tie-In and the protection layers against erosion.
  - **SD4:** The Upstream Toe Liner Tie-In should be built on bedrock for both East and West ends.
  - **SD5**: The Upstream Toe Liner Tie-In should be built on bedrock. The last foundation approval was carried out with this in mind.
  - **CD/North**: The material upstream of the Upstream Toe Liner Tie-In appears to be an *in situ* Till on which the Tie-In could be connected. Some excavation is still needed to reach the *in situ* Till at some spots.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 3

Activity or Area	Comments
Geotextile and LLDPE installation	- Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from sta. 20+610 to 20+675 and over the hump North of SD3. The geotextile surface was inspected before being covered with the LLDPE geomembrane. - Installation of the LLDPE on the upstream 3H:1V between El. 140 m and 143 m from sta. 20+610 to 20+620 and over the hump North of SD3. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests have not been performed yet.

Activity or Area	Comments
	AM and PM calibration results met Technical Specifications. Peel and shear failure values were greater than minimum values. Backfilling of the geosynthetics anchor trench on the hump North of SD3. The backfill material was compacted with a vibrating plate since this area could not be trafficked by the 10 t smooth-drum compactor.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	Vacuum tests on extrusion welds and patches were carried out from 40+110 to 40+415. No leak was identified.

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Foundation preparation	Excavation to bedrock within the Dike footprint for a crest El. at 150 m between SD4 and the pipeline gauge launch pad. This area is being cleaned up to place rockfill for a road linking SD4 and the launch pad which will be used next winter. This is being carried out in view of the next construction season to avoid having to excavate this area next year.

5.0 PHOTOGRAPHS



Photograph SD3-145: From Sta. 20+620/-80 looking W. Installation of geotextile over the upstream 3H:1V slope and over the hump North of SD3.



Photograph SD3-146: From Sta. 20+600/-67 looking S. Installation of geotextile over the upstream 3H:1V slope and over the hump North of SD3.



Photograph SD3-147: From Sta. 20+650/-30 looking N. Installation of geotextile over the upstream 3H:1V slope and over the hump North of SD3.



Photograph SD3-148: From Sta. 20+620/-84 looking W. LLDPE over the hump North of CD.



Photograph SD3-149: From Sta. 20+620/-60 looking W. Geosynthetics anchor trench on top of the hump.



Photograph SD3-151: From Sta. 20+620/-60 looking W. LLDPE patch on top of the geosynthetics anchor trench on top of the hump North of SD3.



Photograph SD3-150: From Sta. 20+610/-45 looking S. Geotextile installation on the upstream 3H:1V slope on SD3.

QA DAILY REPORT

DATE August 27, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 26, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 2-8 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The access to SD4 is narrow and haul trucks are going backwards from the airstrip road. Pick-up trucks must avoid trafficking the access when haul trucks are hauling.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer confirmed that the use of a 1 m-thick lift of Fine Rockfill is suitable over the Low Quality Till placed last year at SD3 and SD4. It has not been decided yet whether Low Quality Till or Fine Rockfill will be used to complete the erosion protection of the SD3-SD4 Upstream Toe liner Tie-In. The owner's Representative will communicate his choice shortly.
- The geotextile and the LLDPE surfaces were approved at SD4, and the placement of Compacted 0-50 mm Till started today.
- The three week planning meeting was today.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in

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conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 3

Activity or Area	Comments
Geotextile and LLDPE installation	Installation of the geotextile on the upstream 3H:1V between El. 140 m and 143 m from sta. 20+675 to 20+790. The geotextile surface was inspected before being covered with the LLDPE geomembrane. Installation of the LLDPE on the upstream 3H:1V between El. 140 m and 143 m from sta. 20+620 to 20+790. The LLDPE was free of fold and hole. Seam tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests met Technical Specifications. Some leaks were found during the air tests and the vacuum tests. Leaks were repaired by the Liner Installer. AM and PM calibration results met Technical Specifications. Peel and shear failure values were greater than minimum values. Destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 20+640/-33 and 20+720/-29. Tests results met Technical Specifications. Samples were kept for the Owner's Representative. Backfilling and compaction of the geosynthetics anchor trench from Sta. 20+620 to 20+790. The compaction was carried out with 4 passes of a 10 t smooth-drum vibratory compactor and supervised by the QC Engineer.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Geotextile and LLDPE installation	A leak was found during the vacuum tests on August 25, 2016. The leak was corrected at the end of the day. The leak is not within the Upstream Toe Liner Tie-in that was was backfilled during the reporting period.
Upstream Toe Liner Tie-In	Placement of a first 0.5 m-thick lift of Compacted 0-50 mm Till over the LLDPE geomembrane from sta. 40+370/-40 to 40+415/-25. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG testings were done on the compacted 0-50 mm Till. All results met specifications (see table 3). Placement of a second and third 0.5 m-thick lifts of Compacted 0-150 mm Till over the LLDPE geomembrane from sta. 40+362/-40 to 40+415/-25. The lifts were compacted using a 10 t smooth-drum vibratory compactor. The equipment kept a safe distance to ensure there a minimum thickness of 1 m over the LLDPE. PNG testings were done on the compacted 0-50 mm Till. All results met specifications (see table 3)

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 3 presents the PNG tests results made by the QC during the reporting period.

Table 3: QC PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
421 A to D	26/08/2016	26/08/2016	Compaction 0-50 mm Till	40+372/-49.1 to 40+398/-46.0, El. 139 to 141 m	Dry density, WC (PNG)	Dry density: 2056 to 2227 kg/m^3, WC: 7.0 to 8.4 %
422 A to H	26/08/2016	26/08/2016	Compaction 0-150 mm Till	40+362/-45 to 40+397/-43	Dry density, WC (PNG)	Dry density: 2140 to 2340 kg/m^3, WC: 6.0 to 7.6 %

As showed in table 4, a sample of Compacted 0-50 mm was collected at SD-4. The sample will be tested once the QA technician is back on site.

Table 4: Samples Tested by the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
SD4-07	26/08/2016	--	Compacted 0-50 mm Till	40+368.9/-41.8, El. 140.1 m	Gradation, WC	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD3-152: From Sta. 20+800/-49 looking N. LLDPE geomembrane installation on the upstream 3H:1V slope between El. 140 m and 143 m and within the Upstream Toe Liner Tie-In.



Photograph SD4-097: From Sta. 40+360/-42 looking E. Placement of the second 0.5 m-thick lift of Compacted 0-150 mm Till within the Upstream Toe Liner Tie-In.

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QA DAILY REPORT

DATE August 28, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 27, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 2-8 ° C, cloudy and rainy.

2.0 HEALTH AND SAFETY

- The LLDPE geomembrane is slippery due to rain.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Contractor was told to clean up the Fine Filter entrapped between the Geotextile underlying the erosion protection layers and the LLDPE at El. 137 m at SD5/CD.
- The Liner Installer told the Contractor to clean the Till ledge at the toe of the Fine Filter slope at SD5 in view of the geosynthetics installation. This was corrected in AM.
- The QA Engineer recalled that no Till placement should be carried out if it is rainy.
- The Owner's Representative confirmed that he wants to complete the erosion protection layers with Low Quality Till over the SD3 Upstream Toe Liner Tie-In.
- The Owner's Representative confirmed that he wants to complete the erosion protection layer with a 1 m-thick lift of Fine Rockfill over the SD4 Upstream Toe Liner Tie-In started last year. The QA Engineer reminded that the material shall be well graded. The Upstream Toe Liner Tie-In that was built this season will be made of granular materials as per Drawings.

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- Geotextile and Compacted Till placement was stopped before lunch due to rain. No LLDPE geomembrane placement was made during today.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 5

Activity or Area	Comments
Geotextile and LLDPE installation	- Installation of the geotextile on the upstream 3H:1V to 2H:1V slope between El. 137 m and 143 m from sta. 40+803 to 40+660. The geotextile surface was inspected but has not been covered yet by the LLDPE geomembrane. - Despite no LLDPE geomembrane was placed in AM, calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications.

Table 2: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	- Installation of the geotextile on the upstream 3H:1V to 2H:1V slope between El. 137 m and 143 m from sta. 0+980 to 0+875. The geotextile surface was inspected but has not been covered yet by the LLDPE geomembrane. - Clean up of the Fine Filter lying on the LLDPE Geomembrane at El. 137 m in view of the geosynthetics installation. - Despite no LLDPE geomembrane was placed in AM, calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	- Placement of a first 0.5 m-thick lift of Compacted 0-50 mm Till over the LLDPE geomembrane from sta. 20+620/-61 to 20+635/-64. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. No PNG test has been carried out yet since the Till placement was stopped due to rain.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-10	SD5	Sta. 40+623.5/-35.42 to 40+784.01/-35.45	27/08/2015	Foundation approval in view of the geosynthetics installation
FND-CD-134	CD	Sta. 0+132.5/-32.11 to 0+970.97/-35.96	27/08/2015	Foundation approval in view of the geosynthetics installation
LLDPE-SD3-002	SD3	Sta. 20+599.05/-47.6 to 20+787.81/-34.42	27/08/2015	Geosynthetics approval on the upstream 3H:1V slope and within the Upstream Toe Liner Tie-In
LLDPE-SD4-002	SD4	Sta. 40+111.64/-38.46 to 40+414.20/-35.81	27/08/2015	Geosynthetics approval on the upstream 3H:1V slope and within the Upstream Toe Liner Tie-In

6.0 PHOTOGRAPHS



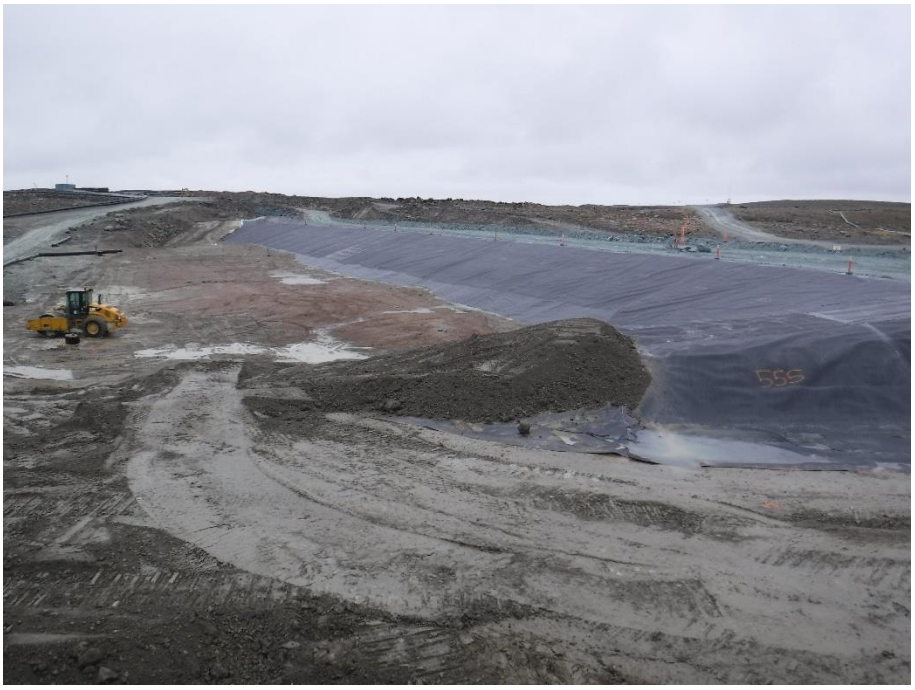
Photograph SD5-032: From Sta. 40+650/-42 looking E. Till ledge to be corrected in view of the geosynthetics installation.



Photograph CD-1758: From Sta. 40+645/-22 looking NE. Installed geotextile on the upstream slope (2H:1V to 3H:1V) between El. 137 and 143 m.



Photograph CD-1759: From Sta. 0+955/-56 looking N. Fine Filter lying on the LLDPE geomembrane that must be cleaned up before the end of the construction season.



Photograph SD3-153: From Sta. 20+600/-73 looking SW. Placement of a 0.5 m-thick lift of Compacted 0-50 mm Till over the LLDPE geomembrane.

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QA DAILY REPORT

DATE August 29, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 28, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5-10 ° C, cloudy and sunny.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The surveyor noted that the LLDPE geomembrane was not long enough within the Upstream Toe Liner Tie-In at SD3/South side. The Liner Installer will come back to SD3 to extend it upstream within the Till plug.
- There was no Compacted Till placement today due to field conditions. The Till surface was too humid after yesterday's rain and would not allow a proper placement and compaction.
- All LLDPE geomembrane rolls stored at CD are lying on a geotextile sheet to avoid damaging them.
- The QA Engineer measured the LLDPE specimen width used to measure the load at failure in peel and shear according to ASTM standard D6392. They are generally 1.05 to 1.15 inches instead of 1.0 inch. Loads at failure that were measured so far were thus normalized for a width of 1 inch and they still meet Technical Specifications. This was communicated to the QC of the Liner Installer.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Saddle Dam 5

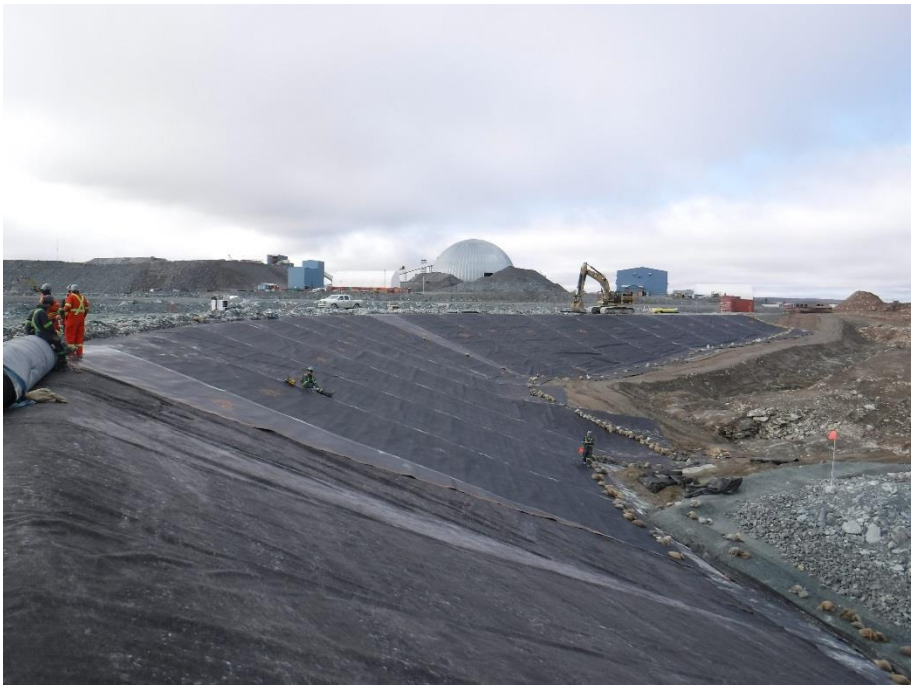
Activity or Area	Comments
Geotextile and LLDPE installation	Installation of the geotextile on the upstream 3H:1V slope between El. up to El. 143 m from sta. 40+660 to 40+630. The geotextile surface was inspected before being covered by the LLDPE geomembrane. Installation of the LLDPE on the upstream 3H:1V up to El. 143 m from sta. 40+630 to 40+803. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests have not been conducted yet. AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. Two destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 40+665/-27 (DT-53) and 40+775/-30 (DT-54). Tests results met Technical Specifications. Samples were kept for the Owner's Representative. Some additional LLDPE sheets were placed onto the Till within the Upstream Toe Liner Tie-In to ease the welding of the panels as the Till surface was humid. Backfilling and compaction of the geosynthetics tie-in from Sta 40+630 to 40+803. The compaction was conducted with 4 passes of a 10 t smooth-drum vibratory compactor under the supervision of the QC. The compactor kept a safe distance from the LLDPE geomembrane. No horizontal seam was made on the LLDPE geomembrane installed at SD5.

Table 2: QA Observations for Central Dike

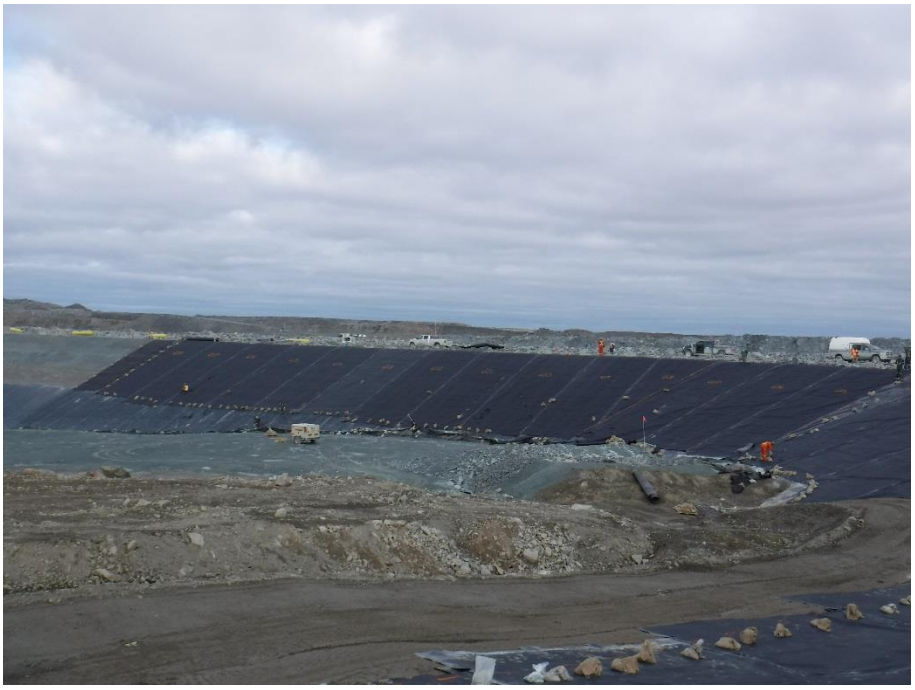
Activity or Area	Comments
Geotextile and LLDPE installation	Installation of the LLDPE on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+980 to 0+880. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests have not been conducted yet.

Activity or Area	Comments
	AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. Two destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+915/-30 (DT-55) and 0+970/-32 (DT-56). Tests results met Technical Specifications. Samples were kept for the Owner's Representative. Backfilling and compaction of the geosynthetics tie-in from Sta 0+980 to 0+880. The compaction was conducted with 4 passes of a 10 t smooth-drum vibratory compactor under the supervision of the QC. The compactor kept a safe distance from the LLDPE geomembrane.

5.0 PHOTOGRAPHS



Photograph SD5-033: From Sta. 0+955/-30 looking SW. LLDPE installation on the SD5 upstream 3H:1V slope between El. 137 m to 143 m.



Photograph CD-1760: From Sta. 40+650/-25 looking NE. LLDPE installation on the CD upstream 2H:1V slope between El. 137 m to 143 m.

QA DAILY REPORT

DATE August 30, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 29, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 2-8 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The presentation/training about the use of the safety equipment was presented to workers who are going to work on the upstream CD 2H:1V slope along the South Cell tailings pond.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The contributors had a discussion about the configuration of the Upstream Toe Liner Tie-In North of the hump at SD3. The actual layout of the hump North of SD3 results in a Low Quality Till layer that is higher in elevation than the LLDPE Geomembrane in this area. As Low Quality Till can't be in contact with the LLDPE Geomembrane a Compacted Sieved Till layer would have been required underneath. In order to save on Compacted Sieved Till, it was decided to stop the Low Quality Till lift at the crest of the hump. The proposed configuration is showed in Photograph SD3-154. This configuration meets Technical Specifications.

- The Owner's Representative asked if some overburden stockpiles at the waste dump could be used as Low Quality Till. QA/QC checked the material and concluded that it was not suitable to be used as Low Quality Till.

- AT SD3, the QC Technician made request that some soft spots of Compacted Sieved Till be excavated and replaced by a suitable Till and then compacted once again (see Photograph SD3-155). This area of Compacted Sieved Till was placed on August 27 before the Till placement was stopped due to rain. The corrections were carried out during the day.

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- There were some discussions about where to stop the Compacted Sieved Till on top of the hump North of SD3 to ease the extrusion weld with the LLDPE for next construction season.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	- Installation of geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+880 à 0+810. The geotextile was inspected before being covered by the LLDPE geomembrane. - Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+880 to 0+810. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests have not been conducted yet on this portion. - Vacuum box tests from Sta. 0+980 to 0+885. Two leaks were detected and corrected afterwards. - AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. - One horizontal seam was carried out on the LLDPE geomembrane approximately at Sta. 0+850.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Geotextile and LLDPE installation	- Vacuum box tests from Sta. 40+630 à 40+803. No leak has been identified.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane from sta. 20+595/-45 to 20+625/-65. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 4). Placement of a first 0.5-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 20+595/-45 to 20+625/-65. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 4). Although results met Specifications, moisture contents were too high to allow for a proper Till placement, according to the QC. This must be discussed at the next Daily Construction Meeting. The Compacted Till 0-150 mm stockpile might need to be opened for drying.
Geotextile and LLDPE geomembrane	The LLDPE geomembrane was extended 1 m upstream within the Compacted Sieved Till plug to meet a width of 3 m at Sta. 20+760/-63.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

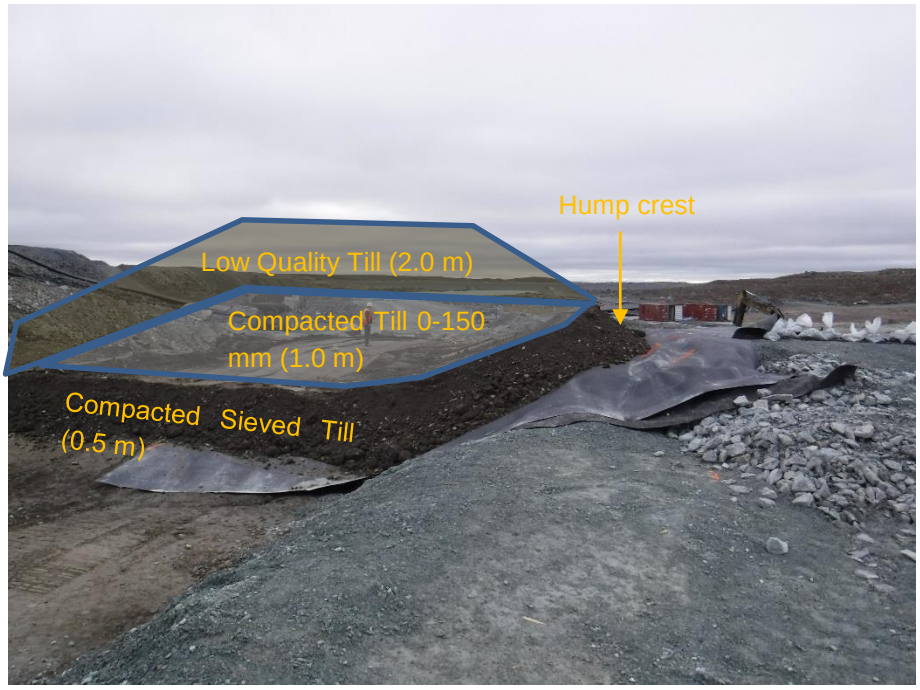
Table 4: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
423 A to D	29/08/2016	29/08/2016	Compacted Sieved Til	Sta. 20+600/-55 to 20+665/-70, El. 140 m to 143 m	Dry density, WC (PNG)	Dry density: 2081 to 2157 kg/m^3, WC: 8.3 to 8.8 %
424 A to D	29/08/2016	29/08/2016	Compacted 0-150 mm Till	Sta. 20+600/-55 to 20+665/-70, El. 140 m to 143 m	Dry density, WC (PNG)	Dry density: 8.4 to 9.8 kg/m^3, WC: 2037 to 2117 %

6.0 PHOTOGRAPHS



Photograph SD5-034: From Sta. 40+760/-32 looking N. Clean up of Fine Filter entrapped in between the LLDPE geomembrane and the geotextile.



Photograph SD3-154: From Sta. 20+600/-39 looking E. Upstream Toe Liner Tie-In configuration North side of the SD3 hump.



Photograph SD3-155: From Sta. 20+615/-57 looking E. Compacted Sieved Till that must be excavated. The material was too soft to be compacted after the rain on August 27. It was replaced by a competent Till and compacted afterwards.



Photograph SD3-156: From Sta. 20+745/-50 looking SW. The LLDPE was extended upstream within the Upstream Toe Liner Tie-In to meet the 3 m-wide strip within the Till plug.



Photograph SD3-157: From Sta. 20+590/-38 looking E. Placement of a first 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In

QA DAILY REPORT

DATE August 31, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 30, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 2-8 ° C, cloudy.

2.0 HEALTH AND SAFETY

- Everything went well about the use of the safety harness on August 29. It didn't cause a significant delay on the geosynthetics installation.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Engineer noted that some precautions must be taken at SD3 when placing the Low Quality Till to avoid that boulders fall down on the LLDPE geomembrane. As per Doc1514 1528661 TME Rev0 - *SDs Change US toe liner Backfill,* the Low Quality Till could be placed in lift of 1 m and the material should not contain particle exceeding 500 mm.

- At SD3, the QA Engineer asked to remove Fine Filter onto the Compacted Sieved Till lift before the placement of the next lift.

- According to the QC, two distinct Proctor values should have been defined for the Compacted Sieved Till and the Compacted 0-150 mm Till. Moreover, a correction that accounts for the stone fraction should have been applied according to ASTM standard D698. If a correction is applied, optimum dry densities of about 2225 kg/m³ and 2270 kg/m³ are obtained, respectively for the Sieved and the Unsieved Till. Actually, an optimum dry density of 2100 kg/m³ was selected with an optimum water content of 8.5 % based on a Proctor test with no stone correction and a field test pad, both carried out earlier this season. This single value has been selected historically for both the Compacted Sieved Till for and the Compacted Unsieved Till. Although, it

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does not meet the ASTM standard, it was decided during the Daily Construction Meeting to keep going with a single value with no stone correction as it has been done so far. It is important to note that based on field observations the resulting Till behavior during the compaction with those criteria is still good for both type of Till.

- According to the QC, moisture contents for the Compacted 0-150 mm Till are slightly too high (~9.0 %) which make difficult the Till placement. However, PNG results still meet Technical Specifications based on optimum dry density and water content respectively of 2100 kg/m³ and 8.5 %. It was thus decided during the Daily Construction Meeting to keep going when optimum criteria are met. In the event moisture contents would be greater than 9.5 %, the Owner's Representative suggested to add bentonite clay within the Till to lower the moisture content. QA/QC noted that this approach might make Quality Control more difficult as it is a new material and that bentonite/Till mix might be variable.

- The Owner's Representative presented the layout of the CD deposition points that will be built this year. This layout includes the following (see Figure 1 below):

  - A geotextile sheet over the existing LLDPE geomembrane installed on the upstream 2H:1V slope;
  - 2 additional layers of LLDPE geomembrane welded to the underlying LLDPE geomembrane, and
  - Used conveyor belts overlying the additional LLDPE sheets.

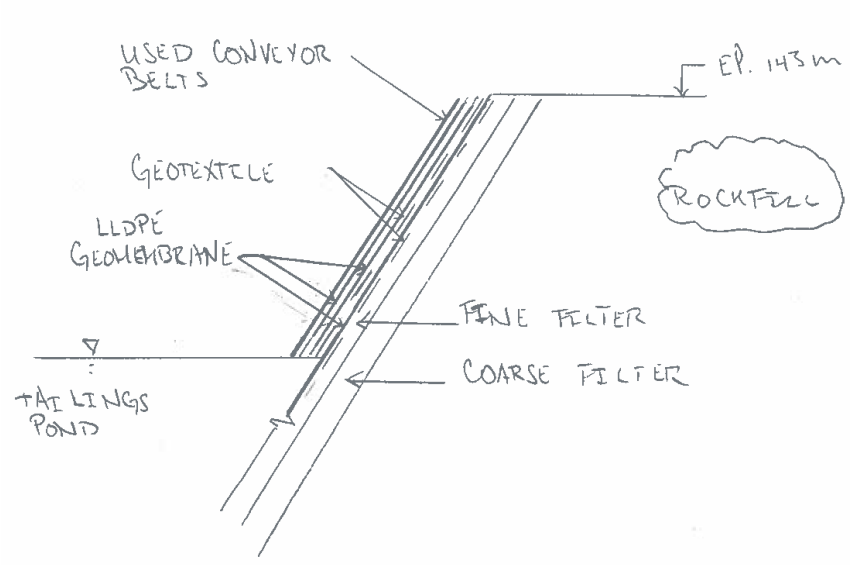


Figure 1: Proposed layout for CD tailings deposition points

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	Installation of geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+810 à 0+670. The geotextile was inspected before being covered by the LLDPE geomembrane. Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+810 to 0+720. The LLDPE installation was stopped at 3PM due to high wind. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. The vacuum box tests have not been conducted yet on this portion. AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. Three destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+835/-31 (DT-57), 0+790/-25 (DT-58) and 0+730/-30 (DT-59). Tests results met Technical Specifications. Samples were kept for the Owner's Representative. One horizontal seam was carried out on the LLDPE geomembrane approximately at Sta. 0+795.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane from sta. 20+745 to 20+790. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 5). Placement of a first 0.5-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 20+740 to 20+780. The lift was compacted with a 10 t smooth-drum vibratory compactor while keeping a minimum thickness of 1 m in between the LLDPE geomembrane and the drum. PNG tests were conducted and results met Technical Specifications (see table 5).

Table 3: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane from sta. 40+160 to 40+115. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 5).

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. This Foundation Approval refers to the geosynthetics surface on the SD5 upstream 3H:1V slope and within the Upstream Toe Liner Tie-In.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-SD5-02	SD5	Sta. 40+638.4/-38.35 to approximately 40+784.01/-35.45	30/08/2016	Foundation within the Upstream Toe Liner Tie-In. Foundation to bedrock.

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 5 presents the PNG tests results measured by the QC during the reporting period as well as the laboratory test results. Results of sample 416 collected as-placed on SD5 are compliant. Results from sample 419 are compliant, but results from sample 420 showed a material slightly too fine with a compliant water content. Based on laboratory results from samples collected in stockpiles B and C, it was recommended to mix those two stockpiles as they are quite small (350 m³ each).

Table 5: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
416	19/08/2016	29/08/206	Compacted Sieved Till	40+633.1/-39.7, El. 140.6 m	Gradation, WC	Compliant
419	21/08/2016	30/08/206	Compacted Till 0-150 mm	Stockpile C North CD	Gradation, WC	Compliant
420	21/08/2016	30/08/206	Compacted Till 0-150 mm	Stockpile B North CD	Gradation, WC	Gradation slightly too fine but WC compliant
425 A to D	30/08/2016	30/08/2016	Compacted Sieved Till	SD3/Sta. 20+752/-50.7 to 20+784/-37.2, El. 138.8 m to 143.5 m	Dry density, WC (PNG)	Dry density: 2046 to 2120 kg/m³, WC: 8.4 to 9.2 %
426 A to D	30/08/2016	30/08/2016	Compacted 0-150 mm Till	SD3/Sta. 20+749/-50.0 to 20+772/-	Dry density, WC (PNG)	Dry density: 2078 to 2120

				41.3, El. 139.1 m to 142.0 m		kg/m^3, WC: 8.7 to 9.6 %
427 A to D	30/08/2016	30/08/2016	Compacted Sieved Till	SD4/Sta. 40+117/-45.4 to 40+151/-53.6, El. 138.1 m to 141.1 m	Dry density, WC (PNG)	Dry density: 2138 to 2188 kg/m^3, WC: 7.3 to 8.4 %

7.0 PHOTOGRAPHS



Photograph CD-1761: From Sta. 0+820/-30 looking N. Installation of geotextile on the upstream 2H:1V slope between El. 137 m and 143 m.



Photograph SD3-158: From Sta. 20+800/-43 looking N. Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane within the Upstream Toe Liner Tie-In and onto the upstream 3H:1V slope.



Photograph SD3-159: From Sta. 20+740/-50 looking S. Placement of the first 0.5 m-thick lift of Compacted 0-150 mm Till over the Compacted Sieved Till.



Photograph SD4-098: From Sta. 40+105/-30 looking E. Placement of the first 0.5 m-thick lift of Compacted Sieved Till above the LLDPE geomembrane.

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QA DAILY REPORT

DATE September 1, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michaël D.Bonin **EMAIL** mdemersbonin@golder.com

QA DAILY REPORT FOR AUGUST 31, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 2-8 ° C, cloudy.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Rough Till Stockpiles B and C were mixed together as recommended by QA/QC based on laboratory results 419 and 420.
- At Sta. 0+620/CD, the QA Engineer asked to remove Fine Filter over the geotextile before the LLDPE installation.
- The QA engineer reminded that as per Doc1514 1528661 TME Rev0 - *SDs Change US toe liner Backfill,* the Low Quality Till could be placed in lift of 1 m and the material should not contain particle exceeding 500 mm.
- There might be a shortage of Compacted Till 0-150 mm to complete the Upstream Toe Liner Tie-In this season. The Owner's Representative agreed to use Compacted Sieved Till instead of Compacted Till 0-150 mm when this latter will be depleted.
- There was no geosynthetics installation in PM since it was too windy.
- The following configuration (see Figure 1) was adopted to complete the protection against erosion over the 1m-thick lift of Low Quality Till placed last year at SD4.

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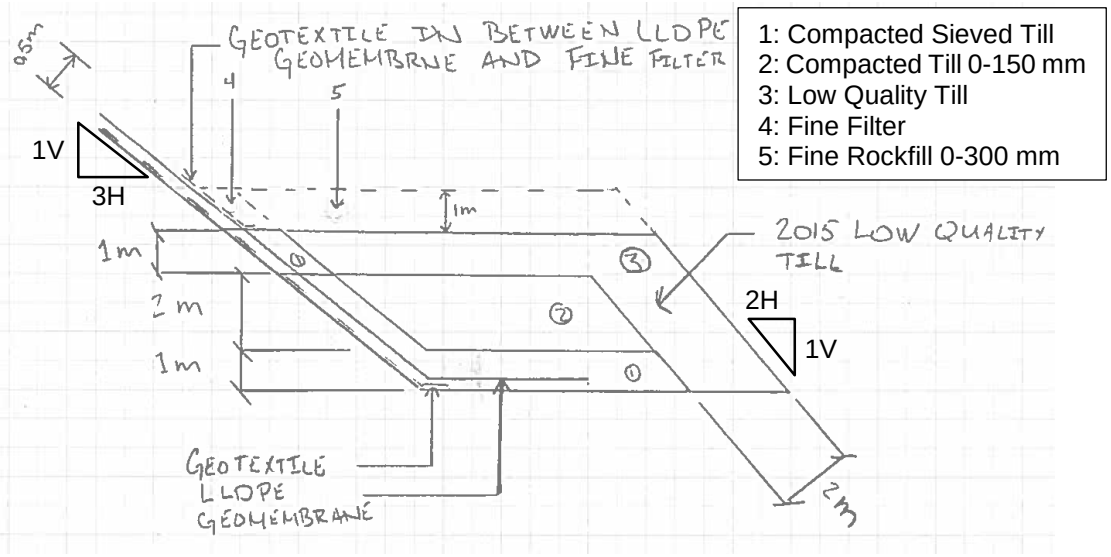


Figure 1: Configuration of the SD4 protection against erosion over the Low Quality Till placed last year.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+720 to 0+670. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. Vacuum box tests were conducted from 0+880 to 0+690. One leak was found. The leak will be repaired shortly. AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. PM calibrations involved the extrusion weld only as no LLDPE panels were installed in PM. One destructive test was carried out on a sample collected on the LLDPE geomembrane at Sta. 0+680/-30 (DT-60). Tests results met Technical Specifications. A sample was kept for the Owner's Representative.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	Placement of a first 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 40+160 to 40+115 over the Compacted Sieved Till. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream while ensuring a minimum thickness of 1 m in between the LLDPE and the drum. PNG tests were conducted and results met Technical Specifications (see table 5).

Table 3: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-In	Excavation of the fractured bedrock that needed to be removed in view of the foundation approval FND-SD5-11 under the granular protection against erosion at Sta. 40+750/-50. Completion of the placement of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 40+750 to 40+640. The lift was compacted with a 10 t smooth-drum vibratory compactor on top and with the bucket of the excavator on the slope. No PNG test has been conducted since the lift was not wide enough. Placement of a 0.5 m-thick lift of Fine Filter as erosion protection within the Upstream Toe Liner Tie-In from sta. 40+750 to 40+640. The material was compacted on the slope with the bucket of the excavator and on top with 4 passes of a 10 t smooth-drum vibratory compactor. The material was seated on bedrock. Placement of a 0.5 m-thick lift of Coarse Filter as erosion protection within the Upstream Toe Liner Tie-In from sta. 40+750 to 40+640. The material was compacted on the slope with the bucket of the excavator and on top with 4 passes of a 10 t smooth-drum vibratory compactor. The material was seated on bedrock. Placement of a 1.0 m-thick lift of Fine Rockfill as erosion protection within the Upstream Toe Liner Tie-In from sta. 40+750 to 40+640. The material has not been compacted yet. The material was seated on the excavated materials upstream.

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-11	SD5	Details to come	31/08/2016	Foundation under the granular protection against erosion within the Upstream Toe Liner Tie-In
LLDPE-CD-27	CD	Sta. 0+820.5/-41.58 to 0+970.97/-35.96	31/08/2016	Geosynthetics approval

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 5 presents the PNG tests results measured by the QC during the reporting period on the Compacted Till 0-150 mm at SD4.

Table 5: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
428 A to D	31/08/2016	31/08/2016	Compacted 0-150 mm Till	SD4/Sta. 40+118/-43.3 to 40+153/-54, El. 138.5 m to 141.0 m	Dry density, WC (PNG)	Dry density: 2121 to 2243 kg/m^3, WC: 6.9 to 8.7 %

7.0 PHOTOGRAPHS



Photograph SD5-035: From Sta. 40+620/-34 looking E. Placement of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In in view of the placement of the granular protection against erosion.



Photograph SD5-036: From Sta. 40+750/-50 looking S. Fractured bedrock that was removed in view of the foundation approval FND-SD5-11 under the granular protection against erosion.



Photograph SD5-037: From Sta. 40+740/-64 looking W. Placement of 0.5 m-thick lifts of Fine and Coarse Filter as a protection against erosion onto the slope of the Upstream Toe Liner Tie-In. Both materials were seated on bedrock.



Photograph SD5-038: From Sta. 40+640/-44 looking W. Placement of Fine Rockfill as the erosion protection of the upstream Toe Liner Tie-In. The Fine Rockfill was seated on the excavated materials upstream.

QA DAILY REPORT

DATE September 2, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 1, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0-5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- None.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Erratum:
  - There has been some geoxtextile installation on August 31. Geotextile was installed approximately on the CD upstream 2H:1V slope between El. 137 m and 143 m from Sta. 0+670 to 0+630.
  - The LLDPE geomembrane installation ended up at Sta. 0+635 instead of 0+670 as noted in the Daily Report for August 31, 2016.
- Finally, it was decided to use Compacted Sieved Till over the LLDPE geomembrane to complete the protection against erosion placed last year at SD4 (see Figure 1 below). Initially, a geotextile sheet and Fine Filter was to be placed as shown in Figure 1 of the daily report for August 31.

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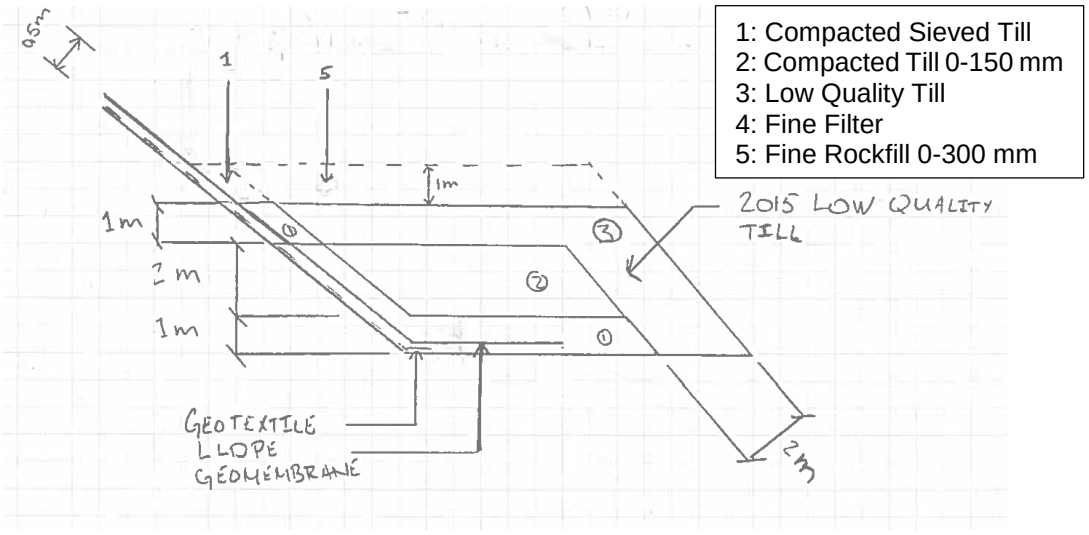


Figure 1: Configuration to complete the SD4 protection against erosion started last year with Low Quality Till.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from sta. 0+630 to 0+490. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+635 to 0+500. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ Three destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+630/-26 (DT-61), 0+575/-26 (DT-62), 0+515/-26 (DT-63). Tests results met Technical Specifications. Samples were kept for the Owner's Representative.

Activity or Area	Comments
	■ One horizontal seam was carried out on the LLDPE geomembrane approximately at Sta.0+560.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane from sta. 40+750 to 40+630. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 4). ■ Placement of a first 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 40+750 to 40+630. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 4).

5.0 FOUNDATION APPROVAL

The following foundation approvals were carried out during the reporting period.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
FND-SD5-11	SD5	Sta. 40+745/-63 to 40+758/-64 and 40+750/-67 to 40+760/-68	31/08/2016	Foundation under the granular protection against erosion within the Upstream Toe Liner Tie-In

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 4: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
429 A to F	01/09/2016	01/09/2016	Compacted Sieved Till	SD5/Sta. 40+757/-57.4 to 40+639/-46.8 El. 136 to 140.0 m	Dry density, WC (PNG)	Dry density: 2106 to 2163 kg/m^3, WC: 7.5 to 8.6 %

430 A to F	01/09/2016	01/09/2016	Compacted till 0-150 mm	SD5/Sta.40+757/-59.3 to 40+636/-45.5 El. 137 to 141.4 m	Dry density, WC (PNG)	Dry density: 2096 to 2195 kg/m^3, WC: 7.3 to 9.1 %

7.0 PHOTOGRAPHS



Photograph SD5-039: From Sta. 0+950/-21 looking SW. Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLLDPE geomembrane.



Photograph CD-1762: From Sta. 0+490/-26 looking S. Geotextile and LLDPE installation on the CD upstream 2H:1V slope between El. 137 m to 143 m.

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QA DAILY REPORT

DATE September 3, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 2, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0-5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was mentioned that the workers on CD are doing a good work with the life line system. They must continue to work properly and safely.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that a strip of two meters width approximately needs to be excavated to the rock on the west part of SD4 (from Sta.40+100 to 40+160). The fine and coarse filters of the granular protection must end on the rock surface.
- The three weeks meeting planning was today.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from sta. 0+490 to 0+360. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+490 to 0+360. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ Three destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+455/-26 (DT-64), 0+395/-26 (DT-65), 0+335/-26 (DT-66). Tests results met Technical Specifications. Samples were kept for the Owner's Representative. ■ Three horizontal seams were carried out on the LLDPE geomembrane approximately at Sta.0+490, 0+440 and 0+380.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a second 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 40+120 to 40+180. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 4). ■ Placement of a 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane to complete the protection against erosion placed last year from sta. 40+180 to 40+220 and from sta.40+300 to 40+360. The lift was compacted using the bucket of the excavator.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a second 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 20+780 to 20+740. The lift will be compacted tomorrow.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 4: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
431 A to H	02/09/2016	02/09/2016	Compacted till 0-150 mm	SD5/Sta. 40+761/-59 to 40+640/-40,6 El. 137.5 to 141.9.0 m	Dry density, WC (PNG)	Dry density: 2105 to 2242 kg/m^3, WC: 6.0 to 8.1 %
432 A to D	02/09/2016	02/09/2016	Compacted till 0-150 mm	SD4/Sta.40+160/-47.8 to 40+122/-39.3 El. 139.3 to 141.8 m	Dry density, WC (PNG)	Dry density: 2155 to 2301 kg/m^3, WC: 5.4 to 8.2 %

6.0 PHOTOGRAPHS



Photograph SD4-099: From Sta. 40+360/-35 looking W. Placement of a 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane to complete the protection against erosion placed last year.



Photograph SD3-160: From Sta. 20+780/-40 looking S. Placement of the second 0.5 m-thick lift of Compacted till 0-150 mm.

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QA DAILY REPORT

DATE September 4, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 3, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0-5 ° C, rainy.

2.0 HEALTH AND SAFETY

- It was discussed that the LLDPE geomembrane will be very slippery because of the rain. Be careful when walking on.
- Mitigation activities on Stormwater Dike will begin soon. The co-activities on SD road will increase considerably, care must be taken.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Second Class Till (0-150 mm) sorting of the stockpile north of CD is done.
- The QA manager reminded that a section of the north part of SD3 needs to be excavated to the rock, ice poor till or natural soil for the placement of the granular protection.
- Due to rain, no geotextile or LLDPE geomembrane placement was made during the day.
- The QA manager reminded that the compaction of the granular protection has to be supervised the same as it was for the other structures of the dike.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Backfilling and compaction of the geosynthetics tie-in from Sta 0+860 to 0+370. The compaction will probably be completed tomorrow.

Table 2: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a second 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie-In from sta. 20+630 to 20+600. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 3). ■ Placement of the first 1.0 m-thick lift of the granular protection of Compacted Low Quality Till 0-500 mm from sta. 20+630 to 20+600. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a second 1.0 m-thick lift of the granular protection of Compacted Low Quality Till 0-500 mm from sta. 20+640 to 20+630. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 3: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
433 A to C	03/09/2016	03/09/2016	Compacted till 0-150 mm	SD3/Sta. 20+770/-42 to 20+750/-51.7 El. 142 to 139.8 m	Dry density, WC (PNG)	Dry density: 2192 to 2330 kg/m^3, WC: 5.9 to 8. %

434 A to D	03/09/2016	03/09/2016	Compacted till 0-150 mm	SD3/Sta.20+633/-66 to 20+607/-56.7 El. 140.4 to 143.9 m	Dry density, WC (PNG)	Dry density: 2174 to 2325 kg/m^3, WC: 7.5 to 8.2 %

6.0 PHOTOGRAPHS



Photograph SD3-161: From Sta. 20+590/-65 looking S. Placement of the first 1.0 m-thick lift of the granular protection on SD3. Notice that the material used is a Compacted Low Quality Till 0-500 mm.

QA DAILY REPORT

DATE September 5, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 4, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0-5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The rain turns the UM rockfill in a muddy and slippery surface. Pay attention to do not slip when walking or driving on. Also, be sure that lights and mirrors of vehicles are cleaned from mud.
- For the next few days, co-activities on SD road will be considerable. Care must be taken.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- It was discussed that haul truck must not circulate on the Compacted Till 0-150 mm of the Upstream Toe Liner Tie-in because it is too humid and malleable. Haul truck has to dump the fine and coarse filters just beside the structure and the excavator will place it.
- The QA manager reminded for the placement of the granular protection that the geotextile protection on the LLDPE shall extend to 0.5 m maximum on the Compacted Till 0-150 mm.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ Compaction of the geosynthetics tie-in from Sta 0+800 to 0+780. ■ Installation of the geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from sta. 0+360 to 0+300. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+360 to 0+300. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ One destructive test was carried out on sample collected on the LLDPE geomembrane at Sta. 0+360/-26 (DT-66). Test result met Technical Specifications. Sample was kept for the Owner's Representative. ■ Vacuum box tests from Sta. 0+380 to 0+310. One leak was detected and corrected afterward.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a 0.5 m-thick lift of fine filter of the granular protection from sta. 40+750 to 40+630. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 0.5 m-thick lift of coarse filter of the granular protection from sta. 40+750 to 40+730. The lift will be compacted tomorrow.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 3: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

6.0 PHOTOGRAPHS



Photograph SD5-040: From Sta. 0+950/-21 looking SW. Placement of a 0.5 m-thick lift of fine filter of the granular protection from sta. 40+750 to 40+630.



Photograph CD1763: From Sta. 0+360/-33 looking N. Extrusion fillet seams on LLDPE on the CD upstream 2H:1V slope between 137 m to 143 m.

QA DAILY REPORT

DATE September 6, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 5, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5-10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that 50 tons trucks or D8 dozer must not circulate over the LLDPE geomembrane if it does not have 4.0 m of material above. The surveyor will mark the LLDPE geomembrane boundary.
- The placement of the geotextile and the LLDPE geomembrane ended today in the afternoon. Extrusion fillet seams will continue for approximately 2 days to complete the installation.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

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Activity or Area	Comments
Geotextile and LLDPE installation	■ Installation of the geotextile on the upstream 2H:1V slope between El. 137 m and 143 m from sta. 0+300 to 0+150. The geotextile surface was inspected before being covered by the LLDPE geomembrane. ■ Installation of the LLDPE geomembrane on the upstream 2H:1V between El. 137 m and 143 m from sta. 0+300 to 0+160. The LLDPE was free of fold and hole. Air channel tests were carried out under the supervision of the QA Engineer and results met Technical Specifications. ■ AM and PM calibration results met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ Three destructive tests were carried out on samples collected on the LLDPE geomembrane at Sta. 0+300/-26 (DT-67), 0+260/-26 (DT-68), 0+180/-26 (DT-69). Test results met Technical Specifications. Samples were kept for the Owner's Representative. ■ Vacuum box tests from Sta. 0+310 to 0+200. No leak was detected.

Table 2: QA Observations for Saddle Dam 5

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a 0.5 m-thick lift of coarse filter of the granular protection from sta. 0+970 to 40+640. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a 1.0 m-thick lift of Compacted Till 0-500 mm of the granular protection on the south part of SD 3 from sta. 20+780 to 20+740. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 4: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

6.0 PHOTOGRAPHS



Photograph CD-1764: From Sta. 0+120/-35 looking S. Geotextile and LLDPE installation on the CD upstream 2H:1V slope between El. 137 m to 143 m. Notice that the installation of the geosynthetics has reached the end of CD.



Photograph SD3-162: From Sta. 20+780/-40 looking N. Placement of the first and second 1.0 m-thick lift of the granular protection on SD3 south. Notice that the material used is a compacted Low Quality Till 0-500 mm.

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QA DAILY REPORT

DATE September 7, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 6, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0-5 ° C, cloudy.

2.0 HEALTH AND SAFETY

- The placement of the geosynthetics is done, candles on CD crest have to be replaced 2 m from the edge of the upstream slope.
- On SD road, continue to be careful with the co-activities.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager informed the Owner's Representatives that it was impossible to rank the Compacted Till 0-500 mm into a Compacted Till 0-150 mm if it is sieved only with the excavator.
- It was discussed that CD Upstream Toe Liner Tie-In north could run out of Compacted Till 0-150 mm. In this case, Compacted Sieved Till will be used to finish the lift.
- The QA manager reminded how SD4 transition has to be done to ensure a progressive transition between the fine rockfill of the center of the dike and the Compacted Till 0-150 mm at each end of the dike.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ AM and PM calibration results on Extrusion Fillet Seams met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ Vacuum box tests from Sta. 0+650 to 0+520. No leak was detected.
Upstream Toe Liner Tie-In	■ Placement of a first 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane on the north part of CD from sta. 0+220 to 0+140. The lift was compacted using the bucket of the excavator over the LLDPE geomembrane and with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 5). ■ Placement of a second 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane on the north part of CD from sta. 0+220 to 0+140. The lift was compacted with a 10 t smooth-drum vibratory compactor upstream. PNG tests were conducted and results met Technical Specifications (see table 5).

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ A strip of two meters width approximately has been excavated to the natural soil on the west part of SD4 (from Sta.40+100 to 40+140) for the placement of the fine/coarse filters of the granular protection. ■ Placement of a 0.5 m-thick lift of fine filter of the granular protection from sta. 40+160 to 40+120. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

Table 3: QA Observations for Saddle Dam 3

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of the second 1.0 m-thick lift of Compacted Till 0-500 mm of the granular protection on the north part of SD 3 from sta. 20+620 to 20+580. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. This Foundation Approval refers to the geosynthetics surface on the CD upstream 2H:1V slope and within the Upstream Toe Liner Tie-In.

Table 4: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-CD-029	CD	sta. 0+380/-26, 0+380/-40, 0+136/-26 and 0+136/-33.	06/09/2016	Geosynthetics approval

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 5: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
435 A to F	07/09/2016	07/09/2016	Compacted Sieved Till	CD north/ sta. 0+141.3/-35.9 to 0+196/-45.7 El.138.2 to 142.3 m	Dry density, WC (PNG)	Dry density: 2080 to 2152 kg/m^3, WC: 7.1 to 8.3 %

7.0 PHOTOGRAPHS



Photograph SD4-100: From Sta. 40+100/-35 looking E. Placement of a 0.5 m-thick lift of fine filter of the granular protection on the west part of SD4 from sta. 40+160 to 40+120.



Photograph CD-1765: From Sta. 0-120/-35 looking S. Placement of a first and second lift of Compacted Sieved Till over the LLDPE membrane on the north part of CD.

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QA DAILY REPORT

DATE September 8, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 7, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5-10 ° C, cloudy.

2.0 HEALTH AND SAFETY

- It was discussed that the candles on CD need to be at 2 m from the edge of the slope to be efficient. The objective of the candles is to prevent an accident, it is important to use them properly.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager reminded that it is important to do not circulate with the D8 dozer or the 50 tons over the LLDPE geomembrane if it does not have 4.0 m of material above.
- On SD4, it was discussed that the contractor will finish the coarse filter of the granular protection on the west part of the dike, then place the fine rockfill from the west to the east.
- According to the last survey, it is supposed to have enough Compacted Till 0-150 mm to finish the Upstream Toe Liner Tie-In on CD.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

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Table 1: QA Observations for Central Dike

Activity or Area	Comments
Geotextile and LLDPE installation	■ AM and PM calibration results on Extrusion Fillet Seams met Technical Specifications. Loads at failure in peel and shear were greater than minimum values in Table 6-2 from Technical Specifications. ■ Vacuum box tests from Sta. 0+490 to 0+380. No leak was detected.
Upstream Toe Liner Tie-In	■ Placement of a second 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane on the north part of CD from sta. 0+190 to 0+140. The lift could not be compacted because it was too humid.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ A strip of two meters width approximately has been excavated to the rock/natural soil on the east part of SD4 (from Sta.40+400 to 40+360) for the placement of the fine/coarse filters of the granular protection. ■ Placement of a 0.5 m-thick lift of fine filter of the granular protection on the east part of SD4 from sta. 40+400 to 40+360. The lift will be compacted tomorrow. ■ Placement of a 0.5 m-thick lift of coarse filter of the granular protection on the west part of SD4 from sta. 40+160 to 40+120. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 1.0 m-thick lift of fine rockfill of the granular protection on the existing Compacted Till 0-150 mm from sta. 40+220 to 40+180. The lift will be compacted tomorrow.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the PNG tests results measured by the QC during the reporting period.

Table 3: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

6.0 PHOTOGRAPHS



Photograph SD4-101: From Sta. 40+120/-35 looking E. Placement of a 1.0 m-thick lift of fine rockfill of the granular protection on the existing Compacted Till 0-150 mm in the middle of SD4. Also, the placement of a 0.5 m-thick lift of fine filter on the east part of SD4.



Photograph SD5-041: From Sta. 0+950/-20 looking SW. Placement of a 1.0 m-thick lift of fine rockfill of the granular protection on SD5.

QA DAILY REPORT

DATE September 9, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 8, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 10 to 15° C, sunny.

2.0 HEALTH AND SAFETY

- No issue

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The west part of SD5 has to be surveyed for the foundation approval of what will be the winter road which will connect the dike to the “pig launch”.
- It was discussed that the casings on CD, which have been used for the safety line, will be cut at the surface elevation and fill it up with grout.
- On SD3, it was discussed that more Compacted Sieved Till has to be place on the north part to smooth the slope and fill up the hollow down the slope. This approach aims to avoid the water pound down the slope of the last spring. The Owner’s Representative will confirm soon the exact place.
- Extrusion Fillet Seams are now finished. The geosynthetics are officially done on every dikes.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
LLDPE Geomembrane Placement Acceptation	■ The LLDPE geomembrane has been walked and approved from sta. 0+820/-41.58 to 0+380/-26.
Upstream Toe Liner Tie-In	■ Compaction of the second 0.5 m-thick lift of Compacted Sieved Till over the LLDPE geomembrane on the north part of CD from sta. 0+220 to 0+140. The lift was compacted with a 10 t smooth-drum vibratory compactor. PNG tests were conducted and results met Technical Specifications (see table 4). ■ Placement of a first 0.5 m-thick lift of Compacted Till 0-150 mm within the Upstream Toe Liner Tie over the Compacted Sieved Till on the north part of CD from sta. 0+220 to 0+140. The lift was compacted with a 10 t smooth-drum vibratory compactor. PNG tests were conducted and results met Technical Specifications (see table 4). ■ Placement of the 0.5 m-thick lift of fine filter of the granular protection on the north part of CD from sta. 0+220 to 0+190. The lift will be finished and compacted tomorrow.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Compaction of the 0.5 m-thick lift of fine filter of the granular protection on the east part of SD4 from sta. 40+400 to 40+360. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of the 0.5 m-thick lift of coarse filter of the granular protection on the east part of SD4 from sta. 40+400 to 40+360. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of a 1.0 m-thick lift of fine rockfill of the granular protection from sta. 40+180 to 40+140 and from 40+340 to 40+270. The lift will be compacted tomorrow.

5.0 FOUNDATION APPROVAL

The following foundation approval was carried out during the reporting period. This Foundation Approval refers to the geosynthetics surface on the CD upstream 2H:1V slope.

Table 3: Details of the foundation approvals

Name	Structure	Sta. and Offset	Date of Approval	Comment
LLDPE-CD-028	CD	sta. 0+380/-26 to 0+820/41,58	08/09/2016	Geosynthetics approval

6.0 LABORATORY AND FIELD MEASUREMENTS

Table 4 presents the laboratory and the PNG tests results measured by the QC during the reporting period.

Table 4: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
438	08/09/2016	-	Fine filter	Sta. 40+391/-43.6 El.142	Gradation	Not tested yet
436 A to D	08/09/2016	08/09/2016	Compacted Sieved Till	CD north/sta. 0+143.8/-31.5 to 0+202.6/-44.7 El. 137.6 to 142.6 m	Dry density, WC (PNG)	Dry density: 2068 to 2126 kg/m^3, WC: 7.3 to 9.4 %
436 A to D	08/09/2016	08/09/2016	Compacted Till 0-150 mm	CD north/sta. 0+154.9/-33.6 to 0+203.1/-44.2 El. 138 to 142.2 m	Dry density, WC (PNG)	Dry density: 2054 to 2137 kg/m^3, WC: 7.9 to 9.8 %

7.0 PHOTOGRAPHS



Photograph SD4-102: From Sta. 40+410/-35 looking W. Placement of a 0.5 m-thick lift of coarse filter of the granular protection on the east part of SD4 from sta. 40+400 to 40+360.



Photograph CD-1766: From Sta. 0+220/-26 looking N. Placement of the 0.5 m-thick lift of fine filter of the granular protection on the north part of CD from sta. 0+220 to 0+190.

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QA DAILY REPORT

DATE September 10, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 9, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 to 10° C, rainy/foggy.

2.0 HEALTH AND SAFETY

- A worker hurt himself on CD when lifting cables. It is important to be very careful when lifting heavy weight and use good methods of lifting.
- Pay attention when you are walking on geotextile when it is placed over LLDPE, it is very slippery.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- Finally, the road which is supposed to connect SD5 to the “pig launch” doesn’t need to be approved by the QA manager, because the road goes over the future inverse filters. Thus, the road will have to be re-excavated next year for the foundation approval of the inverse filters.
- On SD3, it was discussed that the placement of the Compacted Sieved Till to fill up the hollow down the slope will be done with the “307” excavator. The work that has to be done is very close to the LLDPE, and represents a risk if it is done with the“345” excavator.

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4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of the 0.5 m-thick lift of fine filter of the granular protection on the north part of CD from sta. 0+220 to 0+190. The lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ Placement of the 0.5 m-thick lift of coarse filter of the granular protection on the north part of CD from sta. 0+220 to 0+160. The lift will be compacted tomorrow.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of a 1.0 m-thick lift of fine rockfill of the granular protection from sta. 40+270 to 40+380. The lift will be compacted tomorrow.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 3 presents the laboratory and the PNG tests results measured by the QC during the reporting period.

Table 3: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
439	09/09/2016	-	Fine filter	Sta. 0+160.3/-35.7 El.142.4	Gradation	Not tested yet

6.0 PHOTOGRAPHS



Photograph SD5-042: From Sta. 0+580/-30 looking E. Placement of UM rockfill for the road which connect SD5 and the "pig launch".



Photograph SD4-103: From Sta. 40+380/-35 looking W. Placement the 1.0 m-thick lift of fine rockfill of the granular protection on the west part of SD4.



Photograph CD-1767: From Sta. 0+140/-26 looking S. Placement of the 0.5 m-thick lift of coarse filter of the granular protection on the north part of CD.

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QA DAILY REPORT

DATE September 11, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 10, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 to 10° C, rainy/foggy.

2.0 HEALTH AND SAFETY

- It was mentioned that the 2016 season was a perfect one for the Dike construction team. Triple 0 objective has been reached and everyone is thanked for.
- A GHA will be done soon for the construction of the deposition points (fingers) on CD.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA manager, with the agreement of the Owner's Representative, went out of the construction field for one day and a half because he was required for a short term task. For this reason, the QA manager refers to the QC in some parts of the report.
- Today was the last Daily Construction Meeting. The last lift of fine rockfill on CD will be done at the latest tomorrow morning. Hence, it is going to be the end of activities concerning the regular Dike construction season.
- The construction of the fingers will probably start tomorrow morning. The fingers will be made of fine filter only.
- On SD3, it was discussed that the small pound which has to be fixed is already soaked. The placement of Compacted Sieved Till in this area will be done as soon as it will be dry.

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- The QA manager reminded that the geosynthetics Tin-In on CD must be compacted.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Placement of the 0.5 m-thick lift of coarse filter of the granular protection on the north part of CD from sta. 0+220 to 0+140. According to the QC, the lift was compacted with four passes of a 10 t smooth-drum vibratory compactor. ■ According to the QC, the 1 m-thick lift of fine rockfill of the granular protection on the north part of CD from sta.0+220 to 0+140 has been placed.

Table 2: QA Observations for Saddle Dam 4

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ Correction of the top of the lift of the fine rockfill of the granular protection with the excavator from sta. 40+140 to 40+380.

5.0 LABORATORY AND FIELD MEASUREMENTS

Table 3 presents the laboratory and the PNG tests results measured by the QC during the reporting period.

Table 3: Samples tested by the QC or PNG readings

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result

6.0 PHOTOGRAPHS



Photograph CD-1768: From Sta. 0+210/-26 looking N. Placement of the 0.5 m-thick lift of coarse filter of the granular protection on the north part of CD.



Photograph SD4-104: From Sta. 40+400/-35 looking W. Correction of the top of the lift of the fine rockfill of the granular protection with the excavator on SD4.

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QA DAILY REPORT

DATE September 12, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 11, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 0 to 5° C, cloudy.

2.0 HEALTH AND SAFETY

- No issue.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

- No discussions were held.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structures.

Table 1: QA Observations for Central Dike

Activity or Area	Comments
Upstream Toe Liner Tie-In	■ The last 1.0 m-thick lift of fine rockfill of the granular protection from sta. 0+220 to 0+140 was compacted with four passes of a 10 t smooth-drum vibratory compactor.

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5.0 LABORATORY AND FIELD MEASUREMENTS

Table 2 presents the laboratory results measured by the QC during the reporting period.

Table 2: Samples tested by the QC

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
438	08/09/2016	11/09/2016	Fine filter	Sta. 40+391/-43.6 El.142 m	Gradation	Compliant

6.0 PHOTOGRAPHS



Photograph CD-1769: From Sta. 0+160/-26 looking S. The final 1.0 m-thick lift of fine rockfill of the granular protection on the north part of CD has been compacted.

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QA DAILY REPORT

DATE September 13, 2016 **REFERENCE No.** Doc 1542 1656047 Rev 0

TO Rebecca Cousineau, Patrice Gagnon
AEM

CC Thomas Lépine, Pierre McMullen, Julie Bélanger, Yves Boulianne

FROM Michael Nadon **EMAIL** mnadon@golder.com

QA DAILY REPORT FOR SEPTEMBER 12, 2016 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1656047)

1.0 WEATHER

- Temperature around 5 to 10° C, cloudy.

2.0 HEALTH AND SAFETY

- No issue.

3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

- No discussions were held.

4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

- The regular Dike construction season is over.

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5.0 LABORATORY AND FIELD MEASUREMENTS

Table 1 presents the laboratory results measured by the QC and the QA during the reporting period.

Table 1: Samples tested by the QC and the QA

Sample ID	Date Sampled	Date Tested	Fill Material Type	Location (Station/Offset Elevation)	Test	Testing Result
439	09/09/2016	12/09/2016	Fine filter	Sta. 0+160.3/-35.7 El.142.4 m	Gradation	Compliant
SD4-07	26/08/2016	12/09/2016	Compacted Sieved Till	Sta. 40+368.9/-41.8 El. 140.1 m	Gradation + WC	Compliant

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APPENDIX F
QC DAILY REPORTS

X:\Central Dike\2016\F03- Daily Inspection Reports and Meetings\[QC-Daily Inspection Report.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/06/07 Inspector - Day/Night: Guy Lamerche / Day

Weather : cloudy +2°c

Project: Central Dike Contractor: PCL

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

General Activities:

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

Description: - The contractor excavate the soft till until he found the solid bedrock.

- The contractor remove soft till until he reach frozen, then he fill the space with PAG material, and properly compacted the material with 8 passes with the roler.

Delays:

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

Sample #001 - Till from excavation at yesterday

Equipment:

- Excavator	CAT 345-D	11-0301
- Haul Truck (2x)	1516 - 1536	
- Roler	CAT CS76	11-1101

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2018/10/05 Inspector - Day/Night: Guy Lemarche / Day

Weather : cloudy +3°C

Project: central Dike Contractor: R.G.L.

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

General Activities:

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

Description:

- The contractor continu to remove the soft Till, to expose the bedrock foundation approval at the end of the day upto 0+930.
- The contractor prepare a pad of gravel to receive the Trailer, on the access road to central dike, compaction done with the roler.

Delays:

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

Equipment:

Excavator	CAT 345 D	11-0501
Haul Truck	1536	
Roler	CAT CS76	11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/06/06 Inspector - Day/Night: Guy Lamarche / Day

Weather : Cloudy +3°c

Project: Central Dike Contractor: PCL

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

General Activities:

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

Description: South: The contractor completed his first lift of rockfill and compacted with 6 passes with the roller, compaction accepted He started his second lift.

North: Contractor removing the soft Till. preparing for foundation approval.

Delays:

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

Equipment:

South: Excavator	Komatsu	PC1250	11-0303
Dozer	CAT	D8T	443
Haul Truck		1117 - 1136	
Roller	CAT	CS76	110116
North: Excavator	CAT	345-D	11-0306

Manpower:

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/06/07 Inspector - Day/Night: Guy Lemerche / DAY

Weather : Sunny, cloudy +3°C

Project: Central Dike Contractor: FCL

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

General Activities:

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

Description:
- South - The contractor complete the second lift of rockfill, but did not complete the compaction. He started a third lift on the pad where the compaction was aprouve.
- North - Just in front of the lake, small portion of foundation aprouve, so he can prepare material to start filling the lake

Delays:

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

Equipment:

South - Excavator	Komatsu	PC1250	11-0303
- Dozer	CAT	D6T	443
- H.D Truck	1516 - 1536 - 1517 - 1519		
- Roller	CAT	CS76	11-1161
North - Excavator	CAT	345D	11-0301

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/06/02 Inspector - Day/Night: Guy Lemerche / Day

Weather : Sunny +5°c

Project: Central Dike Contractor: P. G. L.

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

General Activities:

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

Description: South - Dozzer ripping the surface of the south part of the dike, near SD.J North and south. with excavator there breaking the ice of the lake to start the rockfill.

Delays:

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

- Sample 352 been took of Till from new excavation done the day before.

Equipment: Excavator: CAT 345D ripper 12-0303
CAT 345D 11-0301
Komatsu PC 1250 11-0303

Manpower: Dozzer ~~CAT~~ D8T 443

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/06/09 Inspector - Day/Night: Guy Lamarche / DAY

Weather : Sunny

Project: Central Dike Contractor: P.C.L.

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

General Activities:

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

Description:

- The contractor complete the under water lift in the lake at the Dike base.

- The contractor complete the second lift compaction on the south part of the Dike with 8 passes of compaction roller.

Delays:

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

Equipment:

Excavator : Komatsu PC1250 11-0303
CAT 435D 12-0303 / 11-0301
Dozzer : CAT D6T 443
Haul Truck : 1536 / 1516 / 1517 / 1519
Roller : CAT CS76 11-1101

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/06/16 Inspector - Day/Night: Guy Lamarche / DAY

Weather : cloudy + 8 °C

Project: Central Dike Contractor: F.C.L.

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

General Activities:

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

Description: - The contractor removing soft Till on the north part of central Dike

- The contractor complete the lift, the slope and the bumper of the level just above water on the lake part on central dike, He done the compaction with 8 passes with the roller, compaction aprouved.

Delays:

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

Equipment:

Excavator :	Komatsu	PC1250	11-0303
	CAT	345D	11-0301 / 12-0303
Dozzer :	CAT	D6T	443
	CAT	D9T	00202
Roller :	CAT	CS76	11-L101
Haul Truck :	1517 / 1536 / 1516 / 1519		

~~Manpower:~~

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/06/11 Inspector - Day/Night: Guy Lamarche / Day

Weather : Sunny + 11°c

Project: Central Dike Contractor: P. C. L

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

General Activities:

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

Description:

- On the south part of the dike, the contractor continue the third lift of rockfill at level 122 m.
- On the north part of the dike, the contractor remove soft till, until he found frozen material. Soon as he got the foundation approval, he started to backfill with the first lift of 2 meter of PAC.

Delays:

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

Equipment:

Excavator : CAT 345D 11-0301 / 12-0303
Dozzer : CAT D8T 443
CAT D9T 00202
Haul Truck : 1516 / 1536 / 1517 / 1519

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/06/13 **Inspector - Day/Night:** Guy Lamarche / DAY

Weather : Cloudy, rainy +8°C

Project: Central Dike **Contractor:** FCL

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

General Activities:

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

Description: - South:

- The contractor is making the compaction of rockfill at level 122 between 0+650 and 0+880
- Also doing the slope with the two excavator
- North
- The contractor complete the compaction of rockfill at level 118

Delays:

- he's doing a lift of rockfill to reach level 120.
- he start the compaction of rockfill at level 120, continue work in night shift.

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

Equipment:

Excavator : CAT 345D 11-0301 / 12-0303

Dozzer : CAT D6T 443

CAT D9T 00202

Roller CAT CS76 11-1101

Haul Truck : 1535 / 1536 / 1516

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-13 **Inspector - Day/Night:** F. Rose

Weather : Cloudy

Project: Central Dike **Contractor:** F.G.L

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

General Activities:

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

Description:

19:00 20:00 - Compaction of the 137 level using the CAT CS76 approved from North side to + 0+

20:00 - Shovel 345DL is working on the slopes

19:00 20:00 Shovel 345DL was being repaired, changing of a piece of boom

18:30 - Bulldozer pushing the rockfill to level 134 from the south side towards the North

18:30 - Shovel 1250 feeding the Rock trucks

* Compaction Approved from North side to + 0+

Delays:

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

Equipment:
- Compactor CS76 (CAT)
- 345D shovel (CAT)
- Bulldozer

Manpower:
- 4 Rock Trucks 1516/1517/1519/1536

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-14 **Inspector - Day/Night:** S. olycie

Weather : Cloudy - Rainy

Project: Central dike **Contractor:** F.G.L

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:

South side of dike near St. 0+760
Contractor continue lift of Rock fill up to level 124. bulldozer pushing the Rock fill from South side toward north side.

North side of dike:
two shovels are working on the slopes.
Shovels are working on top of dike to leveled at 120.
(curently is about 122.)

Delays:

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

Equipment:
- 2 Shovels (cat)
- Bulldozer
- 4 Rock trucks (1516, 1517, 1536, 1514)

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-14 Inspector - Day/(Night) Francis Rose

Weather : Cloudy

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description:

- Bulldozer 443 is pushing the rockfill up to level 122 with the help of 3 haul trucks from the North to the south side
- Compaction done from ± 0+830 @ ± 0+765 by the CS76 (CAT) on level ~~123~~ 124 (Approved)
- Rockfill done from ± 0+420 @ +0+560 level 122
- Shovel 1250 is loading the haul trucks with Rocks
- Shovel 345 is moving some of the till material to help it thaw
- Compaction done from ± 0+340 @ ± 0+560 level 122

Delays:

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

Compaction ± 0+830 @ ± 0+765 : Level 124
Compaction ± 0+340 @ ± 0+560 : Level 122
Rockfill ± 0+420 @ 0+560 level 122
Rockfill : 0+765 @ 0+700 Level 124

Equipment:
- Bulldozer D8T 443 CAT
- 3 Haul trucks
- Compactor CS76

Manpower:
- Shovel 345 (1)
- Shovel 345 (no operator)
- Shovel 1250

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 15 june 2016 Inspector (Day/Night): S. olyaie

Weather : Sunny

Project: Central dike Contractor:

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

General Activities:

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

Description: Morning:

North: * Compaction From St. 0+308 to St. 0+365 (ele. 122) (approved)
* Work on slope by shovel 345D-CAT (11-0301)
* Shovel 12-0303 is stripping the north side around elevation 137
* loader 10-0201 preparing accon for Rock fill at st. 0+308

South: * Rock fill done from st 0+700 to St 0+663 at elevation 124
* dozer is pushing rockfill up to level 124 toward North Side.
* Compaction with compactor 11-1101 from st. 0+924 to St. 0+830 (approved)

Afternoon:

North: * Shovel 12-0303 is stripping north side, till material are transfered by haul truck 1516 to CD stockpile
* Rockfill from St 0+309 to 0+365 toward south side up to elev 124

South:
* Compaction done at elev 124, from 0+765 to 0+663 (approved)
* Shovel 11-0301 is working on slopes approximately From St. 0+910 to 0+885

Notes:

Compaction: 0+308 to 0+365 : level: 122 | Rock fill: 0+309 to 0+365
Compaction: 0+924 to 0+663: level: 124 | level: 124
Rock fill: 0+700 to 0+663 : level: 124

Equipment:
- haul trucks: 1517, 1519, 1535, 1536, 1516
- Shovels 345D (2) (CAT) 11-0301, 12-0303
- bulldozer

Manpower:
- Loader (10-0201)
- Compactor. 11-1101 (CAT)

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: June 15, 2016 **Inspector - Day/Night:** F. Rose

Weather : Sunny ±15°C

Project: Central Dike **Contractor:** F.G.L.

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:
- Bulldozer pushing rockfill from 0+365 @ ±0+560 on level 124
- Shovel 345 is working on the slopes on the south side @ ± 0+840 @ 0+111
- Shovel 1250 is loading the haul trucks with rockfill
- Shovel 345D (12-0303) is removing the material at the north of the dike to be able to reach the bedrock. The material (till) is placed in a stockpile

Delays:

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

Rockfill 0+365 @ 0+560
* No compaction done

Equipment:
- Bulldozer 443
- Shovels 345D(2)
- ~~Bulldozer~~ Loader
- Compactor CS76
- Haul trucks 1536, 1535, 1517

Manpower:

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 16-06-2016 **Inspector - Day/Night:** S. olyaie

Weather : Sunny- windy

Project: Central Dike **Contractor:** F.G.L

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description: NOHh Side:

Rock fill done From St. 0+545 to st. 0+663 at level 124.
bulldozer push Rockfil toward South.
Shovels excavate material (till) and haul truck transfer till to Stock pile
Compaction done From St 0+310 to St. 0+50$ (approximative)
South Side:
* Shovel excavate material on south side at accen Road until Rock.
* Foundation was inspected by AGNICO, Golder, SNC and FGL personnels. (approved)
* loader start accen Road on south side. haul truck unload material.

Delays:

*

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

Rock fill : St. 0+545 to 0+663 : level :124
Compaction: St. 0+310 to 0+50$ (approx) : level: 124

Equipment: bull dozer
shovels (2) 12-0303 & 11-0301
haul truck 1535, 1517, 1516 & 1536
Loader

Manpower:

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 16-06-2016 **Inspector - Day/Night:** F. Rose

Weather : Cloudy - Windy

Project: Central Dike **Contractor:** F.G.L

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:

- Shovel 345 working on the slopes on the North Side at ±0+320
- Compaction being done on level 124 from ±0+500 @
- Bulldozer is pushing the rockfill on the south side of the dam Lvl 126
- 2nd Bulldozer is moving some of the till material in the stockpile to help thaw the material that is frozen underneath
- Shovel 1250 is loading the haul trucks with rockfill
- 2nd shovel 345 is dealing the till material in a big stockpile
- Loader is now loading the haul trucks with Rockfill

Delays: found on the East Road

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

Compaction: ±0+500 @ ±0+660 level 124 Approved
Rockfill : ±0+990 @ ±0+850 level 126

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 17-06-2016 Inspector - (Day)/Night: S. olyaie

Weather : rainy - cloudy

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description: North:

* Shovel works on slopes.
* Shovel works on till area.

South:

Rockfill done From accen Road until st. 0+720. at level 12.6.
bulldozer push Rockfill toward north.

Delays:

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

Equipment: bulldozer

haul Trucks: 1516, 1519, 1517, 1535 & 1536

Shovels: 12-0303 & 11-03011

Manpower:

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-17 **Inspector - Day/Night:** Francis Rose

Weather : Cloudy

Project: Central dike **Contractor:** F.G.L.

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☐		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:

18:30 - - Bulldozer pushing rockfill on the south side of the dike
- Bulldozer D6R is working on an access road up north with material loaded up by the shovel 345 on the west side of the dike
- 2nd After dinner shovel 1250 is loading the haul trucks with hard rockfill

Delays: Rockfill 0+760 @ 0+660 level 126
Compaction 0+980 @ 0+660 level 126
Rockfill 0+340 @ 0+425 level 126

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

* Mentioned to the contractor before the shift began to be careful not too use "soapstone"
* Mentionned it again at around 4:00am

Equipment: Shovel 345 (x2) 12-0303, 11-03011
Bulldozer (x2)
Loader

Manpower: Shovel 1250
4 haul trucks 15th

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 13/06/2016 Inspector (Day/Night): S. Olyaie

Weather : Rainy / Windy (Snow)

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: North

Rock fill done until St 0+600 (approximative) level: 126
dozer push material toward South side

South:
2 shovels works on slopes (done) until St. 0+660

Delays:

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

Equipment: haul truck (3) 1519, 1517, 1535
Shovels (2)
bull dozer

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-18 Inspector - Day/Night: Francis Rose

Weather : Rain, cloudy

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Bulldozer is pushing rockfill at level 126. Once done, bulldozer starts level 128 on South side
- After dinner, 2nd bulldozer is increasing the berms on both sides of the access road
- Shovel 1250 is loading the rockfill

Delays: ~~Rockfill: ±0+960 @ 0+930 level 128~~
Rockfill : 0+600 @ 0+660 level 126
Rockfill 0+980 @ 0+920 level 128
Compaction: 0+310 @ 0+660 level 126

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

Equipment: Shovel 345(x1)
Bulldozer(x2)
Shovel 1250

Manpower: Compactor
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 19/06/2016 Inspector (Day/Night): S. olyaie

Weather : Cloudy / Sunny

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: South:
Rock fill done until st. 0+820 at level. 128
dozer push Rock fill toward north side

North:
2 shovels works on slopes (done) (level. 126)
Foundation at st. 0+280 was inspected by AGNICO Eagle, Golder, SNC and F.G.L personnels. (approved)
Rockfill starts from north accen Road toward south at level. 128
~~Delays~~

Till materials are excavated by shovel and Transfered to Stockpile

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

Rockfill: 0+920 to 0+820. level. 128

Equipment: haul truck: 1535, 1517, 1516, 1536
Shovels 12-0303 & 11-0301
bull dozer

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO·EAGLE

Date: 19/06/2016 Inspector - Day/Night: Francis Rose

Weather : Sunny

Project: Central dike Contractor: E.G.L.

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

General Activities:

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

Description:

- Bulldozer is pushing rockfill on the bedrock on the North side where the foundation was approved
- Shovel 345 is removing the material right down to the bedrock up north and then placing that material in a stockpile
- Shovel 1250 is loading the haul trucks with rockfill from the pit

Delays:

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

Rockfill 0+300 @ 0+340 level ~~125~~ 126
Compaction 0+920 @ 0+820 level 128
Compaction: 0+300 @ 0+340 level 126
Rockfill: 0+820 @ ± 0+770 level 128

Equipment:
Haul trucks
Shovels 12-0303, 11-0301
Bulldozer

Manpower:
Shovel 1250
Loader
Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 20/06/2016 Inspector (Day/Night): S. Olycie

Weather: Foggy / Clandy

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description: South:

Rockfill done from St 0+770 to St. 0+660 at level 128.
Compaction is done From St 0+820 to st 0+740 (approved)
2 shovels works on slopes.

North:
Shovel works on slopes of accen Ramp (early morning)
Rockfill done From St. 0+260 to St. 0+340 at level 128.

Delays:

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

Rockfill: 0+770 to 0+660 at level 128
Compaction: 0+820 to 0+740
Rockfill: 0+260 to 0+340 at level 128

Equipment: haul trucks (1516, 1517, 1535, 1536)
bulldozer
Shovels (2)

Manpower: Compactor
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-20 Inspector - Day/Night: Francis Rose

Weather : Cloudy ± 7°C

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Shovel 345 working on the slopes @ ± 0+740 to 0+660
- After the slopes, shovel 345 was riving the berms on the access road on North Side
- Bulldozer pushing rockfill from 0+340@ 0+470 level 128

Delays:

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

Rockfill 0+340@ 0+470 level 128
Compaction 0+740@ 0+660 level 128

Equipment:
haul trucks
bulldozer
shovels (2) x 345

Manpower:
compactor
shovel 1250
loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 21/06/2016 Inspector - Day/Night: S. olyaie

Weather : Sunny

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description: South:

Shovel works on slopes (done) until st. 0+660. level 128

North:

Rock Fill done from st. 0+470 to st. 0+600 at level 128.
bulldozer push Material toward south side.
Shovels works on till on north side and Till transfered to Stockpile
in afternoon, 2 shovels Start Till preparation For Sieving

Delays:

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

Rock Fill : 0+470 to 0+600 : level 128.

Equipment: 2 shovels
Loader
bull dozer

Manpower: haul trucks (1517, 1516, 1519, 1535, 1536)

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-21 Inspector - Day/Night: Francis Rose

Weather : Sunny ± 12°C

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Bulldozer pushing rockfill from 0+600 @ 0+660 level 128
- Shovel 345 is removing till material until reaches bedrock. The till material is put into stockpile.
- Compact the south side

Delays:

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

Rockfill 0+600 @ 0+660 level 128
Compaction 0+280 @ 0+390 level 128
Rockfill 0+960 @ 0+930 level 130

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 22/06/2016 Inspector (Day/Night): S. olyaie

Weather : Claudy / Rainy 9°

Project: Central dike Contractor: F. G. L

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

General Activities:

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

Description: South:

Rock fill done from St. 0+930 to Sto,820. level 130
dozer push Rock fill toward north side.
Compaction is done from st. 0+390 to St.0,660 (approved)
North:
2 shovels works on slopes from st. 0+280 to St. 560 (level 128)

Sieving of till just started lately in the afternoon (5:00 pm)

Delays:

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

Rock fill: 0+920 to St. 0+820 : level 130
Compaction: 0+390 to st. 0+660 : level 128

Equipment: Shovels (2)
haul trucks
Compactor

Manpower: bulldozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-22 Inspector - Day/Night: Francis Bose

Weather : Cloudy

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description: PM

- shovel 345 removing till on the North side until it reaches bedrock and then it hauls it on a truck which transports it to a stockpile
- Bulldozer pushing ~~bedrock~~ rockfill on the south side

AM

- shovel 345 working on the slope
- leveling is being done with the till

Delays:

Rockfill: ±0+750 @

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

* An accident occured at around 2:15am. The shovel 345 was working on the slope at around st. 0+640 when a haul truck was backing up to give him some fine rockfill. While backing up the shovel operator was signaling (the truck driver) by hand to stop but the haul truck driver was looking in the other mirror. the shovel operator had to jump out of the cabin. The shovels cabin is pretty damaged but fortunately no one was hurt.

Equipment:

Manpower:

2 x Shovels 345	Compactor
Haul trucks	Shovel 1250
Trailer	Bulldozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 23/06/2016 **Inspector (Day/Night):** S. Olyaie

Weather : Sunny

Project: Central dike **Contractor:** F.G.L

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description: North:

* Shovel work on till preparation.
* Till sieving is done by Crusher one sample of till for granulometry is taken and put in oven to become dry. (about 45 kg) (Sample 353) From Central dike stockpile
* Rockfill done from st 0+280 to 0+320 at level 130.

South:

Rock Fill done From st. 0+750 to 0+660 at level 130.

~~Delays~~:

Compaction is done from st 0+920 to 0+840 at level 130.

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

Equipment: Shovel, Compactor, 2 Loaders, Crusher

Manpower: bull dozer, haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-23 **Inspector - Day/(Night):** Francis Rose

Weather : Sunny

Project: Central Dike **Contractor:** F.G.L.

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

General Activities:

Soft Sediment Excavation	☐	**Key Excavation**	☐	**Coarse Filter**	☐	**Drilling/Blasting**	☐
Foundation Preparation	☐	**LLDPE/Geotextile**	☐	**Till**	☑		
Water Control	☐	**Fine Filter**	☐	**Rockfill**	☑		

Description:

- Loader is putting the till material in the crusher
- Bulldozer is pushing rockfill from 0+320 @ level 130
- Compaction done on the south side 0+840 @ 0+660 level 130
- Shovel 1250 is loading the haul trucks with rockfill coming in from the pit

Delays:

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

Rockfill : 0+320 @ 0+450 level 130
Compaction : 0+840 @ 0+660 level 130

Equipment: Shovel 1250
Bulldozer
Compactor

Manpower: Crusher
haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 24/06/2016 Inspector (Day/Night): S. olyaie

Weather: Sunny / 11°

Project: Central Dike / Saddle dam 4 Contractor: F-G-L

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

General Activities:

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

Description: Central dike: North:

* Rockfill done from St. 0+450 to St 0+620 (level 130)
* Sieving of till is going on for central dike stockpile
* South: 2 shovels works on slopes from 0+920 to 0+660 (done)
* Lab test: Analysis of granulametry is going on, Material sieving is done and materials less than 5mm has been washed and put in oven for last step. (about 24 hrs in oven to become dry) (Sample 353)

Saddle dam 4:

Delays: Stripping of upstream of dike is started.

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

Rock fill: St. 0+450 to St 0+620 (level 130)
Slopes at 130: 0+920 to 0+660 (done)

Equipment: haul trucks
Loaders
Shovels (2)

Manpower: Crusher
bulldozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-24 Inspector - Day/Night: Francis Bose

Weather : Sunny

Project: Central Dike Contractor: E.G.L.

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

General Activities:

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

Description:

- Bulldozer pushing rockfill from North to South
- Shovel 1250 loading the haul trucks with rockfill coming from the pit
- Loader is loading the crusher with the till material
- Compaction done from ± 0+320 @ 0+660
- Water Truck is being passed on the roads to control the dust

Delays:

* Sample 354 taken for the till

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

Rockfill: 0+620 @ 0+660 level 130
Rockfill hl 132
Compaction: ± 0+320 @ 0+660

Equipment:
Shovel 1250
Compactor
Bulldozer

Manpower:
Crusher
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 25/06/2016 Inspector - Day/Night: S. Olycie

Weather : Sunny

Project: Central dike / Saddle dam 4 Contractor: F.G.L

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

General Activities:

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

Description: Central dike South: Rock fill done until st. 0+760, level. 132
Rockfill in south side Started last night.
dozer push Rock fill toward north side.

North:
Screening of till is ongoing proces. Loaders and crushers works for till screening.
Shovel works on north side to prepare the foundation surface.
Shovel works on slopes on north side from st 0+300 to st 0+560.

~~Delays:~~

Saddle dam 4:
Shovel works on stripping upstream of dike

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

Equipment: haul trucks
bull dozer
Loader

Manpower: Shovels
Crusher

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-06-25 Inspector - Day/(Night): Francis Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Bulldozer pushing rockfill from the South to the North
- Shovel 345 working on the slope from 0+560 @ ± 0+630
- Screening of till is being done
- Loader is loading the haul trucks

Delays:

Rockfill: 0+760 @ ±0+660 level 132

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

Granulometry for sample #354 is done for > 2.75mm. Tomorrow going to finish with the fine material < 2.75mm

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/06/26 Inspector - Day/Night: Sanaz Olyaie

Weather : Sunny

Project: Central dike Contractor: F.G.L.

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

General Activities:

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

Description: North side:

- shovel works on Foundation preparation
- Rock Fill on north side until St 0+320. work stop at morning because of lack of PAG material. (level 132)
- Screening of Till is being done (Stockpile NO 2 app volume 850 m^3)

South Side.

- Compaction done from beginning until 0+660 (level 132) (approved)
- slopes has been done by two shovels until St. 0+660.
- Rock Fill starts at level 133.5 with unPAG Rock-fill until St 0+900

~~Delays:~~

Lab test:

Simple 353 is completed and results sent to Golder representitive.

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

Equipment: haul trucks : 1517, 1536, 1535
bull dozer
shovels

Manpower: crusher
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-26 Inspector - Day/Night: Francis Rose

Weather: Sunny, Cloudy

Project: Central Dike Contractor: E.G.L.

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

General Activities:

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

Description:

- Loader 600 is loading the haul trucks with NON-PAG
- Bulldozer is pushing the NON-PAG from the south towards the North 1 level 133.5
- Shovel 345 is excavating the till so as to reach the appropriate foundation on the North Side
- 2nd loader is screening the till with the crusher
- Bulldozer is now on the North side pushing PAG rockfill

Delays:

Rockfill: 0+320 @ ±0+415 level 132
Rockfill: 0+900 @ 0+880 level 133.5 (NON-PAG)

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

Sample # 355 Total Mass + Pan = 16754.7
Pan # 103 = 1086.4

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 27/06/2016 Inspector - (Day)/Night: S. Olivaie

Weather : Rainy / Sunny / Cloudy

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description: South: Shovel works on crest of dike to prepare connection between Central dike and SD5.

North:

Rockfill done from st 0+415 to 0+500 at level 132.

Till screening has been done and Stock pile NO 2 has been sealed.

Shovel works on Foundation preparation.

Foundation at "sto 0+230 (approx) was inspected by AGNICO Eagle, Golder, SNC and FGL personnels. (approved)

*Work Stand by From 11 am to 13:30 pm. *

~~Delays~~:

Placing of non PAG Rockfill where the foundation approved on north side (END-CD+30)

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

Rockfill: 0+415 to 0+500 at level 132.

Equipment: Shovels
Crushers
Louder

Manpower: haul trucks
bull dozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-27 Inspector - Day (Night): Francis Rose

Weather : Sunny - Cloudy

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Bulldozer is pushing rockfill from the North to the South
- Shovel 345 is preparing the foundation on the South Side
- Shovel 1250 is loading the haul trucks with rockfill
- Loader is working on the screening of the till
- level 132 is completed. Bulldozer is continuing with the NON-PAG at level 133.5
- Gradation aq sample #355 has started. Going to finish weighing the fine material tomorrow

Delays: Rockfill. 0+500 @ 0+440 level 132
Rockfill 0+820 @ 0+750 level 133.5 (NON-PAG)
Compaction 0+440 @ 0+380

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

Equipment: Shovel 345 (2nd shovel is being opened)
Shovel 1250
Loader 4 haul trucks
Compactor crusher
Bulldozer

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 28/06/2016 Inspector (Day/Night): S. Olyaie

Weather: Sunny / 17°C

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: North side:
Compaction from st. 0+380 to 0+660 at level 132 (approved)
2 shovels works on slopes until St. 0+660
Rockfill (un PAG) is started from st. 0+240 to St 0+300 at level 133.5
Till screening is being done. volume of stockpile No.3 is about 500 m³
South side:
Rock fill (un PAG) from St. 0+750 to St. 0+660 at level 133.5.
Compaction from st. 0+955 to St. 0+660 at level 133.5 (approved)
Excavation is ongoing to reach bed Rock for foundation preparation where central dike will connect to SD 5.
Delays:

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

Rockfill: 0+750 to 0+660 at level 133.5 (un PAG)
Rockfill: 0+240 to St 0+300 at level 133.5 (un PAG)
Compaction: St. 0+380 to St. 0+660 at level 132 (approved)
Compaction: St. 0+955 to St 0+660 at level 133.5 (approved)

Equipment: bull dozer, Crusher, 2 shovels, haul trucks

Manpower: Loader, Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-06-28 Inspector - Day/Night: Francis Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Shovel 345 (#1) working on the foundation on the North side
- Shovel 345 (#2) working on the slope on the south side
- Bulldozer is pushing the NON-PAG from North to South
- Shovel 1250 is loading the haul trucks with NON-PAG
- Loader is working on the screening of the Till
- Sample ~~355~~ 356 taken from Stockpile #3

Delays: Rockfill 0+300 @ 0+630 level 133.5
- Slopes done on the South Side on the NON-PAG

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

Equipment: 1 Bulldozer Haul trucks
2 x shovels 345
Shovel 1250

Manpower: Loader
Crusher
Bulldozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 29/06/2016 Inspector - (Day)/Night: Marie-Hélène Picard

Weather : CLOUDY + 18°C

Project: CENTRAL DIKE Contractor: F.G.L.

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

General Activities:

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

Description: NORTH SIDE:

COMPACTION FROM ST 0+250 @ 0+660

1 SHOVEL WORKS ON THE SLOPE

LOADER IS WORKING ON THE SCREENING OF THE TILL

SOUTH SIDE:

ROCKFILL FROM St. 0+960 @ 0+800 at level 135.0m

Delays:

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

Equipment: DOZZER: CAT D8T

2 SHOVELS CAT 345 (FOR EXCAVATION AND SLOPE)

LOADER KOMATSU 1250

Manpower: 4 HAUL TRUCKS CAT 773F.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/06/29 Inspector - Day/Night: Guy Lamarche / night

Weather : cloudy + 14°C

Project: Central Dike Contractor: PCL

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

General Activities:

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

Description:
- On the south side, the contractor put 1.5 meter of rockfill to reach level 133.5 between 0+800 to 0+640
- Excavator 345.D, working on the slope of the dike on level 133.5
- Excavator 345.D and a Dozzer D8T are working on the preperation of the fundation at the north end of the dike

Delays:

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

Equipment:
- Excavator : CAT 345 D 13-0301 / 11-0301
- Komatsu PC1250 11-0303
- Dozzer : CAT D8T 01/443

Manpower:
- Haul Truck : 1515/1516/1536/1537/1535

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 30/06/2016 **Inspector - (Day)/Night:** Marie-Hélène Picard

Weather : Sunny 19°C

Project: Central Dike / SD3 **Contractor:** F.G.L

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

General Activities:

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

Description: CENTRAL DIKE

NORTH SIDE → ROCKFILL DONE FROM 0+260 @ 0+380, level 135.0m
FOUNDATION PREPARATION by EXCAVATOR CAT 345D
FOUNDATION APPROVAL (END-CD-131)

SOUTH SIDE → COMPACTION FROM 0+970 @ 0+640
SHOVEL WORKS on THE slope (NOT FINISH)

SADDLE DAM 3
FOUNDATION PREPARATION by SHOVEL KOMATSU 1250

STOCKPILES SAMPLES

Delays:
1 sample FOR TILL (STOCKPILE #4), SAMPLE #357
4 samples FOR FINE FILTER (NPAG 0-3/4" (2)), SAMPLES #358 @ 361

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

Equipment: AT Central Dike: 2 EXCAVATORS CAT 345
1 DOZER CAT 443
4 HAUL TRUCKS (1535, 1536, 1517, 1516)

Manpower: AT SD3 : EXCAVATOR KOMATSU 1250.

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/06/30 - 01 **Inspector - Day/Night:** Guy Lemarche / night

Weather : Sunny +

Project: Central Dike **Contractor:** P.G.L.

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

General Activities:

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

Description:
- On the north side, the contractor put 1.5 meter of rockfill, to reach level 133 between 0+380 to 0+520
- Also on the north side, they cover the aprouved foundation at the north end of the dike with rockfill (Soapstone).
- Excavator 345D, working on the slope of the dike on level 133.
- Foundation preparation, removing soft till at the north end of the dike.

Delays:
SD3 - The contractor is removing material from the west side of the dike.

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

Equipment:
Excavator - CAT 345 D 11-0301
- Komatsu PC1250 11-0303
Dozzer - CAT D6T 443
Haul Truck - 1516/1517/1519/1530/1536

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 01/07/2016 **Inspector - (Day)/Night:** MARIE-HÉLÈNE PICARD

Weather : SUNNY, CLOUDY, +21°C

Project: CENTRAL DIKE **Contractor:** F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

NORTH SIDE: ROCKFILL FROM St. 0+520 to 0+550 (level 135.0m)
COMPACTION FROM 0+220 to 0+540.
FOUNDATION PREPARATION BY EXCAVATOR CAT 345D.
SAFETY BERMS AT EL 137.0m PUSHED ON THE SECTION TO BE RAISED WITH SOAP STONES.

SOUTH SIDE: NOTHING.

SADDLE DAMS 3 and 5: FOUNDATION PREPARATION TO REACH THE BEDROCK.

Delays:

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

SOAP STONE ACCUMALATION ON THE CREST OF CENTRAL DIKE will be placed IN THE MIDDLE OF THE CREST, AND NOT PUSHED ON THE DOWNSTREAM SIDE ACTUALLY RAISED.

INSPECTION OF THE STOCKPILE NEAR THE MARGINAL STOCKPILE: SOAPSTONE ON THE SOUTH SIDE. THE GOOD NPAG ON NORTH will be USED.

Equipment: AT CENTRAL DIKE: EXCAVATOR CAT 345, EXCAVATOR FOR STOCKPILE (KOMATSU WA600).
BULLDOZER
COMPACTOR

Manpower: AT SD3: EXCAVATOR KOMATSU 1250, HAULTRUCKS (1535, 1517, 1519)
AT SD5: EXCAVATOR CAT 345, HAUL TRUCKS (1516, 1536)

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/01 Inspector - Day/Night: Guy Lemerche / night

Weather : Rainy - Cloudy, sunny + 8 °c

Project: Centre / dike Contractor: P.C.C.

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

General Activities:

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

Description: - Rockfill.
- 1.5 meter lift to reach level 135' between 0+530 to 0+640
- 2.0 meter lift to reach level 137 between 0+980 to 0+850
- Compaction
- Level 135' between 0+520 to 0+640
- Foundation preperation
- on the north and south end of the dike.

~~Delays:~~

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

Equipment:
- Excavator CAT 345D 11-0301 / 13-0301
Komatsu PC1250 11-0303
- Dozzer CAT D6T 443

~~Manpower:~~
- Haul Truck 1516/1517/1535/1536/1519
- Roller CAT CS76 11-1101

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/02 **Inspector - (Day)/Night:** MARIE-HÉLÈNE PICARD

Weather : SUNNY, 15°C.

Project: CENTRAL DIKE **Contractor:** E.G.L.

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

General Activities:

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

Description: CENTRAL DIKE:

NORTH SIDE: SHOVEL WORKS ON THE SLOPE

FOUNDATION preparation almost done. INVERSE FILTER SECTION to be cleaned. ROCKFILL STARTED AT EL. 137.0m

SOUTH SIDE: ROCKFILL FROM 0+850 to 0+670 (LEVEL 137.0m).

SADDLE DAM 5: FOUNDATION PREPARATION. TILL IS STOCKPILLED.

STOCK PILE SAMPLE:

Delays: 1 SAMPLE FOR TILL (STOCKPILE #6), SAMPLE #362.

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

ROCKFILL FROM PIT D.

Equipment: ROCKFILL: KOMATSU 1250, DOZER DR8, KOMATSU WA600. HAUL TRUCKS 1535, 1519, 1517, 1536

slope: EXCAVATOR CAT 345

Manpower: SD5: EXCAVATOR CAT 345, HAUL TRUCK 1516

SAMPLE: KOMATSU WA600

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/02-03 Inspector - Day/Night: Lamerche Guy/night

Weather : Sunny + 9°C

Project: Central dike Contractor: F.C.L

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

General Activities:

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

Description:
- Rockfill
- 2.0 meter lift to reach level 137 between 0+260 to 0+480
- Compaction
- Level 137 between 0+980 to 0+670 compaction active with 6 passes of roller.
- Foundation preparation At the South end of the dike (SD-5)

Delays:
2 excavators are cleaning the Bedrock

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

Equipment:
Excavator : CAT 345D 11-0301 / 13-0301
Komatsu PC1250 11-0303
Dozzer : CAT D6T 4493
Roller : CAT CS76 11-1101
Haul Truck : 1516/1517/1519/1535/1536

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 03/07/2016 **Inspector** (Day)/Night: Marie-Hélène Picard

Weather : SUNNY, +17°C

Project: CENTRAL DIKE **Contractor:** F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

NORTH SIDE: FOUNDATION PIEPARATION ONGOING.
ROCKFILL FROM 0+480 to 0+640, level 137.0m (NPAG MATERIAL)
COMPACTION OF THE SOAP STONE (FROM SAFETY BERMS) FROM st. 0+980 to 0+860.
FROM st 0+560 to 0+660, level AT THE center of the crest lower than El. 137.0m. This section WAS SCARIFIED AND DEPOSITION OF ROCKFILL (PAG MATERIAL) STARTED (st. 0+560).
COMPACTION FROM St 0+280 to 0+560 STARTED.

Delays: SOUTH SIDE: DOWNSTREAM SLOPE ONGOING
SADDLE DAM 5 & FOUNDATION PREPARATION ONGOING.
STOCKPILE SAMPLES: (COARSE FILTER).
2 SAMPLES FROM STOCKPILE #1 - NPAG 0-6" (#363 & 364)

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

2 SAMPLES FROM STOCKPILE #2 - NPAG 0-6" (#365 & 366)

Equipment: SD5: EXCAVATOR CAT 345D and HAULTRUCK 1516.
CENTRAL DIKE: DOZER (MINE), COMPACTOR, HAULTRUCKS (1536, 1517, 1519 & 1535), EXCAVATOR KOMATSU 1250.

Manpower: FOUNDATION prep (NORTH): DOZER D8T (CONTRACTOR) and EXCAVATOR CAT 345D
SCARIFICATION: STARTED WITH KOMATSU WA600, than switched with CAT 980H.

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/03-04 **Inspector - Day/Night:** Guy Lamarche / night

Weather : Sunny + 10 °c

Project: Central dike **Contractor:** P. G. L.

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

General Activities:

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

Description:

- Rockfill
  - 2.0 meter lift to reach level 137 between 0+640 to 0+670
  - 2.0 meter lift to reach level 139 between 0+620 to 0+720 with PAG, 3 meters lefr empty on each side.
- Compaction
  - 8 passes of roller on level 137 between 0+260 to 0+670
- Foundation preparation
  - At the north end of the dike, excavator cleaning bedrock.

Delays:

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

Equipment:

- Excavator : CAT 345D 11-0301 / 13-0301
- Komatsu PC 1250 11-0303
- Dozzer : CAT D8T 443
- Roller : CAT CS76 11-1101
- Haul Trucks : 1517/1519/1535/1536/1516

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 04/07/2016 Inspector - (Day)/Night: MARIE-HÉLÈNE PICARD

Weather : SUNNY, CLOUDY +14°C

Project: CENTRAL DIKE Contractor: E.G.L

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

General Activities:

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

Description: CENTRAL DIKE

SOUTH SIDE: ROCKFILL (PAG) AT EL. 139.0m FROM St. 0+750 @ 0+700. DOWNSTREAM SLOPE.

NORTH SIDE: FOUNDATION APPROVAL (FND-CD-132) FOR ROCKFILL AND INVERSE FILTERS (St. 0+200 to 0+100). SAMPLE OF TILL BY THE QA to VALIDATE DE % OF ICE.

ROCKFILL OF NPAG + COMPACTION AT El. 135.0m FROM St. 0+230 to 0+200.

ROCKFILL OF NPAG AT El. 137.0m FROM 0+240 to 0+200.

Delays: Upstream COARSE FILTER STARTED AT St. 0+195.

SADDLE DAM 5: FOUNDATION PREPARATION WITH A DOZER.

STOCKPILE SAMPLES: 1 SAMPLE OF SIEVED TILL (STOCKPILL #7), SAMPLE #367, 4 SAMPLES OF FINE FILTER (STOCKPILE PIT D),

Comments (observations, comments, discussions with contractor, ect.): SAMPLES #368, 369, 370 and 371.

Equipment: SD5: DOZER D8T
CD: 2 EXCATORS CAT 345D
EXCAVATOR KOMATSU 1250
LOADER WA600
DOZER PER (MINE)

Manpower: HAUL TRUCKS 1516, 1517, 1535 and 1536

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/04 05 **Inspector - Day/Night:** Guy Lamarche / night

Weather : cloudy, sunny + 10°C

Project: central dike **Contractor:** P.C.L.

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

General Activities:

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

Description:

- Rockfill
- 2.0 meter lift to reach level 139 between 0+350 to 0+400. Center of the dike only 5 meters gap on each sides.
- Excavator working on the slope on level 137

Delays:

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

Equipment:

- Excavator : CAT 345D 13-0301
  Komatsu PC1250 11-0303
- Dozzer : CAT D6T 443

Manpower:

- Haul Truck : 1517/1519/1535/1536

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 05/07/2016 Inspector (Day)/Night: MARIE-HÉLÈNE PICARD

Weather : SUNNY, +15°C

Project: CENTRAL DIKE Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE:

▷DOWNSTREAM SLOPE ONGOING

NORTH SIDE: ROCKFILL (PAG) AT El.139.0m FROM 0+400 to 0+440.

FINE FILTER ON THE FOUNDATION FROM 0+195 to 0+115. COARSE FILTER STARTED.

COMPACTION OF THE INVERSE FILTERS (FINE+COARSE), 4 PASSES.

COMPACTION OF NPAG FROM 0+240 to 0+200.

SADDLE DAM 5:

FOUNDATION PREPARATION, CLEAN-UP OF THE TILL

SAMPLE:

Delays: SAMPLE OF THE FINE FILTER IN PLACE (#372) AT ST. 0+143.5, O/S -15.714m, El. 141.060m (N: 7215145.960, E: 138641.510)

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

Equipment:
2 DOZERS
2 EXCAVATORS CAT 3450
KOMATSU 1250

Manpower:
KOMATSU WA600
HAUL TRUCKS 1516, 1517, 1519, 1535 & 1536
WATER TRUCK BEFORE THE COMPACTION OF THE INVERSE FILTERS.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/25 Inspector - Day/Night: Guy Lemarche / night

Weather : Sunny + 10°c

Project: Central dike Contractor: R. G. L.

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

General Activities:

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

Description:
- Rockfill
- 2.0 meter lift to reach level 139 between 0+440 to 0+500 center of the dike only, 5 meters gap on each sides
- Excavator working on the slope on level 137
- Foundation preparation (SD.5)
- Excavator cleaning bedrock at the south end of the dike.

~~Delays~~:

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

Equipment:
- Excavator : CAT 345D 11-0301/13-0301
  Komatsu PC1250 11-0303
- Dozzer : CAT D8T 443
- Haul Truck : N16/1517/1535/1536

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 06/07/2016 Inspector (Day)/Night: MARIE-HÉLÈNE PICARD

Weather : Sunny + 15°C

Project: CENTRAL DIKE Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE:

- DOWNSTREAM SLOPE DONE
- SOUTH SIDE: ROCKFILL (PAG) AT EL. 139m, FROM 0+720 to 0+710.
- NORTH SIDE: ROCKFILL (PAG) AT. EL. 139m, FROM 0+500 to 0+520.

COARSE FILTER INSTALLED AND COMPACTED, FROM 0+195 to 0+115, with 4 passes. ROCKFILL (PAG) AT 0+210.

PREPARATION OF THE ACCESS AT THE NORTH.

- SD4 & SD5: FOUNDATION PREPARATION.
- SAMPLES: # 373 → COARSE FILTER IN PLACE (CENTRAL DIKE) 0+160.4, O/S - 23.5m, El. 140.6m

374 → COMPACTED TILL (Rough till), STOCKPILE CENTRAL DIKE NORTH

375 → ROUGH TILL, STOCKPILL SNOW DUMP.

Delays:

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

Equipment: DOZER D8R (mine)
DOZER (CONTRACTOR)
COMPACTOR

Manpower: 2 EXCAVATORS CAT 345D
HAUL TRUCKS 1516, 1517, 1535 & 1536
WATER TRUCK BEFORE THE COMPACTION OF THE COARSE FILTER.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-07-06 Inspector - Day/Night: Guy Lamarche / night

Weather : Sunny + 13°C

Project: Central dike Contractor: R.C.L.

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

General Activities:

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

Description:
- Rock fill
  - 2.5 meter lift to reach level +89 between 0+250 to 0+350
  - They go wider on the west side of approximately 3 meters starting @ 0+350
- Foundation preparation
  - 1 excavator an 1 dozzer are cleaning bedrock on the south end of SD3
  - 1 excavator is cleaning bedrock on the south side of SD 4, between 4+280 and 4+320

Delays:

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

Equipment:
- Excavators : CAT 345-D 11-0301 / 13-0301
  Komatsu PC1250 11-0303
- Dozzer : CAT D-8R D0203
  CAT D8T 4453
- Haul Trucks : 1516/1517/1519/1536

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 07/07/2016 Inspector (Day)/Night: Marie-Hélène Picard

Weather : sunny

Project: CENTRAL DIKE Contractor: E.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

NORTH SIDE: CLEAN up of the foundation (DOWNSTREAM) BEFORE THE ROCKFILL
ROCKFILL (PAG) on the FOUNDATION, FROM St. 0+195 to 0+160.
ROCKFILL (PAG) AT El. 139m, FROM 0+550 to 0+580 (0/S -5, -35)
upstream slope ongoing (St. 0+530 to 0+480)

SD5: FOUNDATION PREPARATION. Foundation approval. Water accumulation when we approved. The water HAS been pumped.

SD3: TILL CLEAN-UP

SAMPLES: #374 → more samples taken AT THE STOCKPILE CENTRAL DIKE NORTH.
#375 → CANCELLED (NOT ENOUGH soil)
#377 & #378 → ROUGH till, STOCKPILE SNOW dump.

Delays:

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

Equipment: HAUL TRUCKS: 1516, 1519, 1517, 1535 & 1536
DOZER D8T / DOZER D8R
KOMATSU 1250

Manpower: 2 EXCAVATORS 345D
KOMATSU WA600.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/07-08 Inspector - Day/Night: Guy Lemerchi/night

Weather : Sunny + 14°C

Project: Central dike Contractor: P.G.L.

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

General Activities:

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

Description: - Rock fill

- up to 2 meter list at the south end (SD-5) on the foundation approuved during day shift.
- 2 meter lift to reach level 139 between 0+570 to 0+590
- Compaction (not completed)
  - At the north end of central dike between 0+160 to 0+200 passes as been done.
- Foundation preparation
  - Excavator cleaning bedrock on SD-4

~~Delays~~:

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

- Excavator doing slope at level 139, all night.

Equipment:

Excavator : CAT 345D 11-0301/13-0301
Dozzer : CAT D6T 4443
Haul Truck : 1516/1517/1519/1536
Loader : CAT WA600
Roller CAT CS76 11-0101

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 08/07/2016 Inspector - (Day)/Night: Marie-Helene Picard

Weather: sunny, +23°C

Project: CENTRAL DIKE Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE:

- UPSTREAM SLOPE COMPLETED
- ROCKFILL COMPLETED AT THE NORTH, ON THE FOUNDATION APPROVED AND INVERSE FILTERS
- COMPACTION FROM 0+180 to 0+120 (upstream) and 0+240 to 0+120 (downs.)
- ACCESS AT THE NORTH completed
- COMPACTION AT El. 139m from st 0+350 @ 0+435 completed. 0+435 to 0+500 started.
- INSTRUMENTATION BACKFILLED.

Delays: SADDLE DAM 5

- COMPACTION FROM st 40+740 to 40+780 completed. SCARIFICATION DONE BEFORE STARTING THE ROCKFILL (ACCESS)
- SADDLE DAMS 3 & 4: PREPARATION OF THE ACCESS road (SD3), FOUNDATION PREPARATION (SD4)

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

Equipment:
- COMPACTOR
- DOZER D8T
- 2 EXCAVATORS CAT 345
- HAUL TRUCKS 1516, 1517, 1519, 1535 & 1536.

Manpower:
- DOZER WA600
- KOMATSU 1250

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2019/07/08-09 **Inspector - Day/Night:** Guy Lamarche / night

Weather : Sunny + 15°c

Project: Central dike **Contractor:** P. G. L

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

General Activities:

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

Description:
- Rock fill (CD)
  - 2meter lift to reach level 139 between 0+790 to 0+660
- Foundation preperation
  - 1 excavator cleaning bedrock (SD.C) between 40+240 to 40+140
  - 1 excavator removing soft till on west side of SD.J
- Compaction
  - finalyse the portion between 0+350 to 0+440 and new section done between 0+430 to 0+470 8 passes of roller on all the surface.

Delays:

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

Equipment:
- Excavators: CAT 345D 11-0301/13-0301
  Komatsu PC1250 11-0303
- Dozzer : CAT D8T 443

Manpower:
- Haul Truck: 1516/1517/1519/1535
- Roller : CAT CS76 11-1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 09/07/2016 Inspector - (Day)/Night: Marie-Hélène Picard

Weather: sunny, +23°C

Project: CENTRAL DIKE Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

- ROCKFILL (NPAG) AT El. 139m, FROM st. 0+340 to 0+520, DOWNSTREAM SIDE.
  - DOWNSTREAM SLOPE FROM 0+200 to 0+170.
  - UPSTREAM SLOPE FROM 0+540 to 0+660
- COMPACTION OF THE NPAG FROM 0+460 to 0+340.
- DOWNSTREAM SLOPE STARTED FROM St. 0+340.

SADDLE DAM 5

- EXCAVATION OF THE FOUNDATION NOT APPROVED SECTION.

Delays: SADDLE DAM 3

- ACCESS ROAD FINISHED.
- Till clean up. Used for the ACCESS ROAD, then to the WASTE DUMP.

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

BERM of PAG material: BE CAREFULL TO KEEP THE 3M OF NPAG when THE BERM IS pushed down.

NPAG WAS from SDS EXCAVATION. At some time, there was to much fine in the material. Told them to have a better mixte.

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2018/07/09 Inspector - Day/Night: Guy Lamarche / night

Weather : c/o-dy +18°c

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: - Rockfill
- 2 meter lift to reach level 139 between 0+200 to 0+270 surface scarified on level 137
- Foundation preparation
- An excavator removing soft material at the merge of central dike and SD-5
- An excavator removing soft material on the east side of SD-3

Delays: - Compaction
- Compaction done with 8 passes of roller between 0+440 to 0+460

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

Equipment: - Excavator : CAT 345D 11-0301 / 13-0301
Komodju PC 1250 11-03-03
- Dozzer : CAT D6T 443
Manpower: - Haul truck : 1516 / 1517 / 1535 / 1538
- Roller : CAT CS 76 11-1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 10/07/2016 Inspector (Day)/Night: MARIE-HELENE PICARD

Weather : SUNNY, RAIN +22°C

Project: CENTRAL DIKE Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

- ROCKFILL (PAG) AT El. 139m, FROM 0+270 to 0+340 (ALMOST FINISHED)
- COMPACTION AT El. 139m, FROM 0+800 to 0+720, AND FROM 0+180 to 0+240, AND FROM 0+560 to 0+660.

SADDLE DAM 3

- FOUNDATION PREPARATION AND TILL CLEAN UP.

SADDLE DAM 5

- FOUNDATION PREPARATION AND CLEAN UP. CLEAN UP OF THE ACCESS ROAD (FOUNDATION NOT APPROVED) AND RIPPING OF THIS SECTION TOO.

Delays:
- COMPACTION AT El. 135.5 to 137m, FROM 40+670 to 40+750, 9/5.30,7R AND 24,0L.

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

Equipment: COMPACTOR, DOZER D8T, DOZER D8R, 2 EXCAVATORS 345D, KOMATSU 1250, HAUL TRUCKS.

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/07/10 Inspector - Day/Night: Guy Lamerche / night

Weather : Sunny +16 °C

Project: Central dike Contractor: P. G. L

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

General Activities:

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

Description: - Rockfill.
- 2 meter lift to reach level 139 between 0+340 to 0+350 end of cell to 0+720, widen on the east side between 0+720 to 0+790
- Foundation preparation
- 1 excavator, bedrock cleaning on SD-4 west end of the dike
- 1 excavator, bedrock cleaning on SD-3 North Time and SD-5 the other North.
- Compaction level 139, 8 passes between 0+340 to 0+350 and between 0+660 to 0+720 (not completed)

Delays:

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

Equipment: - Excavators : CAT 345D 11-0301 / 13-0301
Komatsu PC1250 11-0307
- Dozer : CAT D7R 443
Manpower: - Haul Truck : 1516 / 1517 / 1535 / 1536
- Roller : CAT CS76 11-1101
- Loader : CAT WA600

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 11/07/2016 Inspector - Day/Night: Saraz olyaie

Weather : Sunny / 22°

Project: Central dike / SD5 Contractor: F.G.L.

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

General Activities:

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

Description: South side:

Rockfill done until St. 0+840 at level 139.

Compaction done from St. 0+660 to St 0+820 (level 139) approved

Foundation at SD5 was inspected by AGNICO Eagle, Golder, SNC and F.G.L personnels and has been approved.

North side:

Shovels works on slopes (downstrem)

Delays:

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

Compaction: From St 0+660 to St 0+820 (level 139) approved

Rockfill : From St 0+720 to St 0+840 (level 139)

Equipment:

haul trucks

Loader

bull dozer

Manpower:

Shovels

Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-11 Inspector - Day/Night: Francis Rose

Weather : Sunny / Cloudy

Project: Central Dike / SD5 Contractor: F.G.L.

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

General Activities:

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

Description:

- Rockfill on the foundation for SD5 is being done with the Bulldozer D6T and 4 haul trucks

- Shovel 345 ~~removing the excess rock on the south side~~ is removing material beside the central dike on the south side ± 0+940 @ ± 0+980
- Shovel 345 (HZ) is working on the slope on the south side (downstream + upstream)

Delays: - Shovel 345 is excavating to the bedrock for the foundation of Saddle Dam 5

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

Rockfill 0+840 @ ± 0+865 level 139

Foundation Over the foundation that was approved for SD5 @ ± 40+800 @ ± 40+760

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 12/07/2016 Inspector - Day/Night: S. Olyaie

Weather : Sunny / 23°

Project: Central dike / SD5 Contractor: F.G.L

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

General Activities:

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

Description: South side of central dike:
Rockfill done from St. 0+865 to St 0+900 (level 139)

Saddle dam 5:
Compaction done between St. 40+650 to St. 40+737 at level about 137 (average width = 15 m)

Shovel and bulldozer work on next area of SD5 for foundation preparation and clean up area.

Delays:

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

SD5 : Compaction from St. 40+650 to St. 40+737 (level 137)
CD : Rockfill from St. 0+865 to St 0+900 (level 139)

Equipment:
bulldozers (2)
Shovel (1)
haul trucks (4)

Manpower:
Compactor (1)

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-12 Inspector - Day/Night: Francis Rose

Weather : Sunny

Project: Central Dike/SD5 Contractor: F.G.L.

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

General Activities:

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

Description:

- Excavator is working on the foundation of the SD5
- Bulldozer is pushing rockfill from 0+355 @ 0+200 downstream on a width of about ± 7.5m
- Excavator is working on the slope upstream
- Excavator who was working on foundation is now removing material downstream at around 0+940

Delays:

- Bulldozer is now pushing NON-PAG downstream from 0+500 @ 0+760

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

Analysis for sample 373 is finished

Equipment: 2 shovels 345
Bulldozer
Shovel 120

Manpower: Compactor
4 haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 13/07/2016 Inspector - Day/Night: Sanaz Olyaie

Weather : Sunny / 23°

Project: Central Dike Contractor: F.G.L

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

General Activities:

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

Description: North Side:

Compaction done on downstream Non PAG from st. 0+200 to 0+340 (approved)

South Side:

Shovels works on slopes.

Rockfill is done at level 139 toward SD5.

Foundations at SD5 was inspected by Agnico Eagle, Golder, SNC and F.G.L personels and has been approved.

~~Delays:~~

Lab:

Analysis of Sample 374 is ongoing. Sample 377 is in the oven to become dry

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

Equipment: Shovels
bull dozers
haul trucks

Manpower: Compactor
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-13 Inspector - Day/Night: Francis Rose

Weather : Sunny ± 19°C

Project: Central Dike / SD4 Contractor: F.G.L.

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

General Activities:

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

Description:

- Bulldozer is pushing rockfill (PAG) on the south side of the dike from 0+880 @ 0+960
- Loader is loading the haul trucks with PAG that comes from the Pit
- Shovel 350 is now loading the haul trucks
- Excavator is working on the slope of the Non-PAG downstream
- Excavator #2 is working on the foundation for SD4

Delays:

- Compacting PAG from 0+880 @

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

- Contractor spreads water so as to control the dust in the air

Rockfill: 0+880 @ 0+960 (PAG) ; 0+880 @ 0+960 (Non-PAG Downstream) level 139
Compaction 0+880 @ 0+915 level 139

Equipment:

Bulldozer
Excavators
4 haul trucks

Manpower:

Loader
Water truck

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 14/07/2016 Inspector - Day/Night: Samz olyaie

Weather : Sunny / Cloudy 22°

Project: Central dike / SD5 / SD4 Contractor: F.G.L.

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

General Activities:

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

Description: Central dike : South side:

Compaction is done until St. 0+960 at level 139 (approved)

Shovel works on up stream slopes (Non PAG) toward south side.

* Saddle Dam 5 :

Soap stone is placed on SD5 transmition (depressition) and is compacted at level 137 (approved)

shovel works on slopes at this transmition part.

fine filter is placed on SD5 from st. 40+750 to st. 40+620.

Sample # 379 is taken in place for fine material. before compaction

compaction of fine material is done and approved.

Shovel start to place coars material on SD5.

* Saddle dam 4 :

Shovel works for Foundation preparation and clean up.

Foundation on SD4 was inspected by Agnico, Golder, SNC and F.G.L personnels and has been approved.

Note: Sample # 379 info: fine filter at SD5 : St. 40+700.4, o/f = 23.7mL
ele. 137.6 m

Equipment:
Shovels
bull dozers
haul trucks

Manpower:
Compactor
Loader

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-14 Inspector - Day/Night: Francis Rose

Weather : Cloudy/Windy

Project: Central Dike / SD5 Contractor: F.G.L.

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

General Activities:

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

Description:

- SD5: Coarse filter done from 40+685 @ 40+630
  - compaction of coarse filter is done and approved 40+685 @ 40+630
  - NON-PAG placed from 40+780 @ 40+680
  - compaction of NON-PAG is done and approved 40+780 @ 40+680

CD: Excavator is placing the coarse filter along the central dike upstream from 0+200 @

Delays: Compaction: 40+685 @ 40+630 coarse filter
40+780 @ 40+680 NON-PAG
Rockfill: 40+780 @ 40+680 NON-PAG
Coarse filter: 40+630 @ 40+680 (SD5) ; 0+200 @

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

Sample # 380, coarse filter (in place) ± 40+685

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 15th july 2016 Inspector - Day/Night: Saraz Olyaie

Weather : Rainy / windy

Project: Central dike / SD4 Contractor: F.G.L

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

General Activities:

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

Description: Central dike:

* Shovel works for clean up the finger on downstream slopes.
* shovel works on slopes south side at level 139 from St ± 0+920 to St ± 0+960 and slopes in transmition side toward SD5. (down stream side)

SD4:

Rock fill done at enlargement area (Soap stone)

Lab:

Sample # 377 is finished (Rough till)

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

Equipment: Shovels (2)
haul trucks (3)
bulldozer
loader

Manpower:

Photos Location:

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

K:\Centre Dike\2016\Daily Inspection Reports and Weekly pp\QC-Daily Inspection Report.xls]Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-15 Inspector - Day/Night: Francis Rose

Weather : Cloudy / Rain ± 6°C

Project: SDA / Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

Central Dike: Coarse Filter 0+377 @ 0+410 ; 0+610 ~~0+600~~ @ 0+520
Fine Filter 0+200 @ 0+±425

SDA: Compaction done and approved from 40+250 @ level 138
Rockfill : done from 40+250 @ level 140
Compaction done and approved from 40+250 @ level 140

Delays: level 141.5 has started

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

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 16/07/2016 Inspector (Day/Night): Sanaz Olyaie

Weather: Windy (Rain) 7°

Project: Central dike / SD4 Contractor: F.G.L

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

General Activities:

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

Description: Saddle dam 4:

Rockfill done at level 141.5 until St. 40+260 . (approx)

Shovel works on downstream slopes. (done ongoing) From St 40+100 to 40+320 (approx

Central dike:

Compaction of first lift of fine and coarse filter is done from St. 0+200 to St. 0+610. (approved)

& placing of coarse and fine filter is started from St 0+610 toward north side. (second lift for)

Delays: 2 shovels works at the same time for placing filter material on downstream slopes.

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

SD4: Rockfill from St 40+400 to St. 40+260 at level 141.5.

Equipment: Shovels (2)
bull dozer
haul trucks (4)

Manpower: Compactor
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-16 Inspector - Day/Night: Francis Rose

Weather : Cloudy/Rain/Windy

Project: CD & SD4 Contractor: F.G.L.

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

General Activities:

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

Description:

Central Dike: Compaction done on the 3rd lift of course and fine filter from 0+600 @ 0+200
- 3rd lift of coarse filter from ± 0+600 @ ±0+410
- 3rd lift of fine filter from : 0+600 @ 0+410
Compaction of the 3rd lift of coarse and fine from ±0+600 @ 0+410
- Start of level 141

SD4: Bulldozer pushing rockfill from 40+260 @ level 141.5
Level 141.5 finished

Delays:

Analysis of sample #37B is finished

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

Compaction: 0+600 @ 0+200 Coarse and fine ~~test~~ 3rd lift (CD)
0+600 @ 0+410 coarse and fine 3rd lift (CD)
Coarse filter: 0+600 @ 0+410 (3rd lift); 0+600 @ ±0+490 (4th lift) (CD)
Fine filter: 0+600 @ 0+410 3rd lift (CD)
Rockfill: 40+260 @ level 141.5 (SD4) finished

Equipment:
- Shovel 345, 1250
- Loader 600
- Bulldozer

Manpower:
- Compactor
-

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 17/07/2016 Inspector (Day)/Night: Sanaz Oyarie

Weather: Sunny / Cloudy / 17°

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: Rock fill (Soap Stone) is done from st. 0+600 to St. 0+~~500~~ 510 at level 141.
placing of Rock Fill (PAG) is started in the afternoon (3:30pm) from St. 0+590 (level 141)
bull dozer push materials toward North Side.
2 shovels works at the same time on downstream side to place fine and Coarse filter:
Second lift of fine and Coars filter are done from st 0+600 to 0+207.5 and also the compaction is done and approved.
third lift of fine and Coars filter are done from ~~600~~ to St. 0+600 to St. 0+435 and has been compacted and approved.
Delays: 4th lift of fine and Coars filter are done also from st 0+600 to St 0+435 and has been compacted and approved.
placing of third lift of Coars filter is started in the afternoon from st 0+435 to St 0+330.

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

Soap Stone Rock fill: From 0+600 to St 0+510 at level 141
PAG Rock fill: From 0+590 toward North Side at level 141
filter (Coarse and fine): Second lift is completed and approved for compaction from 0+600 to 0+207.5

Equipment: 2 shovels
4 haul trucks
bull dozer

Manpower: Loader
Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-17 Inspector - Day/Night: F. Rose

Weather : Sunny / Cloudy / ± 11°C

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

SD4: Compaction of level 141.5 ~~done and approved~~ halfway done

CD: Rockfill from 0+510 @ level 141

Coarse filter, third lift from 0+435 @ 0+200
Fine filter, 3rd lift from 0+435 @ 0+200
Coarse filter, 4th lift from 0+435 @ 0+200
Fine filter

Delays:

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

Equipment: Shovel 345
Compactor
Bulldozer

Manpower: Shovel 1250
Loader
4 haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 18/07/2016 Inspector (Day/Night): Samar dgecie

Weather : Sunny / Clandy 17°

Project: Central dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓	Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till	
Water Control		Fine Filter	✓	Rockfill	✓		

Description:

*Rockfill (soape stone) is done from st 0+428 to St. 0+390 at level 191

*Rockfill (PAG) upstream is done from st 0+428 to st 0+390 at level 191

*dozer push material toward North side.

* 2shovels work at the same time for Filter material installation.

*4th lift of fine and coarse filter is done up to st 0+200. and is compacted (approved)

2 lift (first and second) of filter (fine and coarse) is done from st 0+200 to St 0+100 and is compacted (approved)

*work stopped at 10 am until 1:30 pm due to crew change!

* Sample #381 is taken from Stock pile north side of central dike snow dump

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

Equipment: bull dozer
Shovels (2)
Compactor

Manpower: haul trucks (4)
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-19 Inspector - Day/Night: F. Rose

Weather : Cloudy

Project: CD Contractor: F.G.L.

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

General Activities:

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

Description:

SDA: Compaction of level 141.5 from 40+340 @ 40+240

CD: Rockfill from 0+390 @ level 141 (soapstone)
Rockfill from 0+390 @ level 141 (PAG)

Coarse filter from 0+100 @ ~~4th~~ 5th
Coarse filter 1st lift : 0+740 @ 0+940
Fine filter 1st lift : 0+780 @ 0+940

Delays:

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

Equipment:

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/19 Inspector (Day/Night): Sana2 olyaie

Weather: Sunny /windy 17°

Project: Central dike Contractor: F.G.L

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

General Activities:

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

Description: North Side:

Rock fill (Soap stone) from st 0+295 to 0+210 (approx) at level 141.

Rockfill (PAG) upstream from st 0+340 to 0+230 (approx) at level 141.
bull dozer push material toward northSide.
fine filter and coars filter is done until st 0+120 (approx) and is compacted (approved)

South Side:
Shovel works on slope of SD5 (done) (AM)
Shovel works on downstream slope from st 0+960 to 0+910 (approx) (PM
2 shovels works at the same time on filter installation upstream of dike
first lift of fine and coarse filter is done from st 0+940 to 0+600. and is compacted (approved)

~~Comment (observations, comments, discussions with contractor, etc.):~~

Second lift of fine and coarse filter is done from st 0+940 to 0+ 360 and compacted (approved)
3th lift of coarse filter is done from 0+940 to 0+838.
3th lift of fine filter is started lately afternoon (5:30 pm).

Equipment: Shovels (2)
compactor
haul trucks (4)

Manpower: Loader
bull dozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-19 Inspector - Day/Night: F. Rose

Weather : Sunny / ± 12°C

Project: Central Dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓ Drilling/Blasting
Foundation Preparation		LLDPE/Geotextile		Till	
Water Control		Fine Filter	✓	Rockfill	✓

Description:

Rockfill : 0+210 @ ± 0+100 soapstone
0+210 @ ± 0+100 PAG
Coarse filter : 2nd lift 0+860 @ 0+600
Fine filter : 2nd lift 0+860 @ 0+600
Compaction : 2nd lift 0+860 @ ± 0+720 ← ?
Coarse filter : 3rd lift [redacted] 0+880 @ ?
Fine filter : 3rd lift 0+[redacted] @ ?
Compaction : 3rd lift 0+880 @ ?

Delays: Coarse filter : 4th lift

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

* The foreman and I mentioned to the shovel operator to make sure that we see the painted lines when placing the coarse filter
* Mentioned to the foreman and shovel operator to be careful not to mix the fine filter with soapstone or PAG. The foreman and I walked along the fine filter and removed the soapstone and PAG that was mixed with the fine filter

Equipment:

Manpower: Starter 345, 1250
Compactor
Loader
Bulldozer
4 haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/20 Inspector - (Day)/Night: Sanaz olyaie

Weather : Sunny (Claudy)

Project: Central dike / SD4/SD5 Contractor: F.G.L.

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

General Activities:

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

Description: North Side: Rock fill (NPAG) is done on downstream from St0+200 to 0+480 at level 141.
bulldozer push material (NPAG) toward south.

South: Sample #382 of fine filter is taken in place at St. 0+376, ele 139.15 and o/s = 20.36
Compaction is done on rock fill (Soap stone) from St. 0+600 to St 0+410 (approx)
3th lift of fine and Coarse filter from 0+860 to 0+700 is done and compacted
4th lift of fine and Coarse filter from 0+940 to 0+860 is completed and
Delays: compacted. (3th lift & 4th lift Compaction are approved)
3th lift of Coarse filter is completed up to St 0+600.
first lift of fine and Coarse filter is done at transmition between SD5 and CD and is compacted (approved) from St 0+940 (CD) to St 40+760 (SD5).

~~Comments (Observations, comments, discussions with contractor, ect):~~

Foundation approval: Foundation is inspected by Agnico, ~~to~~Golder, SNC and F.G.L personnel and has been approved.
SD4:
Shovel works on slopes (upstream) from St 0+370 to St 0+350 (approx)

Equipment: Shovels (2)
hand trucks (4)
Loader
Manpower: Compactor
dozer

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-20 Inspector - Day/Night: Francis Rose

Weather : Cloudy

Project: Central Dike / SD4 Contractor: F.G.L.

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

General Activities:

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

Description:

Central Dike: Rockfill (NPAG) done from 0+480 @ 0+600
Rockfill (Soapstone) done from 0+900 @ 0+850
- 4th lift of coarse filter done from 0+860 @ 0+600
- 3rd lift of fine filter done from 0+700 @ 0+600

- Compaction of 3rd lift of coarse and filter done and approved from 0+700 @ 0+600
Compaction of (NPAG) from 0+600 @ 0+410 done and approved
Compaction of Soapstone and NPAG from 0+410 @ 0+360

Delays:

SD4: Slope of the upstream on soapstone is all done
Slope of the downstream on soapstone is halfway done

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

Equipment: Shovels 345, 1250
Loader
Compactor

Manpower: Bulldozer
4 haul trucks

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/21 Inspector (Day/Night): Samz Alycia

Weather: Sunny / rainy (pm)

Project: Central dike / SD5 / SD4 Contractor: F.G.L

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓	Drilling/Blasting	
Foundation Preparation	✓	LLDPE/Geotextile		Till			
Water Control		Fine Filter	✓	Rockfill	✓		

Description: SD4: Shovel works on downstream slopes from st 40+380 to st 40+400.
Shovel works on north of SD4 for foundation preparation and cleanup (at st ± 40+140 approx).
Foundation inspection is done by AGNICO Eagle, Golder, SNC and F.G.L personneh and is approved. (FND-SD4-21)
Central dike: Rockfill (Soapstone and PAG) is done from 0+350 to 0+800 at level 141. bulldozer push material toward North side.
Compaction is done at Fine and Coars filter 4th lift from st 0+360 to st 0+600 and approved. (ele. 139)
Delays:
Compaction on soapstone and NPAG from 0+360 to 0+310 is done and approved. (ele. 141)
SD5 Transition part:
2end & 3th lift of fine and coarse filter is done from 0+940 to 40+760, compacted and slopes profiling is done. Compaction is approved.
4th lift of fine and coars filter is done from 40+800 to 40+760, Compacted and slopes profiling is done. compaction is approved.

Equipment: bull dozer
Shovels (2)
Compactor

Manpower: haul trucks (4)
Loader (2)

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-21 Inspector - Day/(Night): Francis Rose

Weather : Rain / ±3°C

Project: Central Dike / SD4 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation	✓	Coarse Filter		Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control	✓	Fine Filter	✓	Rockfill			

Description:

SD4: 1st lift of coarse and fine filter finished
- Compaction has also been done and approved
- 3rd lift of coarse filter is almost completed

CD: Rockfill from 0+800 @ level 141

- Compaction finished from 0+310 @ 0+180 on level 141
- Shovel 345 working on the ~~slope~~ ~~downstream~~ upstream slope from 0+600 @

Delays:

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

Equipment: Bulldozer
Shovel (x2) 345, 1250
Loader

Manpower: 4 haul trucks
Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/22 Inspector (Day/Night): Sanaz Okyaie

Weather: Sunny

Project: Central dike / SD4 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓	Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control		Fine Filter	✓	Rockfill	✓		

Description: Central dike South: Rock fill (Soap stone and PAG) is done from St 0+750 to St 0+610. (approx)
Compaction is done in south side at level 141 from 0+920 to 0+860.
North side:
Shovel works on upstream slopes from 0+300 to 0+200. (done) (level 141)
Shovel starts slopes profiling on downstream from 0+200 toward South. (level 141)
protection of instrumentation is done by AGNICO tech. for South side.
Saddle dam 4:
Shovel works on clean up and foundation preparation on south side about St 40+
Delays: Second lift of coarse filter at upstream is compacted and approved
first and second lift of inverse filter is done and compacted. Compaction is approved (Coarse filter)

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

Lab:
Test 381: analysis of test 381 is started (Rough till from North of central dike)

Equipment: bulldozer
Compactor
Shovels (2)

Manpower: haul trucks
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-22 Inspector - Day/Night: F. Rose

Weather : Cloudy / ± 6°C

Project: Central Dike / SD4 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter ✓	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	
Water Control	Fine Filter ✓	Rockfill ✓	

Description:

CD: Rockfill (soapstone + PAG) 0+610 @ 0+590
- Shovel 345 working on the downstream slope (completed)
- Compaction of central dike from 0+860 @ 0+600 (approved soapstone + PAG)
- Rockfill (NPAG) ~~0+610~~ @ 0+900 @

SD4: 2nd lift of coarse and fine filter done and compacted (approved)
- 3rd lift of coarse filter completed
- Shovel is working on the slope for the first two lifts of the fine filter
- 3rd lift of fine filter started

Delays:

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

Equipment: Bulldozer
Compactor
Shovel 345, 1250

Manpower: 4 haul trucks
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 23/07/2016 Inspector (Day/Night): Sana2 olyaie

Weather : Sunny, rain in afternoon

Project: Central dike, SD4, SD5 Contractor: F. G. L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓	Drilling/Blasting	
Foundation Preparation	✓	LLDPE/Geotextile		Till			
Water Control		Fine Filter	✓	Rockfill	✓		

Description: Central dike:

South side: NPAG is done from St 0+850 to St 0+580 at level 141.
Rock fill (NPAG) compaction side on downstream of the crest is done from St 0+920 to st. 0+850 and approved.
Shovels works on fine filter on upstream of the dike and make some correction
Shovel works on slopes from st 0+580 upstream side toward South side.

Saddle dam 5:

Surface is scarified before Rockfill (Soap Stone) start. (40+800 @ 40+620)
Rock fill (Soap stone) starts lately afternoon at St 40+800 (approx)

Saddle dam 4:

3th lift of fine filter is done. Compaction is done on 3th lift of fine and coarse filter upstream and approved.
Shovel works on profiling slopes upstream side from St 40+300 to St 40+160

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

Shovel works on South side for foundation preparation and clean up.

Clean surface and foundation inspected by Agnico Eagle, Golder, SNC and F G L and is been approved. (FND- SD4-22)
fine filter is installed on south side of SD4 and compacted, approved.
Coarse filter is installed on south side of SD4 and compacted, approved (2 lift)

Equipment: bull dozer works on surface to scarify the surface before next lift of Soap stone. (St. 40+400 @ 40+140)

Equipment: Loader bull dozer

Manpower:
Shovels (2)
haul trucks (4)
Compactor

Photos Location:

Note: Scale was broken at lab, NO test of granulometry for today. (Samples: 381, 382 and 379 are hold)

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-23 Inspector - Day/Night: F. Rose

Weather: Sunny / ± 6°C

Project: Central Dike / SDA Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation	✓	Coarse Filter		Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control	✓	Fine Filter		Rockfill	✓		

Description:

Central Dike: Shovel 345 installing the 1st lift of coarse filter at level 139.5 (0+200 @ 0+500.
- Shovel 345(2) is working on the upstream slope
- Shovel 345 is starting fine filter late in the day (5:40pm)
- Compaction is done and approved on (NPAG) 0+850 @ 0+600

SDA: Bulldozer is pushing scarpstone for the final layer of saddle dam 4
About ¼ one quarter done

Delays:

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

Analysis of sample #381 done, #379 and #380 there is only the fine material left to do
Scale has been replaced temporarily

Equipment: Shovel 345(2), 1250
Loader
Compactor

Manpower: Bulldozer
4 haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/29 Inspector: Day/Night: Samaz Olyaie

Weather: Sunny

Project: Central dike/SD3/SD4/SD5 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	☑	Drilling/Blasting	
Foundation Preparation	☑	LLDPE/Geotextile		Till	☐		
			☑		☑		

Description: SD3: Shovel works on South side for clean up and Foundation preparation.

SD4: Compaction is done on level 143. from St 40+420 to St 40+310.

SD5: Rock fill done from St 40+780 to 40+640 at level 141.
in 5:30 pm, Rock fill starts on this area toward central dike at level 141, from St 0+780.

Central dike:
the first lift of fine and coarse filter is done from St 0+220 to 0+420 and compacted. (approved)
Second lift of fine and coarse filter is done from St 0+220 to 0+400.
Compaction on second lift (Fine & Coarse) is done from 0+220 to 0+380.
3th lift of Coarse filter is started lately afternoon from 0+220 toward South side.

Lab: Gradation analysis of Samples 379 & 382 is finished.

* all indicated station are approximative *

Equipment:
Loader
shovels (2)
bull dozer

Manpower:
Compactor
haul trucks (4)

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-24 Inspector - Day/Night: F. Rose

Weather : Sunny / ± 9°C

Project: Central Dike/SD3/SD4 Contractor: F.G.L.

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

General Activities:

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

Description:

SD3: Shovel is moving the material that was excavated for the foundation preparation

SD4: After lunch, Bulldozer is pushing soapstone

CD: Before lunch, Bulldozer was pushing soapstone from SD5 towards central dike

- Shovel is placing coarse and fine filter (3rd lift) on the upstream of the dike
- Compaction done on the 3rd lift (140,5) for coarse and fine filter from ± 0+200@

Delays:

- Compaction done on the 2nd lift from

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

Equipment:
Loader
Shovel 345, 1250
Bulldozer
Compactor

Manpower:
4 haul trucks

Photos Location:

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

X:\Central Dike\2016\03- Daily Inspection Reports and Meetings\CD-Daily Inspection Report as\Daily Report

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-07-25 Inspector - (Day)/Night: MARIE-HÉLÈNE PICARD

Weather : SUNNY/cloudy, +10°C

Project: CENTRAL DIKE, SD3, SD4 & SD5 Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE :

- PREPARATION FOR THE DOWNSTREAM SLOPE
- COARSE FILTER FROM 0+430 to 0+180.

SADDLE DAM 3:

- FOUNDATION APPROVAL

SADDLE DAM 4:

- ROCKFILL (SOAPSTONE) AT El. 143m FROM 40+240 to 40+120

SADDLE DAM 5:

Delays:

- ROCKFILL AT El. 141m ongoing.
- COMPACTION FROM 40+700 to 40+800 ongoing
- COMPACTION OF THE FILTER DONE

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

Equipment: bulldozer HAULTRUCKS.
COMPACTOR
DOZER

Manpower: 2 EXCAVATORS
KAMATSU 1250

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/23 Inspector - Day/Night: Guy Lemarche / night

Weather : cloudy +

Project: Central Dike Contractor: R.C.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter ✓	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	
	✓	✓	

Description:

- Rock fill (central dike)
  - 2 meter lift to reach level 141 between 0+900 to 0+940
- Coarse filter (central dike)
  - 0.5 meter lift to reach level 140 between 0+440 to 0+560
- Fine filter (central dike)
  - 0.5 meter lift to reach level 140 between 0+440 to 0+560
  - 0.5 meter lift to reach level 141 between 0+280 to 0+420
- All filter compated with 4 passes vibrator.

Delays:

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

- Sample #303 Coarse Filter in place 0+460 Level 140

Equipment:

- Excavator : CAT 345-D 11-0301/13-0301
  Komatsu PC1250 11-0303
- Dozzer : CAT D6T 443
- Haul Truck : 15'16/15'17/15'19/15'35/15'36
- Roller : CAT CS76 11-1101

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 26/07/2016 Inspector (Day)/Night: MARIE-HÉLÈNE PICARD

Weather : sunny, +15°C

Project: CENTRAL DIKE, SD3 & SD5 Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE

▷ ROCKFILL AT El. 143m FROM 0+180 to 0+280 (SOAPSTONE). PAG AT 0+180 started

▷ FINE FILTER: 1st lift 0+560 to 0+700', ALSO COMPACTED (COARSE & FINE)
3rd lift 0+410 to 0+560, ALSO COMPACTED
4th lift 0+180 to 0+410, COMPACTION ONLY.
COARSE FILTER FROM 0+560 to 0+700.

SADDLE DAM 5

▷ COMPACTION AT El. 141m, FROM 40+730 to 40+640.

SADDLE DAM 3

Delays: ▷ INVERSE FILTER COMPLETED FROM 20+770 to 20+790, ALSO compacted

▷ FOUNDATION CLEAN-UP ON THE NORTH SIDE.

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

FROM 0+966 to 0+874, SOAPSTONE HAS been placed during the shift night, in the 5m PAG ZONE. THIS will be REMOVE AND REPLACED BY GOOD PAG during the next night SHIFT.

Equipment: EXCAVATORS compaltor
DOZER
Haul trucks

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/26 Inspector - Day/Night: Guy Lamarche / night

Weather : Sunny + 10°c

Project: Central dike Contractor: P.C.L.

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

General Activities:

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

Description:
- Rockfill
  - 2 meter lift to reach level 143 between 0+280 to 0+320
  - Level 141, correction between 0+670 to 0+970, remplace 2 meter lift with PAG in the 5 meter zone.
- Filter (fine and coarse)
  - 0,5 meter lift to reach level 140 and 140.5, compacted with 4 passes of roller.
- Compaction (4 passes of roller)
  - SD.4 level 143 between 40+300 to 40+420
  - C.D level 141 between 0+670 to 0+970

Delays:

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

Equipment:
Excavator : CAT 345.D 13-0301
Komatsu PC1250 11-0303
Dozzer : CAT D6T 443
Haul Truck : 1516/1517/1519/1533
Roller : CAT CS76 11-1101

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 27/07/2016 Inspector - (Day)/Night: Marie-Hélène Picard

Weather : cloudy, rain ±14°C

Project: CENTRAL DIKE, SD3 Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE

- ▷ UPSTREAM SLOPE FROM 0+680 to 0+180 (El. 139.0 to 140.5)
- ▷ COARSE FILTER FROM 0+420 to 0+500 AT EL. 141.0m (last lift)
- ▷ COMPACTION OF THE 2nd lift (El. 140) from 0+760 to 0+700 (coarse & fine)

SADDLE DAM 3

- ▷ ROCKFILL (SOAPSTONE) on 2m max. to achieve El. 136m. 20+790 to 20+660
- ▷ COMPACTION AND SCARIFICATION, FROM 20+790 to 20+660, El. 136.
- ▷ ROCKFILL (SOAPSTONE) AT EL. 138m from 20+730 to 20+660
- ▷ COMPACTION AT El. 138 from 20+730 to 20+700

Delays: ▷ CLEAN-UP FOUNDATION DOWNSTREAM TO REACH ICE POOR TILL

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

Equipment:

2 EXCAVATORS	KOMATSU WA600
COMPACTOR	KOMATSU 1250
DOZER (MINE)	Haul trucks 1516, 1517, 1519, 1535, 1536

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/27 **Inspector - Day/Night:** Guy Lamarche / night

Weather : cloudy + 9 °c

Project: Central dike **Contractor:** R. G. L.

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

General Activities:

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

Description:
- Rock fill (central dike)
  - 2 meter lift to reach level 143 between 0+320 to 0+340
- Filter (fine and coarse)
  level 141 between 0+700 to 0+400
  level 140 between 0+740 to 0+700
  level 139.5 between 0+800 to 0+740
  All level compacted with 4 passes of roller.
- Foundation preparation
  cleaning bedrock at SD-3
  - Profiling slope on the upstream at SD-3

Delays:

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

The new location of supply of PAG is contaminated with receptstone. We stopped the production, waiting for a better place for supply.

Equipment:
Excavator : CAT 345D 11-0301 / 15-0301
Komatsu PC 1250
Dozer : CAT D6T 443
Haul Truck : 1516 / 1517 / 1519 / 1536
Roller : CAT CS76 11-1101

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 28/07/2016 Inspector (Day)/Night: MARIE-HÉLÈNE PICARD

Weather: CLOUDY, ±12°C

Project: CENTRAL DIKE, SADDLE DAMS 3&5 Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE

- ROCKFILL (SOAPSTONE AND PAG) FROM 0+310 to 0+370, LEVEL 143m
- SCARIFICATION OF THE SOAPSTONE FROM 0+330 to 0+660.
- FILTERS: 1st LIFT (139.5) OF COARSE, 0+850 to 0+870, compacted
  2nd LIFT (140.0) OF FINE, 0+740 to 0+820, compacted
  3rd LIFT (140.5) OF COARSE, 0+690 to 0+790, compacted
  *COMPACTION DONE BEFORE PUTTING THE MATERIAL

SADDLE DAM 3

Delays:
- COMPACTION FROM 20+700 to 20+660, level 138m
- CLEAN-UP FOUNDATION & FOUNDATION APPROVAL (20+655 to 20+590)
  - PLUGGING THE WATER SOURCES with till
- ROCKFILL FROM 20+600 to 20+600, LEVEL 135, compacted AND SCARIFIED
- ROCKFILL FROM 20+660, LEVEL 138, STARTED.

SADDLE DAM 5

- IMPROVEMENT OF THE FILTERS FROM 40+640 to 40+680 + COMPACTION
- FILTERS: 1st LIFT 40+800 to 40+740 & 40+700 to 40+660, compacted
  2nd LIFT 40+740 to 40+700, compacted.
  2nd LIFT 40+800 STARTED

Equipment:
2 EXCAVATORS KOMATSU WA 600
COMPACTOR Haultrucks 1516, 1517, 1519, 1535, 1536
DOZER

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/28 Inspector - Day/Night: Guy Lamoreche/night

Weather : cloudy + 12 c

Project: Central Dike, SD-3 Contractor: F. C. L.

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

General Activities:

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

Description:

Central Dike
- Rock fill
- 2 meter lift to reach level 143 between 0+340 to 0+440
- Filter (coarse and Fine)
- level 139,5 between 0+040 to 0+980
- level 140,5 between 0+740 to 0+840
- Compaction done, 4 passes of roller
- Downstream slope between 0+760 to 0+860

SD. 3
- Rockfill
- 2 meter lift to reach level 138 between 20+650 to 20+620
- Compaction done, 4 passes of roller between 20+700 to 20+620

~~Delays~~:

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

Equipment:
- Excavator : CAT 345D 11-0301/13-0301
  KOMATSU PC1250 11-0303
- Dozer : CAT D8T 443
  CAT D6R 03
- Haul Truck : 1516/1517/1519/1535/1536
- Roller : CAT CS76 11-1101

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 29/07/2016 Inspector - (Day)/Night: MARIE-HÉLÈNE PICARD

Weather: cloudy / sunny

Project: CENTRAL DIKE, SD3, 4 & 5 Contractor: E.G.L

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

General Activities:

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

Description: CENTRAL DIKE

- ROCKFILL (PAG) FROM 0+420 to 0+460, level 143m
- upstream slope from 0+680 to 0+980

SADDLE DAM 5

- COARSE AND FINE FILTER el. 140,5 (3rd lift), 40+790 to 40+640, also compacted. LAST LIFT ongoing.
- ROLLER ON UPSTREAM SLOPE, 40+640 to 40+800.

SADDLE DAM 3

Delays:

- SCARIFICATION FROM 20+720 to 20+600, level 138m
- downstream slope FROM 20+720 to 20+600
- ROCKFILL level 140m, FROM 20+720 to 20+670.
- CLEAN-UP FOUNDATION ON THE NORTH SIDE.

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

Equipment: DOZER + KOMATSU WA 600
2 EXCAVATORS + KOMATSU 1250
COMPACTOR

Manpower: Haul trucks 1517, 1516, 1535 & 1536.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-7-29 Inspector - Day/Night: Guy Lamarche

Weather : Cloudy, clear sky +10°c

Project: Central Dyke, SD-3 Contractor: F.C.L.

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

General Activities:

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

Description:
- Central dyke
- Rockfill
  - 2 meter lift to reach level 143 between 0+520 to 0+560
- Filter (Fine and coarse)
  - Level 141, between 0+700 to 0+640
  - Level 140.5, between 0+640 to 1+000
  - Level 141 compacted with 4 passes of vib.
  - Level 140.5 not completed.
- Slope on the downstream completed.

Delays:
- SD-3
  - Rockfill, 2 meter lift to reach level 140 between 20+700 to 20+670
  - Bed rock cleaning on the north end.

Comments (observations, comments, discussions with contractor, ect.):
- Sample : Central dyke, fine filter elevation 141.0 St. 0+780
- Work stop for 1 hr., 20h00 to 21h00, because of an accident, Haul truck 1519 almost fell down the dyke.

Equipment:
- Excavator : CAT 345D 11-0301/13-0301
  Komatsu PC120 11-0303
- Dozzer : CAT D6T 443
  CAT D8R 03
- Haul Truck : 1516/1517/1519/1535/1536
- Roller : CAT CS76 11-0101

~~Manpower~~

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 30/07/2016 Inspector (Day)/Night: Marie-Hélène Picard

Weather : sunny, cloudy, ± 15°C

Project: CENTRAL DIKE, SD3 & SD5 Contractor: F.G.L

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

General Activities:

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

Description: CENTRAL DIKE

- working on the downstream berm with NPAG.
- ROCKFILL (SOAPSTONE) FROM 0+560 to 0+600
- FINE FILTER (3rd lift, 140.5m) from 0+920 to 0+987, compacted.
- FINE + COARSE FILTERS (4th lift, 141m), FROM 0+987 to 0+820, NOT COMPACTED
- UPSTREAM SLOPE (139 to 140.5m)

SADDLE DAM 5

- FINE FILTER (4th LIFT, 141m) FROM 40+640 to 40+800, compaction done

SADDLE DAM 3

Delays:
- ROCKFILL FROM 20+670 to 20+600, level 140m
- compaction and scarification from 20+770 to 20+600, level 140m
- downstream slope, level 140.
- ROCKFILL level 141.5m, FROM 20+800 to 20+720

~~Comments (observations, comments, discussions with contractor, ect.):~~
- CLEAN-UP FOOTPRINT AT THE NORTH

Equipment:
Haul truck 1516, 1517, 1519, 1535 & 1536
DOZER + KOMATSU WA600
2 EXCAVATORS + KOMATSU 1250

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/30 Inspector - Day/Night: Guy Lamarche/night

Weather : cloudy + 12 °C

Project: SD-3, SD-4, C.D. Contractor: R.C.L

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

General Activities:

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

Description:
- Saddle dam 3
- Rockfill
  - 2 meter lift to reach level 144.5 between 2+750 to 2+640
  - bedrock cleaning on the north end.
- Saddle dam 4
  - Slope on the downstream side
- Central dike
  - Filter completed at level 141 compaction done, 4 passes of roller
  - Starting compaction on level 141 between 0+140 to 0+240

Delays:

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

Equipment:
- Excavators : CAT 345D 11-0301/13-0301
  Komatsu PC1250 11-0363
- Dozzer : CAT D6T 4493

Manpower:
- Haul Truck: 1516/1517/1519/1535/1536
- Roller : CAT CS76 11-1201

Photos Location:

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

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QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 31/07/2016 Inspector (Day)/Night: Marie-Hélène Picard

Weather : cloudy / sunny, +18°C

Project: CENTRAL DIKE, SD3 & SD4 Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE:

- ROCKFILL (PAG) FROM 0+987 to 0+920
- ROCKFILL (SOAPSTONE) FROM 0+987 to 0+860
- COMPACTION FROM 0+540 to 0+220 (level 143)

SADDLE DAM 3:

- COMPACTION FROM 20+800 to 20+660 (level 141.5)
- HAMMER ON NORTH side to remove the bedrock FROM THE FUTURE INVERT FILTERS AND KEY TRENCH

SADDLE DAM 4:

Delays:

- UPSTREAM SLOPE
- DOWNSTREAM SLOPE from 40+320 @ 40+400
- FINE + COARSE FILTER (1st & 2nd lifts) FROM 40+370 to 40+400, Also compacted.

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

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/07/31 Inspector - Day/Night: Guy Lamerche / night

Weather : Sunny + 12 °C

Project: C.D., SD-3, SD-4 Contractor: F.C.L

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

General Activities:

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

Description: - Central dyke
- 2 meter lift to reach level 143 between 0+870 to 0+760
- Saddle dam 3
  - Excavator is doing the slope on the upstream side.
- Saddle dam 4
  - Excavator is doing the coarse and fine filter from St. 40+200 to 40+360 on the elevation 142
  - Compaction of the filter done with 4 passes of roller.

Delays:

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

Samples : #385, Fine Filter Saddle dam 4
Elevation 142.5 ST: 40+340
#386, Coarse Filter saddle dam 4
Elevation 142 ST 40+360

Equipment: Excavator : CAT 345 D 11-0301 / 13-0301 / Komatsu PC1250 11-0303
Dozzer : CAT D8T 443
Manpower: Haul Truck : 15-17 / 15-19 / 15-35 / 15-36
Roller : CAT CS 76 11-1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 01/08/2016 Inspector - (Day)/Night: MARIE-HÉLÈNE Picard

Weather : Cloudy, +14°C

Project: CENTRAL DIKE, SD3 Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

- UPSTREAM slope on north side, FROM 0+220 to 0+280
- ROCKFILL (PAG), FROM 0+750 to 0+700, level 143m
- ROCKFILL (SOAPSTONE), FROM 0+750 to 0+710, level 143m

SADDLE DAM 3

- UPSTREAM slope correction
- HAMMER + clean-up FOUNDATION, NORTH SIDE
- COARSE + FINE FILTER, FROM 20+760 to 20+620, 1st LIFT (140.5) compacted, 2nd LIFT (141m), COARSE FILTER completed, FINE ongoing.

Delays:
- SAMPLES: #387 -> FINE FILTER in PLACE, st. 20+680, el. 140.5, %S-42
  #388 -> COARSE FILTER in Place, st. 20+680, el. 140.5, %S-42.

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

Equipment: 2 EXCAVATORS + KOMATSU 1250
DOZER
Compactor

Manpower: Haul trucks 1516, 1517, 1535 & 1536

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/02/01 Inspector - Day/Night: Guy Lamarche / night

Weather : Cloudy +12°c

Project: Central dyke, SD.3 Contractor: R.G.L

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

General Activities:

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

Description:

- Central dike
  - Rockfill
    - 2 meter lift to reach level 143 between 0+740 to 0+620
  - Saddle Dam 3
    - Filter (fine and coarse)
      - 2 lifts of 0.5 meter each to reach levels 144.0 and 144.5 between 20+830 to 20+680, each level compacted with 4 passes of roller
    - Foundation preperation
      - bedrock cleaning on the north end section.

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

Equipment:

- Excavators : CAT 345D 11-0301/11-0301
  Komatsu PC 1250 11-0303
- Dozzer : CAT D6T 443
- Haul Truck : 1516/1517/1535/1536
- Roller : CAT CS76 11-1101

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 02/08/2016 Inspector (Day)/Night: Marie-Hélène Picard

Weather : cloudy / rainy, ± 14°C

Project: CENTRAL DIKE, SD3,4 & 5 Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE:

- Soapstone from 0+620 to 0+570, level 143.
- DAG from 0+700 to 0+570, level 143.
- COMPACTION from 0+840 to 0+740
- UPSTREAM SLOPE FROM 0+280 to 0+330.

SADDLE DAM 3

- FOUNDATION CLEAN-UP AND FOUNDATION approval, north side.

SADDLE DAM 4

- AMELIORATION OF THE DOWNSTREAM BERM to widen the crest.

Delays:

- FINE FILTER FROM 40+120 to 40+160, level 139.5 & 140, compacted.
- COARSE AND FINE FILTER FROM 40+120 to 40+160, level 140.5, ongoing.

SADDLE DAM 5,

- ROCKFILL (soapstone) in the access road to achieve level 143.0m.

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

Equipment:

DOZER — Haul trucks
compactor — KOMATSU 1250.
2 EXCAVATORS

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2019/08/02 Inspector - Day/Night: Guy Lamarche / Night

Weather : Rainy + 13°C

Project: Central dyke + SD 4 Contractor: R. C. L.

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

General Activities:

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

Description:
- Central dyke
  - Excavator doing upstream slope between ST 0+540 to 0+640
- Saddle dam 3
  - Rockfill, 2 meter lift to reach level 143 between ST 40+740 to 40+680
  - Scarification done on level 141 with an excavator
- Saddle dam 4
  - Filter (coarse and fine) Level 142.0 completed and compacted
  - Level 142.5 started, no compaction

Delays:

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

Equipment:
- Excavators : CAT 345D 11-0301 / 13-0301
  Komatsu PC 1250 11-0302
- Dozzer : CAT D6T 443

Manpower:
- Haul truck : 1512 / 1519 / 1535 / 1536
- Roller : CAT CS76 11-1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 03/08/2016 Inspector - (Day)/Night: Marie-Hélène Picard

Weather : cloudy, ±17°C

Project: CENTRAL DIKE, SD3,4&5 Contractor: E.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

- UPSTREAM slope FROM 0+590 to 0+700

SADDLE DAM 5

- COMPACTION FROM 40+780 to 40+680
- ROCKFILL (SOAPSTONE) FROM 40+680 to 40+640, also compacted.

SADDLE DAM 4

- COARSE AND FINE FILTER FROM 40+160 to 40+120, to reach level 141m, 141.5m AND 142.0m, all compacted.
- COARSE AND FINE FILTER FROM 40+420 to 40+370, to reach level 142.0m, compacted, and 142.5m (coarse completed, Fine ongoing).

Delays:

SADDLE DAM 3

- access road to level 143.0m
- FINISHED ROCKFILL at 141.5m (20+620@20+580), also compacted
- ROCKFILL at st. 20+600, level 140m and 141.5m, also compacted
- UPSTREAM slope (20+750 to 20+640)
- SCARIFICATION of the level 141.5m (20+760 to 20+580)
- ROCKFILL, level 143, started from 20+760.
- Foundation approval, North side

Equipment: compactor
2 EXCAVATORS + KOMATSU 1250
DOZER

Manpower: Haul trucks.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/03 Inspector - Day/Night: Guy Lamarche/night

Weather : cloudy +12°c

Project: C.D., SD-4, SD-3 Contractor: P.C.C

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

General Activities:

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

Description:
- Central Dyke
  - Excavator doing the upstream slope between ST. 0+700 to 0+820
- Saddle Dam 3
  - Rockfill, 1.5 meter lift to reach level 143, between ST. 20+760 to 20+620
  - Excavator doing the upstream slope at the north end.
- Saddle Dam 4
  - Filter (coarse and fine) level 142.5' completed and compacted level 143 ST. 40+420 to 40+430 completed and compacted, ST 40+300 to 40+140 on going.

Delays:

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

Equipment:
- Excavators : CAT 345D 11.0301/13.0301
  Komatsu PC 1250 11.0303
- Dozzer : CAT D8T 443

Manpower:
- Haul Truck : 1516/1517/1519/1535/1536
- Roller : CAT CS76 11.1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 04/08/2016 Inspector (Day/Night): Marie-Hélène Picard

Weather : cloudy / sunny, ±16°C

Project: SADDLE DAMS 3 & 4, CD Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE

- UPSTREAM SLOPE FROM 0+880 TO 0+890.

SADDLE DAM 4

- FINALIZATION OF THE FILTER, level 143m, + COMPACTION.
- KEY TRENCH PREPARATION, WEST AND EAST SIDES

SADDLE DAM 3

- ROCKFILL (level 143), FROM 20+600 TO 20+580
- COMPACTION OF THE level 143.0m FROM 20+770 TO 20+620
- INVERSE FILTER ongoing: coarse against the ROCKFILL and 10m width OF THE FINE FILTER with 0.5m OF THICKNESS + COMPACTION.
- UPSTREAM SLOPE FROM 20+770 TO 20+680 (ROCKFILL)

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

Equipment:
- DOZER
- 2 EXCAVATORS + CAT 307
- HAUL TRUCKS
- KOMATSU 1250.
- COMPACTOR.

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/04 Inspector - Day/Night: Guy Lamarche / night

Weather : cloudy + fog

Project: Central dike, SD-3 Contractor: P.C.L.

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

General Activities:

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

Description: Central dyke and SD-3

- Excavator cleaning boulders on top of the dyke, left there after shaping.
- Compaction completed between SD-3 and central dyke with 8 passes of roller.
- Excavator doing the slope between 0+650 C.D to 40+640 SD-3

Saddle dam 3

Delays:

- Filter (coarse and fine)

Excavator doing filters between station 20+780 to 20+700 on level 142, 142.5 and 143, all compacted

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

Equipment:

Excavators : CAT 345D M-0301 / 18-0301
Komatsu PC1250 11-0303
Haul Truck : 15-16 / 15-17 / 15-35 / 15-36
Roller : CAT CS76 11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 05/08/2016 Inspector - (Day) Night: Marie-Hélène Picard

Weather : sunny, ± 14°C

Project: SADDLE DAMS 3, 4 & 5 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation	X	Coarse Filter	X	Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control		Fine Filter	X	Rockfill			

Description: SADDLE DAM 3

- ▷ coarse and FINE FILTER AT level 143 compacted from 20+760 to 20+720.
- ▷ THE NORTH END OF THE DIKE HAS BEEN COMPLETED WITH THE ROCKFILL AND THE INVERSE FILTER. Rockfill compacted with 8 passes, COARSE AND FINE FILTERS compacted WITH 4 PASSES. THE FINAL LAYER OF FINE FILTER IS ongoing.
- ▷ COMPACTION OF THE ROCKFILL AT LEVEL 143 FROM 20+620 to 20+580.
- ▷ KEY TRENCH PREPARATION WITH CAT 307 ON THE SOUTH SIDE.

SADDLE DAM 4

Delays: ▷ KEY TRENCH PREPARATION. Blower STARTED ON EAST SIDE. CAT 307 on west side.

SADDLE DAM 5

▷ UPSTREAM AND downstream slopes. SAFETY BERM on downstream side.

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

Equipment: 2 EXCAVATORS CAT 345, 1 CAT 307.
KOMATSU WA 600
COMPACTOR

Manpower: Blower
Haul truck 1519, 1535 & 1536.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/08/05 Inspector - Day/Night: Guy Lamarche/night

Weather: cloudy + 9°c

Project: Central dyke, SD-3 Contractor: P.C.L

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

General Activities:

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

Description: Central dyke
- Cleaning the boulders, completed.
- Excavator doing correction on the slope upstream
- Rockfill, 2 meter lift of PAC on the 6 meter zone, downstream from St: 0+160 to 0+420
- Starting filter (coarse) from St 0+660 to 0+860 on level 141,5'

Delays: Saddle dam 3
- Excavator doing filter (coarse and fine) on level 142, 142,5' and 143 from St 20+700 to 20+640, compacted.

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

Equipment:
- Excavators: CAT 345-D 11-0301/13-0301
  Komatsu PC-210 11-03032
- Dozzer: CAT D8T 443
- Haul Truck: 1516/1519/1533/1536
- Roller: CAT CS 76 11-11001

~~Manpower~~:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 06/08/2016 Inspector - (Day)/Night: Marie-Hélène Picard

Weather : cloudy, ±7 °C

Project: CENTRAL DIKE, SD3 & 4 Contractor: F.G.L.

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

General Activities:

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

Description: CENTRAL DIKE:

- 1st lift (141 to 141.5m) of coarse filter, from 0+240 to 0+860.
- SAMPLE #390 : COARSE FILTER in PLACE – CENTRAL DIKE – St. 0+301, o/s -27.7m, LEVEL 141.5m.

SADDLE DAM 3:

- FINE FILTER AT THE NORTH END completed. NOT COMPACTED.
- KEY TRENCH PREPERATION WITH CAT 307, SOUTH AND NORTH SIDES.
- UPSTREAM AND DOWNSTREAM slopes.

SADDLE DAM 4:

Delays: - KEY TRENCH PREPARATION WITH Blower. West side completed.

SAMPLE #389: SIEVE TILL, STOCKPILE #1, FOR Protor test.

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

Equipment: 2 EXCAVATORS 345D., 1 EXCAVATOR 307.
Blower
KOMATSU WA600

Manpower: Haul trucks 1535 & 1536.

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016/08/06 Inspector - Day/Night: Guy Lamerche / night

Weather: Sunny, cloudy, rainy +3°C

Project: Central dyke, SD3 Contractor: P.C.L

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

General Activities:

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

Description:
- Central dyke
- Rockfill, 2 meter lift at PAC in the 6 meter zone downstream. Between St. 0+420 to 0+760
- Filter (fine) Almost complete level 141.5 compaction completed between St 0+180 to 0+460
- Saddle dam 3

Delays:
- Excavator doing the downstream slope

Comments (observations, comments, discussions with contractor, ect.):
- A compaction reference pad test was done
- Water content of the material was to hi, so the maximum density obtain could be more, we should try to dry, before testing again.

Equipment:
- Excavators : CAT 345D 11-0301 / 13-0301
  - Komatsu PC1250 11-0303
- Dozzer : CAT D8T 443
- Haul Truck : 1516/1517/1519/1535/1536
- Roller : CAT CS76 11-1101
- Loader : CAT WA600

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 07/08/2016 Inspector (Day/Night): Marie-Hélène Picard

Weather : sunny, ± 10°C

Project: CENTRAL DIKE, SD3 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation	X	Coarse Filter	X	Drilling/Blasting	
Foundation Preparation		LLDPE/Geotextile		Till			
Water Control		Fine Filter	X	Rockfill			

Description: CENTRAL DIKE:

- ▷ FINE FILTER FROM 0+735 to 0+575 completed, level 141.5m
- ▷ COMPACTION OF THE FINE AND COARSE FILTER, level 141.5m, From 0+460 to 0+987.
  - * FINE FILTER PLACED ON THE NIGHT SHIFT WAS IN soapstone (St. 0+902 to 0+735 AND 0+573 to 0+160)
- ▷ COARSE FILTER, level 142, completed.
- ▷ FINE FILTER, level 142, FROM 0+160 to 0+220
- ▷ KEY CLEAN-UP ON THE NORTH SIDE, WITH CAT 307.

Delays: ▷ Sample #391: FINE FILTER IN PLACE – CENTRAL DIKE – St. 0+893.9, O/S –29.3m, level 141.5m.

SADDLE DAM 3:

- ▷ KEY CLEAN-UP, SOUTH SIDE WITH mandays AND BLOWER, NORTH SIDE WITH CAT 307.

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

Equipment: 2 EXCAVATORS CAT 345 compactor
1 EXCAVATOR CAT 307 Blower.
2 Haul TRUCKS

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/10/07 Inspector - Day/Night: Guy Lamarche / night

Weather : cloudy + 9°c

Project: Central dike, SD-3, SD-4 Contractor: R.C.L.

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

General Activities:

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

Description:
- Central dyke
  - Rockfill 2 meter lift downstream. Zone of 6 meter of PAG, between 0+760 to 0+900, They stop because they run out of material that zone have not being completed.
  - Filter (coarse and fine) 0.5 meter lift at level 142 as been completed and compacted. They start the lift à 142.5 with the coarse filter.
- Saddle dam 3
  - The komatsu excavator is doing some cleaning at the north end and on the downstream side.
- Saddle dam 4
  - The dozzer preparing an accel road to the key at the base of the dam.

Delays:

Equipment:
- Excavators : - CAT 345D 11-0301 / 13-0301
  - Komatsu PC1250 11-0303
- Dozzer : CAT D6T 443
- Manpower:
- Haul Truck : 1516 / 1519 / 1535 / 1536
- Roller : CAT CS76 11-1101

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/08 Inspector (Day/Night): Sanaz Oyaie

Weather : Sunny & Cloudy

Project: Central dike / SD3 / SD4 / SD5 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation		Key Excavation		Coarse Filter	✓	Drilling/Blasting	
Foundation Preparation	✓	LLDPE/Geotextile		Till			
Water Control		Fine Filter	✓	Rock Fill			

Description: Central dike:

Filter compaction is done at level 141.5 (Fine & Coarse)

Saddle dam 5: compaction done on filter at level 141.5 (Fine & Coarse) installation of coarse started around 5:30 pm.

Saddle dam 4: key clean up is done and visited by Golder, approved. (south side)

Saddle dam 3: key clean up is ongoing. (South Side)

~~Delays:~~

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

Equipment: haul trucks
Compactor
Shovels

Manpower: Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/08 Inspector - Day/Night: F. Rose

Weather: Sunny ± 7°C

Project: CD, SD3, SD4 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation ✓ Key Excavation ✓ Coarse Filter Drilling/Blasting

Foundation Preparation LLDPE Geotextile Till

✓ Fine Filter

Description:

SD3: Key clean up done by the shovel 1250

SD4: Shovel 1250 is removing the temporary road at the downstream of the dike

CD. Shovel 345(1) is placing the final layer of coarse filter from 0+550 @ 0+960

Delays: Fine Filter 0+550 @ 0+960

Shovel 345(2) is placing the final layer of coarse filter from ± 0+~~150~~160 @ 0+550

Fine Filter 0+~~150~~160 @ ± 0+530

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

- Compaction started at the end of the shift 0+180 @ 0+300 on fine and coarse

* Sample 388, 391 only have the hotap left to do
* Sample 389 = 14969.8 + 16470.3 + 13136.3 + 15266 + 15470.9 = 75 308.3 g is in the oven

Equipment: Shovel 1250
Shovel 345(x2)
4 haul trucks

Manpower: Compactor

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/09 Inspector (Day/Night): Saraz olyaie

Weather : Sunny / 18°C

Project: SD5, CD, SD3 Contractor: F.G.L.

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

General Activities:

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

Description: Saddle Dam 5: filter installation done at level 143 (Fine and coarse) Compacted, approved.
shovel works on slope profiling. (shovel no. 13-0301)
Small shovel works on key clean up.

Saddle Dam 3:
Clean up is ongoing on north side.

Central dike
Filter installation is done all long of dike (Fine and coarse) until level 143.
*Compacted and approved.
Shovel 11-0301 is working on slope profiling at level 143.
(from St 0+140 to St 0+300 is done during day shift)

Samples:
Samples no. 393, 394, 395 and 396 is taken manualy for lab test to Calculate water content. All tests are in the oven and result will be done by tomorrow.

Samples no 393-1&2, 394-1&2, 395-1&2 and 396-1&2 is done by Nucleo. and water content of each sample calculated. As result, water content still is high.

Equipement: Shovels (3),
haul trucks
Manpower: Compactor
Loader

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-08-09 Inspector - Day/Night: Francis Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	
Water Control ✓	Fine Filter ✓	Rockfill	

Description:

Central Dike : Both shovel 345's are working on finalizing the fine filter upstream slope

- Bulldozer pushing rockfill (NPAG) on the downstream from 0+880 @ 0+960
- Compaction done and approved from 0+880 @ 0+960
- Shovel 1250 loading the haul trucks with NPAG

Delays:

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

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/10 Inspector (Day/Night): Sanaz olyaie

Weather: Sunny /20

Project: SD5 / SD3 / CD Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation ☑	LLDPE Geotextile	Till ☑	

Description: SD5: Shovel 13-031 works on slope profiling.
Small shovel works on key clean up.

*Lab Test: water content of stockpiles are measured and compared with results by Nucléo.
Sample NO. 390 and 392 put in the oven to dry.
Sample NO. 389 was started last night by F.R., in the morning 5 samples with different water content are prepared and put aside for about 24 hours.

SD3: Shovel works on clean up in north side of dike

CD
Shovel do some clean up next to stockpile no 2 (North side of dike)

Loader mix sieved till of stockpiles and let them become more dry.

Equipment:
Loader
shovels (3)
haul trucks

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-08-10 Inspector - Day/Night: F. Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE Geotextile	Till	

Description:

- Shovel 345 is working on the downstream slope from south to north
- loader and shovel 345 are moving the till to help it dry out and thaw

Delays:

Sample 392 and 390 have been started. The fine material is in the oven.

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

Equipment: Shovel 345 (x2)
loader

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/11 Inspector (Day/Night): Sanaz Olyaie

Weather: Sunny / 21°C

Project: Central dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE Geotextile	Till	☑

Description: Central dike:

Shovel works on slope profiling on downstream side. (done until St. 0+660)

Loader mix the till of stock piles and let them dry.

Lab test:

8 test for water content of till are done using Nucleo densimeter

Proctor: proctor test is ongoing. 1 all 5 tests are completed, measured and put in the oven for final result. (Sample No. 389)

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

Equipment: Shovels
Loader

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-08-11 Inspector - Day/Night: F. Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	

Description:

- Shovel 345 is working on the downstream slope of central dike
- Shovel 345(2) is moving the till to help it thaw and dry out, Loader is helping out

Delays:

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

Equipment: Shovel 345 (x2)
Loader
Compactor

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/12 Inspector (Day/Night): Sanaz Ayaie

Weather : Sunny / 24°C

Project: SD4 Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	☑

Description: Saddle dam 4:

Foundation and bedRock for till placement was inspected by Agnico, Golder-SNC and FGL, between St. 40+120 to St.40+160, approved. Also, bedRock between St. 40+360 to 40+400 was inspected by all partien it was approved but it was decided to do grouting between joints befor placement of till.

Till placement between St 40+120 to St. 40+160:
Till visually was good, with good consistency. the first lift was done to cover all space between Rock and make the smooth surface one Nucleo test done at this layer. which showed the desired density (2218 kg/m³). Second lift also done and in total 4 nucleo test was done. the results also Showed desired density with 100% of compaction. water content was abit low. around 3%. Surface after compaction was smooth and visually good. one manual test also done at second lift. for granulometry and water content (Sample 399)(test:398)

Till placement between St 40+360 and 40+400 : Till visually was good but it was more humid than other section. befor Till installation, grouting was done. first lift was done between Rock space to prepare one smooth surface.

Equipment: Shovel 13-0301
Loader
haul trucks

Manpower: Compactor

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-08-12 Inspector - Day/Night: Francis Rose

Weather :

Project: Central dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE Geotextile	Till	

Description:

- Shovel 345 finishes the downstream slope on the south side
  - After that, the shovel removes some material west of the north side to lower the floor so that it'll be easier when placing the till because right now it is too high

- Shovel 345(2) is moving till to help it thaw and dry with the help of the loader

Delays:

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

- Sample 399 is in the oven

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/08/13 Inspector (Day/Night): Sanaz olyaie

Weather: Sunny / 23°

Project: SD3 Contractor: F. G. L.

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

General Activities:

Soft Sediment Excavation | Key Excavation | Coarse Filter | Drilling/Blasting

Foundation Preparation | LLDPE Geotextile | Till ☑

Description: Saddle dam 3:

Foundation and bedRock inspected by AGNICO Eagle, Golder, SNC and F. G. L, on both nooth side and south side of SD3, between St 20+800 to St 20+760 and St 20+600 to 20+620. Foundation is approved but it was decided to do grouting beetween joints befor placement of till in both side (FND-SD3-19 & 20).

Till placement between St 20+800 and 20+760:
Till visually was good with good consistency. has dark color with good humidity (visually). the first lift was done to cover all space between joints grouting was done before this stage. after compaction by compactor, one nucleo test was done it showed the desired denisty (2040 kg/m^3 & 97.1% compaction) Second lift also done. Surface after compaction was good and smooth in both lift. in total 3 nucleo test was done at the second lift. all of them showed the density about 2027 to 2037 with almost 97% compaction. (test 402). Low quality till also was placed next to good quality till.

(Cont. in back)

Equipment: Shovel 13-0301, Small shovel
Loader
haul trucks 1535 & 1516

Manpower: Compactor

Photos
Location:

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

Till placement between St 20+600 and St 20+620:

grouting between joints has done befor till placement. till was in good condition. Visually was the same at south side with good consistency. First layer was placed to cover all Rock space and make the smooth surface. after compaction one nucleo test was done. Showed density of 2040 kg/m3 (97.1 % compaction). Second lift also done. after compaction, surface was smoothand in good condition. in total 3 test are done and all of them showed the results between 2003 to 2054 kg/m3 with compaction of 95% to 97.8%. (test 404)

also, one manual test for granulo was done at St. 20+604. (test 403). test was taken befor compaction.

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016-08-13 Inspector - Day/Night: F. Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile	Till	

Description:

- Both shovels and loader are moving the till around to help it dry out and thaw.

Delays:

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

Sample 399; the fine material is in the oven
Sample 403, SD3 = 15049.7 is in the oven

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/14 Inspector (Day/Night): Sanaz olyaie

Weather: Sunny / 22°C

Project: Meadow bank Contractor: F.G.L.

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

General Activities:

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

Description:

* 3 Sample for water content is taken From stockpile NO.6 and Non Sieved stockpile. (test NO. 405-A,B & C)

* test 401 (proctor) first step is done at lab. 5 plastic sac are prepared. Test will be cont. on 16 of August.

* clean up done at north side of SD3
* Accen Road next to SD4 was removed.

Delays:

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

Equipment: Shovels.
haul trucks

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016-08-14 Inspector - Day/Night: Francis Rose

Weather : Sunny

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

- Two "planches d'essais" 10m x 10m x 0.5m were done on stockpile #6 and on the ~~unscreened~~ unsieved till with the help of the compactor

- 2 shovels are sealing the till stockpiles

Delays:

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

Sample #399 is done
Sample #403, the fine material is in the oven

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/15 Inspector - Day/Night: Sanaz o Yaie

Weather: Sunny / 24° C

Project: Meadowbank Contractor: F. G. L.

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

General Activities:

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

Description: CD : Rock mapping : Help QA to finish his Rock mapping.

SD3: Second class of till placed on north side of SD3. Till visually was good and surface after compaction was good also. 2 Nucleo test was done and both showed desire compaction. (about 2054) test NO. 409-A & B.
also one manual water content sample was taken for lab. sample 408

Delays: SD4 : Second class of till placed on both north side and south side. Surface compaction was visually good and smooth. 3 Nucleo test was done and all showed desired compaction. test NO. 410-A, B & C
(density about 2226 Kg/m3)

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

Equipment:
Compactor
Shovels
Loader
haul trucks

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/16 Inspector - Day/Night: Samaz Olfaie

Weather: Sunny / 24°

Project: SD4, CD Contractor: F. G. L.

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

General Activities:

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

Description: SD4: Compaction done on north side (Till). Till is installed on south side and compacted. it was non sieved Till. 1 Nucleo test was done on both side and results showed desired density. (test 413)

CD: Foundation and bedRock was inspected by AGNICO, Golder, SNC and FGL and is approved. grouting was done on all bed Rock on north side then Sieve till placement also done for the first layer. 3 Nucleo test are done (test 414) and showed desired density. till surface was in good condition visualy and good consistency. one manual sample for water content done at St. 0+128 (Sample 412).

Delays: Second laye of till is started lately afternoon for about 20 meter. one sample (# 411) was done for granulometry.

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

Lab test:

* proctor test was done and all 5 sample are in the oven for water content
* water content of SD3 was done ~~about~~ (# 408: W = 7.9 %)
* Sample 403 was finished.

Equipment: Shovels, haul trucks, Loader

Manpower: Compactor

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/17 Inspector (Day/Night): Sanaz Olyaie

Weather: Sunny / rainy

Project: CD / SD5 Contractor: F. G. L.

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

General Activities:

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

Description: Central dike: second layer of till was placed between St 0+200 to 0+100. Till was visualy good, more humide, but compaction was done in good condition and surface after compaction was smooth. in total 3 nucleo test was done and all of them showed desired density and percentage of compaction (γ ≥ 2030 & compaction ≥ 97%)

SD5: bed Rock and Foundation was inspected by Golder, E.G.L, SNC and Agnico Eagle, approved. grouting will be done before till placement. (END-SD5-02)

Delays:

Lab test:

proctor test was done (sample # 401): Dry density = 2148 Kg/m3
water content = 6.6 %

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

after correction: density = 2309 Kg/m3
water content = 5.6 %

Sample 412 are done. water content measured about 7.3% (In place)(CD)

Sample 411 also done for Till granulometry (in place) of center dike. fine material in the oven.

Equipment: Shovels (3)
haul truck
Loader

Manpower: Compactor

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/18 Inspector Day/Night: Saraz Ayaie

Weather: Cloudy / Sunny (afternoon)

Project: Meadowbank Contractor: F.G.L

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

General Activities:

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

Description:

Lab Test:
test 411 (Sieve Till central dike) is done.

SD: membrane Trench is excavated on crest of dike for about 15m.

CD: shovel start excavation for membrane trench on the crest lately afternoon

Delays:

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

Equipment: Shovels

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/19 Inspector (Day/Night): Sanaz olyaie

Weather: Sunny / windy

Project: Saddle dam5 Contractor: F.G.L.

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

General Activities:

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

Description: Saddle dam 5: (Sieve Till Placement)
till placement on Saddle dam 5 between St. 40+620 to St. 40+780 was done in 3 layers. For all layers, Till was visually good, dark brown, with good consistency. before first layer grouting was done between Rock joints. the open joints cover totally with grouting. Rock surface between St. 40+630 and St 40+740 (approx) was covered totally with grouting. then first layer of Till was placed and compacted (6 passes). 3 test of nucleo was done at this layer. Second and 3th layer was done on afternoon. each layer was about 500mm and well compacted (6 passen). 3th layer was only between

Delays: St. 40+650 to 40+720 (approx) to reach the correct elevation.
all surfaces after compaction was visually good and smooth. 4 Nucleo test was done on second layer and one more on 3th layer. all of tests showed desired density with about 100% of compaction. and 8% water content.

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

one Sample taken for gradation test 2 (Sample 416, St. 40+633.1, 015.38.7 and elevation. 140.9)

in total 8 Nucleo test and one gradation test was done

Equipment: Shovel 13-0301, Shovel BAC03
haul trucks (1516, 1519)
Compactor

Manpower: Loader

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/20 Inspector - Day/Night: Saraz Olyaie

Weather: Sunny 15°C

Project: SD5/CD Contractor: F.G.L

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

General Activities:

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

Description: Central dike:

Anchor key excavation was started on August 19 from St 0+300 and today it was done until St 0+640. Small shovel works on that area. ~~today~~ in the afternoon around 3pm, another small shovel starts to work on Anchor key excavation from St 0+800 toward South side.
Casing job started for membrane installation preparation.

Saddle dam 5:

Foundation preparation and clean up done between St 40+640 to St 40+740. (approx)
Foundation and bed Rock was inspected by Agnico Eagle, Golder, SNC and F.G.L, it was approved (FND-SDS-09)

Saddle dam 4 & 3: Geotextile and Membrane rolls are moved to these area and they put them on the crest. Membrane rolls should put over the geotextile and don't be in touch with Rock material (done in SD4).

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

Equipment: Shovels, Loader

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/21 Inspector (Day/Night): Sanaz Olyaie

Weather: Cloudy / windy / 15°C

Project: SD5, CD / SD3 / SD4 Contractor: F. G. L.

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

General Activities:

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

Description: Saddle dam 5:
installation of till clam II was done. till was visually good. Surface after Compaction was very good and smooth. 2 Nucleo test at 1st layer, 1 test at Second layer and 1 test at 3th layer was done. all 4 test present the good density with almost 100% of compaction and water content of about 8%.
* in area around St 40+600 the surface of till is longer than it suppose to be due to lack of space for shovel bucket. it should be ~~re~~ re-adjusted during filter installation after membrane installation.
Saddle dam 3: Cleaning of membran at the bottom of footprint was done.
~~Delays:~~

Saddle dam 4: ~~Key~~ Anchor key excavation are done all long of the crest. Cleaning of membrane at the bottom of footprint of slopes, are done.

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

Saddle Center dike:
Anchor key excavation done until St 0+840.

* two Sample of Rough till was taken | Sample 419: Stock pile (C)
Sample 420: Stock pile (B)

Equipment: Shovel 13-0301
Compactor 11-1101
haul trucks 1516 1517

Manpower: Loader
Small Shovel BAC03

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/22 Inspector - Day/Night: Guy Lamarche / day

Weather : Sunny + 16°c

Project: SD-4 - SD3 Contractor: P.C.C

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till	
Water Control	Fine Filter	Rockfill	

Description: SD-4

- The team for the installation of the geotextile, arrived on site. preparation to start the job.
- Till foundation approval on the east and west end of SD-4
  SD-3
- Till foundation approval on the south end of SD-3

Delays:

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

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

MEADOW EAGLE

Date: 2016/08/23 Inspector - Day/Night: Guy Lamarche

Weather : Sunny +15°c

Project: SD-4 Contractor: PCL

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till	
Water Control	Fine Filter	Rockfill	

Description: SD-4

- Installation of the Geotextile from ST 40+140 to 40+200
- Installation of the LLDPE membrane from ST 40+140 to 40+260, panel 510 to 530. 297 linear meter.
- Filling of the trench on top from 40+100 to 40+240

Delays:

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

Equipment: Excavator CAT 345D

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/24 Inspector - Day/Night: Guy Lamarche/Day

Weather : Sunny/cloudy +17°C

Project: SD-4 Contractor: R.C.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till	
Water Control	Fine Filter	Rockfill	

Description: SD-4

- Installation of the geotextile from St. 40+200 to 40+415
- Installation of the LLDPE membrane from St. 40+260 to 40+415, panel 331 to 332.
- Filling of the trench on top from 40+240 to 40+415
- Compaction done over the trench portion with 4 passes of roller
- SD-4 completed

~~Delays~~:

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

Equipment:
- Excavator CAT 345D 11-0391
- Roller CAT CS76 11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/25 Inspector - Day/Night: Guy Lamarche/Day

Weather : Cloudy +8°c

Project: SD-3 Contractor: P.C.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till	
Water Control	Fine Filter	Rockfill	

Description: SD-3

- Installation of the geotextile from St. 20+610 to 20+675
- Installation of the LLDPE membrane from St 20+610 to 20+620, panel 0-5J to 5-5B

Delays: work stop, because of the wind, in the afternoun

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

Equipment: excavator CAT 345D

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/26 Inspector - Day/Night: Guy Lamarche / Day

Weather : cloudy + 7°c

Project: SD.3, SD.4 Contractor: R.C.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till ✓	
Water Control	Fine Filter	Rockfill	

Description: SD.3

- Installation of the geotextile from ST 20+645 to 20+780
- Installation of the LLPDE membrane from ST 20+640 to 20+780
Panel 359 to 362
- Compaction done over the trench portion with 4passes of roller
- SD.3 completed

Delays: SD.4

- Installation of one layer of 0.5m of sieve Till between ST 40+350 to 40+415
- Installation of Two layers of 0.5m each of Till 0-150mm between ST 40+350 to 40+415
- All layers compacted at 95% minimum of the value 2100 kg/m³.
(See compaction report)

Equipment:
- Excavators CAT 345-D 12-030
CAT 345-D 11-031
- Roller CAT CS76 11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/27 Inspector - Day/Night: Guy Lamoureux / DAY

Weather : Raining + 8°C

Project: SD-3 - SD-5 Contractor: P.C.L

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till ✓	
Water Control	Fine Filter	Rockfill	

Description: SD-3

- Besing the installation of the sieve Till at the south end of the dyke
- work stop, because of the rain.

SD-5

- Installation of the geotextile on SD-5 between ST. 0+610 to 0+805 and a section on central Dyke between ST 0+980 to 0+871
- work stop, because of the rain

Delays:

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

Equipment:
- Excavator CAT 345.D 13-0301/12-0305
- Roller CAT CS76 11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/06/22 Inspector - Day/Night: Guy Lamerche / Day

Weather : cloudy + 12°c

Project: C.D , SD.J Contractor: R.C.C

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

General Activities:

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

Description: SD-J

- Installation of the LLPDE membrane between St. 4+620 to 4+775 panel 597 to 603
- SD-5 completed.

Central Dyke

- Installation of the LLPDE membrane between 0+970 to 0+871 panel 604 to 618

Delays: SD-3 and SD4

- No work on the Till, there is too much Humidity in the material

C.D and SD-J

- Compaction in the trench on Top of the dyke as been done work 4 passes of roller, where the LLPDE was install.

Equipment:

- Excavator : CAT 345D 13.0301
- Roller : CAT CS76 11-1106

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/08/29 Inspector - Day/Night: Guy Lamarche / Day

Weather : cloudy + 13°C

Project: SD-3, C.D. Contractor: P.C.L.

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till ✓	
Water Control	Fine Filter	Rockfill	

Description:
- Central Dyke
- Installation of the geotextile on C.D. between 0+675 to 0+810
- Installation of the LLPDR membrane between 0+675 to 0+810
Panel 619 to 627
- SD-3
- Installation of one layer of 0.5m of sieve Till between ST 20+600 to 20+650 and a first layer of Till 0.35mm on the same location, on the north end.

~~Delays~~:

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

- Problem with the rough Till, The humidity was to High, that cause an unstable surface.

Equipment:
- Excavator CAT 345-D - 12-0303 / 13-0301
- Roller CAT CS76 - 11-1101

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016/08/30 Inspector - Day/Night: Guy Lamarche/Day

Weather : Sunny/cloudy +13°c

Project: SD-3, SD-4, C.D. Contractor: P.C.L

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

General Activities:

Soft Sediment Excavation	Key Excavation	Coarse Filter	Drilling/Blasting
Foundation Preparation	LLDPE/Geotextile ✓	Till ✓	
Water Control	Fine Filter	Rockfill	

Description:

1) SD-3
- Installation of the sieve till and the first layer of Till 0-150mm on the south end of the dyke, between ST 20+740 to 20+790.
- Compaction result meet the specification (see report 425-426)

2) SD-4
- Installation of the Till 0-150mm on the west end of the dyke, between ST 40+110 to 40+160
- Compaction result meet the specification (see report 427)

3) Central Dyke
- Installation of the geotextile between 5-0+210 to
- Installation of the LLPDE membrane between ST. 0+210 to
- Panel 620 to 640

Equipment:
- Excavator - CAT 345-D 12-0303/13-0301
- Roller - CAT CS76 11-0101
- Haul truck : 15/16/15-17

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/08/31 Inspector - Day/Night: Guy Lamerche / Day

Weather : Cloudy, rainy +10 °C

Project: SD-4, SD-J, C.D. Contractor: P.C.C.

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

General Activities:

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

Description: → SD-4

- Installation of the Till 0-150 mm, first layer on the west end of the dyke between ST 0+110 to 0+160
- compaction results meet the specification (see report 426)
- correction of the level was corrected with Till 0-150 mm on the east side.

→ SD-J

- Installation of the protection with fine and course filter and rockfill.
- compacted with 4 and 8 passes of roller.

→ Central Dyke

- Installation of the LLDPE membrane between ST 0+720 TO 0+670
- work stop, because of the rain and light wind.

Equipment: Excavator : CAT 345D 12-0303 / 13-0301
Roller : CAT CS76 11-1101
Haul Truck : 1516 / 1517

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2019/09/21 Inspector - Day/Night: Guy Lamarche

Weather : Cloudy/Sunny +8°C

Project: SD-J, C.D. Contractor: F. C. L

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

General Activities:

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

1) SD-J
- Installation of the sieve till and the first layer of the till 0-150 mm at the base of Saddle Dam J, between ST 40+630 to 40+760
- Compaction test result meet the specifications (see report 429-430)

2) Central Dyke
- Installation of the geotextile between ST 0+670 To 0+490
- Installation of the LLPDE membrane between ST 0+670 To 0+500 panel 655 To 673

Equipment: Excavator : CAT 345D 12-0303 / 13-0301
Roller : CAT CS76 11-1101
Haul Truck : 1516 / 1530

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/02 Inspector - Day/Night: Guy Lamarche/Day

Weather : Sunny +10°C

Project: SD-5, SD-4, SD-3, C-D. Contractor: R.C.L.

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

General Activities:

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

Description: ⇒ SD-5

- Installation of the second layer of the Till 0.150m between ST 0+630 to ST 0+760
- Compaction Test result meet the specification (see report 431)

⇒ SD-4

- Installation of the second layer of the Till 0.150m at the west end, between ST 0+120 to 0+160
- Compaction test result meet the specifications (see report 432)

⇒ SD-3

- Installation of the second layer of the Till 0.150mm at the south end between ST 2+740 to 2+760
- Not compacted

⇒ C-D

- Installation of the Geotextile and the LLPDR membrane, ST. 0+500 to 0+360

Equipment: Excavator CAT 345-D 12-0303/13-0301
Roller CAT CS76 11-1101
Haul Truck: 1516/1523

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/03 **Inspector - Day/Night:** Guy Lamarche / Day

Weather : cloudy / rainy +8°C

Project: SD-3 C-D. **Contractor:** P.C.L

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

General Activities:

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

Description: ⇒ SD-3

- Compaction of the second layer of Till 0-150mm on the south end between St 20+740 to 20+780
- Compaction test result meet the specifications (see report 433)
- Installation of the second layer of Till 0-150 mm on the North end between St 20+600 TO 20+640
- Compaction test result meet the specifications (see report 434)

⇒ Central Dyke

- Du to rainy condition, no work on the Geotextile and LLDPE membrane
- The trench on top of the Dyke was filled between St. 0+260 to 0+320, but not compacted.

Equipment:
Excavator : CAT 345D 12-0303 / 13-0301
Roller : CAT CS76 11-1101
Haul Truck : 1512 / 1533

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/04 Inspector - Day/Night: Guy Lamarche/Day

Weather : cloudy + 6 °c

Project: SD-5, C.D. Contractor: R.C.L

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

General Activities:

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

Description: → SD-5

- Installation of the fine filter (protection) on the Till 0-150mm, a geotextile was install on the LLPDE membrane to protect the membrane.
- Compaction was done with 4 passes of roller on all the surface who as a minimum of 1 meter of material on Top of the membrane

→ C.D.

- Compaction was done on the rockfill in the Trench on top of the dyke, up to ST 0+760
- Installation of the geotextile and the LLPDE membrane from ST 0+360 to 0+300

Equipment: Excavator : CAT 345D 12-0343/13-0341
Roller : CAT CS76 11-1101
Haul Truck : 1517/1535

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-09-05 Inspector - Day/Night: Francis Rose

Weather : Cloudy

Project: Central dike / SD3 Contractor: F.G.L.

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

General Activities:

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

Description:

SD3: Excavator 345D (12-0303) is placing 3rd class till (1st lift) from the south of the dike towards the north
- Compaction of the 1st lift of 3rd class till is done and approved
- 2nd lift of 3rd class till is being placed

CD: Installation of the LLDPE on the north side of the dike from 0+300@ ±0+180. The LLDPE is completely installed. Only extensions are left to be done

Delays:

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

Equipment: Excavator 345D 12-0303, 13-0301
Haul truck 1536, 1516, 1517, 1535

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

Date: 2016-09-06 Inspector - Day/Night: Francis Rose

Weather : Cloudy

Project: Central Dike / SD3 Contractor: F.G.L.

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

General Activities:

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

Description:

SD3: Excavator 345 is placing 2nd lift of 3rd class till from the south side towards the North.
- 3rd class till is also being placed on the North side
- Compaction is done and approved

CD: 1st layer of sieved till is placed on top of LLDPE on the North side of the dike. Compaction is done and tested (Approved) 0+220 @ 0+140
2nd layer of sieved till is being placed from 0+220 @ 0+180

Delays:

SD4: Excavator 345 is placing 0-3/4" on the North side of the dike over the geotextile. Compaction of the 0-3/4" is done and approved

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

Equipment: Excavator 345 (x3)
Compactor
4 haul trucks

Manpower:

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-09-07 Inspector (Day/Night): F. Rose

Weather: Cloudy / Fog / Rain

Project: Central dike / SD4 / SD5 Contractor: F.G.L

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

General Activities:

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

Description:

SD4: Excavator 345 is placing the course filter on top of the fine filter on the ~~South~~ West side of the dike. Compaction of the course filter is done and approved
- Excavator is starting the fine filter on the east side
- Bulldozer is placing the rockfill between both fine fillers

SD5: Bulldozer is placing rockfill on top of the course filter, Rockfill on SD5 is done. Compaction is done and approved

Delays:

CD: Excavator is continuing with the 3rd layer of sieved till Tried to compact the 3rd layer but the till is too wet, the contractor will wait another day and let it dry

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

Equipment: Excavator 345 (x3)
Compactor
Bulldozer

Manpower: 4 haul trucks

Photos Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/08 Inspector - Day/Night: F. Rose

Weather : Sunny

Project: CD / SD4 Contractor: F.G.L.

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

General Activities:

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

Description:

SD4: - Sample # 438 is taken for the fine filter on the east side of the dike St: 40+391.2 0/543b @ 420

- Fine filter is done on the east side. Compaction is done and approved
- Rockfill is being placed on the west side of the dike on top of the coarse filter
- Coarse filter is being placed on top of fine filter on the east side

CD: Compaction is done and tested on the 2nd layer of till 1st class on the North side of the dike.
3rd layer using 2nd class till is being placed
Compaction on 3rd layer is done, tested and approved. Compaction 100% d
Fine filter is being placed at the North Central Dike. A geotextile

Delays:

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

was placed beforehand to protect the geomembrane

SD5: Excavator 345 placing the rockfill on top of where the geomembrane is since the Bulldozer could not drive on top

Equipment: Excavator 345 (x3)
Bulldozer
Compactor

Manpower: 4 haul trucks

Photos Location:

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

✓ RON J F15/16

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/09 Inspector - Day/Night: F. Rose

Weather: Cloudy / Fog / Rain

Project: SDA / Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

Sample #439 ST: 0+160.3, OIS 35.7, 140.A was taken for the fine filter on Central dike North

- SDA: Bulldozer finishing placing the rockfill on the coarse filter on the east side

SDS: Excavator finished sloping rockfill.
- Made a small access road between SDS and Pumping Station

Delays:

CD: Finished fine filter. Compacted done and approved
Starting Coarse filter on top of fine filter North

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

Equipment: Excavator 345 (x3)
Bulldozer
4 haul trucks

Manpower: Compactor

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO EAGLE

Date: 2016/09/10 Inspector (Day/Night): F. Rose

Weather : Cloudy / Rain

Project: SD4 / CD Contractor: F.G.L.

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

General Activities:

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

Description:

SD4: Excavator is placing the final slopes with the rockfill from West to East. Compaction of the rockfill is done and approved

CD: Excavator 345 is placing the coarse filter on the North Central dike. Compaction is done and approved Placing rockfill over the coarse filter

Delays: Weight Sample #439 = 5838.2g

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

Sample #438 for the fine filter is half done. Going to finish with the fine material tomorrow

Equipment:

Manpower:

Photos
Location:

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

QC INSPECTOR'S DAILY REPORT
CENTRAL DIKE
AGNICO-EAGLE MEADOWBANK

AGNICO-EAGLE

Date: 2016-09-11 Inspector / Day/Night: F. Rose

Weather : Cloudy / Snow

Project: Central Dike Contractor: F.G.L.

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

General Activities:

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

Description:

Compaction of the rockfill done and approved on the North Central Dike

Sample #438 is done
Sample #439 halfway done, finish fine material tomorrow

Delays:

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

Equipment: Compactor

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 G1

CENTRAL DIKE STAGE 5 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTANCE

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-~~116~~ 124	Date:	4-Jun-16

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 autorised 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:	Guy Lamarche
	Position:	SNC Lavalin Inc. - QC
QA Engineer	Name:	
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta 0 + 000 Offset -0000	SHIFT: NIGHT ☐ DAY ☒	DATE : 2016-06-04	SHEET 2 OF 4
To Sta. 0 + 000 Offset -0000	LOCATION : CENTRAL DIKE		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Frozen Till and 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	x	
2.	Storage areas planned for disposal of removed materials	x	
3.	Occurrence of snow and ice removal method in place	x	
4.	Occurrence of boulders and removal method in place	x	
5.	Occurrence of hummocks and scalping method in place	x	
6.	Occurrence of surface and ground water and its impact mitigation in place	x	
7.	Presence of other unsuitable materials and removal method in place	x	
8.	Soil frozen or thawed and measures taken	x	
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	
	Preparation of surface for LLDPE geomembrane placement	NA	
10.	Adjustment made to suit design in field	NA	
11.	Final walkover inspection before re-sloping or fill placement	x	
	Rough grading of foundation	x	
12.	"As-excavated" survey conducted	x	
	Bedrock cleaning	NA	
13.	Bedrock Mapping	NA	

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME:	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: June 5th 2016	DATE:	DATE: June 5th 2016

Approved Area

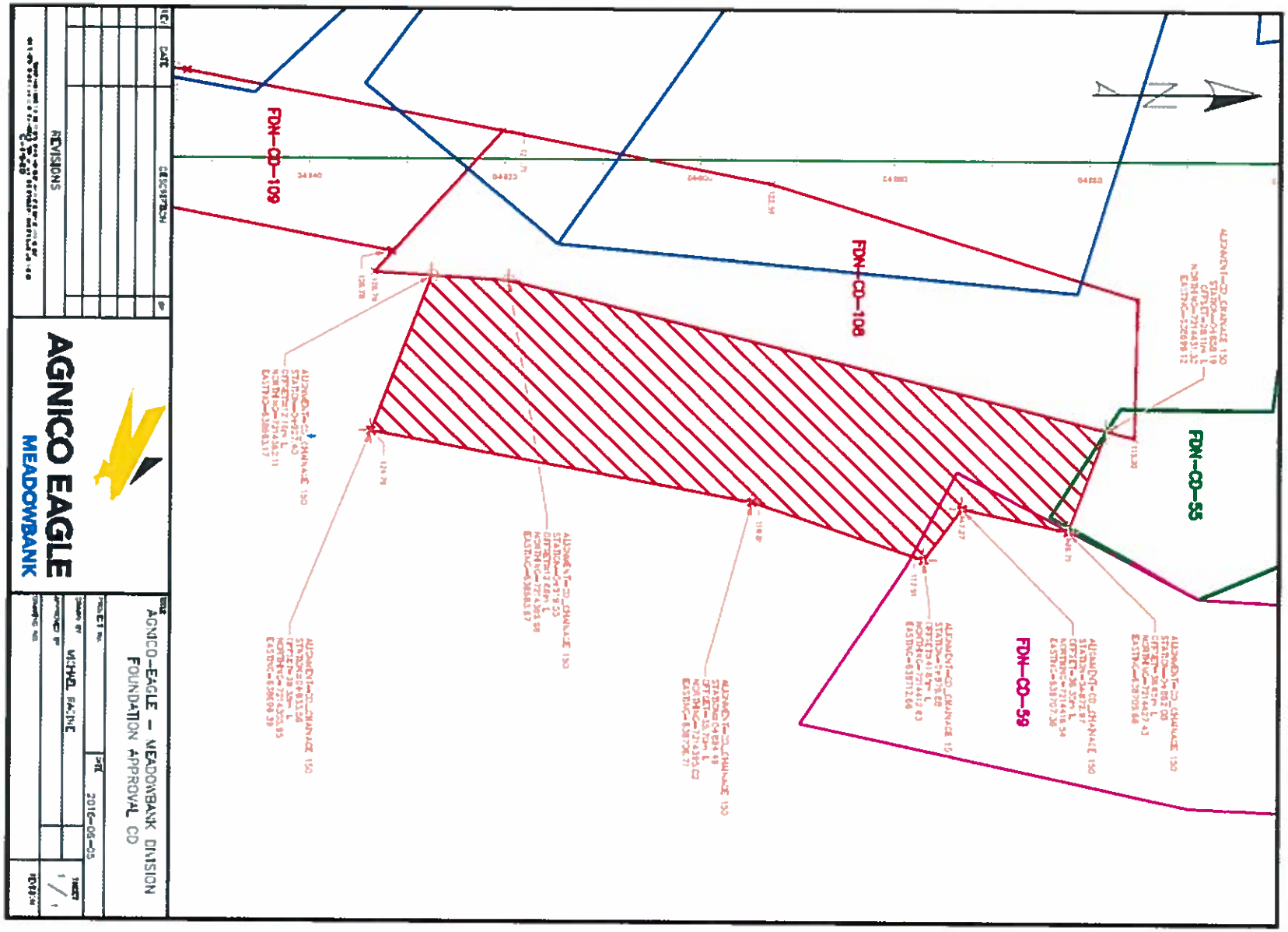


Figure 1 - Approximate approved foundation area

Date: June 5th 2016	Sketch by : Patrice Gagnon

N

1: 638699.12 / 7214431.32
ch: 0+858.19 / off: +28.11

2: 638709.66 / 7214427.43
ch: 0+862.08 / off: +38.68

3: 638707.36 / 7214416.54
ch: 0+872.97 / off: +36.35

4: 638712.66 / 7214412.63
ch: 0+876.88 / off: +41.65

5: 638699.39 / 7214355.95
ch: 0+933.56 / off: +28.38

6: 638683.17 / 7214362.11
ch: 0+927.4 / off: 12.16



Photo 1- Approximate fondation approval area

*Station reference to CL with ele. 150m

Date: June 5, 2015

Photo by (Initial) : Patrice Gagnon

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTANCE

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-~~117~~ 125	Date:	7-Jun-16

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 autorised 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:	Guy Lamarche
	Position:	SNC Lavalin Inc. - QC
QA Engineer	Name:	
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta 0 + 000 Offset -0000	SHIFT: NIGHT : ☐ DAY ☒	DATE : 2016-06-04	SHEET 2 OF 4
To Sta. 0 + 000 Offset -0000	LOCATION: : CENTRAL DIKE		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Frozen Till and 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	x	
2.	Storage areas planned for disposal of removed materials	x	
3.	Occurrence of snow and ice removal method in place	x	
4.	Occurrence of boulders and removal method in place	x	
5.	Occurrence of hummocks and scalping method in place	x	
6.	Occurrence of surface and ground water and its impact mitigation in place	x	
7.	Presence of other unsuitable materials and removal method in place	x	
8.	Soil frozen or thawed and measures taken	x	
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	
	Preparation of surface for LLDPE geomembrane placement	NA	
10.	Adjustment made to suit design in field	NA	
11.	Final walkover inspection before re-sloping or fill placement	x	
	Rough grading of foundation	x	
12.	"As-excavated" survey conducted	x	
	Bedrock cleaning	NA	
13.	Bedrock Mapping	NA	

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME:	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: June 7th 2016	DATE:	DATE: June 7th 2016

Approved Area

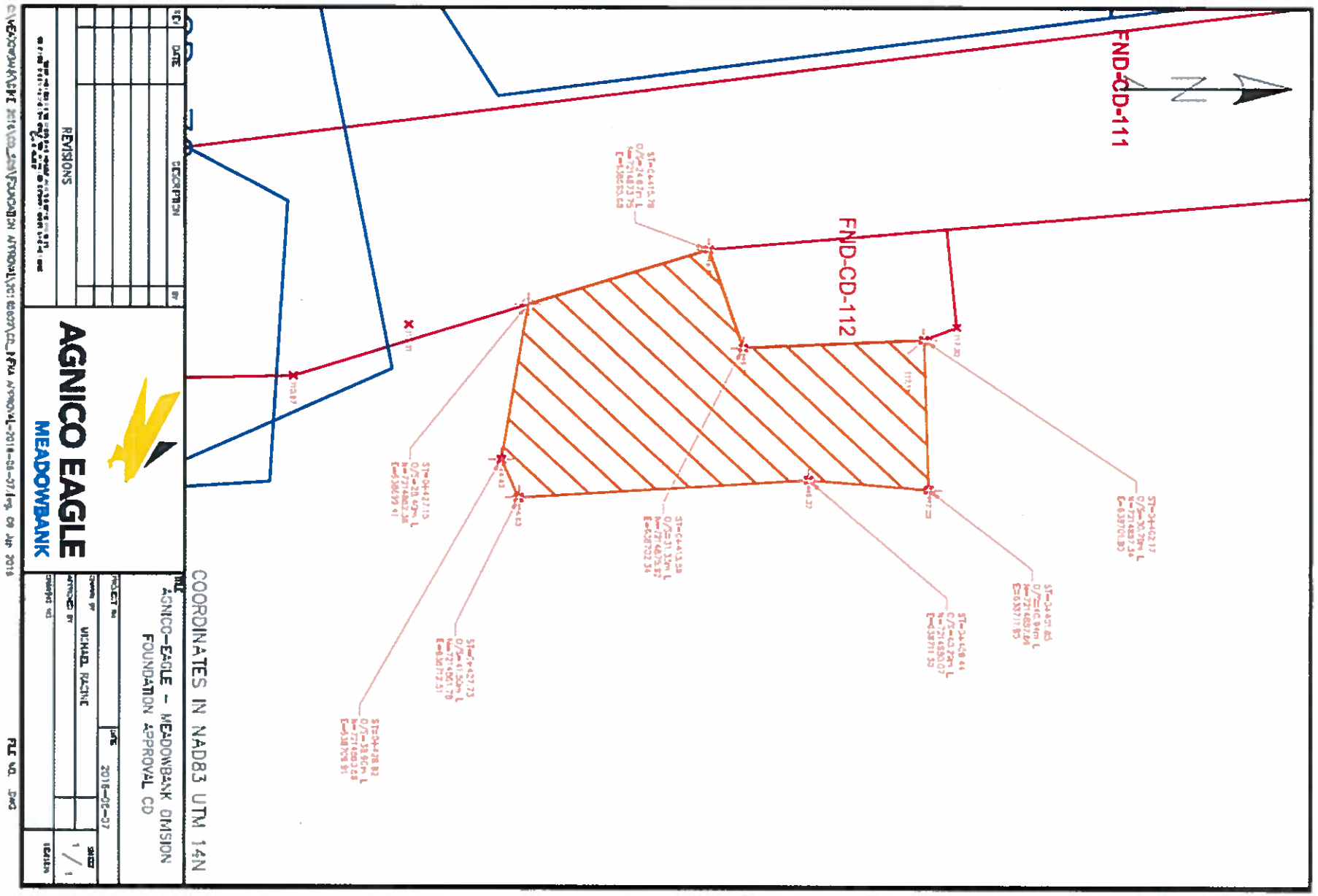


Figure 1 - Approximate approved foundation area

Date:	June 7th 2016	Sketch by : Patrice Gagnon

N

1: 638699.41 / 7214862.36
ch: 0+427.15/ off: +28.40

2: 638861.78/ 7214712.51
ch: 0+427.73 / off: +41.50

3: 638711.30 / 7214880.07
ch: 0+409.44 / off: +40.29

4: 638711.95 / 7214887.66
ch: 0+401.85 / off: +40.94

5: 638701.80 / 7214887.34
ch: 0+402.17 / off: +30.79



Photo 1- Approximate fondation approval area

*Station reference to CL with ele. 150m

Date: June 7, 2015

Photo by (Initial) : Patrice Gagnon

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTANCE

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-~~118~~ 126	Date:	11-Jun-16

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 autorised 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:	Guy Lamarche
	Position:	SNC Lavalin Inc. - QC
QA Engineer	Name:	
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta 0+000 Offset -0000	SHIFT: NIGHT ☐ DAY ☒	DATE : 2016-06-11	SHEET 2 OF 4	
To Sta. 0+000 Offset -0000	LOCATION: : CENTRAL DIKE			
EQUIPMENT: Excavator 345D - SANA				
DESCRIPTION Frozen Till 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	x	
2.	Storage areas planned for disposal of removed materials	x	
3.	Occurrence of snow and ice removal method in place	x	
4.	Occurrence of boulders and removal method in place	x	
5.	Occurrence of hummocks and scalping method in place	x	
6.	Occurrence of surface and ground water and its impact mitigation in place	x	
7.	Presence of other unsuitable materials and removal method in place	x	
8.	Soil frozen or thawed and measures taken	x	
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	
	Preparation of surface for LLDPE geomembrane placement	NA	
10.	Adjustment made to suit design in field	NA	
11.	Final walkover inspection before re-sloping or fill placement	x	
	Rough grading of foundation	x	
12.	"As-excavated" survey conducted	x	
	Bedrock cleaning	NA	
13.	Bedrock Mapping	NA	

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME:	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: June 7th 2016	DATE:	DATE: June 7th 2016

Approved Area

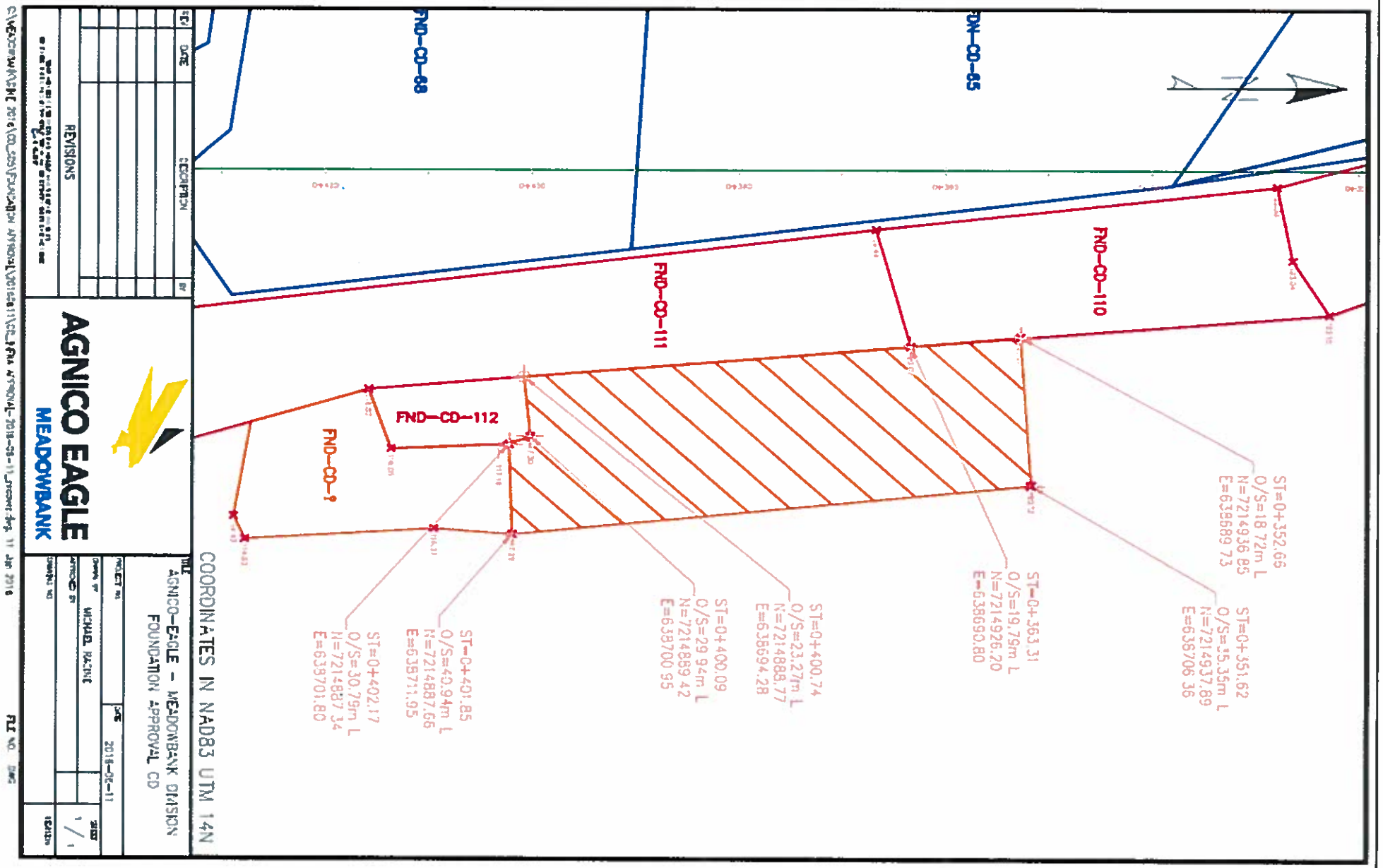


Figure 1 - Approximate approved foundation area

Date:	**June 11th 2016**	**Sketch by : Patrice Gagnon**

N

1: 638694.28/ 7214888.77
ch: 0+4400.74 / off: +23.27

2: 638711.95 / 7214887.66
ch: 0+401.85/ off: +40.94

3: 638706.36 / 7214937.89
ch: 0+351.62 / off: +35.35

4: 638689.73 / 7214936.85
ch: 0+352.66 / off: +18.72

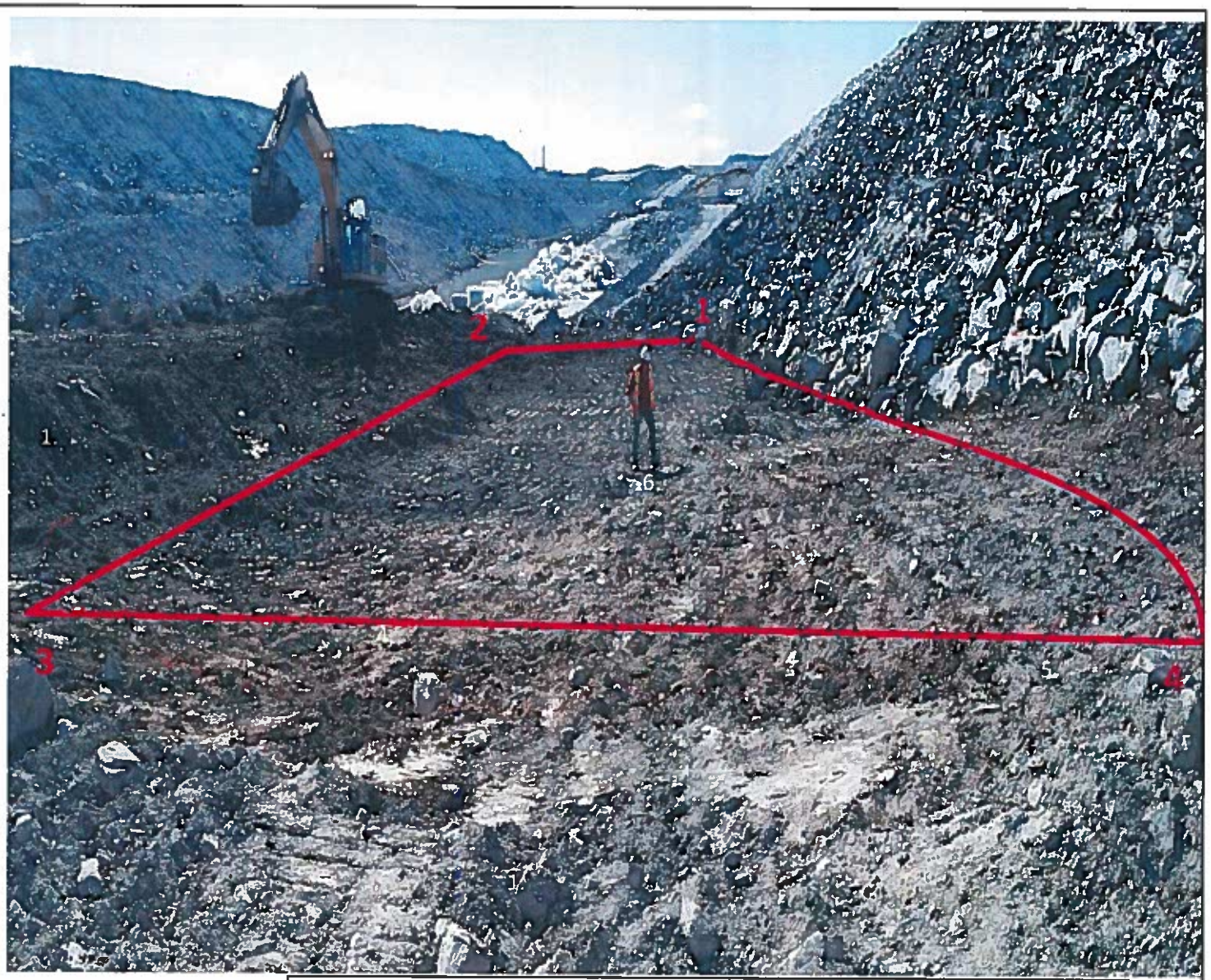


Photo 1- Approximate fondation approval area

*Station reference to CL with ele. 150m

Date: June 11, 2016

Photo by (Initial) : Patrice Gagnon

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTANCE

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.: FND-CD-~~119~~ 127 **Date:** 12-Jun-16

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 autorised 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:	Guy Lamarche
	Position:	SNC Lavalin Inc. - QC
QA Engineer	Name:	
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta 0 + 000 Offset -0000	SHIFT: NIGHT ☐ DAY ☒	DATE : 2016-06-12	SHEET 2 OF 4
To Sta. 0 + 000 Offset -0000	LOCATION: : CENTRAL DIKE		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Frozen Till 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	x	
2.	Storage areas planned for disposal of removed materials	x	
3.	Occurrence of snow and ice removal method in place	x	
4.	Occurrence of boulders and removal method in place	x	
5.	Occurrence of hummocks and scalping method in place	x	
6.	Occurrence of surface and ground water and its impact mitigation in place	x	
7.	Presence of other unsuitable materials and removal method in place	x	
8.	Soil frozen or thawed and measures taken	x	
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	
	Preparation of surface for LLDPE geomembrane placement	NA	
10.	Adjustment made to suit design in field	NA	
11.	Final walkover inspection before re-cloping or fill placement	x	
	Rough grading of foundation	x	
12.	"As-excavated" survey conducted	x	
	Bedrock cleaning	NA	
13.	Bedrock Mapping	NA	

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME:	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: June 12h 2016	DATE:	DATE: June 12th 2016

Approved Area

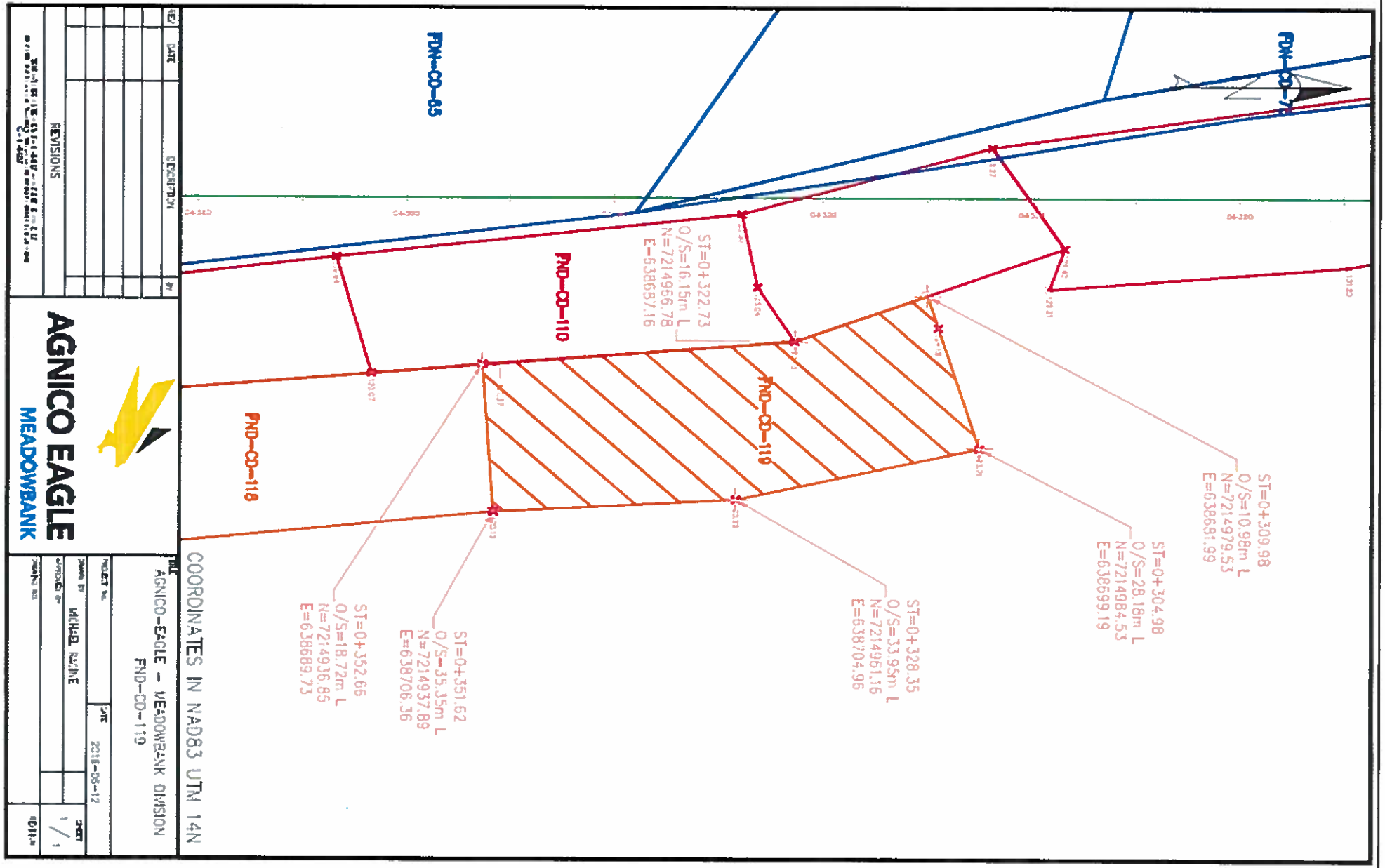


Figure 1 - Approximate approved foundation area

Date:	June 12th 2016	Sketch by : Patrice Gagnon

N

1: 638694.28/ 7214888.77
ch: 0+4400.74 / off: +23.27

2: 638711.95 / 7214887.66
ch: 0+401.85/ off: +40.94

3: 638706.36 / 7214937.89
ch: 0+351.62 / off: +35.35

4: 638689.73 / 7214936.85
ch: 0+352.66 / off: +18.72



Photo 1- Approximate fondation approval area

***Station reference to CL with ele. 150m**

Date: June 12, 2016

Photo by (Initial) : Patrice Gagnon

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-128	Date:	16-06-2016

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 autorised 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:	Rebecca Cousineau/ Serge Tremblay	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederic Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+927 Offset 12.16L to 28.38L | SHIFT: NIGHT ☐ DAY ☐ | DATE : 16-06-16 | SHEET 2 OF 4

To Sta. 0+990 Offset 1.73R to 8.86L | LOCATION: : Central Dike : Bedrock foundation on South Side.

EQUIPMENT: Excavator 345D - SANA

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	✓	✓
2.	Storage areas planned for disposal of removed materials	✓	✓
3.	Occurrence of snow and ice removal method in place	✓	✓
4.	Occurrence of boulders and removal method in place	✓	✓
5.	Occurrence of hummocks and scalping method in place	✓	✓
6.	Occurrence of surface and ground water and its impact mitigation in place	✓	✓
7.	Presence of other unsuitable materials and removal method in place	✓	✓
8.	Soil frozen or thawed and measures taken	✓	✓
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	✓	✓
11.	Final walkover inspection before re-sloping or fill placement	✓	✓
	Rough grading of foundation	✓	✓
12.	"As-excavated" survey conducted	✓	✓
	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: Aubrey Claude Desroches	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2016-06-16	DATE: 2016-06-16	DATE: 2016-06-16

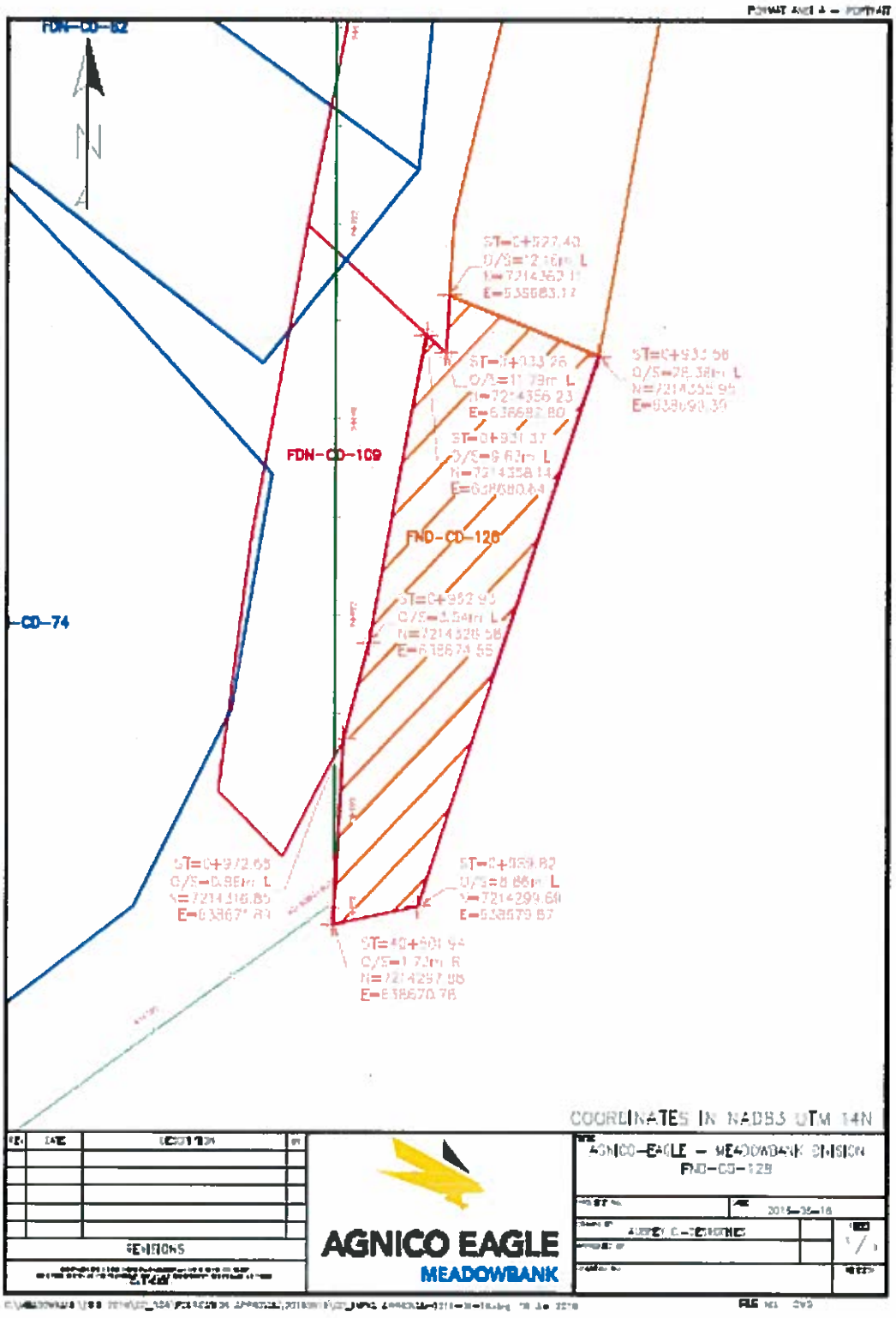


Figure 1 - Approximate approved foundation area

Date:	16-06-2016	Sketch by : Aubrey Claude Desroches

1:
E=638699.39, N=7214355.95
St=0+933.56, Offset=28.38m L

2:
E=638683.17, N=7214362.11
St=0+927.40, Offset=12.16m L

3:
E=638674.55, N=7214326.58
St=0+962.93, Offset=3.54m L



Photo 1- Approximate approved foundation area

Date: 16-06-2016

Photo by (Initial) : SO

3:
E=638674.55, N=7214326.58
St=0+962.93, Offset=3.54m L

4:
E=638670.78, N=7214297.88
St=40+801.94, Offset=1.73m R

5:
E=638679.87, N=7214299.69
St=0+989.82, Offset=8.86m L



Photo 2- Approximate approved foundation area

Date: 16-06- 2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-129	Date:	19-06-2016

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 autorised 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:	Rebecca Cousineau/ Serge Tremblay	Rebecca Cousineau
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyale	Sanaz Olyale
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederic Bolduc	Frederic L. Bolduc
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+247 Offset 3.09L to 17.35L	SHIFT: NIGHT :☐ DAY ☐	DATE : 19-06-16	SHEET 2 OF 4
To Sta. 0+309 Offset 10.98L to 28.18L	LOCATION: : Central Dike : Bedrock foundation on North Side		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

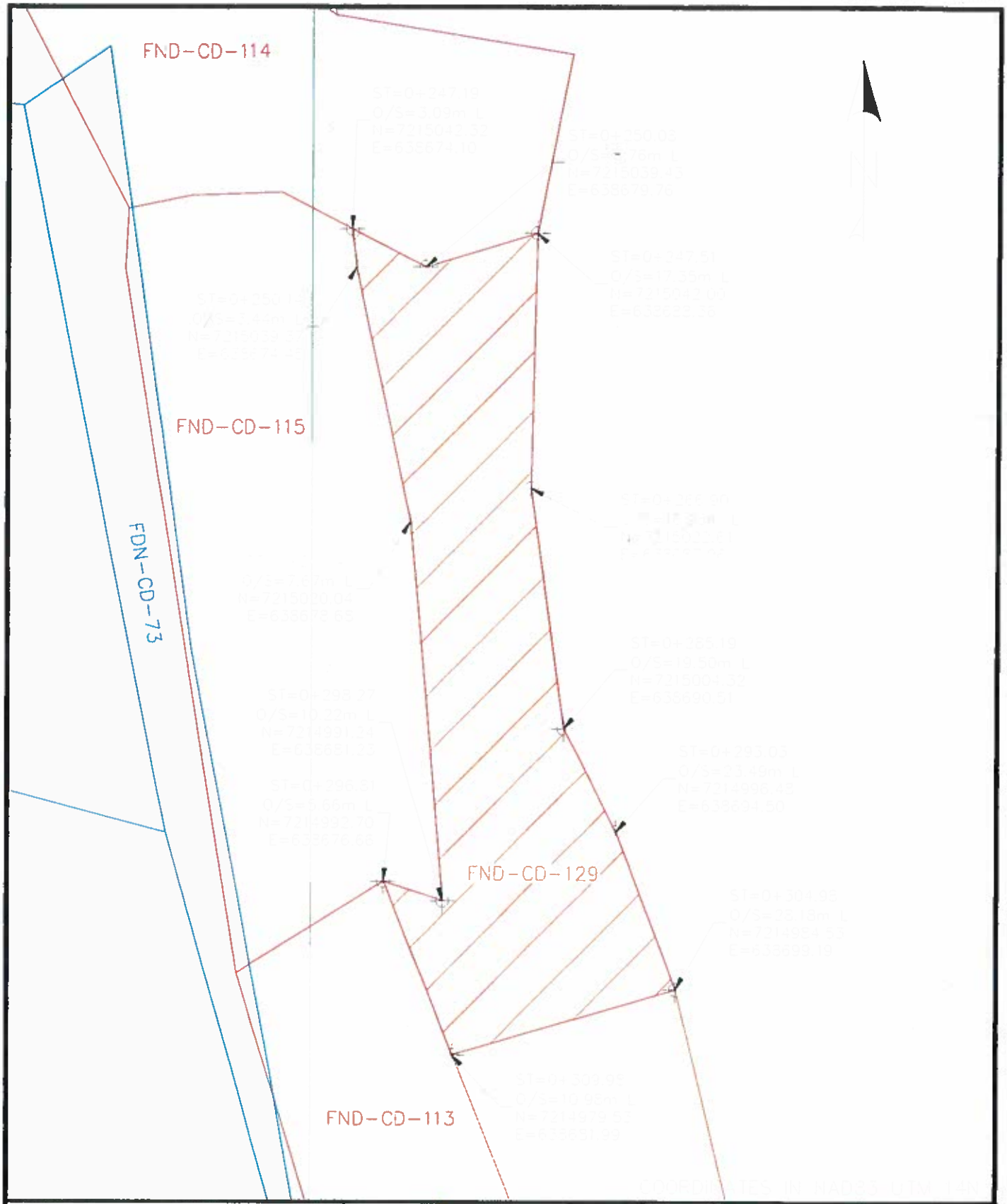
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	✓	✓
2.	Storage areas planned for disposal of removed materials	✓	✓
3.	Occurrence of snow and ice removal method in place	–	–
4.	Occurrence of boulders and removal method in place	✓	✓
5.	Occurrence of hummocks and scalping method in place	✓	✓
6.	Occurrence of surface and ground water and its impact mitigation in place	✓	✓
7.	Presence of other unsuitable materials and removal method in place	✓	✓
8.	Soil frozen or thawed and measures taken	–	–
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	✓	✓
11.	Final walkover inspection before re-sloping or fill placement	✓	✓
	Rough grading of foundation	✓	✓
12.	"As-excavated" survey conducted	✓	✓
	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: Aubrey Claude Desrochers	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 19-06-2016	DATE: 19-06-2016	DATE: 19-06-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

1:
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2:
E=638679.76, N=7215039.43
St=0+250.08, Offset=8.76m L

3:
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St=0+247.19, Offset=3.09m L

4:
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St=0+250.14, Offset=3.44m L

5:
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St=0+309.98, Offset=10.98m L

6:
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St=0+304.98, Offset=28.18m L

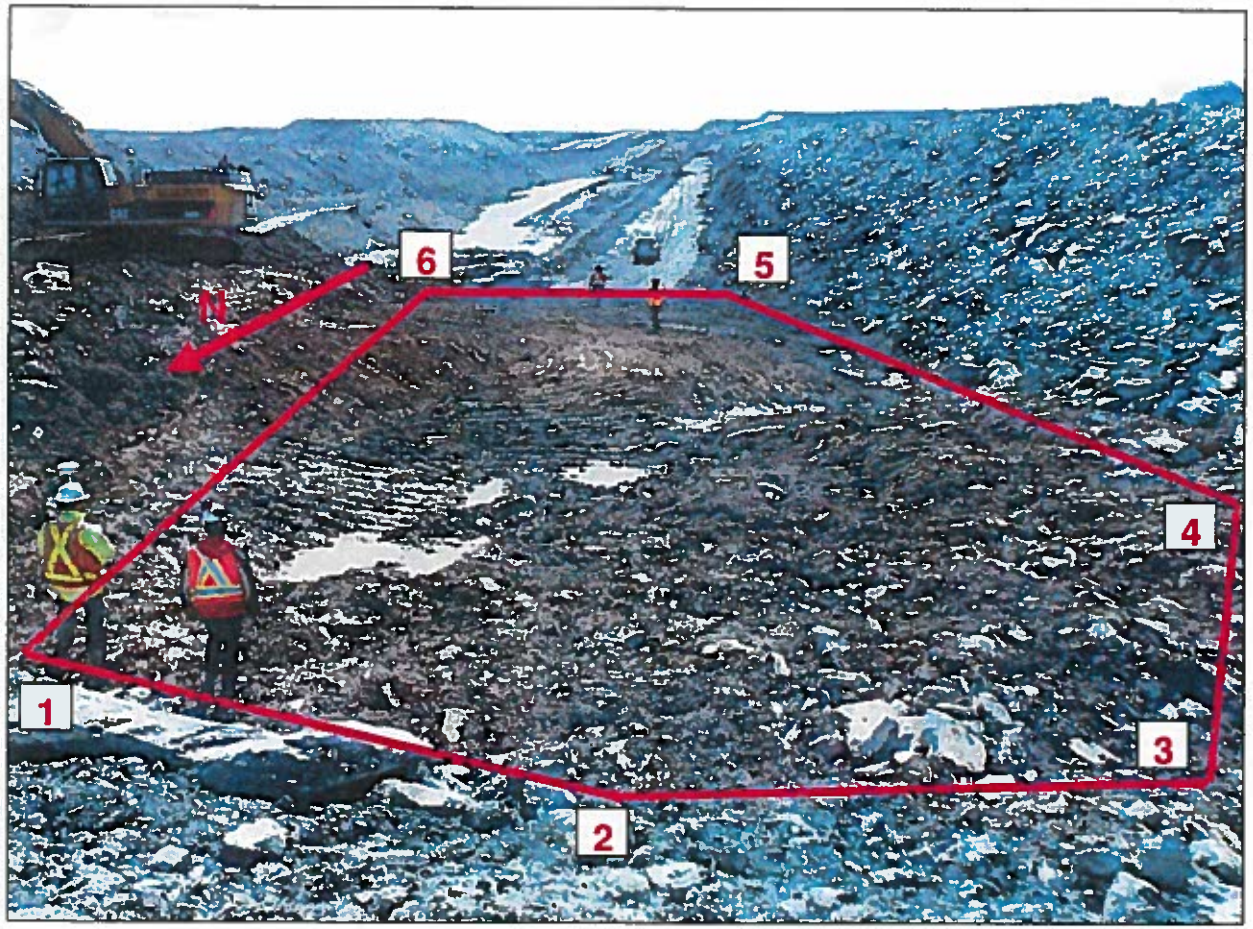


Photo 1- Approximate approved foundation area

Date: 19-06-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-130	Date:	27-06-2016

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);

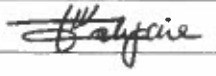
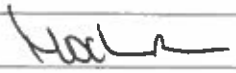
3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Rebecca Cousineau/ Serge Tremblay	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Michaël Demers Bonin	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+210.79 Offset 1.53R to 12.19L | SHIFT: NIGHT : ☐ DAY ☑ | DATE : 27-06-16 | SHEET 2 OF 4

To Sta. 0+233.30 Offset 1.82L to 16.68L | LOCATION: : Central Dike : Bedrock foundation on North Side.

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION Rock foundation

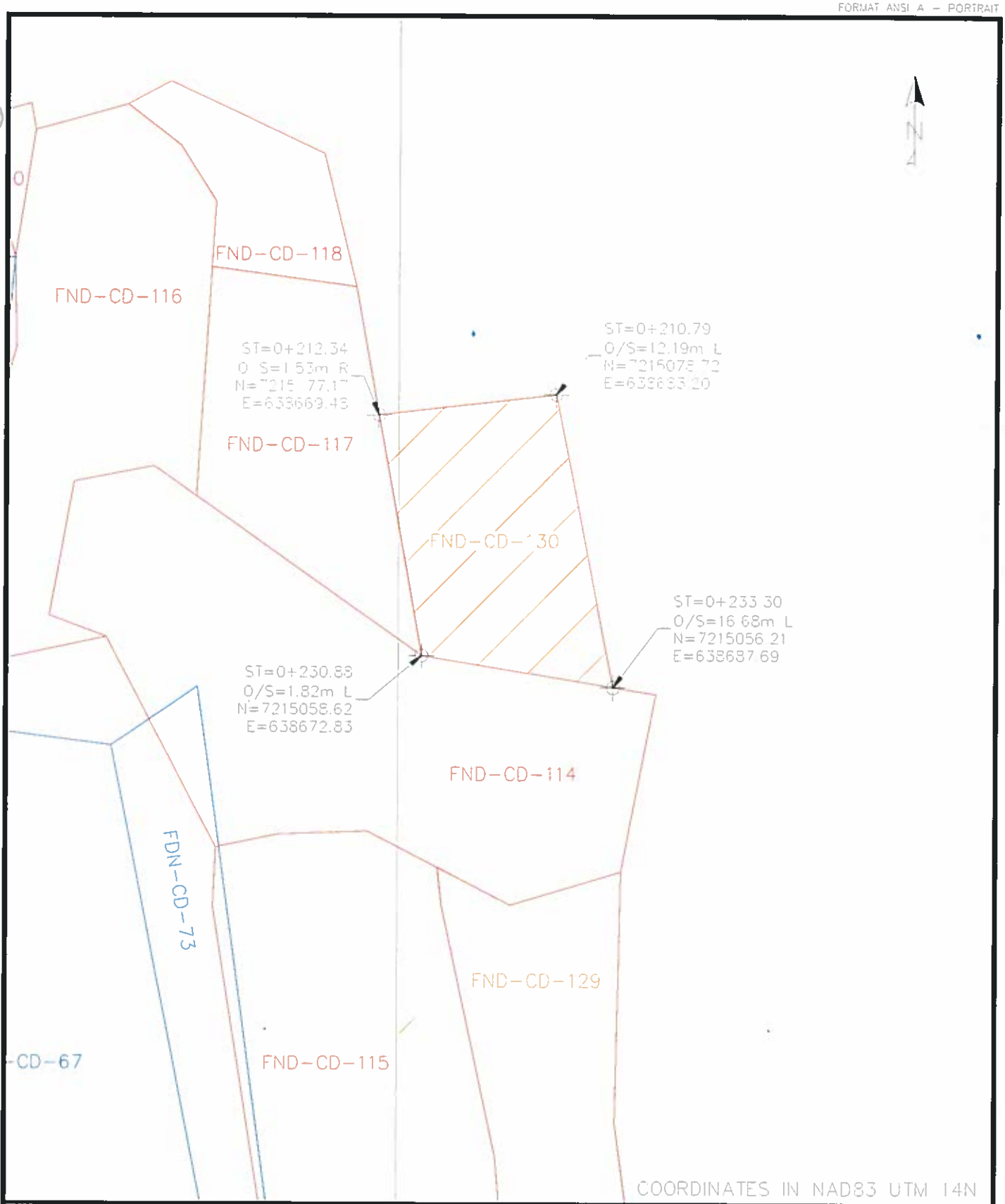
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	WM
2.	Storage areas planned for disposal of removed materials	RC	WM
3.	Occurrence of snow and ice removal method in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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Michaël Demers Bonin	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 27-06-2016	DATE: 27-06-2016	DATE: 27-06-2016



COORDINATES IN NAD83 UTM 14N

REV	DATE	DESCRIPTION	BY

REVISIONS

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IT MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, OR OTHERWISE, AND MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS LOANED OR PROVIDED.
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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FND-CD-130

PROJECT NO	DATE 2016-06-27	
DRAWN BY AUBREY C.-DESROCHES		SHEET 1 / 1
APPROVED BY		
DRAWING NO		REVISION

1:
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2:
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St=0+210.79, Offset=12.19m L

3:
E=638687.69, N=7215056.21
St=0+233.30, Offset=16.68m L

4:
E=638672.83, N=7215058.62
St=0+230.88, Offset=1.82m L

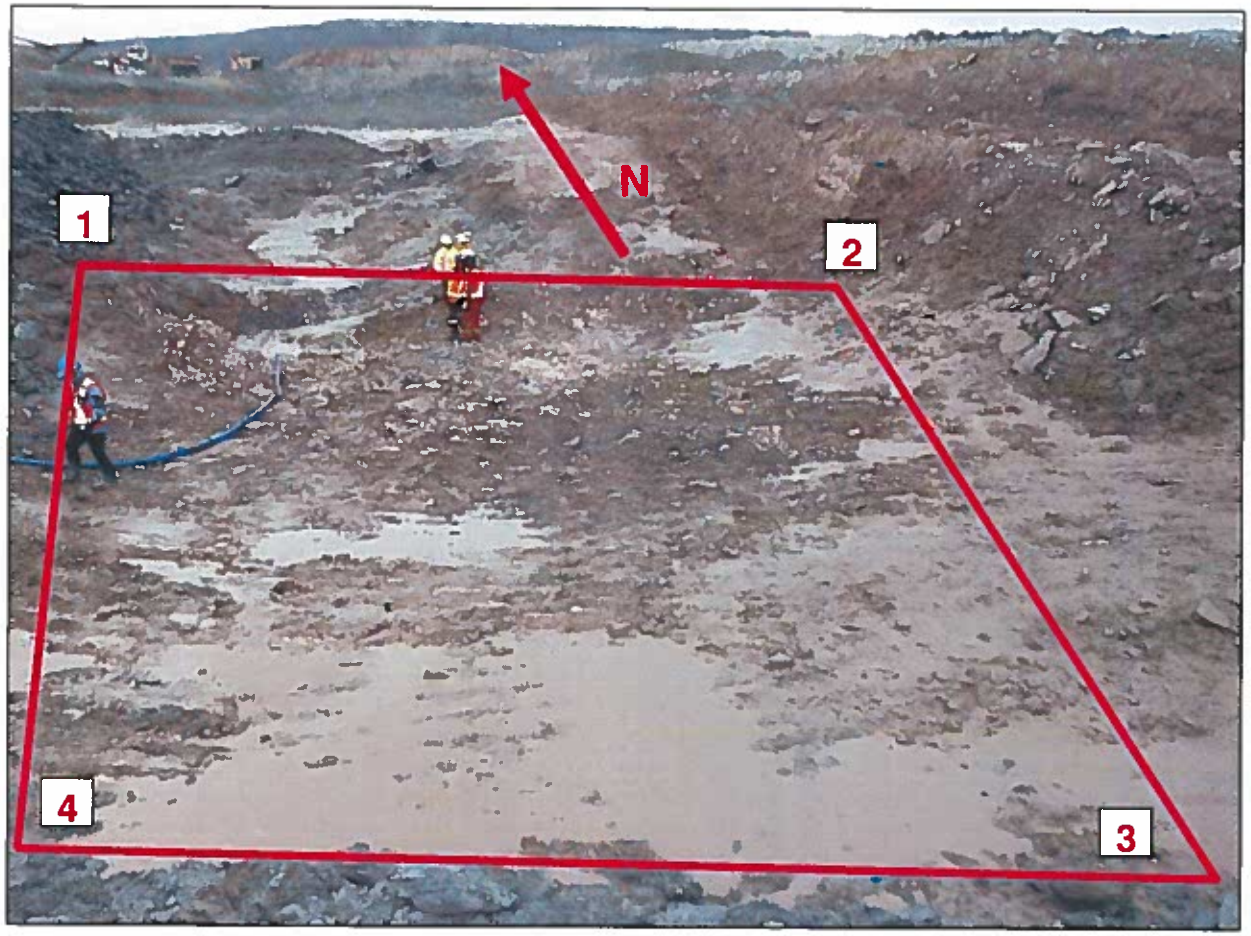


Photo 1- Approximate approved foundation area

Date: 27-06-2016

Photo by (Initial) : SO

Note: the bedrock was confirmed with the excavator underneath the water ponding.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-131	Date:	30-juin-16

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 autorised 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:	Marie-Hélène Picard
	Position:	SNC-Lavalin
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-Qa
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+190 Offset 14.6 to 25 5	SHIFT: NIGHT ☐ DAY ☐	DATE : 30-06-16	SHEET 2 OF 4
To Sta. 0+160 Offset 4.0 to 13.3	LOCATION: : Central Dike : Bedrock foundation for rockfill on North side		
EQUIPMENT: Excavator 345D - SANA			

DESCRIPTION Rock foundation

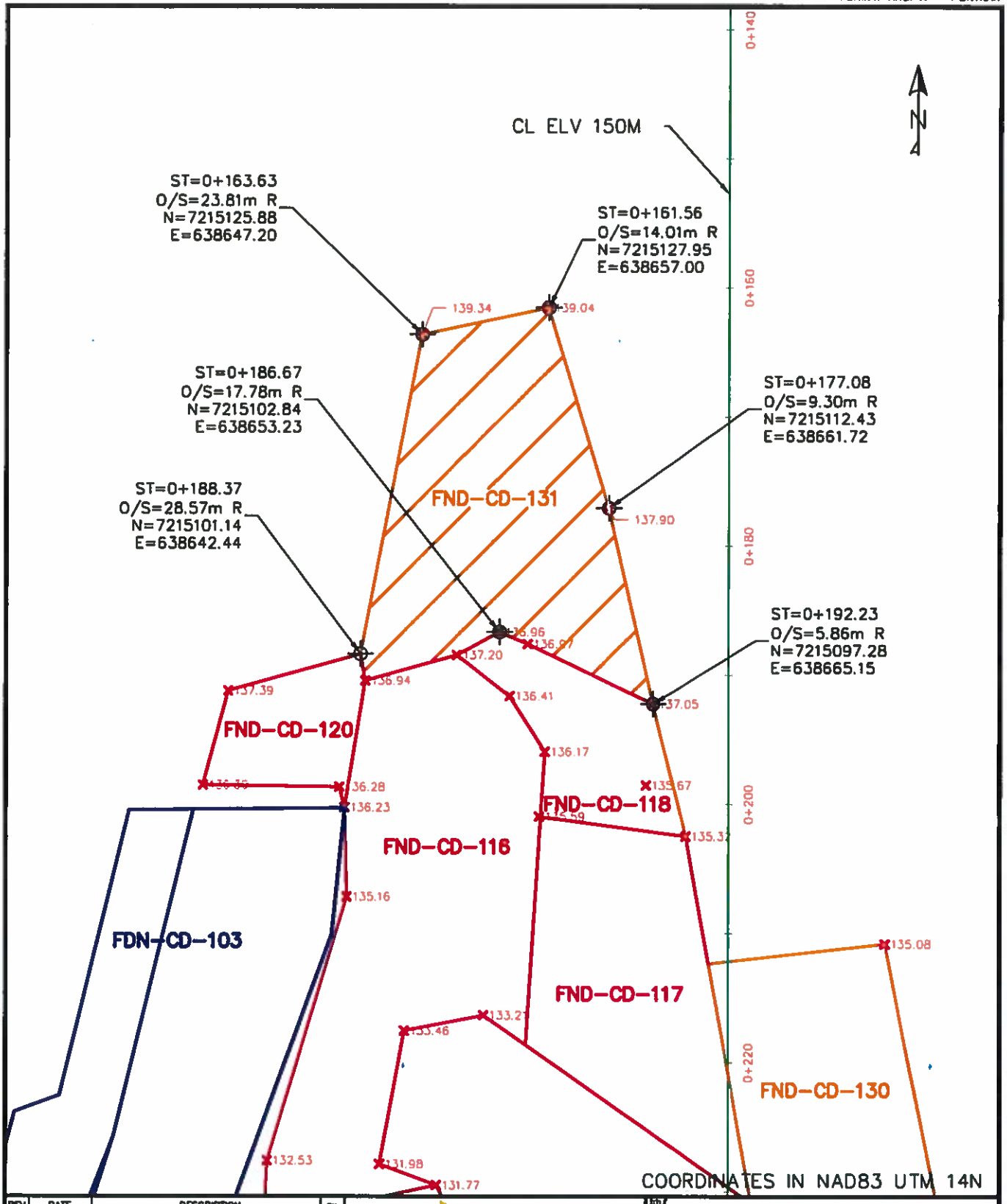
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	DC	OK
2.	Storage areas planned for disposal of removed materials	DC	OK
3.	Occurrence of snow and ice removal method in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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2016-06-30	DATE: 2016-06-30	DATE: 2016-06-30



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FND-CD-131

PROJECT No.	DATE 2016-06-30
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\CD_SDS\FOUNDATION APPROVAL\20160630\CD_INFRA APPROVAL-2016-06-30.dwg, 30 Jun 2016

FILE NO. .DWG

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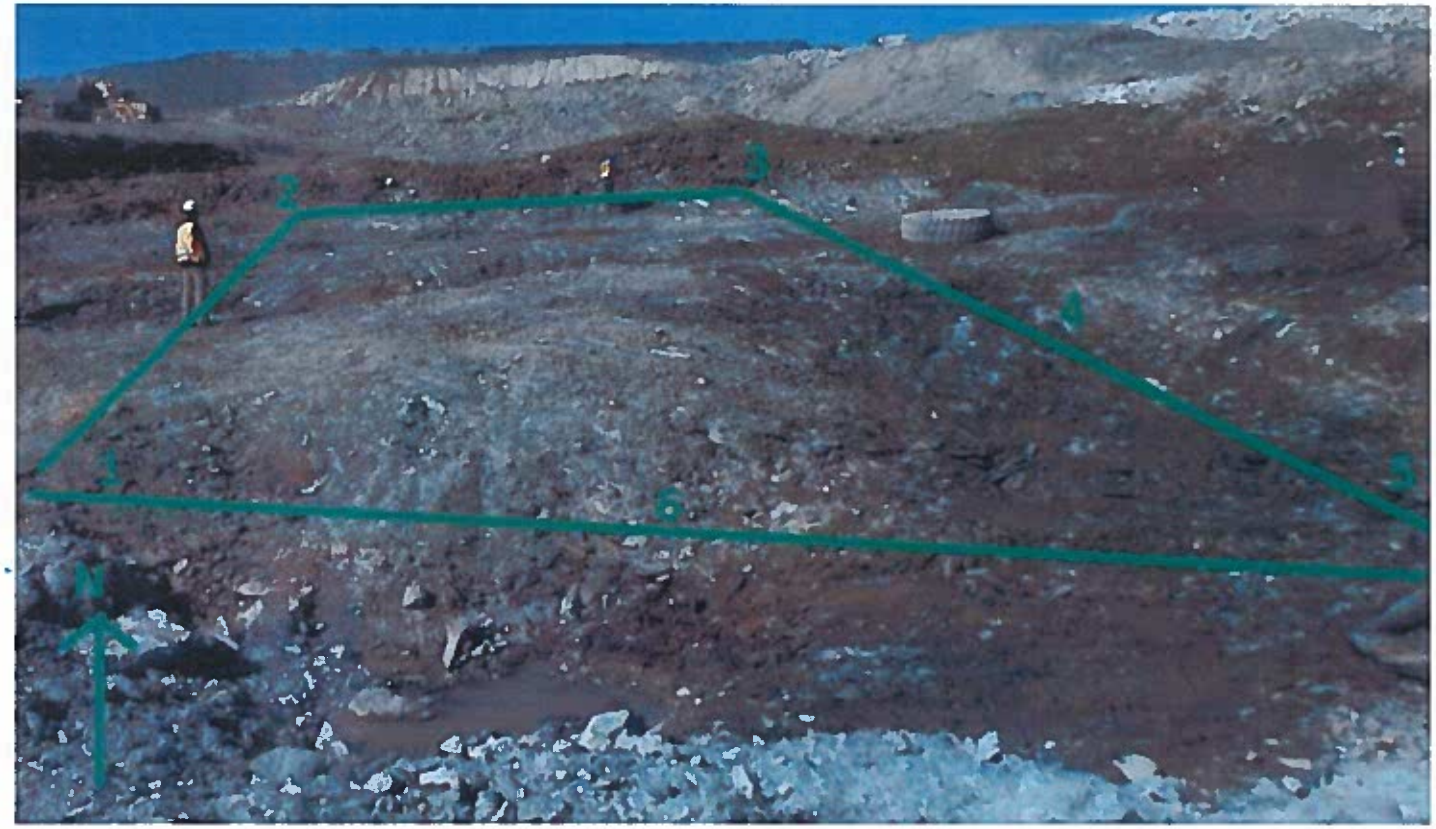


Photo 1- Approximate approved foundation area

Date: June 30, 2016

Photo by (Initial) : M.-H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-~~131~~ 132	Date:	04-juil-16

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 autorised 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:	Marie-Hélène Picard
	Position:	SNC-Lavalin
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-Qa
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+210 Offset 0.52 to 12.19	SHIFT: NIGHT ☐ DAY ☐	DATE : 04-07-16	SHEET 2 OF 4
To Sta. 0+105 Offset -26.01 to -38.86	LOCATION: : Central Dike : Bedrock foundation for rockfill on North side		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

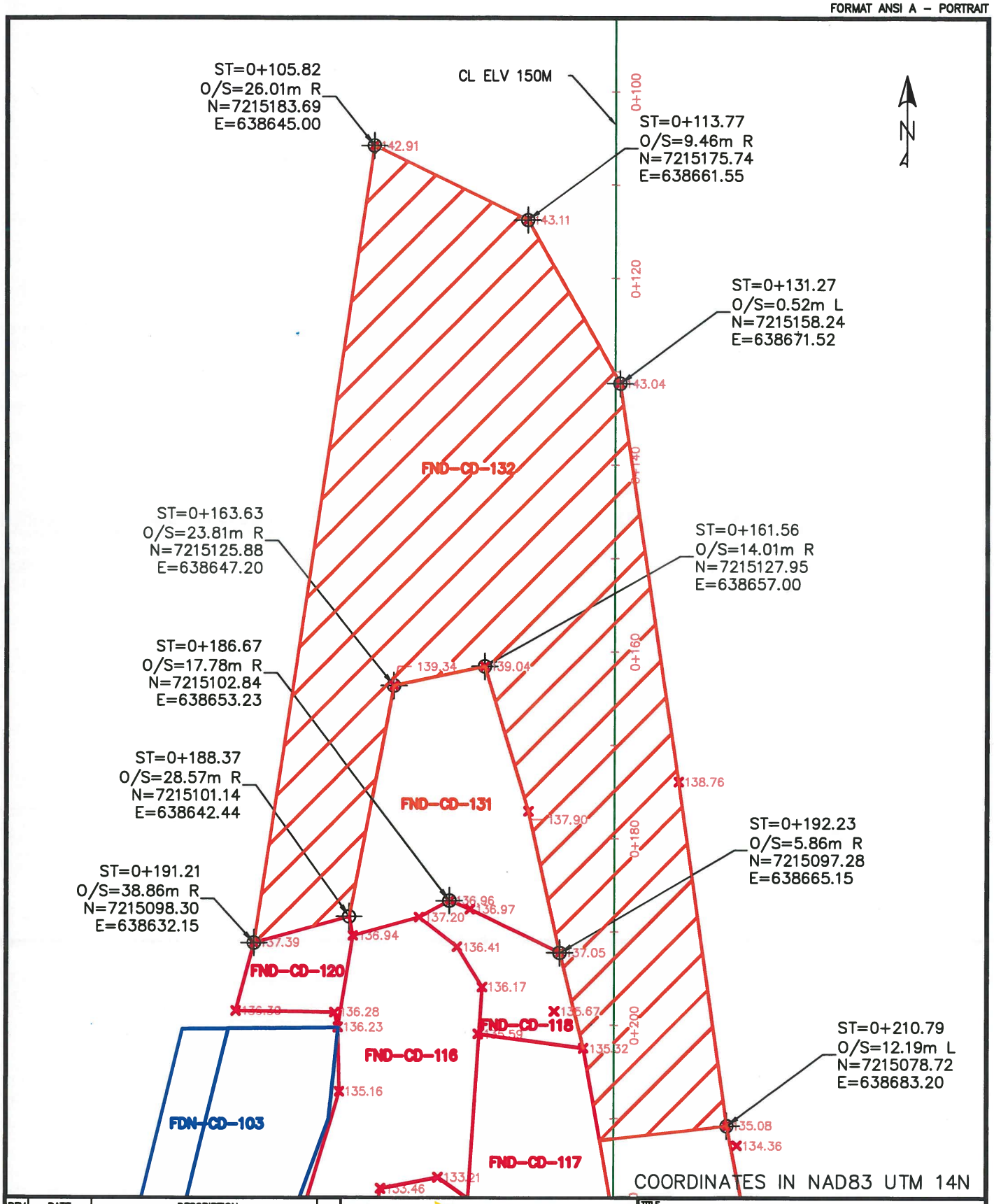
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2016-07-05	DATE: 2016-07-05	DATE: 2016-07-05



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FND–CD–132

PROJECT No.	DATE 2016–07–04
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\CD_SD5\FOUNDATION APPROVAL\20160704\CD_INFRA APPROVAL–2016–07–04.dwg, 04 Jul 2016

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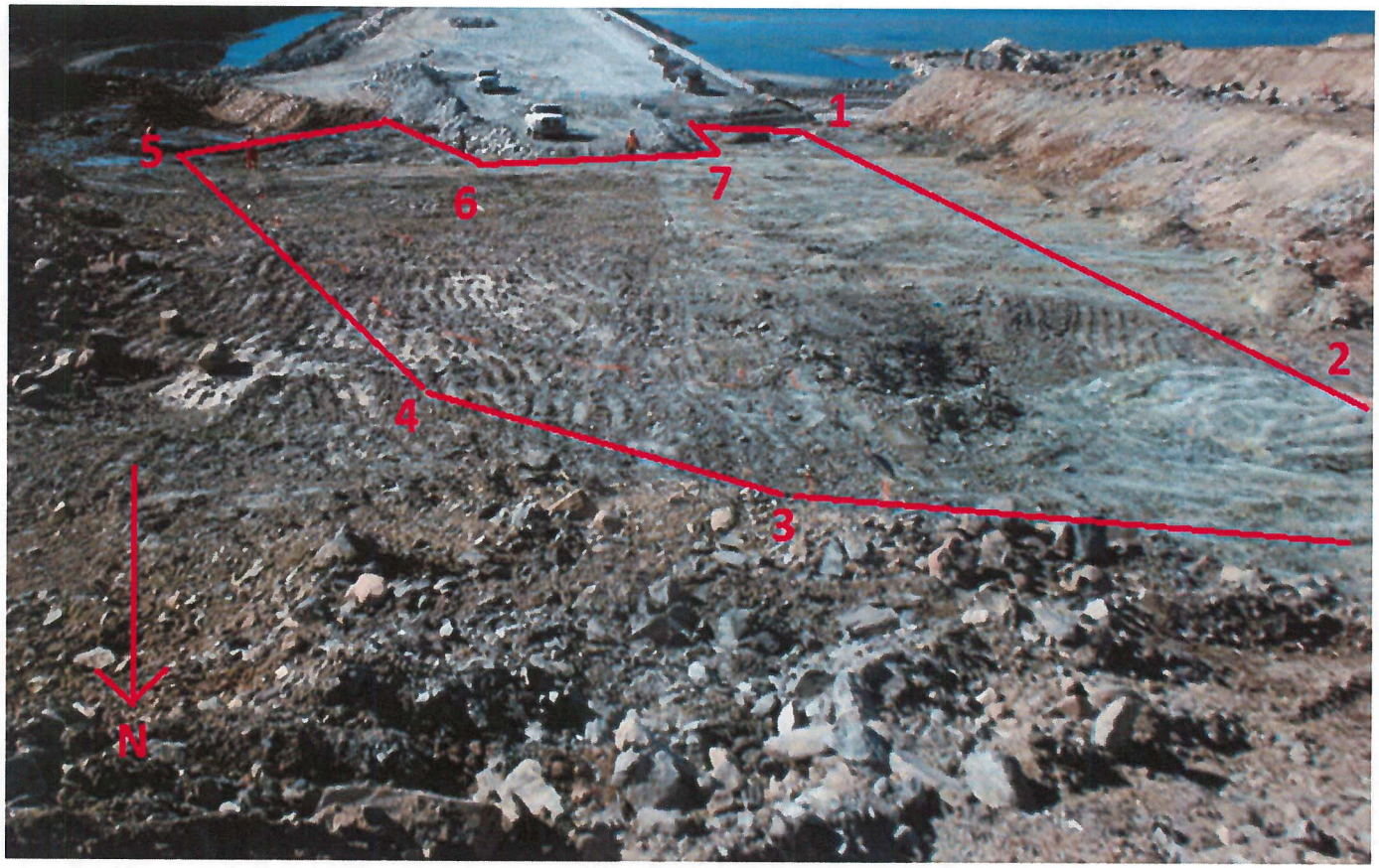


Photo 1- Approximate approved foundation area

Date: July 4, 2016

Photo by (Initial) : M.-H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-CD-133	Date:	16-08-2016

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 autorised 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:	Rebecca Cousineau	Rebecca Cousineau
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	Sanaz Olyaie
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frédérick Bolduc	Frédérick Bolduc
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 0+200.44 Offset 46.54R to 41.54R	SHIFT: NIGHT ☐ DAY ☒	DATE : 16-08-16	SHEET 2 OF 4
To Sta. 0+104.34 Offset 30.98R to 26.01R	LOCATION: Central Dike : Bedrock foundation on North Side		
EQUIPMENT: Excavator 345D - SANA			

DESCRIPTION Rock foundation

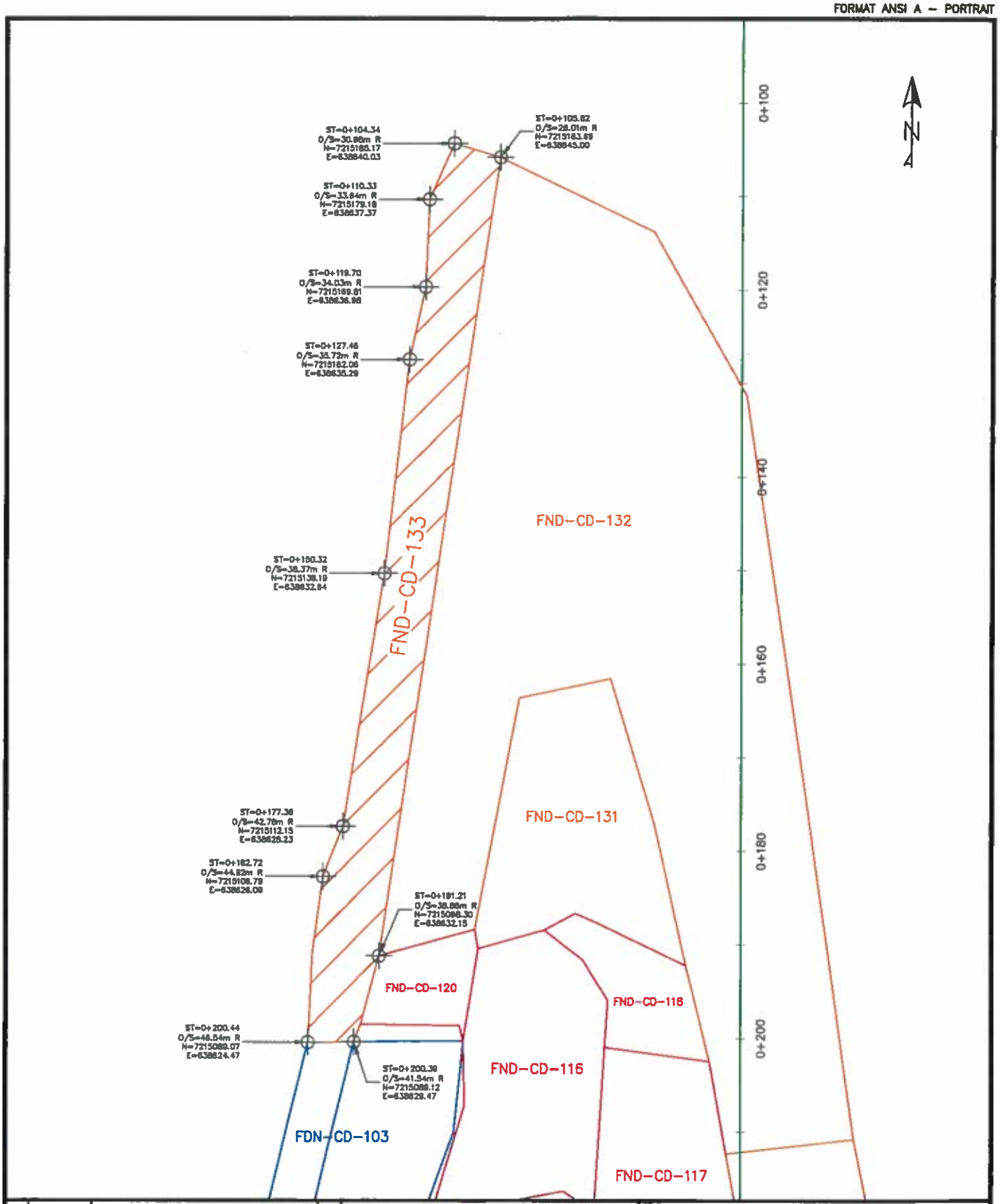
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE :
NAME: Aubrey Claude Desroches	NAME: Frédérick Bolduc	NAME: Rebecca Cousineau/
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 16-08-2016	DATE: 16-08-2016	DATE: 16-08-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–CD–133

PROJECT No.	DATE: 2016–08–16
DRAWN BY: AUBREY DESROCHES	SHEET: 1 / 1
APPROVED BY:	
DRAWING NO.	REVISION

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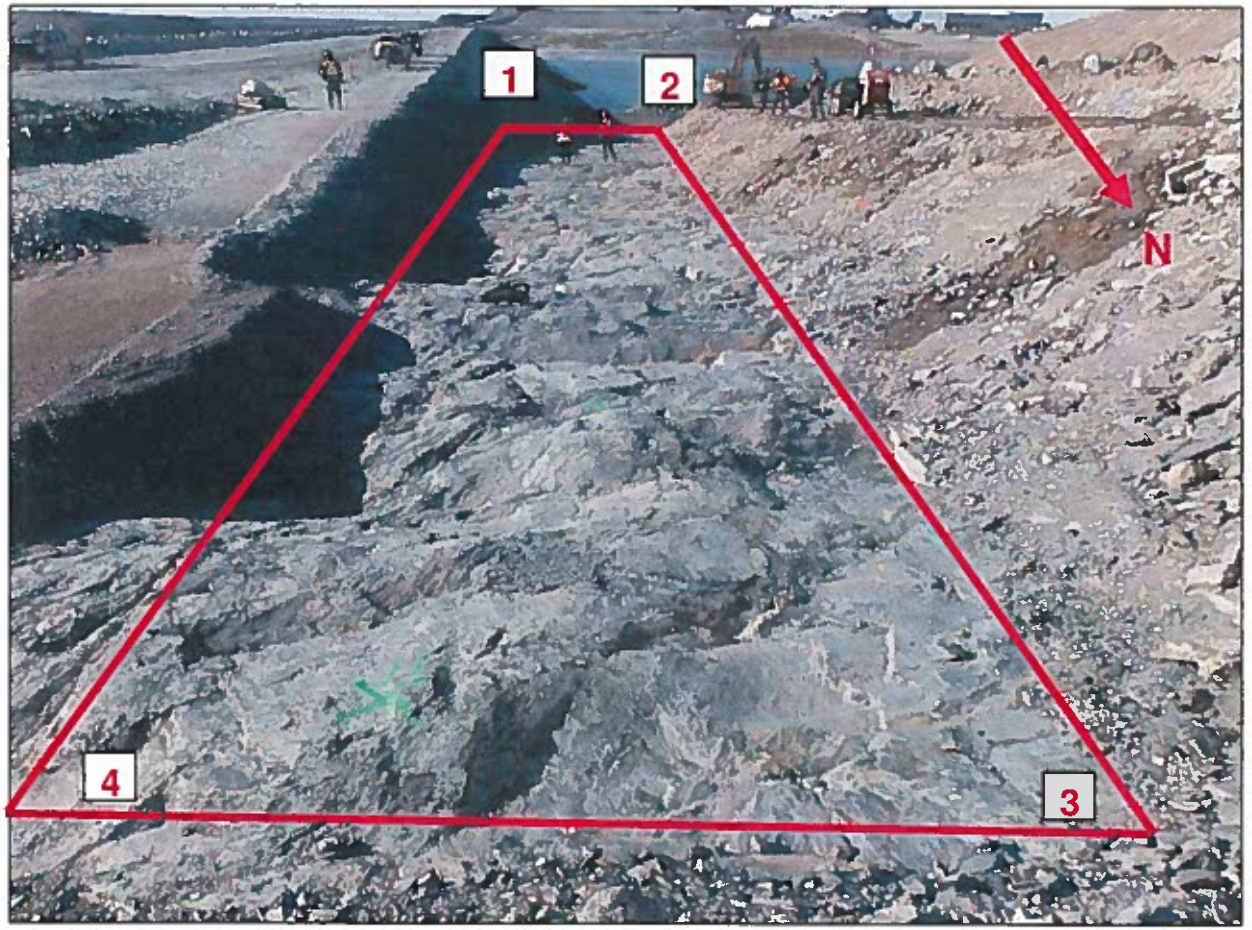


Photo 1- Approximate approved foundation area

Date: 16-08-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DYKE

Acceptance No.:	FND-CD-134	Date:	27-08-2016

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 autorised 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:	Guy Lamarche
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michaël Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Central Dyke — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 0+132.49 Offset 25.67	SHIFT: NIGHT :☐ DAY ☐	DATE : 27-08-16	SHEET 2 OF 4
To Sta. 0+970.97 Offset 51.60	LOCATION: : Central Dyke: Liner Bedding		
EQUIPMENT:	CENTRAL DIKE : geosynthetics Foundation		
DESCRIPTION Liner Bedding : geotextile + LLDPE 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	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in place	NA	N-A
4.	Occurrence of boulders and removal method in place	OK	OK
5.	Occurrence of hummocks and scalping method in place	OK	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	OK	OK
7.	Presence of other unsuitable materials and removal method in place	OK	OK
8.	Soil frozen or thawed and measures taken	NA	N-A
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	N-A
	Preparation of surface for LLDPE geomembrane placement	OK	OK
10.	Adjustment made to suit design in field	OK	OK
11.	Final walkover inspection before re-sloping or fill placement	OK	OK
	Rough grading of foundation	OK	OK
12.	"As-excavated" survey conducted	OK	OK
	Bedrock cleaning	NA	N-A
13.	Bedrock Mapping	NA	N-A

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 28-08-2016	DATE: 28-08-2016	DATE: 28-08-2016

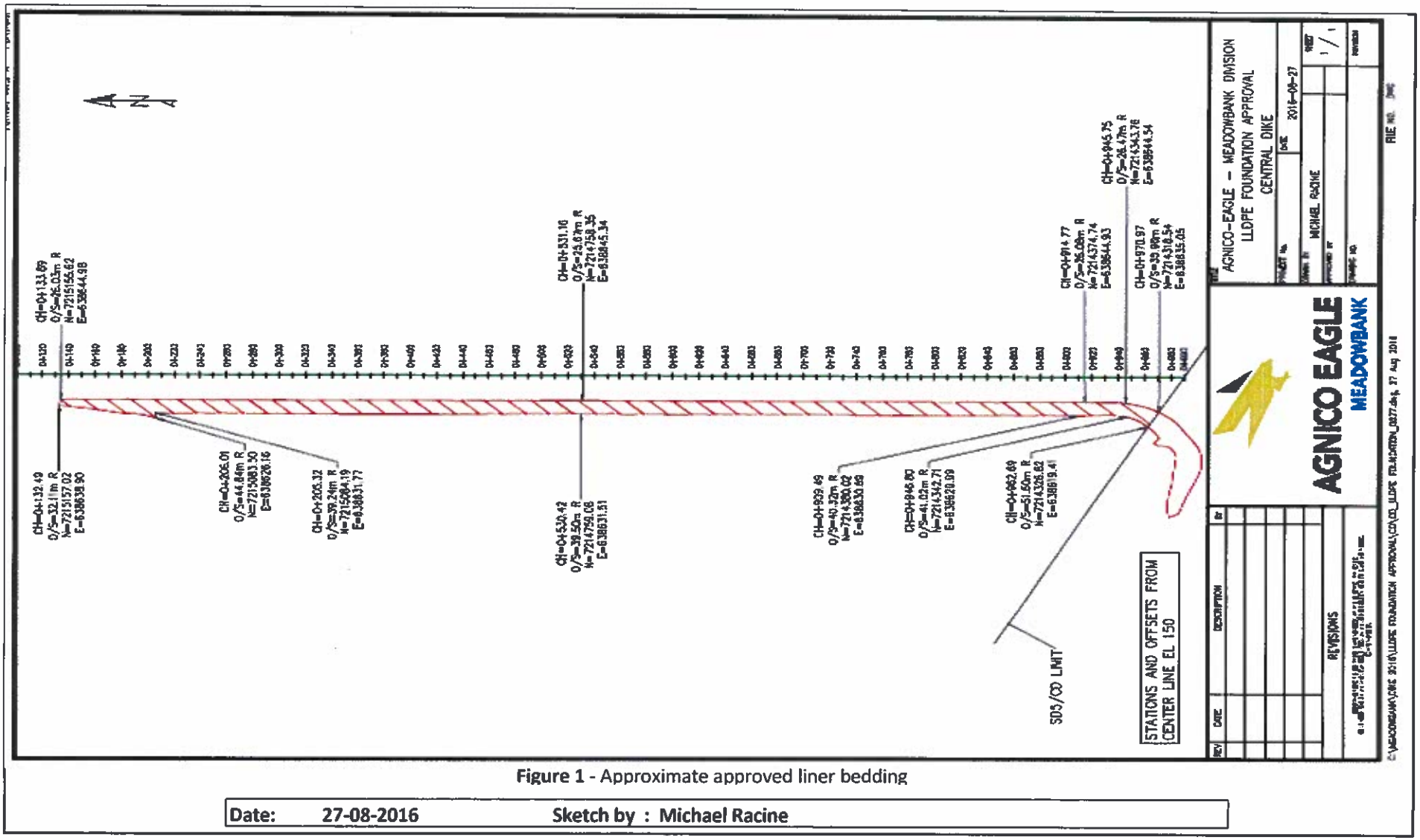


Figure 1 - Approximate approved liner bedding

Date:	27-08-2016	Sketch by : Michael Racine

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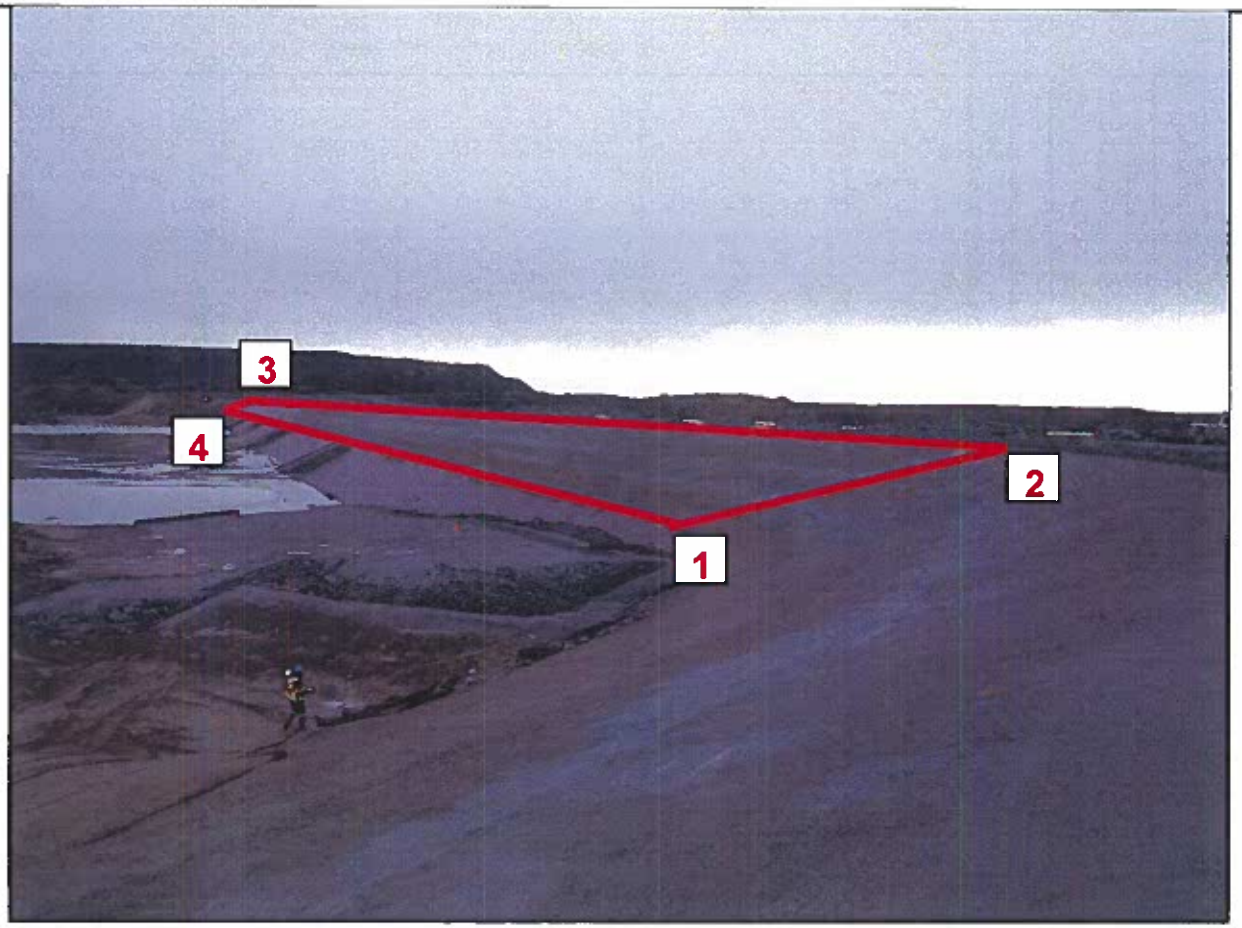


Photo 1- Approximate approved liner bedding

Date: 27-08-2016

Photo by (Initial) : M. D-B.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DYKE

Acceptance No.:	LLDPE-CD-027	Date:	31-08-2016

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Geotextile Installation

CENTRAL DYKE- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION					
From Sta. 0+820.49	Offset: 25.76	SHIFT: NIGHT ☐ DAY ☒		DATE: 31-08-2016	SHEET 2 OF 5
To Sta. 0+970.97	Offset: 52.60	LOCATION: CENTRAL DYKE : geotextile			
EQUIPMENT:					
DESCRIPTION: Geotextile					

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of geotextile storage facilities performed	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	OK	OK
6	Visual inspection during geotextile installation performed	OK	OK
7	Damages during installation repaired in accordance with Specifications	OK	OK
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	OK	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 01-09-2016	Date: 01-09-2016	Date: 01-09-2016

LLDPE Geomembrane Installation

CENTRAL DYKE - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION					
From Sta. 0+820.49	Offset: 25.76	SHIFT: NIGHT ☐ DAY ☐		DATE: 31-08-2016	SHEET 3 OF 5
To Sta. 0+970.97	Offset: 52.60	LOCATION: CENTRAL DYKE : LLPDE membrane			
EQUIPMENT:					
DESCRIPTION: LLPDE membrane					

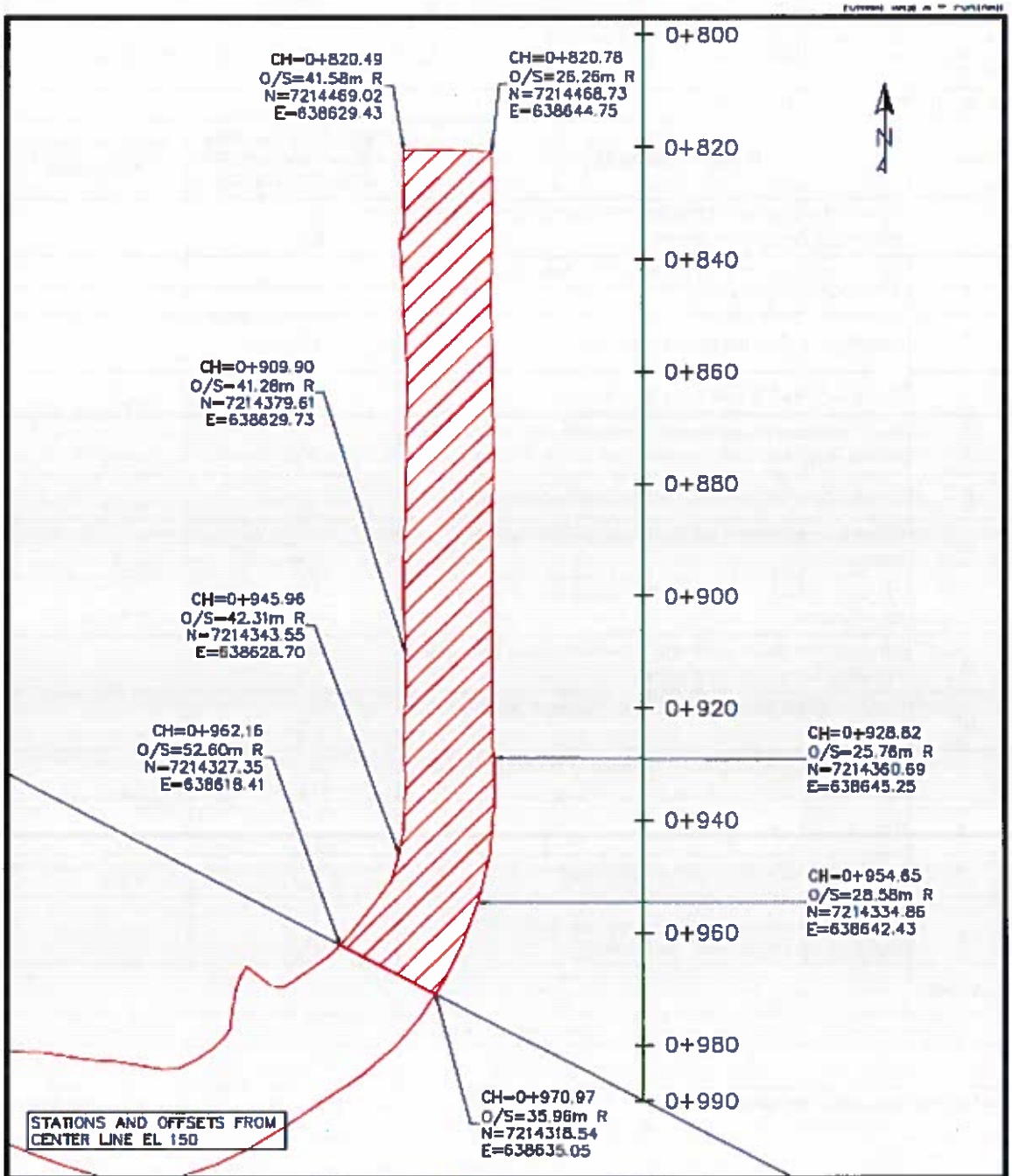
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	Ok	OK
2	Visual inspection of liner performed to determine physical damages during handling	Ok	OK
3	Deficiencies reported before installation	Ok	OK
4	Inspection of LINER storage facilities	Ok	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	Ok	OK
6	Visual inspection during Liner installation performed	Ok	OK
7	Weather conditions meet the requirements during installation	Ok	OK
8	Welding carried out in accordance with Manufacturer's Specification	OK	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	Ok	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	Ok	OK
11	Damages during installation repaired in accordance with Specifications	Ok	OK
12	Site cleaned up	Ok	OK
13	As-built survey conducted and approved	Ok	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	Ok	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 01-09-2016	Date: 01-09-2016	Date: 01-09-2016



C:\MEADOWBANK\DIKE 2018\LLDPE APPROVAL\CD-LLDPE_APPROVAL_DES0 – Dyke_reserve.dwg, 31 Aug 2018

FILE NO. .DWG

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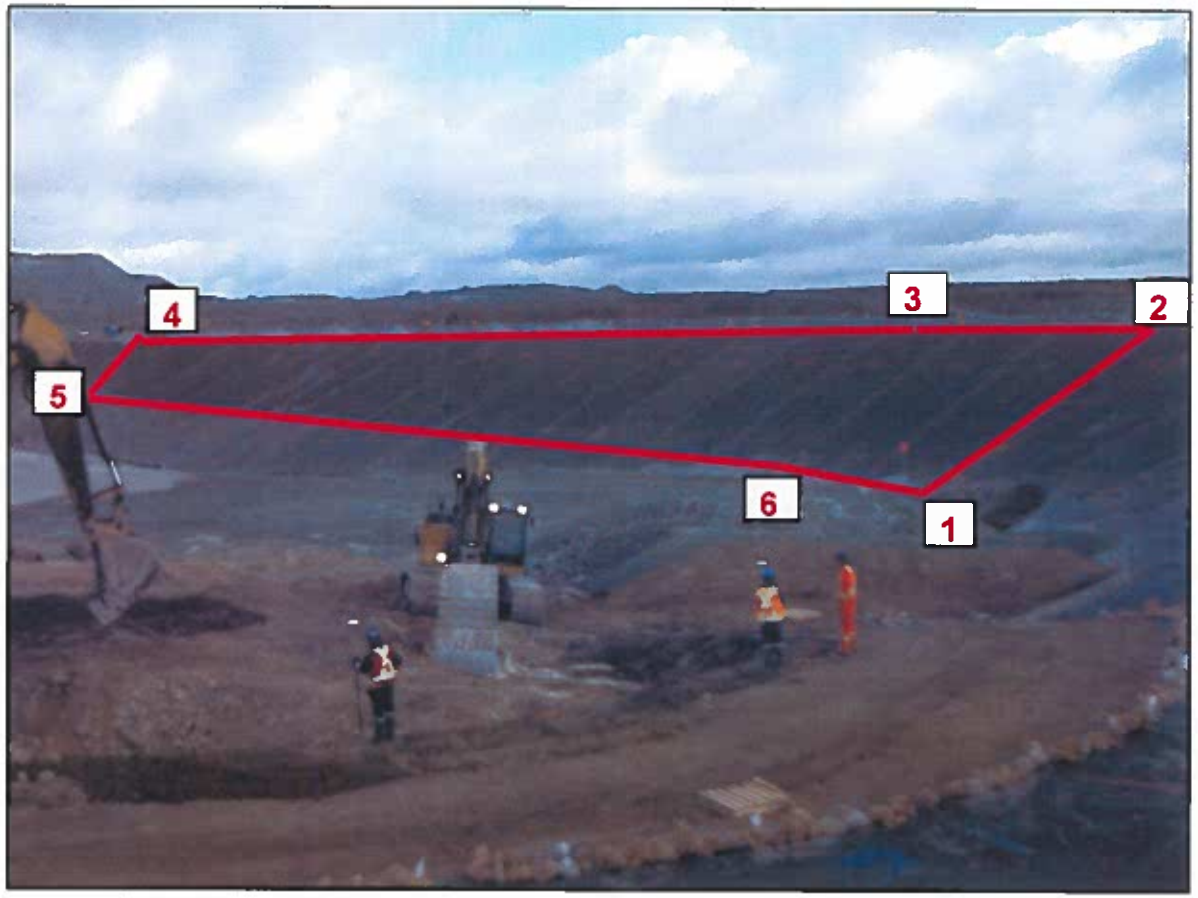


Photo 1- Approximate approved geotextile and LLPDE area

Date: 29-08-2016

Photo by (Initial) : G.L.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DYKE

Acceptance No.: LLDPE-CD-028 **Date:** 2016-09-08

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Rebecca Cousineau
	Position:	AEM-Owner Rep.
QC Representative	Name:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Aubrey Desrochers
	Position:	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.

Geotextile Installation

CENTRAL DYKE- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION				
From Sta. 0+380	Offset: 26.0	SHIFT: NIGHT ☐ DAY ☒	DATE: 2016-09-08	SHEET 2 OF 5
To Sta. 0+820	Offset: 41.58	LOCATION: CENTRAL DYKE : geotextile		
EQUIPMENT:				
DESCRIPTION: Geotextile				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	RC	OK
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	RC	OK
3	Deficiencies reported before installation	RC	OK
4	Inspection of geotextile storage facilities performed	RC	OK
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	RC	OK
6	Visual inspection during geotextile installation performed	RC	OK
7	Damages during installation repaired in accordance with Specifications	RC	OK
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	RC	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Aubrey Desrochers	Name: Michael Nadon	Name: Patrice/Rebecca
Signature:	Signature:	Signature:
Date: 2016-09-09	Date: 2016-09-08	Date: 2016-09-08

LLDPE Geomembrane Installation

CENTRAL DYKE - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION				
From Sta. 0+380	Offset: 26.0	SHIFT: NIGHT ☐ DAY ☑	DATE: 2016-09-08	SHEET 3 OF 5
To Sta. 0+820	Offset: 41.58	LOCATION: CENTRAL DYKE : LLPDE membrane		
EQUIPMENT:				
DESCRIPTION: LLPDE membrane				

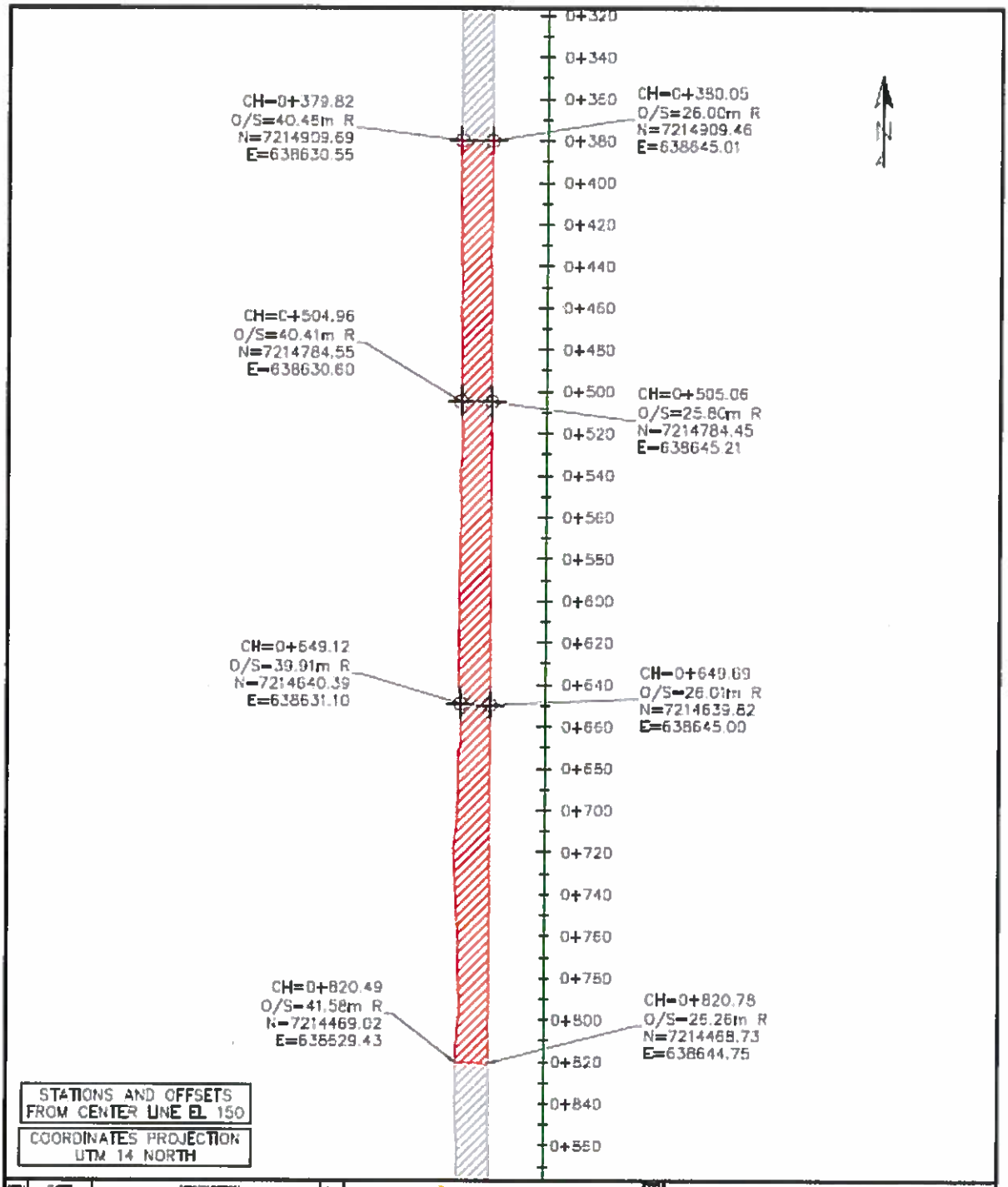
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	RC	OK
2	Visual inspection of liner performed to determine physical damages during handling	RC	OK
3	Deficiencies reported before installation	RC	OK
4	Inspection of LINER storage facilities	RC	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	RC	OK
6	Visual inspection during Liner installation performed	RC	OK
7	Weather conditions meet the requirements during installation	RC	OK
8	Welding carried out in accordance with Manufacturer's Specification	RC	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	RC	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	RC	OK
11	Damages during installation repaired in accordance with Specifications	RC	OK
12	Site cleaned up	RC	OK
13	As-built survey conducted and approved	RC	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	RC	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Aubrey Desrochers	Name: Michael Nadon	Name: Patrice / Rebecca
Signature:	Signature:	Signature:
Date: 2016-09-07	Date: 2016-09-08	Date: 2016-09-08



STATIONS AND OFFSETS FROM CENTER LINE EL 150

COORDINATES PROJECTION UTM 14 NORTH

REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIMSION
LLDPE INSTALLATION APPROVAL
CENTRAL DIKE

PROJECT No.
DATE 2016-05-05
DRAWN BY AUBREY DESROCHES
APPROVED BY
DRAWING NO.
SHEET 1 / 1
REVISION

1:
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St=0+820.49, Offset=41.58m R

3:
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4:
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St=0+380.05, Offset=26.00m R

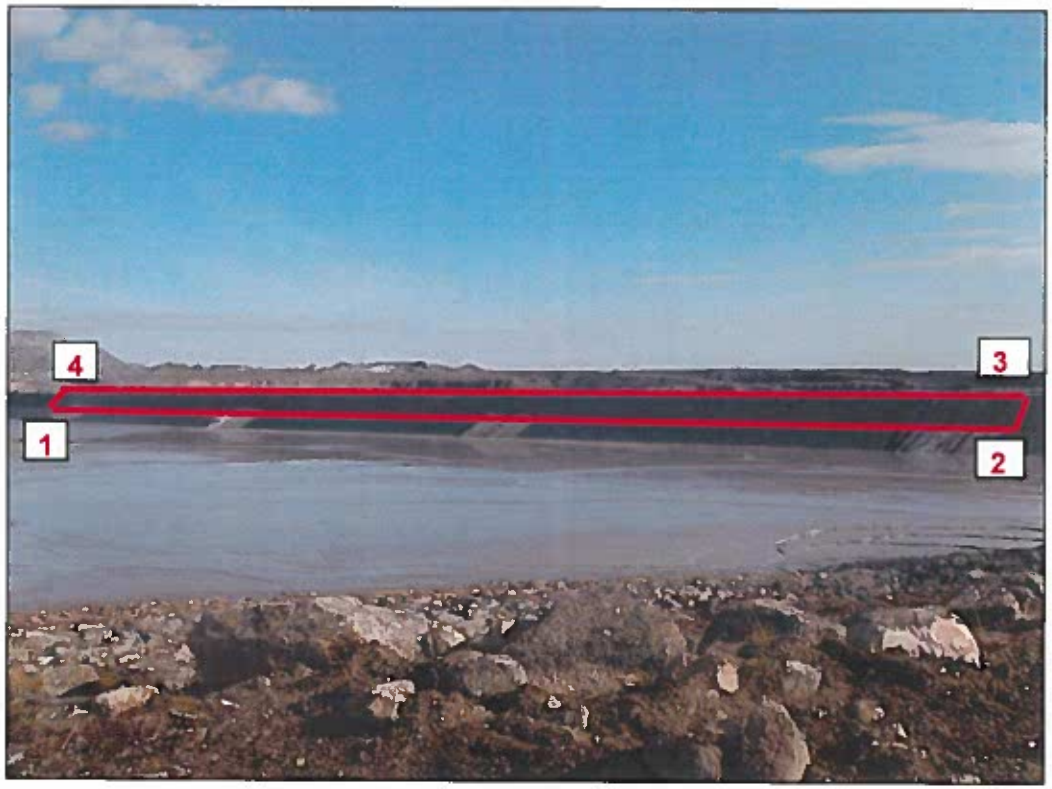


Photo 1- Approximate approved geotextile and LLPDE area

Date: 08-09-2016

Photo by (Initial) : F.R.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - CENTRAL DYKE

Acceptance No.: LLDPE-CD-029 **Date:** 2016-09-07

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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 / Rebecca Cousineau
	Position:	AEM-Owner Rep.
QC Representative	Name:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Aubrey Desrochers
	Position:	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.

Geotextile Installation

CENTRAL DYKE- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION				
From Sta. 0+135,75	Offset: 26,10	SHIFT: NIGHT ☐ DAY ☒	DATE: 2016-09-07	SHEET 2 OF 5
To Sta. 0+380	Offset: 40,46	LOCATION: CENTRAL DYKE : geotextile		
EQUIPMENT:				
DESCRIPTION: Geotextile				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	RC	OK
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	RC	OK
3	Deficiencies reported before installation	RC	OK
4	Inspection of geotextile storage facilities performed	RC	OK
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	RC	OK
6	Visual inspection during geotextile installation performed	RC	OK
7	Damages during installation repaired in accordance with Specifications	RC	OK
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	RC	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Aubrey Desrochers	Name: Michael Nadon	Name: Patrice/Rebecca
Signature:	Signature:	Signature:
Date: 2016-09-08	Date: 2016-09-07	Date: 2016-09-08

LLDPE Geomembrane Installation

CENTRAL DYKE - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION				
From Sta 0+135.75	Offset: 26.10	SHIFT: NIGHT ☐ DAY ☒	DATE: 2016-09-07	SHEET 3 OF 5
To Sta. 0+380	Offset: 40.46	LOCATION: CENTRAL DYKE : LLPDE membrane		
EQUIPMENT:				
DESCRIPTION: LLPDE membrane				

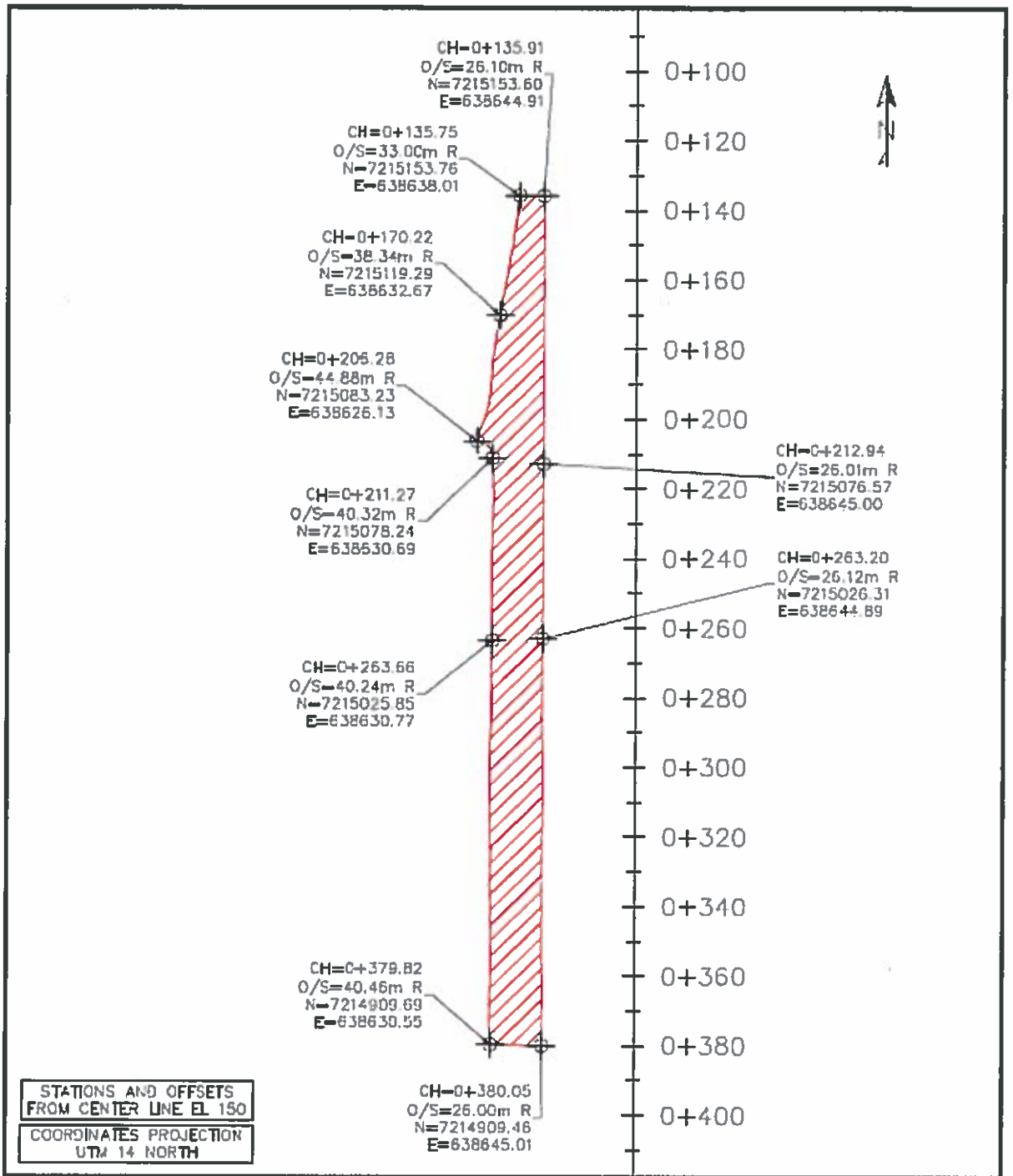
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	RC	OK
2	Visual inspection of liner performed to determine physical damages during handling	RC	OK
3	Deficiencies reported before installation	RC	OK
4	Inspection of LINER storage facilities	RC	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	RC	OK
6	Visual inspection during Liner installation performed	RC	OK
7	Weather conditions meet the requirements during installation	RC	OK
8	Welding carried out in accordance with Manufacturer's Specification	RC	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	RC	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	RC	OK
11	Damages during installation repaired in accordance with Specifications	RC	OK
12	Site cleaned up	RC	OK
13	As-built survey conducted and approved	RC	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	RC	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Aubrey Desrochers	Name: Michael Nadon	Name: Patrice / Rebecca
Signature:	Signature:	Signature:
Date: 2016-09-08	Date: 2016-09-07	Date: 2016-09-08


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O/S=26.10m R
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E=638644.91
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0+320
0+340
0+360
0+380
0+400
N
STATIONS AND OFFSETS
FROM CENTER LINE EL 150
COORDINATES PROJECTION
UTM 14 NORTH
REV
DATE
DESCRIPTION
BY
REVISIONS
AGNICO EAGLE
MEADOWBANK
AGNICO-EAGLE – MEADOWBANK DIVISION
LLDPE INSTALLATION APPROVAL
CENTRAL DIKE
DATE
2016-05-06
DRAWN BY
AUBREY DESROCHES
APPROVED BY
SHEET
1 / 1

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St=0+135.91, Offset=26.10m R

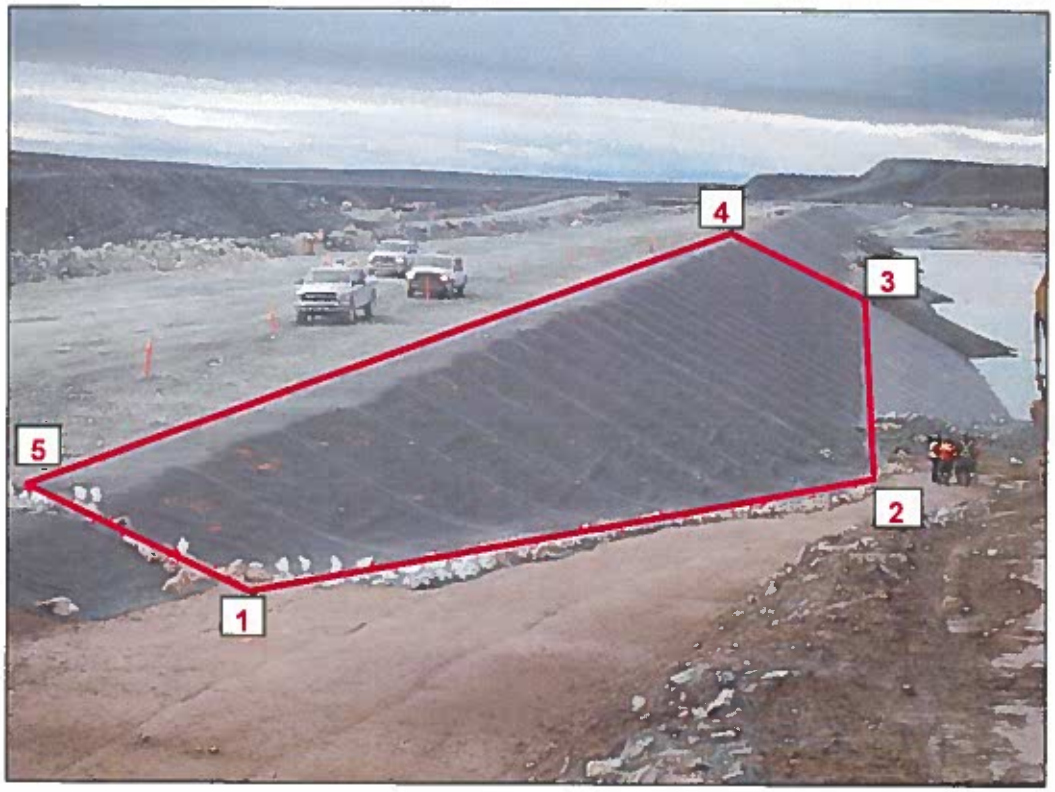


Photo 1- Approximate approved geotextile and LLPDE area

Date: 07-09-2016

Photo by (Initial) : F.R.

APPENDIX G2

SADDLE DAM 3 STAGE 2 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	**FND-SD3-15**	**Date:**	**25/07/2016**

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 autorised 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:	Rebecca Cousineau/ Yannick Simard
	Position:	AEM- Ower Rep.
QC Representative	Name:	Marie-Helene Picard
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+654.54 Offset 2.83L to 10.90L	SHIFT: NIGHT : ☐ DAY ☐	DATE : 25-07-16	SHEET 2 OF 4
To Sta. 20+794.95 Offset 19.71L to 29.93L	LOCATION: : Saddle Dam 3: Bedrock foundation on south side.		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

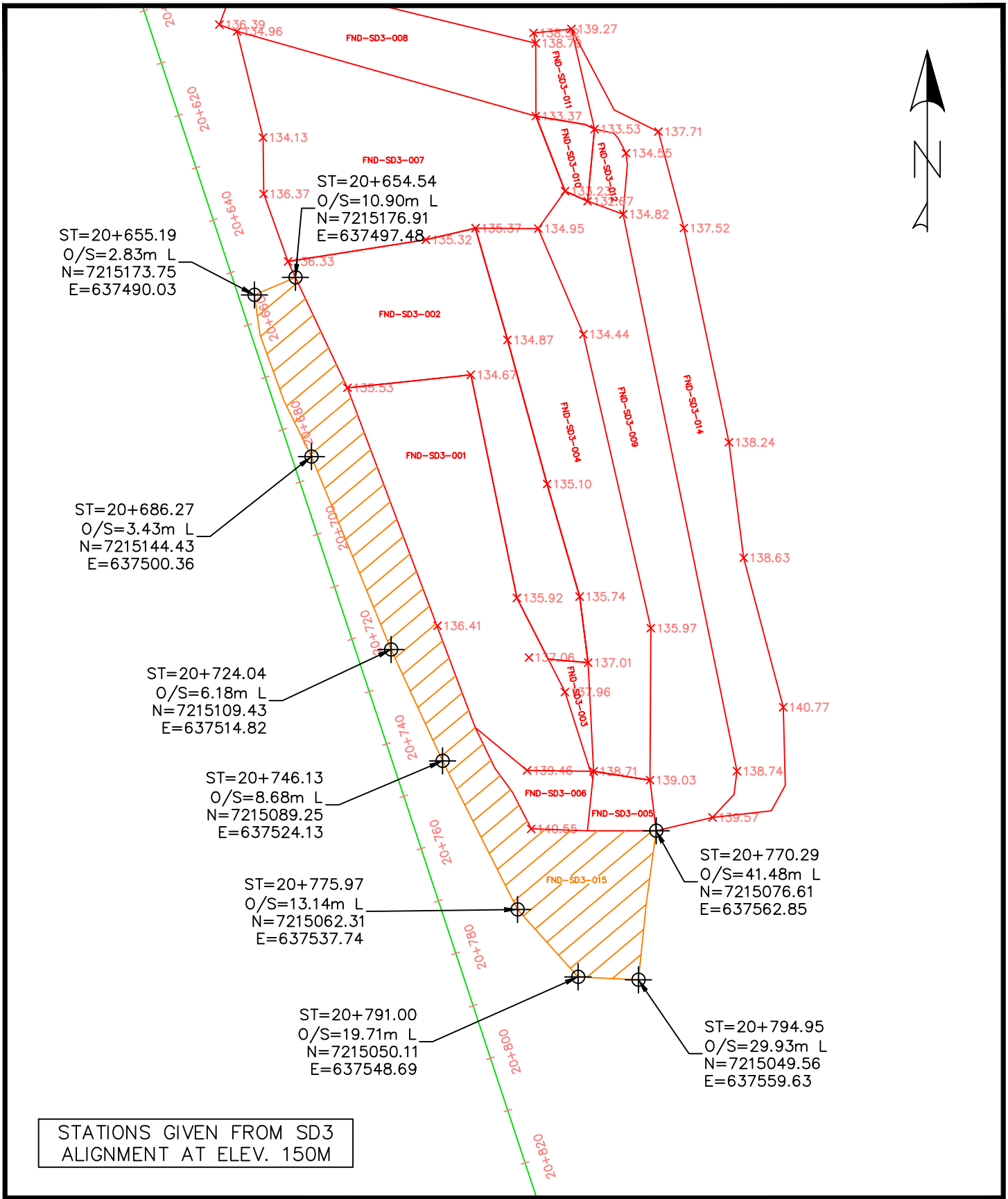
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	√S	√
2.	Storage areas planned for disposal of removed materials	√S	√
3.	Occurrence of snow and ice removal method in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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Michael Nadon	NAME: Rebecca Cousineau/ Yannick Simard
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 25-07-2016	DATE: 25-07-2016	DATE: 25-07-2016



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

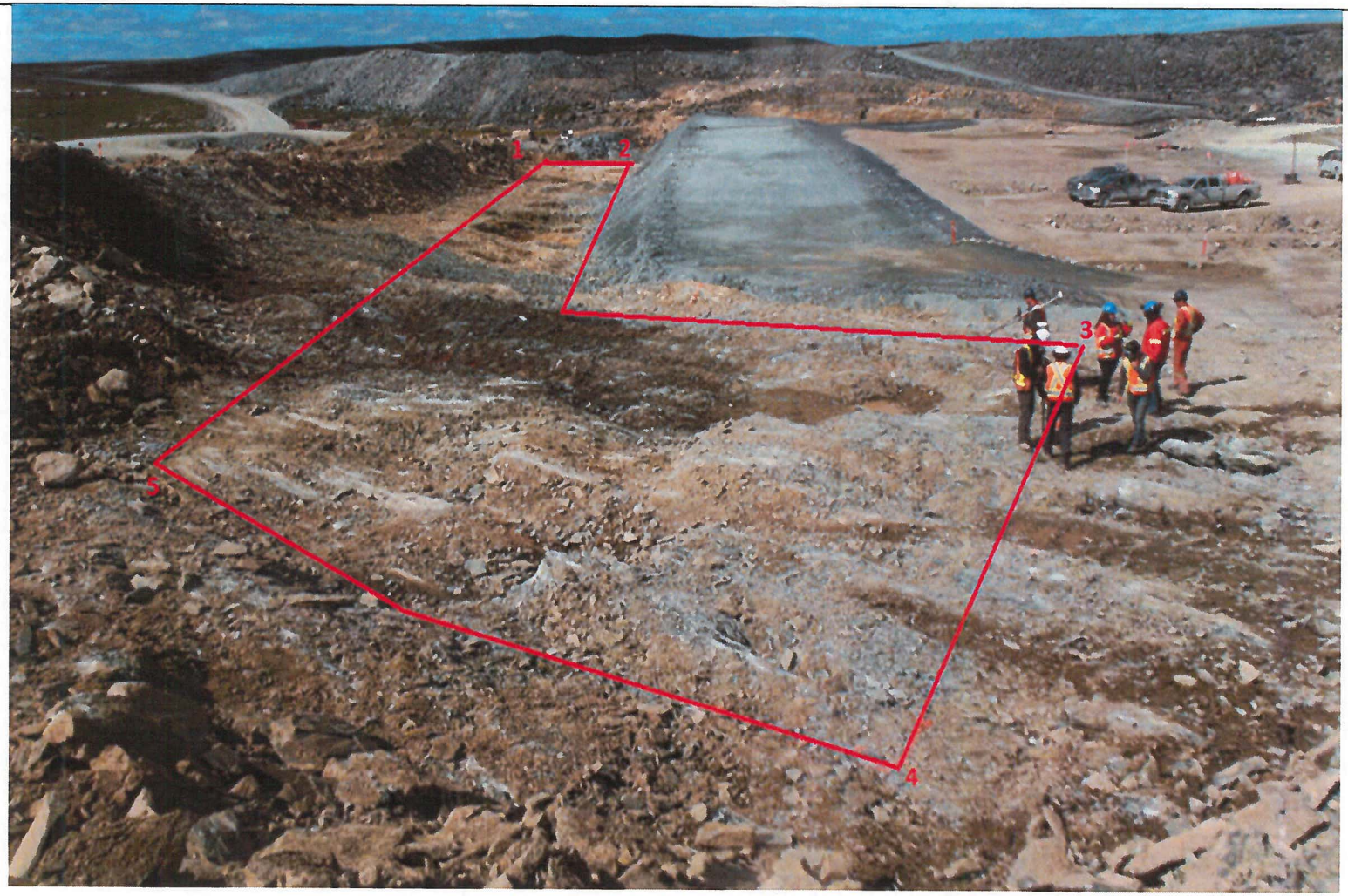
REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD3–15

PROJECT No.	DATE 2016–07–25
DRAWN BY AUBREY C.–DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION



1:
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St=20+654.54, Offset=10.90m L

3:
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St=20+770.29, Offset=41.48m L

4:
E=637559.63, N=7215049.56
St=20+794.95, Offset=29.93m L

5:
E=637537.74, N=7215062.31
St=20+755.97, Offset=13.14m L

Date: 25-07-2016

Photo by (Initial) : M.-H. Picard

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	FND-SD3-16	Date:	28/07/2016

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 autorised 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:	Marie-Helene Picard
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+654.54 Offset 2.83L to 10.90L | SHIFT: NIGHT ☐ DAY ☐ | DATE : 28-07-16 | SHEET 2 OF 4

To Sta. 20+589.33 Offset 1.24L to 18.76L | LOCATION: Saddle Dam 3 Bedrock and ice poor till foundation on north side

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION: Rock and Ice poor till foundation

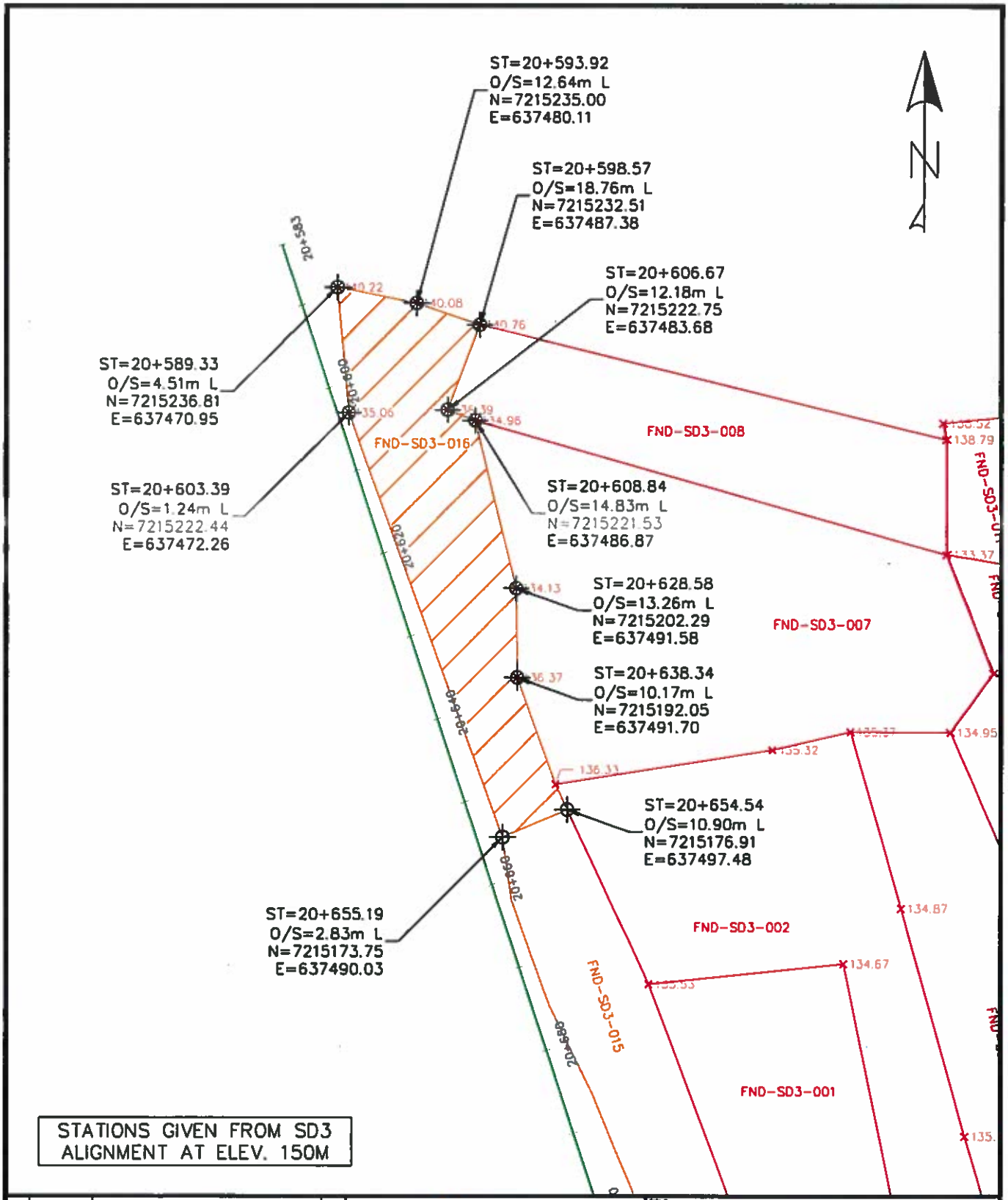
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	PG	M.V.
2.	Storage areas planned for disposal of removed materials	PG	M.V.
3.	Occurrence of snow and ice removal method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

REMARKS: * approved on bedrock & frozen till / fault gauge

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: Michael Racine	NAME: Michael Nadon	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 28-07-2016	DATE: 28-07-2016	DATE: 28-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-016

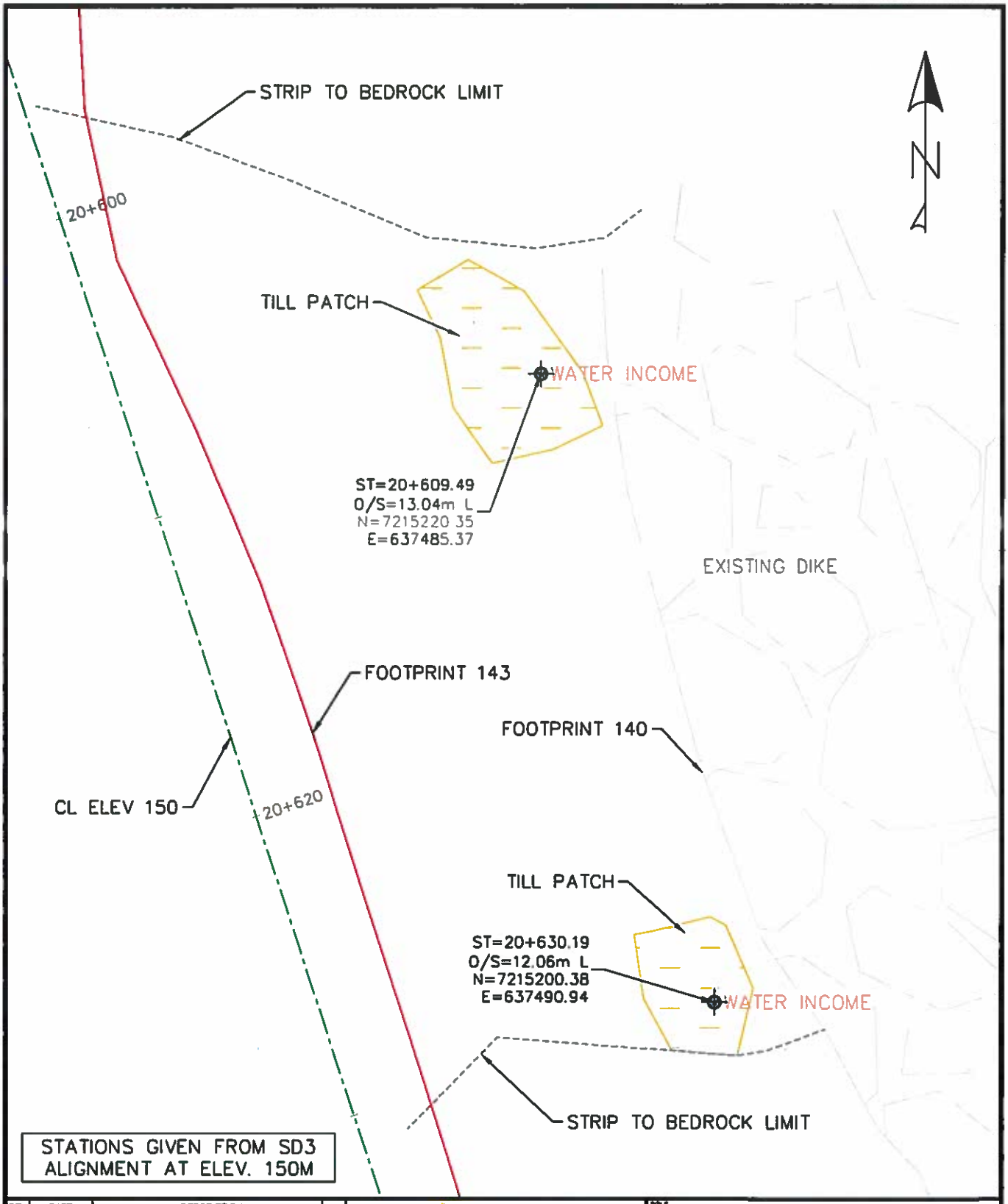
PROJECT No.	DATE 2016-07-28	
DRAWN BY MICHAEL RACINE		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

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C:\MEADOWBANK\DIKE 2016\APPROVALS\FOUNDATION APPROVAL_20160728.dwg, 28 Jul 2016

FILE NO. .DWG

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
SD3 BEDROCK FAULT ZONE
FOOTPRINT 143

PROJECT No.	DATE 2016-07-28
DRAWN BY MICHAËL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\SD3\OTHER\FAILLE DOWNSTREAM\FAULT ZONE DOWNSTREAM FOOTPRINT 143_20160728.dwg, 28 Jul 2016

FILE NO. .DWG



Photo 1- Approximate approved foundation area

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2:
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St=20+655.19, Offset=2.83m L

Date: 28-07-2016

Photo by (Initial) : M.-H. Picard

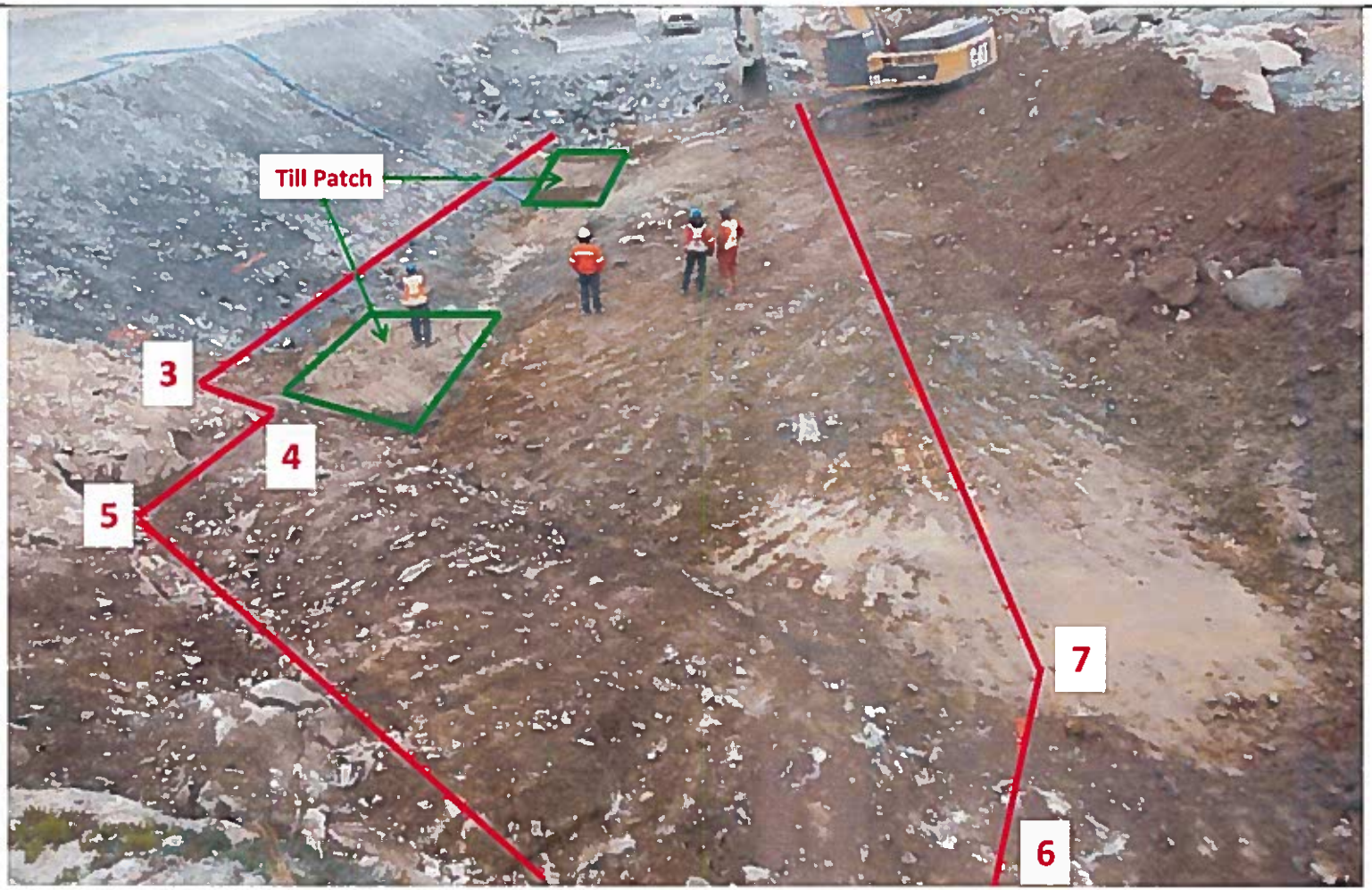


Photo 2- Approximate approved foundation area

3:
E=637486.87, N=7215221.53
St=20+608.84, Offset=14.83m L

4:
E=637483.68, N=7215222.75
St=20+606.67, Offset=12.18m L

5:
E=637487.38, N=7215232.51
St=20+598.57, Offset=18.76m L

6:
E=637470.95, N=7215236.81
St=20+589.33, Offset=4.51m L

7:
E=637472.26, N=7215222.44
St=20+603.39, Offset=1.24m L

Date: 28-07-2016

Photo by (Initial) : M.-H. Picard

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	**FND-SD3-17**	**Date:**	**02/08/2016**

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 autorised 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 / Jean-François Béland
	Position:	AEM- Ower Rep.
QC Representative	Name:	Marie-Helene Picard
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+627.88 Offset 5.01L to 65.56L	SHIFT: NIGHT : ☐ DAY ☐	DATE : 02-08-2016	SHEET 2 OF 4
To Sta. 20+589.33 Offset	LOCATION: : Saddle Dam 3: Bedrock on north side.		
EQUIPMENT: Excavator 345D - SANA			

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	M.N.
2.	Storage areas planned for disposal of removed materials	PG	M.N.
3.	Occurrence of snow and ice removal method in place	PG	M.N.
4.	Occurrence of boulders and removal method in place	PG	M.N.
5.	Occurrence of hummocks and scalping method in place	PG	M.N.
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	M.N.
7.	Presence of other unsuitable materials and removal method in place	PG	M.N.
8.	Soil frozen or thawed and measures taken	PG	M.N.
9.	Blasting requirement to remove unsuitable material and safety measure checked	PG	M.N.
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	PG	M.N.
11.	Final walkover inspection before re-sloping or fill placement	PG	M.N.
	Rough grading of foundation	PG	M.N.
12.	"As-excavated" survey conducted	PG	M.N.
	Bedrock cleaning	PG	M.N.
13.	Bedrock Mapping	—	—

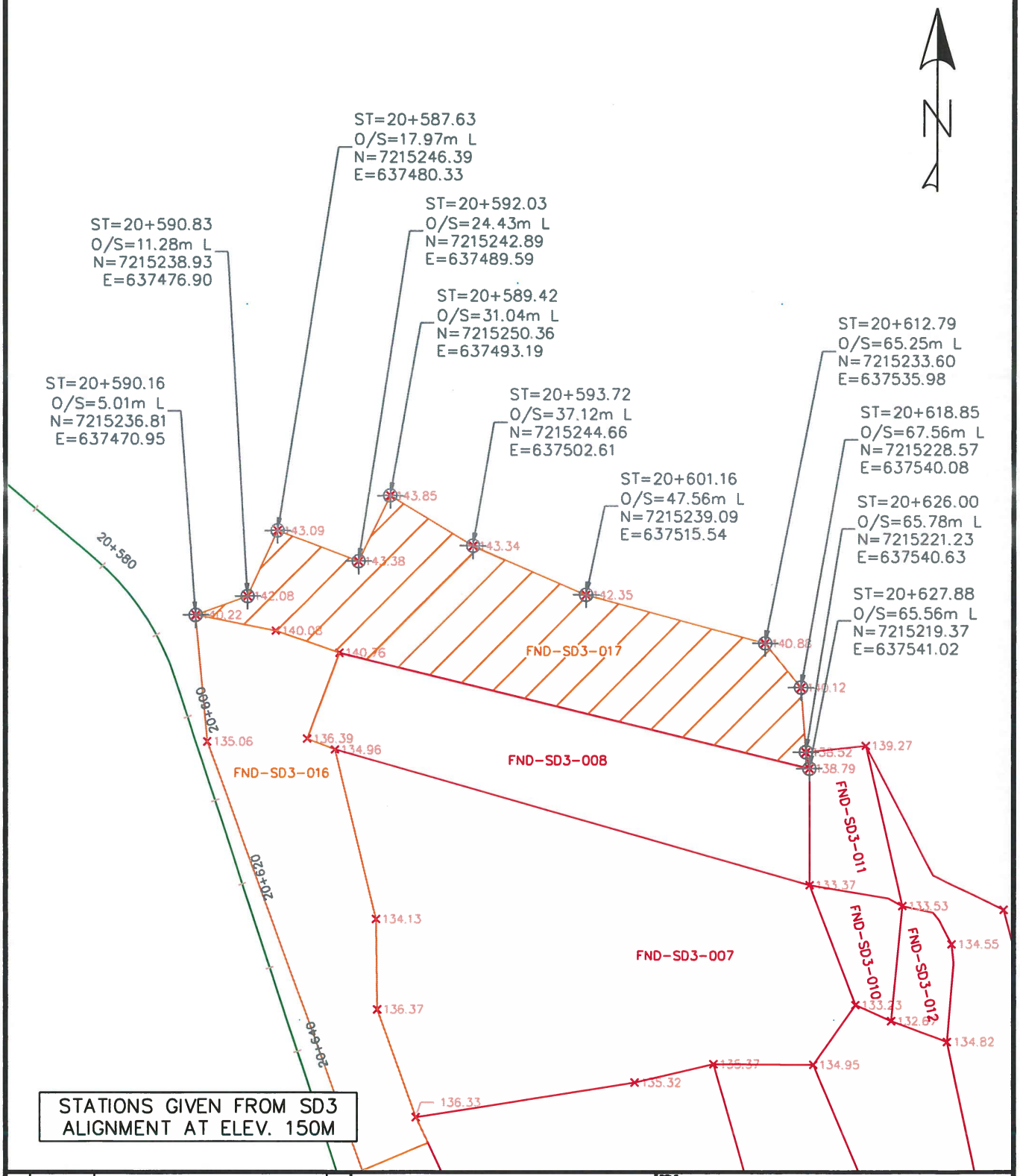
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: Michael Racine	NAME: Michael Nadon	NAME: Patrice Gagnon / Jean-François Béland
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 02-08-2016	DATE: 02-08-2016	DATE: 02-08-2016

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-017

PROJECT No.	DATE 2016-08-02
DRAWN BY MICHAËL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\APPROVALS\FOUNDATION APPROVAL_20160728.dwg, 03 Aug 2016

FILE NO. .DWG

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3:
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4:
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6:
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7:
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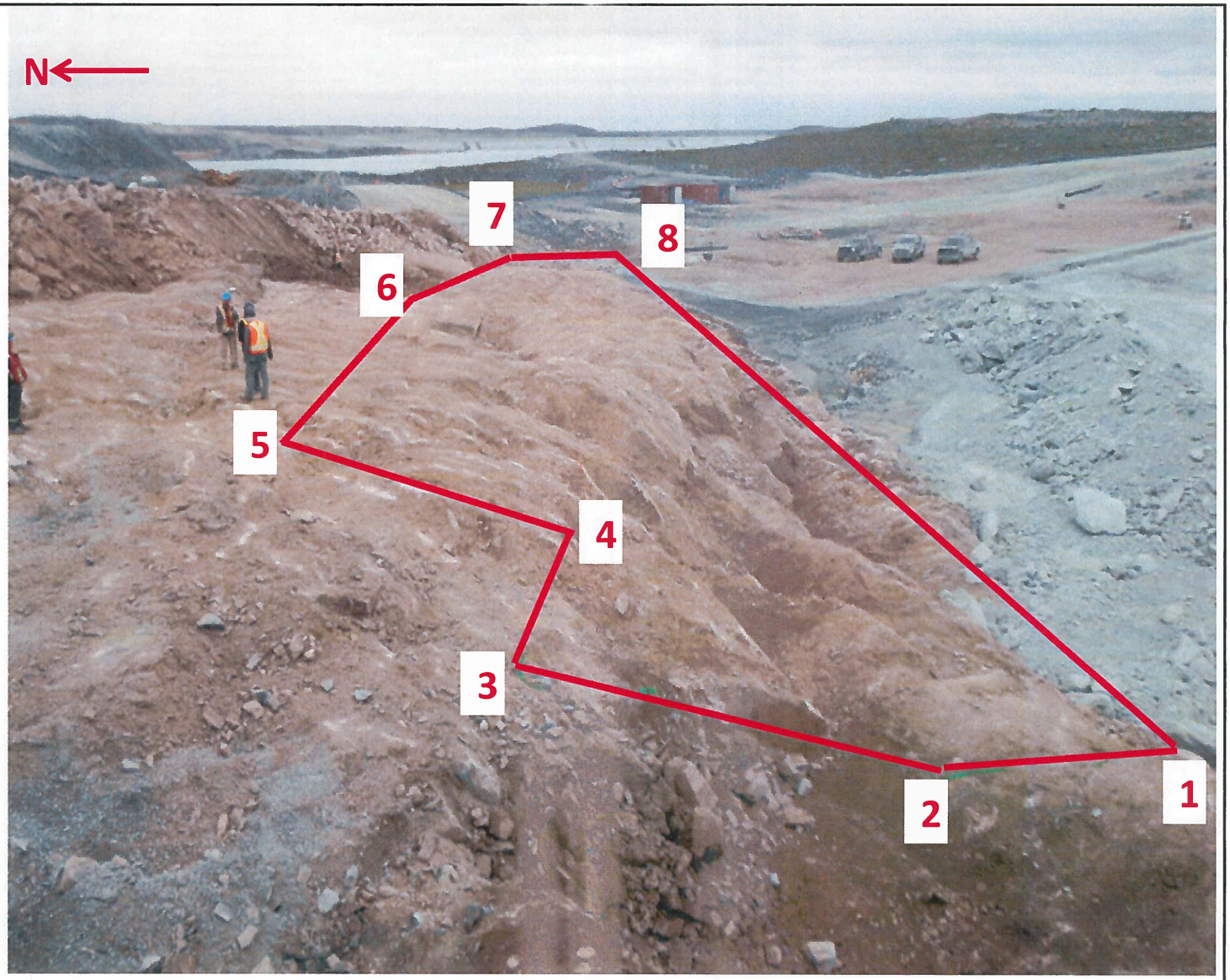


Photo 1- Approximate approved foundation area

Date: 02-08-2016

Photo by (Initial) : M.-H. Picard



Photo 2- Approximate approved foundation area

7:
E=637540.08, N=7215228.57
St=20+618.85, Offset=67.56m L

8:
E=637541.02, N=7215219.37
St=20+627.88, Offset=65.56m L

Date: 02-08-2016

Photo by (Initial) : M.-H. Picard

* For fine & coarse inverse filters only *
Not key trench

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	**FND-SD3-18**	**Date:**	**03/08/2016**

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 autorised 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 / Jean-François Béland
	Position:	AEM- Ower Rep.
QC Representative	Name:	Marie-Helene Picard
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Nadon / Frédérick Bolduc
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+590.83 Offset 11.28L to 11.60L	SHIFT: NIGHT :☐ DAY ☐	DATE :03-08-2016	SHEET 2 OF 4
To Sta. 20+586.15 Offset 16.59L to 17.97L	LOCATION: : Saddle Dam 3: Bedrock on north side.		
EQUIPMENT: Excavator 345D - SANA			
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	
2.	Storage areas planned for disposal of removed materials	PG	
3.	Occurrence of snow and ice removal method in place	PG	
4.	Occurrence of boulders and removal method in place	PG	
5.	Occurrence of hummocks and scalping method in place	PG	
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	
7.	Presence of other unsuitable materials and removal method in place	PG	
8.	Soil frozen or thawed and measures taken	PG	
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	
11.	Final walkover inspection before re-sloping or fill placement	PG	
	Rough grading of foundation	PG	
12.	"As-excavated" survey conducted	PG	
	Bedrock cleaning	PG	
13.	Bedrock Mapping	—	

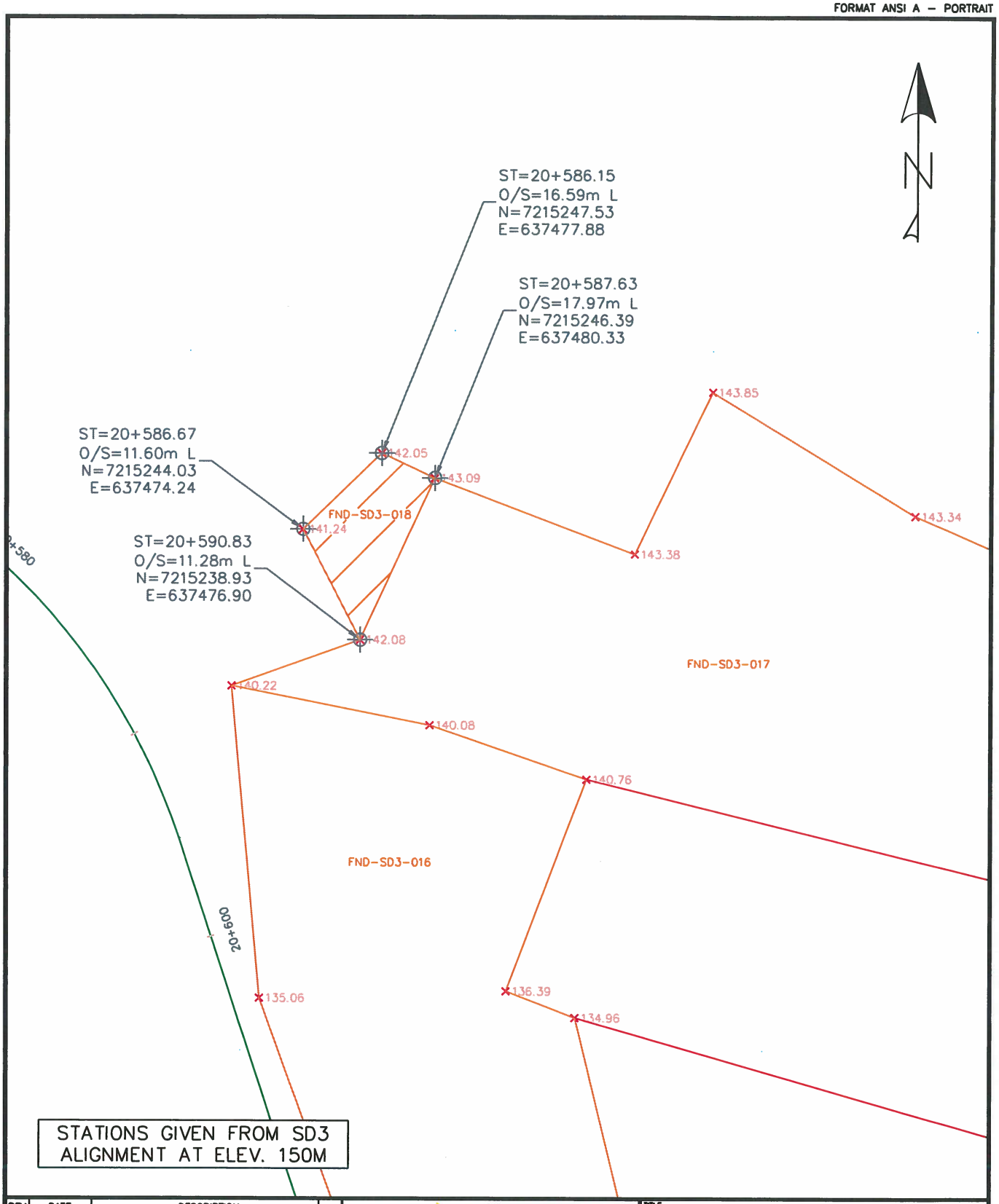
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine / Frederick Bolduc	NAME: Michael Nadon	NAME: Patrice Gagnon / Jean-François Béland
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 03-08-2016	DATE: 03-08-2016	DATE: 03-08-2016

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD3-018

PROJECT No.	DATE 2016-08-03
DRAWN BY MICHAËL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\APPROVALS\FOUNDATION APPROVAL_20160802.dwg, 04 Aug 2016

FILE NO. .DWG

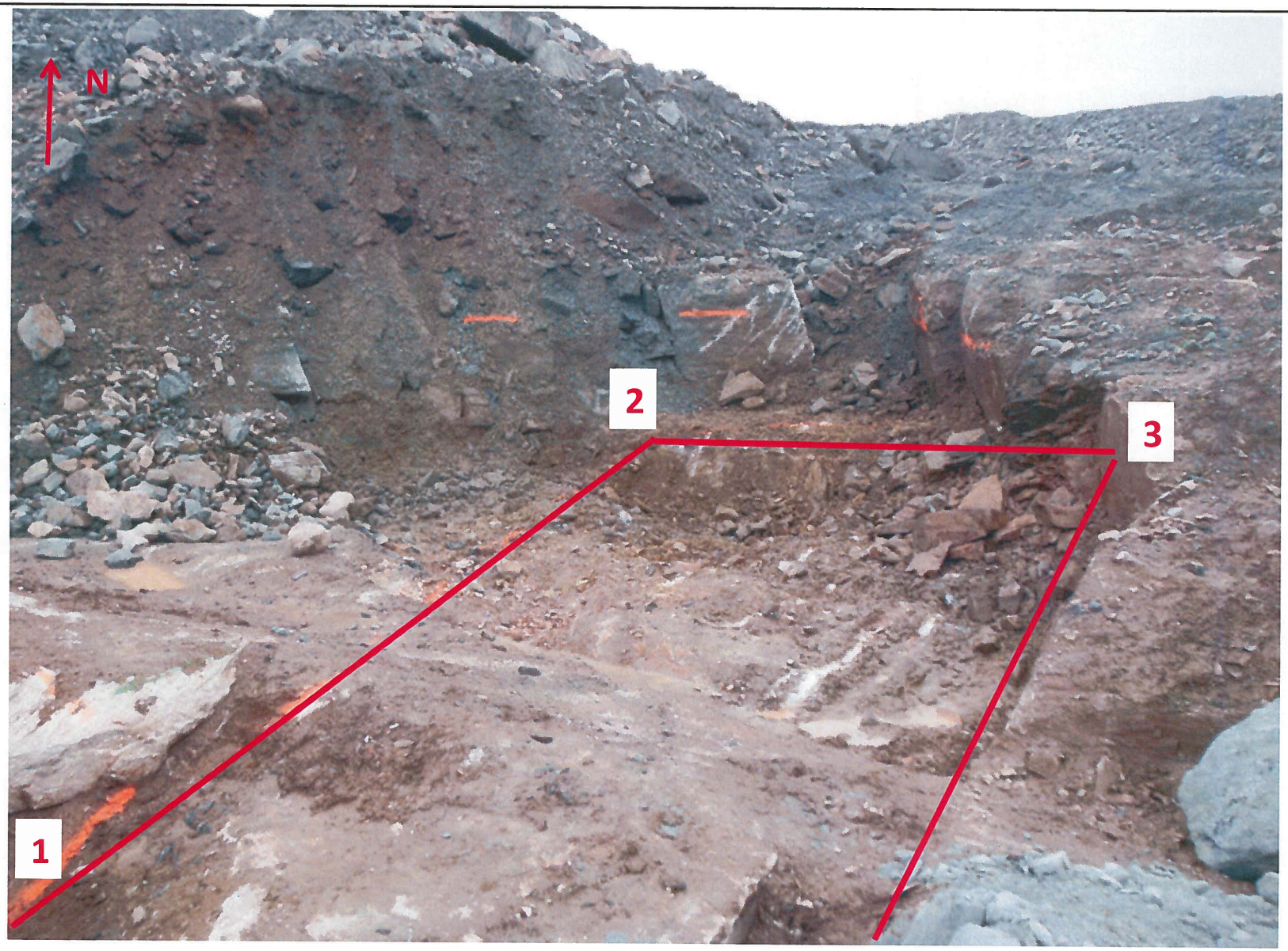


Photo 1- Approximate approved foundation area

1:
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St=20+586.67, Offset=11.60m L

2:
E=637480.33, N=7215246.39
St=20+587.63, Offset=17.97m L

3:
E=637480.33, N=7215246.39
St=20+587.63, Offset=17.97m L

Date: 03-08-2016

Photo by (Initial) : M.-H. Picard

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	FND-SD3-19	Date:	13-08-2016

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 autorised 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:	Rebecca Cousineau	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frédérick Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desrochers	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+594.31 Offset 38.51L to 42.27L	SHIFT: NIGHT ☐ DAY ☐	DATE : 13-08-2016	SHEET 2 OF 4
To Sta. 20+626 Offset 65.78L to 72.53L	LOCATION: : Saddle Dam 3: Bedrock on north side.		
EQUIPMENT: Excavator 345D - SANA			

DESCRIPTION: Rock foundation

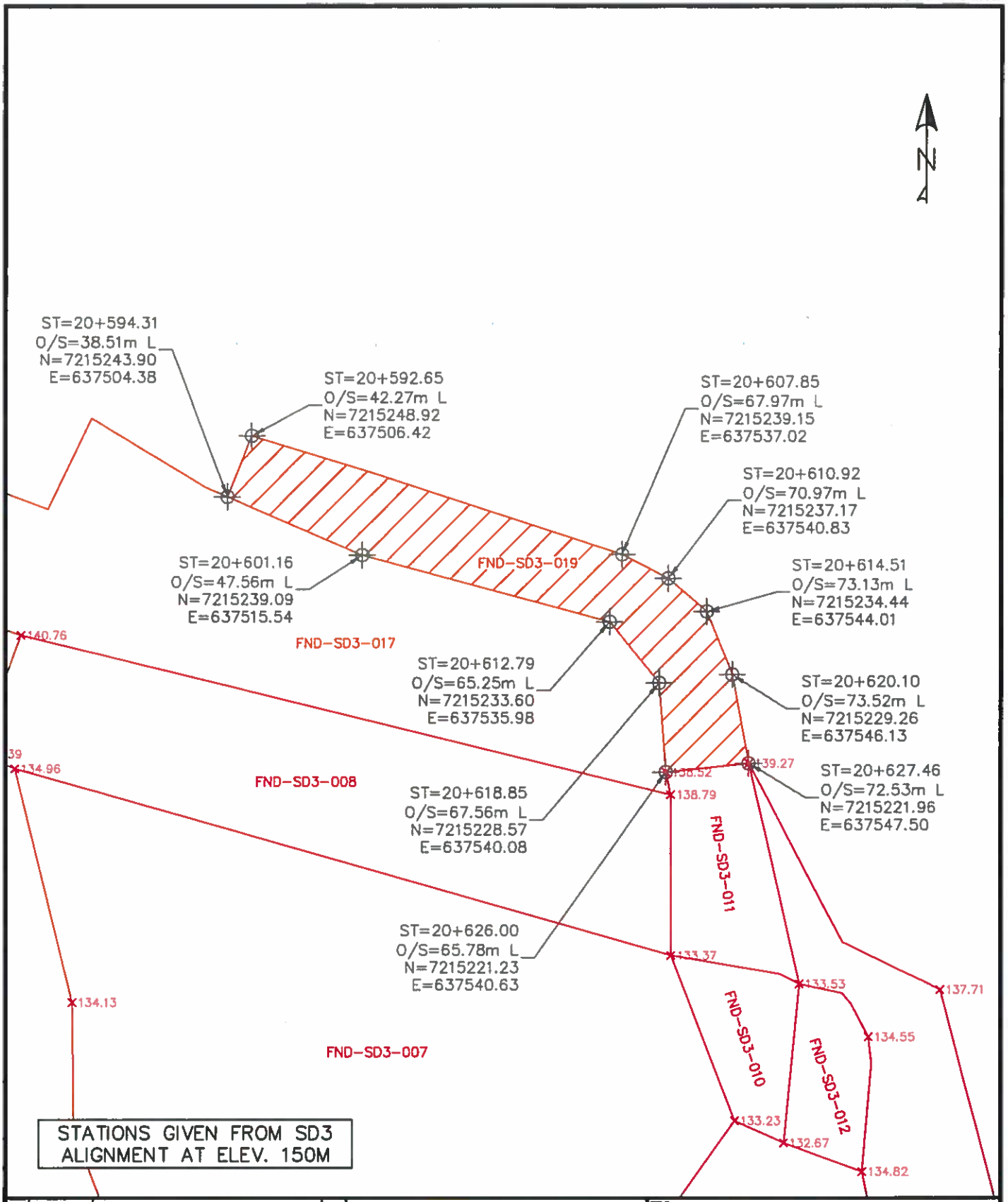
NO	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desmarchers	NAME: Frederick Boloue	NAME: Rebecca Cousineau
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 13-08-2016	DATE: 13-08-2016	DATE: 13-08-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD3–019

PROJECT No.	DATE 2016–08–13	
DRAWN BY AUBREY DESROCHES		SHEET 1 / 1
APPROVED BY		
DRAWING NO.		REVISION

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St=20+592.65, Offset=42.27m L

2:
E=637544.01, N=7215234.44
St=20+614.51, Offset=73.13m L

3:
E=637547.5, N=7215221.96
St=20+627.46, Offset=72.53m L

4:
E=637540.63, N=7215221.23
St=20+626.00, Offset=65.78m L

5:
E=637540.08, N=7215228.57
St=20+618.85, Offset=67.56m L

6:
E=637535.98, N=7215233.60
St=20+612.79, Offset=65.25m L

7:
E=637515.54, N=7215239.09
St=20+601.16, Offset=47.56m L

8:
E=637504.38, N=7215243.90
St=20+594.31, Offset=38.51m L



Photo 1- Approximate approved foundation area

Date: 13-08-2016

Photo by (Initial) : S.Olyaie

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	FND-SD3-20	Date:	13-08-2016

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 autorised 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:	Rebecca Cousineau	Rebecca Cousineau
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	Sanaz Olyaie
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frédérick Bolduc	Frédérick Bolduc
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desrochers	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+794.95 Offset 29.93L to 34.27L	SHIFT: NIGHT ☐ DAY ☐	DATE : 13-08-2016	SHEET 2 OF 4
To Sta. 20+770.28 Offset 41.48L to 50.06L	LOCATION: : Saddle Dam 3: Bedrock on south side		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

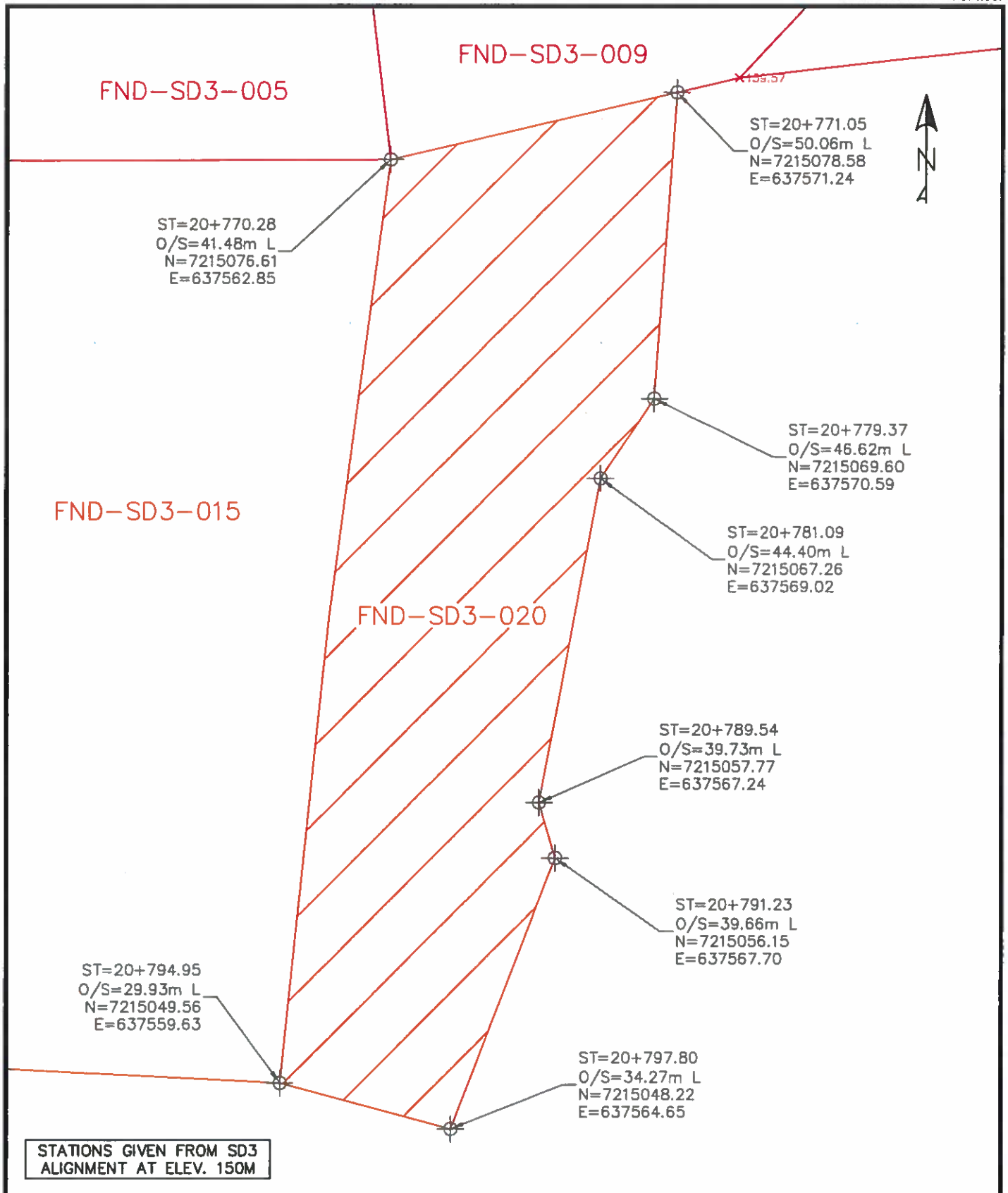
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desrochers	NAME: Frederick Bolduc	NAME: Rebecca Cousineau
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 13-08-2016	DATE: 13-08-2016	DATE: 13-08-2016



STATIONS GIVEN FROM SD3 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD3–020

PROJECT No.	DATE 2016–08–13
DRAWN BY AUBREY DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

1:
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2:
E=637547.50, N=7215076.61
St=20+770.286, Offset=41.48m L

3:
E=637571.24, N=7215078.583
St=20+771.05, Offset=50.06m L

4:
E=637564.65, N=7215048.22
St=20+797.80, Offset=34.27 L

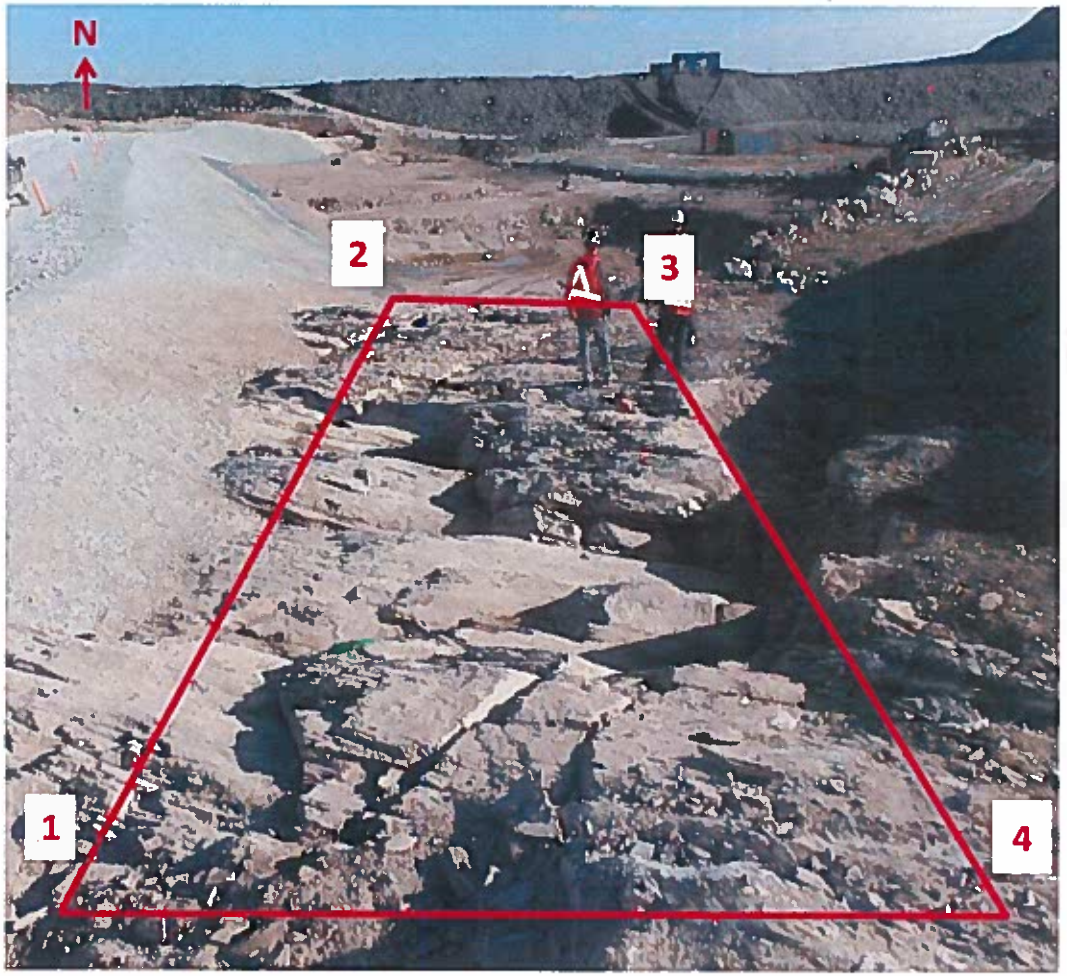


Photo 1- Approximate approved foundation area

Date: 13-08-2016

Photo by (Initial) : S.Olyaie

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 3

Acceptance No.:	FND-SD3-21	Date:	22-08-2016

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 autorised 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:	Guy Lamarche
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 3 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 20+600.86 Offset 29.38 | SHIFT: NIGHT :☐ DAY ☐ | DATE : 22-08-16 | SHEET 2 OF 4

To Sta. 20+780.70 Offset 57.89 | LOCATION: : Saddle Dam 3 ~~Till foundation~~ Liner bedding

EQUIPMENT:

DESCRIPTION ~~Till foundation~~ Liner bedding

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	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in place	NA	N-A
4.	Occurrence of boulders and removal method in place	OK	OK
5.	Occurrence of hummocks and scalping method in place	OK	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	OK	OK
7.	Presence of other unsuitable materials and removal method in place	OK	OK
8.	Soil frozen or thawed and measures taken	OK	OK
9.	Blasting requirement to remove unsuitable material and safety measure checked	N/A	N-A
	Preparation of surface for LLDPE geomembrane placement	OK	OK
10.	Adjustment made to suit design in field	OK	OK
11.	Final walkover inspection before re-sloping or fill placement	OK	OK
	Rough grading of foundation	OK	OK
12.	"As-excavated" survey conducted	OK	OK
	Bedrock cleaning	NA	N-A
13.	Bedrock Mapping	NA	N-A

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 26-08-2016	DATE: 26-08-2016	DATE: 26-08-2016

Print 2016-08-27 07:01

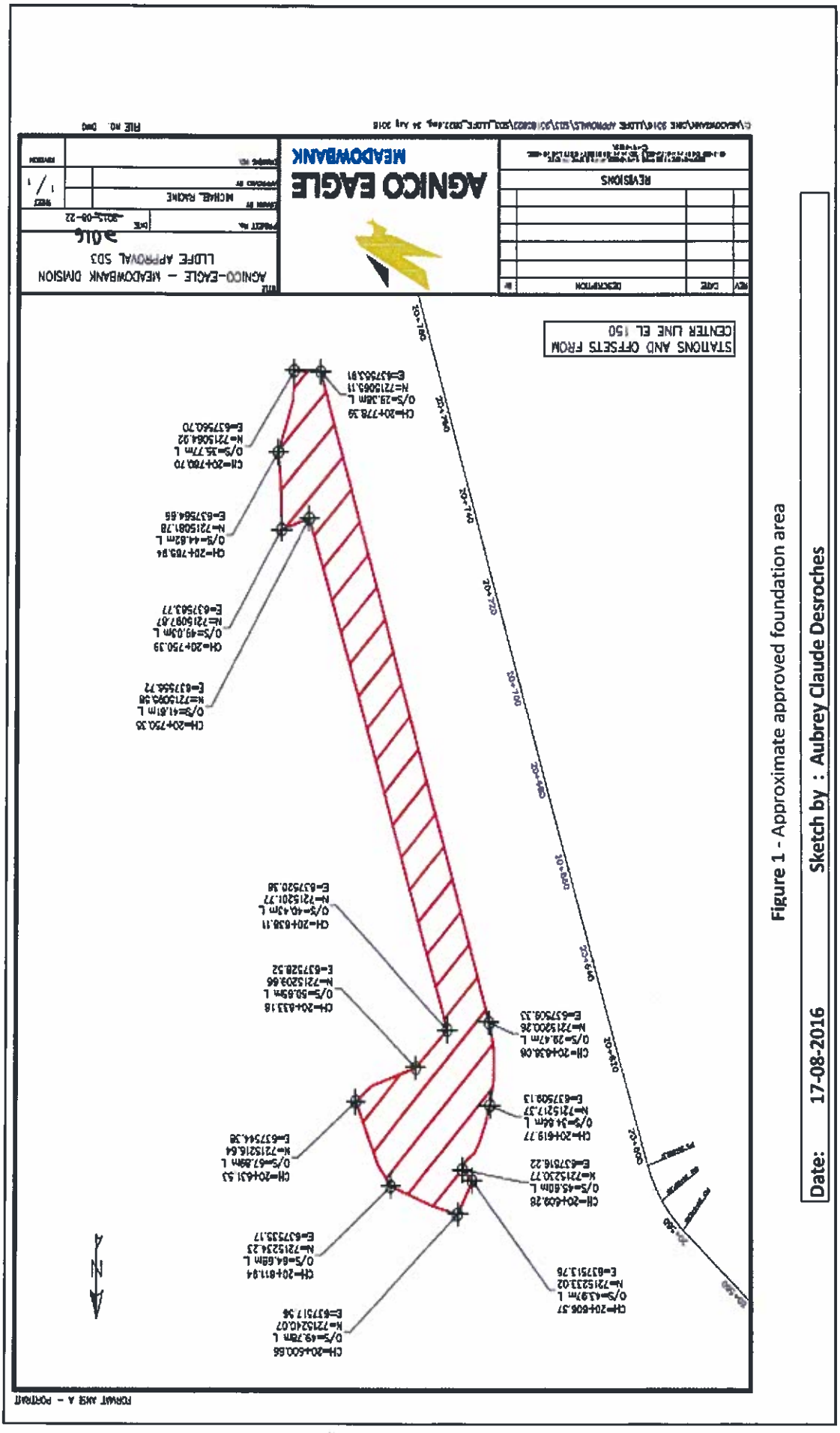


Figure 1 - Approximate approved foundation area

I:\Foundation Approval\SD3\FND-SD3-21\FND-SD3-21.xls

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9:
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St=20+636.08, Offset=29.47m L



Photo 1- Approximate approved foundation area

Date: 22-08-2016

Photo by (Initial) : G.L.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - SADDLE DAM 3

Acceptance No.:	LLDPE-SD3-002	Date:	26-08-2016

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Geotextile Installation

SADDLE DAM 3- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION					
From Sta. 20+599.05	Offset: 29.64	SHIFT: NIGHT ☐ DAY ☐		DATE: 26-08-2016	SHEET 2 OF 5
To Sta. 20+787.81	Offset: 66.58	LOCATION: SADDLE DAM 3 : geotextile			
EQUIPMENT:					
DESCRIPTION: Geotextile					

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of geotextile storage facilities performed	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	OK	OK
6	Visual inspection during geotextile installation performed	OK	OK
7	Damages during installation repaired in accordance with Specifications	OK	OK
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	OK	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 29-08-2016	Date: 29-08-2016	Date: 29-08-2016

LLDPE Geomembrane Installation

SADDLE DAM 3 - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION				
From Sta. 20+599.05	Offset: 29.64	SHIFT: NIGHT ☒ DAY ☐	DATE: 26-08-2016	SHEET 3 OF 5
To Sta. 20+787.81	Offset: 66.58	LOCATION: SADDLE DAM 3 : LLPDE membrane		
EQUIPMENT:				
DESCRIPTION: LLPDE membrane				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of liner performed to determine physical damages during handling	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of LINER storage facilities	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	OK	OK
6	Visual inspection during Liner installation performed	OK	OK
7	Weather conditions meet the requirements during installation	OK	OK
8	Welding carried out in accordance with Manufacturer's Specification	OK	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	OK	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	OK	OK
11	Damages during installation repaired in accordance with Specifications	OK	OK
12	Site cleaned up	OK	OK
13	As-built survey conducted and approved	OK	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	OK	OK

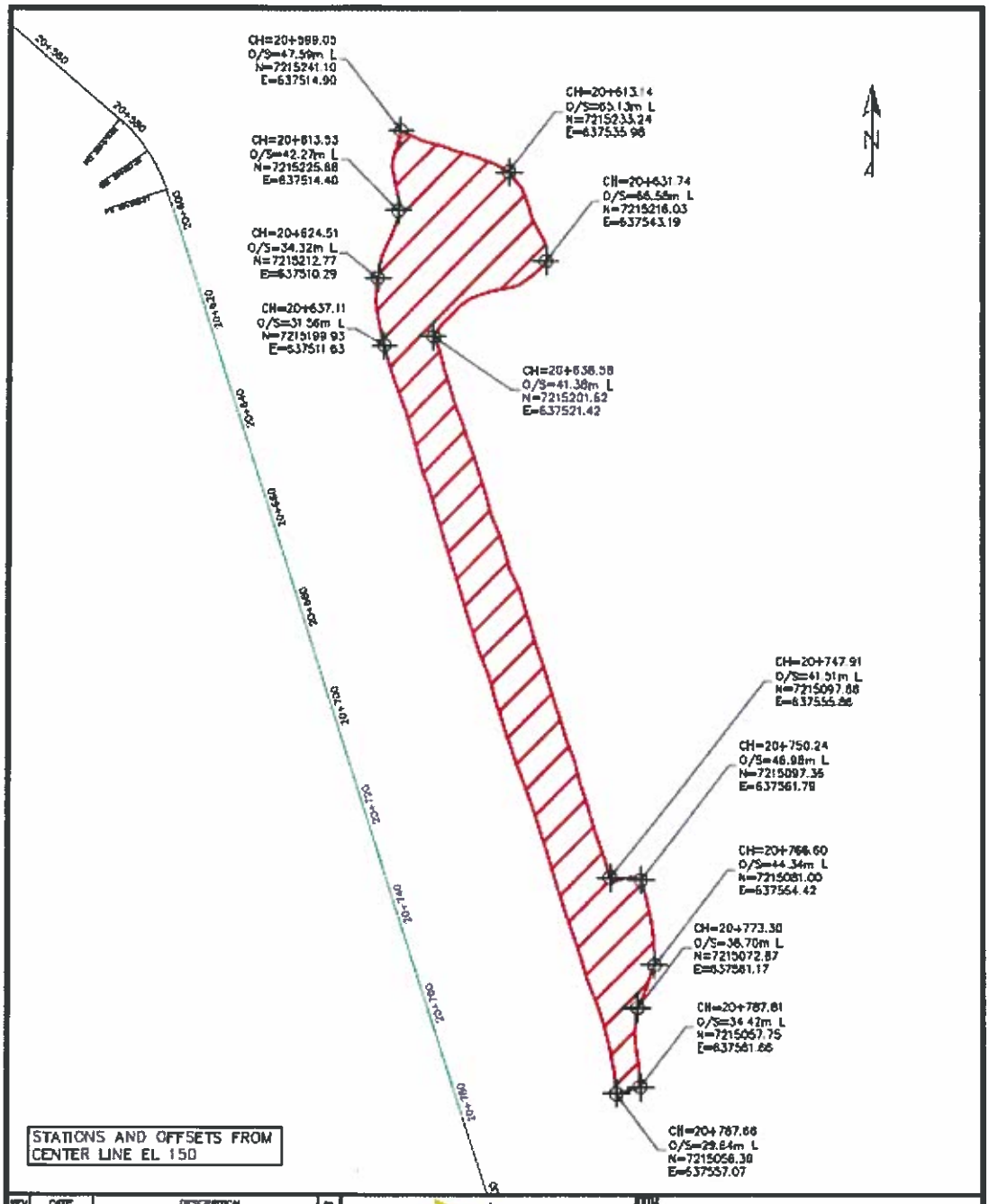
REMARKS:

DEVIATIONS: (Attach list if necessary)

NO HORIZONTAL SEAM WAS CARRIED OUT ON THE LLDPE GEOMEMBRANE AT SD3

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 29-08-2016	Date: 29-08-2016	Date: 29-08-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
LLDPE INSTALLATION APPROVAL SD3

PROJECT No.
DATE 2016-08-27
DRAWN BY MICHAEL RACINE
APPROVED BY
DRAWING NO.
SHEET 1/1
REVISION

C:\MEADOWBANK\CIVIL 2016\LLDPE APPROVAL\SD3_LLDPE APPROVAL_0827.dwg, 27 Aug 2016

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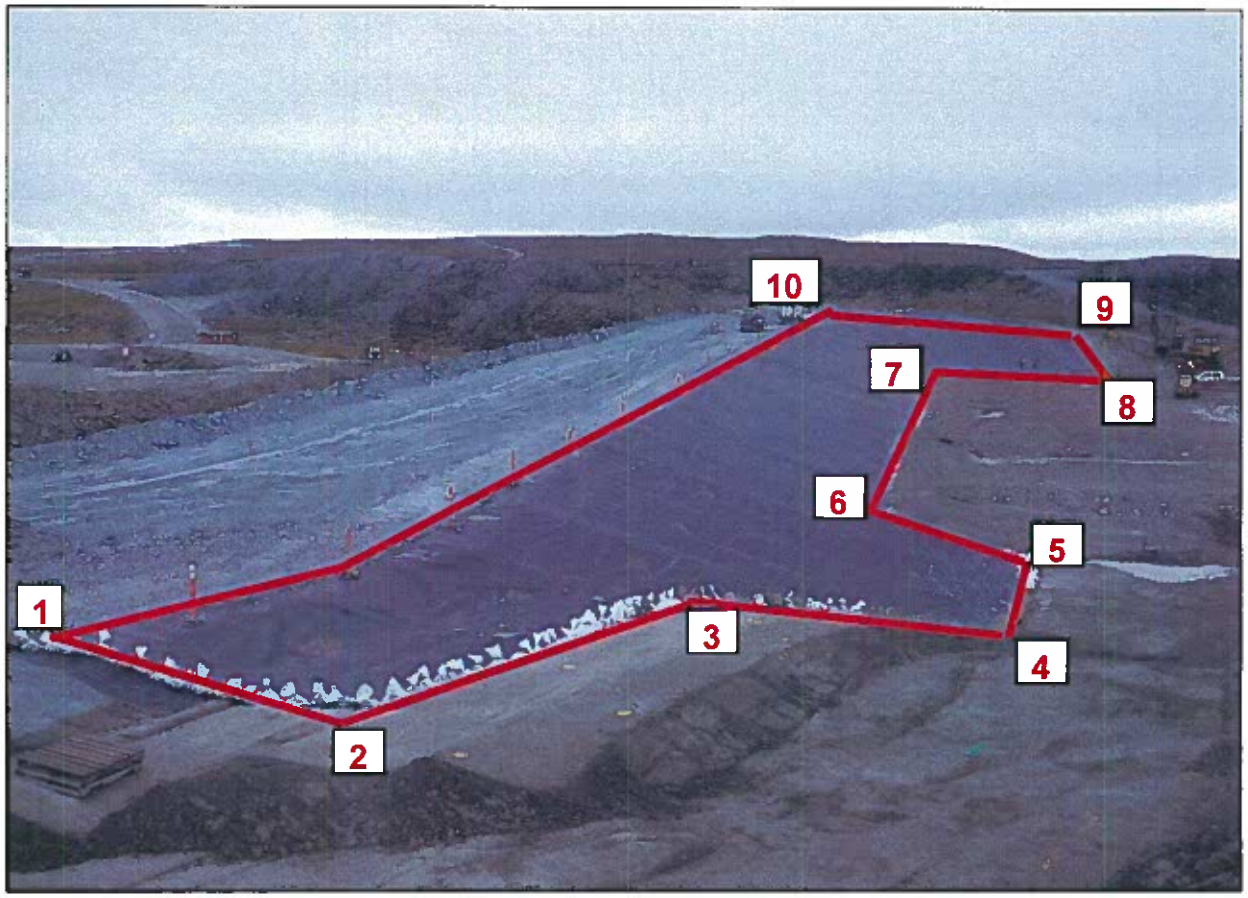


Photo 1- Approximate approved geotextile and LLPDE area

Date: 26-08-2016

Photo by (Initial) : MDB

APPENDIX G3

SADDLE DAM 4 STAGE 2 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	**FND-SD4-19**	**Date:**	**14-07-2016**

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);

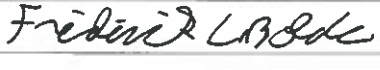
3) Photo of the accepted area, at the moment of the acceptance;

4) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Rebecca Cousineau/ Serge Tremblay	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederick Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+398.85 Offset 3.8L to 15.89L	SHIFT: NIGHT : ☐ DAY ☐	DATE : 14-07-16	SHEET 2 OF 4
To Sta. 40+099.19 Offset 40.71L to 45.18L	LOCATION: : Saddle Dam 5 Bedrock foundation.		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

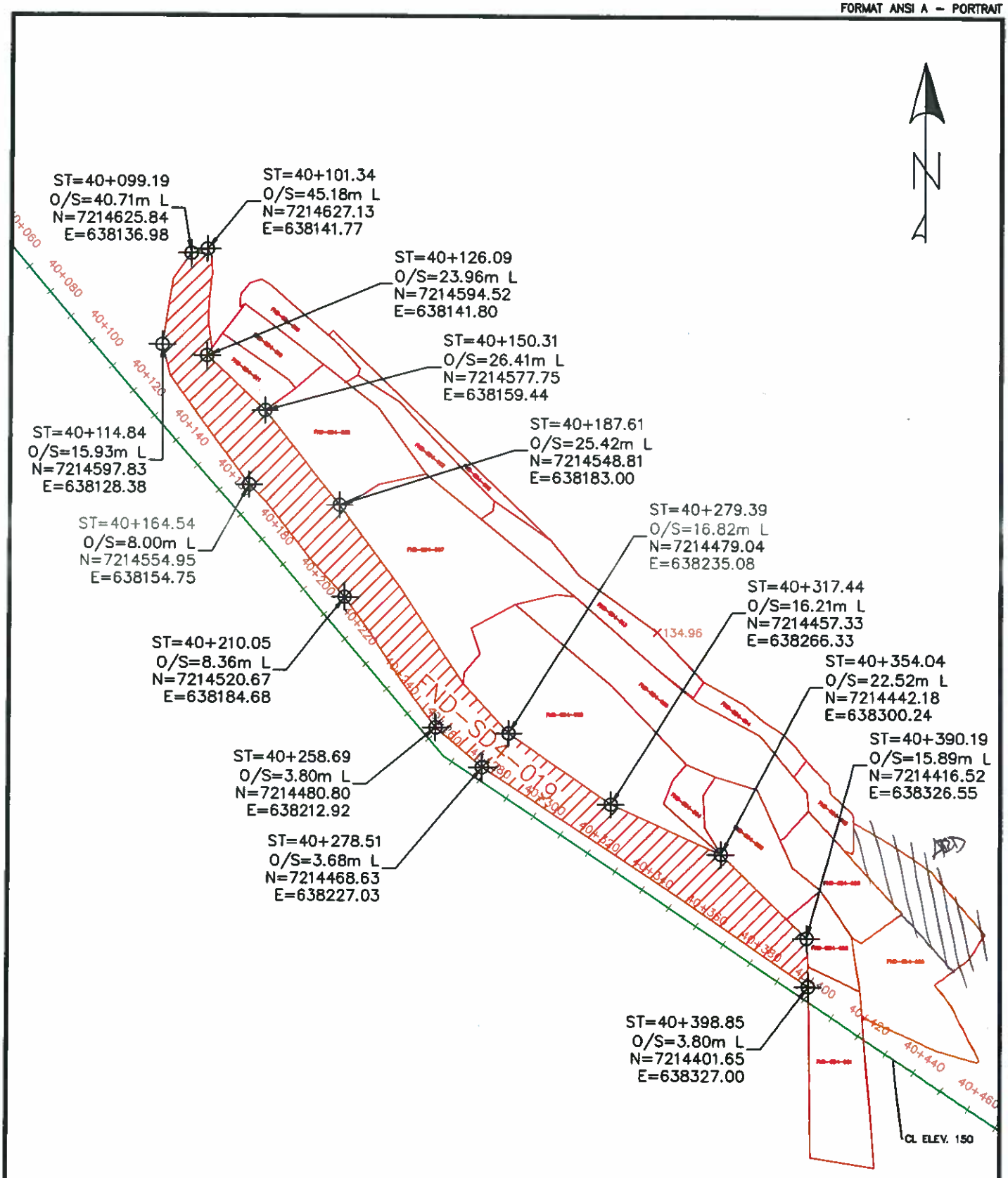
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method in place	RC	FLB
4.	Occurrence of boulders and removal method in place	RC	FLB
5.	Occurrence of hummocks and scalping method in place	RC	FLB
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	FLB
7.	Presence of other unsuitable materials and removal method in place	RC	FLB
8.	Soil frozen or thawed and measures taken	RC	FLB
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	RC	FLB
11.	Final walkover inspection before re-sloping or fill placement	RC	FLB
	Rough grading of foundation	RC	FLB
12.	"As-excavated" survey conducted	RC	FLB
	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: Aubrey Claude Desroches	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 14-07-2016	DATE: 14-07-2016	DATE: 14-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND-SD4-19

PROJECT No.	DATE 2016-07-14
DRAWN BY AUBREY C.-DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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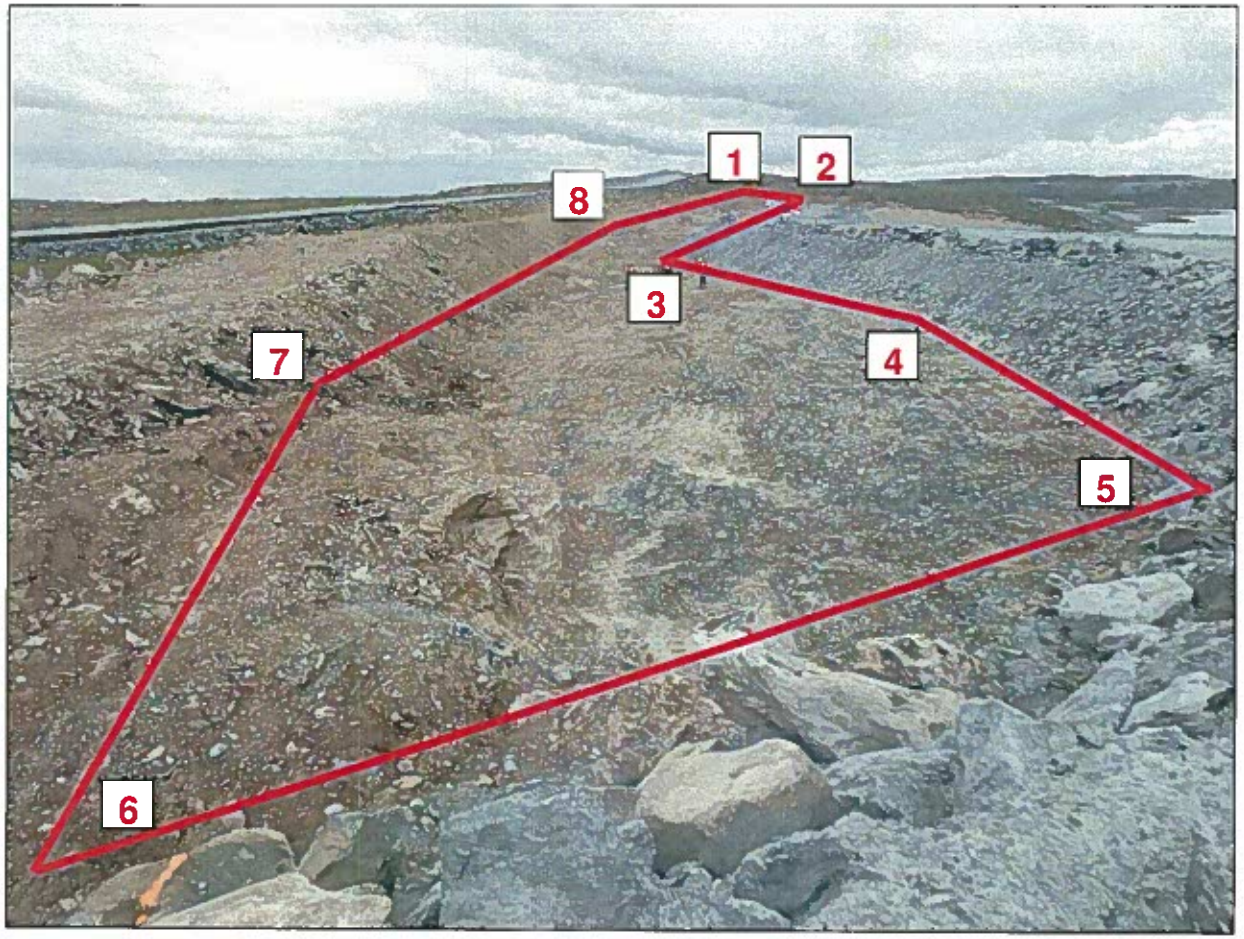


Photo 1- Approximate approved foundation area

Date: 14-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-20	Date:	14-07-2016

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.

This certificate is prepared and accepted by delegated representatives of the Quality Control (QC) Program and 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:	Rebecca Cousineau/ Serge Tremblay
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Frederick Bolduc
	Position:	Golder-QA
Surveyor	Name:	Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+454.58 Offset 14.22L to 5.41L	SHIFT: NIGHT ☐ DAY ☐	DATE : 14-07-16	SHEET 2 OF 4
To Sta. 40+410.19 Offset 33.51L to 47.10L	LOCATION: : Saddle Dam 4 Bedrock foundation		
EQUIPMENT: Excavator 345D - SANA			

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	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method in place	RC	FLB
4.	Occurrence of boulders and removal method in place	RC	FLB
5.	Occurrence of hummocks and scalping method in place	RC	FLB
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	FLB
7.	Presence of other unsuitable materials and removal method in place	RC	FLB
8.	Soil frozen or thawed and measures taken	RC	FLB
9.	Blasting requirement to remove unsuitable material and safety measure checked	RC	FLB
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	RC	FLB
11.	Final walkover inspection before re-sloping or fill placement	RC	FLB
	Rough grading of foundation	RC	FLB
12.	"As-excavated" survey conducted	RC	FLB
	Bedrock cleaning	—	—
13.	Bedrock Mapping	—	—

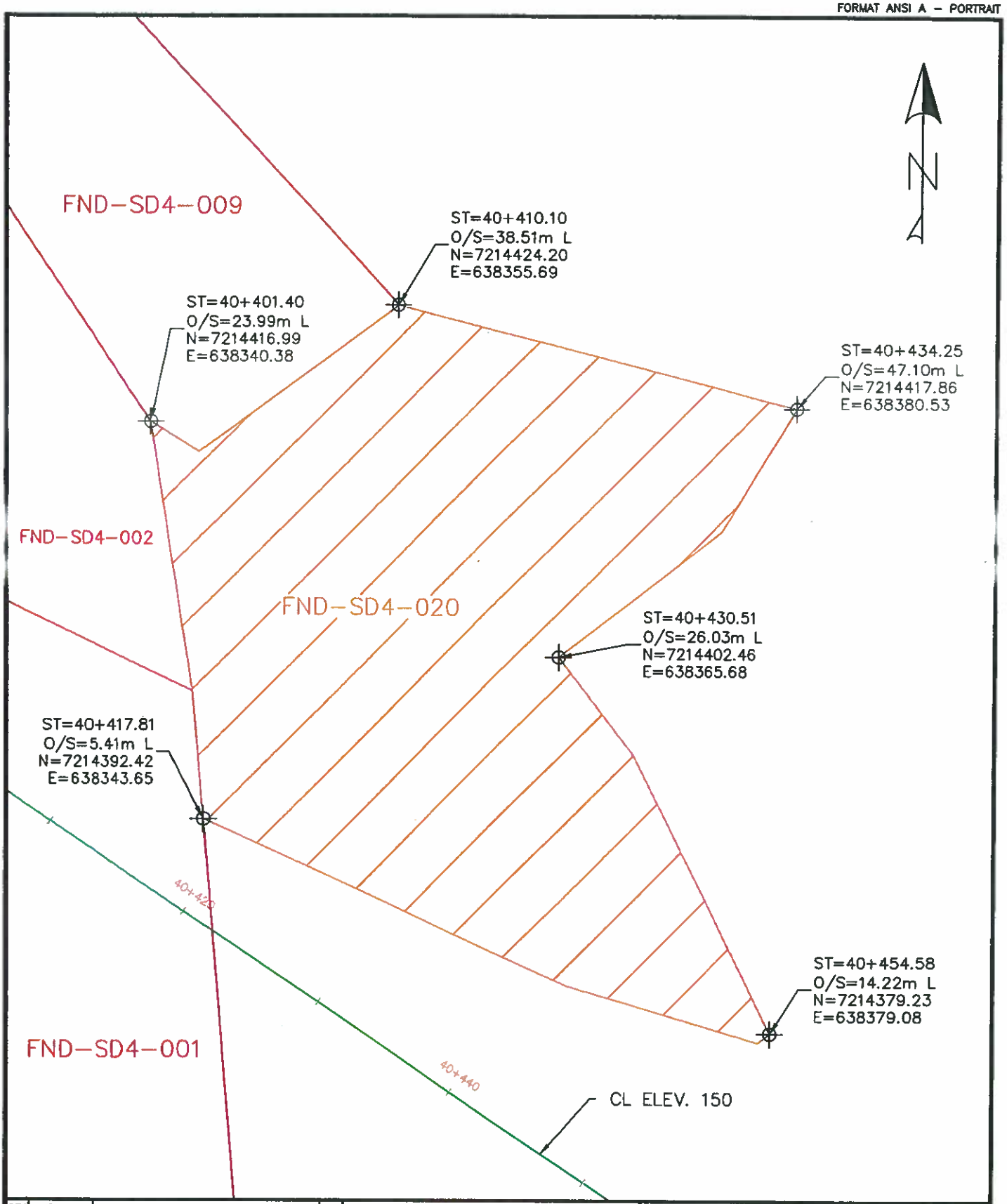
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 14-07-2016	DATE: 14-07-2016	DATE: 14-07-2016

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY
1	2016–07–15	MODIF. APPROVED AREA	

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–20

PROJECT No.	DATE 2016–07–14
DRAWN BY AUBREY C.–DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\CD_SD5\FOUNDATION APPROVAL\20160713\CD_INFRA APPROVAL–2016–07–14–REV–1.dwg, 15 Jul 2016

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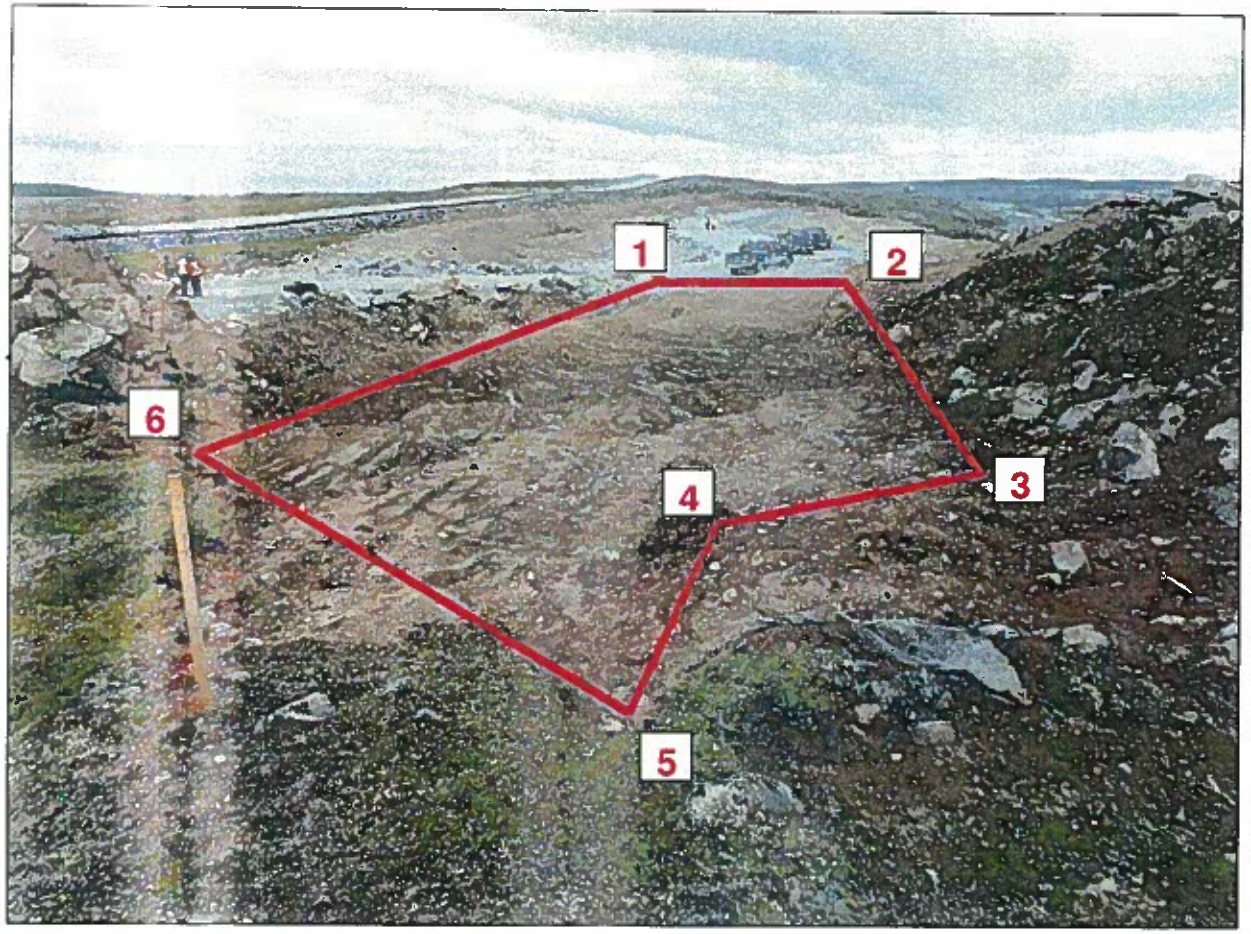


Photo 1- Approximate approved foundation area

Date: 14-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-21	Date:	21-07-2016

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 autorised 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:	Rebecca Cousineau/ Yannick Simard
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+121.51 Offset 42.84L to 26.48L | SHIFT: NIGHT : ☐ DAY ☐ | DATE : 21-07-16 | SHEET 2 OF 4

To Sta. 40+110.14 Offset 39.06L to 31.28L | LOCATION: : Saddle Dam 4 Bedrock foundation

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION Rock foundation

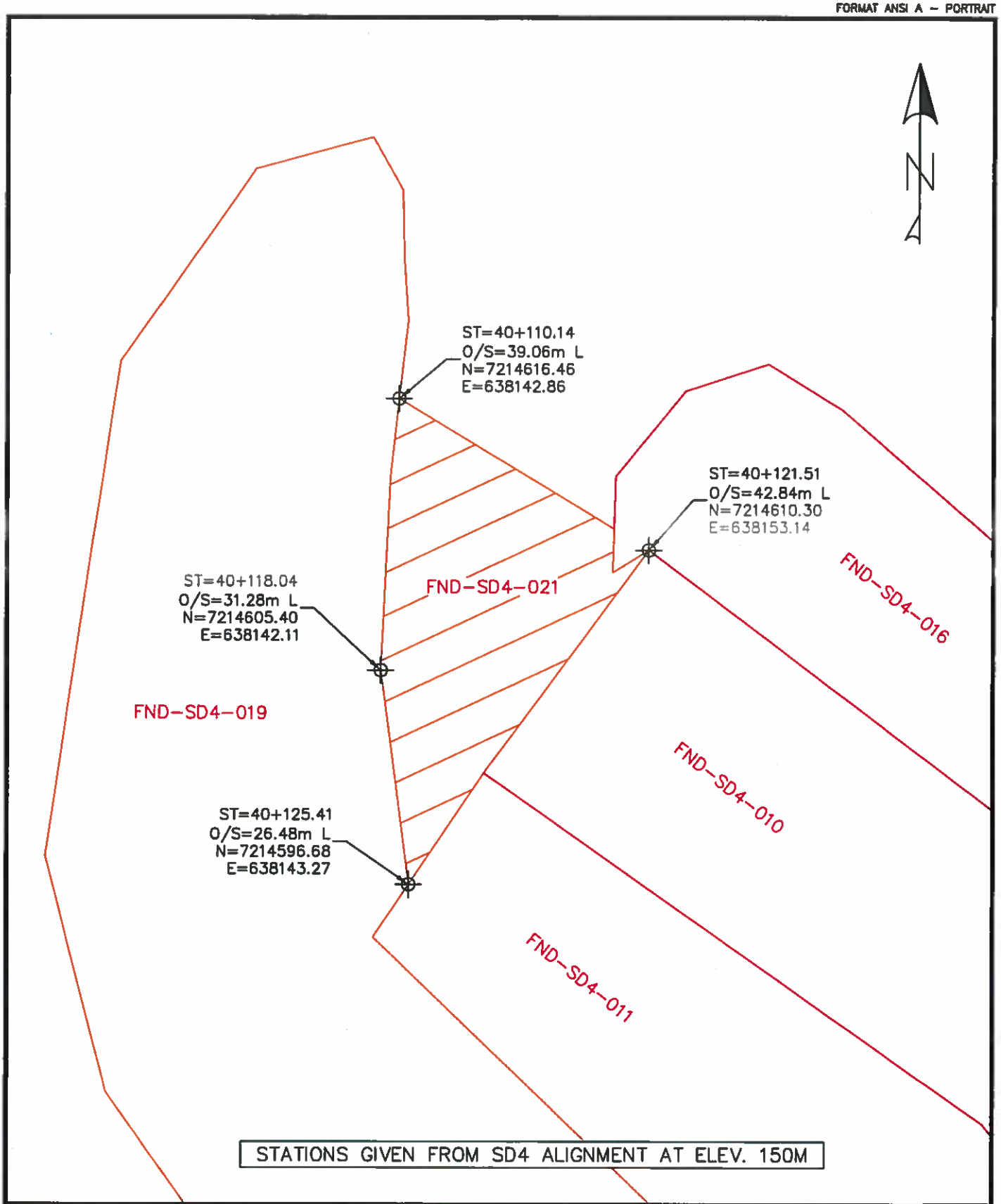
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	M.V.
2.	Storage areas planned for disposal of removed materials	RC	M.V.
3.	Occurrence of snow and ice removal method in place	RC	M.V.
4.	Occurrence of boulders and removal method in place	RC	M.V.
5.	Occurrence of hummocks and scalping method in place	RC	M.V.
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	M.V.
7.	Presence of other unsuitable materials and removal method in place	RC	M.V.
8.	Soil frozen or thawed and measures taken	RC	M.V.
9.	Blasting requirement to remove unsuitable material and safety measure checked	RC	M.V.
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	RC	M.V.
11.	Final walkover inspection before re-sloping or fill placement	RC	M.V.
	Rough grading of foundation	RC	M.V.
12.	"As-excavated" survey conducted	RC	M.V.
	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: Aubrey Claude Desroches	NAME: Michael Nadon	NAME: Rebecca Cousineau/ Yannick Simard
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 21-07-2016	DATE: 21-07-2016	DATE: 21-07-2016



STATIONS GIVEN FROM SD4 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

REVISIONS

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–21

PROJECT No.	DATE 2016–07–21
DRAWN BY AUBREY C.–DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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2:
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St=40+125.41, Offset=26.48m L

3:
E=638142.11, N=7214605.40
St=40+118.04, Offset=31.28m L

4:
E=638142.86, N=7214616.46
St=40+110.14, Offset=39.06m L

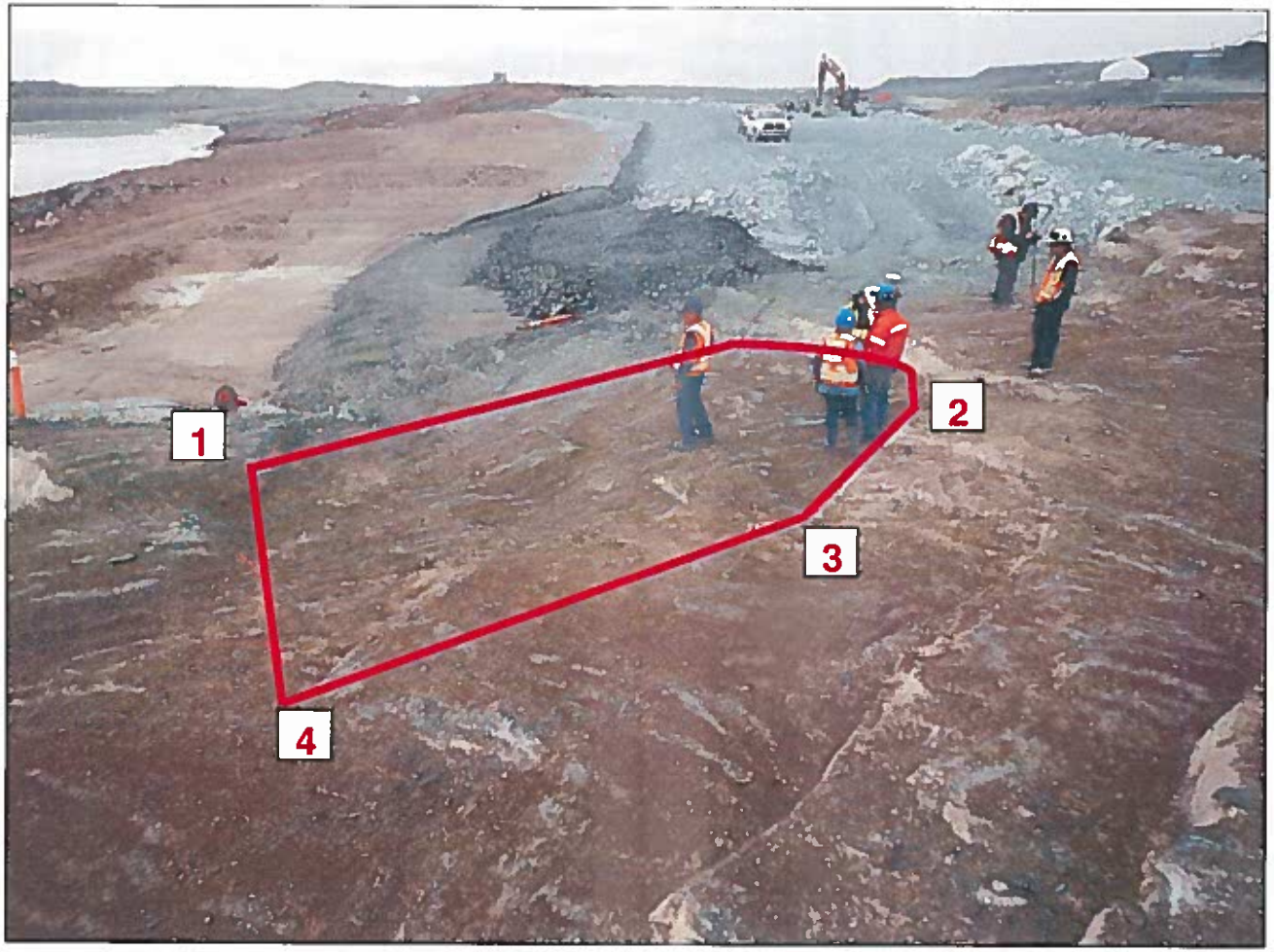


Photo 1- Approximate approved foundation area

Date: 21-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-22	Date:	23-07-2016

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 autorised 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:	Rebecca Cousineau/ Yannick Simard	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Michael Nadon	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+433.97 Offset 24.88L to 28.94L | SHIFT: NIGHT ☐ DAY ☐ | DATE : 23-07-16 | SHEET 2 OF 4

To Sta. 40+430.51 Offset 26.03L to 31.98L | LOCATION: : Saddle Dam 4: Bedrock foundation on south side

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION Rock foundation

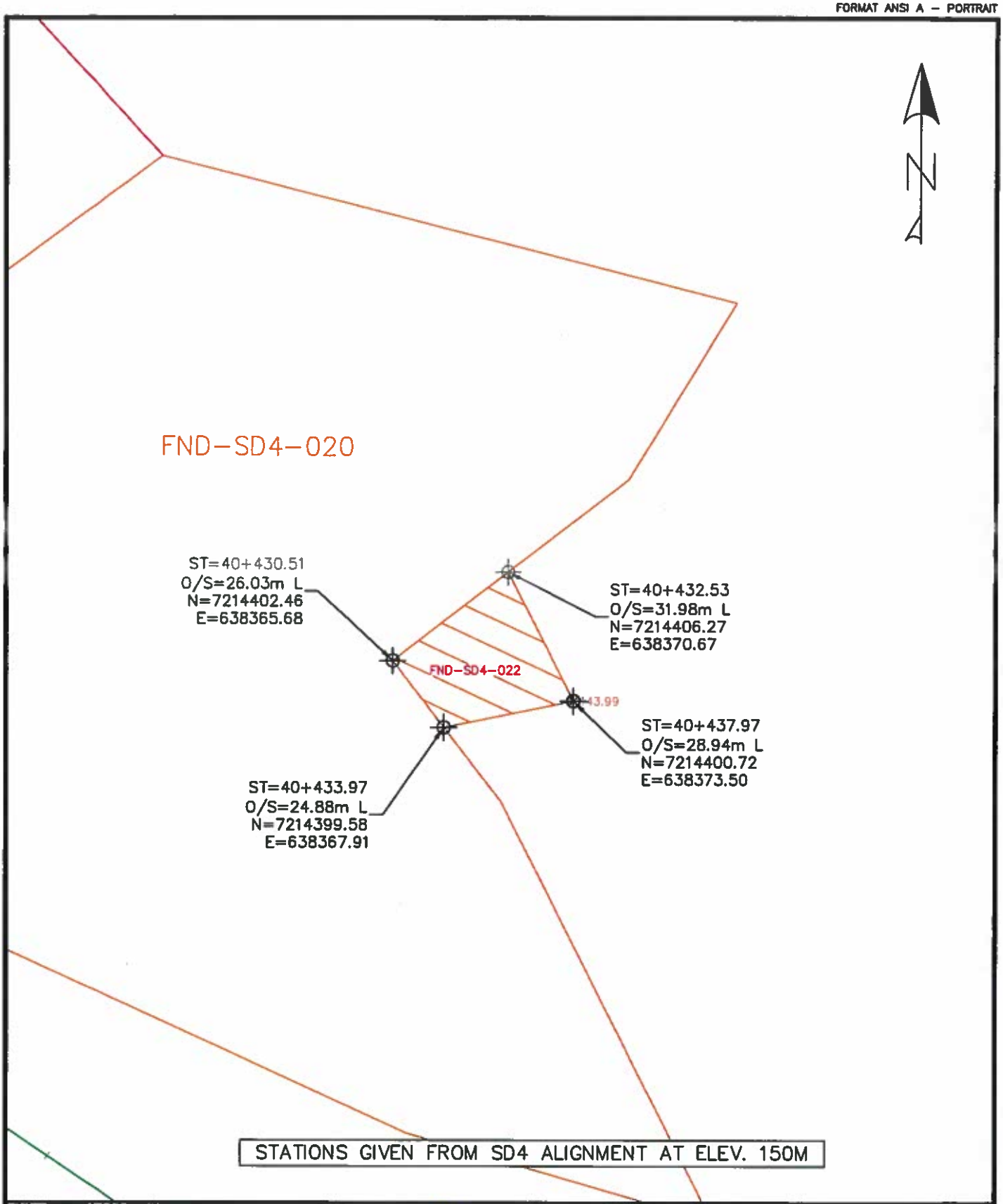
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	YS	M.W.
2.	Storage areas planned for disposal of removed materials	YS	M.W.
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Michael Nadon	NAME: Rebecca Cousineau/ Yannick Simard
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 23-07-2016	DATE: 23-07-2016	DATE: 23-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–22

PROJECT No.	DATE 2016–07–22
DRAWN BY AUBREY C.–DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

1:
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St=40+430.51, Offset=26.03m L

2:
E=638370.67, N=7214406.27
St=40+432.53, Offset=31.98m L

3:
E=638373.50, N=7214400.72
St=40+437.97, Offset=28.94m L

4:
E=638367.91, N=7214399.58
St=40+433.97, Offset=24.88m L

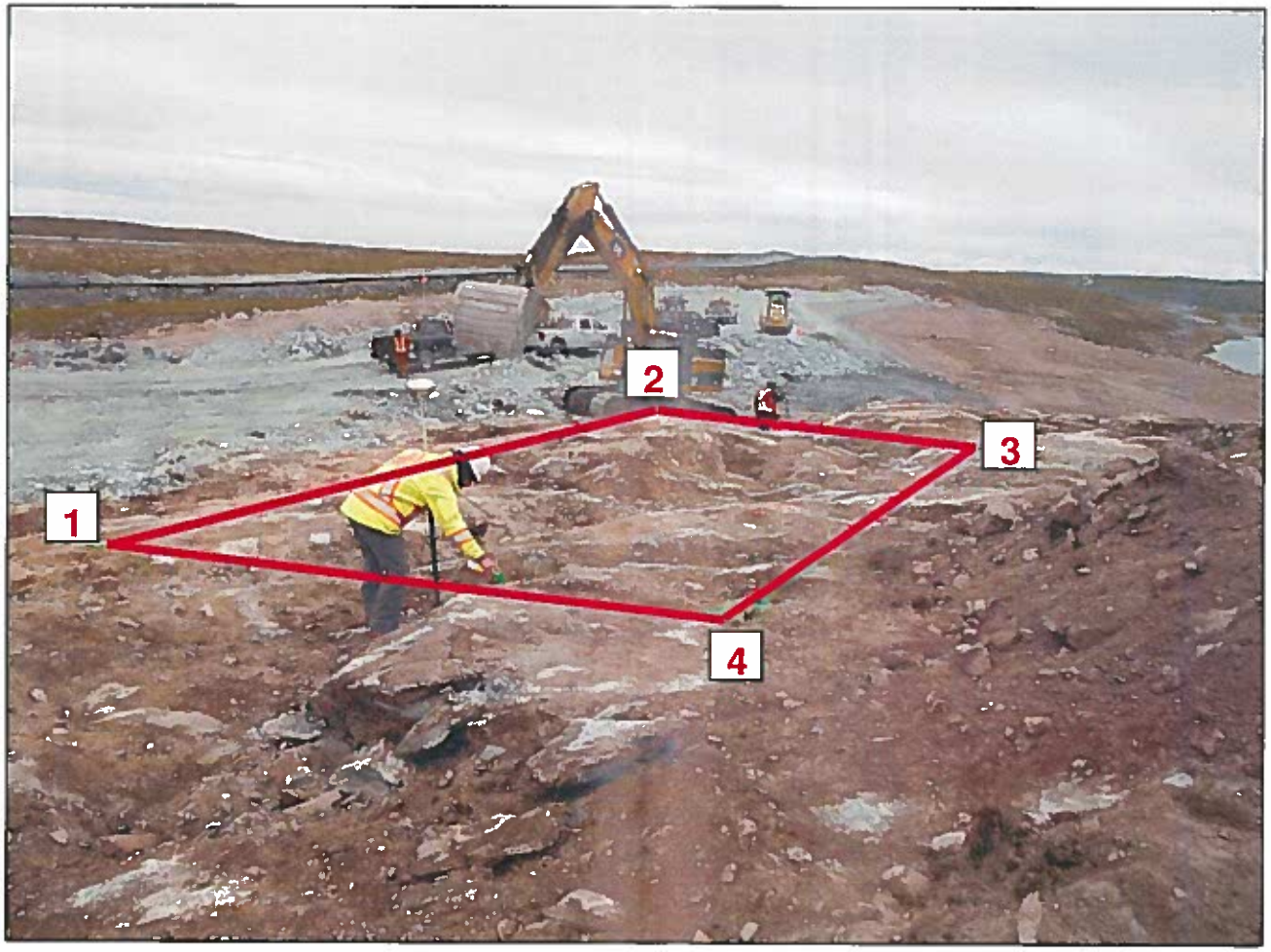


Photo 1- Approximate approved foundation area

Date: 23-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-23	Date:	12-08-2016

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 autorised 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:	Rebecca Cousineau	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederic Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+384.63 Offset 44.7L to 49.61L | SHIFT: NIGHT ☐ DAY ☑ | DATE : 12-08-16 | SHEET 2 OF 4

To Sta. 40+410.10 Offset 38.51L to 43.44L | LOCATION : Saddle Dam 4 Bedrock foundation

EQUIPMENT : Excavator 345D - SANA

DESCRIPTION : Rock foundation

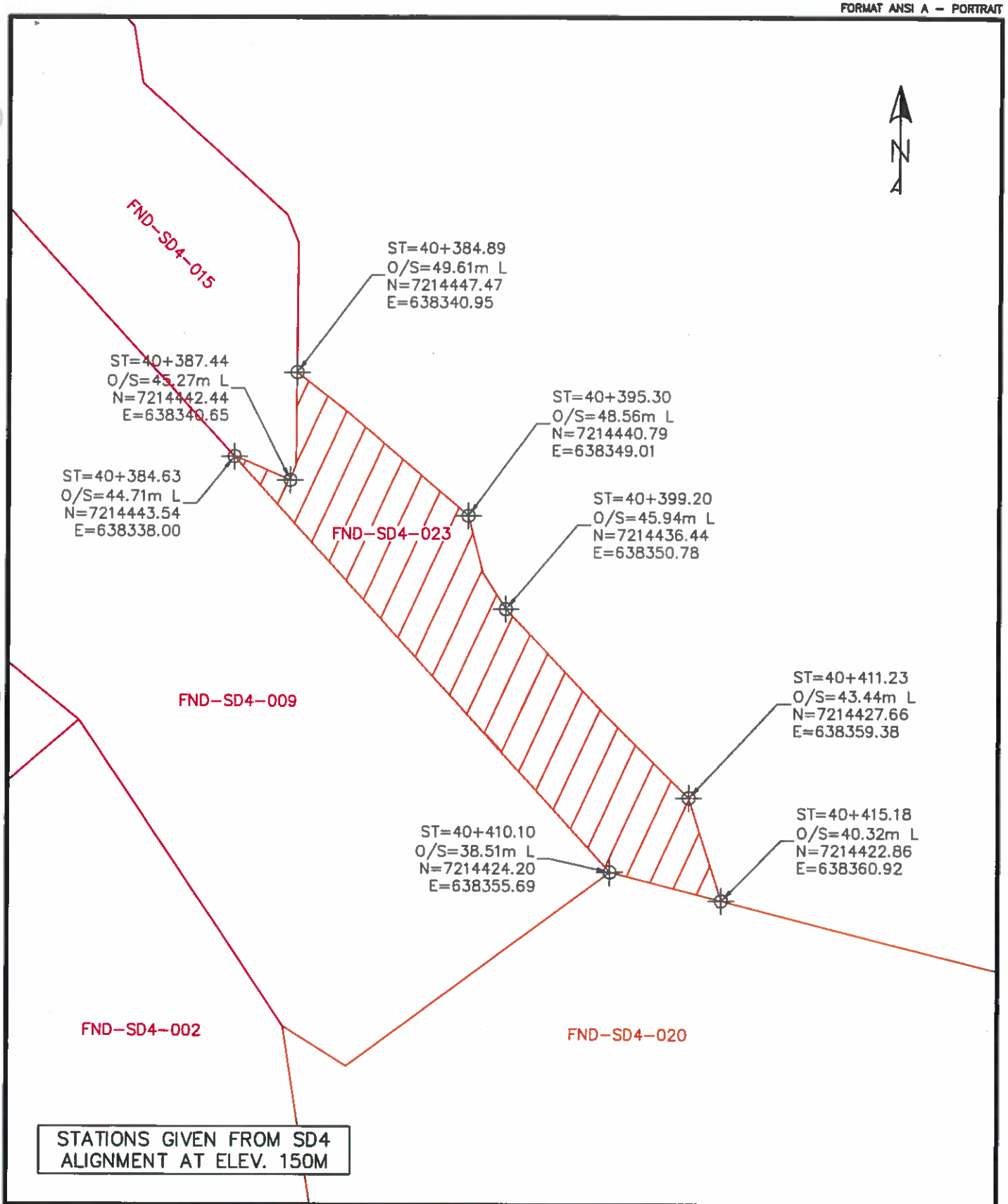
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Frederic Bolduc	NAME: Rebecca Cousineau
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 12-08-2016	DATE: 12-08-2016	DATE: 12-08-2016



STATIONS GIVEN FROM SD4 ALIGNMENT AT ELEV. 150M

REV	DATE	DESCRIPTION	BY

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–23

PROJECT No.	DATE 2016–08–12
DRAWN BY AUBREY DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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2:
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St=40+384.63, Offset=44.71m L

3:
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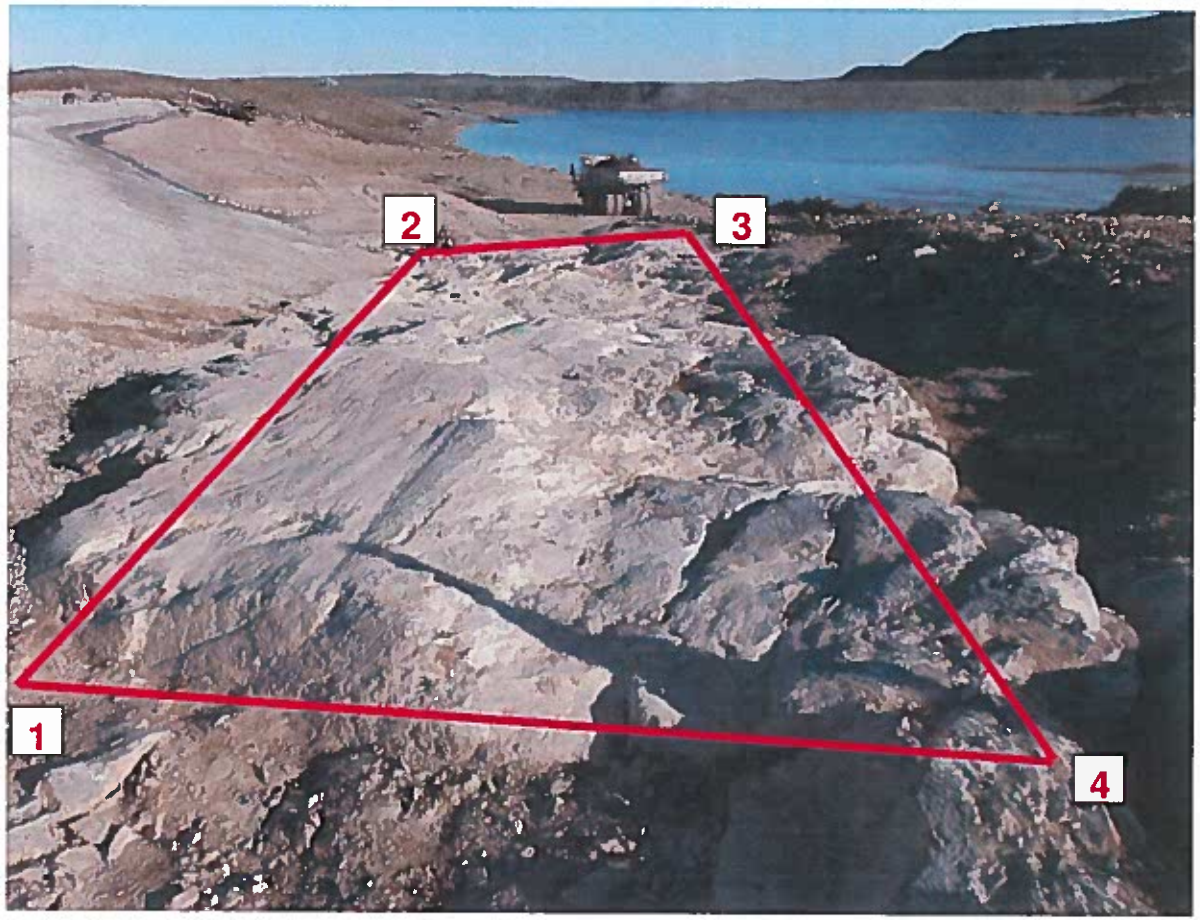


Photo 1- Approximate approved foundation area

Date: 12-08-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-24	Date:	12-08-2016

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 autorised 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:	Rebecca Cousineau	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederic Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+110.14 Offset 39.06L to 42.33L | SHIFT: NIGHT ☐ DAY ☑ | DATE : 12-08-16 | SHEET 2 OF 4

To Sta. 40+119.2 Offset 42.31L to 46.73L | LOCATION: : Saddle Dam 4: Bedrock foundation

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION Rock foundation

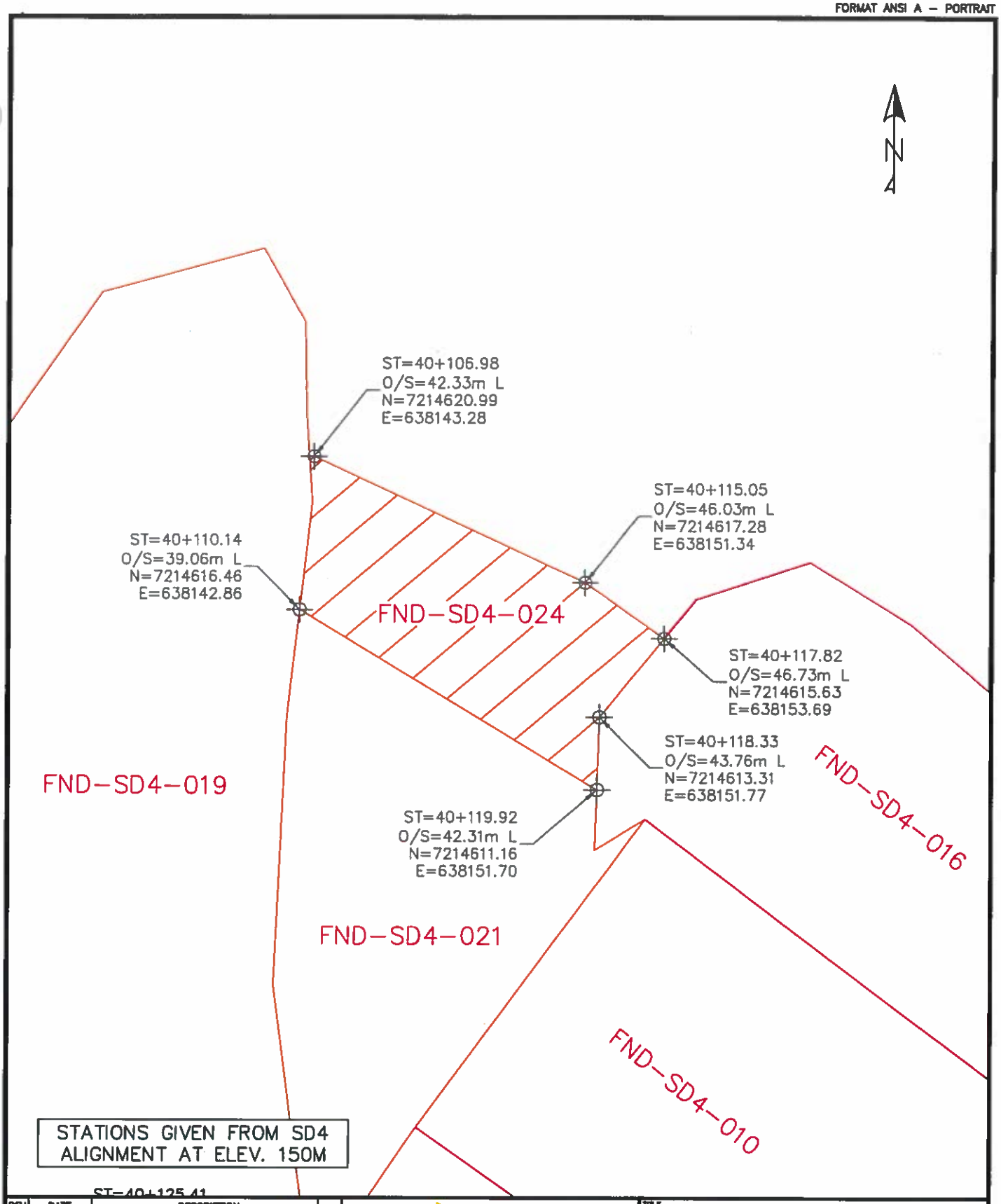
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Frederic Bolduc	NAME: Rebecca Cousineau
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 12-08-2016	DATE: 12-08-2016	DATE: 12-08-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD4–24

PROJECT No.		DATE 2016–08–12	
DRAWN BY AUBREY DESROCHES			SHEET 1 / 1
APPROVED BY			
DRAWING NO.			REVISION

C:\MEADOWBANK\DIKE 2016\APPROVALS\FOUNDATION APPROVAL_20160802.dwg, 12 Aug 2016

FILE NO. .DWG

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2:
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St=40+117.82, Offset=46.73m L

3:
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St=40+119.92, Offset=42.31m L

4:
E=638142.86, N=7214616.46
St=40+110.14, Offset=42.31m L

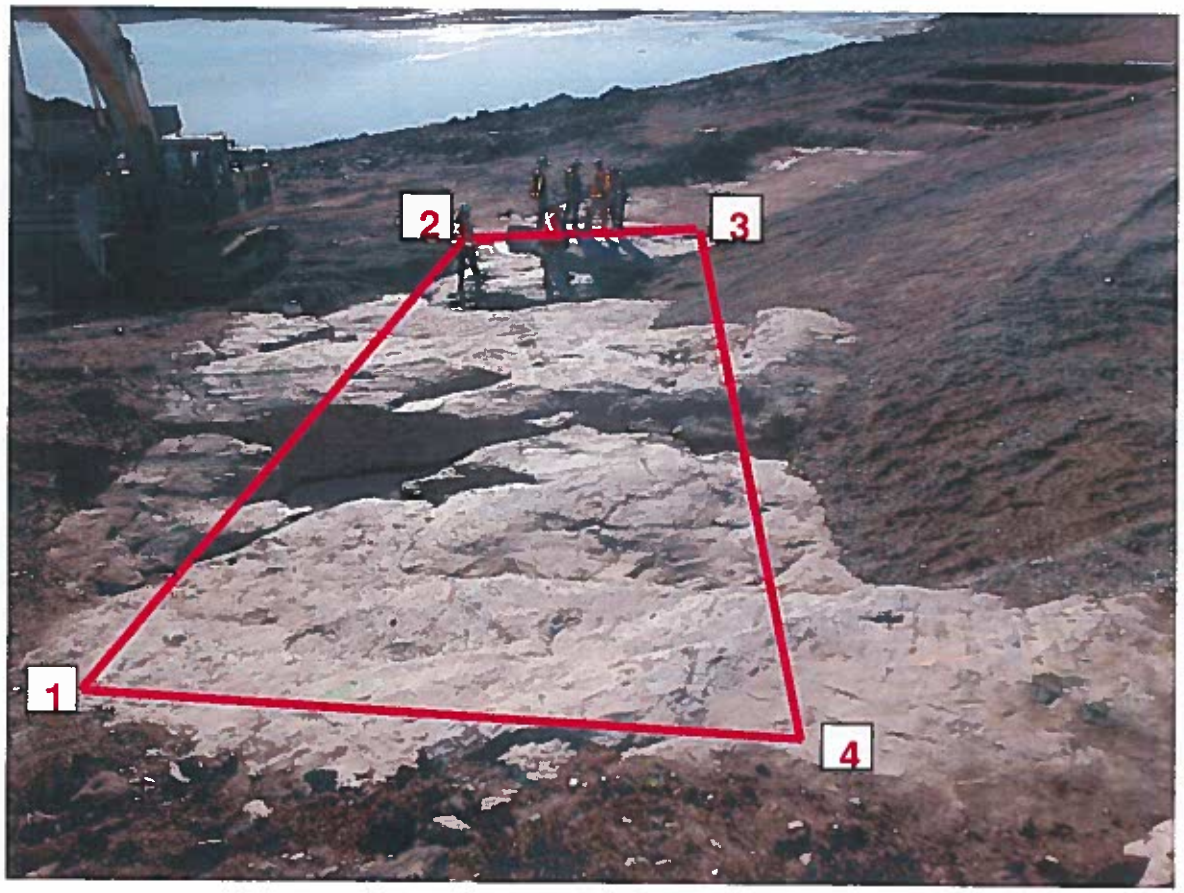


Photo 1- Approximate approved foundation area

Date: 12-08-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 4

Acceptance No.:	FND-SD4-25	Date:	22-08-2016

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 autorised 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:	Guy Lamarche
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 4 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+108.10 Offset 29.23	SHIFT: NIGHT :☐ DAY ☒	DATE : 22-08-16	SHEET 2 OF 4
To Sta. 40+409.95 Offset 50.04	LOCATION: : Saddle Dam 4: ~~Till foundation~~ Liner bedding		
EQUIPMENT:			
DESCRIPTION Till foundation Liner bedding			

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	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in place	NA	N-A
4.	Occurrence of boulders and removal method in place	OK	OK
5.	Occurrence of hummocks and scalping method in place	OK	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	OK	OK
7.	Presence of other unsuitable materials and removal method in place	OK	OK
8.	Soil frozen or thawed and measures taken	OK	OK
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	N-A
	Preparation of surface for LLDPE geomembrane placement	OK	OK
10.	Adjustment made to suit design in field	OK	OK
11.	Final walkover inspection before re-sloping or fill placement	OK	OK
	Rough grading of foundation	OK	OK
12.	"As-excavated" survey conducted	OK	OK
	Bedrock cleaning	NA	N-A
13.	Bedrock Mapping	NA	N-A

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 26-08-2016	DATE: 27-08-2016	DATE: 26-08-2016

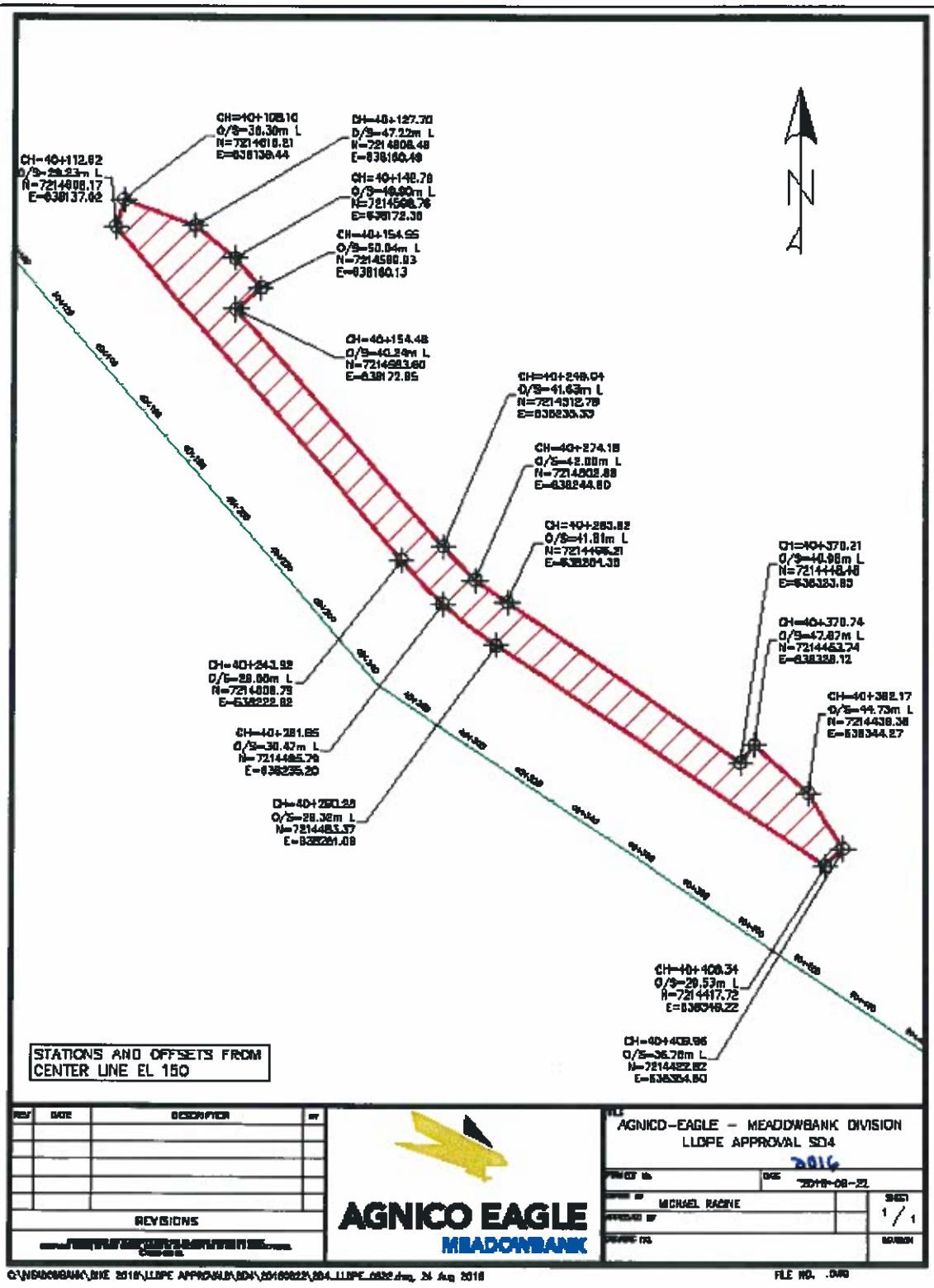


Figure 1 - Approximate approved foundation area

Date:	**17-08-2016**	**Sketch by : Aubrey Claude Desroches**

1:
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2:
E=638139.44, N=7214616.21
St=40+108.10, Offset=36.30m L
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St=40+154.48, Offset=40.24m L
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E=638244.80, N=7214502.86
St=40+274.18, Offset=42.00m L
6:
E=638323.95, N=7214448.48
St=40+370.21, Offset=40.98m L
7:
E=638328.12, N=7214453.74
St=40+370.74, Offset=47.67m L
8:
E=638354.60, N=7214422.82
St=40+409.96, Offset=36.76m L
9:
E=638349.22, N=7214417.72
St=40+408.34, Offset=29.53m L
10:
E=638235.20, N=7214495.79
St=40+261.85, Offset=30.47m L

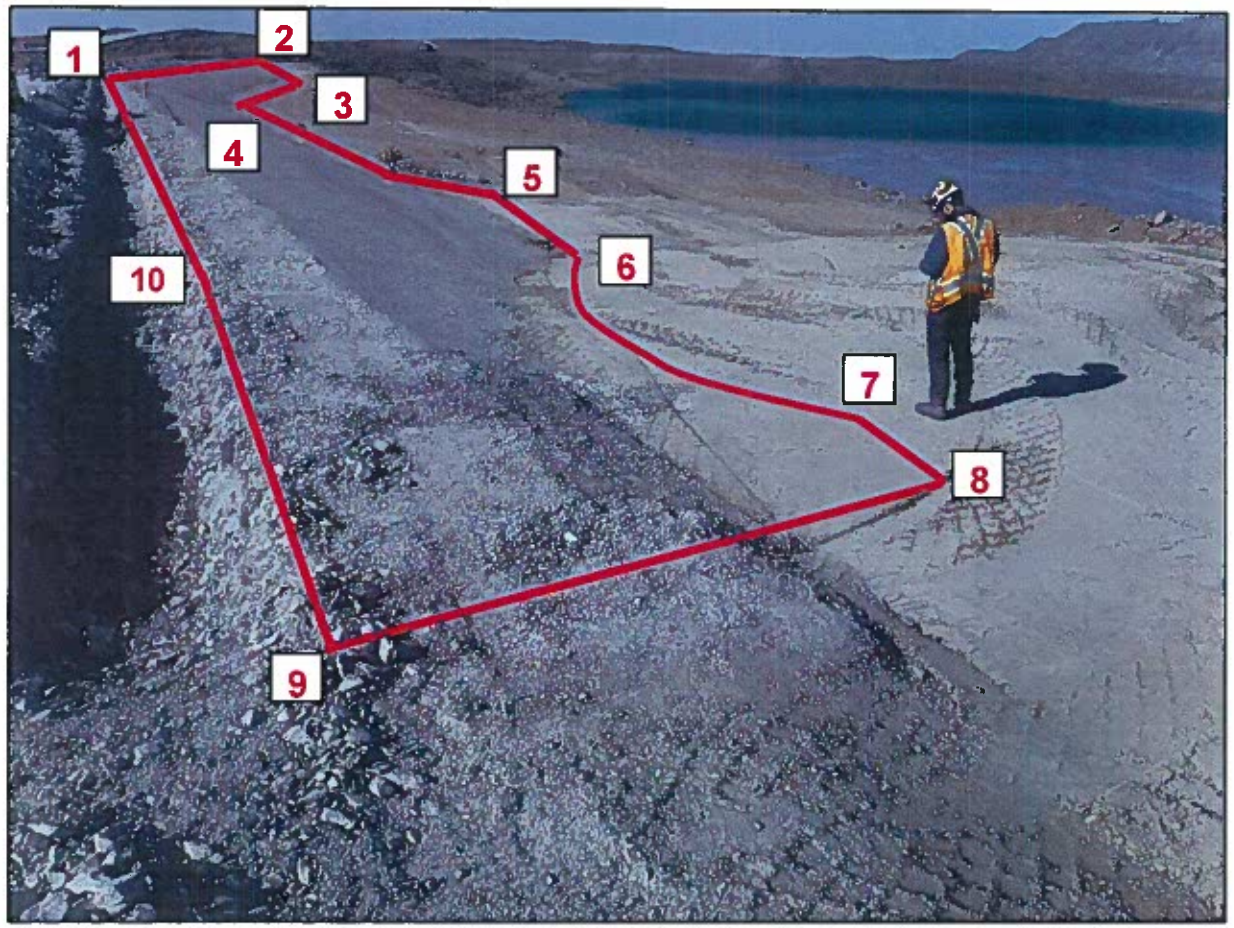


Photo 1- Approximate approved foundation area

Date: 22-08-2016

Photo by (Initial) : G.L.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - SADDLE DAM 3

Acceptance No.: LLDPE-SD4-002 **Date:** 24-08-2016

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Geotextile Installation

SADDLE DAM 4- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION				
From Sta. 40+111.64	Offset: 31.30	SHIFT: NIGHT☐ DAY☐	DATE: 24-08-2016	SHEET 2 OF 5
To Sta. 40+414.20	Offset: 49.89	LOCATION: SADDLE DAM 4 : geotextile		
EQUIPMENT:				
DESCRIPTION: Geotextile				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	OK	ok
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	OK	ok
3	Deficiencies reported before installation	OK	ok
4	Inspection of geotextile storage facilities performed	OK	ok
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	OK	ok
6	Visual inspection during geotextile installation performed	OK	ok
7	Damages during installation repaired in accordance with Specifications	OK	ok
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	OK	ok

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 30-08-2016	Date: 30-08-2016	Date: 30-08-2016

LLDPE Geomembrane Installation

SADDLE DAM 4 - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION				
From Sta. 40+111.64	Offset: 31.30	SHIFT: NIGHT ☐ DAY ☐	DATE: 24-08-2016	SHEET 3 OF 5
To Sta. 40+414.20	Offset: 49.89	LOCATION: SADDLE DAM 4 : LLPDE membrane		
EQUIPMENT:				
DESCRIPTION: LLPDE membrane				

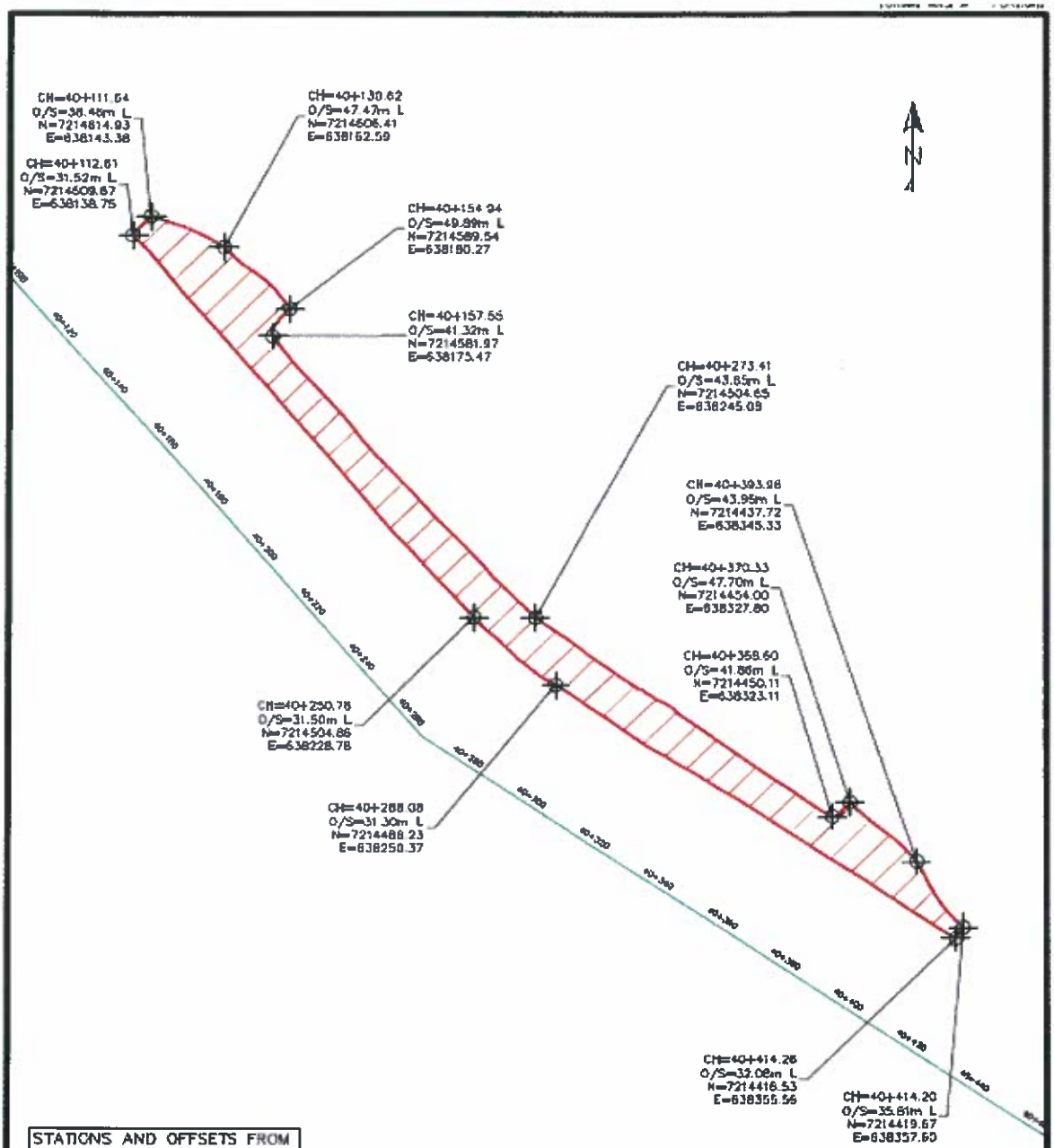
NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of liner performed to determine physical damages during handling	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of LINER storage facilities	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	OK	OK
6	Visual inspection during Liner installation performed	OK	OK
7	Weather conditions meet the requirements during installation	OK	OK
8	Welding carried out in accordance with Manufacturer's Specification	OK	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	OK	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	OK	OK
11	Damages during installation repaired in accordance with Specifications	OK	OK
12	Site cleaned up	OK	OK
13	As-built survey conducted and approved	OK	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	OK	OK

REMARKS:
3 HORIZONTAL SEAMS AT SD4 : 40+170-32, 40+240-35 and 40+320-32. EACH OF THOSE WERE MADE OVER THE WIDTH OF THE PANELS

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 30-08-2016	Date: 30-08-2016	Date: 30-08-2016


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E=638143.38
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O/S=41.32m L
N=7214581.97
E=638173.47
CH=40+273.41
O/S=43.85m L
N=7214504.65
E=638245.09
CH=40+393.98
O/S=43.95m L
N=7214437.72
E=638345.33
CH=40+370.33
O/S=47.70m L
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CH=40+250.78
O/S=31.50m L
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E=638228.78
CH=40+268.08
O/S=31.30m L
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N
STATIONS AND OFFSETS FROM
CENTER LINE EL 150
REV
DATE
DESCRIPTION
BY
REVISIONS
AGNICO EAGLE
MEADOWBANK
AGNICO-EAGLE – MEADOWBANK DIVISION
LLDPE INSTALLATION APPROVAL SD4
DATE
2016-08-27
MICHAEL RACINE
SHEET
1 / 1
C:\MEADOWBANK\DWG 2016\LLDPE APPROVAL\SD4_LLDPE APPROVAL_0827.dwg, 27 Aug 2016
FILE NO. DWG

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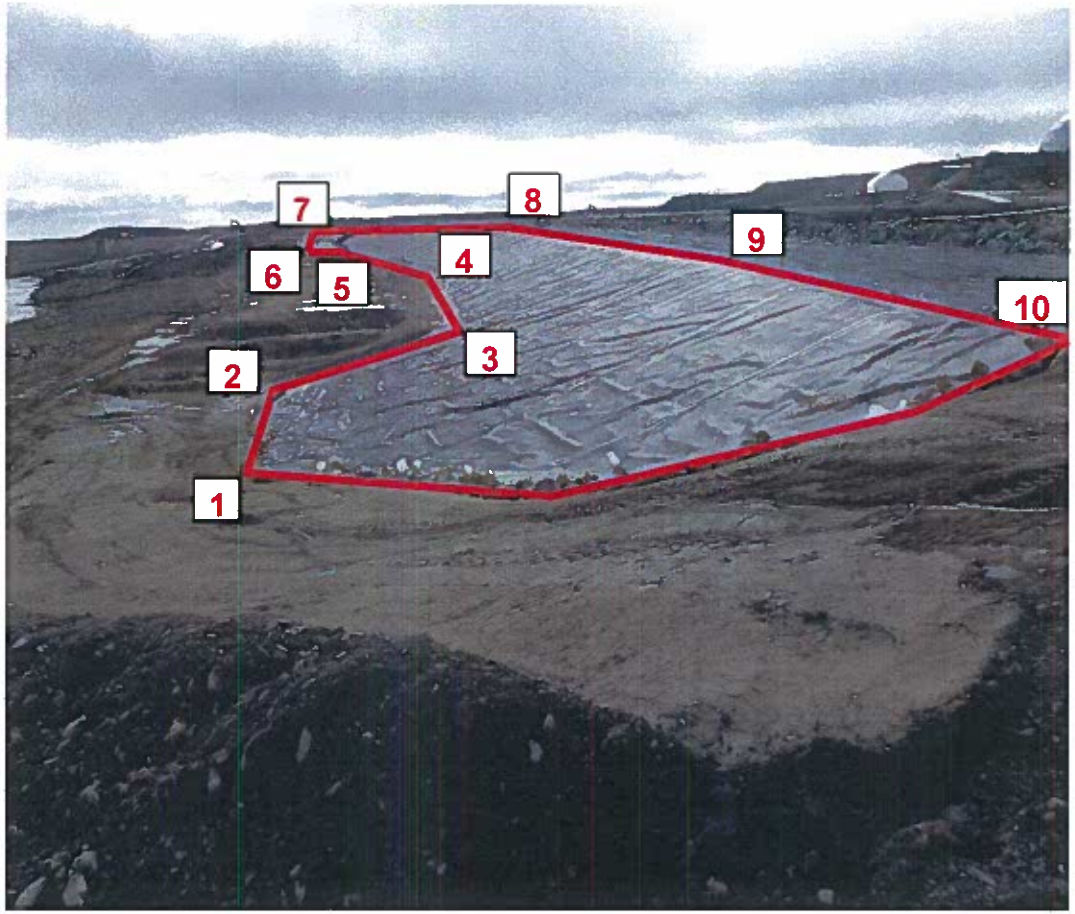


Photo 1- Approximate approved geotextile and LLPDE area

Date: 28-08-2016

Photo by (Initial) : G.L.

APPENDIX G4

SADDLE DAM 5 STAGE 2 APPROVAL FORMS

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	**FND-SD5-03**	**Date:**	**07-juil-16**

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 autorised 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:	Marie-Hélène Picard
	Position:	SNC-Lavalin
QA Engineer	Name:	Frédérick L. Bolduc
	Position:	Golder-Qa
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 40+740 Offset 7.68 to 16.27	SHIFT: NIGHT :☐ DAY ☐	DATE : 07-07-16	SHEET 2 OF 4
To Sta. 40+790 Offset 13.74 to 29.33	LOCATION: : Central Dike : Bedrock foundation for rockfill on North side		
EQUIPMENT: Excavator 345D - SANA			

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	✓
2.	Storage areas planned for disposal of removed materials	PG	✓
3.	Occurrence of snow and ice removal method in place	PG	✓
4.	Occurrence of boulders and removal method in place	PG	✓
5.	Occurrence of hummocks and scalping method in place	PG	✓
6.	Occurrence of surface and ground water and its impact mitigation in place	PG	✓
7.	Presence of other unsuitable materials and removal method in place	PG	✓
8.	Soil frozen or thawed and measures taken	PG	✓
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	✓
11.	Final walkover inspection before re-sloping or fill placement	PG	✓
	Rough grading of foundation	PG	✓
12.	"As-excavated" survey conducted	PG	✓
	Bedrock cleaning	—	—
13.	Bedrock Mapping	—	—

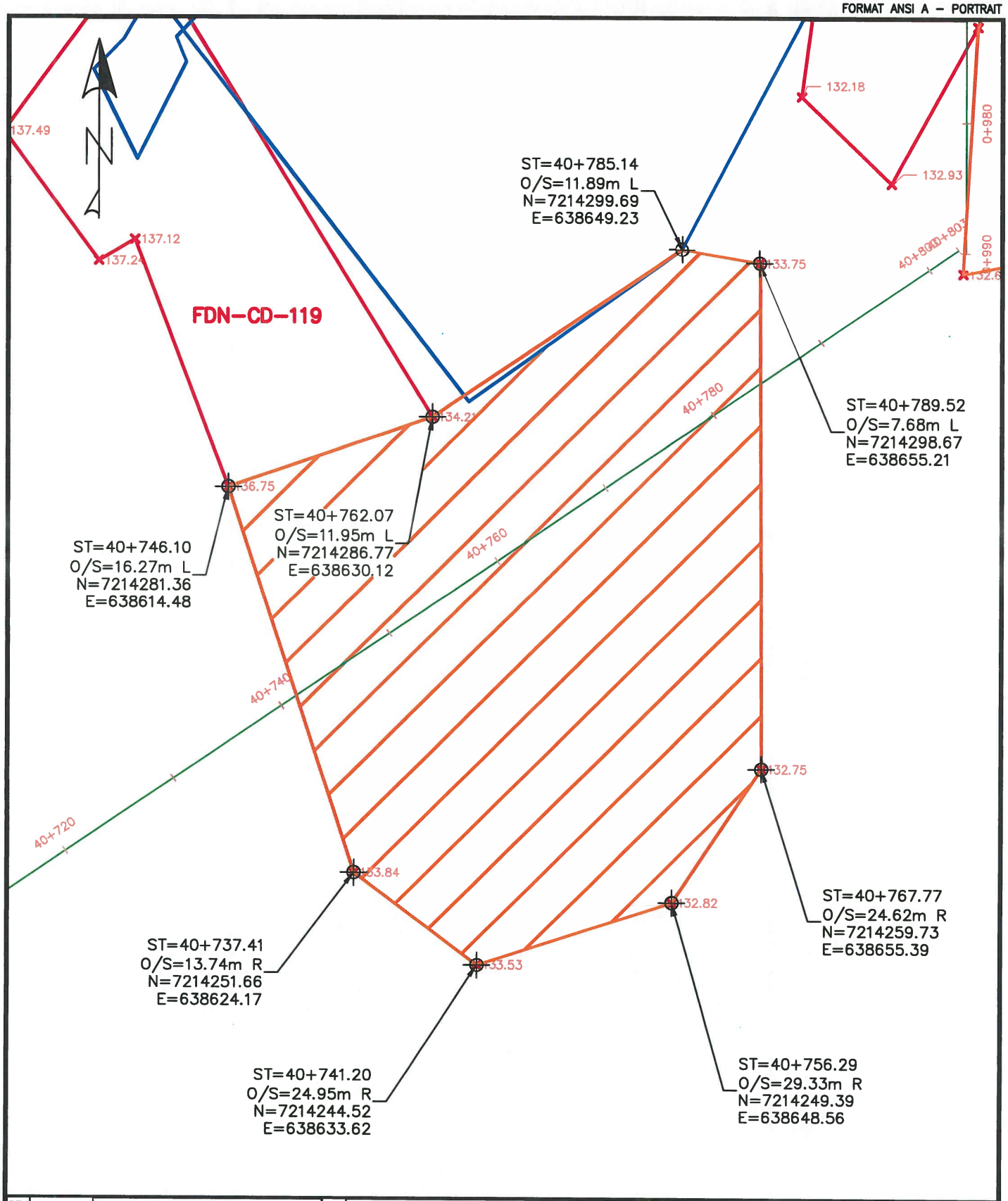
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Frédéric Bolduc	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 2016-07-08	DATE: 2016-07-08	DATE: 2016-07-08

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

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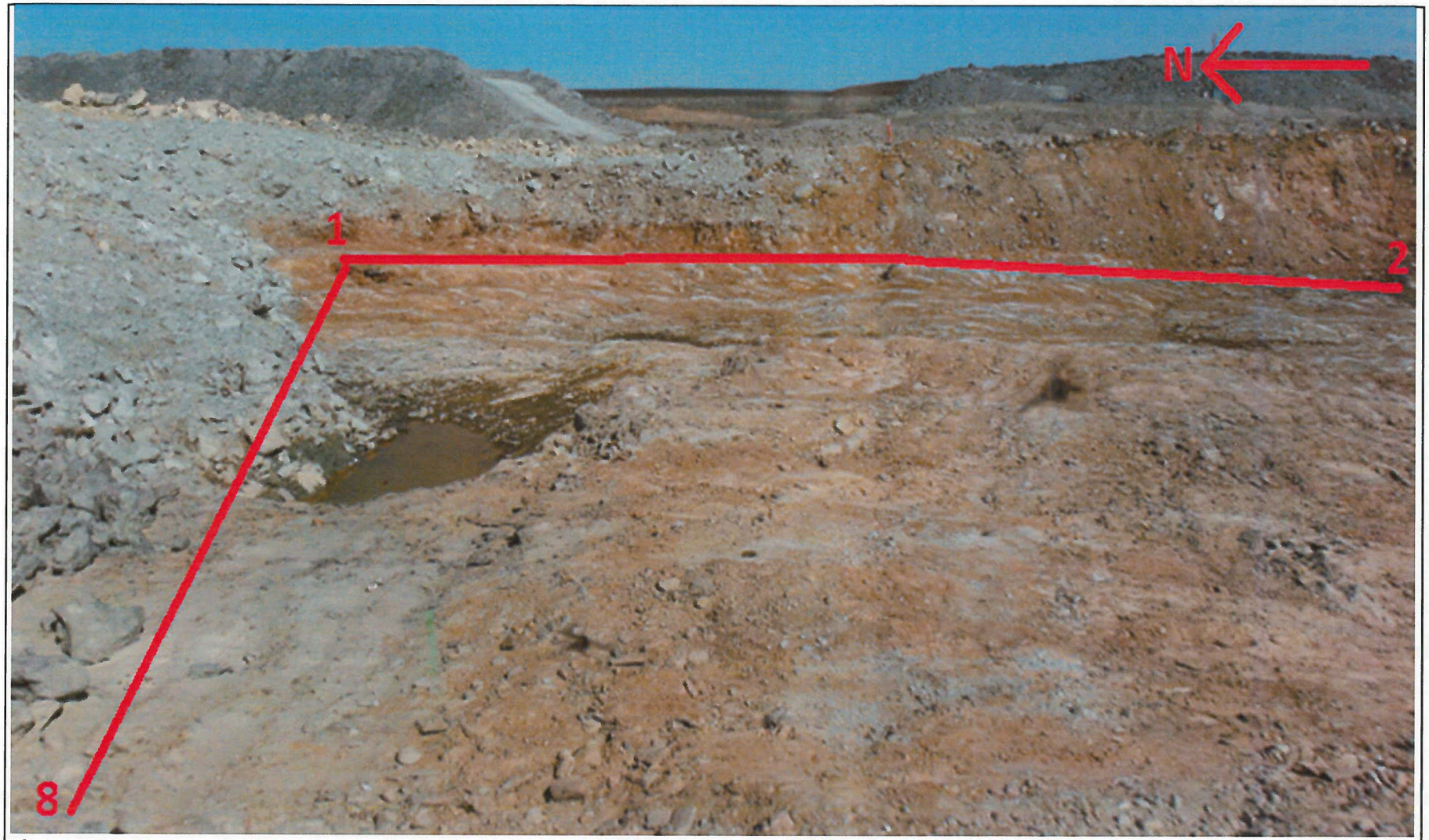
AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL SD5

PROJECT No.	DATE 2016–07–07
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\CD_SD5\FOUNDATION APPROVAL\20160707\CD_INFRA APPROVAL–2016–07–04.dwg, 07 Jul 2016

FILE NO. .DWG



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Photo 1- Approximate approved foundation area

Date: July 7, 2016

Photo by (Initial) : M.-H.P.



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E=638633.62, N=7214244.52

Photo 2 - Approximate approved foundation area

Date: July 7, 2016

Photo by (Initial) : M.-H.P.

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - CENTRAL DIKE

Acceptance No.:	FND-SD5-04	Date:	12-07-2016

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 autorised 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:	Rebecca Cousineau/ Patrice Gagnon	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Frederick Bolduc	
	Position:	Golder-QA	
Surveyor	Name:	Michael Racine	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

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

From Sta. 40+650.55 Offset 5.24L to 32.79L	SHIFT: NIGHT :☐ DAY ☐	DATE : 12-07-16	SHEET 2 OF 4
To Sta. 40+737.41 Offset 13.74L to 36.26L	LOCATION: : Saddle Dam 5 Bedrock foundation		
EQUIPMENT: Excavator 345D - SANA			

DESCRIPTION Rock foundation

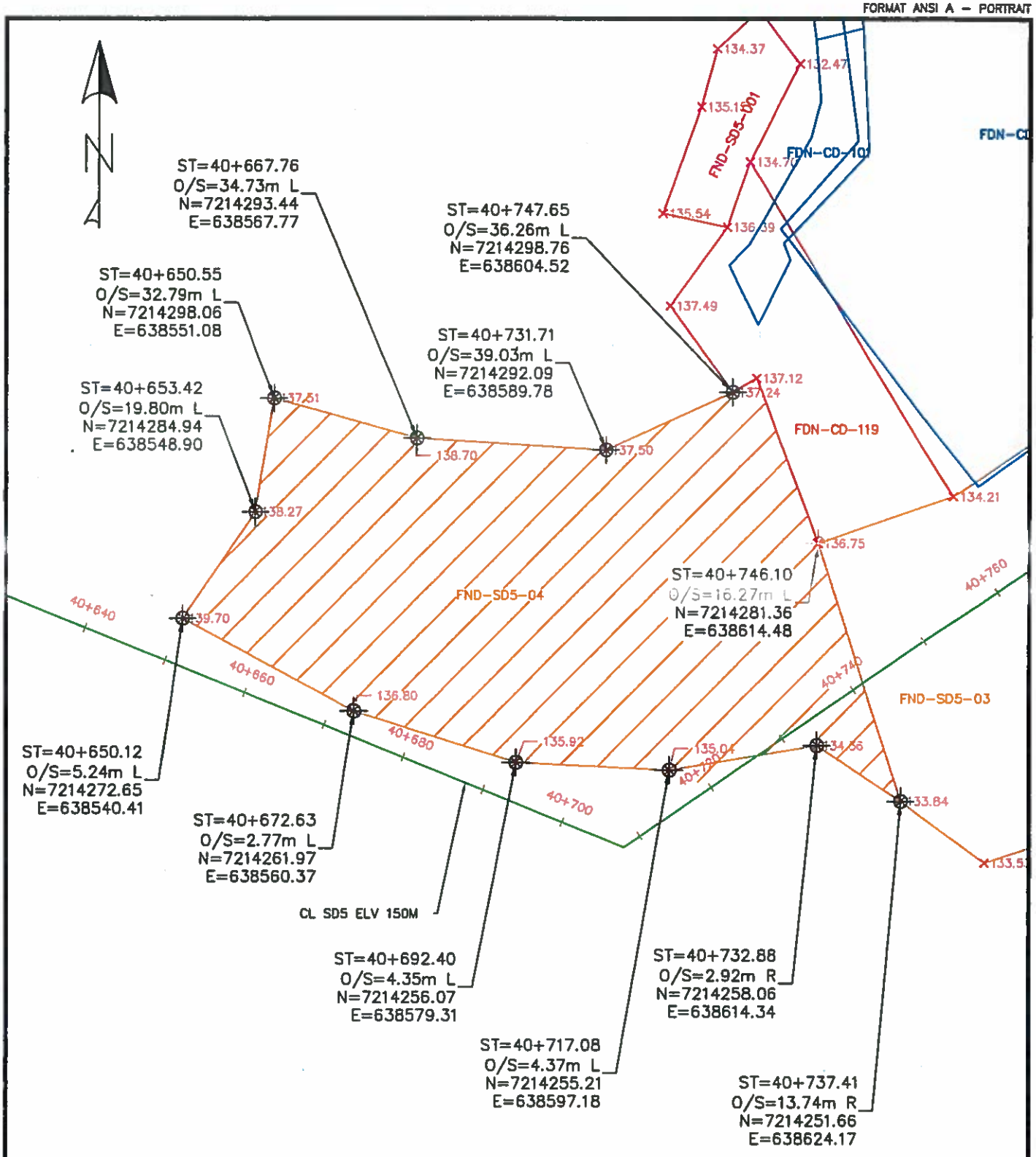
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method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

REMARKS : Inspected by AEM (JFB), signed by AEM(RC)

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 12-07-2016	DATE: 12-07-2016	DATE: 12-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD5–04

PROJECT No.	DATE 2016–07–11
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

C:\MEADOWBANK\DIKE 2016\CD_SD5\FOUNDATION APPROVAL\20160711\CD_INFRA APPROVAL–2016–07–10.dwg, 11 Jul 2016

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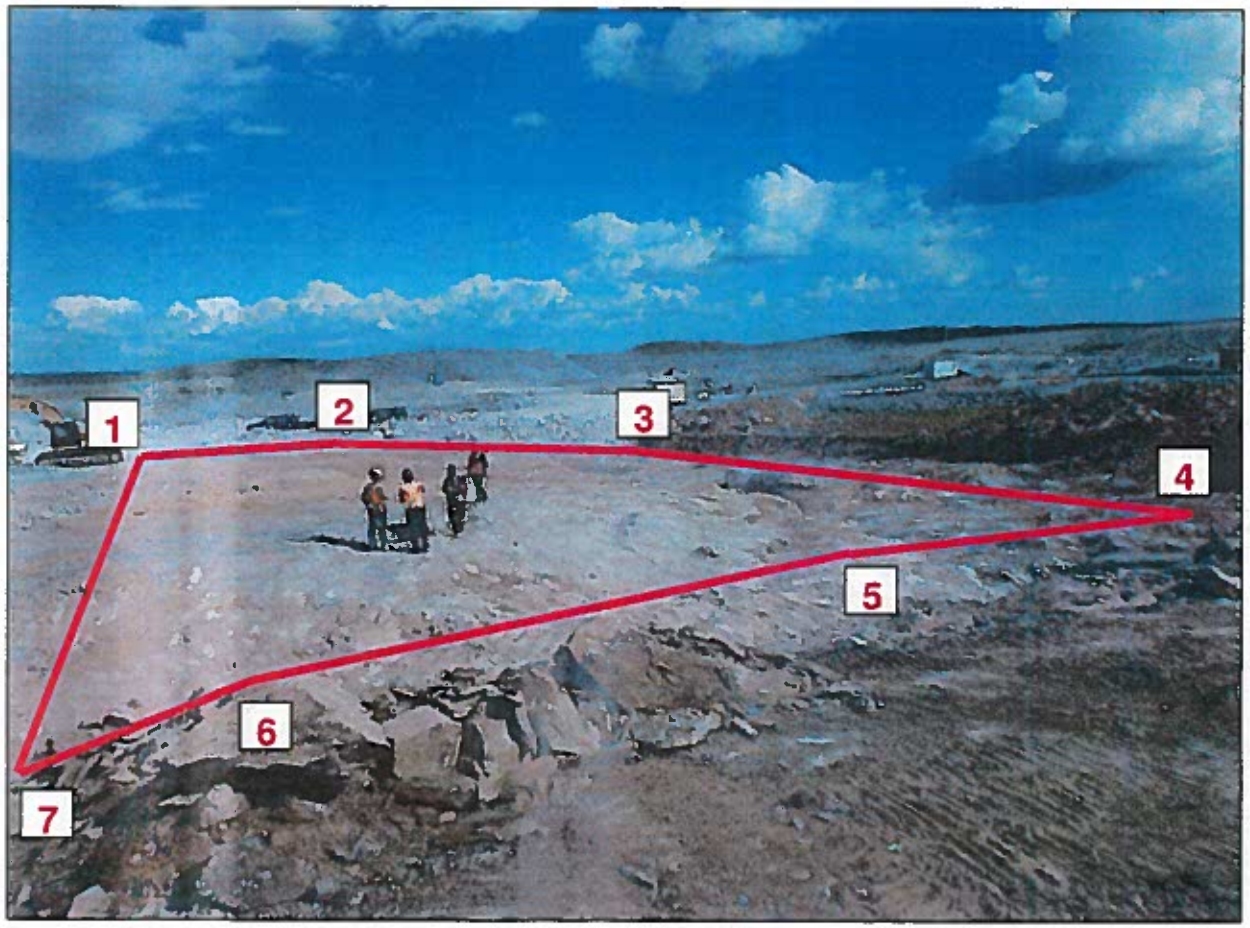


Photo 1- Approximate approved foundation area

Date: 12-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	FND-SD5-05	Date:	13-07-2016

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 autorised 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:	Rebecca Cousineau/ Serge Tremblay
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Frederick Bolduc
	Position:	Golder-QA
Surveyor	Name:	Michael Racine / Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+783.15 Offset 1.82R to 11.89L	SHIFT: NIGHT : ☐ DAY ☐	DATE : 13-07-16	SHEET 2 OF 4
To Sta. 40+801.94 Offset 1.73R to 19.19L	LOCATION: : Saddle Dam 5 Bedrock foundation		
EQUIPMENT: Excavator 345D - SANA			
DESCRIPTION Rock foundation			

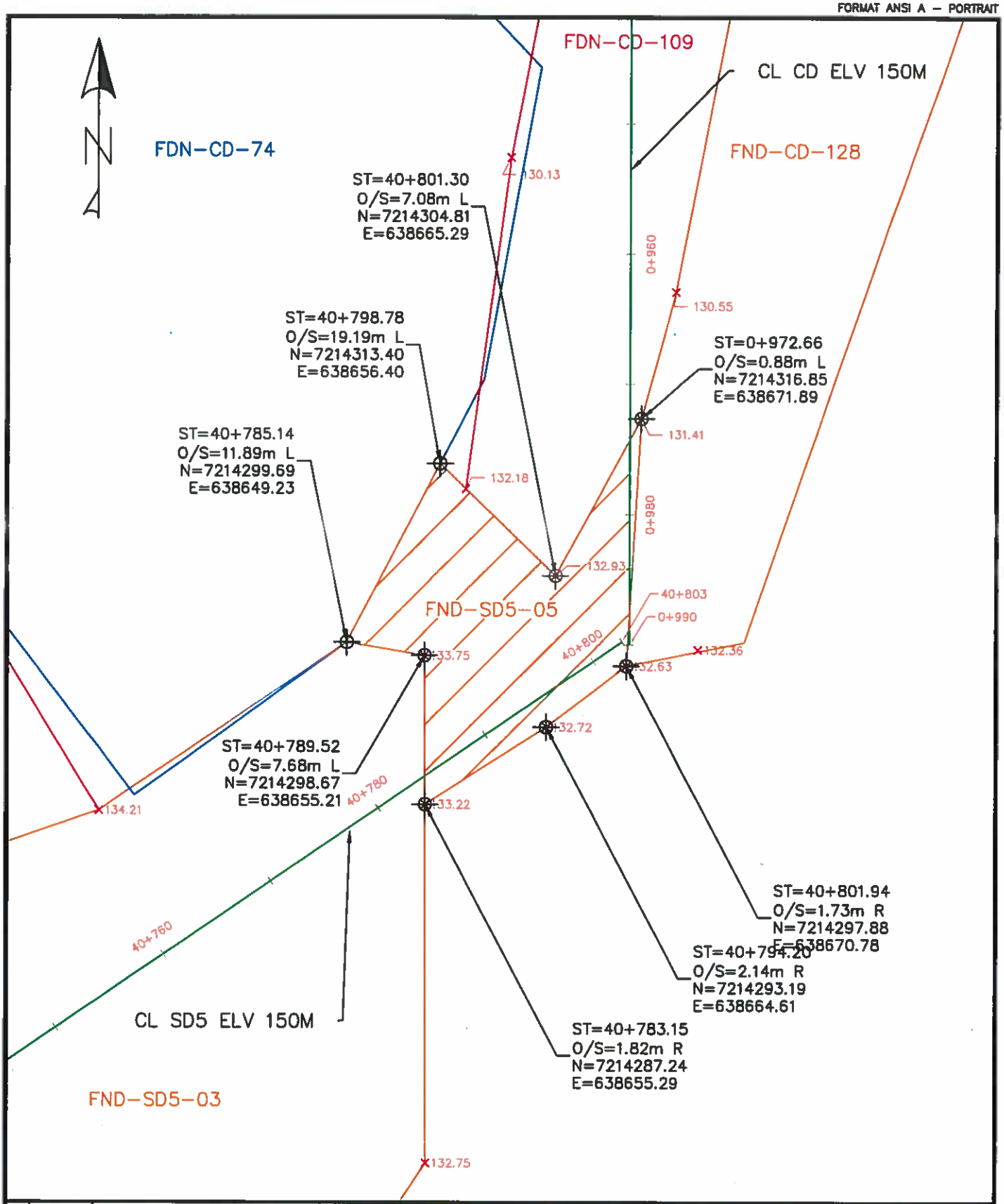
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method in place	RC	FLB
4.	Occurrence of boulders and removal method in place	RC	FLB
5.	Occurrence of hummocks and scalping method in place	RC	FLB
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	FLB
7.	Presence of other unsuitable materials and removal method in place	RC	FLB
8.	Soil frozen or thawed and measures taken	RC	FLB
9.	Blasting requirement to remove unsuitable material and safety measure checked	RC	FLB
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	RC	FLB
11.	Final walkover inspection before re-sloping or fill placement	RC	FLB
	Rough grading of foundation	RC	FLB
12.	"As-excavated" survey conducted	RC	FLB
	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: Michael Racine / Aubrey Claude Desroches	NAME: Frederick Boldue	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 13-07-2016	DATE: 13-07-2016	DATE: 13-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD5–05

PROJECT No.	DATE 2016-07-13
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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St=40+785.14, Offset=11.89m L

4:
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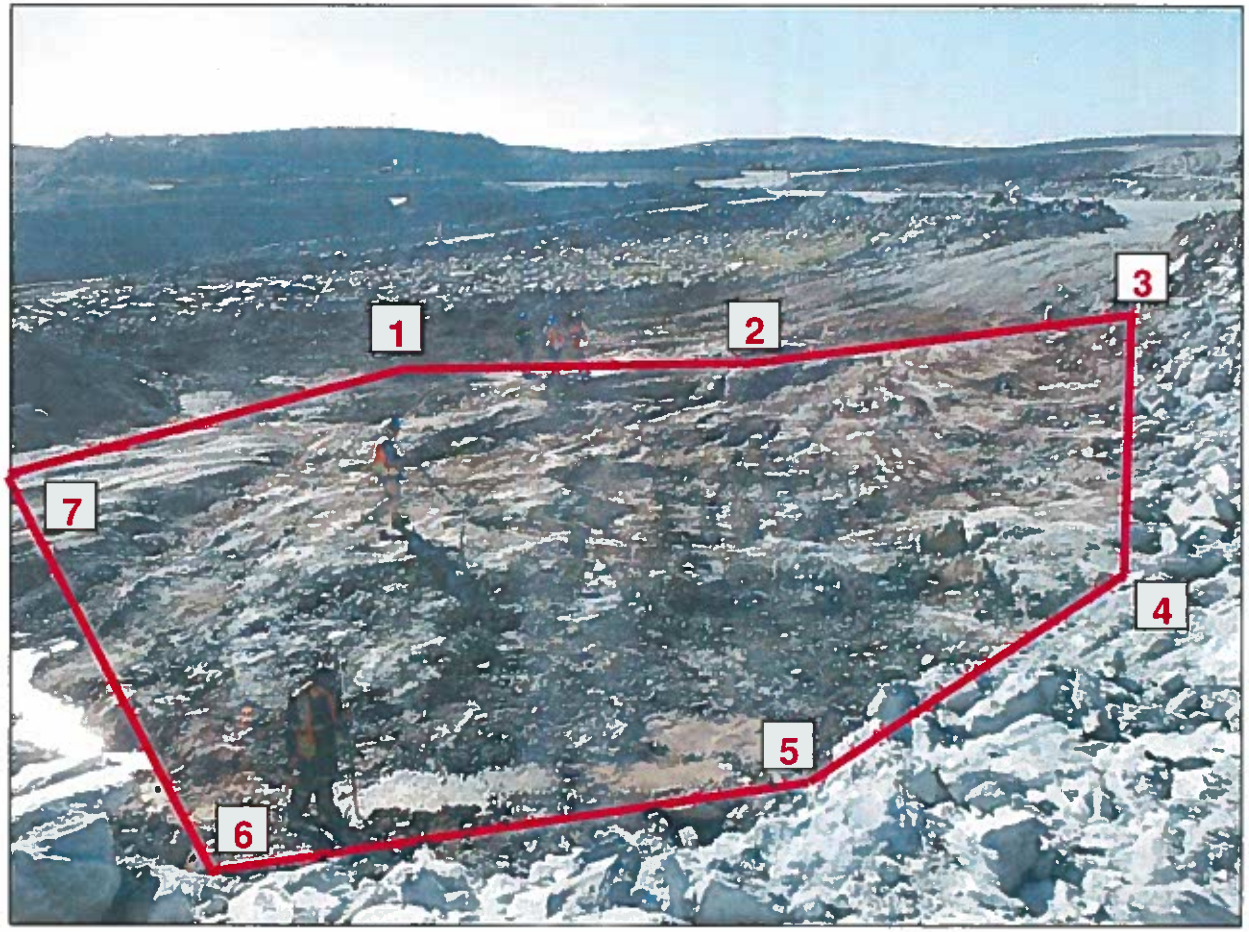


Photo 1- Approximate approved foundation area

Date: 13-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	**FND-SD5-06**	**Date:**	**13-07-2016**

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 autorised 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:	Rebecca Cousineau/ Serge Tremblay
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Frederick Bolduc
	Position:	Golder-QA
Surveyor	Name:	Michael Racine / Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+747.21 Offset 48.61L to 36.26L | SHIFT: NIGHT : ☐ DAY ☐ | DATE : 13-07-16 | SHEET 2 OF 4

To Sta. 40+614.88 Offset 32.17L to 12.61L | LOCATION: : Saddle Dam 5: Bedrock foundation.

EQUIPMENT: Excavator 345D - SANA

DESCRIPTION Rock foundation

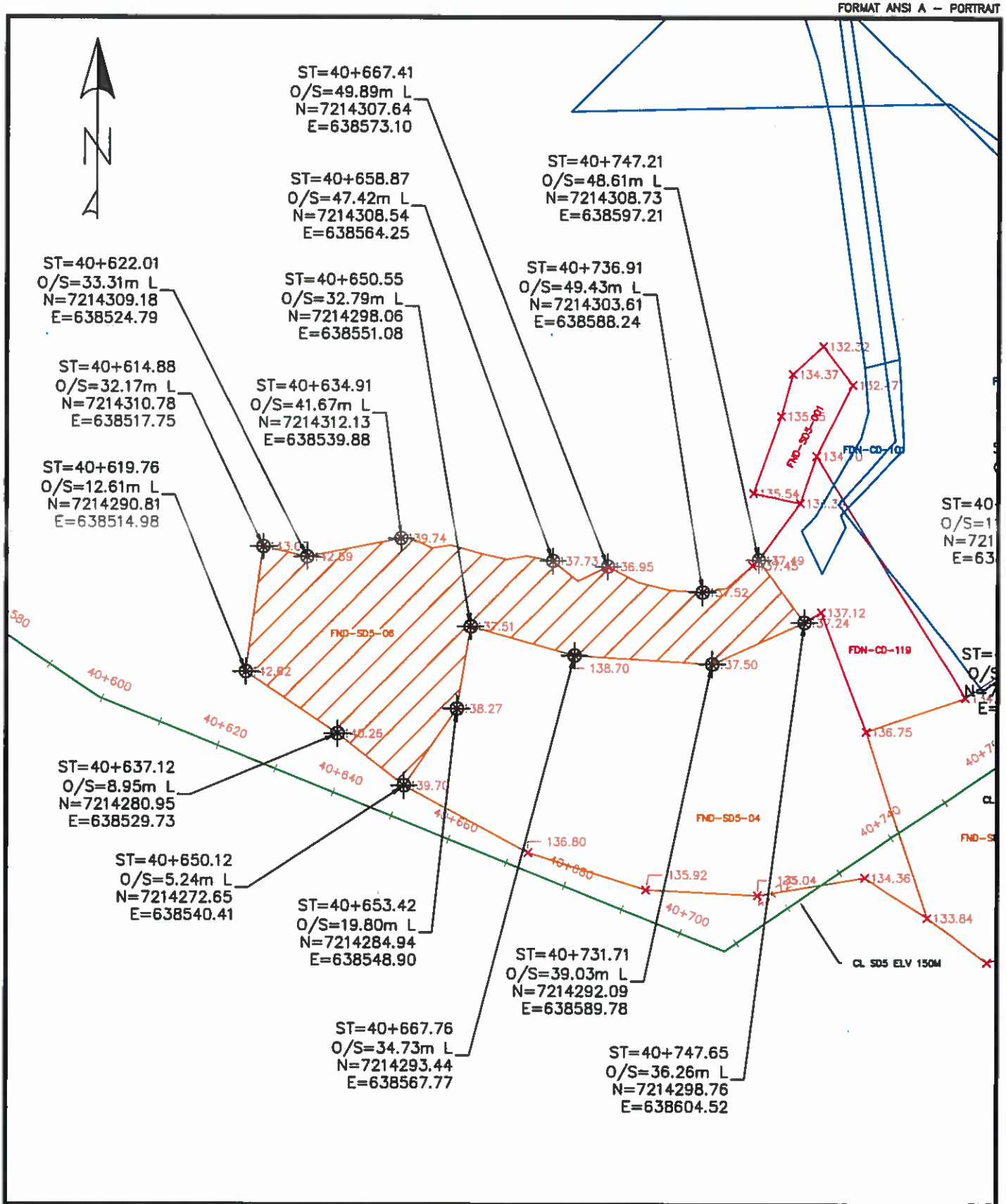
NO.	ITEMS TO BE INSPECTED	INSPECTED BY CONTRACTOR/ OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1.	Survey lines and layout checked to ensure the locations conform with the Drawings	RC	FLB
2.	Storage areas planned for disposal of removed materials	RC	FLB
3.	Occurrence of snow and ice removal method in place	RC	FLB
4.	Occurrence of boulders and removal method in place	RC	FLB
5.	Occurrence of hummocks and scalping method in place	RC	FLB
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	FLB
7.	Presence of other unsuitable materials and removal method in place	RC	FLB
8.	Soil frozen or thawed and measures taken	RC	FLB
9.	Blasting requirement to remove unsuitable material and safety measure checked	RC	FLB
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	RC	FLB
11.	Final walkover inspection before re-sloping or fill placement	RC	FLB
	Rough grading of foundation	RC	FLB
12.	"As-excavated" survey conducted	RC	FLB
	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: Michael Racine / Aubrey Claude Desroches	NAME: Frederick Bolduc	NAME: Rebecca Cousineau/ Serge Tremblay
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 13-07-2016	DATE: 13-07-2016	DATE: 13-07-2016



REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD5–06

PROJECT No.	DATE 2016–07–13
DRAWN BY MICHAEL RACINE	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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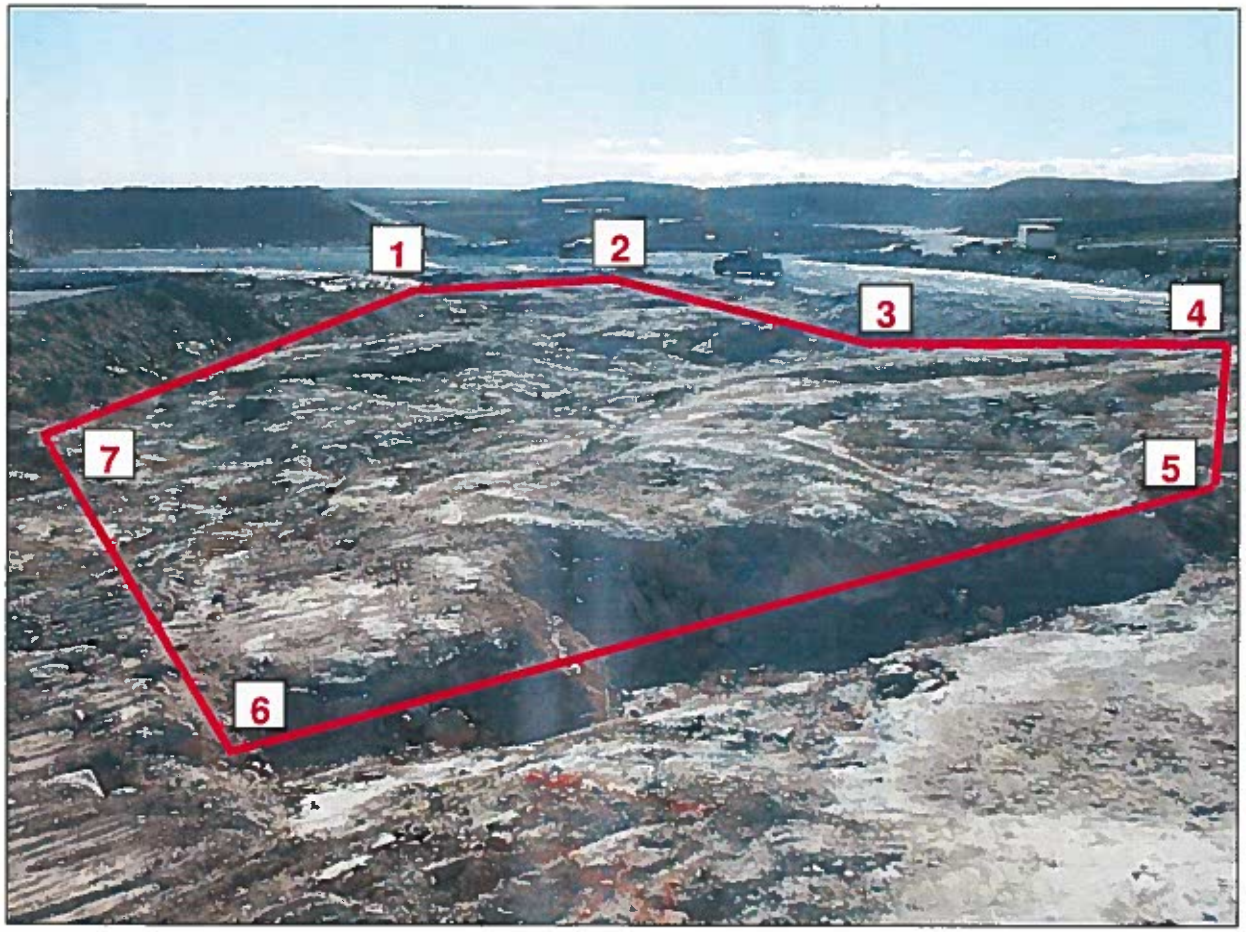


Photo 1- Approximate approved foundation area

Date: 13-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	**FND-SD5-07**	**Date:**	**20-07-2016**

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 autorised 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:	Rebecca Cousineau/ Yannick Simard
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Frederick Bolduc / Michael Nadon
	Position:	Golder-QA
Surveyor	Name:	Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+757.80 Offset 52.40L to 57.92L | SHIFT: NIGHT ☐ DAY ☐ | DATE : 20-07-16 | SHEET 2 OF 4

To Sta. 40+752.27 Offset 50.42L to 54.73L | LOCATION: : Saddle Dam 5: Bedrock foundation

EQUIPMENT: Excavator 345D - SANA

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	Ys	FLB
2.	Storage areas planned for disposal of removed materials	Ys	FLB
3.	Occurrence of snow and ice removal method in place	Ys	FLB
4.	Occurrence of boulders and removal method in place	Ys	FLP
5.	Occurrence of hummocks and scalping method in place	Ys	FLB
6.	Occurrence of surface and ground water and its impact mitigation in place	Ys	FLP
7.	Presence of other unsuitable materials and removal method in place	Ys	FLP
8.	Soil frozen or thawed and measures taken	Ys	FLB
9.	Blasting requirement to remove unsuitable material and safety measure checked	Ys	FLB
	Preparation of surface for LLDPE geomembrane placement	Ys	—
10.	Adjustment made to suit design in field	Ys	FLB
11.	Final walkover inspection before re-sloping or fill placement	Ys	FLB
	Rough grading of foundation	Ys	FLB
12.	"As-excavated" survey conducted	Ys	FLB
	Bedrock cleaning	Ys	—
13.	Bedrock Mapping	Ys	—

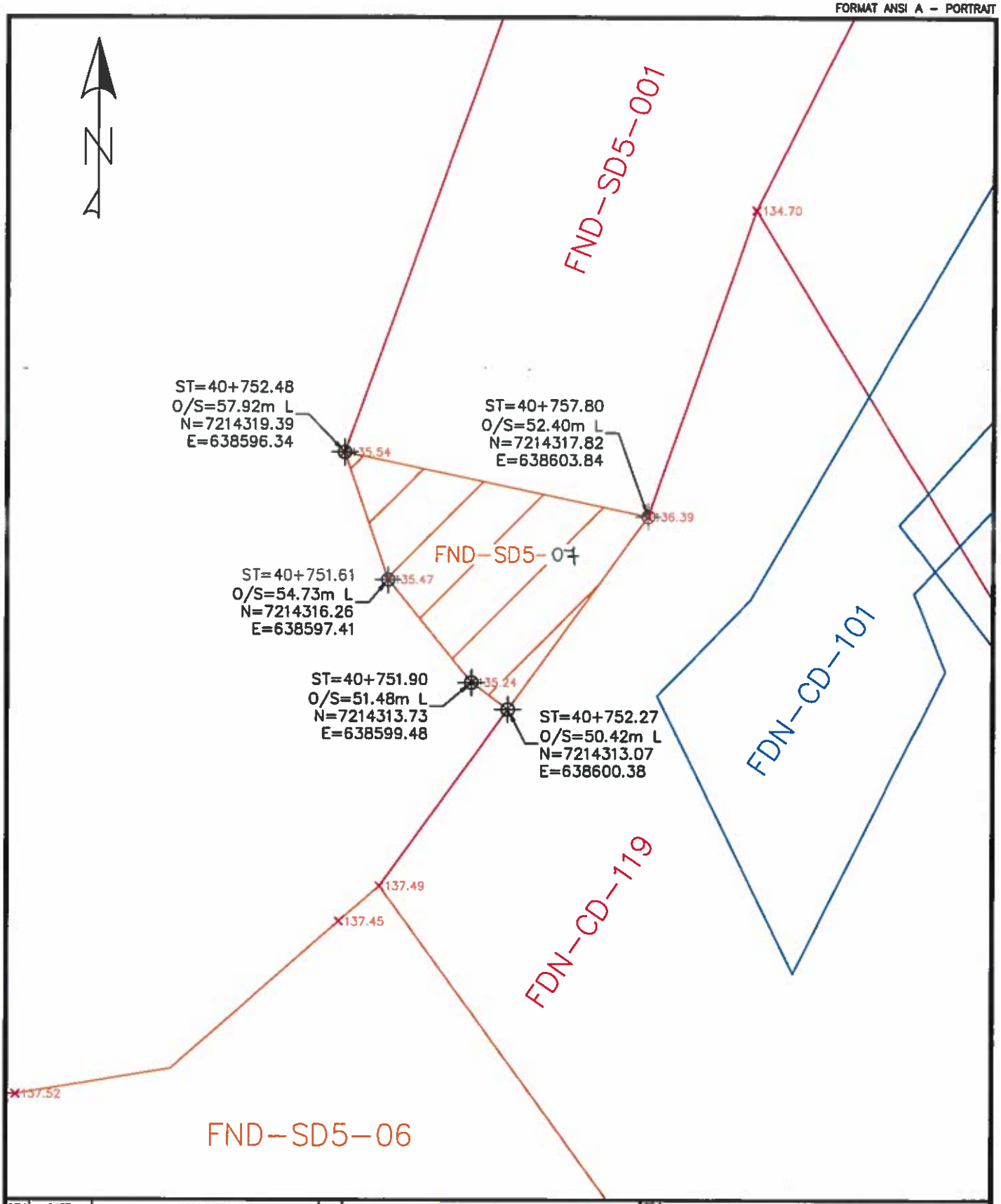
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Frederick Bolduc / Michael Nadon	NAME: Rebecca Cousineau / Yannick Simard
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 20-07-2016	DATE: 20-07-2016	DATE: 20-07-2016

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

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MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FND–SD5-07

PROJECT No.	DATE 2016-07-20
DRAWN BY AUBREY C.–DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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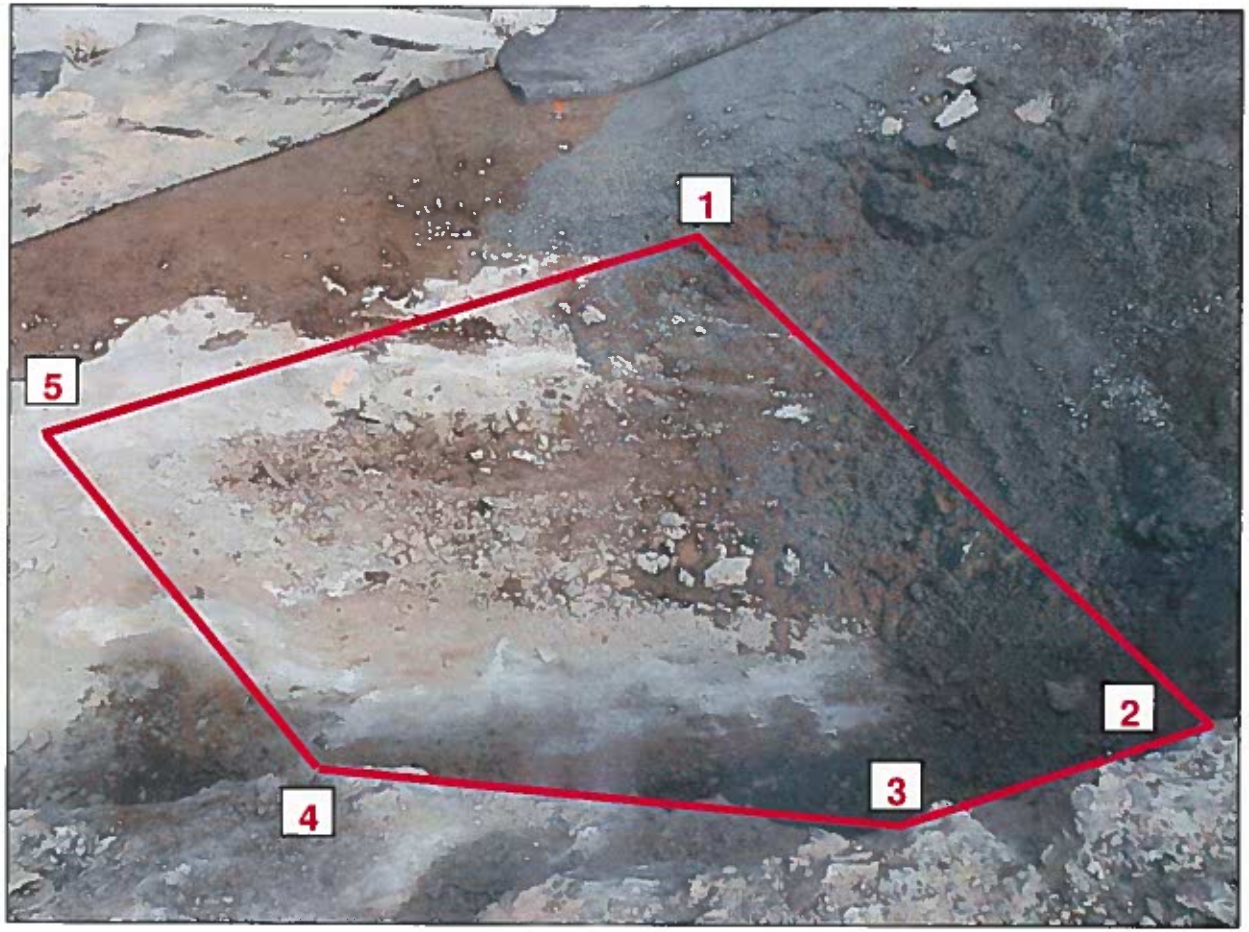


Photo 1- Approximate approved foundation area

Date: 20-07-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	FND-SD5-08	Date:	17-08-2016

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 autorised 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:	Rebecca Cousineau
	Position:	AEM- Ower Rep.
QC Representative	Name:	Sanaz Olyaie
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Frederick Bolduc
	Position:	Golder-QA
Surveyor	Name:	Aubrey Claude Desroches
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+614.88 Offset 32.17L to 38.80L — SHIFT: NIGHT ☐ DAY ☒ — DATE : 17-08-16 — SHEET 2 OF 4

To Sta. 40+752.27 Offset 50.42L to 57.92L — LOCATION: Saddle Dam 5: Bedrock foundation

EQUIPMENT: Excavator 345D SANA

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	RC	FCD
2.	Storage areas planned for disposal of removed materials	RC	FCD
3.	Occurrence of snow and ice removal method in place	RC	FCD
4.	Occurrence of boulders and removal method in place	RC	FCD
5.	Occurrence of hummocks and scalping method in place	RC	FCD
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	FCD
7.	Presence of other unsuitable materials and removal method in place	RC	FCD
8.	Soil frozen or thawed and measures taken	RC	FCD
9.	Blasting requirement to remove unsuitable material and safety measure checked	RC	FCD
	Preparation of surface for LLDPE geomembrane placement	—	—
10.	Adjustment made to suit design in field	RC	FCD
11.	Final walkover inspection before re-sloping or fill placement	RC	FCD
	Rough grading of foundation	RC	FCD
12.	"As-excavated" survey conducted	RC	FCD
	Bedrock cleaning	RC	FCD
13.	Bedrock Mapping	RC	FCD

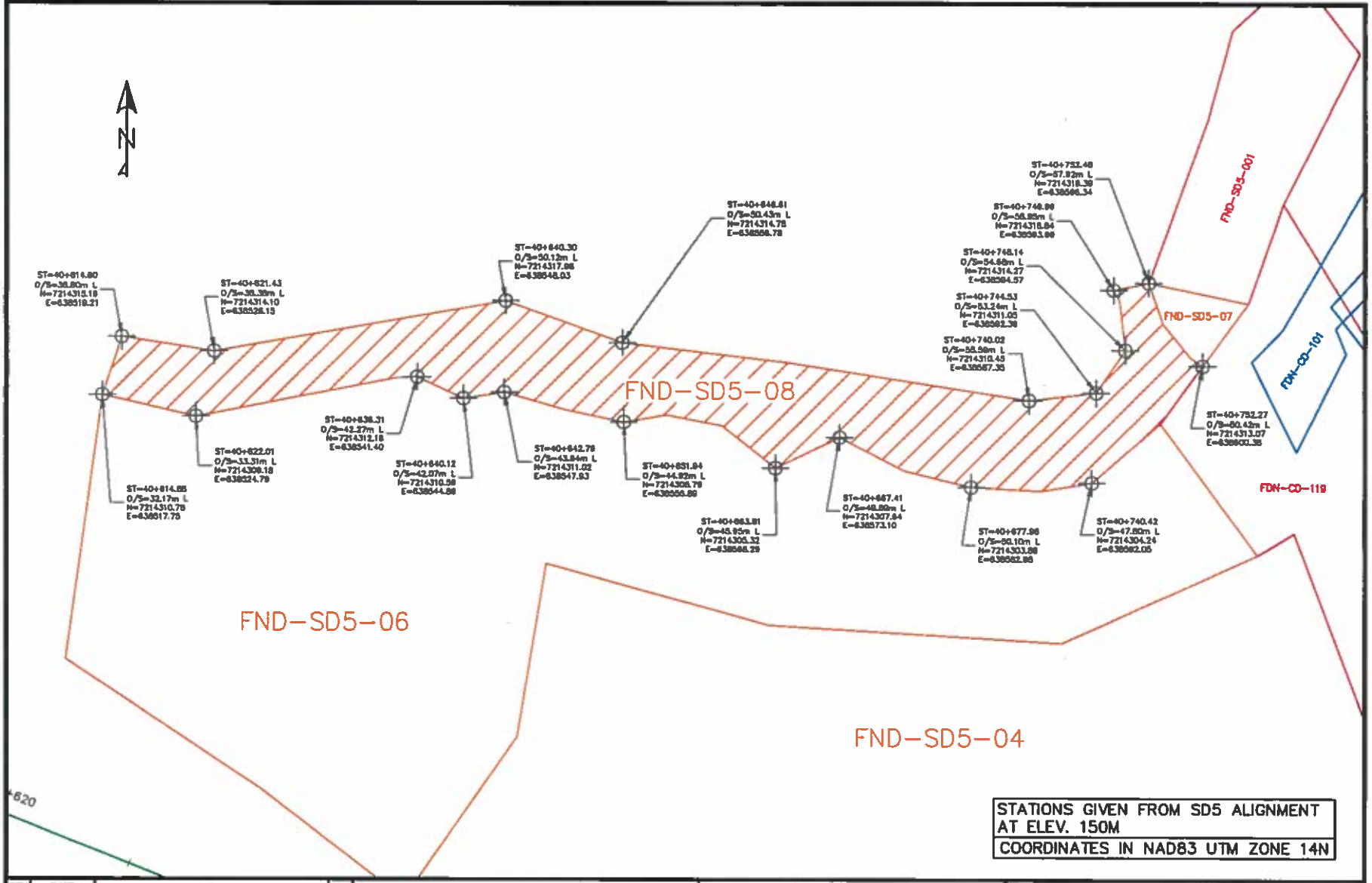
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Gauthier	NAME: Frederick Bolduc	NAME: Rebecca Cousineau
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 17-08-2016	DATE: 17-08-2016	DATE: 17-08-2016

FORMAT A – LANDSCAPE



STATIONS GIVEN FROM SD5 ALIGNMENT AT ELEV. 150M
COORDINATES IN NAD83 UTM ZONE 14N

REV	DATE	DESCRIPTION	BY

REVISIONS

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AGNICO EAGLE
MEADOWBANK

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
FOUNDATION APPROVAL
FDN–SD5–08

PROJECT No.	DATE 2016–08–17
DRAWN BY AUBREY DESROCHES	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

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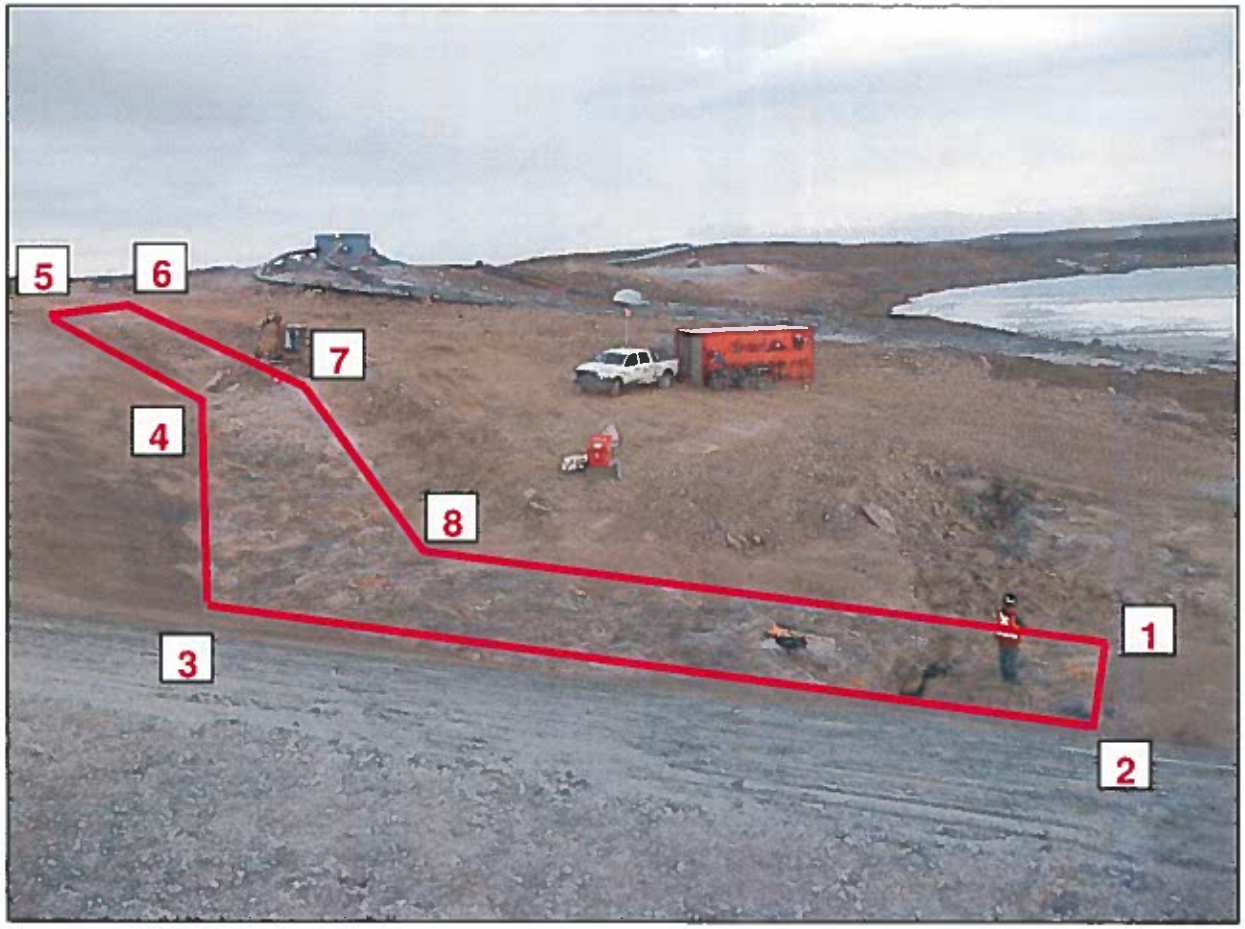


Photo 1- Approximate approved foundation area

Date: 17-08-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	FND-SD5-09	Date:	20-08-2016

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 autorised 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:	Rebecca Cousineau / Yannick Simard	
	Position:	AEM- Ower Rep.	
QC Representative	Name:	Sanaz Olyaie	
	Position:	SNC-Lavalin - QC	
QA Engineer	Name:	Michaël Demers Bonin	
	Position:	Golder-QA	
Surveyor	Name:	Aubrey Claude Desroches	
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+614.60 Offset 36.8L to 48.22L	SHIFT: NIGHT ☐ DAY ☒	DATE : 20-08-16	SHEET 2 OF 4
To Sta. 40+757.17 Offset 61.31L to 66.92L	LOCATION: : Saddle Dam 5 Bedrock foundation.		
EQUIPMENT: Excavator 345D - SANA			

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	RC	OK
2.	Storage areas planned for disposal of removed materials	RC	OK
3.	Occurrence of snow and ice removal method in place	N/A	N/A
4.	Occurrence of boulders and removal method in place	RC	OK
5.	Occurrence of hummocks and scalping method in place	RC	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	RC	OK
7.	Presence of other unsuitable materials and removal method in place	RC	OK
8.	Soil frozen or thawed and measures taken	RC	OK
9.	Blasting requirement to remove unsuitable material and safety measure checked	N/A	N/A
	Preparation of surface for LLDPE geomembrane placement	N/A	N/A
10.	Adjustment made to suit design in field	RC	OK
11.	Final walkover inspection before re-sloping or fill placement	RC	OK
	Rough grading of foundation	RC	OK
12.	"As-excavated" survey conducted	RC	OK
	Bedrock cleaning	RC	OK
13.	Bedrock Mapping	N/A	N/A

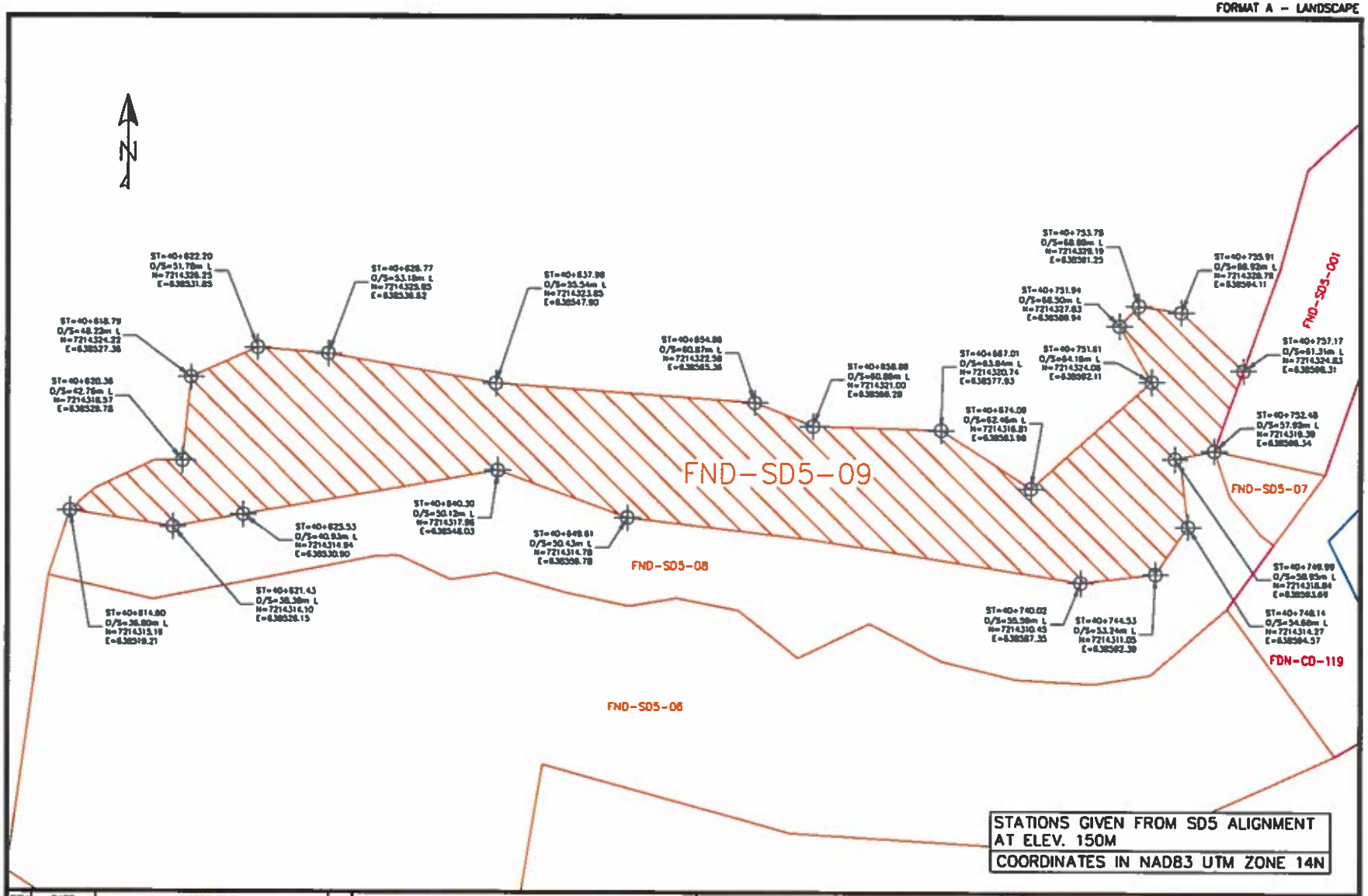
REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Aubrey Claude Desroches	NAME: Michael Demers Bonin	NAME: Rebecca Cousineau/ Yannick Simard
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 20-08-2016	DATE: 20-08-2016	DATE: 20-08-2016

FORMAT A – LANDSCAPE



REV	DATE	DESCRIPTION	BY
A	2016-08-21	FOUNDATION AREA MODIF	AD

REVISIONS

AGNICO EAGLE
MEADOWBANK

AGNICO-EAGLE – MEADOWBANK DIVISION

FOUNDATION APPROVAL
FDN-SD5-09

PROJECT No.	
DATE	2016-08-21
DRAWN BY	AUBREY DESROCHES
APPROVED BY	
SHEET	1 / 1
DRAWING NO.	FDN-SD5-09-A_20160821
REVISION	

C:\MEADOWBANK\DIKE 2016\APPROVALS\FOUNDATION APPROVAL_20160812.dwg, 21 Aug 2016

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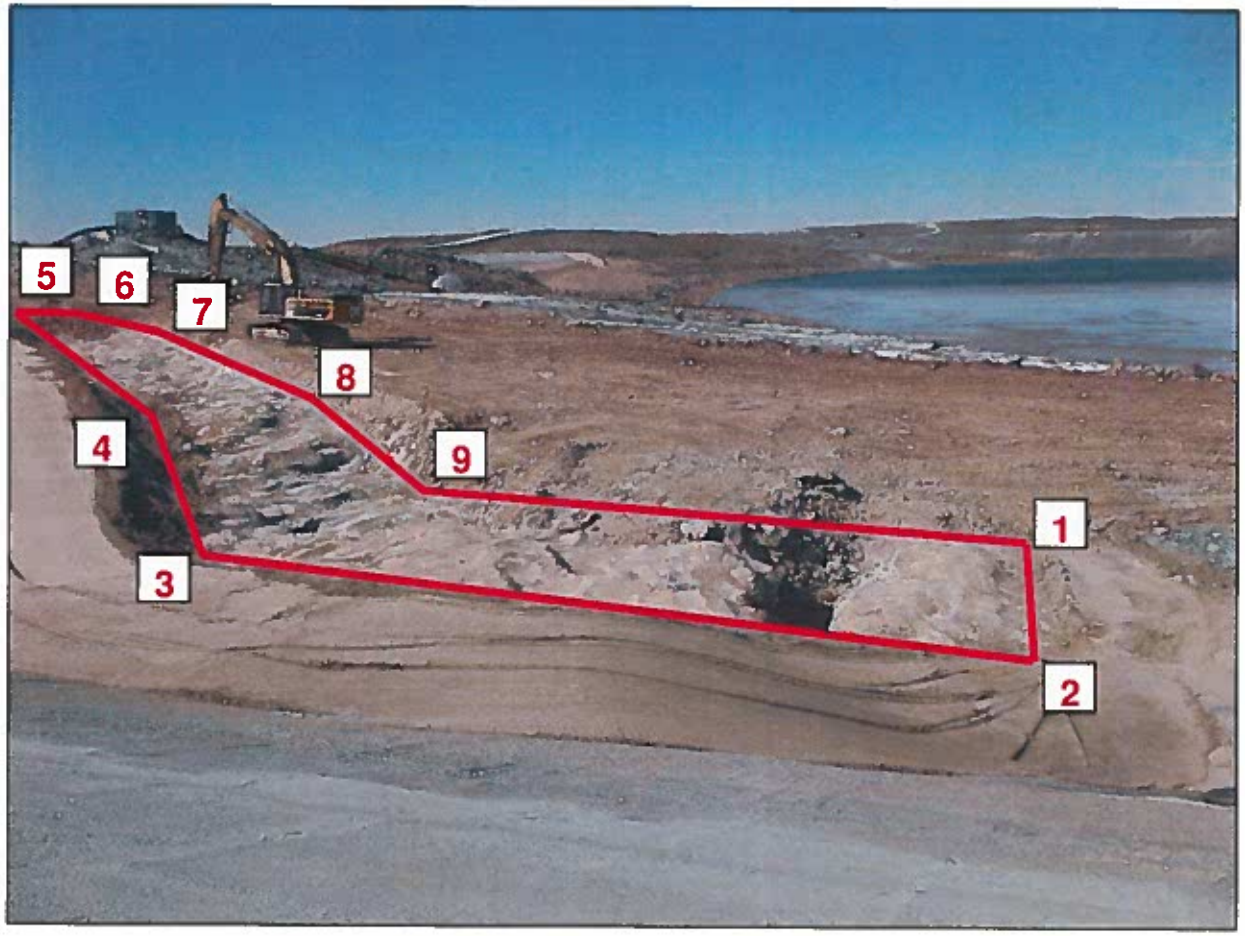


Photo 1- Approximate approved foundation area

Date: 20-08-2016

Photo by (Initial) : SO

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	FND-SD5-10	Date:	27-08-2016

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 autorised 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:	Guy Lamarche
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+623,51 Offset 30.10 | SHIFT: NIGHT ☒ DAY ☐ | DATE : 27-08-16 | SHEET 2 OF 4

To Sta. 40+775,24 Offset 51.17 | LOCATION: : Saddle Dam 5: Liner Bedding

EQUIPMENT:

DESCRIPTION Liner Bedding

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	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in place	NA	N-A
4.	Occurrence of boulders and removal method in place	OK	OK
5.	Occurrence of hummocks and scalping method in place	OK	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	OK	OK
7.	Presence of other unsuitable materials and removal method in place	OK	OK
8.	Soil frozen or thawed and measures taken	OK	OK
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	N-A
	Preparation of surface for LLDPE geomembrane placement	OK	OK
10.	Adjustment made to suit design in field	OK	OK
11.	Final walkover inspection before re-sloping or fill placement	OK	OK
	Rough grading of foundation	OK	OK
12.	"As-excavated" survey conducted	OK	OK
	Bedrock cleaning	NA	N-A
13.	Bedrock Mapping	NA	N-A

REMARKS : A TILL LEDGE WAS REMOVED BY THE CONTRACTOR AT THE TOE OF THE SLOPE

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 28-08-2016	DATE: 28-08-2016	DATE: 28-08-2016

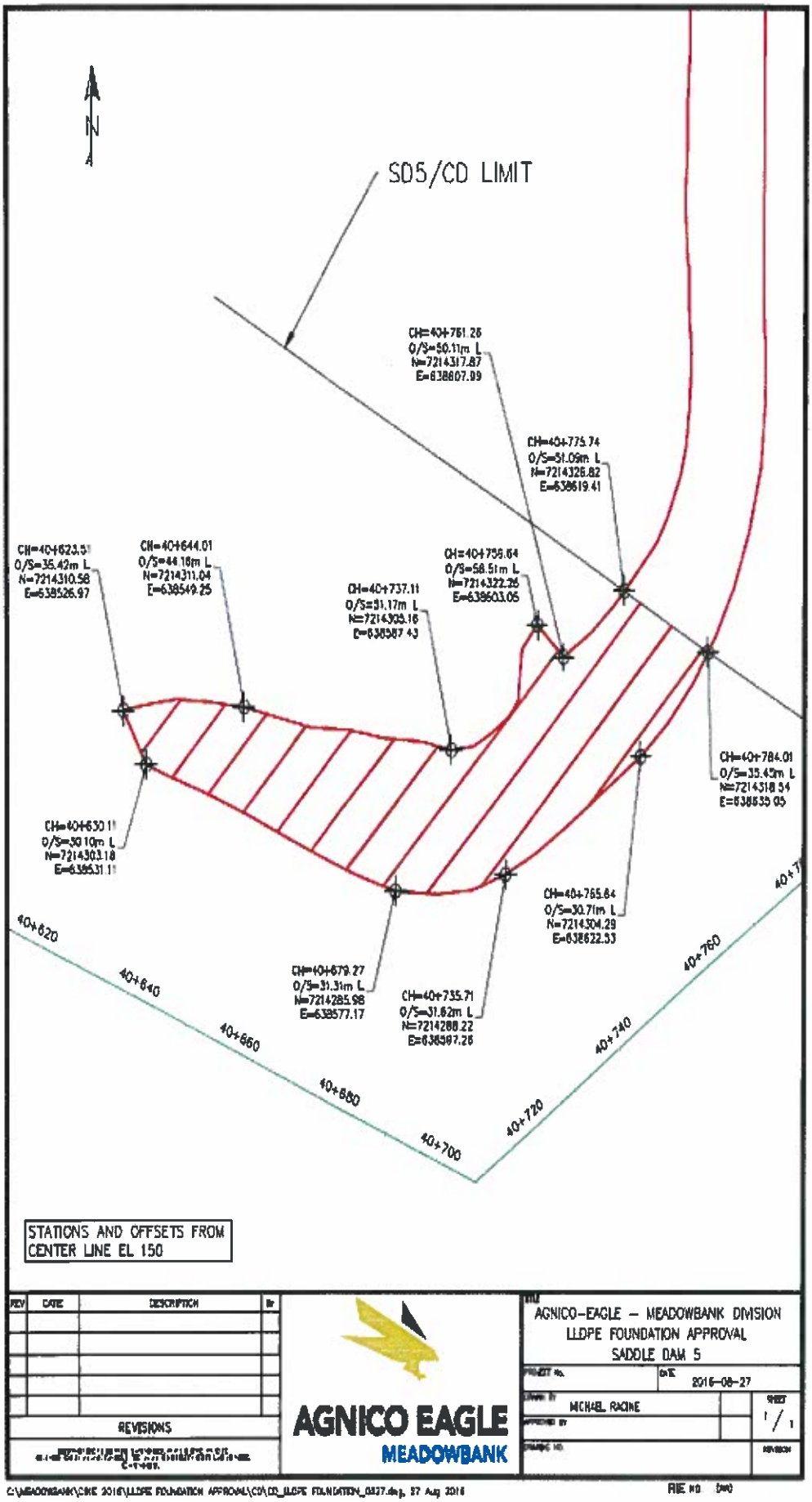


Figure 1 - Approximate approved liner bedding

Date: 27-08-2016

Sketch by : Michael Racine

I:\Foundation Approval\SD5\FND-SD5-10\FND-SD5-10.xls

Print 2016-08-27 18:15

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St=40+784.01, Offset=35.45m L

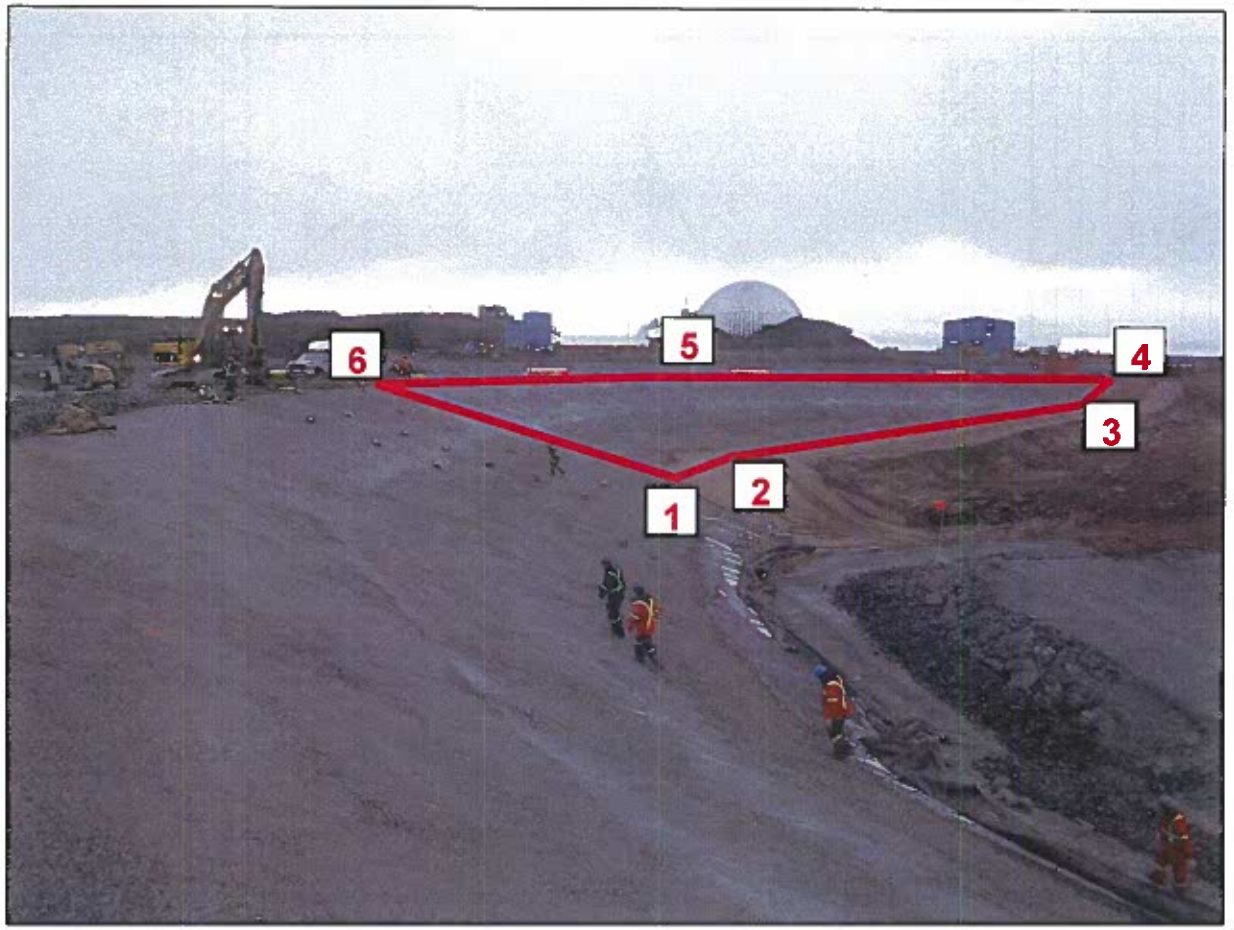


Photo 1- Approximate approved foundation area

Date: 27-08-2016

Photo by (Initial) : M, D-B

FOUNDATION AND KEY TRENCH PREPARATION AND ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF FOUNDATION CONDITION - SADDLE DAM 5

Acceptance No.:	FND-SD5-11	Date:	31-08-2016

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 autorised 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:	Guy Lamarche
	Position:	SNC-Lavalin - QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Foundation and Key Trench Preparation and Excavation

DIKE : Saddle Dam 5 — F DIKE CONSTRUCTION CHECKLIST - FOUNDATION PREPARATION and EXCAVATION

From Sta. 40+745.22 Offset 63.32 | SHIFT: NIGHT :☐ DAY ☐ | DATE : 31-08-16 | SHEET 2 OF 4

To Sta. 40+760.09 Offset 68.89 | LOCATION: : Saddle Dam 5 Bedrock foundation

EQUIPMENT: Excavator 345D SANA

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	OK	OK
2.	Storage areas planned for disposal of removed materials	OK	OK
3.	Occurrence of snow and ice removal method in place	OK	OK
4.	Occurrence of boulders and removal method in place	OK	OK
5.	Occurrence of hummocks and scalping method in place	OK	OK
6.	Occurrence of surface and ground water and its impact mitigation in place	OK	OK
7.	Presence of other unsuitable materials and removal method in place	OK	OK
8.	Soil frozen or thawed and measures taken	NA	N-A
9.	Blasting requirement to remove unsuitable material and safety measure checked	NA	N-A
	Preparation of surface for LLDPE geomembrane placement	NA	N-A
10.	Adjustment made to suit design in field	OK	OK
11.	Final walkover inspection before re-sloping or fill placement	OK	OK
	Rough grading of foundation	OK	OK
12.	"As-excavated" survey conducted	OK	OK
	Bedrock cleaning	OK	OK
13.	Bedrock Mapping	NA	N-A

REMARKS :

DEVIATIONS : (Attach list if necessary)

DATE OF RECTIFICATION :

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER :	ACCEPTED BY OWNER'S REPRESENTATIVE:
NAME: Michael Racine	NAME: Michael Demers-Bonin	NAME: Patrice Gagnon
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE: 01-09-2016	DATE: 01-09-2016	DATE: 01-09-2016

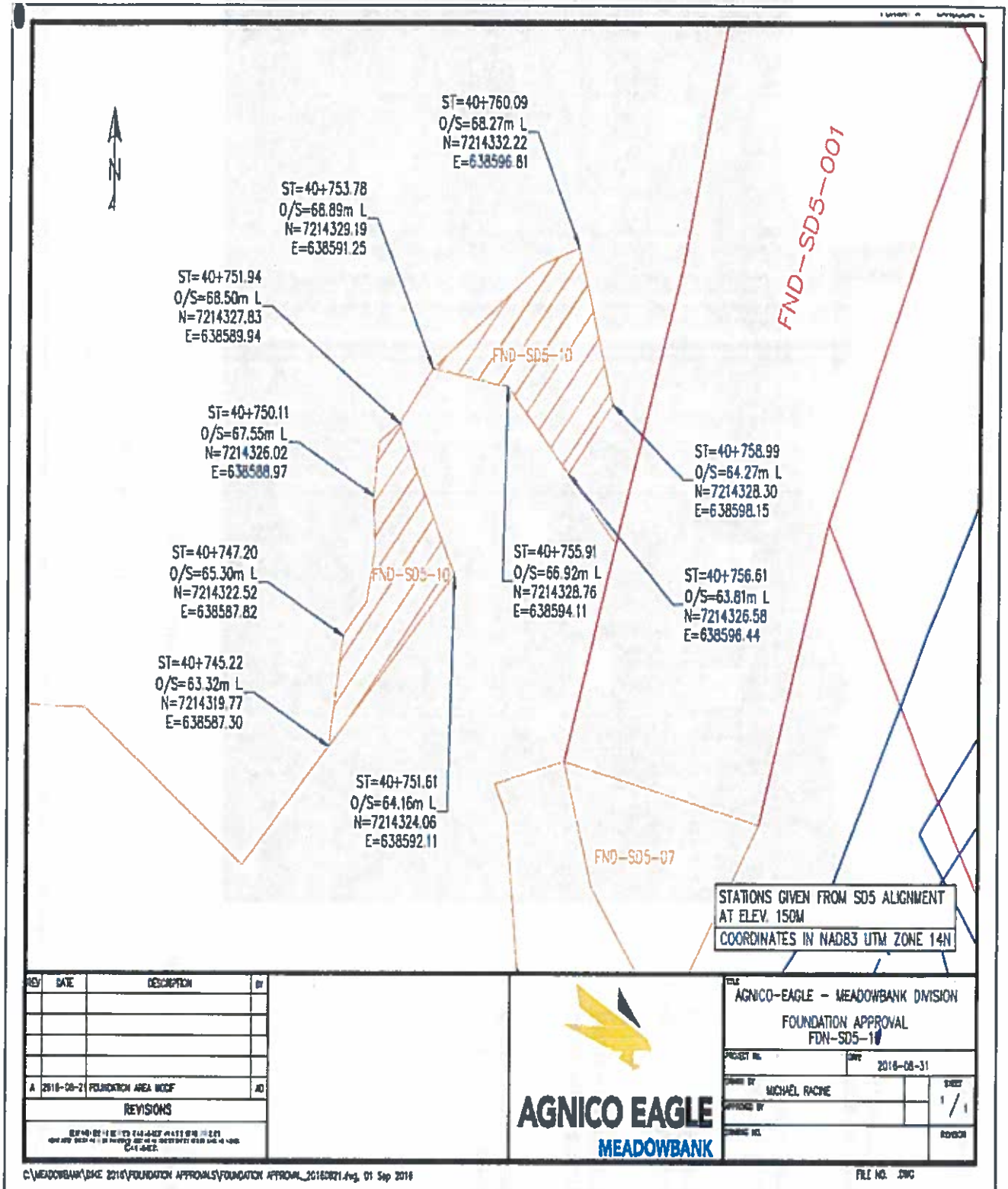


Figure 1 - Approximate approved foundation area

Date:	**31-08-2016**	**Sketch by : Michael Racine**

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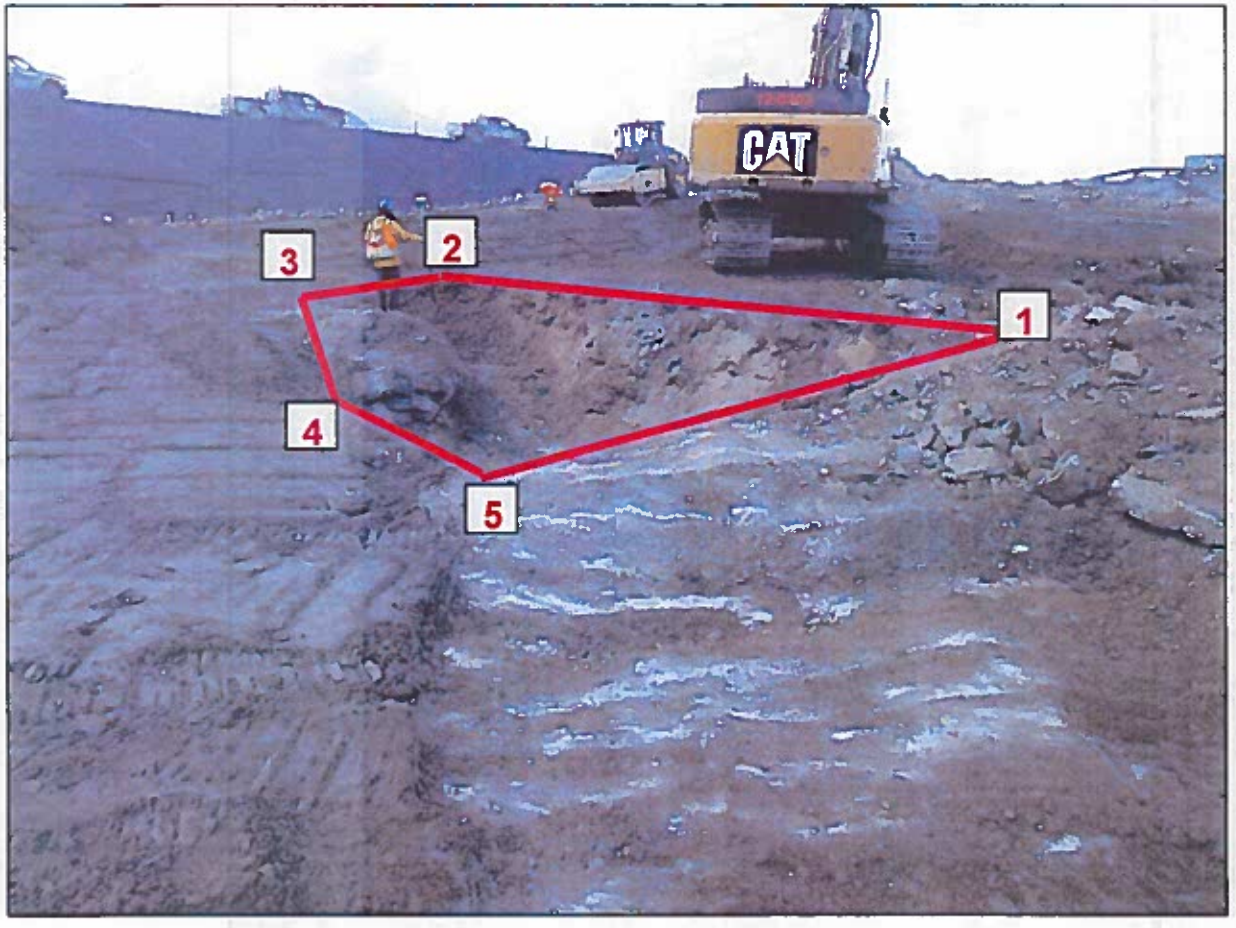


Photo 1- Approximate approved foundation area

Date: 31-08-2016

Photo by (Initial) : M.D-B.

LLDPE GEOMEMBRANE PLACEMENT ACCEPTATION

CERTIFICATE OF ACCEPTANCE OF LLDPE GEOMEMBRANE PLACEMENT - SADDLE DAM 5

Acceptance No.:	LLDPE-SD5-002	Date:	29-08-2016

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 acceptance;

3) Any other relevant documentation complementary to this approval.

The area has been inspected and accepted by autorised 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:	Stéphane Coté
	Position:	Z-TG-QC
QA Engineer	Name:	Michael Demers-Bonin
	Position:	Golder-QA
Surveyor	Name:	Michael Racine
	Position:	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.

Geotextile Installation

SADDLE DAM 5- TSF DIKE CONSTRUCTION CHECKLIST - GEOTEXTILE INSTALLATION				
From Sta. 40+628.38	Offset: 29.93	SHIFT: NIGHT ☐ DAY ☐	DATE: 29-08-2016	SHEET 2 OF 5
To Sta. 40+784.01	Offset: 52.09	LOCATION: SADDLE DAM 5 : geotextile		
EQUIPMENT:				
DESCRIPTION: Geotextile				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Geotextile material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of geotextile rolls or factory panels performed to determine physical damage and defects	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of geotextile storage facilities performed	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner Installer	OK	OK
6	Visual inspection during geotextile installation performed	OK	OK
7	Damages during installation repaired in accordance with Specifications	OK	OK
8	Check for: minimum overlap, holes, folding, wrinkling, visible lumps or protrusions	OK	OK

REMARKS:

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrice Gagnon
Signature:	Signature:	Signature:
Date: 31-08-2016	Date: 31-08-2016	Date: 31-08-2016

LLDPE Geomembrane Installation

SADDLE DAM 5 - TSF DIKE CONSTRUCTION CHECKLIST - LLDPE GEOMEMBRANE INSTALLATION				
From Sta. 40+628.38	Offset: 29.93	SHIFT: NIGHT ☐ DAY ☐	DATE: 29-08-2016	SHEET 3 OF 5
To Sta. 40+784.01	Offset: 52.09	LOCATION: SADDLE DAM 5 : LLPDE membrane		
EQUIPMENT:				
DESCRIPTION: LLPDE membrane				

NO.	ITEMS TO BE INSPECTED	INSPECTED BY LINER INSTALLER/OWNER'S REPRESENTATIVE	INSPECTED BY QA ENGINEER
1	Liner material received has Manufacturer's certification and meets the Specifications	OK	OK
2	Visual inspection of liner performed to determine physical damages during handling	OK	OK
3	Deficiencies reported before installation	OK	OK
4	Inspection of LINER storage facilities	OK	OK
5	Final bedding surface condition meets the Specifications and approved by Liner installer	OK	OK
6	Visual inspection during Liner installation performed	OK	OK
7	Weather conditions meet the requirements during installation	OK	OK
8	Welding carried out in accordance with Manufacturer's Specification	OK	OK
9	Liner (routine destructive and non-destructive) testing and sampling performed as required	OK	OK
10	Floor and upstream wall surfaces of anchor trench are smooth	OK	OK
11	Damages during installation repaired in accordance with Specifications	OK	OK
12	Site cleaned up	OK	OK
13	As-built survey conducted and approved	OK	OK
14	Check for: unsuitable seams or repairs, holes, folding, wrinkling, visible lumps or protrusions.	OK	OK

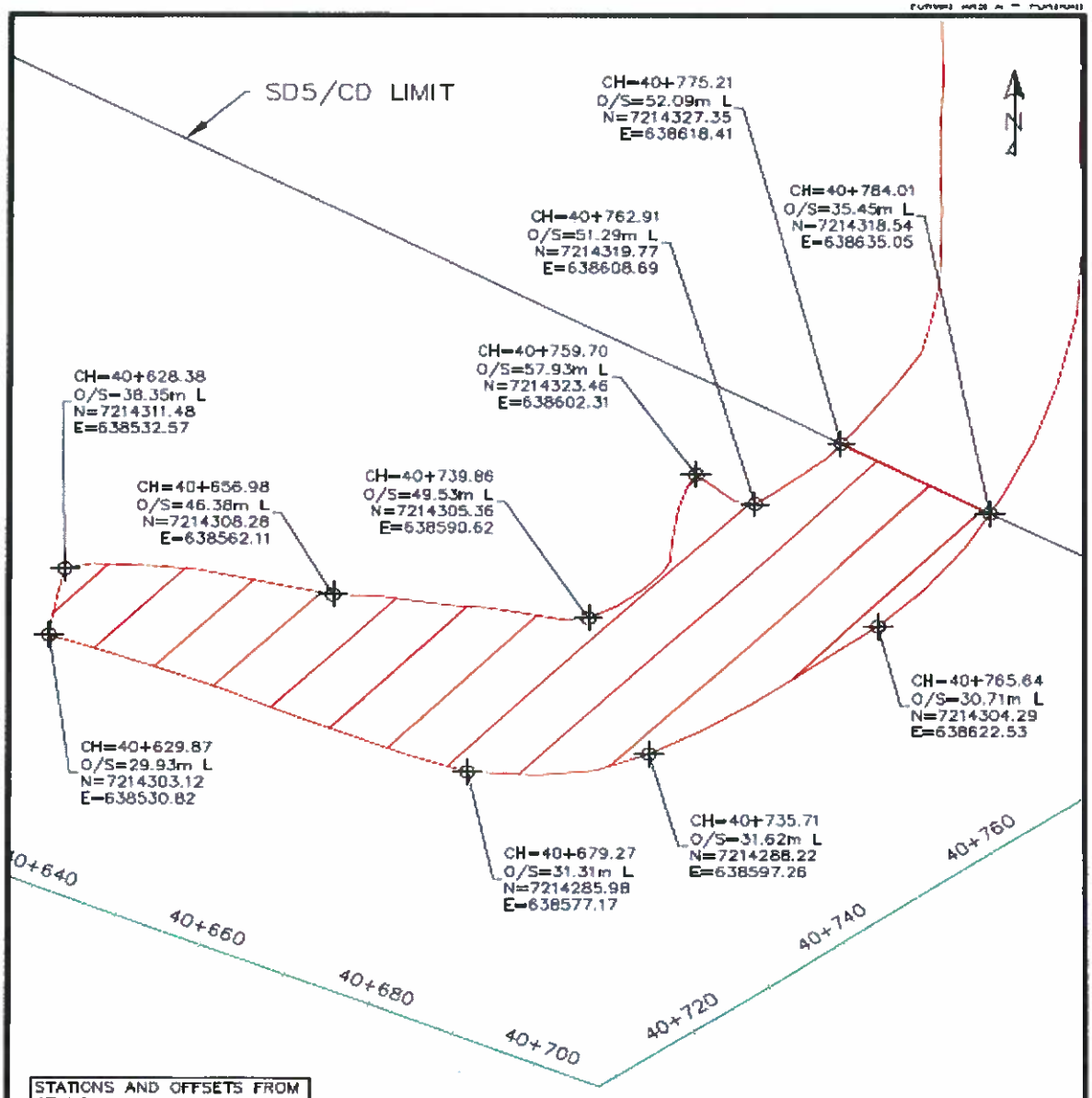
REMARKS:

NO HORIZONTAL SEAM WAS MADE ON SD5.

DEVIATIONS: (Attach list if necessary)

DATE OF RECTIFICATION:

SURVEY VERIFICATION	ACCEPTED BY QA ENGINEER	ACCEPTED BY OWNER'S REPRESENTATIVE
Name: Michael Racine	Name: Michael Demers-Bonin	Name: Patrick Gagnon
Signature:	Signature:	Signature:
Date: 31-08-2016	Date: 31-08-2016	Date: 31-08-2016


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O/S=31.62m L
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O/S=31.31m L
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E=638577.17
40+640
40+660
40+680
40+700
40+720
40+740
40+760
STATIONS AND OFFSETS FROM
CENTER LINE EL 150
REV
DATE
DESCRIPTION
BY
REVISIONS
AGNICO EAGLE
MEADOWBANK
TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
LLDPE INSTALLATION APPROVAL
SADDLE DAM 5
PROJECT No.
DATE
2016-08-30
DRAWN BY
MICHAEL RACINE
APPROVED BY
DRAWING NO.
SHEET
1 / 1
REVISION
C:\MEADOWBANK\CIVIL 2016\LLDPE APPROVAL\SD5-LLDPE_APPROVAL_0830.dwg 30 Aug 2016
FILE NO. DWG

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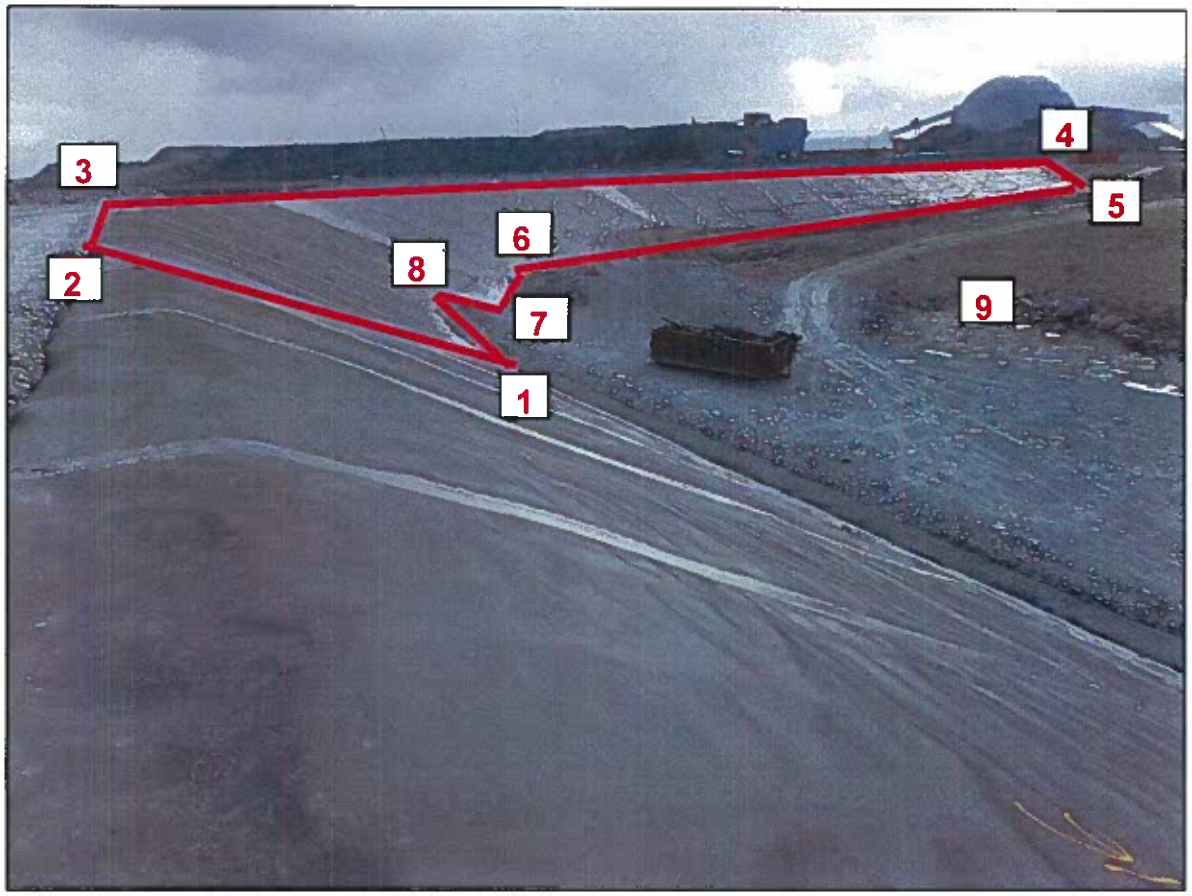


Photo 1- Approximate approved geotextile and LLPDE area

Date: 29-08-2016

Photo by (Initial) : G.L.

APPENDIX H

GEOSYNTHETICS INSTALLATION QC DOCUMENTATION

FERNAND GILBERT LTÉE
921700, BOUL. TALBOT, BUREAU 400
CHICOUTIMI, QC
G7H 7Y1

WORK REPORT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION
SD3, SD4, SD5 AND CENTRAL DYKE CONSTRUCTION



GEOSYNTHETICS INSTALLATION

GEOMEMBRANE LLDPE 1,5 MM TEXTURED
PROTECTION GEOTEXTILE

SEPTEMBER 2016

ZTG GÉOSYNTHÉTIQUES 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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1.0 REALISATION OF THE WORK 2

1.1 Implicated parties 2
1.2 Work site installation 2
1.2.1 Reception and storage of materials 2
1.2.2 Inspection of work surfaces 2
1.2.3 Installation of geomembrane panels 3
1.2.4 Welding of the geomembrane panels 3

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2.1.1 Welding calibration 3
2.1.2 Weld integrity tests 3

2.1.2.1 Air pressure tests 4
2.1.2.2 Vacuum test 4

2.1.3 Repairs 4

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A Work site registry: SD3, SD4, SD5 and Central Dyke
- Surface Approbation
- Panel position register
- Calibration trial register
- Weld register
- Destructive trial register
- « As built » drawings

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 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 august 22th to september 9th 2016 consisted of the installation of a geomembrane of Linear Low Density PolyEthylene (LLDPE) protected by a geotextile. Four different locations were covered

1. SD-3 level 2 - represented approximately 3,145 m^2 and more than 402 linear meters of welding.
2. SD-4 level 2 - represented approximately 4,474 m^2 and more than 603 linear meters of welding.
3. SD-5 represented approximately 2,000 m^2 and more than 271 linear meters of welding.
4. Central Dyke level 7 - represented approximately 15,856 m^2 and more than 2,162 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 august 22th to September 9th 2016.
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
- Mr. Denis Bolduc, Fusion Welder
- Mr. Fleurant Bélanger, Fusion Welder
- Mr. Jonathan Beaudin, Fusion Welder
- Mr. Nicolas Guilbault, Field Quality Control Technician

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 sheer 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.



_____

Jean-Marc Brunet B.Sc.
Project Director

LIST OF ANNEXES

A Work site registry:
- Surface Approbation
- Panel position register
- Calibration trial register
- Weld register
- Destructive trial register

B Manufacturer data sheet

C « As built » drawings

Agnico Eagle Limited

Meadowbank SD-3

CERTIFICAT D'APPROBATION DES SURFACES

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : 16-031

AGNICO-EAGLES – MEADOWBANK PHASE 2016

DESCRIPTION :

Liner installation to waterproofing the dyke SD3

This here-by confirms the acceptation 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

August 25th 2016
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.

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.lin.	Length m.lin.	Area m^2
553	226757-12	2016-08-25	6,85	10,5	71,93
554	226757-12	2016-08-25	6,85	10,6	72,61
555	226757-12	2016-08-25	6,85	10,1	69,19
556	226757-12	2016-08-25	6,85	19,1	130,84
557	226757-12	2016-08-25	6,85	22,1	151,39
558	226757-12	2016-08-25	6,85	8x1,5	12,00
559	226757-12	2016-08-25	6,85	27,8	190,43
560	G15B236075	2016-08-26	6,85	9,7	66,45
561	G15B236075	2016-08-26	6,85	2,2	15,07
562	G15B236075	2016-08-26	6,85	18,8	128,78
563	G15B236075	2016-08-26	6,85	21,7	148,65
564	G15B236075	2016-08-26	6,85	7,1	48,64
565	G15B236075	2016-08-26	6,85	12,9	88,37
566	G15B236075	2016-08-26	6,85	12,9	88,37
567	G15B236075	2016-08-26	6,85	13,2	90,42
568	G15B236075	2016-08-26	6,85	13,3	91,11
569	G15B236075	2016-08-26	6,85	12,8	87,68
570	G15B236075	2016-08-26	6,85	13,2	90,42
571	G15B236075	2016-08-26	6,85	13,3	91,11
572	226757-12	2016-08-26	6,85	13,6	93,16
573	226757-12	2016-08-26	6,85	13,7	93,85
574	226757-12	2016-08-26	6,85	13,5	92,48
575	G15B236076	2016-08-26	6,85	13,3	91,11
576	G15B236076	2016-08-26	6,85	13,2	90,42
577	G15B236076	2016-08-26	6,85	13,1	89,74
578	G15B236076	2016-08-26	6,85	13,1	89,74
579	G15B236076	2016-08-26	6,85	13,1	89,74
580	G15B236076	2016-08-26	6,85	13,1	89,74
581	G15B236076	2016-08-26	6,85	18,3	125,36
582	G15B236076	2016-08-26	6,85	18	123,30
583	G15B236076	2016-08-26	6,85	18	123,30
584	G15B236076	2016-08-26	6,85	14,5	99,33
585	G15B236074	2016-08-26	6,85	9,3	63,71
586	G15B236074	2016-08-26	6,85	8,4	57,54

WELD REGISTER

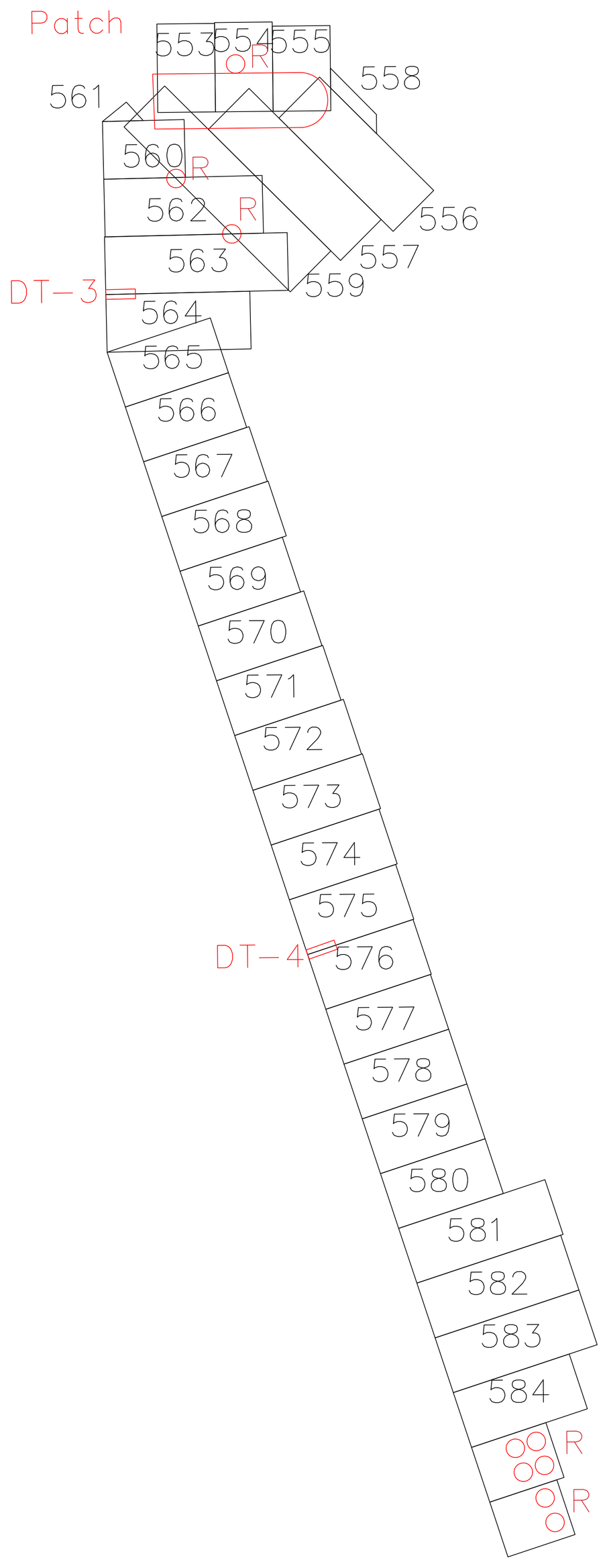
Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI Start	Air test End	PSI End
553-554	2016-08-25	10:03	9,5	JB	50	3	11:22	35	11:37	33
554-555	2016-08-25	10:20	9,1	JB	50	3	11:21	36	11:26	34
555-556	2016-08-25	10:35	7,3	JB	50	4	11:22	46	11:28	45
556-557	2016-08-25	10:56	16,6	JB	50	3	11:28	34	11:28	33
556-558	2016-08-25	11:12	8x1,5	JB	50	3	11:35	30	11:40	30
557-559	2016-08-25	11:18	24,6	JB	50	3	11:35	30	11:40	30
561-560	2016-08-26	06:55	2,1	JB	50	9	Extrusion			
561-559	2016-08-26	06:45	2,2	JB	50	9	07:30	41	07:35	40
560-559	2016-08-26	06:46	9,2	JB	50	9	07:30	30	07:35	30
562-559	2016-08-26	06:47	9,3	JB	50	9	09:31	34	09:36	33
563-559	2016-08-26	06:48	4,3	JB	50	9	09:32	47	09:37	46
560-262	2016-08-26	07:02	10,2	JB	50	9	09:20	37	09:20	37
562-563	2016-08-26	07:14	17,8	JB	50	9	09:21	29	09:26	29
563-564	2016-08-26	07:25	16,1	JB	50	9	09:21	40	09:26	40
564-565	2016-08-26	07:35	11,5	JB	50	10	09:46	33	09:51	33
565-566	2016-08-26	07:43	11,6	JB	50	9	09:47	28	09:52	27
566-567	2016-08-26	07:51	11,6	JB	50	9	09:48	38	09:53	38
567-568	2016-08-26	08:00	11,9	JB	50	9	10:31	40	10:36	39
568-569	2016-08-26	09:50	12,1	FB	50	9	13:31	46	10:36	45
569-570	2016-08-26	09:56	11,6	FB	50	9	13:32	35	10:37	34
570-571	2016-08-26	10:04	12,1	FB	50	9	10:46	46	10:51	45
571-572	2016-08-26	10:14	11,9	FB	50	9	10:47	30	10:52	29
572-573	2016-08-26	10:22	12,5	FB	50	9	10:47	30	10:52	28
573-574	2016-08-26	10:31	12,3	FB	50	9	11:01	34	11:06	31
574-575	2016-08-26	10:40	12	FB	50	9	11:02	44	11:07	40
575-576	2016-08-26	10:48	12,1	FB	50	9	11:02	34	11:07	32
576-577	2016-08-26	10:56	12	FB	50	9	11:16	38	11:22	37
577-578	2016-08-26	11:05	11,9	FB	50	9	11:17	38	11:22	36
578-579	2016-08-26	11:52	11,8	FB	50	9	14:19	39	14:26	38
579-580	2016-08-26	13:48	12	FB	50	13	14:29	39	14:25	37
580-581	2016-08-26	14:00	12	FB	50	13	14:20	44	14:25	44
581-582	2016-08-26	14:04	17,3	FB	50	13	16:25	44	16:30	43
582-583	2016-08-26	14:18	16,7	FB	50	13	16:26	38	16:31	36
583-584	2016-08-26	14:28	13,2	FB	50	13	16:26	37	16:31	36
584-585	2016-08-26	14:40	8,3	FB	50	13	16:36	43	16:41	43
585-586	2016-08-26	14:47	6,2	FB	50	13	16:36	34	16:41	34

CALIBRATION REGISTER

NUMBER	Date	Heure	Tech.	Equip. no.	TEMP ^{0}	Temp^0/ vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)		Parent
3	2016-08-25	06:50	JB	50	460	425	111/117	124/116	140	137		134
4LT	2016-08-25	10:45	JB	50	460	425	131/127	116/116	151	148		169
5	2016-08-25	13:50	JB	50	460	425	121/128	109/114	138	145		153
6LT	2016-08-25	13:50	JB	50	460	425	131/131	131/132	144	139		140
7TT	2016-08-25	13:50	JB	50	460	425	123/137	142/126	136	133		142
8	2016-08-25	13:55	FB	52	245	220	131	134	138	131		147
9	2016-08-26	07:00	JB	50	460	425	118/129	127/131	160	145		159
10 LT	2016-08-26	07:00	JB	50	460	425	131D/142	139D/131D	158	161		171
11 TT	2016-08-26	07:00	JB	50	460	425	144D/138[	134D/144	155	156		171
12	2016-08-26	06:55	JB	52	245	220	108	114	155	156		158
13	2016-08-26	13:40	JB	50	460	425	121/119	117/116	145	136		132
14 LT	2016-08-26	13:41	JB	50	460	425	121/108	122/122	133	133		144
15	2016-08-26	13:45	FB	52	245	220	111	109	127	126		143
16	2016-08-27	07:00	JB	50	460	425	121/116	129/122	148	153		158
17 LT	2016-08-27	07:03	JB	50	460	425	119/126	123/112	142	134		155
18 TT	2016-08-27	07:05	JB	50	460	425	138/138	129/134	144	142		155
19	2016-08-27	07:08	DB	52	245	220	132	133	143	147		148

DESTRUCTIVE TESTING REGISTER

Test number	Weld number	Peel (lb/po)	Peel (lb/po)	Peel (lb/po)	Shear (lb/po)	Shear (lb/po)
3	563-564	106/108	119/122	112/114	134	142
4	575-576	124/116	119/121	119/126	144	137



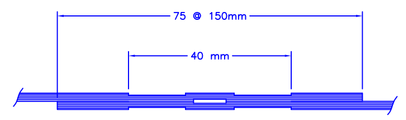
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.

2) La soudeuse a extrusion est utilisee aux raccordements des details, a l'intersection de trois panneaux et pour les reparations generales.

— IMPORTANT —

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Z-TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

Z-TECH / GEOGARD INC.
4025 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No: 03	REVISION: 0
	FEUILLE No: SHEET No: 1 de 1

Agnico Eagle Limited

Meadowbank SD-4

CERTIFICAT D'APPROBATION DES SURFACES

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : 16-031

AGNICO-EAGLES – MEADOWBANK PHASE 2016

DESCRIPTION :

Liner installation to waterproofing the dyke SD4

This here-by confirms the acceptation 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

August 23th 2016
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.

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m.lin.	Length m.lin.	Area m^2
510	G15B237089	2016-08-23	6,85	16,8	115,08
511	G15B237089	2016-08-23	6,85	16,8	115,08
512	G15B237089	2016-08-23	6,85	18,8	128,78
513	G15B237089	2016-08-23	6,85	20,4	139,74
514	G15B237089	2016-08-23	6,85	22,9	156,87
515	G15B237089	2016-08-23	6,85	23,5	160,98
516	G15B237089	2016-08-23	6,85	23,1	158,24
517-A	G15B237089	2016-08-23	6,85	8,5	58,23
517-B	G15B236083	2016-08-23	6,85	4,1	28,09
518	G15B236083	2016-08-23	6,85	13,2	90,42
519	G15B236083	2016-08-23	6,85	13,4	91,79
520	G15B236083	2016-08-23	6,85	13,4	91,79
521	G15B236083	2016-08-23	6,85	13,5	92,48
522	G15B236083	2016-08-23	6,85	12,9	88,37
523	G15B236083	2016-08-23	6,85	13,1	89,74
524	G15B236083	2016-08-23	6,85	13,3	91,11
525	G15B236083	2016-08-23	6,85	13,3	91,11
526	G15B236083	2016-08-23	6,85	13,4	91,79
527	G15B236083	2016-08-23	6,85	13,8	94,53
528-A	G15B236083	2016-08-23	6,85	11,6	79,46
528-B	G15B237092	2016-08-23	6,85	3	20,55
529	G15B237092	2016-08-23	6,85	13,9	95,22
530	G15B237092	2016-08-23	6,85	14,1	96,59

WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI Start	Air test End	PSI End
510-511	2016-08-23	09:45	12,8	JB	Z0050	1	10:21	36	10:26	35
511-512	2016-08-23	09:56	15,8	JB	Z0050	1	10:26	34	10:31	32
512-513	2016-08-23	10:04	18,3	JB	Z0050	1	10:32	34	10:37	34
513-514	2016-08-23	10:15	19,3	JB	Z0050	1	10:36	32	10:41	30
514-515	2016-08-23	10:26	21,3	JB	Z0050	1	10:46	35	10:51	35
515-516	2016-08-23	10:45	21,7	JB	Z0050	1	11:02	38	11:07	36
17-A-517-	2016-08-23	11:06	7	JB	Z0050	1	11:12	38	11:17	36
516-517A	2016-08-23	11:20	8,5	JB	Z0050	1	11:32	32	11:37	30
516-57B	2016-08-23	11:20	4,1	JB	Z0050	1	11:34	40	11:39	37
517A-518	2016-08-23	11:27	8	JB	Z0050	1	12:00	34	12:05	32
517B-518	2016-08-23	11:27	4,1	JB	Z0050	1	11:34	34	11:39	33
518-519	2016-08-23	11:35	12,2	JB	Z0050	1	14:56	50	15:01	49
519-520	2016-08-23	11:45	12,4	JB	Z0050	1	14:57	36	15:02	35
520-521	2016-08-23	11:52	12,4	JB	Z0050	1	14:58	30	15:03	30
521-522	2016-08-23	14:00	12,1	JB	Z0050	2	15:20	31	15:25	31
522-523	2016-08-23	14:16	11,9	JB	Z0050	2	15:21	29	15:26	28
523-524	2016-08-23	14:30	12,2	JB	Z0050	2	15:22	38	15:27	38
524-525	2016-08-23	14:40	12,3	JB	Z0050	2	15:51	29	01:58	26
525-526	2016-08-23	14:55	12,3	JB	Z0050	2	15:53	35	01:59	35
526-527	2016-08-23	15:05	12,4	JB	Z0050	2	15:54	45	16:00	44
528A-528E	2016-08-23	15:20	6,85	JB	Z0050	2	Extrusion			
527-528A	2016-08-23	15:30	11,6	JB	Z0050	2	16:04	35	16:09	35
527-528B	2016-08-23	15:30	1,4	JB	Z0050	2	Extrusion			
528A-529	2016-08-23	15:40	11,6	JB	Z0050	2	16:15	31	16:20	30
528B-529	2016-08-23	15:40	1,4	JB	Z0050	2	16:14	42	16:21	40
529-530	2016-08-23	16:05	12,9	JB	Z0050	2	16:18	30	16:23	29
530-531	2016-08-24	08:55	13,3	JB	Z0050	4	09:24	42	09:29	40
531-532	2016-08-24	09:02	13,1	JB	Z0050	4	09:25	38	09:30	36
532-533	2016-08-24	09:13	13,7	JB	Z0050	6	09:25	32	09:30	31
533-534	2016-08-24	09:20	13,8	JB	Z0050	4	09:47	31	09:52	30
534-535	2016-08-24	09:30	13,6	JB	Z0050	4	09:48	32	09:53	31
535-536	2016-08-24	09:40	13,7	JB	Z0050	4	09:49	39	09:54	38
536-537	2016-08-24	09:50	13,4	JB	Z0050	4	10:05	36	10:10	35
537-538	2016-08-24	09:57	13,1	JB	Z0050	6	10:14	33	10:19	32
538-539A	2016-08-24	10:15	3,4	JB	Z0050	4	11:12	39	11:17	36
538-539B	2016-08-24	10:15	9,9	JB	Z0050	4	11:13	29	11:18	26
539A-539E	2016-08-24	10:45	7	JB	Z0050	7	11:19	30	11:24	29
539A-540	2016-08-24	11:02	3,3	JB	Z0050	4	11:21	38	11:26	36
539B-540	2016-08-24	11:02	9,6	JB	Z0050	4	11:21	38	11:26	36
540-541H	2016-08-24	11:11	12,6	JB	Z0050	4	14:55	32	15:00	30
540-541B	2016-08-24	11:11	12,6	JB	Z0050	4	11:36	39	11:41	39
541-542	2016-08-24	11:21	12,6	JB	Z0050	4	11:51	40	11:56	38
542-543	2016-08-24	11:30	11,8	JB	Z0050	4	11:51	30	11:57	28
543-544	2016-08-24	11:41	12	JB	Z0050	4	11:52	35	12:10	34

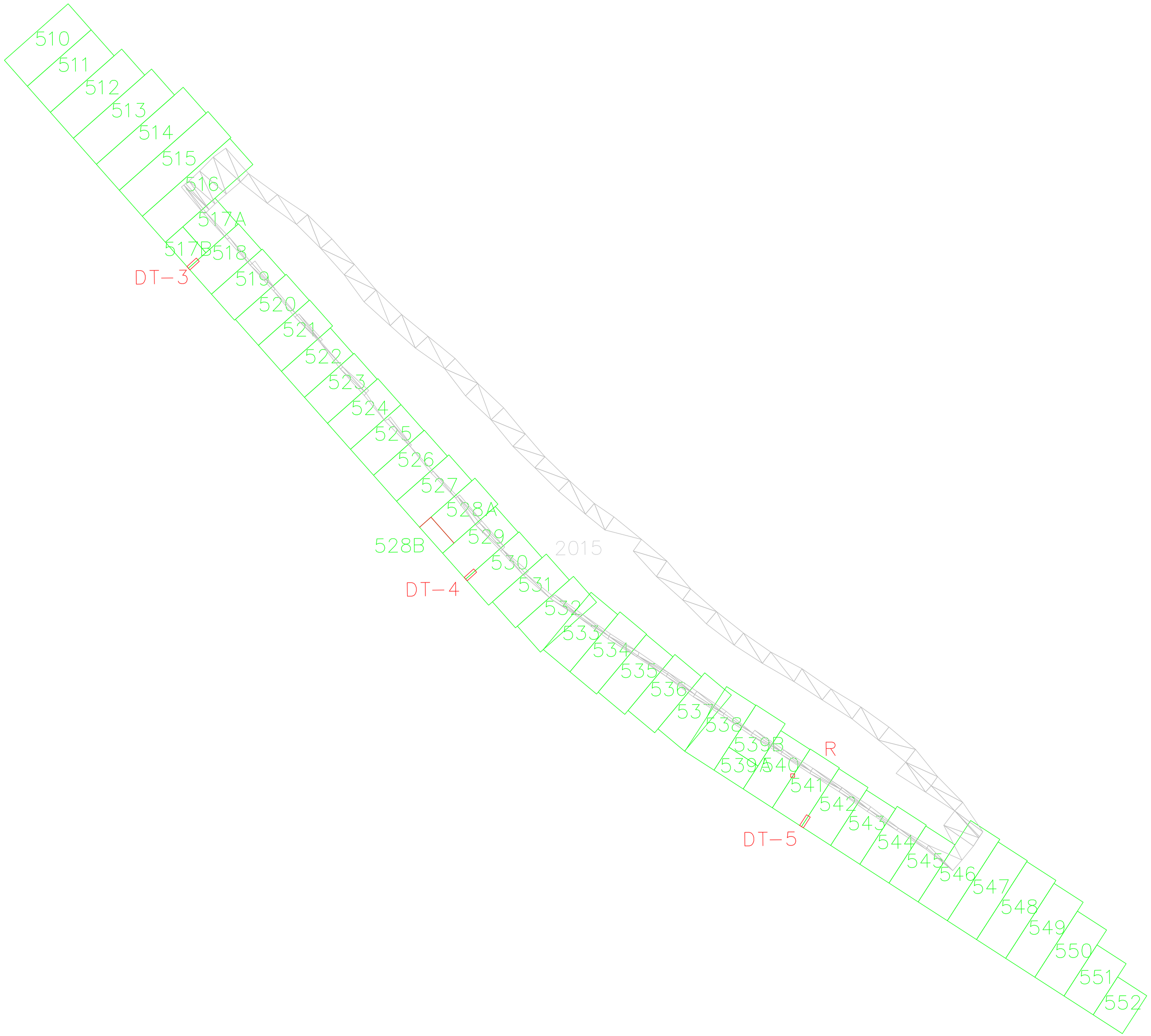
544-545	2016-08-24	11:48	11,8	JB	Z0050	4	12:03	45	12:08	29
545-546	2016-08-24	13:48	11,8	JB	Z0050	8	14:46	36	14:51	35
546-547	2016-08-24	13:57	17,5	JB	Z0050	8	14:47	32	15:52	30
547-548	2016-08-24	14:12	16,7	JB	Z0050	8	14:47	38	14:52	38
548-549	2016-08-24	14:22	15,6	JB	Z0050	8	15:04	34	15:08	33
549-550	2016-08-24	14:35	14,2	JB	Z0050	8	15:06	37	15:11	37
550-551	2016-08-24	14:45	10	JB	Z0050	8	15:08	35	15:13	35
551-552	2016-08-24	14:51	7	JB	Z0050	8	15:13	30	15:18	30

CALIBRATION REGISTER

NUMBER	Date	Heure	Tech.	Equip. no.	TEMP ^{0}	Temp^0/ vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)		Parent
1	2016-08-23	08:05	FB	Z50	460	450	111/113	115/114	117	118		116
2	2016-08-23	13:45	JB	Z50	460	450	102/113	108/113	107	112		116
3	2016-08-23	13:55	DB	Z52	245	220	103	82	112	106		124
4	2016-08-24	06:50	DB	Z50	460	450	114/106	119/108	126	126		110
5	2016-08-24	06:55	DB	Z52	245	220	108	118	121	121		136
6-LT	2016-08-24	10:12	JB	Z50	460	450	100/100	111/107	119	126		122
7-TT	2016-08-24	10:42	JB	Z50	460	450	102/105	106/101	115	116		120
8	2016-08-24	13:45	JB	Z50	460	450	103/108	103/96	120	123		
9	2016-08-24	13:45	DB	Z52	245	220	113	106	108	115		122

DESTRUCTIVE TESTING REGISTER

Test number	Weld number	Peel (lb/po)	Peel (lb/po)	Peel (lb/po)	Shear (lb/po)	Shear (lb/po)
DT-4	517-518	111/111	111/106	116/97	126	122
DT-5	529-530	120/132	95/113	119/126	147	138
DT-6	541-542	110/97	97/110	107/103	118	117
DT-7	550-551	110/109	107/108	111/111	120	118



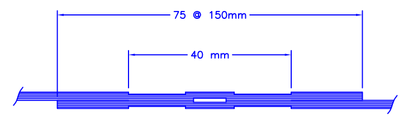
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION

Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.

2) La soudeuse a extrusion est utilisee aux raccordements des details, a l'intersection de trois panneaux et pour les reparations generales.

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Z-TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SD4

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

Z-TECH / GEOGARD INC.
4025 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No:	04	REVISION:	0
		FEUILLE No: SHEET No:	1 de 1

Agnico Eagle Limited

Meadowbank SD-5 et Central dyke

CERTIFICAT D'APPROBATION DES SURFACES

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : 16-031

AGNICO-EAGLES – MEADOWBANK PHASE 2016

DESCRIPTION :

Liner installation to waterproofing the dyke SD5

This here-by confirms the acceptation 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

August 28th 2016
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 D'APPROBATION DES SURFACES

GÉOSYNTHÉTIQUES ZTG INC.

PROJECT : FILE : 16-031

AGNICO-EAGLES – MEADOWBANK PHASE 2016

DESCRIPTION :

Liner installation to waterproofing the Central Dyke (CD)

This here-by confirms the acceptation 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

August 28th 2016
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.

PANEL POSITION REGISTER

Panel number	roll identification	Date	Width m,lin,	Length m,lin,	Area m^2
587	G15B236074	2016-08-28	6,85	14,2	97,27
588	G15B236074	2016-08-28	6,85	15,5	106,18
589	G15B236074	2016-08-28	6,85	16,3	111,66
590	G15B236074	2016-08-28	6,85	17,7	121,25
591	G15B236080	2016-08-28	6,85	19,4	132,89
592	G15B236080	2016-08-28	6,85	21,4	146,59
593	G15B236080	2016-08-28	6,85	24,2	165,77
594	G15B236080	2016-08-28	6,85	24,5	167,83
595	G15B236080	2016-08-28	6,85	23,4	160,29
596	G15B236080	2016-08-28	6,85	21,1	144,54
597	G15B236080	2016-08-28	6,85	21,3	145,91
598	G15B237090	2016-08-28	6,85	21	143,85
599	G15B237090	2016-08-28	6,85	23,3	159,61
600	G15B237090	2016-08-28	6,85	29,8	204,13
601	G15B237090	2016-08-28	6,85	30,8	210,98
602	G15B237090	2016-08-28	6,85	22,7	155,50
603	G15B237090	2016-08-28	6,85	22,9	156,87
604	G15B237090	2016-08-28	6,85	18,3	125,36
605	G16C000882	2016-08-28	6,85	21	143,85
606	G16C000882	2016-08-28	6,85	20,2	138,37
607	G16C000882	2016-08-28	6,85	19,1	130,84
608	G16C000882	2016-08-28	6,85	15	102,75
609	G16C000882	2016-08-28	6,85	18,8	128,78
610	G16C000882	2016-08-28	6,85	19,1	130,84
611	G16C000882	2016-08-28	6,85	18,9	129,47
612	G16C000882	2016-08-28	6,85	18,4	126,04
613	G15B236080	2016-08-28	6,85	18	123,30
614	G16C000880	2016-08-28	6,85	18,8	128,78
615	G16C000880	2016-08-28	6,85	19,2	131,52
616	G16C000880	2016-08-28	6,85	19	130,15
617	G16C000880	2016-08-28	6,85	19,1	130,84
618	G16C000880	2016-08-28	6,85	19,1	130,84
619	G16C000880	2016-08-29	6,85	19,2	131,52
620	G16C000880	2016-08-29	6,85	19,2	131,52
621	G16C000880	2016-08-29	6,85	19,3	132,21
622A	G16C000880	2016-08-29	6,85	10,6	72,61
622B	G16C000878	2016-08-29	6,85	8,9	60,97
623	G16C000878	2016-08-29	6,85	19,1	130,84
624	G16C000878	2016-08-29	6,85	19,2	131,52
625	G16C000878	2016-08-29	6,85	18,1	123,99
626	G16C000878	2016-08-29	6,85	18,3	125,36
627	G16C000878	2016-08-30	6,85	18,4	126,04
628	G16C000878	2016-08-30	6,85	18,4	126,04
629	G16C000878	2016-08-30	6,85	18,3	125,36
630	G16C000878	2016-08-30	6,85	17,3	118,51

631A	G16C000878	2016-08-30	6,85	6,4	43,84
631B	G16C000893	2016-08-30	6,85	11,5	78,78
632	G16C000893	2016-08-30	6,85	17,6	120,56
633	G16C000893	2016-08-30	6,85	18,6	127,41
634	G16C000893	2016-08-30	6,85	18,6	127,41
635	G16C000893	2016-08-30	6,85	18,7	128,10
636	G16C000893	2016-08-30	6,85	18,8	128,78
637	G16C000893	2016-08-30	6,85	19	130,15
638	G16C000893	2016-08-30	6,85	19,3	132,21
639	G16C000893	2016-08-30	6,85	19,1	130,84
640	G16C000887	2016-08-30	6,85	19,4	132,89
641	G16C000887	2016-08-30	6,85	19,2	131,52
642	G16C000887	2016-08-31	6,85	19,1	130,84
643	G16C000887	2016-08-31	6,85	19,2	131,52
644	G16C000887	2016-08-31	6,85	19,1	130,84
645	G16C000887	2016-08-31	6,85	18,8	128,78
646	G16C000887	2016-08-31	6,85	18,4	126,04
647	G16C000887	2016-08-31	6,85	18,5	126,73
648	G16C000898	2016-08-31	6,85	18,3	125,36
649	G16C000898	2016-08-31	6,85	17	116,45
650	G16C000898	2016-08-31	6,85	17,1	117,14
651	G16C000898	2016-08-31	6,85	17,1	117,14
652	G16C000898	2016-08-31	6,85	18,1	123,99
653	G16C000898	2016-08-31	6,85	18,4	126,04
654	G16C000898	2016-08-31	6,85	18,7	128,10
655	G16C000898	2016-09-01	6,85	18,6	127,41
656A	G16C000898	2016-09-01	6,85	13,1	89,74
656B	G16C000881	2016-09-01	6,85	5,2	35,62
657	G16C000881	2016-09-01	6,85	18,3	125,36
658	G16C000881	2016-09-01	6,85	18,1	123,99
659	G16C000881	2016-09-01	6,85	18	123,30
660	G16C000881	2016-09-01	6,85	18	123,30
661	G16C000881	2016-09-01	6,85	18,1	123,99
662	G16C000881	2016-09-01	6,85	18	123,30
663	G16C000881	2016-09-01	6,85	17,9	122,62
664	G16C000881	2016-09-01	6,85	18,1	123,99
665A	G16C000881	2016-09-01	6,85	10	68,50
665B	G16C000885	2016-09-01	6,85	8	54,80
666	G16C000885	2016-09-01	6,85	18,2	124,67
667	G16C000885	2016-09-01	6,85	17,9	122,62
668	G16C000885	2016-09-01	6,85	17,8	121,93
669	G16C000885	2016-09-01	6,85	17,1	117,14
670	G16C000885	2016-09-01	6,85	17	116,45
671	G16C000885	2016-09-01	6,85	17	116,45
672	G16C000885	2016-09-01	6,85	17,9	122,62
673	G16C000885	2016-09-01	6,85	18	123,30
674A	G16C000885	2016-09-02	6,85	8	54,80

674B	G16C000879	2016-09-02	6,85	10	68,50
675	G16C000879	2016-09-02	6,85	18	123,30
676	G16C000879	2016-09-02	6,85	18,1	123,99
677	G16C000879	2016-09-02	6,85	18,1	123,99
678	G16C000879	2016-09-02	6,85	18	123,30
679	G16C000879	2016-09-02	6,85	18,1	123,99
680	G16C000879	2016-09-02	6,85	18,1	123,99
681	G16C000879	2016-09-02	6,85	18,1	123,99
682	G16C000879	2016-09-02	6,85	18,2	124,67
683A	G16C000879	2016-09-02	6,85	10,2	69,87
683B	G15B237093	2016-09-02	6,85	8	54,80
684	G15B237093	2016-09-02	6,85	18,1	123,99
685	G15B237093	2016-09-02	6,85	18,2	124,67
686	G15B237093	2016-09-02	6,85	18,2	124,67
687	G15B237093	2016-09-02	6,85	18,3	125,36
688	G15B237093	2016-09-02	6,85	18,2	124,67
689	G15B237093	2016-09-02	6,85	17,3	118,51
690	G15B237093	2016-09-02	6,85	17,2	117,82
691	G15B237093	2016-09-02	6,85	18,2	124,67
692A	G15B237093	2016-09-02	6,85	3,4	23,29
692B	G16C000888	2016-09-02	6,85	15	102,75
693	G16C000888	2016-09-02	6,85	18,3	125,36
694	G16C000888	2016-09-02	6,85	18,2	124,67
695	G16C000888	2016-09-04	6,85	18,3	125,36
696	G16C000888	2016-09-04	6,85	18,3	125,36
697	G16C000888	2016-09-04	6,85	18,4	126,04
698	G16C000888	2016-09-04	6,85	18,4	126,04
699	G16C000888	2016-09-04	6,85	18,5	126,73
700	G16C000888	2016-09-04	6,85	18,4	126,04
701	G16C000886	2016-09-04	6,85	18,4	126,04
702	G16C000886	2016-09-04	6,85	18,5	126,73
703	G16C000886	2016-09-04	6,85	18,4	126,04
704	G16C000886	2016-09-05	6,85	18,3	125,36
705	G16C000886	2016-09-05	6,85	17,6	120,56
706	G16C000886	2016-09-05	6,85	16,6	113,71
707	G16C000886	2016-09-05	6,85	16,8	115,08
708	G16C000886	2016-09-05	6,85	16,9	115,77
709-A	G16C000886	2016-09-05	6,85	14,4	98,64
709-B	G16C000894	2016-09-05	6,85	3,3	22,61
710	G16C000894	2016-09-05	6,85	17,5	119,88
711	G16C000894	2016-09-05	6,85	17,2	117,82
712	G16C000894	2016-09-05	6,85	17,3	118,51
713	G16C000894	2016-09-05	6,85	17,4	119,19
714	G16C000894	2016-09-05	6,85	17,6	120,56
715	G16C000894	2016-09-05	6,85	17,2	117,82
716	G16C000894	2016-09-05	6,85	22,3	152,76
717	G16C000894	2016-09-05	6,85	21,8	149,33

718	G16C000894	2016-09-05	6,85	20,6	141,11
719	G16C000896	2016-09-05	6,85	19,4	132,89
720	G16C000896	2016-09-05	6,85	18,6	127,41
721	G16C000896	2016-09-05	6,85	18,1	123,99
722	G16C000896	2016-09-05	6,85	17,6	120,56
723	G16C000896	2016-09-05	6,85	16,8	115,08
724	G16C000896	2016-09-05	6,85	15,6	106,86
725	G16C000896	2016-09-05	6,85	13,6	93,16
726	G16C000896	2016-09-05	6,85	10,2	69,87

WELD REGISTER

Weld #	Date	Time	Length (m)	Welder	Welding machine	Calibra. number	Air test Start	PSI Start	Air test End	PSI End
587-588	2016-08-28	07:48	12,6	JB	16	20	08:16	36	08:21	32
588-589	2016-08-28	08:02	14,2	JB	16	20	08:16	35	08:21	32
589-590	2016-08-28	08:13	14,4	JB	16	20	09:34	34	09:39	32
590-591	2016-08-28	08:23	16,5	JB	16	20	09:35	39	09:39	36
591-592	2016-08-28	08:35	18,7	JB	16	20	09:35	32	09:39	30
592-593	2016-08-28	08:50	20,3	JB	16	20	09:50	38	09:55	37
593-594	2016-08-28	09:03	23	JB	16	20	09:53	29	09:58	26
594-595	2016-08-28	09:16	22,4	JB	16	20	09:50	31	09:55	30
595-596	2016-08-28	09:35	19,7	JB	16	20	10:58	34	11:03	33
596-597	2016-08-28	09:54	19,6	JB	16	20	10:59	43	11:04	43
597-598	2016-08-28	10:10	19,8	JB	16	20	11:16	29	11:21	27
598-599	2016-08-28	10:35	21	JB	16	20	11:17	37	11:22	36
599-600	2016-08-28	10:50	21,1	JB	16	20	11:18	34	11:03	33
600-601	2016-08-28	11:06	28,1	JB	16	20	14:31	41	14:36	39
601-602	2016-08-28	11:25	21,7	JB	16	20	14:32	37	14:37	34
602-603	2016-08-28	11:37	21,2	JB	16	20	14:36	40	14:40	40
603-604	2016-08-28	11:52	17,6	JB	16	20	15:15	34	15:20	32
604-605	2016-08-28	14:12	20,1	FB	16	23	15:15	34	15:20	33
605-606	2016-08-28	14:24	19	FB	16	23	15:16	42	15:21	41
606-607	2016-08-28	14:37	17,9	FB	16	23	15:40	41	15:45	39
607-608	2016-08-28	14:52	19,1	FB	16	23	15:41	44	15:46	44
608-609	2016-08-28	15:08	15	FB	16	23	15:41	37	15:46	35
609-610	2016-08-28	15:21	17,4	FB	16	23	16:02	41	16:07	39
610-611	2016-08-28	15:28	17,3	FB	16	23	16:03	39	16:08	37
611-612	2016-08-28	15:38	17,3	FB	16	23	16:13	44	16:18	43
612-613	2016-08-28	15:53	16,6	FB	16	23	16:27	41	16:32	37
613-614	2016-08-28	16:03	16,9	FB	16	23	16:27	38	16:32	34
614-615	2016-08-28	16:14	17,2	FB	16	23	16:28	48	16:33	44
615-616	2016-08-28	16:25	17,4	FB	16	23	17:23	44	17:28	43
616-617	2016-08-28	16:36	17,6	FB	16	23	17:23	44	17:28	43
617-618	2016-08-28	16:47	17,2	FB	16	23	17:24	52	17:29	51
618-619	2016-08-29	16:07	17,3	JB	16	28	16:38	48	16:43	47
619-620	2016-08-29	16:18	17,3	JB	16	28	16:39	38	16:44	37
620-621	2016-08-29	16:30	17,3	JB	16	28	17:11	36	17:16	34
621-622H	2016-08-29	17:00	17,3	JB	16	28	17:37	46	17:42	44
621-622B	2016-08-29	17:00		JB	16	28	17:41	27	17:46	27
622H-622B	2016-08-29	16:50	7	JB	16	29	17:41	28	17:46	27
622H-623	2016-08-29	17:56	17,3	jb	16	35	17:55	35	18:00	34
622B-623	2016-08-29	17:56		JB	16	28	17:56	36	18:01	35
623-624	2016-08-29	17:25	17,4	JB	16	28	18:09	46	18:01	45
624-625	2016-08-29	17:35	17,4	JB	16	28	18:11	35	18:14	34
625-626	2016-08-29	17:46	17,4	JB	16	28	18:11	34	18:16	33
626-627	2016-08-29	18:00	17,4	JB	16	28	11:07	33	11:12	33
627-628	2016-08-30	10:35	17,4	JB	16	31	11:08	28	11:13	27
628-629	2016-08-30	10:50	17,3	JB	16	31	11:26	43	11:31	42

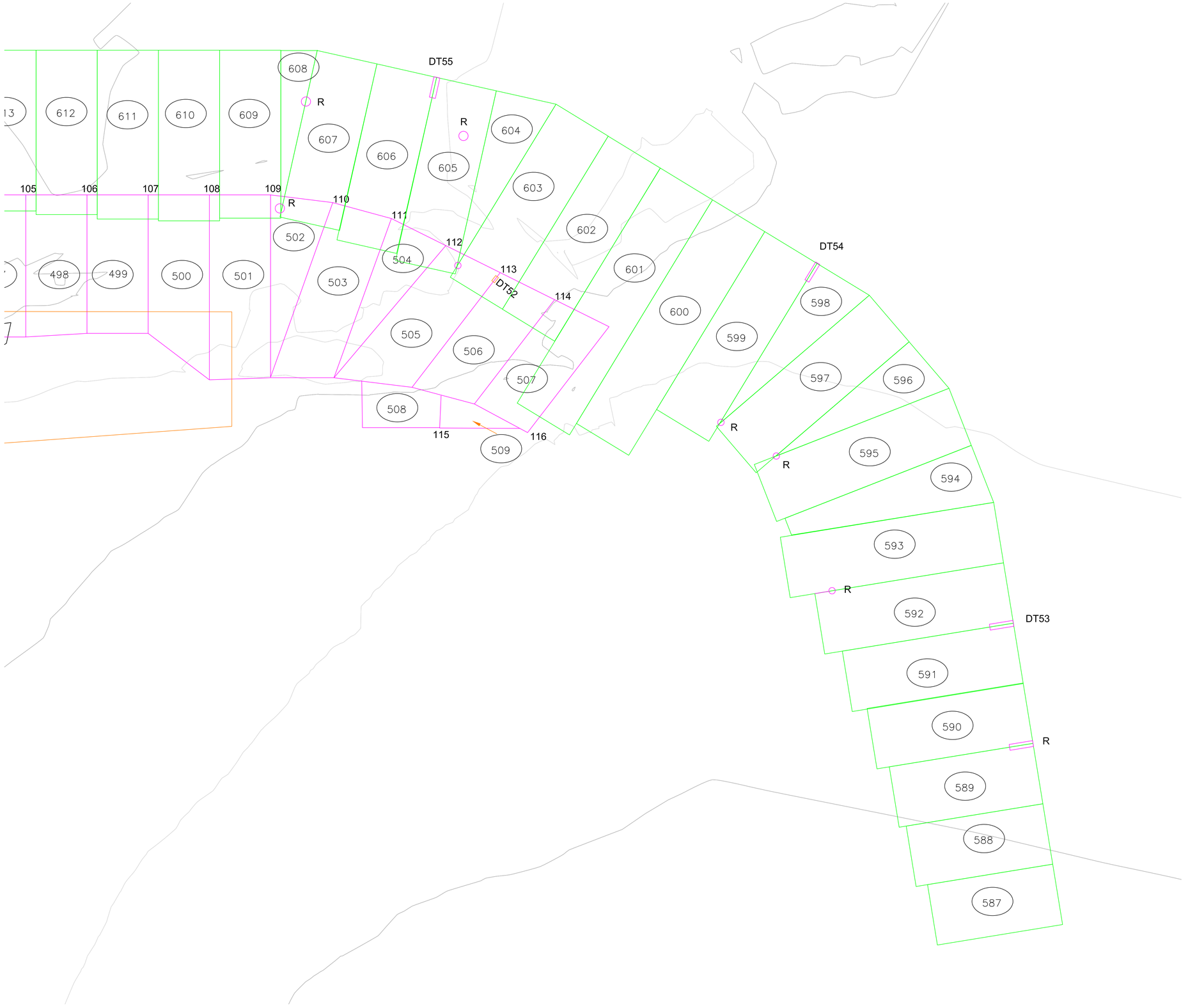
NUMBER	Date	Heure	Tech.	Equip. no.	TEMP ^{0}	Temp^0/ vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)		Parent
20	2016-08-28	06:50	JB	16	460	425	123-124	109-114	140	131		138
21-LT	2016-08-28	06:51	JB	16	460	425	127-128	123-134	153	148		154
22-TT	2016-08-28	06:52	JB	16	460	425	131-129	133-139	143	145		149
23	2016-08-28	13:54	FB	16	460	425	124-123	123-129	143	145		147
24-LT	2016-08-28	13:54	FB	16	460	425	123-117	123-113	131	132		138
25TT	2016-08-28	13:55	FB	16	460	425	124-117	134-123	133	133		138
26	2016-08-28	13:55	DB	52	245	220	126	128	132	124		136
27	2016-08-29	06:58	DB	52	245	220	136	134	143	139		143
28	2016-08-29	14:00	JB	16	460	425	137-140	1440140	147	158		155
29-TT	2016-08-29	14:01	JB	16	460	425	147-148	145-137	165	150		155
30	2016-08-29	14:05	DB	52	245	220	101	123	150	136		154
31	2016-08-30	06:50	JB	16	460	425	139-133	132-137	159	170		168
32-TT	2016-08-30	06:50	JB	16	460	425	136-127	132-126	128	133		143
33	2016-08-30	07:00	DB	52	245	220	121	131	133	133		147
34	2016-08-30	14:00	JB	16	460	425	118-119	128-126	143	139		143
35-TT	2016-08-30	14:00	JB	16	460	425	131-123	123-132	139	138		138
36	2016-08-30	13:59	DB	52	245	220	120	122	144	150		144
37	2016-08-31	06:50	FB	16	460	425	131-143	132-148	166	166		178
38-TT	2016-08-31	06:50	FB	16	460	425	112-137	131-127	137	147		133
39	2016-08-31	07:00	DB	52	245	225	124	112	134	122		143
40	2016-08-31	13:55	DB	52	245	225	131	129	139	133		159
41	2016-08-31	0,7188	DB	10	245	220	111	139	151	140		152
42	2016-09-01	06:50	FB	16	460	410	147/144	149/154	164	184		182
43-TT	2016-09-01	06:50	FB	16	460	410	138/123	149/126	145	149		151
44	42614	07:00	DB	10	245	220	139	134	156	150		151
45	42614	13:55	FB	16	460	425	121/123	108/118	136	138		136
46-TT	42614	15:55	FB	16	460	425	124/120	118/132	149	148		137
47	42614	14:00	DB	10	245	220	139	139	144	145		156
48	42615	06:50	JB	16	460	410	123/131	148/134	156	160		155
49-TT	42615	06:51	JB	16	460	410	144/137	134/144	143	143		154
50	42615	11:15	DB	10	245	220	134	139	148	145		153
51	42615	13:35	JB	16	460	425	137/136	142/132	148	150		153
52-TT	42615	13:40	JB	16	460	425	123/129	127/132	128	134		137
53	42617	07:45	JB	10	245	220	144	144	159	158		175
54	42617	08:25	JB	16	460	405	143/127	148/138	159	155		164
55-TT	42617	08:25	JB	16	460	405	142/132	140/134	143	153		158
56	42617	14:00	JB	10	245	225	122	120	140	153		152
57	42618	06:50	JB	16	460	425	140/143	147/148	169	171		180
58-TT	42618	06:50	JB	16	460	425	153/144	126/147	159	160		179
59	42618	13:40	JB	16	460	425	124/134	127/131	147	145		156

CALIBRATION REGISTER

NUMBER	Date	Heure	Tech.	Equip. no.	TEMP ^{0}	Temp^0/ vitesse	Pelage bris. (lb/in)	Pelage bris. (lb/in)	cisail bris. (lbs)	cisail bris. (lbs)		Parent
60-TT	42618	13:40	JB	16	460	425	139/132	139/140	152	149		148
61	42618	13:35	DB	10	245	230	114	129	129	133		149
62	42619	07:00	DB	10	245	230	118	131	155	164		166
63	42619	13:50	FB	10	245	230	119	118	133	144		155
64	42620	07:05	JB	10	245	230	113	136	150	145		160
65	42620	13:45	FB	10	245	230	121	126	140	142		138

DESTRUCTIVE TESTING REGISTER

Test number	Weld number	Peel (lb/po)	Peel (lb/po)	Peel (lb/po)	Shear (lb/po)	Shear (lb/po)
DT-53	591-592	116-129	124-121	124-124	137	138
DT-54	598-599	126-122	123-119	100-117	136	145
DT-55	605-606	134-142	136-144	134-139	142	150
DT-56	613-614	122-113	118-121	119-118	137	134
DT-57	626-625	143-131	144-133	149-129	144	148
DT-58	632-633	132-123	124-136	126-136	149	147
DT-59	640-641	132-129	123-129	128-136	145	140
DT-60	647-648	124-142	128-138	127-140	142	147
DT-61	655-656B	134/142	140/143	154/133	156	155
DT-62	663-664	139/137	137/145	136/144	157	163
DT-63	672-671	129/143	134/145	139/144	154	154
DT-64	679-680	127/129	128/134	129/139	136	144
DT-65	688-687	127/122	124/117	122/123	139	138
DT-66	695-696	122/140	119/134	123/137	143	139
DT-67	703-704	106/144	134/145	143/143	148	153
DT-68	711-712	127/133	126/137	127/140	148	158
DT-69	719-720	129/117	132/120	115/118	145	142



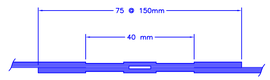
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.

2) La soudeuse a extrusion est utilisee aux raccordements des details, a l'intersection de trois panneaux et pour les reparations generales.

– IMPORTANT –

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Z-TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

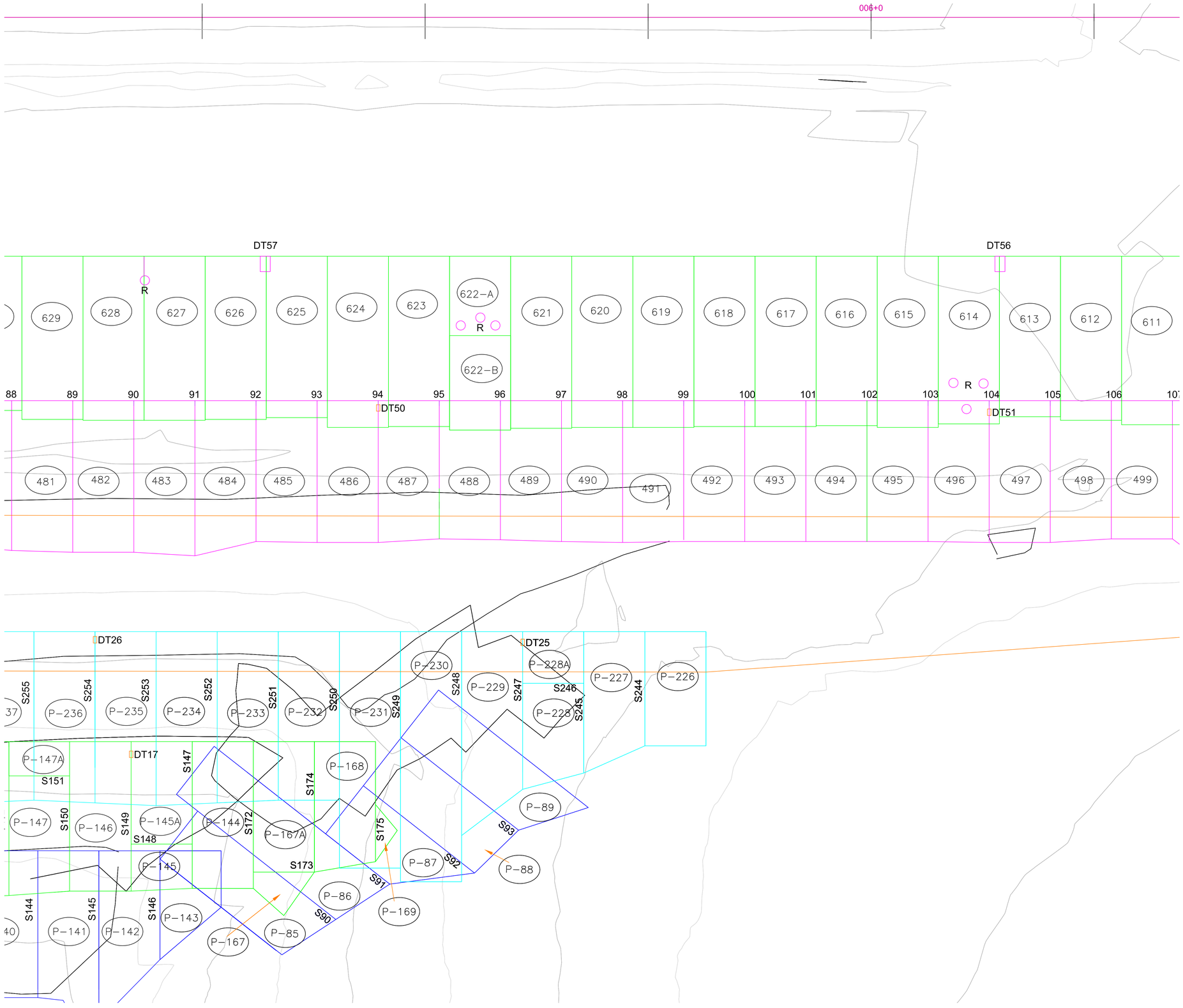
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SD5

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

Z-TECH / GEOGARD INC.
4025 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430-5333
Fax: (450) 430-9352

DESSIN No: DRAWING No: 05	REVISION: 0
	FEUILLE No: SHEET No: 1 de 1



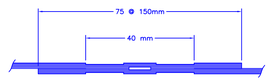
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
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No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
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PROPRIETAIRE:
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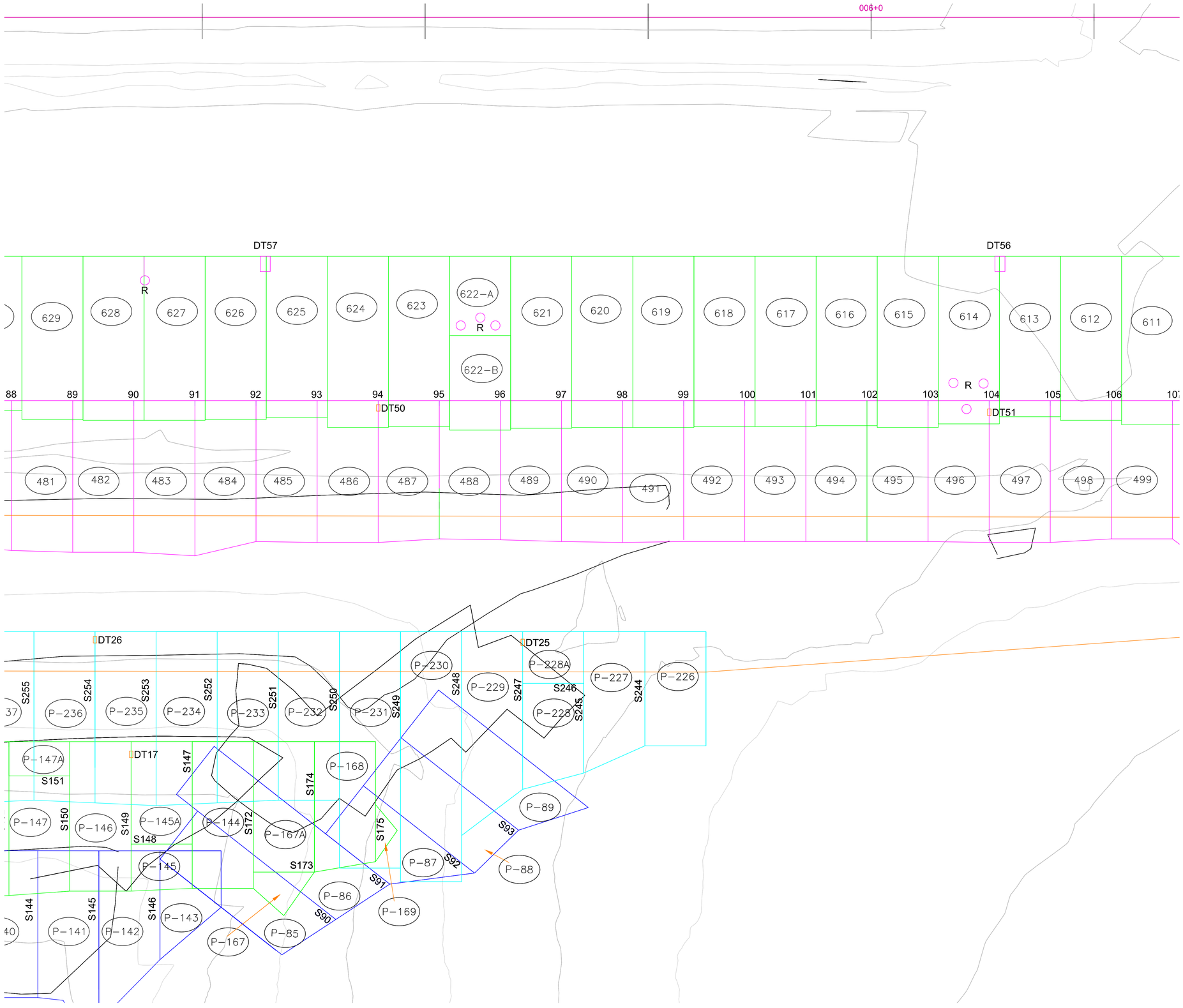
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AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SDI

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

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DESSIN No: DRAWING No:	01	REVISION:	0
		FEUILLE No: SHEET No:	1 de 7



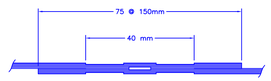
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

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Z-TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

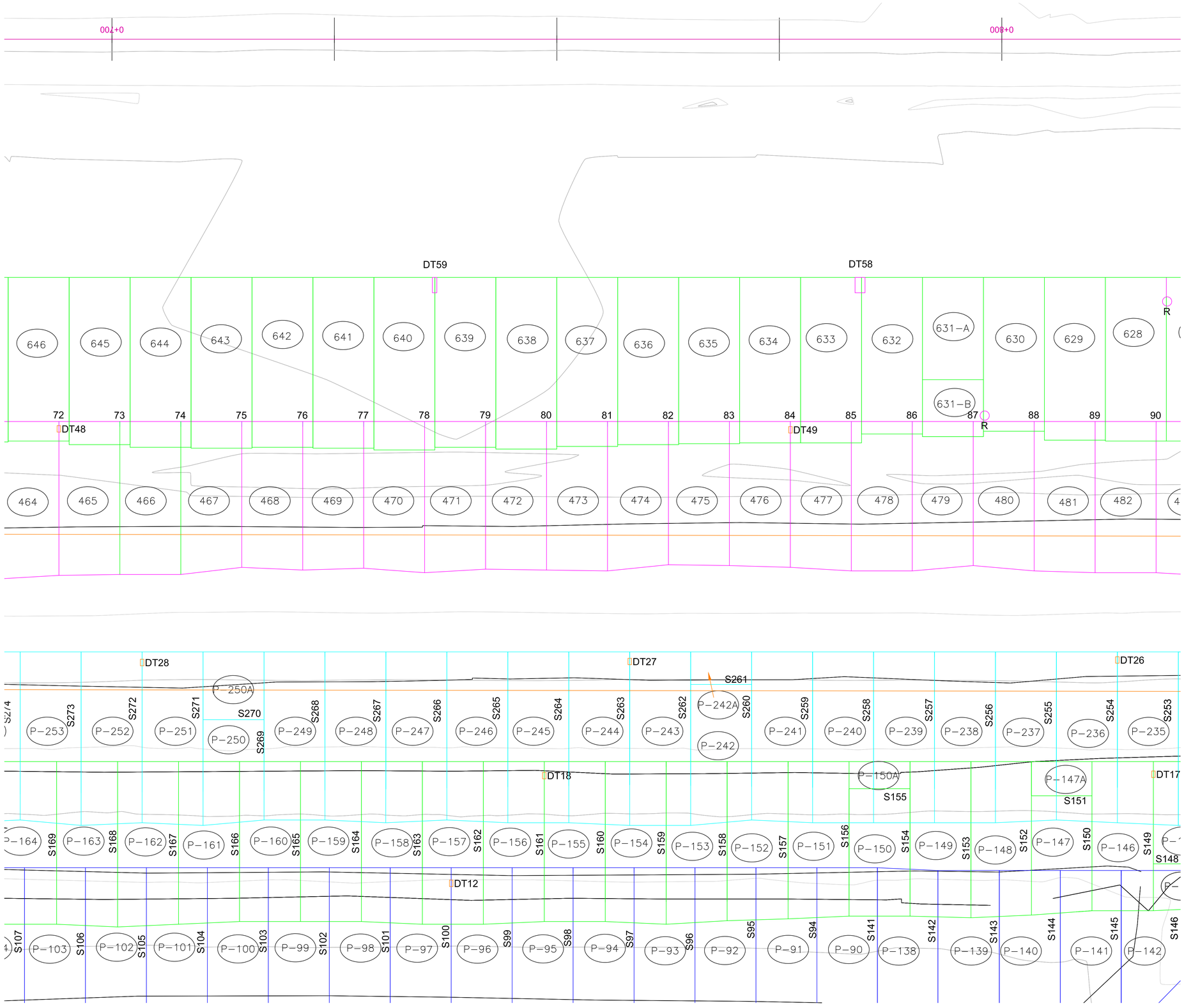
PROJET/PROJECT:
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MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SDI

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

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DESSIN No: DRAWING No: 01	REVISION: 0
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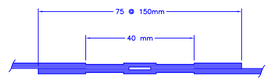
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
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Z–TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
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F. Gilbert Inc.

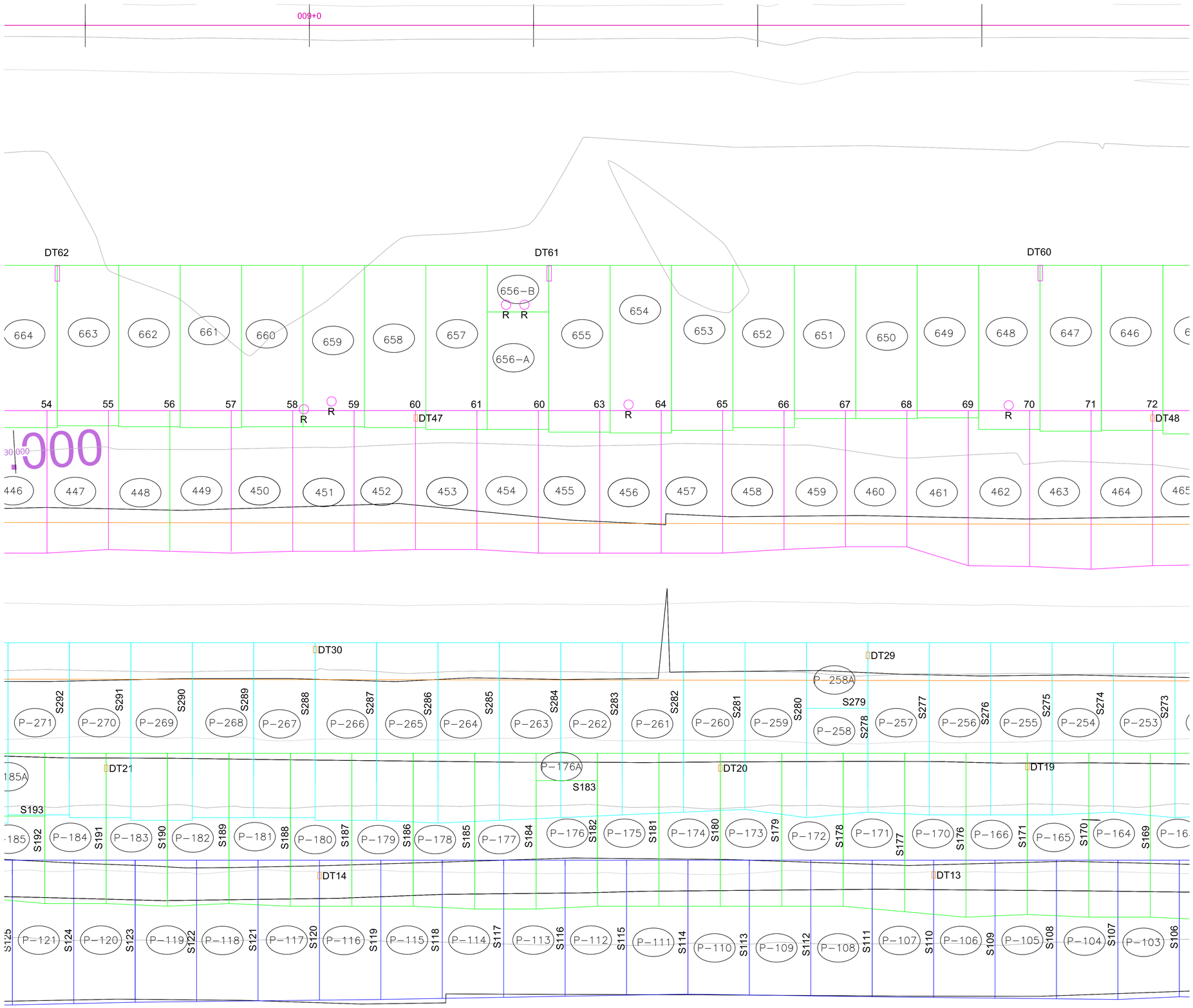
PROJET/PROJECT:
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MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX- SDI

DESSINE PAR: DRAWN BY: NG	DATE: 12/09/2016
VERIFIE PAR: CHECKED BY: JMB	ECHELLE: SCALE: PAE

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DESSIN No: DRAWING No: 01	REVISION: 0
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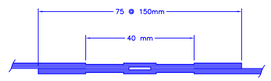
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
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Z-TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

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PROPRIETAIRE:
F. Gilbert Inc.

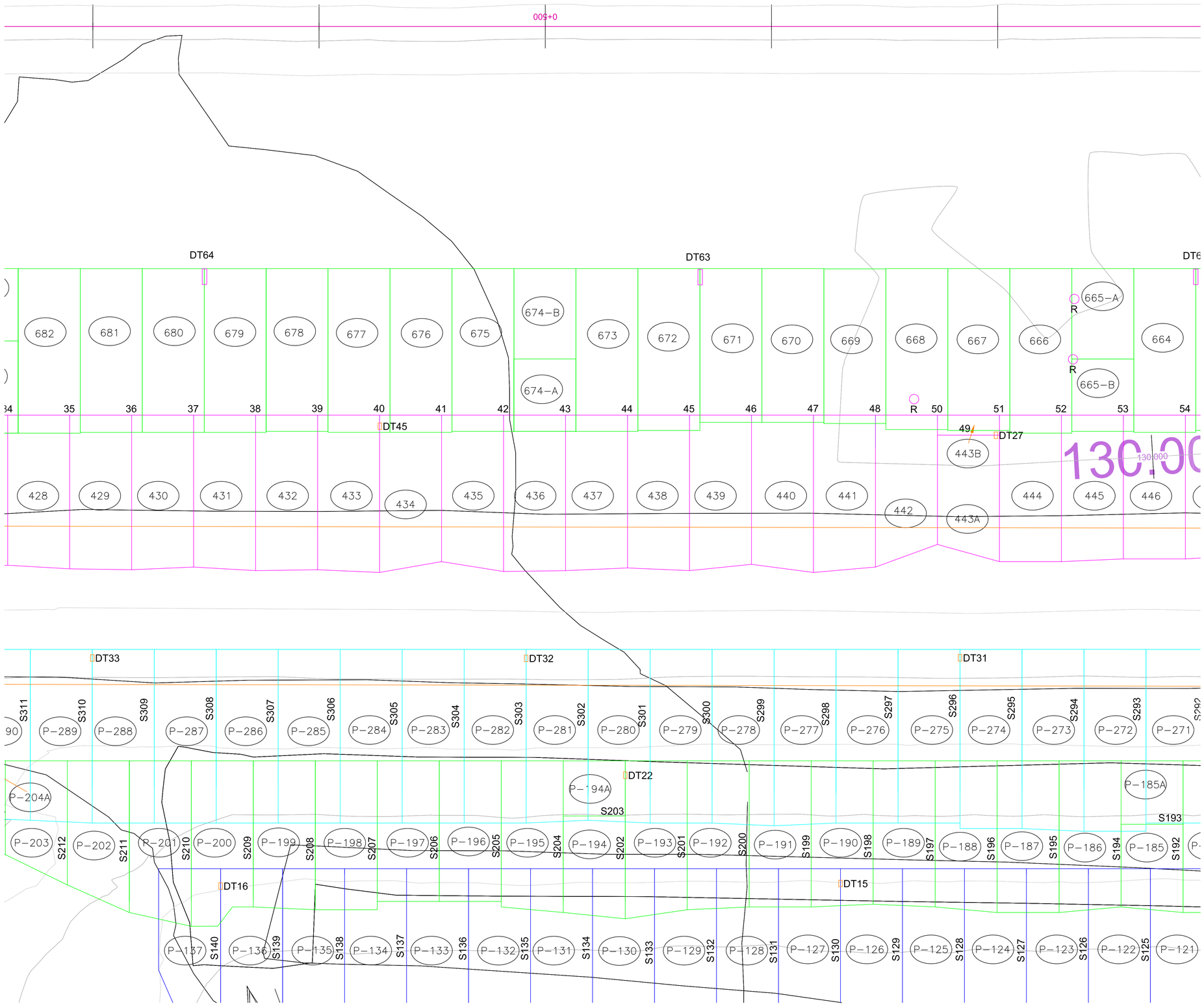
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SD1

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

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Fax: (450) 430-9352

DESSIN No: DRAWING No:	01	REVISION:	0
		FEUILLE No: SHEET No:	4 de 7



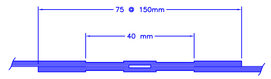
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

1) Les panneaux de geomembranes sont assembles par procede de fusion.
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No.	REVISIONS	DATE	PAR PER

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PROPRIETAIRE:
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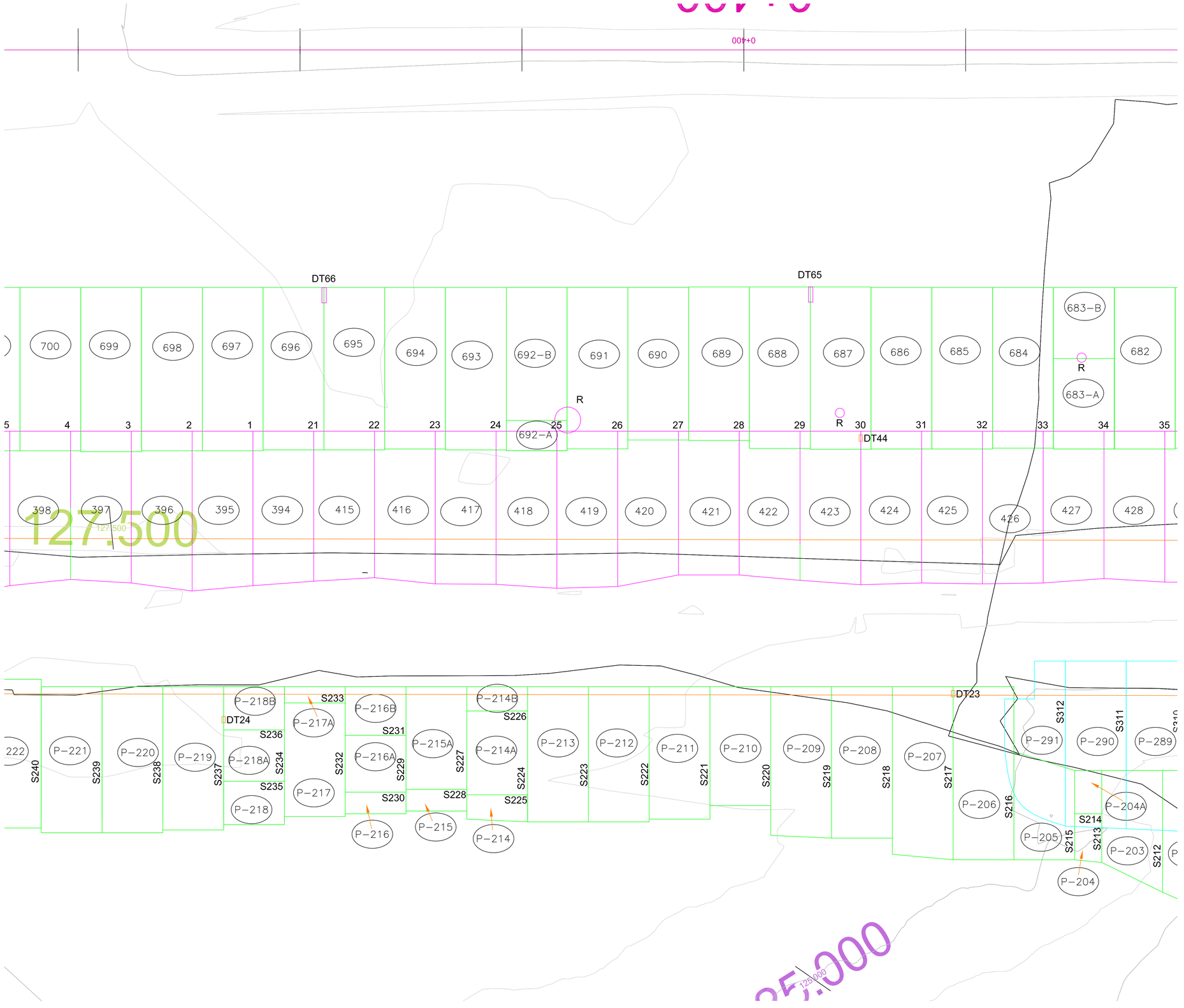
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SDI

DESSINE PAR: DRAWN BY:	NG	DATE:	12/09/2016
VERIFIE PAR: CHECKED BY:	JMB	ECHELLE: SCALE:	PAE

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Boisbriand, Qc J7H 1N1
Tel.: (450) 430–5333
Fax: (450) 430–9352

DESSIN No: DRAWING No: 01	REVISION: 0
	FEUILLE No: SHEET No: 5 de 7



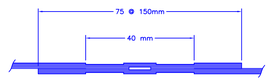
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION
Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

NOTES:

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Z–TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
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PROPRIETAIRE:
F. Gilbert Inc.

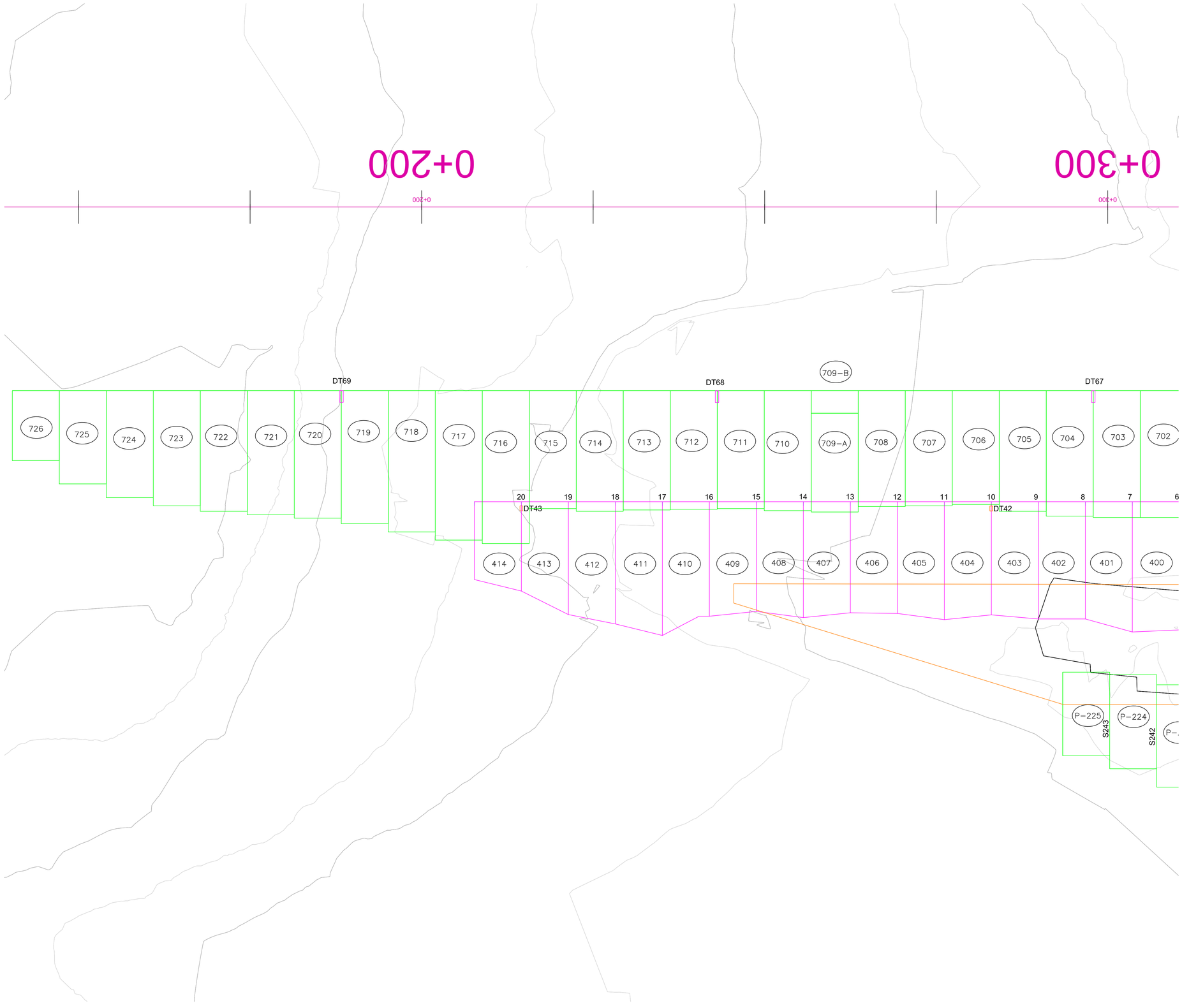
PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX - SDI

DESSINE PAR: DRAWN BY: NG	DATE: 12/09/2016
VERIFIE PAR: CHECKED BY: JMB	ECHELLE: SCALE: PAE

Z–TECH / GEOGARD INC.
4025 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430–5333
Fax: (450) 430–9352

DESSIN No: DRAWING No: 01	REVISION: 0
	FEUILLE No: SHEET No: 6 de 7



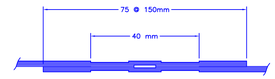
LEGENDE:

XXX — NUMÉRO DE PANNEAU

GEOMEMBRANE PEHD 1.5mm texturé

PIÈCE DE RÉPARATION EXTRUDÉE

PROCEDE DE SOUDURE:



SOUDURE DE FUSION

Soudure double avec chambre a air



SOUDURE PAR EXTRUSION

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Z–TECH/GEOGARD INC. 1998

No.	REVISIONS	DATE	PAR PER

CONSULTANTS:
Golder Associés

PROPRIETAIRE:
F. Gilbert Inc.

PROJET/PROJECT:
AGNICO EAGLE MINES LIMITED
MEADOWBANK

DISPOSITION TYPIQUE DES PANNEAUX- SD1

DESSINE PAR: DRAWN BY: NG	DATE: 12/09/2016
VERIFIE PAR: CHECKED BY: JMB	ECHELLE: SCALE: PAE

Z–TECH / GEOGARD INC.
4025 Lavoisier,
Boisbriand, Qc J7H 1N1
Tel.: (450) 430–5333
Fax: (450) 430–9352

DESSIN No: DRAWING No: 01	REVISION: 0
	FEUILLE No: SHEET No: 7 de 7

APPENDIX I

QC LABORATORY AND FIELD TESTING RESULTS

SNC·LAVALIN International	Project No	Subd.	Subject	Sequential	Rev.
	638617				

Client Name

Agnico Eagle

Name & Location of Project :

Meadowbank

SOIL SAMPLES RECEIVING LIST

Report No.

Num.	Samples				Location of sample	Date	Tech.
	Till	coarse fil.	fine fil.	Other		Received	
351	G				stock pile near west road	june 04	G.L.
352	G				stock pile north central dike	june 08	G.L.
353	G				Stockpile No.1 - Central Dike	june 23	S.O.
354	G				Stockpile No.1 - Central Dike	june 24	F.R.
355	G				Stockpile No.2- Central Dike	june 26	F.R.
356	G				Stockpile No.3- Central Dike	June 29	F.R.
357	G				Stockpile No.4- Central Dike	June 30	M-H. P.
358			G		Stockpile NPAG 0-3/4" (2) - Sana	June 30	M-H. P.
359			G		Stockpile NPAG 0-3/4" (2) - Sana	June 30	M-H. P.
360			G		Stockpile NPAG 0-3/4" (2) - Sana	June 30	M-H. P.
361			G		Stockpile NPAG 0-3/4" (2) - Sana	June 30	M-H. P.
362	G				Stockpile No.6- Central Dike	July 2	M-H. P.
363		G			Stockpile No. 1 - NPAG 0-6"	July 3	M-H. P.
364		G			Stockpile No. 1 - NPAG 0-6"	July 3	M-H. P.
365		G			Stockpile No. 2 - NPAG 0-6"	July 3	M-H. P.
366		G			Stockpile No. 2 - NPAG 0-6"	July 3	M-H. P.
367	G				Stockpile No.7- Central Dike	July 4	M-H. P.
368			G		Stockpile NPAG 0-3/4" - Pit D	July 4	M-H. P.
369			G		Stockpile NPAG 0-3/4" - Pit D	July 4	M-H. P.
370			G		Stockpile NPAG 0-3/4" - Pit D	July 4	M-H. P.
371			G		Stockpile NPAG 0-3/4" - Pit D	July 4	M-H. P.
372			G		In place - st. 0+143.5, O/S -15.714m, el. 141.060m	July 5	M-H. P.
373		G			In place - st. 0+160.4, O/S -23.5m, el. 140.6m	July 6	M-H. P.
~~374~~	~~G~~				~~Stockpill Central Dike North Compacted Till (rough till)~~	~~July 6 & July 7~~	~~M-H. P.~~
~~375~~	~~G~~				~~Stockpile Snow Dump (rough till)~~	~~July 6~~	~~M-H. P.~~
376				T.E.	CD 0+175/-5 fault infill	July 6	M. D.-B.
377	G				Stockpile Snow Dump (rough till)	July 7	M-H. P.
378	G				Stockpile Snow Dump (rough till)	July 7	M-H. P.
379			G		SD5, Fine Filter (in place) @ 40+700.4	July 13	S.O.
380		G			SD5, Coarse Filter (in place) @ ±40+685	July 14	F.R.
381	G				Stockpile Central Dike North (rough till)	July 18	S.O.
382			G		CD, Fine Filter (in place) @ 0+876	July 20	S.O.
383		G			CD, Coarse Filter(in place) @ 0+480, lev140	July 25	G.L.
384			G		CD, Fine Filter(in place) @ 0+780, level 141	July 29	G.L.
385			G		SD4, Fine Filt.(in place) @ 40+340, lev141,5	July 31	G.L.
386		G			SD4, Coarse Filt,(in place) @ 40+360, lev142	July 31	G.L.
387					SD3, Fine Filt,(in place) @ 20+680, lev 140.5	August 1	M-H. P.
388		G			SD3, Coarse Filt,(in place) @ 20+680, lev 140.5	August 1	M-H. P.
389	Proctor				Stockpile No.1 - Central Dike	August 6	M-H. P.
390		G			In place - st. 0+301, O/S -27.7m, el. 141.5m	August 6	M-H. P.
391			G		In place - st. 0+894, O/S -29.3m, el. 141.5m	August 7	M-H. P.
392	G		G		In place - st. 0+540.1, O/S -12.9m, el. 143m	August 9	S.O.
393	G				SANA Crusher- Lab Test - Water Content	August 9	S.O.
393-1	G				SANA Crusher - Nucleodensimeter- Water Content	August 9	S.O.
393-2	G				SANA Crusher - Nucleodensimeter	August 9	S.O.
394	G				Sokepile No.1 - Lab Test- Water Content	August 9	S.O.
394-1	G				Sokepile No.1 - Nucleodensimeter- Water Content	August 9	S.O.
394-2	G				Sokepile No.1 - Nucleodensimeter	August 9	S.O.
395	G				Sokepile No.2 - Lab Test- Water Content	August 9	S.O.
395-1	G				Sokepile No.2 - Nucleodensimeter- Water Content	August 9	S.O.
395-2	G				Sokepile No.2 - Nucleodensimeter	August 9	S.O.
396	G				Sokepile No.6 - Lab Test- Water Content	August 9	S.O.
396-1	G				Sokepile No.6 - Nucleodensimeter- Water Content	August 9	S.O.
396-2	G				Sokepile No.6 - Nucleodensimeter	August 9	S.O.

SNC·LAVALIN International	Project No	Subd.	Subject	Sequential	Rev.
	638617				

Client Name	Name & Location of Project :
Agnico Eagle	**Meadowbank**
SOIL SAMPLES RECEIVING LIST	Report No.

Num.	Samples				Location of sample	Date	Tech.
	Till	coarse fil.	fine fil.	Other		Received	
397	G				Sana Crusher and stokepile - Nucleodensimeter-	August 11	S.O.
398	G				SD4 - In place (Between 40+120 to 40+160) - Nucleodensimeter	August 12	S.O.
399	G				SD4 - In place, st. 40+139, O/S --18.6m, el. 141.3m	August 12	S.O.
400	G				SD4 - In place (Between 40+360 to 40+400) - Nucleodensimeter	August 12	S.O.
401	Proctor				Stockpile No.2 - Central Dike	August 13	S.O.
402	G				SD3 - In place (Between 20+760 to 20+800) - Nucleodensimeter	August 13	S.O.
403	G				SD3 - In place, st. 20+604.4, O/S. 52.2m, el. 142.5m	August 13	S.O.
404	G				SD3 - In place (Between 20+600 to 20+620) - Nucleodensimeter	August 13	S.O.
405	G				Stokpile no.6 and non sieved Till - Water Content	August 14	S.O.
406	G				Reference Board - Sieve Till -stokepile No.6	August 14	F.R.
407	G				Reference Board - Non Sieve Till -north side of CD	August 14	F.R.
408				T.E.	SD3 - inplace - ST. 20+600	August 15	S.O.
409	G				SD3 second class Till(north side)- Nucleodensimeter	August 15	S.O.
410	G				SD4 second class Till(north and south side)- Nucleodensimeter	August 15	S.O.
411	G				CD - In place, ST. 0+186, el.138.3, O/S.40.3	August 16	S.O.
412	G			T.E.	CD-In place, St. 0+128.1, el. 142.2, O/S.31.9	August 16	S.O.
413	G				SD4 second class Till(north and south side)- Nucleodensimeter	August 16	S.O.
414	G				CD - In place (Between 0+200 to 0+100) - First layer, Nucleodensimeter	August 16	S.O.
415	G				CD - In place (Between 0+200 to 0+100) - second layer, Nucleodensimeter	August 17	S.O.
416	G				CD - In place, ST. 40+633.1, el.140.9, O/S.38.7	August 19	S.O.
417	G				SD5 - In place (Between 40+620 to 40+780) - Nucleodensimeter	August 19	S.O.
418	G				SD5 - In place (Between 40+620 to 40+780) - , Till	August 21	S.O.
419	G				Stockpile no. C (rough till)	August 21	S.O.
420	G				Stockpile no. B (rough till)	August 21	S.O.

APPENDIX I1
STOCKPILE QC RESULTS

APPENDIX I1A

QC RESULTS LAB – TILL STOCKPILE MATERIAL

SNC·LAVALIN International	Project No	Subd.	Subject	date
	638617			2016/08/09
Client Name	Name & Location of Project :			
Agnico Eagle	Meadowbank			
WATER CONTENT (ASTM D-2216)			Report No.	

Client : Agnico Eagle
Projet : Meadowbank

No dossier : 638617
No Échantillon : 393
Prélevé le : 2016/08/09

Four conventionnel ☒ Four Micro-ondes ☐

Échantillon no.		393	394	395	396		
Profondeur pied ☐ mètre ☒		0.15	0.15	0.15	0.15		
Récipient no.							
Masse du sol humide + ~~récipient~~	(g)	3460.4	3154	6101.8	4559.9		
~~Masse du sol sec + récipient~~	(g)						
~~Masse de l'eau~~	(g)						
~~Masse du récipient~~	(g)						
Masse du sol sec	(g)	3221.1	2921.5	5559.2	4264.1		
Teneur en eau	(%)	7.5	8	9.8	7		

Sample NO	Location :
393	SANA Crusher - Till stock pile
394	Stock pile NO. 1
395	Stock pile NO. 2
396	Stock pile NO. 6

ÉQUIPEMENTS :

Réalisé par: Sanaz olyaie Date: 2016/08/09

Vérifié par: _____ Date: _____

SNC·LAVALIN International	Project No	Subd.	Subject	date
	638617		Till water cont.	2016/08/14
Client Name	Name & Location of Project :			
Agnico Eagle	Meadowbank			
WATER CONTENT (ASTM D-2216)			Report No.	

Client : Agnico Eagle
Projet : Meadowbank

No dossier : 638617
No Échantillon : 405
Prélevé le : 2016 / 08/14

Four conventionnel ☑ Four Micro-ondes ☐

Échantillon no.		405-A	405-B	405 C			
Profondeur pied ☐ mètre ☑		0.5	0.5	0.5			
~~Récipient no.~~							
Masse du sol humide + ~~récipient~~ (g)		836.5	914	896.1			
Masse du sol sec + récipient	(g)	775.8	830.1	839.9			
Masse de l'eau	(g)						
Masse du récipient	(g)						
Masse du sol sec	(g)						
Teneur en eau	(%)	7.8%	10.1%	6.7%			

Test NO.	Location
405-A	Stock pile NO. 6
405-B	Non Sieved Till stock pile
405-C	Non Sieved Till stock pile

ÉQUIPEMENTS :

Réalisé par: Sanz Olyaie Date:

Vérifié par: 2016/08/14 Date:

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			07/06/2016

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

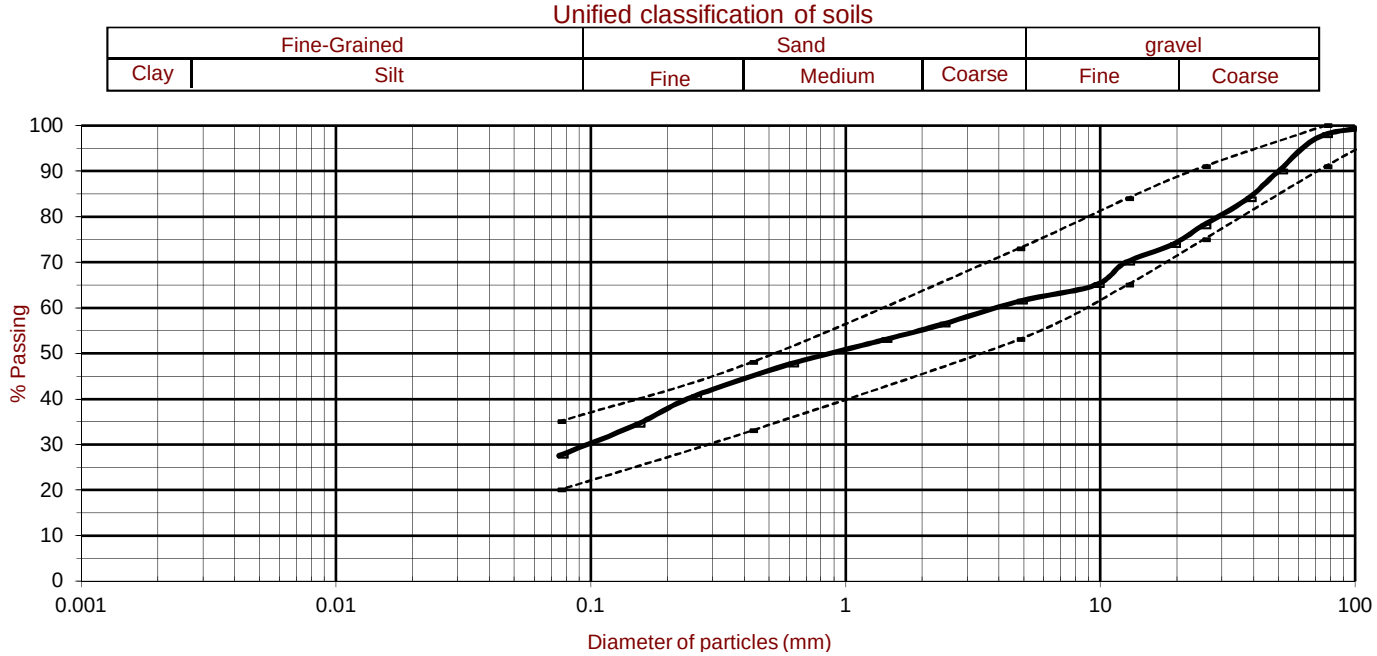
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 351

Material : Till
Source : from excavation on the 03 of june
stock near west road
Utilisation :
Collected : 16-06-04
Sampled by : G. L.

Received : 16-06-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	15.5%	
150.0	100	100			
75.0	98	91-100			
50.0	90				
37.5	84				
25.0	78	75-91			
19.0	74				
12.5	70	65-84			
9.5	65				
4.75	61	53-73			
2.36	56				
1.40	53		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0.600	48		Method	Maximum dry unit weight	Optimum water content
0.250	40	33-48	C	kg/m^3	%
0.150	34				
0.075	27.6	20-35			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			11/06/2016

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 352

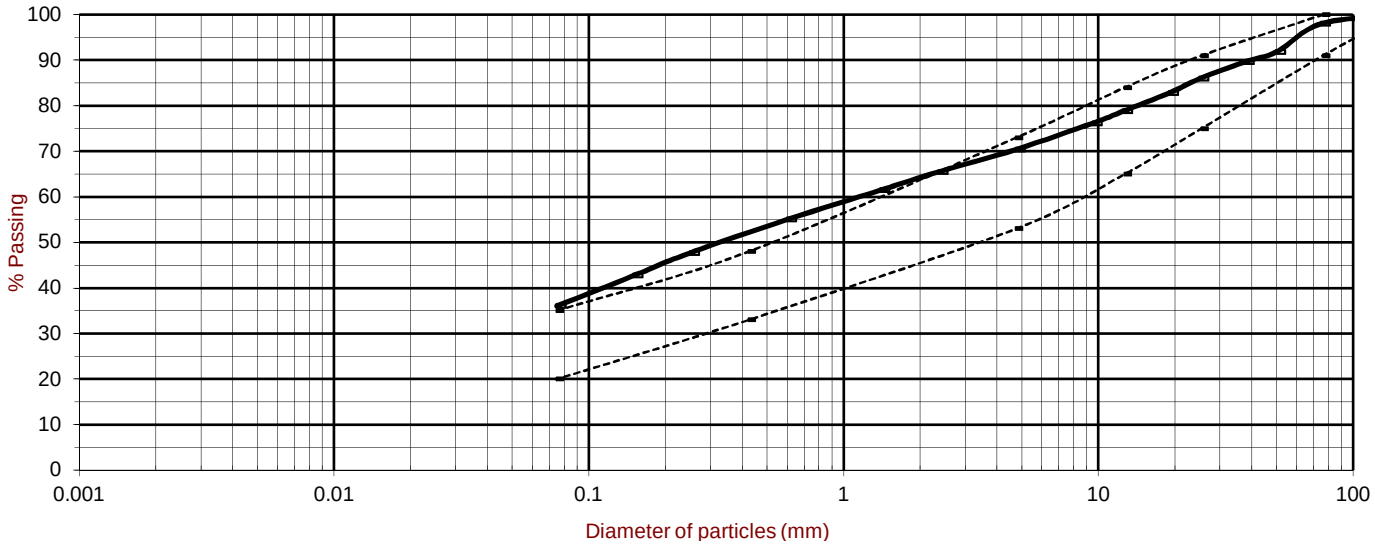
Material : Till
Source : from excavation on the 07 of june
stock pile north of central dike
Utilisation :
Collected : 16-06-08
Sampled by : G. L.

Received : 16-06-08
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	11.5%	
150.0	100	100			
75.0	98	91-100			
50.0	92				
37.5	90				
25.0	86	75-91			
19.0	83				
12.5	79	65-84			
9.5	76				
4.75	70	53-73			
2.36	65				
1.40	61		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0.600	55		Method	Maximum dry unit weight	Optimum water content
0.250	48	33-48	C	kg/m^3	%
0.150	43				
0.075	36.0	20-35			

Unified classification of soils

Fine-Grained		Sand			gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-06-26

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 353

Material : Till
Source : from the stockpile no.1 on June 23th. Central Dike
Utilisation :
Collected : 16-06-23
Sampled by : S. O.
Received : 16-06-26
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	8,4%	
(mm)	Measured	Requirement			
150,0	100	100			
75,0	100	91-100			
50,0	100				
37,5	100				
25,0	93	75-91			
19,0	85				
12,5	80	65-84			
9,5	76				
4,75	68	53-73			
2,36	63				
1,40	59		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	52		Method	Maximum dry unit weight	Optimum water content
0,250	46	33-48	C	kg/m^3	%
0,150	41				
0,075	35,6	20-35			

Unified classification of soils

Fine-Grained		Sand			gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: Sanaz Olyaie
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136			Report No.	

Client : Agnico-Eagle
Project : Meadow bank
Description : Till (stock pile NO1)

File no : 638617
SAMPLE no : 353
Référence No. :

Identification		Water content		
Sieve serial n° :		Pan n° :	—	
Washing sieve n° :		Pan weight :	—	gr.
Sieve shaker(gilson) n° :		Pan + humid soil weight :	44463	gr.
Sieve shaker(rotap) n° :		Pan + dry soil weight :	41002	gr.
Balance n° :		Water content :	3.44	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil: 41002 gr

total mass < 20mm.: 6591 gr

mass before sieving: gr

sieving loss: %

soil mass < 5 mm before washing: 945 gr

after washing (dry): 486.5 gr

sieving loss: %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	— gr	gr				%
75	0 gr	gr				%
63	— gr	gr				%
50	0 gr	gr				%
37.5	71 gr	gr				%
25	2831 gr	gr				%
19	3231 gr	gr				%
12.5	369.2 gr	gr				%
9.5	346.2 gr	gr				%
4.76	590.6 gr	gr				%
pan	5284.8 gr	gr				%
2,36	67.6 gr	gr				%
1.4 ~~1,18~~	63.8 gr	gr				%
600 µm	89.5 gr	gr				%
250~~300~~ µm	92.1 gr	gr				%
150 µm	63.1 gr	gr				%
75 µm	75.6 gr	gr				%
pan	33.1 gr	gr				%

REMARKS

Tested by: Sanaz olyaie
Date: 26/06/2016

Approved by :
Date :

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-06-24

Client Name: **Agnico Eagle**

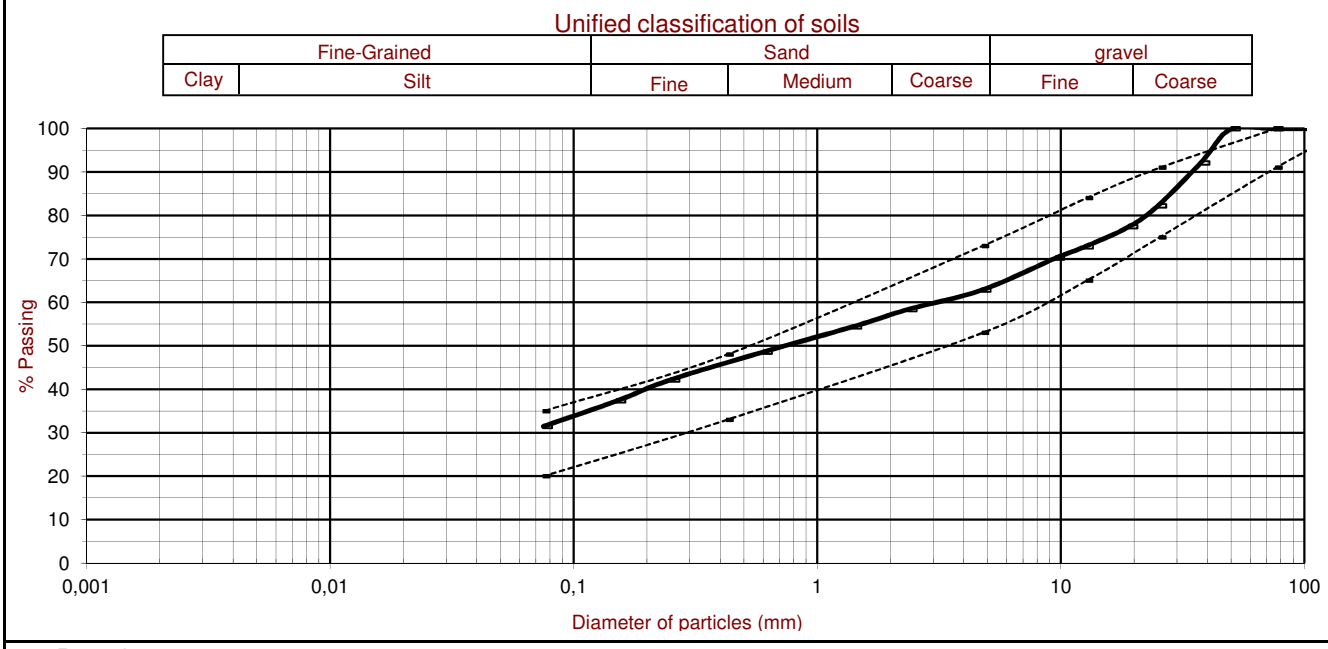
Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 354

Material : Till
Source : from the stockpile No.1 June 24th North of Central Dike
Utilisation :
Collected : 16-06-24
Sampled by : F.R.
Received : 16-06-27
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	8,4%	
150,0	100	100			
75,0	100	91-100			
50,0	100				
37,5	92				
25,0	82	75-91			
19,0	77				
12,5	73	65-84			
9,5	70				
4,75	63	53-73			
2,36	58				
1,40	54		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	49		Method	Maximum dry unit weight	Optimum water content
0,250	42	33-48	C	kg/m^3	%
0,150	37				
0,075	31,5	20-35			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALYSIS – ASTM C-136	Report No.			

Client : Agnico Eagle
Project : Meadowbank
Description : Till

File no : 638617
SAMPLE no : # 354
Référence No. :

Identification	Water content		
Sieve serial n° :	Pan n° :	103	
Washing sieve n° :	Pan weight :	1086.4	gr.
Sieve shaker(gilson) n° :	Pan + humid soil weight :	14147.2	gr.
Sieve shaker(rotap) n° :	Pan + dry soil weight :	13049.1	gr.
Balance n° :	Water content :	8.4	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

totai mass of soil: 11962.7 gr
total mass +pan: 13049.1
totai mass < 20mm.: 5573 gr
total mass pan: 6659.4
mass before sieving: gr
sieving loss: %
soil mass < 5 mm before washing: 1219.1 gr
after washing: 615.3 gr
sieving loss: 50.5 %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	— gr	gr				%
75	0 gr	gr				%
63	— gr	gr				%
50	0 gr	gr				%
37.5	939.7 gr	gr				%
25	1822 gr	gr				%
19	577.3 gr	gr				%
12.5	333.1 gr	gr				%
9.5	186.4 gr	gr				%
4.76	527.4 gr	gr				%
pan	457.7 gr	gr				%
2,36	86.5 gr	gr				%
1,18	77.4 gr	gr				%
600 µm	112.6 gr	gr				%
300 µm	124.0 gr	gr				%
150 µm	94.1 gr	gr				%
75 µm	114.2 gr	gr				%
pan	6.5 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016-06-25

Approved by :
Date :

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-06-24

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 355

Material : Till
Source : from the stockpile No.2 June 26th North of Central Dike
Utilisation :
Collected : 16-06-26
Sampled by : F.R.
Received : 16-06-29
Client ref :

Sieve analysis (ASTM C-136)		
Sieve (mm)	**(% passing)** Measured	Requirement
150,0	100	100
75,0	100	91-100
50,0	100	
37,5	98	
25,0	92	75-91
19,0	88	
12,5	84	65-84
9,5	81	
4,75	73	53-73
2,36	67	
1,40	63	
0,600	56	
0,250	49	33-48
0,150	44	
0,075	37,1	20-35

Others tests	Measured	Requirement
moisture content	9,9%	

Compaction characteristics of Soil Using Standard Effort (ASTM D-698)

Method	Maximum dry unit weight	Optimum water content
C	kg/m^3	%

Unified classification of soils

Fine-Grained		Sand			gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALYSIS- ASTM C-136	Report No.			

Client : AGNICO EAGLE
Project : Meadow Bank
Description : Till

File no : 638617
SAMPLE no : 355
Référence No. :

Identification	Water content	
Sieve serial n° :	Pan n° : 103	
Washing sieve n° :	Pan weight : 1086.4	gr.
Sieve shaker(gilson) n° :	Pan + humid soil weight : 16 754.7	gr.
Sieve shaker(rotap) n° :	Pan + dry soil weight : 15 247.6	gr.
Balance n° :	Water content : 9.9%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil
~~54746~~ 14161.2 gr

total + pan = ~~6561~~ 15 247.6

total mass < 20mm.
54746 gr

total + pan = 6561

mass before sieving
gr

sieving loss
%

soil mass < 5 mm before washing
1264.1 gr

after washing
~~628.6~~ 628.6 gr

sieving loss
%

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	— gr	gr				%
75	0 gr	gr				%
63	— gr	gr				%
50	0 gr	gr				%
37.5	318.3 gr	gr				%
25	756.4 gr	gr				%
19	583.3 gr	gr				%
12.5	281.2 gr	gr				%
9.5	189.4 gr	gr				%
4.76	~~516.5~~ gr	518 gr				%
pan	~~4475.9~~ gr	4481.4 gr				%
2,36	93.1 gr	gr				%
1,18	77.9 gr	gr				%
600 µm	116.9 gr	gr				%
300 µm	125.2 gr	gr				%
150 µm	90.1 gr	gr				%
75 µm	114.1 gr	gr				%
pan	11.3 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016-06-27

Approved by :
Date :

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-06-30

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

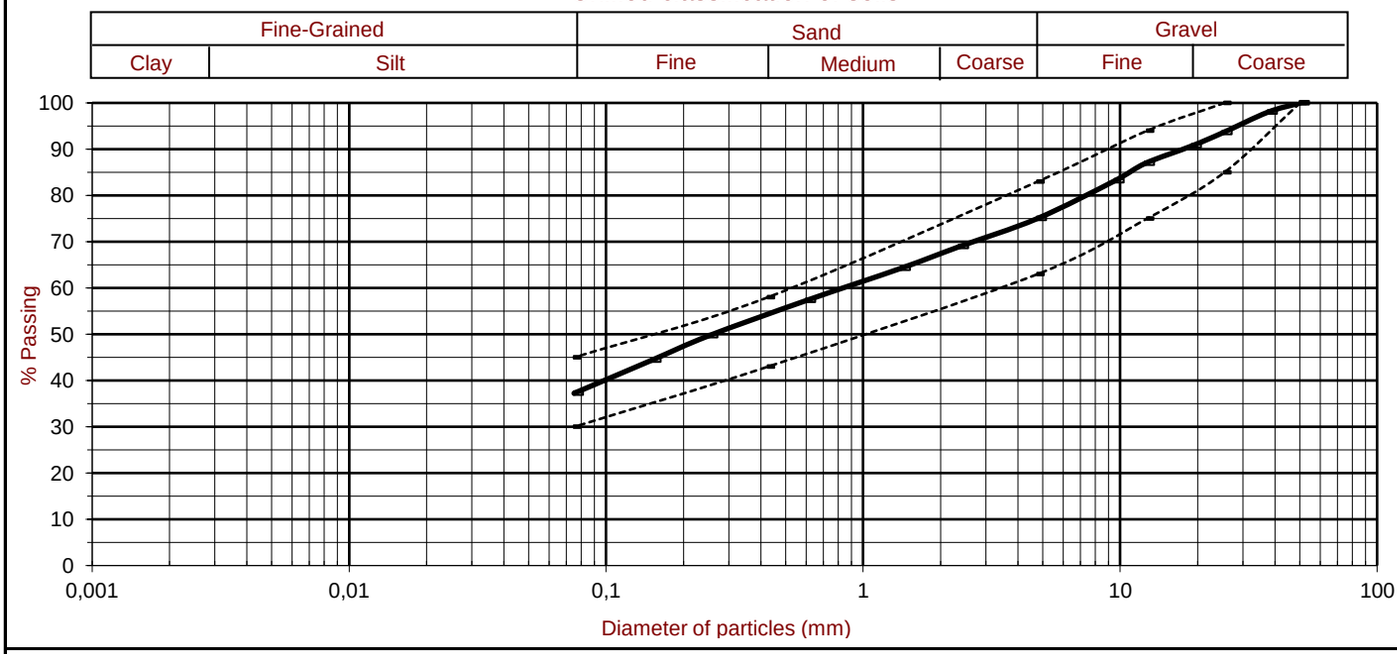
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 356

Material : Sieve till
Source : stockpile n. 3
Utilisation :
Collected : 16-06-28
Sampled by : F.R.

Received : 16-06-28
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	10,5%	
(mm)	Measured	Requirement			
150,0	100				
75,0	100				
50,0	100	100			
37,5	98				
25,0	94	85-100			
19,0	91				
12,5	87	75-94			
9,5	83				
4,75	75	63-83			
2,36	69				
1,40	64		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	57		Method	Maximum dry unit weight	Optimum water content
0,250	50	43-58	C	kg/m^3	%
0,150	44				
0,075	37,3	30-45			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-02

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

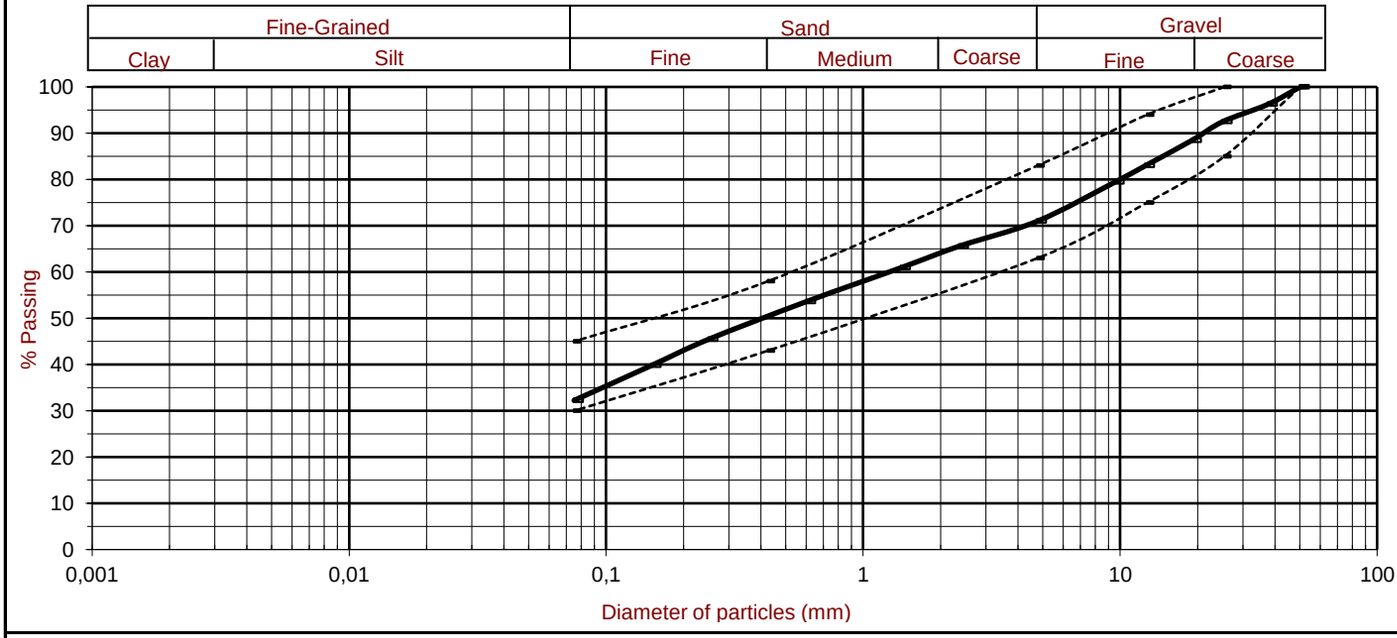
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 357

Material : Sieve till
Source : stockpile n. 4
Utilisation :
Collected : 16-06-30
Sampled by : M-H. P.

Received : 16-06-30
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	8,3%	
(mm)	Measured	Requirement			
150,0	100				
75,0	100				
50,0	100	100			
37,5	96				
25,0	92	85-100			
19,0	88				
12,5	83	75-94			
9,5	79				
4,75	71	63-83			
2,36	66				
1,40	61		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	54		Method	Maximum dry unit weight	Optimum water content
0,250	45	43-58	C	kg/m^3	%
0,150	40				
0,075	32,3	30-45			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-05

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

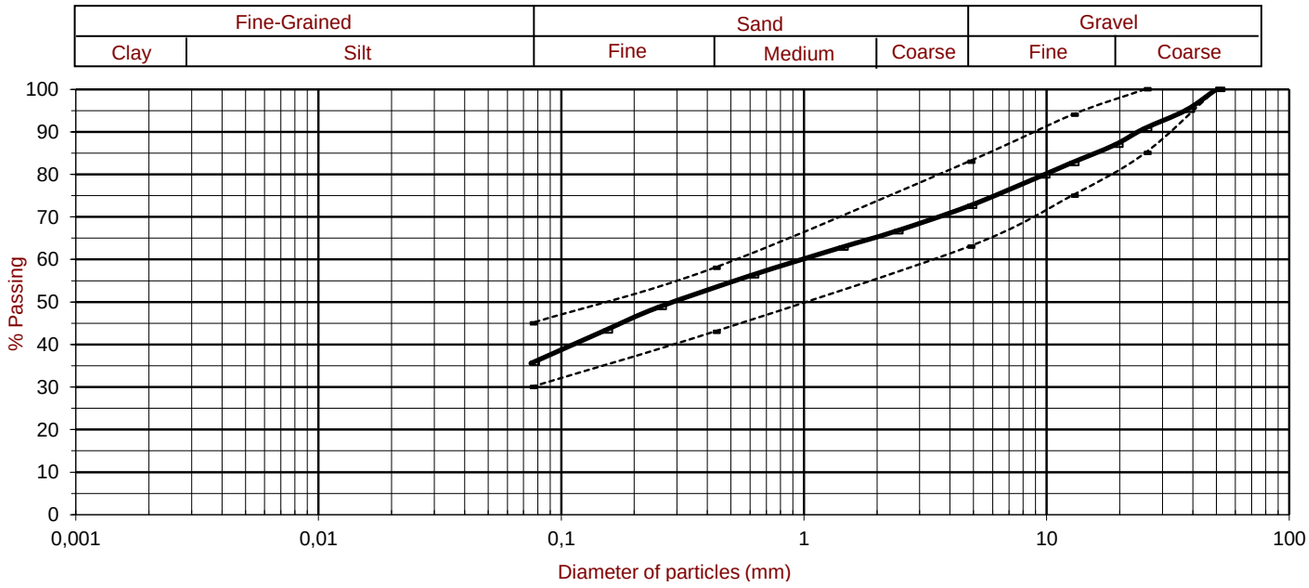
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 362

Material : Sieve till
Source : stockpile n. 6
Utilisation :
Collected : 16-07-02
Sampled by : F.R.
Received : 16-07-02
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	9,4%	
150,0					
75,0					
50,0	100	100			
37,5	95				
25,0	91	85-100			
19,0	87				
12,5	83	75-94			
9,5	80				
4,75	72	63-83			
2,36	67				
1,40	63		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	56		Method	Maximum dry unit weight	Optimum water content
0,250	49	43-58	C	kg/m^3	%
0,150	43				
0,075	35,6	30-45			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-07

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

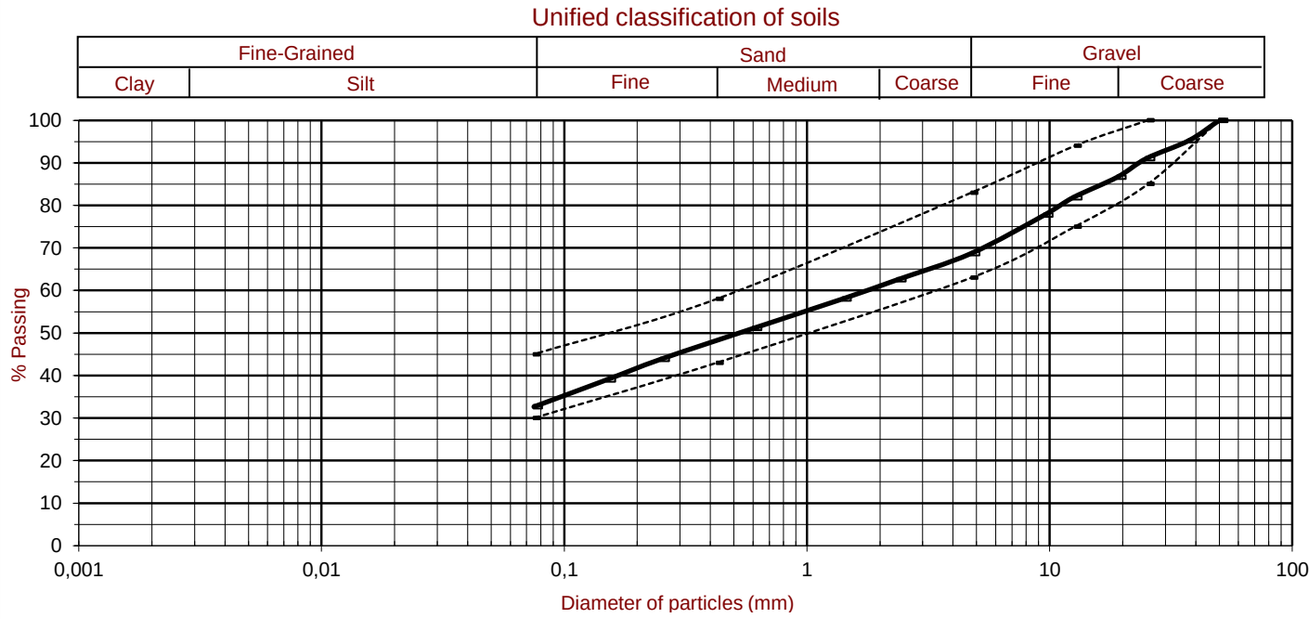
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 367

Material : Sieve till
Source : stockpile n. 7
Utilisation :
Collected : 16-07-04
Sampled by : M-H. P,

Received : 16-07-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	8,9%	
150,0	100				
75,0	100				
50,0	100	100			
37,5	95				
25,0	91	85-100			
19,0	87				
12,5	82	75-94			
9,5	78				
4,75	69	63-83			
2,36	63				
1,40	58		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	51		Method	Maximum dry unit weight	Optimum water content
0,250	44	43-58	C	kg/m^3	%
0,150	39				
0,075	32,7	30-45			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-14

Client Name: **Agnico Eagle**

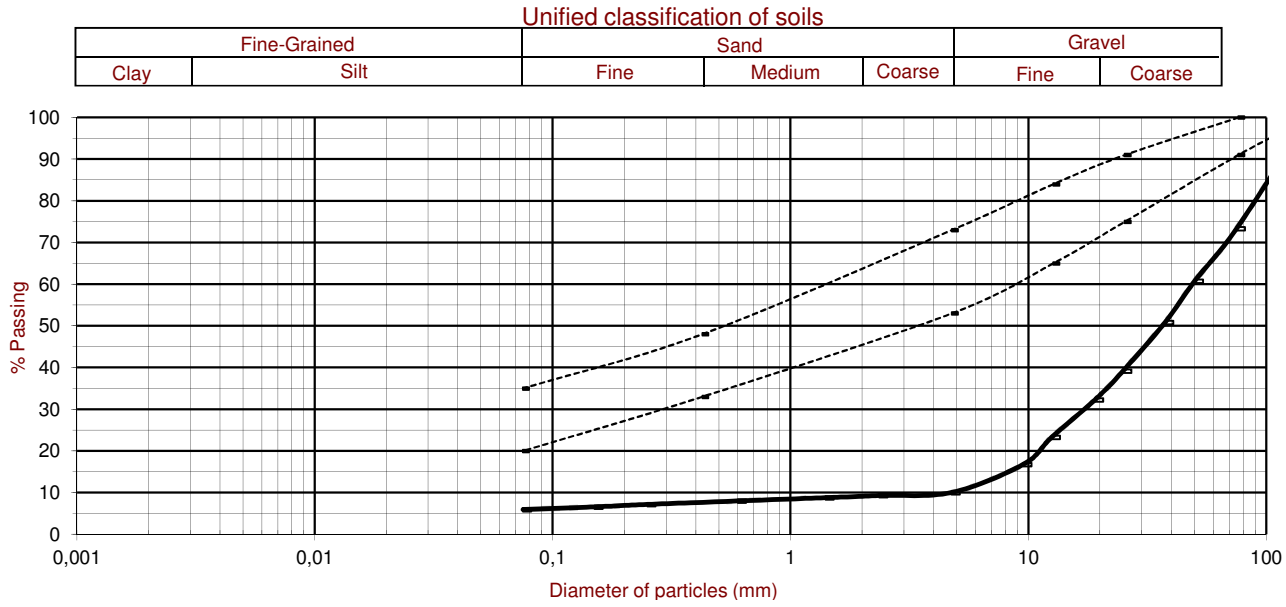
Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 374

Material : Rough Till, Compacted
Source : Stockpile Central Dike North Compacted
Utilisation :
Collected : 16-07-07
Sampled by : M.-H. P.
Received : 16-07-13
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	9,8%	
(mm)	Measured	Requirement			
150,0	100	100			
75,0	73	91-100			
50,0	61				
37,5	51				
25,0	39	75-91			
19,0	32				
12,5	23	65-84			
9,5	17				
4,75	10	53-73			
2,36	9				
1,40	9		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	8		Method	Maximum dry unit weight	Optimum water content
0,250	7	33-48	C	kg/m^3	%
0,150	7				
0,075	6,0	20-35			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No	Subd.	Subject	Date
	638617			2016-07-17

Client Name	Project Name
Agnico Eagle	**Meadowbank**

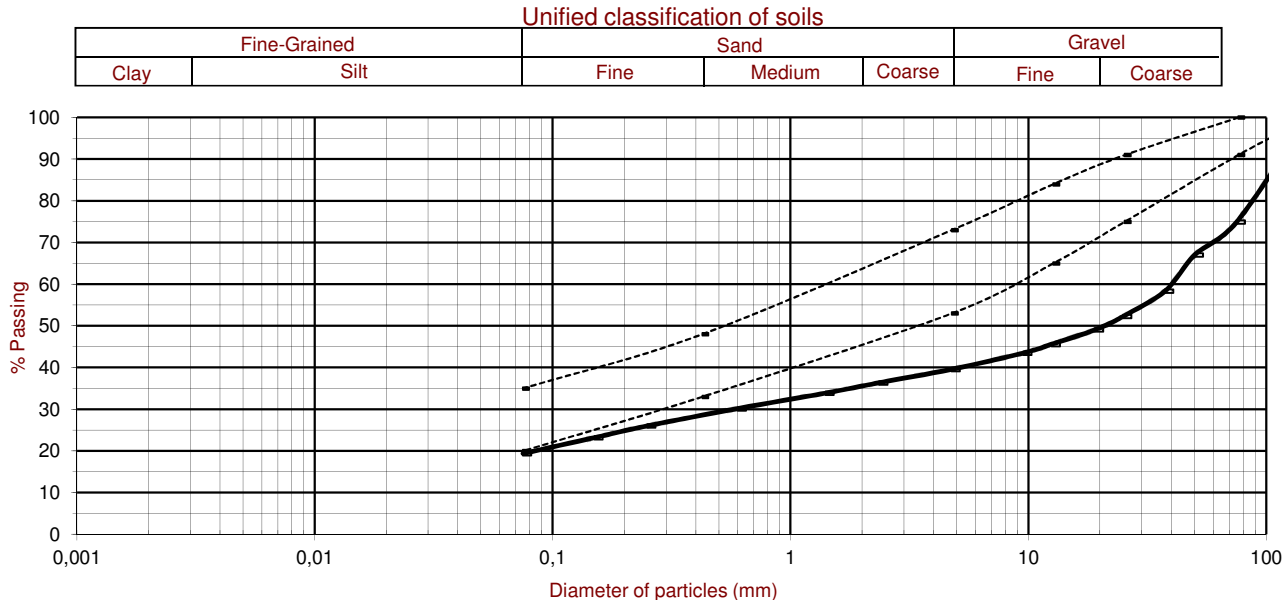
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 377

Material : Rough Till
Source : Stockpile Snow Dump
Utilisation :
Collected : 16-07-07
Sampled by : M.-H. P.

Received : 16-07-14
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	5,4%	
(mm)	Measured	Requirement			
150,0	100	100			
75,0	75	91-100			
50,0	67				
37,5	58				
25,0	52	75-91			
19,0	49				
12,5	46	65-84			
9,5	44				
4,75	40	53-73			
2,36	36				
1,40	34		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	30		Method	Maximum dry unit weight	Optimum water content
0,250	26	33-48	C	kg/m^3	%
0,150	23				
0,075	19,4	20-35			



Remarks:

Verified by: Francis Rose / S.O.
technicien

Approuved by:

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-17

Client Name: **Agnico Eagle**

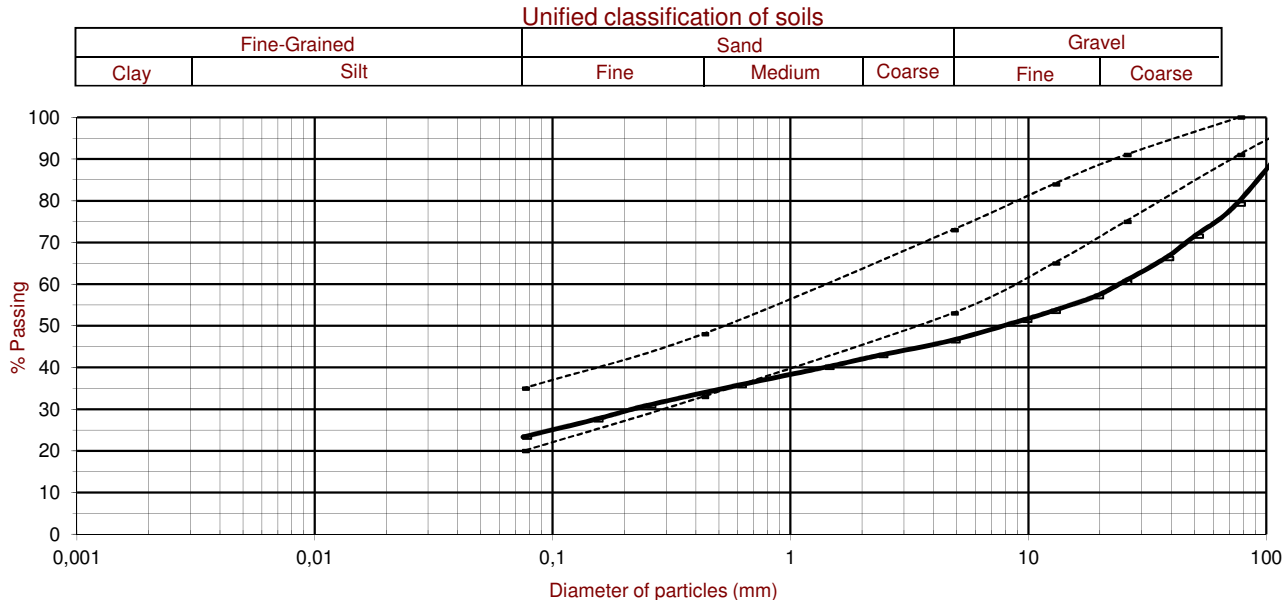
Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 378

Material : Rough Till
Source : Stockpile Snow Dump
Utilisation :
Collected : 16-07-07
Sampled by : M.-H. P.
Received : 16-07-14
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	6,3%	
(mm)	Measured	Requirement			
150,0	100	100			
75,0	79	91-100			
50,0	72				
37,5	66				
25,0	61	75-91			
19,0	57				
12,5	54	65-84			
9,5	51				
4,75	47	53-73			
2,36	43				
1,40	40		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	36		Method	Maximum dry unit weight	Optimum water content
0,250	31	33-48	C	kg/m^3	%
0,150	28				
0,075	23,4	20-35			



Remarks:

Verified by: Francis Rose
technicien

Approved by:

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-24

Client Name: **Agnico Eagle**

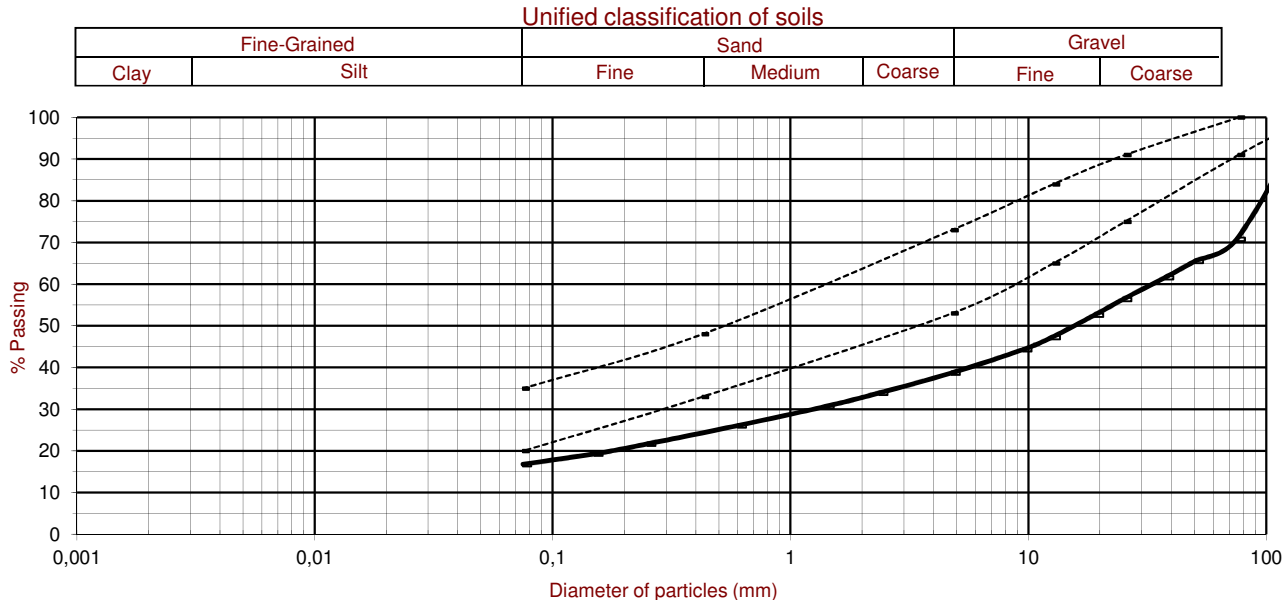
Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 381

Material : Rough Till
Source : Stockpile North of Central Dike
Utilisation :
Collected : 16-07-18
Sampled by : S.O.
Received : 16-07-24
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	5,1%	
(mm)	Measured	Requirement			
150,0	100	100			
75,0	71	91-100			
50,0	66				
37,5	62				
25,0	56	75-91			
19,0	53				
12,5	47	65-84			
9,5	44				
4,75	39	53-73			
2,36	34				
1,40	31		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	26		Method	Maximum dry unit weight	Optimum water content
0,250	22	33-48	C	kg/m^3	%
0,150	19				
0,075	16,8	20-35			



Remarks:

Verified by: Francis Rose
technicien

Approved by:

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-30

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

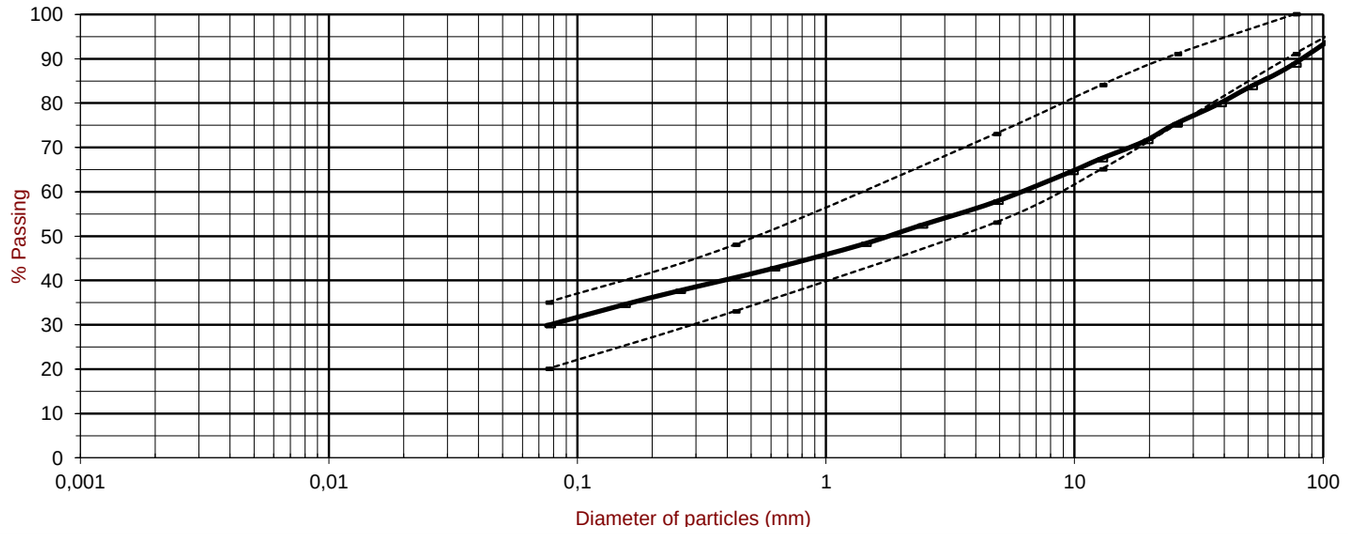
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 419

Material : Till
Source : Stock pile C
Utilisation :
Collected : 16-08-21
Sampled by : S.O.
Received : 16-08-21
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	5,7%	
150,0	100	100			
75,0	89	91-100			
50,0	83				
37,5	80				
25,0	75	75-91			
19,0	71				
12,5	67	65-84			
9,5	64				
4,75	58	53-73			
2,36	52				
1,40	48		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	43		Method	Maximum dry unit weight	Optimum water content
0,250	38	33-48	C	kg/m^3	%
0,150	34				
0,075	29,8	20-35			

Unified classification of soils

Fine-Grained		Sand			gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-30

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

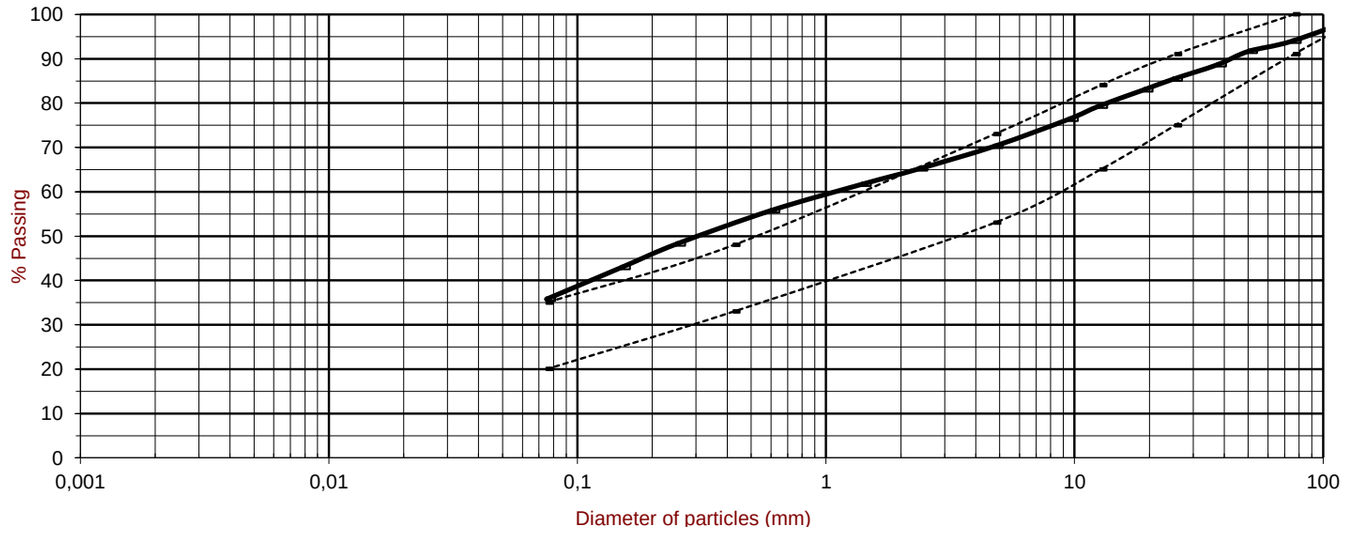
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 420

Material : Till
Source : Stock pile B
Utilisation :
Collected : 16-08-21
Sampled by : S.O.
Received : 16-08-21
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	7,9%	
150,0	100	100			
75,0	94	91-100			
50,0	92				
37,5	89				
25,0	85	75-91			
19,0	83				
12,5	79	65-84			
9,5	76				
4,75	70	53-73			
2,36	65				
1,40	62		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	56		Method	Maximum dry unit weight	Optimum water content
0,250	48	33-48	C	kg/m^3	%
0,150	43				
0,075	35,8	20-35			

Unified classification of soils

Fine-Grained		Sand			gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

APPENDIX I1B

QC RESULTS LAB - FINE FILTER STOCKPILE MATERIAL

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-02

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

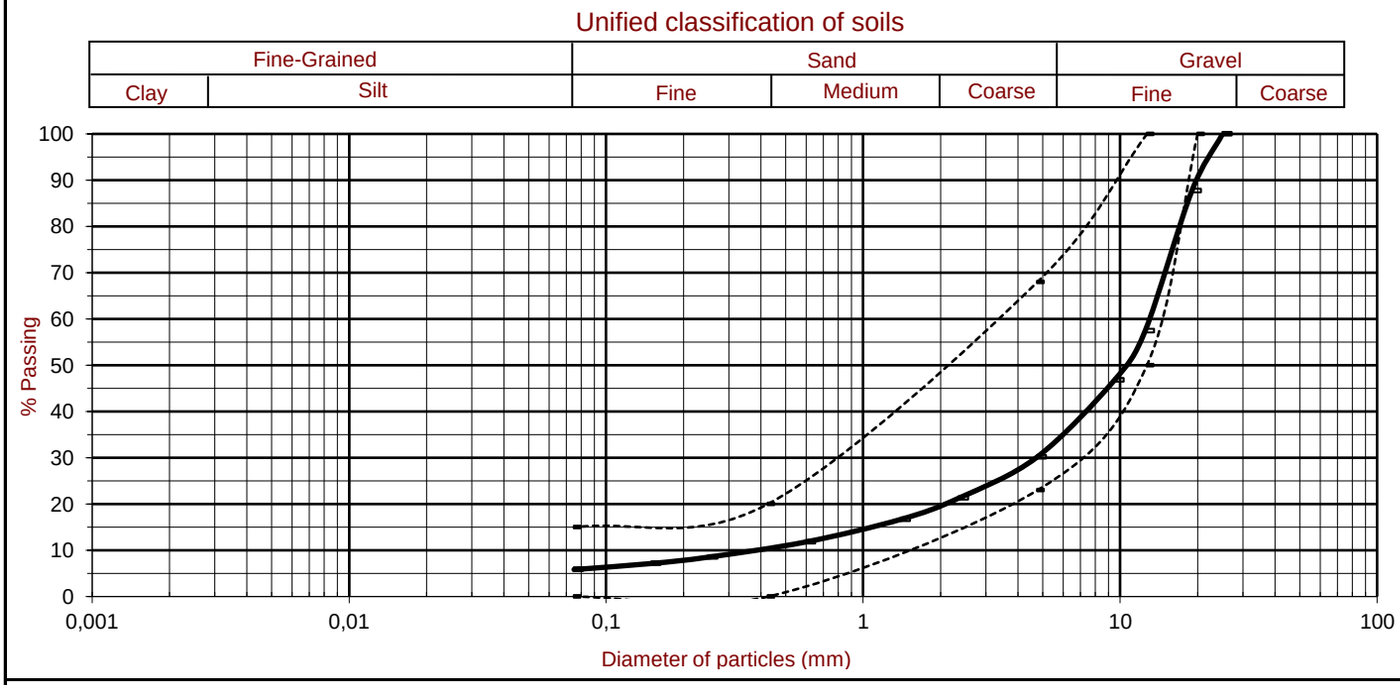
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 358

Material : fine filter
Source : stockpile
Utilisation :
Collected : 16-06-30
Sampled by : M-H. P.

Received : 16-06-30
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	2,4%	
(mm)	Measured	Requirement			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	88	100			
12,5	57	50-100			
9,5	47				
4,75	30	23-68			
2,36	21				
1,40	17		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	12	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	9		C	kg/m^3	%
0,150	7				
0,075	5,9	0-15			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-02

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

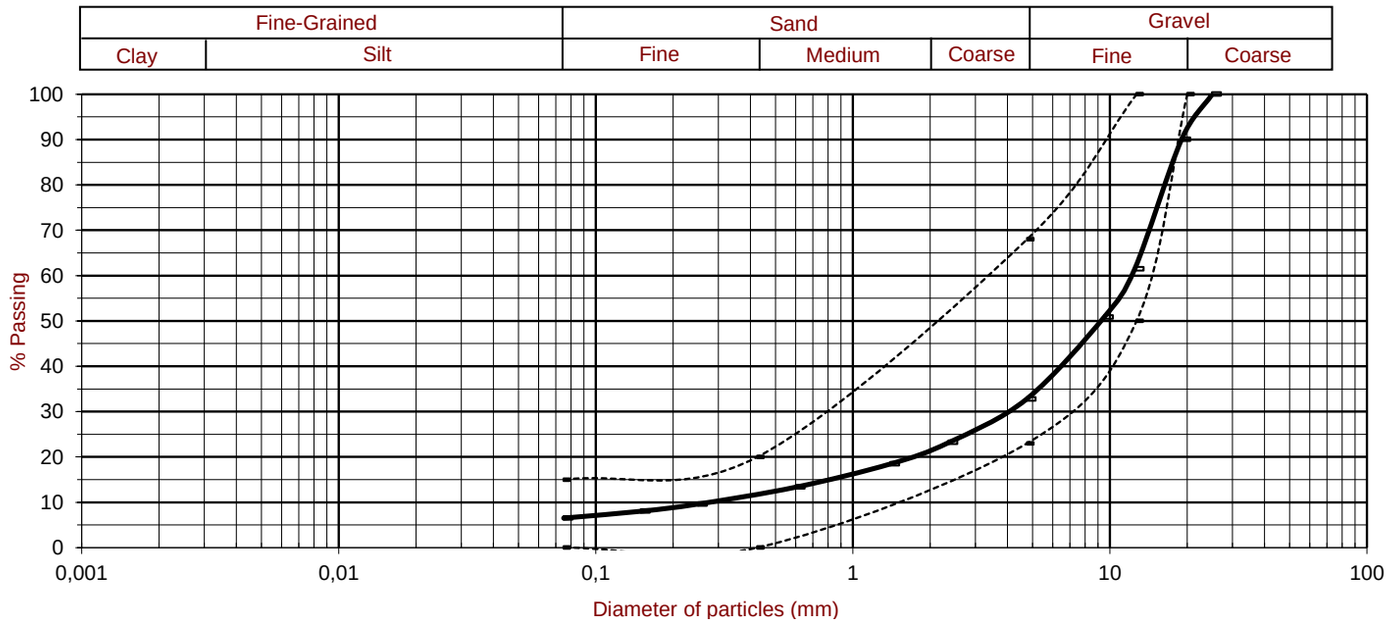
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 359

Material : fine filter
Source : stockpile
Utilisation :
Collected : 16-06-30
Sampled by : M-H. P.

Received : 16-06-30
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,6%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	90	100			
12,5	61	50-100			
9,5	51				
4,75	33	23-68			
2,36	23				
1,40	18		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	13	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	10		C	kg/m^3	%
0,150	8				
0,075	6,5	0-15			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-02

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

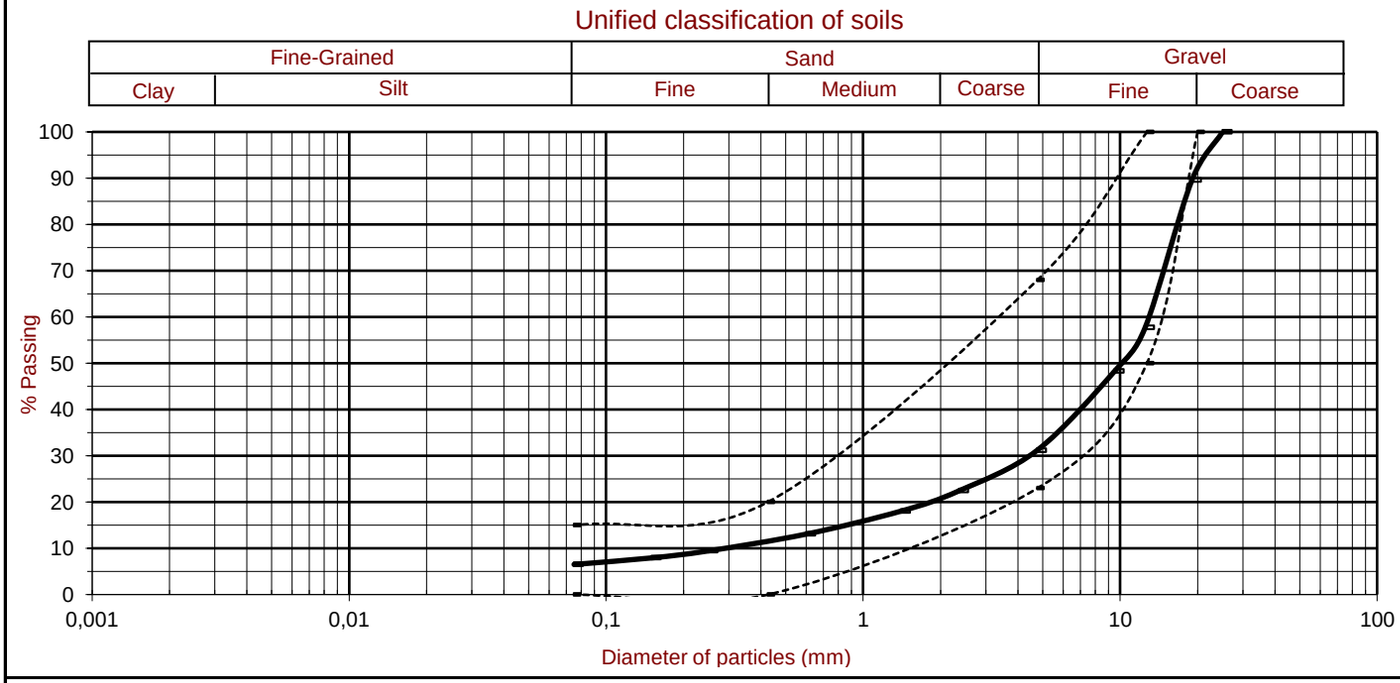
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 360

Material : fine filter
Source : stockpile
Utilisation :
Collected : 16-06-30
Sampled by : M-H. P.

Received : 16-06-30
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	2,6%	
(mm)	Measured	Requirement			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	90	100			
12,5	58	50-100			
9,5	48				
4,75	31	23-68			
2,36	22				
1,40	18		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	13	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	9				
0,150	8		C	kg/m^3	%
0,075	6,5	0-15			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-02

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

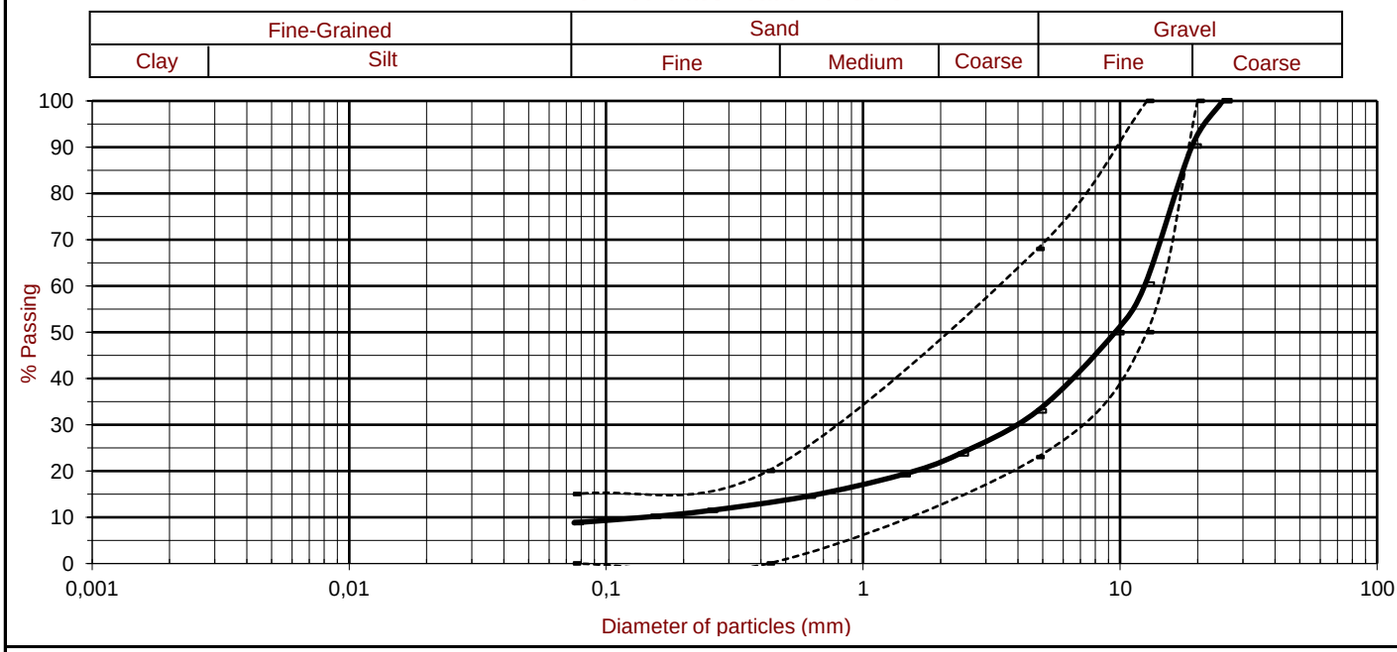
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 361

Material : fine filter
Source : stockpile
Utilisation :
Collected : 16-06-30
Sampled by : M-H. P.

Received : 16-06-30
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,6%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	90	100			
12,5	60	50-100			
9,5	50				
4,75	33	23-68			
2,36	24				
1,40	19		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	15	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	11		C	kg/m^3	%
0,150	10				
0,075	8,8	0-15			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-07

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

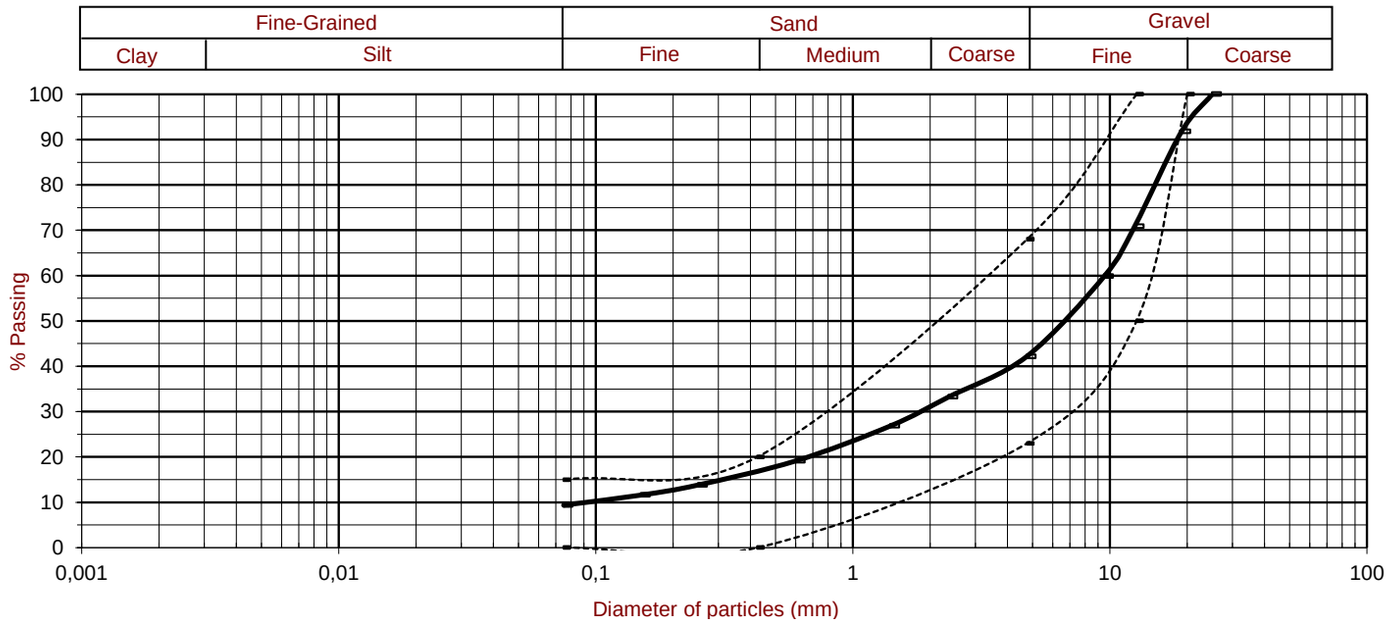
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 368

Material : Fine filter
Source : Stockpile NPAG Pit D
Utilisation :
Collected : 16-07-04
Sampled by : M.-H. P.
Received : 16-07-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,4%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	92	100			
12,5	71	50-100			
9,5	60				
4,75	42	23-68			
2,36	33				
1,40	27		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	19	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	14		C	kg/m^3	%
0,150	12				
0,075	9,4	0-15			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-07

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

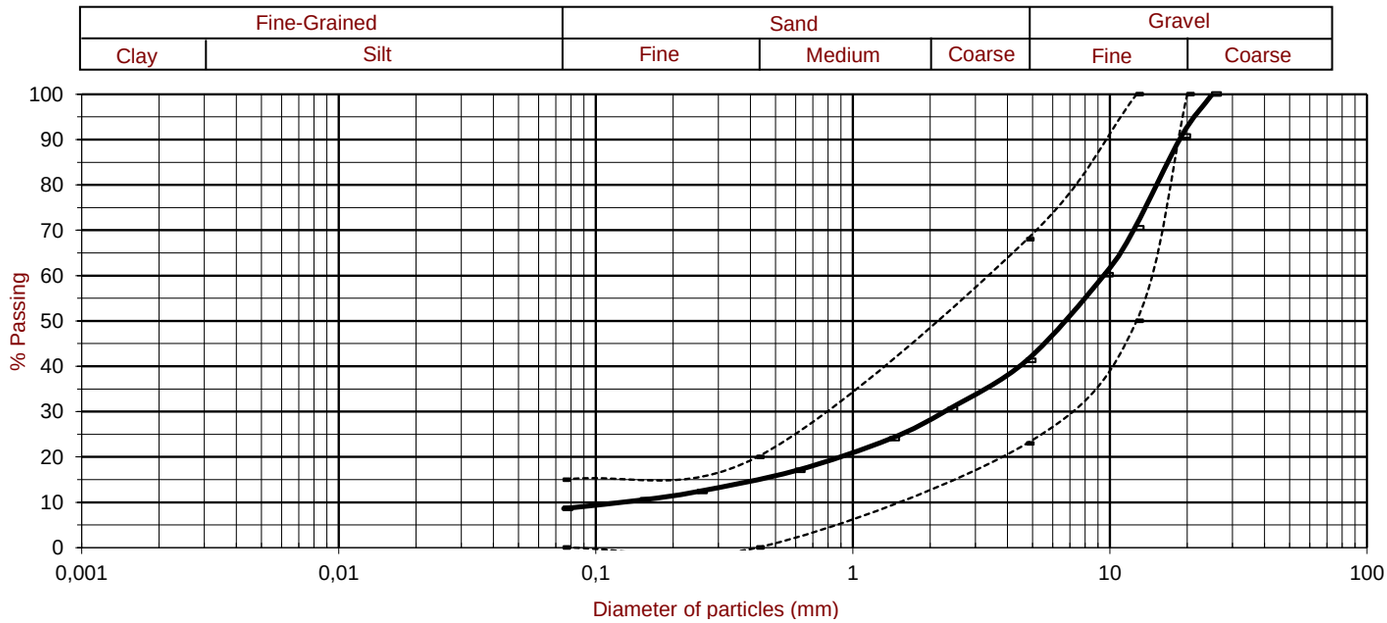
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 369

Material : Fine filter
Source : Stockpile NPAG Pit D
Utilisation :
Collected : 16-07-04
Sampled by : M.-H. P.
Received : 16-07-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,4%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	91	100			
12,5	71	50-100			
9,5	60				
4,75	41	23-68			
2,36	31				
1,40	24		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	17	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	12		C	kg/m^3	%
0,150	10				
0,075	8,6	0-15			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-07

Client Name: **Agnico Eagle**

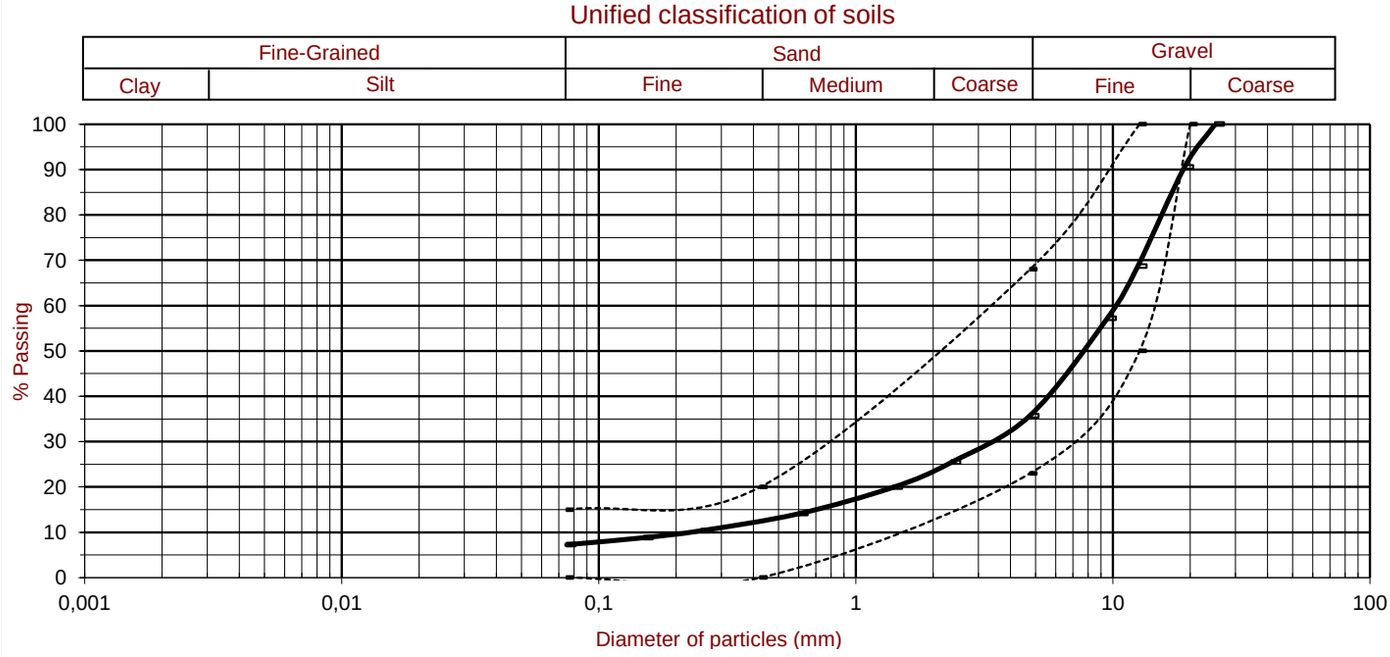
Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 370

Material : Fine filter
Source : Stockpile NPAG Pit D
Utilisation :
Collected : 16-07-04
Sampled by : M.-H. P.
Received : 16-07-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,9%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	91	100			
12,5	69	50-100			
9,5	57				
4,75	36	23-68			
2,36	25				
1,40	20		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	14	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	10		C	kg/m^3	%
0,150	9				
0,075	7,3	0-15			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-07

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

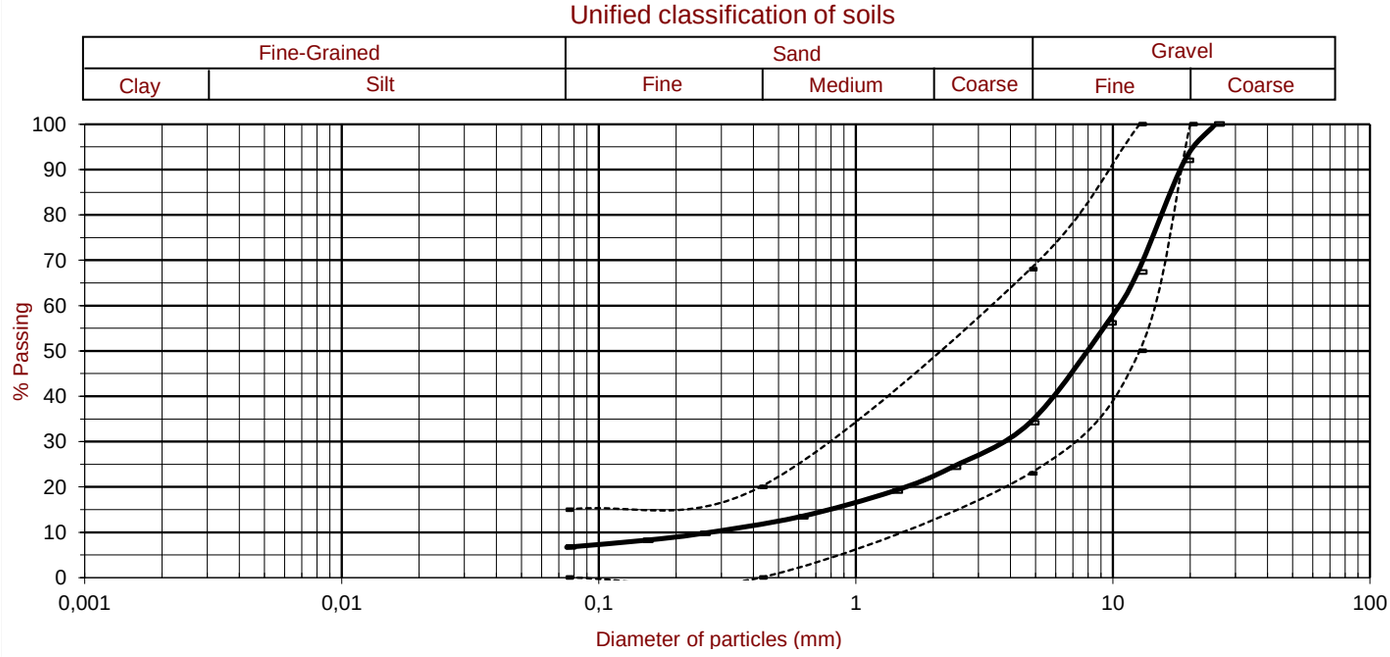
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 371

Material : Fine filter
Source : Stockpile NPAG Pit D
Utilisation :
Collected : 16-07-04
Sampled by : M.-H. P.

Received : 16-07-04
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,4%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	92	100			
12,5	67	50-100			
9,5	56				
4,75	34	23-68			
2,36	24				
1,40	19		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	13	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	10		C	kg/m^3	%
0,150	8				
0,075	6,7	0-15			



Remarks:

Verified by: _____ technicien

Approuved by: _____

APPENDIX I1C

QC RESULTS LAB - COARSE FILTER STOCKPILE MATERIAL

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

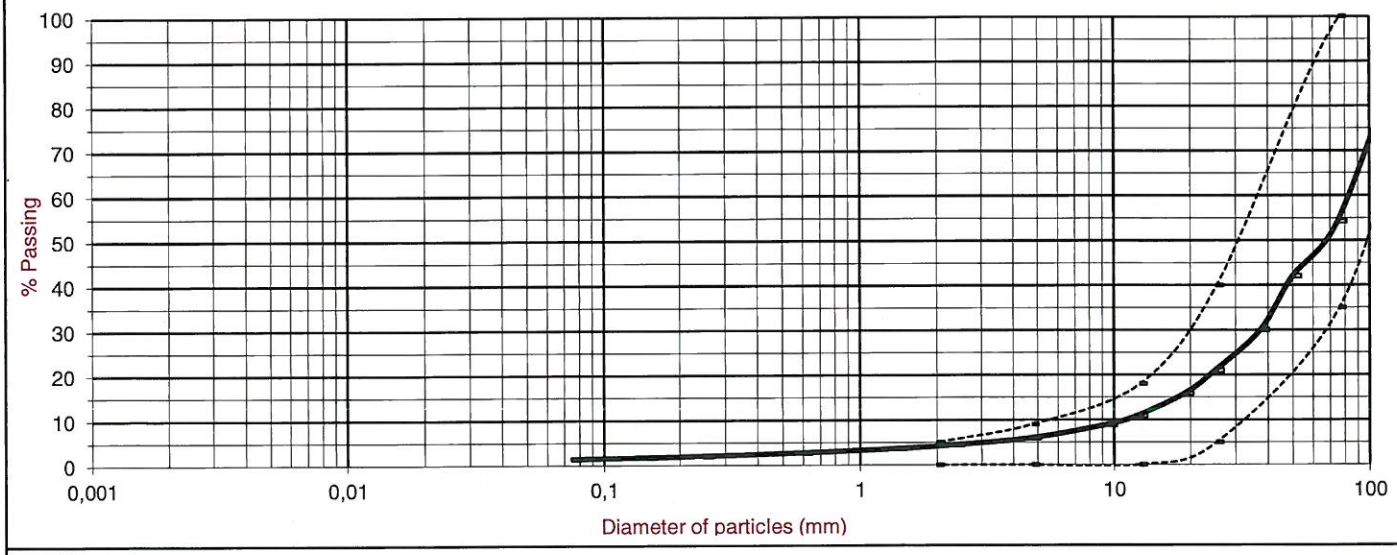
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 363

Material : coarse filter
Source : stockpile n. 1
Utilisation :
Collected : 16-07-03 **Received :** 16-07-03
Sampled by : M-H. P. **Client ref :**

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	0,7%	
150,0	100	86-100			
75,0	54	35-100			
50,0	42				
37,5	30				
25,0	21	5-40			
19,0	16				
12,5	11	0-18			
9,5	9				
4,75	6	0-9			
2,36	4	0-5			
1,40	4		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	3		Method	Maximum dry unit weight	Optimum water content
0,250	2		C	kg/m^3	%
0,150	2				
0,075	1,4				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ Approuved by: _____
technicien

conform, FLB

SNC·LAVALIN International	Project No	Subd.	Subject	Date
	638617			2016-07-09

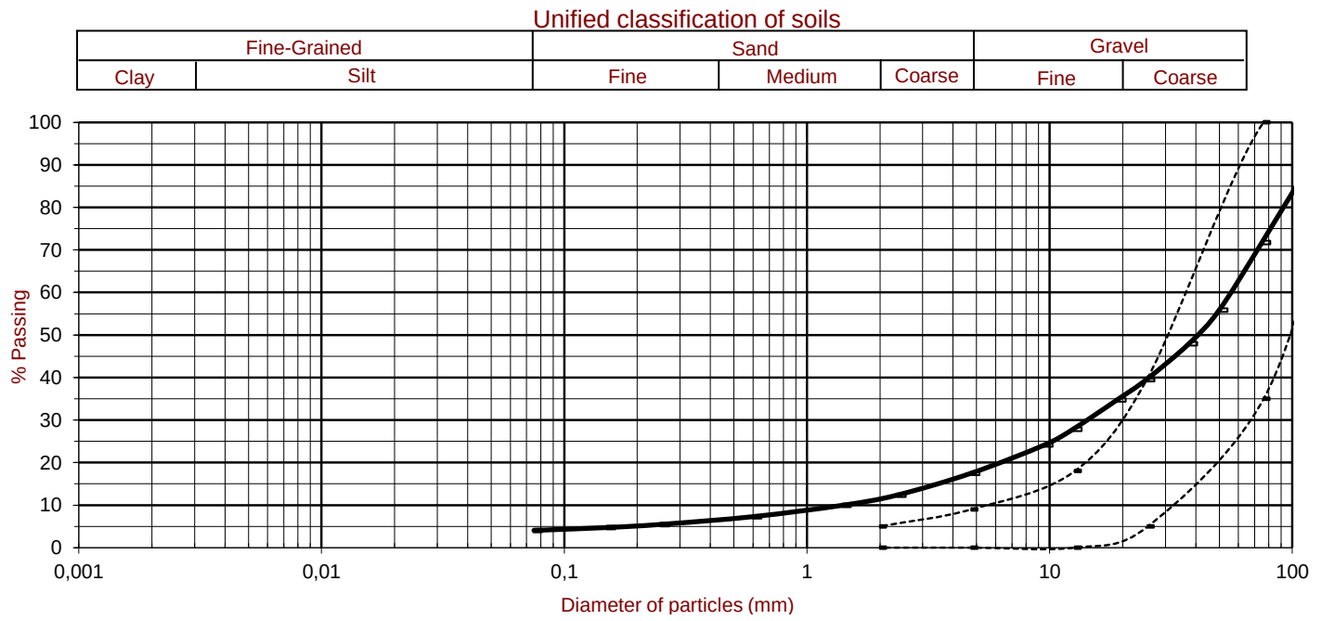
Client Name	Project Name
Agnico Eagle	**Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 364

Material : coarse filter
Source : stockpile n. 1
Utilisation :
Collected : 16-07-03
Sampled by : M-H. P.
Received : 16-07-03
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,5%	
150,0	100	86-100			
75,0	72	35-100			
50,0	56				
37,5	48				
25,0	39	5-40			
19,0	35				
12,5	28	0-18			
9,5	24				
4,75	18	0-9			
2,36	12	0-5			
1,40	10		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	7		Method	Maximum dry unit weight	Optimum water content
0,250	5		C	kg/m^3	%
0,150	5				
0,075	4,0				



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-08

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

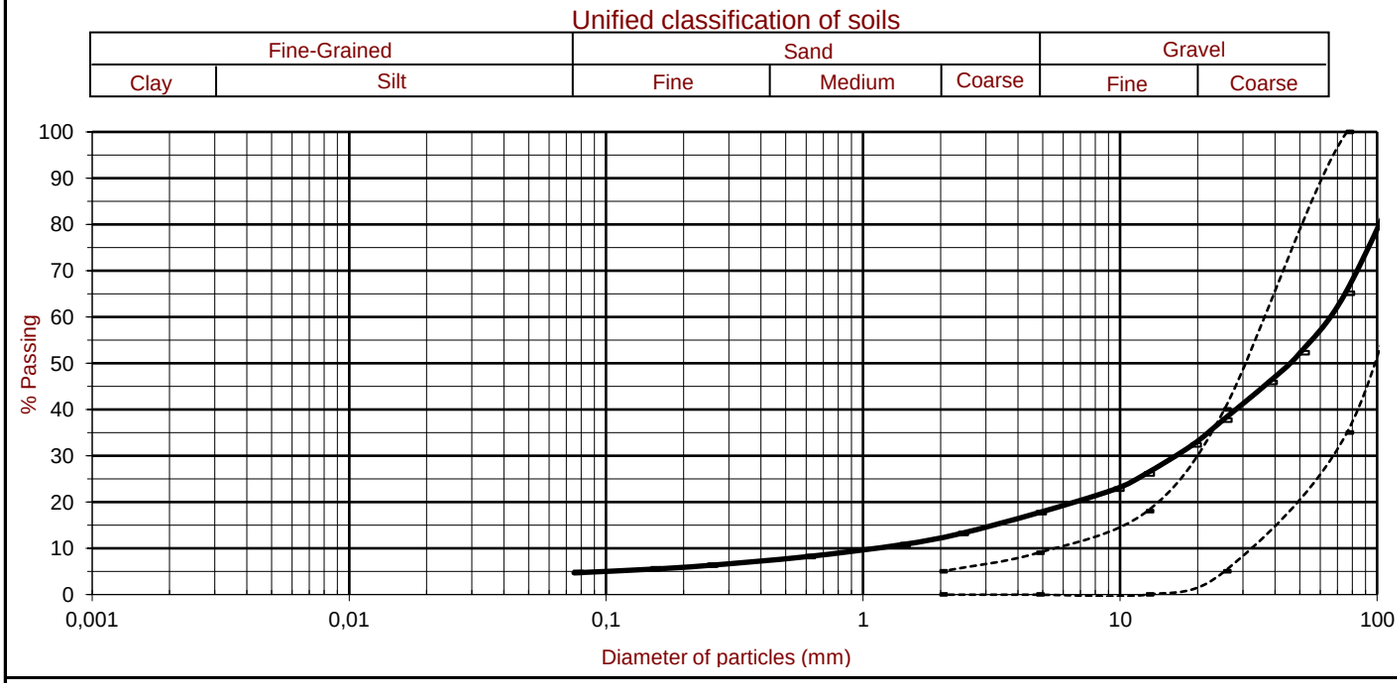
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 365

Material : Coarse filter
Source : Stockpile no. 2
Utilisation :
Collected : 16-07-03
Sampled by : M.-H. P.

Received : 16-07-03
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	0,8%	
(mm)	Measured	Requirement			
150,0	100	86-100			
75,0	65	35-100			
50,0	52				
37,5	46				
25,0	38	5-40			
19,0	32				
12,5	26	0-18			
9,5	23				
4,75	18	0-9			
2,36	13	0-5			
1,40	11		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	8		Method	Maximum dry unit weight	Optimum water content
0,250	6		C	kg/m^3	%
0,150	6				
0,075	4,7				



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-05

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 366

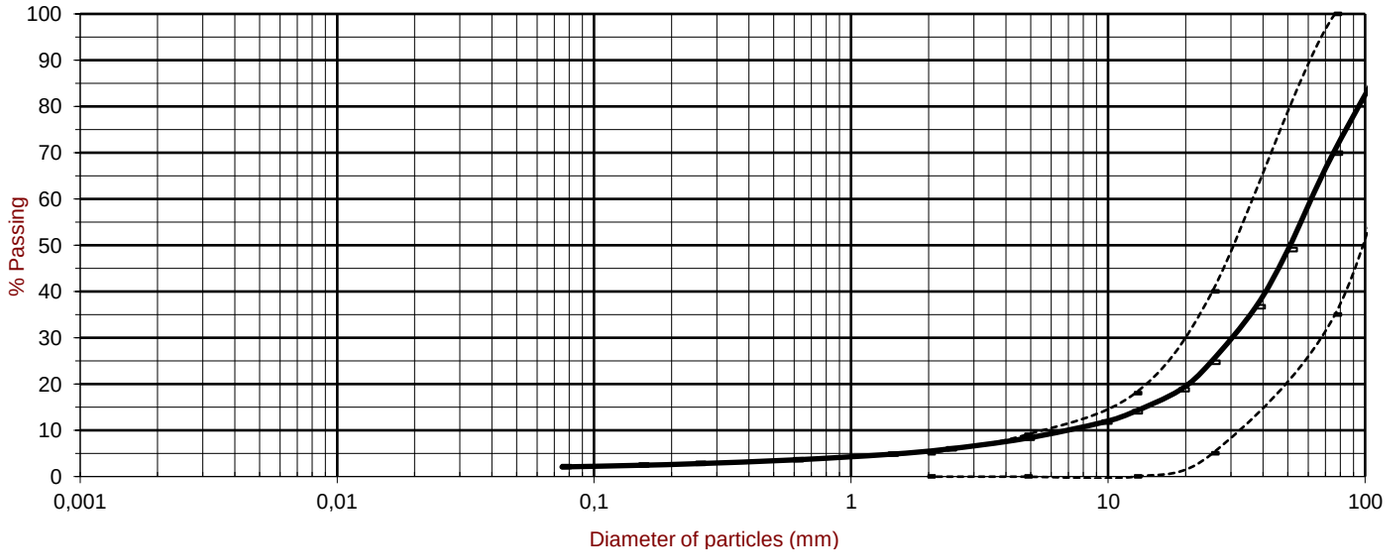
Material : Coarse filter
Source : Stockpile no. 2
Utilisation :
Collected : 16-07-03
Sampled by : M.-H. P.

Received : 16-07-03
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	0,2%	
150,0	100	86-100			
75,0	70	35-100			
50,0	49				
37,5	37				
25,0	25	5-40			
19,0	19				
12,5	14	0-18			
9,5	12				
4,75	8	0-9			
2,36	6	0-5			
1,40	5		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	4		Method	Maximum dry unit weight	Optimum water content
0,250	3		C	kg/m^3	%
0,150	2				
0,075	2,1				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approved by: _____

APPENDIX I1D

QC RESULTS FIELD TESTING – TILL STOCKPILE MATERIAL

SNC·LAVALIN International

Project No	Subd.	Subject	date
638617			

Client Name: Agnico Eagle

Name & Location of Project: Meadowbank

PROCTOR TEST (ASTM D-698) — Report No.

Client : Agnico Eagle — File no. : 638617
Project : Meadow bank — Sample no. : 389
Description : Sieved till (proctor) SP-1 — Client ref. :
Received date : — Date :

proctor	normal STD	A	B	(C)	D	preparation :	dry ☐
	modified ☐	A	B	C	D		humid ☐

mold no. — diam. 101.6 : ☐ — diam. 152.4 : ☑
Hammer no. — (2.49 kg) : — 4.54 kg :
balance no. :
volume of mold (m^3) : 0.002116
method — mechanic ☐ — manuel ☑

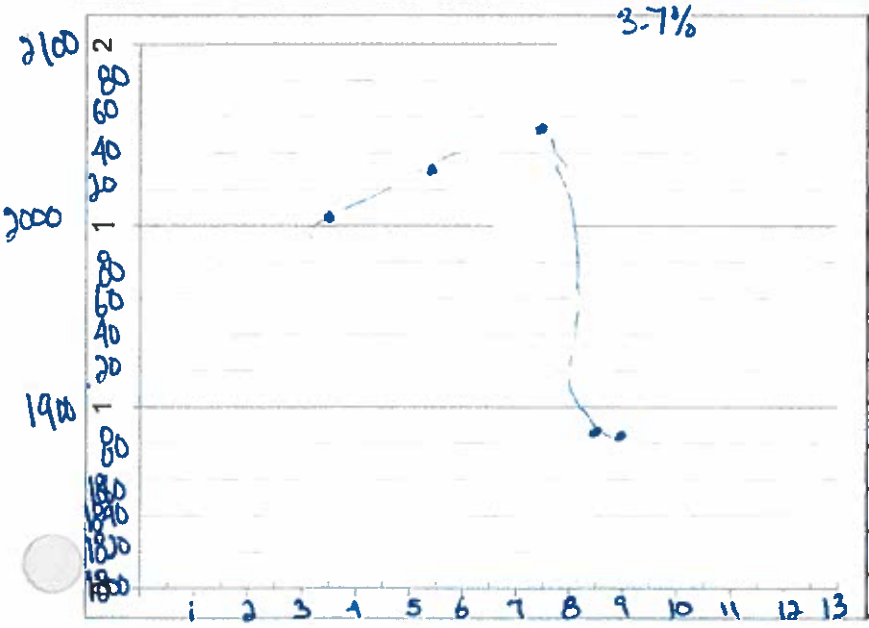
density of compacted soil

test no.		1 (4/)	2 (6/)	3 (8/)	4 (10/)	5 (12/)	6	7
humid soil weight + mold	(g)	10651.5	10812.3	10956.2	10631.2	10592.5		
mold weight + base plate	(g)	6236.6	6236.6	6236.6	6236.6	6236.6		
humid soil weight	(g)	4414.9	4575.7	4719.6	4394.6	4362.9		
humid density	(kg/m^3)	2086	2162	2230	2076.5	2061		
dry density	(kg/m^3)	2008.8	2032.3	2053.8	1885.5	1885.8		

water content of tested soil

lid no.		1	2	3	4	5		
lid weight	(g)	1087.1	914.8	406.8	404.1	402.2		
humid soil+lid weight	(g)	5496.7	5483.2	5117.2	4794.3	4760.4		
dry soil+lid weight	(g)	5339.6	5284.3	4772.9	4422.4	4390.8		
water content of tested soil	(%)	2.9%	6%	7.9%	9.2%	8.5%		

3.7%



results

dry density	2054	kg/m^3
water content	7.9	%

remarks :

Correction was done.
dry density : 2283 kg/m^3
Water Content : 6.3%

this test was not accepted ; another test will be done. to calculate density and water content.

realized by : Samz Olyaei / F.R. — date : 2016/08/18 — verified by : _____ — date : _____

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617		Till-water content	2016/08/09
Client Name: Agnico eagle	Project Name: Meadowbank			
Water content DENSITY OF SOIL WITH NUCLEODENSIMETER			Report No.	

Area :	SANA Crusher/Stockpiles 1,2,6	File No. :	638617

Material

Till ☒ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature:

Laboratory tests

Proctor: Standard ☐ Modified ☐ A B C D

Max. volumetric dry mass : _____ kg/m³

Optimum water content : _____ %

Compaction rate required: 95 % of Proctor value or _____ kg/m³

Compaction equipment: N/A

Daily calibration: density 1713 Water content 643

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
393-1	SANA Crusher - till (center)	N/A	9.7	N/A	N/A	
393-2	SANA Crusher - till (Slope)	N/A	10.9	N/A	N/A	
394-1	stock pile NO.1 - till (center)	N/A	10.8	N/A	N/A	
394-2	stock pile NO.1 - till (Slope)	N/A	10.4	N/A	N/A	
395-1	Stock pile NO.2 - till (center)	N/A	11.1	N/A	N/A	
395-2	stockpile NO.2 - till (Slope)	N/A	9.5	N/A	N/A	
396-1	Stock pile NO.6 - till (center)	N/A	9.2	N/A	N/A	
396-2	Stock pile NO.6 - till (Slope)	N/A	8.8	N/A	N/A	
Note (2016/08/21)						

Due to 4% offset on humidity of nucleodensimeter at time of the test, for water content should refer to manual samples NO. 393, 394, 395 and 396, which was done in the Lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Note:
one big pile is prepared by F.G.L, Next to each of these stockpile, the thickness was about 50cm and surface with dia. of about 2m (approx.) one test is taken in the center and one next to the slope for each pile of till



REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olyaie technicien	2016/08/09		

SNC•LAVALIN International	Project No. 638617	Subd.	Subject Till	Date 2016/08/11
Client Name **Agnico eagle**	Project Name **Meadowbank**			
Water content **OF SOIL WITH NUCLEODENSIMETER**	Report No.			

Sample No. 397

Area :	SANA Crusher and Stockpiles	File No. :	638 617

Material		Laboratory tests	
Till ☒	Fine filter ☐ Coarse filter ☐	Proctor: Standard ☐ Modified ☐ A B C D	
Origin:	Sieve Till	Max. volumetric dry mass :	kg/m³
Nature:		Optimum water content :	%

Compaction rate required: 95 % of Proctor value or _____ kg/m³

Compaction equipment: N/A

Daily calibration: density _____ Water content 648

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
397-A	SANA Crusher (center)	N/A	11.2	N/A	N/A	
B	SANA Crusher (slope)	//	11.7	N/A	N/A	
C	SANA Crusher (center)	//	9.5	N/A	//	
D	SANA Crusher (slope)	//	9.2	N/A	//	
E	Stockpile - center dike	//	12.7	//	//	
F	Stock pile - center dike	//	12.2	//	//	
G	Stock pile - center dike	//	11.7	//	//	
H	Stock Pile - center dike	//	10.5	//	//	
Note (2016/08/21)						

Due to 4% offset on humidity of Nucleo densiometer at time of the test for water content: another (+6) sample 399 (manual sample done in the lab)

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable



Note :
For each stock pile, 2 different piles were provided by F.G.L. with thk= ± 0.8m and Dia. ± 2m. For each one test done in center and one next to the slope. (total 8)

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Saraz Ouellet (technicien)	2016/08/09		

SNC·LAVALIN International

Project No	Subd.	Subject	date
638617		proctor	2016/08/17

Client Name: Agnico Eagle

Name & Location of Project: Meadowbank

PROCTOR TEST (ASTM D-698) — Report No.

Client : Agnico Eagle
Project : Meadow bank
Description : proctor test
Received date : 2016/08/13

File no. : 638617
Sample no. : 401
Client ref. :
Date : 2016/08/17

proctor: normal [X] A B (C) D — modified [ ] A B C D
preparation : dry [ ] humid [ ]

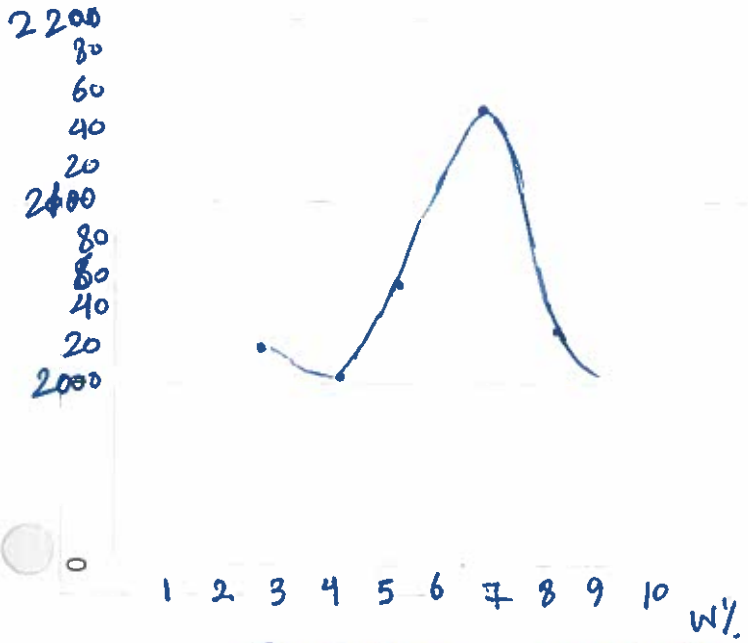
mold no. C3 — diam. 101.6 [ ] — diam. 152.4 [X]
Hammer no. — 2.49 kg : [X] — 4.54 kg : [ ]
balance no. :
volume of mold (m^3) : 0.0021164 m^3
method — mechanic [ ] — manuel [X]

density of compacted soil

test no.		1 (4%)	2 (6%)	3 (8%)	4 (10%)	5 (12%)	6	7
humid soil weight + mold	(g)	10634.4	10651.3	10832	11101.8	10902.6		
mold weight	(g)	6233.1	6233.1	6233.1	6233.1	6233.1		
humid soil weight	(g)	4401.3	4418.2	4598.9	4868.7	4669.5		
humid density	(kg/m^3)	2079.6	2087.6	2173	2300.46	2206.34		
dry density	(kg/m^3)	2019.3	2008.3	2057.8	2148.6	2027.6		

water content of tested soil

lid no.		1	2	3	4	5		
lid weight	(g)	914.3	1401.1	1395.7	1403.8	1311.6		
humid soil+lid weight	(g)	5309.2	5812.9	5988	6265.7	5972		
dry soil+lid weight	(g)	5156.7	5596.3	5681.8	5876.5	5522.1		
water content of tested soil	(%)	2.9	3.8	5.3	6.6	8.1		



results

dry density	2148	kg/m^3
water content	6.6	%

remarks : correction:
mm > 19mm = 8135.29r
mm < 19mm = 39212.65r
% mm < 19mm = 0.83 % = 83%
% mm > 19mm = 0.17 = 17%
2147 * 0.83 + 3100 * 0.17 = 2309
0.6% * 0.17 + 6.6% * 0.83 = 5.6%
Gravel density = 3100 kg/m3
gravel absorption = 6%

realized by : Sara Doyaie date : 2016/08/17 verified by : _____ date : _____

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Ref. point	Date 2016/08/14
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 406

Area : Stock Pile NO. 6 | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature:

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-CS76) 11-1101

Daily calibration: density 1737 Water content 632

Test n°	Location	depth ~~Level~~	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
#1	before compaction (Static)					
		8"	12%	2011	95.8	
		8"	12.5%	2009	95.6	
		8"	12.8%	1992	94.8	
#2	1st PASS					
		8"	12.2	2026	96.5	
		8"	12.4	1995	95.0	
		8"	12.5	2004	95.4	
#3	2nd pass					
		8"	12.5	2046	97.2	
		8"	12.5	2015	96.0	
		8"	12.5	2061	98.1	

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Francis Rose technicien	2016/08/14		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617	1	Ref. point	2016/08/14
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 406

Area : Stock pile No. 6 | File No. : 638 617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature:

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-CS76) 11-1101

Daily calibration: density 1737 Water content 632

Test n°	Location	depth ~~Level~~	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
#4	3rd PASS					
		8"	12.7	2050	97.6	
		8"	12.9	2051	97.6	
		8"	12.0	2079	99.0	
#5	4th PASS					
		8"	12.8	2046	97.4	
		8"	12.8	2045	97.3	
		8"	12.5	2072	98.7	
Note: (2016/08/21)						

Due to 4% offset on humidity of Nucleodensimeter at time of the test, water content of 7.5% which was presented in below should be considerd. Also, should refer to manual sample 405 which was taken in place and done in the lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Result: 3rd pass will give the optimum.

water content at 3rd pan was taken by manual sample : 7.5%

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Francis Ros technicien	2016/08/14		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Ref point	Date 2016/08/14
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 407

Area : Non Sieved Till (Secondclan) | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Second clan Till

Nature:

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-(S76) 11-1101

Daily calibration: density 1737 Water content 632

Test n°	Location	depth ~~Level~~	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
#1	befor compaction (static)					
		8"	12.7	2059	98	
		8"	12.3	2050	97.6	
		8"	11.9	2064	98.3	
#2	1th PASS					
		8"	12.5	2039	97.1	
		8"	12.1	2126	101.2	
		8"	12.3	2056	97.9	
#3	2nd PASS					
		8"	12.9	2006	95.5	
		8"	10.3	2040	97.1	
		8" ~~4 Acceptable~~	11.5	2103	100.2	

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Francis Rose technicien	2016/08/14		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617		Ref. Print	2016/08/14
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER			Report No.	

Test 407

Area : Non Sieved Till (Second clan) File No. : 638617

Material

Till ☒ | Fine filter ☐ | Coarse filter ☐

Origin: Second clan Till

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-CS76) 11-1101

Daily calibration: density 1737 Water content 632

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
#4	3rd PASS					
		8"	13.6	1975	94.1	
		8"	12.3	2091	99.6	
		8"	12.9	2048	97.5	

Note: (2016/08/21)
Due to 4% offset on humidity of Nucleo densimeter at time of the test, water content of 7.6% which was presented in below should be considered.
Also, for water content should refer to manual sample NO.405 which was taken manualy and done in the lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Results shows. with 2nd pan optimum density will be given manual sample for water content was taken. results : $w = 7.6\%$

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Francis Ros technicien	2016/08/14		

APPENDIX I2A

QC RESULTS LAB – TILL CENTRAL DIKE STAGE 5

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-18

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 411

Material : Sieve till
Source : CD - In place, ST. 0+186, el.138.3
Utilisation :
Collected : 16-08-16
Sampled by : S.O.
Received : 16-08-18
Client ref :

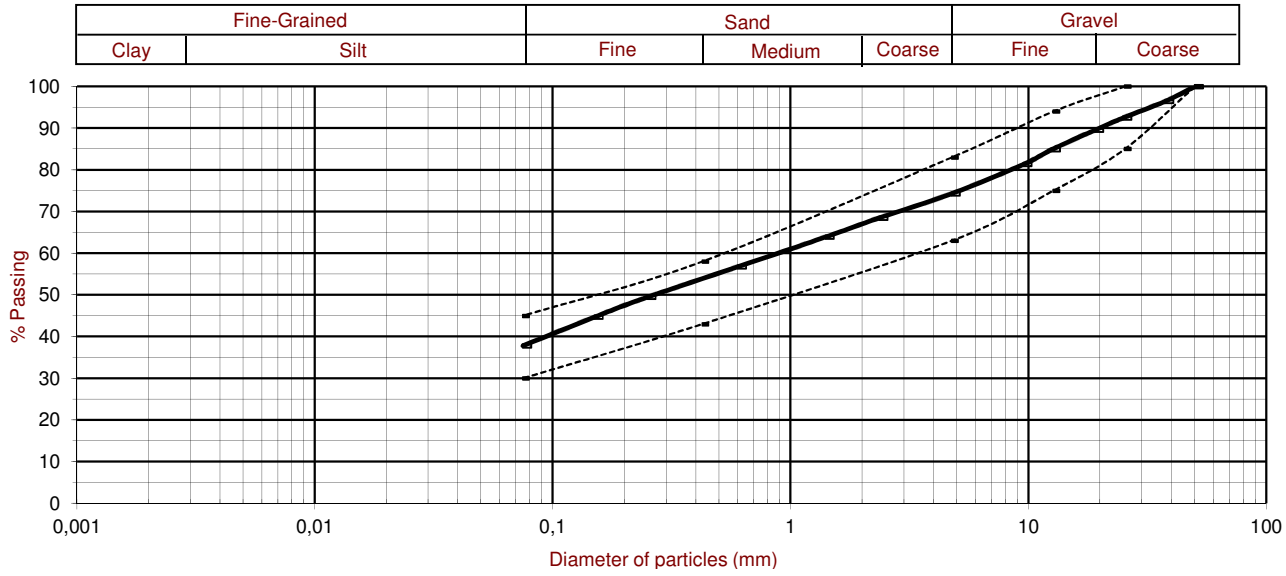
Sieve analysis (ASTM C-136)		
Sieve (mm)	**(% passing)** Measured	Requirement
150,0	100	
75,0	100	
50,0	100	100
37,5	96	
25,0	92	85-100
19,0	90	
12,5	85	75-94
9,5	81	
4,75	74	63-83
2,36	68	
1,40	64	
0,600	57	
0,250	49	43-58
0,150	45	
0,075	37,8	30-45

Others tests	Measured	Requirement
moisture content	8,6%	

Compaction characteristics of Soil Using Standard Effort (ASTM D-698)

Method	Maximum dry unit weight	Optimum water content
C	kg/m^3	%

Unified classification of soils



Remarks:

Verified by: Sanaz Olyaie
technicien

Approuved by:

SNC·LAVALIN International	Project No	Subd.	Subject	date
	638617			2016/07/04

Client Name	Name & Location of Project :
Agnico Eagle	Meadowbank

WATER CONTENT (ASTM D-2216) — Report No.

Client : Agnico — No dossier : 638617

No Échantillon : 376

Projet : Meadow Bank — Prélevé le : 2016/07/04

Four conventionnel ☐ Four Micro-ondes ☐

Échantillon no.							
Profondeur pied ☐ mètre ☐							
Récipient no.							
Masse du sol humide ~~+ récipient~~ (g)	1722.5						
Masse du sol sec + récipient (g)	1057.8						
Masse de l'eau (g)	864.7						
Masse du récipient (g)	1586.4						
Masse du sol sec (g)	9871.4						
Teneur en eau (%)	8.6%						

Profondeur	Description visuelle
	CS 0+175 / -5'
	Fault zone

ÉQUIPEMENTS :

Réalisé par: _____ Date: 2016/07/04

Vérifié par: _____ Date: _____

SNC·LAVALIN International	Project No	Subd.	Subject	date
	638617		Water content	2016/08/17
Client Name	Name & Location of Project :			
Agnico Eagle	Meadowbank			
WATER CONTENT (ASTM D-2216)			Report No.	

Client : AGNICO

Projet : Meadowbank / Central dike

No dossier : 638617

No Échantillon : 412

Prélevé le : 2016/08/16

Four conventionnel ☑ Four Micro-ondes ☐

Échantillon no.		412					
Profondeur pied ☐ mètre ☑							
~~Récipient no.~~ lid							
Masse du sol humide + ~~récipient~~	(g)	2509.3					
Masse du sol sec + ~~récipient~~ lid	(g)	2339.1					
Masse de l'eau	(g)						
Masse du récipient	(g)						
Masse du sol sec	(g)						
Teneur en eau	(%)	7.3%					

Test

~~Profondeur~~	Description ~~visuelle~~ Location
412	Central dike - St. 0+128.1, el. 142.2 / O/S: 31.9 (In place)

ÉQUIPEMENTS :

Réalisé par: Sanaz Ohjani Date: 2016/08/17

Vérifié par: _____ Date: _____

APPENDIX I2B

QC RESULTS LAB- FINE FILTER CENTRAL DIKE STAGE 5

SNC·LAVALIN International	Project No	Subd.	Subject	Date
	638617			2016-07-07

Client Name	Project Name
Agnico Eagle	**meadowbank**

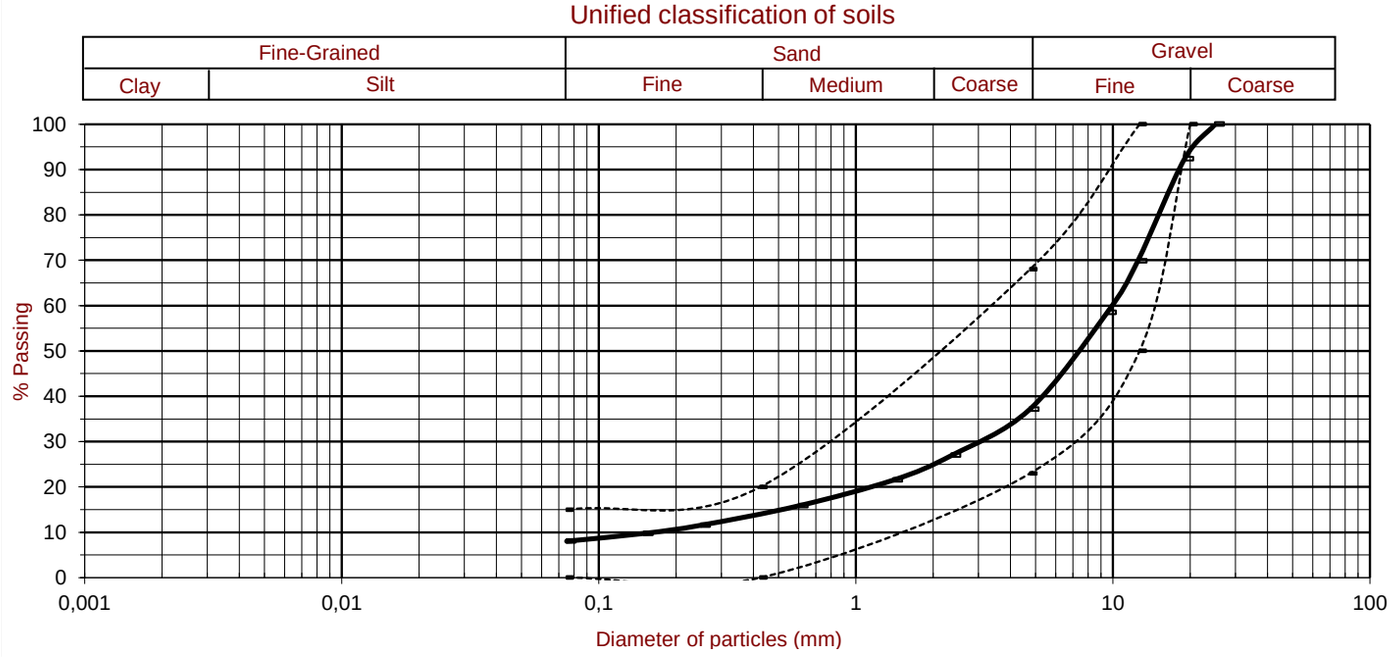
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 372

Material : Fine filter
Source : In place (0+143.5, O/S -15,7 m, el. 141,06 m)
Utilisation :
Collected : 16-07-05
Sampled by : M.-H. P.

Received : 16-07-05
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,4%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	92	100			
12,5	70	50-100			
9,5	58				
4,75	37	23-68			
2,36	27				
1,40	22		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	16	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	12		C	kg/m^3	%
0,150	10				
0,075	8,0	0-15			



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-24

Client Name: **Agnico Eagle**

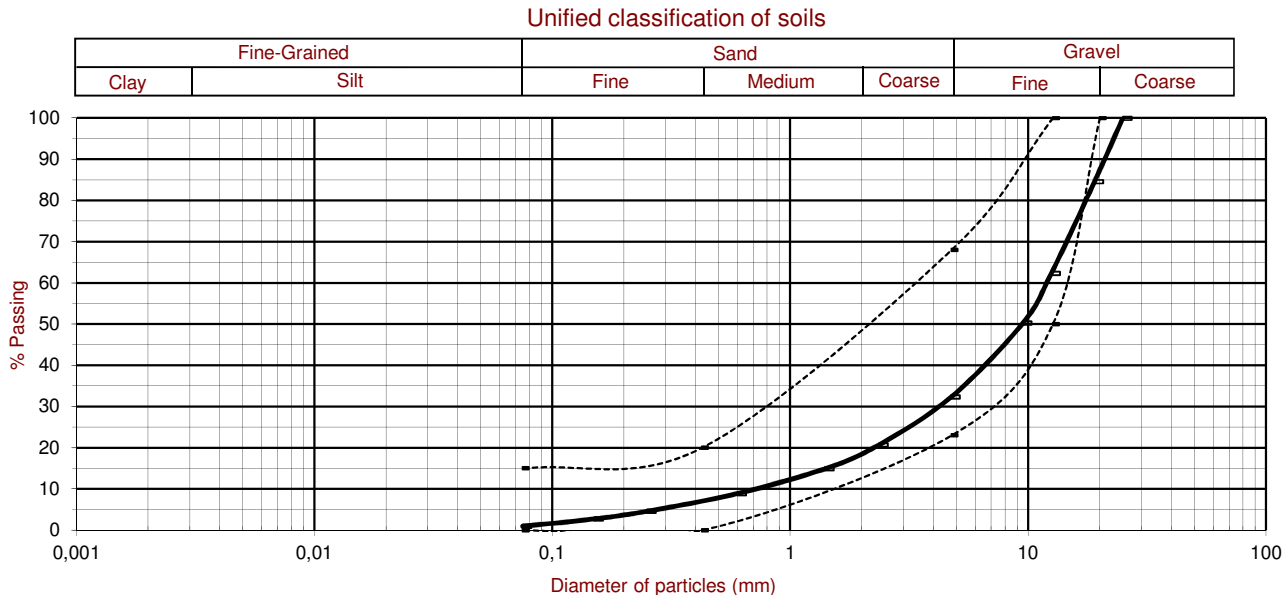
Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 382

Material : Fine filter
Source : Central Dike, in place, 0+876
Utilisation :
Collected : 16-07-20
Sampled by : S.O.
Received : 16-07-24
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,9%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	85	100			
12,5	62	50-100			
9,5	50				
4,75	32	23-68			
2,36	21				
1,40	15		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	9	0-20	Method: **C**	Maximum dry unit weight: kg/m^3	Optimum water content: %
0,250	5				
0,150	3				
0,075	1,0	0-15			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-31

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

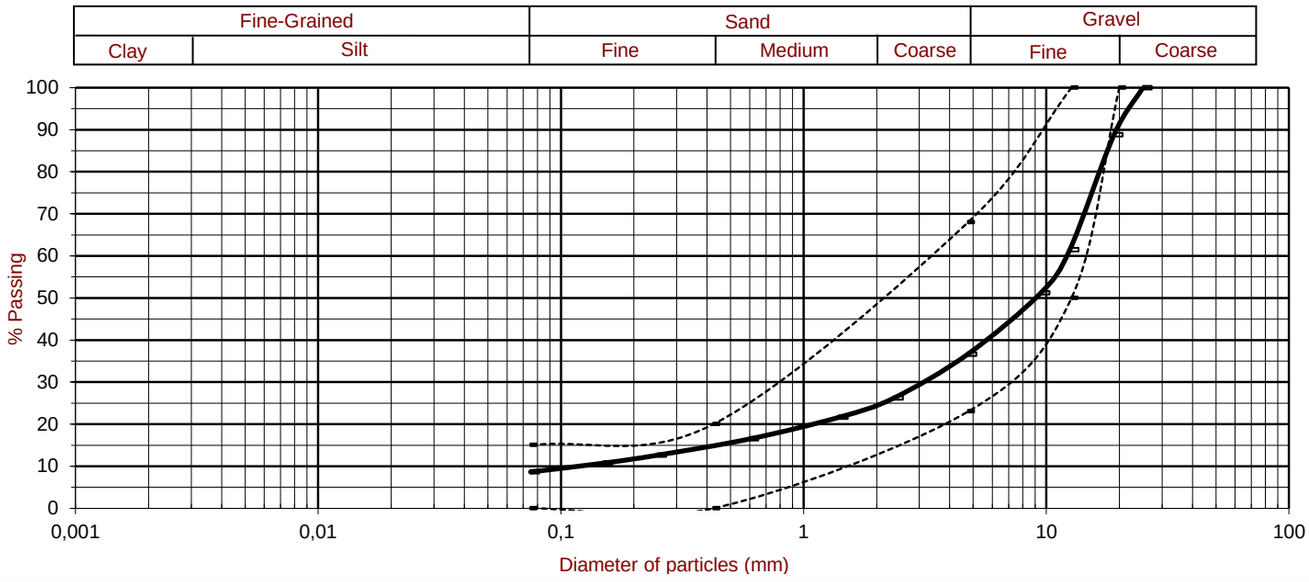
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 384

Material : fine filter
Source : in place, central dyke
elev. 141, st 0+780
Utilisation :
Collected : 16-07-29
Sampled by : G.L.

Received : 16-07-29
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,3%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	89	100			
12,5	61	50-100			
9,5	51				
4,75	37	23-68			
2,36	26				
1,40	22		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	16	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	13		C	kg/m^3	%
0,150	11				
0,075	8,6	0-15			

Unified classification of soils



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-09

Client Name	Project Name
Agnico Eagle	**meadowbank**

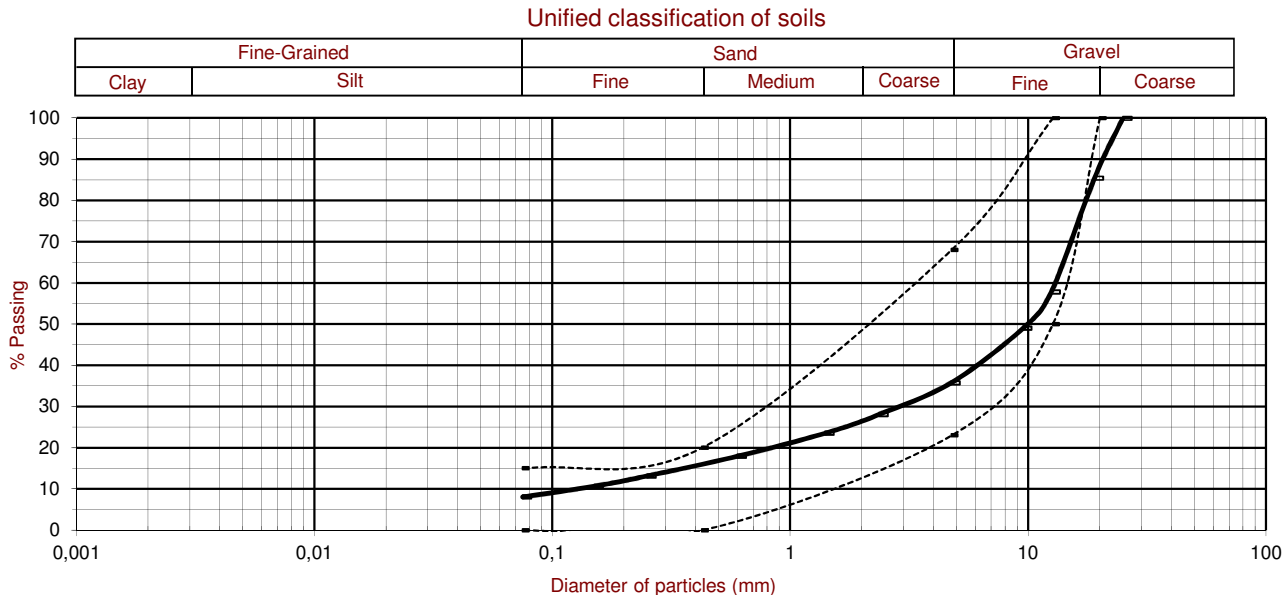
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 391

Material : fine filter
Source : in place, o/s -29.3m
elev. 141,5, st 0+894
Utilisation :
Collected : 16-08-07
Sampled by : M.-H. P.

Received : 16-08-09
Client ref :

Sieve analysis (ASTM C-136)			**Others tests**	**Measured**	**Requirement**
Sieve	**(% passing)**		moisture content	1,7%	
(mm)	**Measured**	**Requirement**			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	85	100			
12,5	58	50-100			
9,5	49				
4,75	36	23-68			
2,36	28				
1,40	24		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	18	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	13				
0,150	11		**C**	kg/m^3	%
0,075	8,1	0-15			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	date 2016/08/07
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136	Report No.			

Client : Agnico Eagle
Project : Meadowbank
Description : Pipe Bridge

File no : 638617
SAMPLE no : # 391
Référence No. : Inplace

Identification		Water content		
Sieve serial n° :		Pan n° :	20J	
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		~~Pan~~ + humid soil weight :	7078.1	gr.
Sieve shaker(rotap) n° :		~~Pan~~ + dry soil weight :	6955.1	gr.
Balance n° :		Water content :	1.7%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil ____ gr

total mass < 20mm. 6955.1 gr

mass before sieving ____ gr

sieving loss ____ %

soil mass < 5 mm before washing 653.4 gr

after washing 527.9 gr

sieving loss ____ %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	gr	gr				%
63	gr	gr				%
50	gr	gr				%
37.5	gr	gr				%
25	gr	gr				%
19	1012.9 gr	gr				%
12.5	1236.2 gr	gr				%
9.5	716.8 gr	gr				%
4.76	1075.7 gr	gr				%
pan	2905.1 gr	gr				%
2,36	1410.5 gr	gr				%
~~1.18~~ 1.4	82.9 gr	gr				%
600 µm	101.8 gr	gr				%
~~250~~ 300 µm	87.4 gr	gr				%
150 µm	45.5 gr	gr				%
75 µm	47.6 gr	gr				%
pan	22.1 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016-08-08

Approved by : ____
Date : ____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-12

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

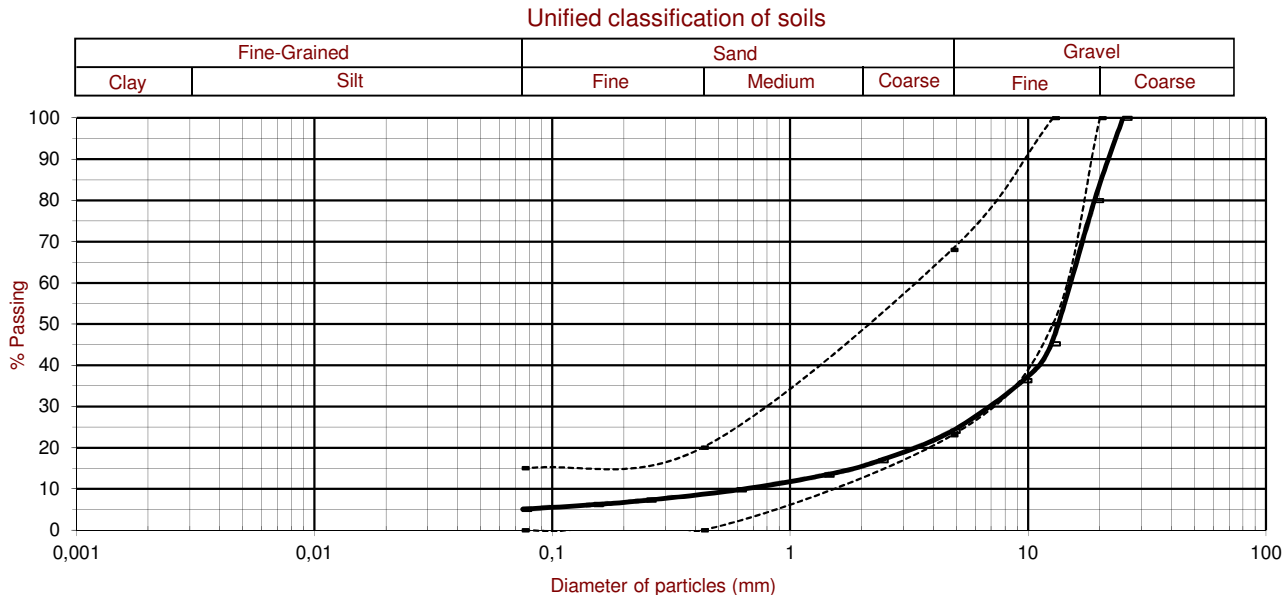
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 392

Material : fine filter
Source : in place, o/s -12.9m
elev. 143, st 0+540
Utilisation :
Collected : 16-08-09
Sampled by : S.O.

Received : 16-08-12
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	2,8%	
(mm)	Measured	Requirement			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	80	100			
12,5	45	50-100			
9,5	36				
4,75	24	23-68			
2,36	17				
1,40	13		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	10	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	7		C	kg/m^3	%
0,150	6				
0,075	5,1	0-15			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadow bank
Description : Fine Filter - central dike in place

File no : 638617
SAMPLE no : 392
Référence No. :

Identification	Water content
Sieve serial n° :	Pan n° :
Washing sieve n° :	Pan weight : gr.
Sieve shaker(gilson) n° :	~~Pan~~ + humid soil weight : 6122.8 gr.
Sieve shaker(rotap) n° :	~~Pan~~ + dry soil weight : 5952.1 gr.
Balance n° :	Water content : 2.8% %

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil : gr

total mass < 20mm. : 5952.1 gr

mass before sieving : gr

sieving loss : %

soil mass < 5 mm before washing : 802.3 gr

after washing : 642.3 gr

sieving loss : %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	gr	gr				%
63	gr	gr				%
50	gr	gr				%
37.5	gr	gr				%
25	gr	gr				%
19	1188.7 gr	gr				%
12.5	1401.5 gr	gr				%
9.5	661.2 gr	gr				%
4.76	916.0 gr	gr				%
pan	1780.6 gr	gr				%
2,36	237.8 gr	gr				%
1,18	115.4 gr	gr				%
600 µm	121.4 gr	gr				%
300 µm	83.3 gr	gr				%
150 µm	36.0 gr	gr				%
75 µm	37.2 gr	gr				%
pan	13.6 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016/08/12

Approved by :
Date :

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-09-12

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

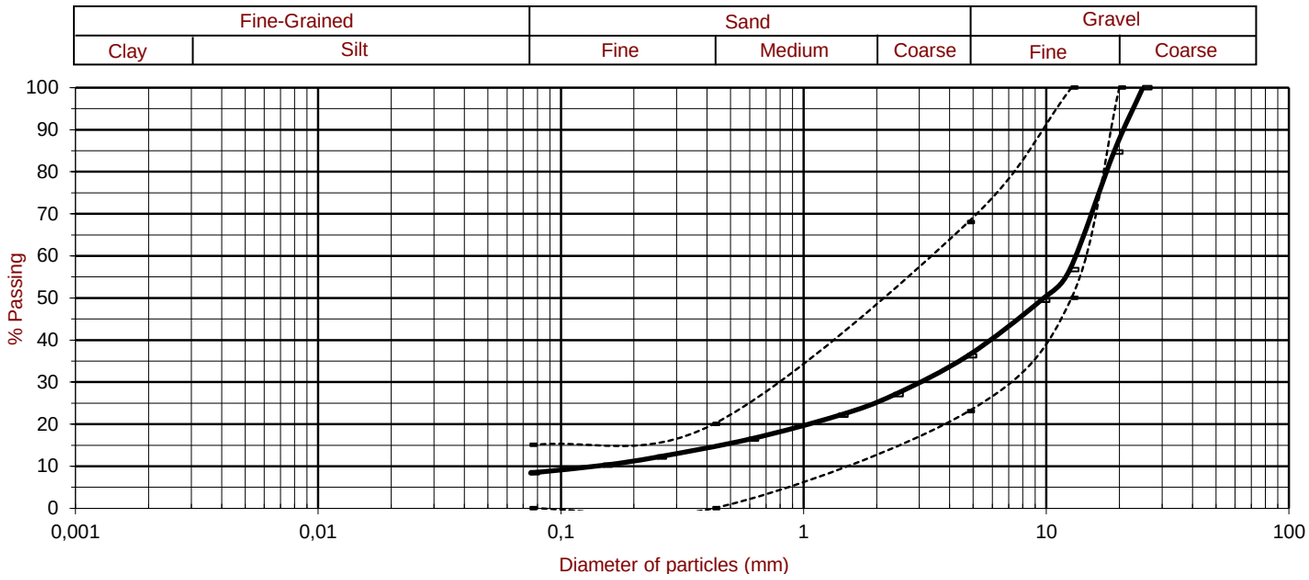
Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 439

Material : fine filter
Source : in place, central dike
elev. 142, st 0+160
Utilisation :
Collected : 16-09-09
Sampled by : F.R.

Received : 16-09-12
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,7%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	85	100			
12,5	57	50-100			
9,5	49				
4,75	36	23-68			
2,36	27				
1,40	22		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	16	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	12		C	kg/m^3	%
0,150	10				
0,075	8,4	0-15			

Unified classification of soils



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

APPENDIX I2C

QC RESULTS LAB - COARSE FILTER CENTRAL DIKE STAGE 5

SNC·LAVALIN International	Project No	Subd.	Subject	Date
	638617			2016-07-13

Client Name	Project Name
Agnico Eagle	**Meadowbank**

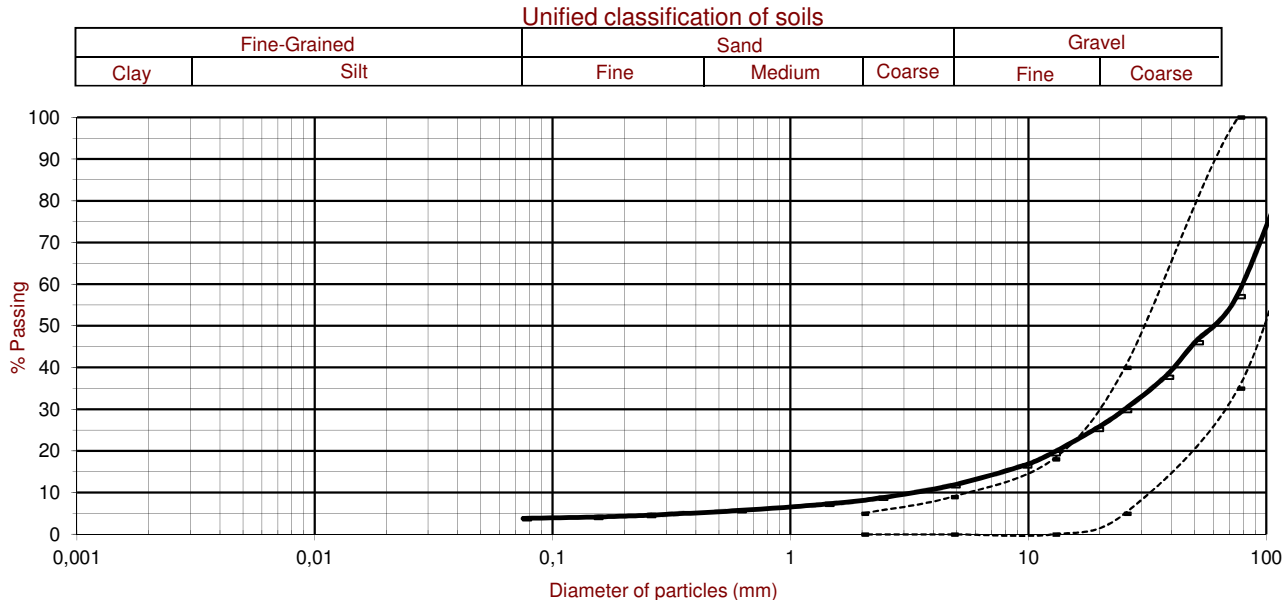
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 373

Material : Coarse filter
Source : Coarse Filter (in place)
Utilisation :
Collected : 16-07-06
Sampled by : M.-H. P.

Received : 16-07-13
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	1,6%	
(mm)	Measured	Requirement			
150,0	100	86-100			
75,0	57	35-100			
50,0	46				
37,5	38				
25,0	30	5-40			
19,0	25				
12,5	19	0-18			
9,5	17				
4,75	12	0-9			
2,36	9	0-5			
1,40	7		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	6		Method	Maximum dry unit weight	Optimum water content
0,250	5		C	kg/m^3	%
0,150	4				
0,075	3,8				



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	date 2016/07/09
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALYSIS- ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadow Bank
Description : Coarse filter - 11 Place

File no : 638617
SAMPLE no : 373
Référence No. :

Identification		Water content		
Sieve serial n° :		Pan n° :		
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		~~Pan~~ + humid soil weight :	87489.7	gr.
Sieve shaker(rotap) n° :		~~Pan~~ + dry soil weight :	86040	gr.
Balance n° :		Water content :		%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil ____ gr

total mass < 20mm. ____ gr

mass before sieving ____ gr

sieving loss ____ %

soil mass < 5 mm before washing 5886 gr

after washing 484.3 (wet) / 399.2 gr

sieving loss ____ %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	36947.4 gr	gr				%
63	gr	gr				%
50	9964 gr	gr				%
37.5	7119.8 gr	gr				%
25	6933.6 gr	gr				%
19	3883.3 gr	gr				%
12.5	4974.1 gr	gr				%
9.5	2519.1 gr	gr				%
4.76	1088.2 gr	gr				%
pan	gr	gr				%
2,36	152.6 gr	gr				%
~~1,18~~ 1.40	73.2 gr	gr				%
600 µm	76.9 gr	gr				%
300 µm	55.7 gr	gr				%
150 µm	21.6 gr	gr				%
75 µm	17.2 gr	gr				%
pan	4.5 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016/07/12

Approved by : ____
Date : ____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-31

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 383

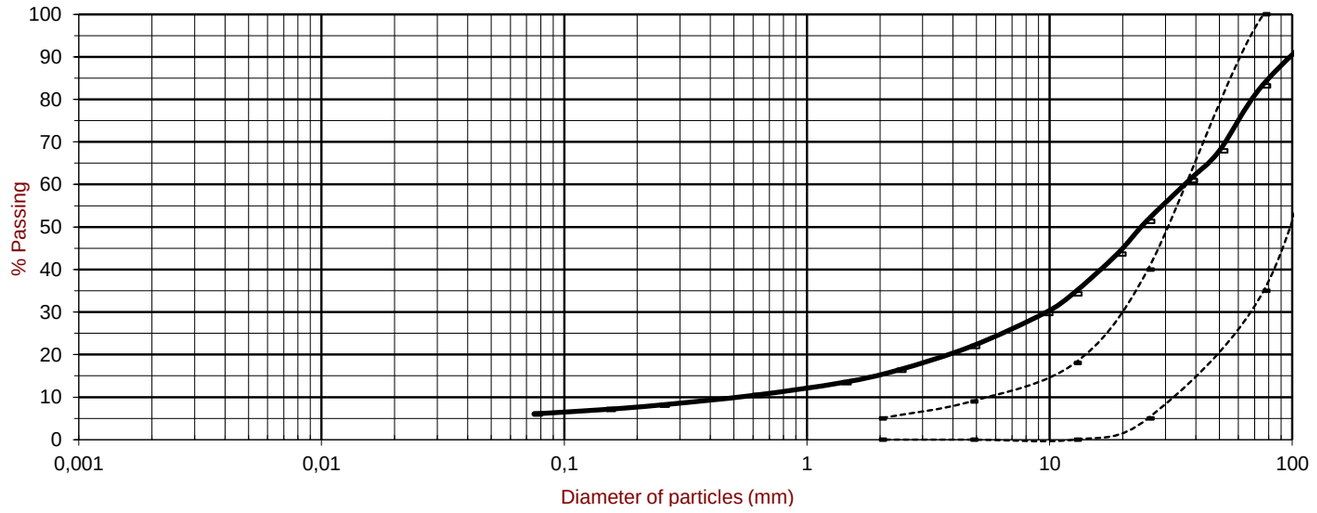
Material : coarse filter
Source : in place, central dyke
elev. 140, st. 0+480
Utilisation :
Collected : 16-07-25
Sampled by : G. L.

Received : 16-07-25
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	3,8%	
150,0	100	86-100			
75,0	83	35-100			
50,0	68				
37,5	61				
25,0	51	5-40			
19,0	44				
12,5	34	0-18			
9,5	30				
4,75	22	0-9			
2,36	16	0-5			
1,40	13		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	10		Method	Maximum dry unit weight	Optimum water content
0,250	8		C	kg/m^3	%
0,150	7				
0,075	6,1				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-12

Client Name	Project Name
Agnico Eagle	**Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 390

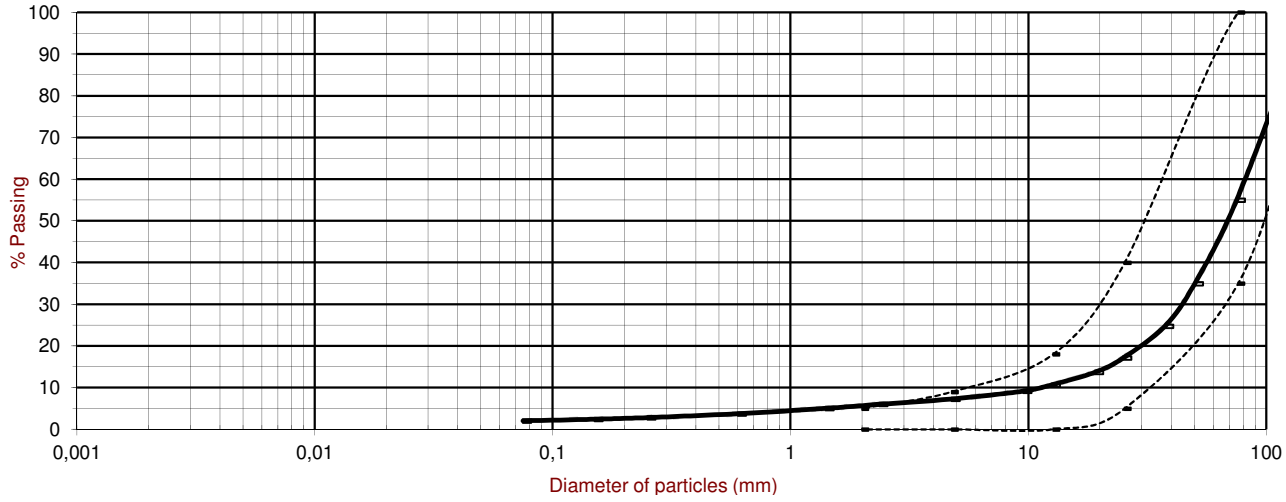
Material : coarse filter
Source : in place, os -27,7m
elev. 141,5, st. 0+301
Utilisation :
Collected : 16-08-06
Sampled by : M.H.P.

Received : 16-08-12
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	**(% passing)**		moisture content	1,7%	
(mm)	**Measured**	**Requirement**			
150,0	100	86-100			
75,0	55	35-100			
50,0	35				
37,5	25				
25,0	17	5-40			
19,0	14				
12,5	11	0-18			
9,5	9				
4,75	7	0-9			
2,36	6	0-5			
1,40	5		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	4		Method	Maximum dry unit weight	Optimum water content
0,250	3		**C**	kg/m^3	%
0,150	2				
0,075	2,1				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALYSIS- ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadowbank
Description : Coarse filter - Central dike in place

File no : 638617
SAMPLE no : 390
Référence No. :

Identification		Water content		
Sieve serial n° :		Pan n° :		
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		[redacted] + humid soil weight :	89299.7	gr.
Sieve shaker(rotap) n° :		Pan + dry soil weight :	87824.9	gr.
Balance n° :		Water content :	1.7%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil 87824.9 gr

total mass < 20mm. gr

mass before sieving gr

sieving loss %

soil mass < 5 mm before washing 685.9 gr

after washing 509.5 gr

sieving loss %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	39495.3 gr	gr				%
~~63~~	gr	gr				%
50	17599.7 gr	gr				%
37.5	8949.1 gr	gr				%
25	6721.7 gr	gr				%
19	3630.9 gr	gr				%
12.5	2658.7 gr	gr				%
9.5	1316.5 gr	gr				%
4.76	1663.9 gr	gr				%
pan	6214.3 gr	gr				%
2,36	118.7 gr	gr				%
1,18	92.8 gr	gr				%
600 µm	120.5 gr	gr				%
300 µm	87.8 gr	gr				%
150 µm	36.5 gr	gr				%
75 µm	35.4 gr	gr				%
pan	18.7 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016/08/12

Approved by :
Date :

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-12

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

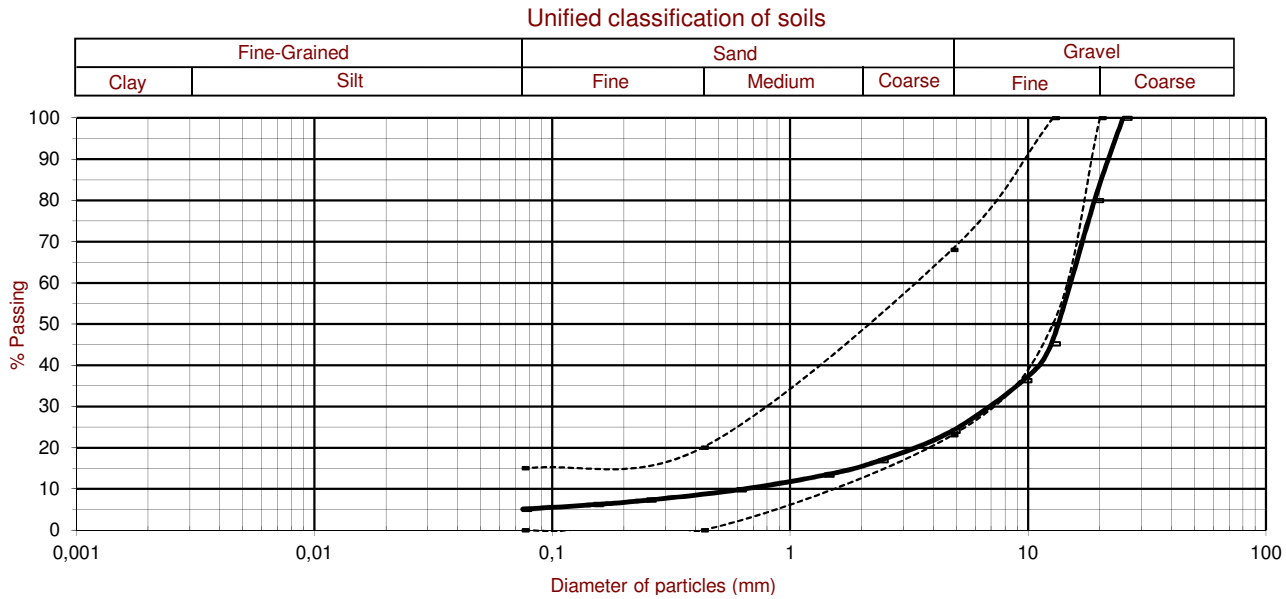
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 392

Material : fine filter
Source : in place, o/s -12.9m
elev. 143, st 0+540
Utilisation :
Collected : 16-08-09
Sampled by : S.O.

Received : 16-08-12
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	2,8%	
(mm)	Measured	Requirement			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	80	100			
12,5	45	50-100			
9,5	36				
4,75	24	23-68			
2,36	17				
1,40	13		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	10	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	7		C	kg/m^3	%
0,150	6				
0,075	5,1	0-15			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadow bank
Description : Fine Filter - central dike in place

File no : 638617
SAMPLE no : 392
Référence No. :

Identification	Water content
Sieve serial n° :	Pan n° :
Washing sieve n° :	Pan weight : gr.
Sieve shaker(gilson) n° :	~~Pan~~ + humid soil weight : 6122.8 gr.
Sieve shaker(rotap) n° :	~~Pan~~ + dry soil weight : 5952.1 gr.
Balance n° :	Water content : 2.8% %

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil : gr

total mass < 20mm. : 5952.1 gr

mass before sieving : gr

sieving loss : %

soil mass < 5 mm before washing : 802.3 gr

after washing : 642.3 gr

sieving loss : %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	gr	gr				%
63	gr	gr				%
50	gr	gr				%
37.5	gr	gr				%
25	gr	gr				%
19	1188.7 gr	gr				%
12.5	1401.5 gr	gr				%
9.5	661.2 gr	gr				%
4.76	916.0 gr	gr				%
pan	1780.6 gr	gr				%
2,36	237.8 gr	gr				%
1,18	115.4 gr	gr				%
600 µm	121.4 gr	gr				%
300 µm	83.3 gr	gr				%
150 µm	36.0 gr	gr				%
75 µm	37.2 gr	gr				%
pan	13.6 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016/08/12

Approved by :
Date :

APPENDIX I2D

QC RESULTS FIELD TESTING- TILL CENTRAL DIKE STAGE 5

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Sieve Till	Date 2016/08/16
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 414 First layer Sieve Till

Area : Central dike (between St.0+200 and St.0+100) | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: _____

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS76) 11-1101

Daily calibration: density 1734 Water content 634

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Pen, Rod n°
A	St. 0+191.8, O/S. 42.7	137.3	10.8	2026	96.5	6 8"
B	St. 0+185, O/S. 40.1	138.1	13.2	2007	95.5	6 8"
C	St. ~~0+142~~, O/S. 30.1 → 0+118.2	142.7	12.7	2040	97.1	6 8"
Note (2016/07/12)						
Due to 4% offset on humidity of Nucleo densimeter at time of the test, for water content should refer to Sample 412 (manual Sample in place and done in the lab)						

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Ayaie technicien	2016/08/16		

SNC·LAVALIN International	Project No. 638 617	Subd.	Subject Sieve Till	Date 2016/08/17
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 415

Area : Central dike (St.0+200 to St.0+600) File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: _____

Nature: Second layer Sieve Till

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS76) 11-1101

Daily calibration: density 1716 Water content 6e2

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Penetration Rod n°	
A	St.0+167, O/S: 37.37	139.7	12.8	2025	96.4	6+2	8"
B	St.0+181.9, O/S: 40.6	138.4	12.2	2037	97	6+2	8"
C	St.0+128.6, O/S: 31.9	142.7	13	2036	96.9	6+2	8"
					vibrate	↵ Lostatic	
Note (2016/08/21) Due to 4% offset on humidity of Nucleodensimeter at time of the test, for water content should refer to sample 412 (manual Sample in place and done in the lab)							

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olycie technicien	2016/08/17		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/09/06
Client Name **Agnico eagle**	Project Name **Meadowbank**			
DENSITY OF SOIL WITH NUCLEODENSIMETER				Report No.

Area : Central Dike(North) File No. :

Material

Till ☑ Fine filter ☐ Coarse filter ☐

Origin: ~~Fill 0-150mm~~ Sieved Till

Nature: 1st layer(500mm) North

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density ±0.64% Water content 0%

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 0+196 O/S 45.7	138.2	7.8	2089	99.5	3
B	ST 0+183.2 O/S 41.3	138.8	7.5	2152	102.4	3
C	ST 0+170.1 O/S 40.8	139.7	7.4	2080	99.0	3
D	ST 0+158.8 O/S 40.2	140.9	7.1	2136	101.7	3
E	ST 0+150.6 O/S 36.2	141.7	8.3	2109	100.4	3
F	ST 0+141.3 O/S 35.9	142.3	7.6	2127	101.2	3

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Francis Rose technicien	2016-09-06		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016-09-08
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

436

Area : Central Dike (North) File No. :

Material

Till ☑ Fine filter ☐ Coarse filter ☐

Origin: Sieved till

Nature: 2nd layer

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density 0.41 Water content 0.47

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST: 0+143.8, O/S 31.5, ~~1526~~	142.6	8.9	2116	100.7	3
B	ST: 0+162.3, O/S 37.8	141.1	9.4	2061	98.1	3
C	ST: 0+182.6, O/S 43.8	139.6	7.3	2126	101.2	3
D	ST: 0+202.6, O/S 49.7	137.6	8.3	2068	98.5	3

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY : Francis Rose technicien DATE: 2016-09-08

APPROVED BY : DATE:

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/09/08
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

~~438~~ 437

Area :	Central dike (North)	File No. :	

Material

Till ☑ Fine filter ☐ Coarse filter ☐

Origin: Till 2nd class

Nature: 3rd layer

Laboratory tests

Proctor: Standard ☐ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density 0.41 Water content 0.47

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST: 0+154.9, o/s 33.6	142.2	9.8	2054	97.8	3
B	ST: 0+168.7, o/s 40.3	141	9.3	2059	98.0	3
C	ST: 0+184.1, o/s 37.1	139.9	8.0	2137	101.7	3
D	ST: 0+203.1, o/s 44.2	138.0	7.9	2092	99.6	3

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/08		

APPENDIX I3A

QC RESULTS LAB – TILL SADDLE DAM 3 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-16

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

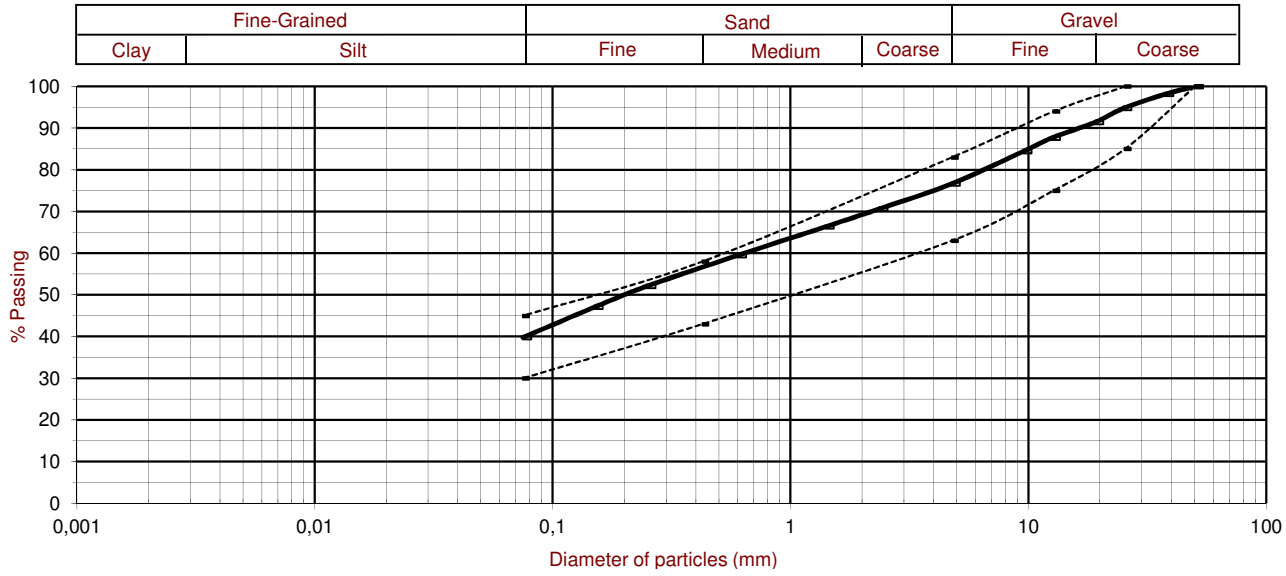
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 403

Material : Sieve till
Source : SD3 - In place, st. 20+604.4, el. 142.5m
Utilisation :
Collected : 16-08-13
Sampled by : S.O.
Received : 16-08-16
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	8,6%	
150,0	100				
75,0	100				
50,0	100	100			
37,5	98				
25,0	95	85-100			
19,0	91				
12,5	88	75-94			
9,5	84				
4,75	77	63-83			
2,36	71				
1,40	66		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	60		Method	Maximum dry unit weight	Optimum water content
0,250	52	43-58	C	kg/m^3	%
0,150	47				
0,075	39,8	30-45			

Unified classification of soils



Remarks:

Verified by: Francis Rose, S.O.
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
				2016-08-15
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadowbank
Description : Sieved Till, SD3, in place 20+604 A el 192.5

File no : 638617
SAMPLE no : 403
Référence No. :

Identification		Water content		
Sieve serial n° :		Pan n° :		
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		~~Pan~~ + humid soil weight :	15049.7	gr.
Sieve shaker(rotap) n° :		~~Pan~~ + dry soil weight :	13858.2	gr.
Balance n° :		Water content :	8.6%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil: 13858.2 gr

total mass < 20mm.: 6100.0 gr

mass before sieving: gr

sieving loss: %

soil mass < 5 mm

before washing: 540.3 gr

after washing: 278.5 gr

sieving loss: %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	gr	gr				%
63	gr	gr				%
50	0 gr	gr				%
37.5	251.5 gr	gr				%
25	474 gr	gr				%
19	465.3 gr	gr				%
12.5	249.9 gr	gr				%
9.5	214.6 gr	gr				%
4.76	519.6 gr	gr				%
pan	5110.1 gr	gr				%
2,36	42.2 gr	gr				%
1.4 ~~1.18~~	30.4 gr	gr				%
600 µm	48.3 gr	gr				%
250 ~~300~~ µm	52 gr	gr				%
150 µm	35.4 gr	gr				%
75 µm	51.4 gr	gr				%
pan	18.3 gr	gr				%

REMARKS

Tested by: Francis Rose I.S.O.
Date: 2016/08/16

Approved by :
Date :

SNC·LAVALIN International	Project No	Subd.	Subject	date
	638617	Watercontent		2016/08/16
Client Name	Name & Location of Project :			
Agnico Eagle	Meadowbank			
WATER CONTENT (ASTM D-2216)			Report No.	

Client : Agnico Eagle
Projet : Meadobank- SD3

No dossier : 638617
No Échantillon : 408
Prélevé le : 2016/08/15

Four conventionnel ☑ Four Micro-ondes ☐

Échantillon no.		408					
Profondeur pied ☐ mètre ☐							
~~Récipient no.~~							
Masse du sol humide + ~~récipient~~ (g)		3832.2					
Masse du sol sec + ~~récipient~~	(g)	3551.5					
Masse de l'eau	(g)						
Masse du récipient	(g)						
Masse du sol sec	(g)						
Teneur en eau	(%)	7.9%					

~~Profondeur~~ NO.	Description ~~visuelle~~ Location.
408	Non Sieved Till, North side of SD3, about St. 20+600

ÉQUIPEMENTS :

Réalisé par: Sanaz olyaie Date: 2016/08/16

Vérifié par: _____ Date: _____

APPENDIX I3B

QC RESULTS LAB- FINE FILTER SADDLE DAM 3 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-03

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 387

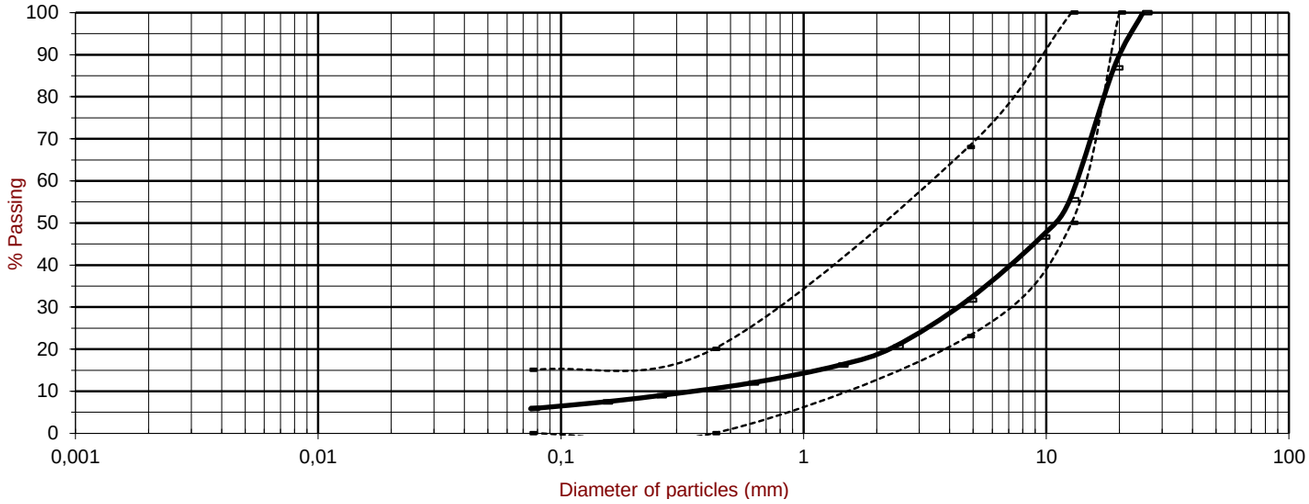
Material : fine filter
Source : in place, saddle dam 3
elev. 140,5, st 20+680
Utilisation :
Collected : 16-08-01
Sampled by : M.-H. P.

Received : 16-08-01
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,7%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	87	100			
12,5	55	50-100			
9,5	47				
4,75	32	23-68			
2,36	21				
1,40	16		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	12	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	9		C	kg/m^3	%
0,150	7				
0,075	5,8	0-15			

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks: _____

Verified by: _____ technicien

Approuved by: _____

APPENDIX I3C

QC RESULTS LAB - COARSE FILTER SADDLE DAM 3 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-09

Client Name	Project Name
Agnico Eagle	**Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 388

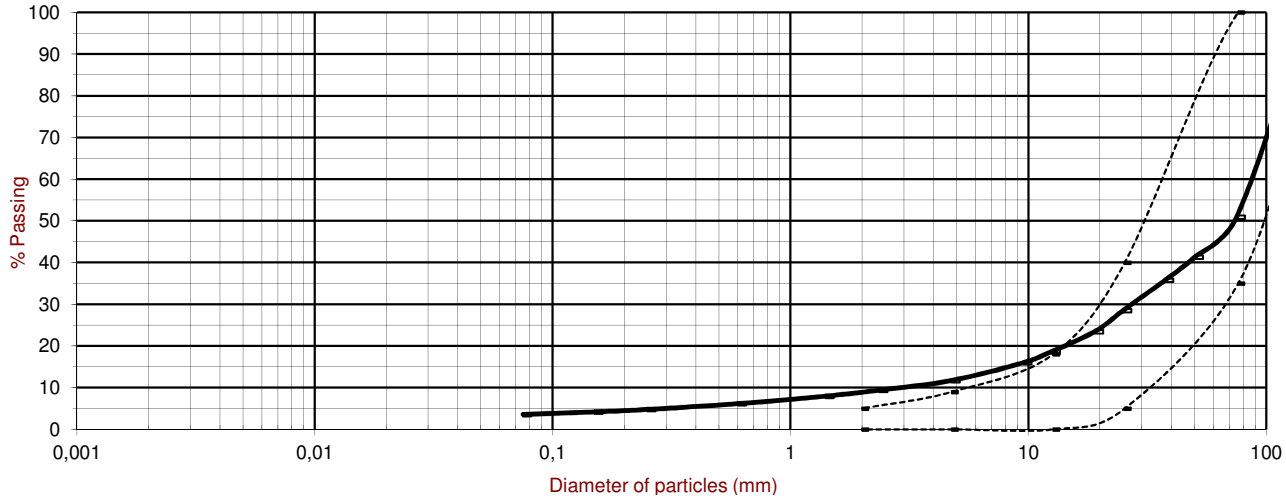
Material : coarse filter
Source : SD3, coarse filter, in place
elev. 140,5, st. 20+680
Utilisation :
Collected : 16-08-01
Sampled by : M.H.P.

Received : 16-08-09
Client ref :

Sieve analysis (ASTM C-136)			**Others tests**	**Measured**	**Requirement**
Sieve	**(% passing)**		moisture content	1,6%	
(mm)	**Measured**	**Requirement**			
150,0	100	86-100			
75,0	51	35-100			
50,0	41				
37,5	36				
25,0	29	5-40			
19,0	23				
12,5	19	0-18			
9,5	16				
4,75	12	0-9			
2,36	9	0-5			
1,40	8		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	6		Method	Maximum dry unit weight	Optimum water content
0,250	5		**C**	kg/m^3	%
0,150	4				
0,075	3,6				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136			Report No.	

Client : Meadowbank
Project : Agnico Eagle
Description : Course Filter

File no : 630617
SAMPLE no : M 388
Référence No. : in place

Identification		Water content		
Sieve serial n° :		Pan n° :		
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		~~Pan~~ + humid soil weight :	79003.1	gr.
Sieve shaker(rotap) n° :		~~Pan~~ + dry soil weight :	77770.9	gr.
Balance n° :		Water content :	1.6%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil 77770.9 gr

total mass < 20mm. gr

mass before sieving gr

sieving loss %

soil mass < 5 mm
before washing 940.4 gr
after washing 673.8 gr
sieving loss %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	38138.2 gr	gr				%
63	gr	gr				%
50	7492.7 gr	gr				%
37.5	4301.5 gr	gr				%
25	5652.3 gr	gr				%
19	3935 gr	gr				%
12.5	3735.1 gr	gr				%
9.5	2076.2 gr	gr				%
4.76	~~3332~~ gr	3332 gr				%
pan	902.6 gr	gr				%
2,36	~~185.9~~ gr	gr				%
1.41 ~~1,18~~	116.8 gr	gr				%
600 µm	143.9 gr	gr				%
250 ~~300~~ µm	110.6 gr	gr				%
150 µm	47.7 gr	gr				%
75 µm	45.4 gr	gr				%
pan	19.1 gr	gr				%

REMARKS

Tested by: Francis Rose
Date: 2016-08-08

Approved by :
Date :

APPENDIX I3D

QC RESULTS FIELD TESTING- TILL SADDLE DAM 3 STAGE 2

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Till	Date 2016/08/13
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Sample : 402

Area :	Saddle dam 3 (South side)	File No. :	638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-CS76) 11-1101

Daily calibration: density 1709 Water content 637

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Pen n°	Rod
A	St. 20+789, O/S: -13.45	142.8	12	2040	97.1	8	8"
B	St. 20+783.6 / O/S = 35.4	142.9	12.2	2035	96.9	6	8"
C	St. 20+785.6 / O/S = 35.62	143.11	12.6	2027	96.5	8	8"
D	St. 20+780.02, O/S = 34.8	142.6	12.5	2037	97	6	8"
Note: (2016/08/21)							
Due to 4% offset on humidity of Nucleo densimeter at time of the test, for water							
content should refer to Sample 403, which was taken in place and done in the Lab							

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Test A : First layer

Test B, C, D : Second layer

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sara Z Olyaie technicien	2016/08/013		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Till	Date 2016/08/13
Client Name **Agnico eagle**	Project Name **Meadowbank**			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Sample : 404

Area :	Saddle dam 3 (North Side)	File No. :	638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sievo Till

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT-CS76) 11-1101

Daily calibration: density 1719 Water content 6cm

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Rem~~ Remark n°	Rod
A	St. 20+609.5, O/S = 41.8	141.20	12	2040	97.1	6	8"
B	St. 20+606.6, O/S = 57.9	142.0	12.8	2032	96.7	6	8"
C	St. 20+620.2, O/S = 66.1	141.0	10.8	2054	97.8	6	8"
D	St. 20+600.1, O/S = 49.6	143.3	12.9	2003	95.4	6	8"
Note: (2016/08/21)							
Due to 4% offset on humidity of nucleodensimeter at time of the test, for water content							
should refer to sample 403, which was taken in place and done in the lab.							

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Test A: First layer

Test B, C, D : Second layer

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Samuel Ogoré technicien	2016/08/13		

SNC·LAVALIN International	Project No. 638617	Subd. Second Till	Subject	Date 2016/08/15
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER			Report No.	

Test 409

Area : SD3 – North Side – Second Clan Till | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: _____

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT (S76) 11-1101

Daily calibration: density _____ Water content _____

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Perles n°
A	St. 20+617.75 / O/S=51-8	141.6	11.9	2054	97.8	6
B	St. 20+615./ O/S=-4428	143.34	11.7	2051	97.6	6

Note: (2016/08/21)
Due to 4% offset on humidity of nucleodensimeter at time of the test, for water content should refer to sample No. 408 which was taken in place and done in the lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olyaie technicien	2016/08/15		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/08/29
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

1423

Area : Saddle Dam 3 North | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature: First layer (rough)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: CAT CS 76 11-1101

Daily calibration: density +0.70 % Water content -0.16 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST. 20+602 o/s 55.1	143.0	7.9	2081	99.1	C.
B	ST. 20+610 o/s 61.3	142.6	8.8	2141	102.0	C.
C	ST 20+625 o/s 66.7	140.7	8.3	2157	102.7	C.
D	ST 20+664 o/s 67.6	139.7	8.3	2098	99.9	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/08/29		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/08/29
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

T4247

Area : Saddle Dam 3 (North) | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Till 0-150 mm

Nature: first layer (north)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B ☒ D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: CAT CS76 11-1101

Daily calibration: density +0.70 % Water content -0.16 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 20+602 o/s 57.3	143.4	9.8	2037	97.0	C
B	ST 20+605 o/s 63.6	143.1	9.3	2074	98.8	C
C	ST 20+615 o/s 68.9	142.9	8.4	2104	100.2	C
D	ST 20+626 o/s 71.7	141.0	8.9	2117	100.8	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Surface compacted unstable.
Static pass of roller, create ±4" demarcation

REVIEWED BY : technicien	DATE: 2016/08/29	APPROVED BY :	DATE:

SNC·LAVALIN International	Project No. 63E617	Subd.	Subject	Date 2016/08/30
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Area : Saddle Dam 3 (South) File No. : 63E617

Material

Till ☑ Fine filter ☐ Coarse filter ☐

Origin: Sieve Till

Nature: first layer (South

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B C D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-11101

Daily calibration: density -0.23 % Water content -0.31 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 20+784 o/s 37,2	143.5	9.2	2046	97.4	C.
B	ST 20+773 o/s 40,5	141.9	8.4	2104	100.2	C.
C	ST 20+765 o/s 43.7	139.8	8,9	2120	101.0	C.
D	ST 20+752 o/s 50.7	138.8	9,2	2099	100.0	C.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY : technicien DATE: 2016/08/30

APPROVED BY : DATE:

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	630617			2016/08/30
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER				Report No.

Area : Saddle Dam 3 (South) File No. : 630617

Material

Till ☑ Fine filter ☐ Coarse filter ☐

Origin: Till 0-150 mm

Nature: First layer (South)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B C D

Max. volumetric dry mass : 2150 kg/m³

Optimum water content : 6.5 %

Compaction rate required: 95 % of Proctor value or 1992 kg/m³

Compaction equipment: Roller CAT CS76 1C-11001

Daily calibration: density -0.23 % Water content -0.31 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 20+772 o/s 41.3	142.0	9.6	2078	99.0	C.
B	ST 20+766 o/s 48.3	140.2	8.8	2108	100.4	C.
C	ST 20+758 o/s 49.6	139.6	9.2	2120	101.0	C.
D	ST 20+749 o/s 50.8	139.1	8.7	2103	100.1	C.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

- Static passes only

REVIEWED BY : technicien DATE: 2016/08/30

APPROVED BY : DATE:

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/09/23
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

T4347

Area : Saddle Dam 3 (North) File No. : 638617

Material				Laboratory tests						
Till ☑	Fine filter ☐	Coarse filter ☐		Proctor: Standard ☑	Modified ☐	A	B	(C)	D	
Origin: Till 0-150 mm				Max. volumetric dry mass : 2100 kg/m³						
Nature: Second layer (North)				Optimum water content : 6.5 %						

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density +0.69 % Water content -1.72 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST. 20+633 o/s 66.0	140.4	7.5	2260	107.6	C.
B	ST. 20+625 o/s 69.2	141.8	8.0	2174	103.5	C.
C	ST. 20+614 o/s 70.4	143.3	7.6	2233	106.3	C.
D	ST. 20+607 o/s 56.7	143.9	8.2	2325	110.7	C.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/23		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/09/03
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER				Report No.

T433

Area : Saddle Dam 3 (South) File No. : 638617

Material			Laboratory tests		
Till ☑	Fine filter ☐	Coarse filter ☐	Proctor: Standard ☑	Modified ☐ A B ◉ D	
Origin: Till 0-150 mm			Max. volumetric dry mass :	2100	kg/m³
Nature: Second layer (south)			Optimum water content :	8.5	%

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density +0.69% Water content -1.72%

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 20+770 o/s 420	1420	8.5	2192	104.4	C
B	ST 20+759 o/s 433	1419.5	7.2	2250	107.1	C
C	ST 20+750 o/s 517	1389	5.9	2330	111.0	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/03		

APPENDIX I4A

QC RESULTS LAB – TILL SADDLE DAM 4 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-15

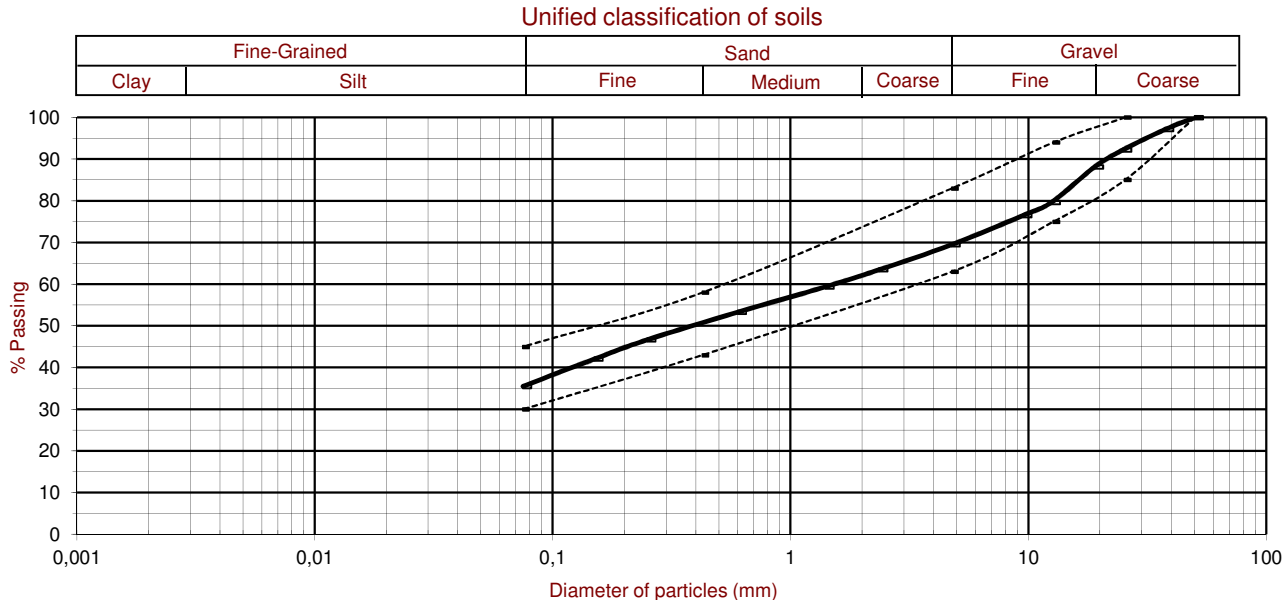
Client Name	Project Name
Agnico Eagle	**meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 399

Material : Sieve till
Source : SD4, in place, 40+139, el: 141.3
Utilisation :
Collected : 16-08-12
Sampled by : S.O.
Received : 16-08-15
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	**(% passing)**		moisture content	7,9%	
(mm)	**Measured**	**Requirement**			
150,0	100				
75,0	100				
50,0	100	100			
37,5	97				
25,0	92	85-100			
19,0	88				
12,5	80	75-94			
9,5	77				
4,75	69	63-83			
2,36	64				
1,40	59		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	53		Method	Maximum dry unit weight	Optimum water content
0,250	47	43-58	**C**	kg/m^3	%
0,150	42				
0,075	35,5	30-45			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

SNC·LAVALIN International	Project No.	Subd.	Subject	date
				2016/08/12
Client Name: Agnico Eagle	Project Name: Meadowbank			
SIEVE ANALISYS – ASTM C-136				Report No.

Client : Agnico Eagle
Project : Meadowbank
Description : Sieved Till SDA, inplace 40+139 el 141.3

File no : 638617
SAMPLE no : 399
Référence No. :

Identification		Water content		
Sieve serial n° :		Pan n° :		
Washing sieve n° :		Pan weight :		gr.
Sieve shaker(gilson) n° :		~~Pan~~ + humid soil weight :	14232.1	gr.
Sieve shaker(rotap) n° :		~~Pan~~ + dry soil weight :	13184.74	gr.
Balance n° :		Water content :	7.9%	%

Minimal mass for testing

Nominal dimension	Minimum mass	Nominal dimension	Minimum mass
125 mm	300 Kg	37,5 mm	15 Kg
100 mm	150 Kg	25 mm	10 Kg
90 mm	100 Kg	19 mm	5 Kg
75 mm	60 Kg	12.5 mm	2 Kg
63 mm	35 Kg	9.5 mm	1 Kg
50 mm	20 Kg	4.76 mm	300 gr

total mass of soil: 13184.74 gr

total mass < 20mm.: ~~5018.4~~ 6211.3 gr

mass before sieving: gr

sieving loss: %

soil mass < 5 mm before washing: 511.0 gr

after washing: 268.0 gr

sieving loss: %

sieve	retain. (indiv.)	retain. (cumul.)	% ret. (cumul.)	% pas. (cumul)		% passing (combined)
100	gr	gr				%
75	gr	gr				%
63	gr	gr				%
50	— gr	gr				%
37.5	376.6 gr	gr				%
25	640.7 gr	gr				%
19	540.3 gr	gr				%
12.5	599.6 gr	gr				%
9.5	221 gr	gr				%
4.76	495.9 gr	gr				%
pan	4886.9 gr	gr				%
2,36	44.0 gr	gr				%
1,18	30.3 gr	gr				%
600 µm	44.6 gr	gr				%
300 µm	48.7 gr	gr				%
150 µm	33.9 gr	gr				%
75 µm	48.2 gr	gr				%
pan	18.4 gr	gr				%

REMARKS

Tested by: Francis Lapointe
Date: 2016-08-15

Approved by :
Date :

APPENDIX I4B

QC RESULTS LAB- FINE FILTER SADDLE DAM 4 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-02

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 385

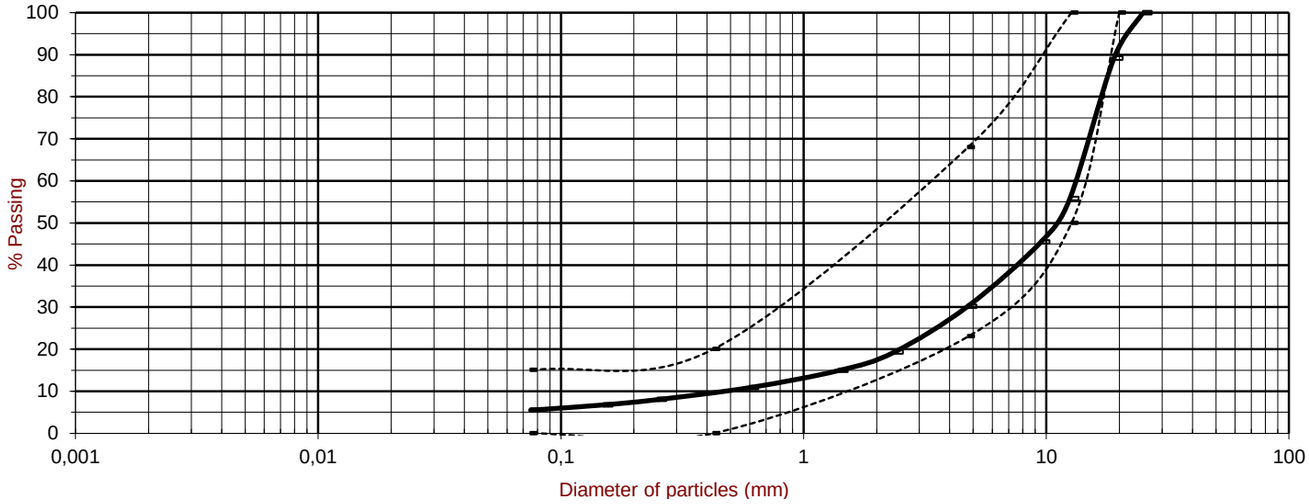
Material : fine filter
Source : in place, saddle dam 4
elev. 141,5, st 40+340
Utilisation :
Collected : 16-07-31
Sampled by : G, L,

Received : 16-07-31
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,3%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	89	100			
12,5	56	50-100			
9,5	45				
4,75	30	23-68			
2,36	19				
1,40	15		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	11	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	8				
0,150	7		**C**	kg/m^3	%
0,075	5,5	0-15			

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-09-10

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 438

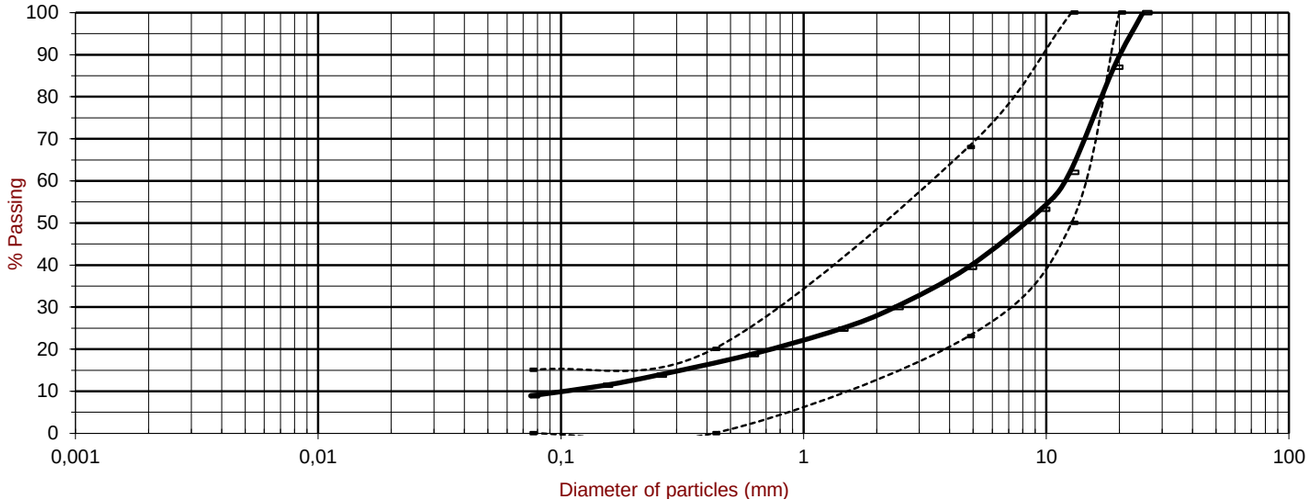
Material : fine filter
Source : in place, saddle dam 4
elev. 142, st 40+391
Utilisation :
Collected : 16-08-09
Sampled by : F.R.

Received : 16-09-11
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	1,7%	
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	87	100			
12,5	62	50-100			
9,5	53				
4,75	39	23-68			
2,36	30				
1,40	25		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	19	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	14		C	kg/m^3	%
0,150	11				
0,075	8,9	0-15			

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

APPENDIX I4C

QC RESULTS LAB - COARSE FILTER SADDLE DAM 4 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-07

Client Name: **Agnico Eagle**

Project Name: **Meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 386

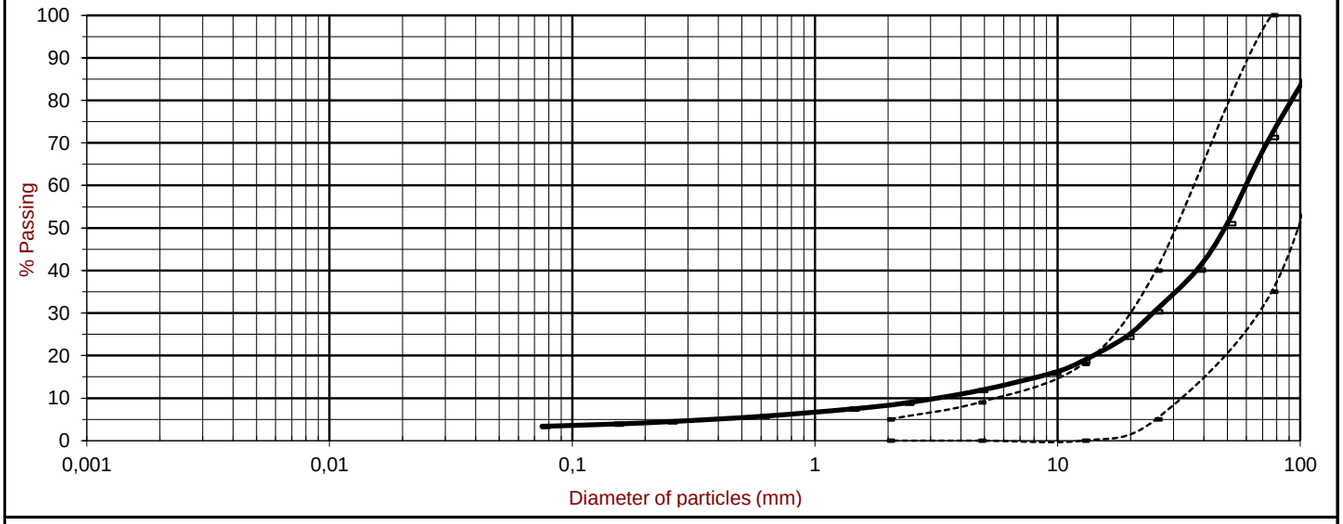
Material : coarse filter
Source : in place, saddle dam 4
elev. 142, st. 40+360
Utilisation :
Collected : 16-07-31
Sampled by : G. L.

Received : 16-07-31
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	3,8%	
150,0	100	86-100			
75,0	71	35-100			
50,0	51				
37,5	40				
25,0	30	5-40			
19,0	24				
12,5	19	0-18			
9,5	16				
4,75	12	0-9			
2,36	9	0-5			
1,40	7		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	6		Method	Maximum dry unit weight	Optimum water content
0,250	4		C	kg/m^3	%
0,150	4				
0,075	3,4				

Unified classification of soils

Fine-Grained		Sand			Gravel	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse



Remarks:

Verified by: _____ technicien

Approuved by: _____

APPENDIX I4D

QC RESULTS FIELD TESTING- TILL SADDLE DAM 4 STAGE 2

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Till-SD4	Date 2016/08/12
Client Name **Agnico eagle**	Project Name **Meadowbank**			
DENSITY OF SOIL WITH NUCLEODENSIMETER			Report No.	

Sample 398

Area :	Saddle dam 4, between st. 40+120 to 40+160	File No. :	638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieva Till

Nature:

Laboratory tests

Proctor: Standard ☑ | Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS76) 11-1101

Daily calibration: density 1715 Water content 651

Test n°	Location	Level (m)	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Passes (n)	(Rod)
A	St. 40+114, O/S = -20.4	140.8	3.1	2218	105	6	(8")
B	St. 40+112.5, O/S = -21	141.15	2.6	2215	105	6	(8")
C	St. 40+132.2, O/S = 25.6	138.6	3.3	2216	105	6	(8")
D	St. 40+143, O/S = 27.7	138	3.6	2225	105.9	6	(8")
E	St. 40+146, O/S = 28.7	137.8	3.5	2215	105	8	(8")

Note: (2016/08/21)

Due to 4% offset on humidity of Nuclear densimeter at time of the test, for water content should refer to Sample 399, which was taken in place and done in the Lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Test NO. 398-A : First layer

B, C, D, E : Second layer

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olycie (technicien)	2016/08/12		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617		Till-SD4	2016/08/12
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Sample 400

Area :	Saddle dam 4, between : 40+360 to 40+400	File No. :	638 617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature:

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS76) 11-1101

Daily calibration: density 1726 Water content 635

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Pass~~ Remark n°	Rod
A	St. 40+400, O/S= -19.50	141.3	3.7	2222	100	6	6"
B	St. 40+378, O/S=46.69	138.9	10.9	2042	97.2	8	6"
C	St. 40+407.6, O/S= -39.5	142.4	12.6	2022	96.3	8	6"
D	St. 40+405, O/S= 41.5	142	11.5	1996	95	8	8"

Note: (2016/08/21)
Due to 4% offset on humidity of Nucleodensimeter at time of the test, for water content should refer to Sample 399, which was taken in place and done in the Lab.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Test 400-A: First layer

B, C, D : Second layer

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olyaie technicien	2016/08/12		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617		Second clam Till	2016/08/15
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 410

Area : SD4 (North & South side) Second clam Till | File No. : 638617

Material

Till ☐ | Fine filter ☐ | Coarse filter ☐

Origin: _____

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT/CS76) 11-1101

Daily calibration: density _____ Water content _____

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	St-40+116.7 / O/S: -29	139.2	12	2134	101.6	6
B	St-40+378.1 / O/S: 52.6	138.4	12.2	2087	99.4	6
C	St-40+135.6 / O/S: 53.4	138	9.4	2226	106	6
Note: (2016/08/21)						
Due to 4% offset on humidity of nucleo densimeter at time of the test, for water content should refer to sample 408. (manual sample done in the lab)						

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olfaie technicien	2016/08/15		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Non Sieved till	Date 2016/08/16
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 413 (Second clean Till)

Area : SD4/ between St. 40+160 and St 40+120 also St 40+ 420 and 40+360 File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: _____

Nature: _____

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS76) 11-1101

Daily calibration: density 1729 Water content 649

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ Pene n°	Rod
A	St 40+108.5, O/S. -21.143	142	11.1	2127	101.3	6	8"
B	St. 40+391.7, O/S. -25.9	140.9	11.3	2097	99.7	6	8"
Note: (2016/08/21)							
Due to 4% offset on humidity of nucleo densimeter at time of the test, for water content should refer to Sample 408. (manual Sample done in the lab)							

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Sanaz Olyaie technicien	2016/08/16		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/08/26
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

4217

Area :	Saddle dam #1	File No. :	638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature: first layer (east)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2130 kg/m³

Optimum water content : 8.3 %

Compaction rate required: 95 % of Proctor value or 1991 kg/m³

Compaction equipment: Roller CAT CS-76 11-1101

Daily calibration: density _____ Water content _____

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST. 40+372 o/s 49.1		7.0	2182	104	C
B	ST. 40+381 o/s 49.4		8.3	2056	98	C
C	ST. 40+390 o/s 46.4		8.4	2116	101	C
D	ST. 40+398 o/s 46.0		7.3	2227	106	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/08/26		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/06/26
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

4227

Area : Saddle dam 4 | File No. : 638617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Till 0-150 mm

Nature: first and second layer (test)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B C D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 6.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS 76 11.110 1

Daily calibration: density -0.30 % Water content +0.53 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 40+370 o/s 46.6	140	7.4	2182	103.9	C.
B	ST 40+379 o/s 50.3	140	7.3	2140	101.9	C.
C	ST 40+387 o/s 44.4	140	6.8	2196	104.6	C.
D	ST 40+397 o/s 45.8	142	7.6	2161	102.9	C.
E	ST 40+362 o/s 45.2	140	7.0	2114	100.7	C
F	ST 40+373 o/s 44.6	140	6.6	2262	107.7	C
G	ST 40+383 o/s 42.0	141	6.0	2340	111.4	C
H	ST 40+393 o/s 39.3	142	7.0	2190	104.3	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/06/26		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/08/30
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER				Report No.

1427

Area :	Saddle Dam 4 (west)	File No. :	638617

Material		Laboratory tests	
Till ☑ / Fine filter ☐ / Coarse filter ☐		Proctor: Standard ☑ Modified ☐ A B ◯ D	
Origin:	Sieve Till	Max. volumetric dry mass :	2100 kg/m³
Nature:	First layer (west)	Optimum water content :	8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS 76 11-1101

Daily calibration: density -0.23 % Water content -0.31 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 40+151 o/s 53.6	138.1	8.4	2136	101.8	C.
B	ST 40+141 o/s 50.2	138.3	8.4	2139	101.9	C.
C	ST 40+131 o/s 49.2	139.1	7.3	2180	104.2	C.
D	ST 40+117 o/s 45.4	141.1	8.0	2140	101.9	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/08/30		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	630617			2016-08-31
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

T42e

Area : Saddle Dam 4 (west) | File No. : 630617

Material

Till ☑ | Fine filter ☐ | Coarse filter ☐

Origin: Till 0-150 mm

Nature: First Layer (west)

Laboratory tests

Proctor: Standard ☑ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density ± 0.23 % Water content ± 1.10 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 40+153 o/s 54.0	138.3	7.9	2156	102.7	C
B	ST 40+143 o/s 50.8	138.7	8.7	2121	101.0	C.
C	ST 40+132 o/s 48.9	139.1	6.9	2243	106.8	C.
D	ST 40+118 o/s 43.3	141.6	7.2	2161	102.9	C.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Technicien	2016/08/31		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	636617			2016/09/02
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER				Report No.

1432

Area : Saddle Dam 4 (west) File No. : 636617

Material				Laboratory tests		
Till ☑	Fine filter ☐	Coarse filter ☐		Proctor: Standard ☑	Modified ☐ A B ◉ D	
Origin:	Till 0-150 mm			Max. volumetric dry mass :	2400	kg/m³
Nature:	Second layer (west)			Optimum water content :	8.5	%

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density +0.58 % Water content — %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	St. 40+160 o/s 47.8	139.3	8.2	2165	103.1	
B	St. 40+144 o/s 48.2	139.4	7.2	2155	102.6	
C	St. 40+134 o/s 49.7	138.9	6.8	2214	105.4	
D	St. 40+122 o/s 39.3	141.8	5.4	2301	109.6	

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/02		

APPENDIX I5A

QC RESULTS LAB – TILL SADDLE DAM 5 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-08-29

Client Name: **Agnico Eagle**

Project Name: **meadowbank**

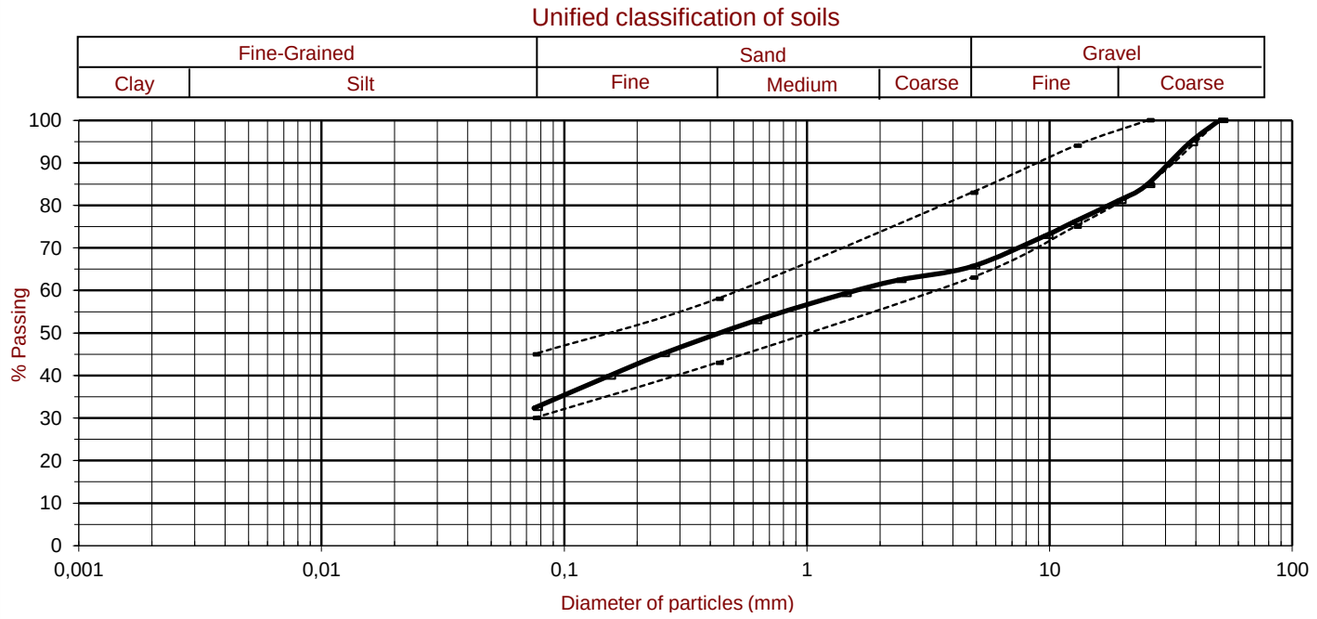
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 416

Material : Sieve till
Source : SD-5 - In place
ST. 40+633/-39.7, el.140.6 m
Utilisation :
Collected : 16-08-19
Sampled by : S.O.

Received : 16-08-19
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	7,6%	
150,0					
75,0					
50,0	100	100			
37,5	95				
25,0	85	85-100			
19,0	81				
12,5	76	75-94			
9,5	73				
4,75	66	63-83			
2,36	62				
1,40	59		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	53		Method	Maximum dry unit weight	Optimum water content
0,250	45	43-58	C	kg/m^3	%
0,150	40				
0,075	32,3	30-45			



Remarks: _____

Verified by: _____ technicien

Approuved by: _____

APPENDIX I5B

QC RESULTS LAB- FINE FILTER SADDLE DAM 5 STAGE 2

SNC·LAVALIN International

Project No	Subd.	Subject	Date
638617			2016-07-24

Client Name: **Agnico Eagle**

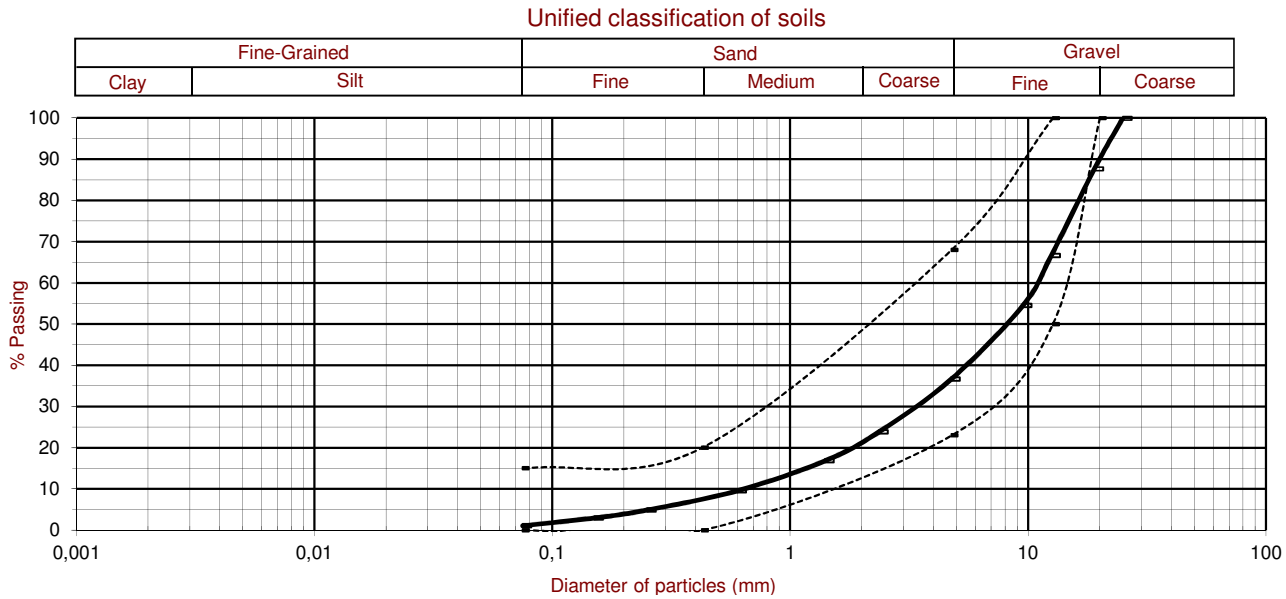
Project Name: **meadowbank**

TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 379

Material : Fine filter
Source : SD5, in place, 40+700
Utilisation :
Collected : 16-07-13
Sampled by : S.O.
Received : 16-07-24
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve	(% passing)		moisture content	3,8%	
(mm)	Measured	Requirement			
150,0					
75,0					
50,0					
37,5					
25,0	100				
19,0	88	100			
12,5	67	50-100			
9,5	55				
4,75	37	23-68			
2,36	24				
1,40	17		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	10	0-20	Method	Maximum dry unit weight	Optimum water content
0,250	5		C	kg/m^3	%
0,150	3				
0,075	1,1	0-15			



Remarks:

Verified by: Francis Rose
technicien

Approuved by:

APPENDIX I5C

QC RESULTS LAB - COARSE FILTER SADDLE DAM 5 STAGE 2

SNC·LAVALIN International	Project No	Subd.	Subject	Date
	638617			2016-07-28

Client Name	Project Name
Agnico Eagle	**Meadowbank**

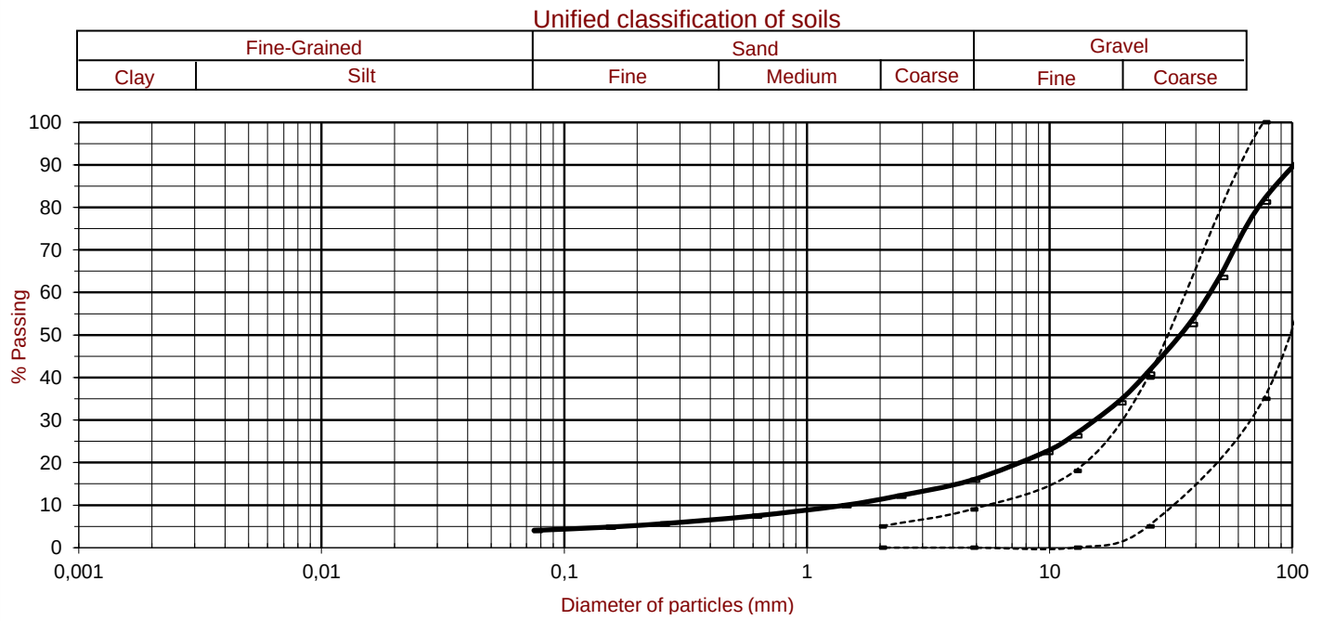
TEST ON SOILS, AGGREGATES AND OTHERS MATERIALS

Client : Agnico Eagle
:
Project : Meadowbank
:
File n° : 638617
Sample n° : 380

Material : coarse filter
Source : SD-5 in place
40+685
Utilisation :
Collected : 16-07-14
Sampled by : F. R.

Received : 16-07-14
Client ref :

Sieve analysis (ASTM C-136)			Others tests	Measured	Requirement
Sieve (mm)	(% passing) Measured	Requirement	moisture content	2,3%	
150,0	100	86-100			
75,0	81	35-100			
50,0	64				
37,5	53				
25,0	41	5-40			
19,0	34				
12,5	26	0-18			
9,5	22				
4,75	16	0-9			
2,36	12	0-5			
1,40	10		Compaction characteristics of Soil Using Standard Effort (ASTM D-698)		
0,600	7		Method	Maximum dry unit weight	Optimum water content
0,250	6		C	kg/m^3	%
0,150	5				
0,075	4,0				



Remarks:

Verified by: _____ technicien

Approuved by: _____

APPENDIX I5D

QC RESULTS FIELD TESTING- TILL SADDLE DAM 5 STAGE 2

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Till	Date 2016/08/19
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 417

Area : Saddle dams (St. 40+620 to St. 40+780) | File No. : 638617

Material

Till ☒ | Fine filter ☐ | Coarse filter ☐

Origin: Sieve Till

Nature:

Laboratory tests

Proctor: Standard ☒ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Compactor (CAT, CS 76) 11-1101

Daily calibration: density 1713 Water content 642

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Passes ~~Remark~~ n°	Rod
A	First layer, St. 40+642.3, O/S:47	139	7.7	2133	101.6	6	8"
B	First layer, St. 40+663.5, O/S 42.3	137.5	6.5	2176	103.6	6	8"
C	First layer, St. 40+736.9, O/S: 51.5	137.9	8.1	2118	100.9	6	6"
D	2nd layer, St. 40+642.1, O/S. 44.5	139.7	8.3	2104	100.2	6	8"
E	2nd layer, St. 40+667.8, O/S: 50.2	137.8	7.8	2128	101.3	6	8"
F	2nd layer, St. 40+740.1, O/S: 48.8	138.2	8.3	2112	100.5	6	8"
G	2nd layer, St. 40+750.6, O/S: 55.4	135.8	7.7	2136	101.7	6	8"
H	3th layer, St. 40+646, O/S. 50.3	137.9	8.4	2100	100	6	8"

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

Note: test 417-H on 3th layer gave the optimum result.

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Saraz olyaie technicien	2016/08/19		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject Till-clam II	Date 2016/08/21
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

Test 418

Area : Saddle dam 5 File No. : 638617

Material

Till ☒ | Fine filter ☐ | Coarse filter ☐

Origin : Till clam II

Nature :

Laboratory tests

Proctor: Standard ☒ Modified ☐ A B (C) D

Max. volumetric dry mass : 2100 kg/m³

Optimum water content : 8.5 %

Compaction rate required : 95 % of Proctor value or 1995 kg/m³

Compaction equipment : Compactor (CAT, CS76) 11-1101

Daily calibration: density 1727 Water content 643

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	~~Remark~~ n°	Rod
A	First layer, St. 40+730-9, o/s 51.3	13	8.3	2104	100.2	6	8"
B	1th layer, St. 40+642.4, o/s -49.6	140.1	8.1	2153	102.5	6	8"
C	2nd layer, St. 40+660-5, o/s -32.9	138.3	7.8	2068	98.4	6	8"
D	3th layer, st. 40+663.1, o/s-53.0	138.5	6.5	2238	106.6	6	8"

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE	APPROVED BY :	DATE
Samuel Dyotte technicien	2016/08/21		

SNC·LAVALIN International	Project No. 638617	Subd.	Subject	Date 2016/09/01
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

T4297

Area : Saddle Dam D File No. : 638617

Material				Laboratory tests	
Till ☑	Fine filter ☐	Coarse filter ☐		Proctor: Standard ☑ Modified ☐ A B (C) D	
Origin:	Sieve Till			Max. volumetric dry mass :	2150 kg/m³
Nature:	First Layer			Optimum water content :	6.5 %

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-11041

Daily calibration: density - 0.41% Water content + 0.47%

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 40+757 o/s 59.4	136.6	8.0	2128	101.3	C.
B	ST 40+749 o/s 50.4	138.7	7.7	2088	99.4	C.
C	ST 40+740 o/s 53.3	138.7	7.5	2139	101.8	C.
D	ST 40+669 o/s 51.4	138.7	7.5	2163	103.0	C.
E	ST 40+656 o/s 48.0	139.8	7.9	2106	100.3	C.
F	ST 40+639 o/s 46.8	140.7	8.6	2112	100.6	C

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
Technicien	2016/09/01		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/09/01
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

14307

Area : Saddle Dam J File No. : 638617

Material			Laboratory tests	
Till ☑	Fine filter ☐	Coarse filter ☐	Proctor. Standard ☑	Modified ☐ A B ◉ D
Origin: Till 0-150mm			Max. volumetric dry mass : 2100	kg/m³
Nature: First layer			Optimum water content : 8.5	%

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density -0,4 % Water content +0,4 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	ST 40+757 o/s 59.3	137.0	9.1	2195	104.5	
B	ST 40+748 o/s 45.0	138.9	7.8	2161	102.9	
C	ST 40+736 o/s 33.0	139.0	8.4	2161	102.9	
D	ST 40+667 o/s 32.6	139.3	7.3	2180	103.8	
E	ST 40+650 o/s 46.0	140.9	7.5	2096	99.8	
F	ST 40+636 o/s 45.5	141.4	8.2	2124	101.1	

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/01		

SNC·LAVALIN International	Project No.	Subd.	Subject	Date
	638617			2016/09/02
Client Name: Agnico eagle	Project Name: Meadowbank			
DENSITY OF SOIL WITH NUCLEODENSIMETER	Report No.			

14317

Area : Saddle Dam J' File No. : 638617

Material			Laboratory tests	
Till ☑	Fine filter ☐	Coarse filter ☐	Proctor: Standard ☑	Modified ☐ A B ☒ D
Origin: Till			Max. volumetric dry mass : 2100	kg/m³
Nature: Second layer			Optimum water content : 8.5	%

Compaction rate required: 95 % of Proctor value or 1995 kg/m³

Compaction equipment: Roller CAT CS76 11-1101

Daily calibration: density ±0.5 to 1% Water content 0 %

Test n°	Location	Level	Water content (%)	Dry volumetric mass (kg/m³)	Compaction rate (%)	Remark n°
A	St. 40+761 o/s 59.0	137.5	7.0	2192	104.4	C.
B	St. 40+765 o/s 50.7	138.5	7.9	2105	100.2	C.
C	St. 40+746 o/s 52.8	139.7	6.7	2161	102.9	C.
D	St. 40+736 o/s 50.4	139.7	6.0	2242	106.8	C.
E	St. 40+674 o/s 47.0	139.5	8.1	2193	104.4	C.
F	St. 40+664 o/s 48.7	140.3	7.2	2213	105.4	C.
G	St. 40+654 o/s 49.1	141.1	6.6	2206	105.0	C.
H	St. 40+640 o/s 40.6	141.9	6.8	2231	106.2	C.

Remarks: 1 : Non conform 2 : Retest 3 : Conform 4 Acceptable

REVIEWED BY :	DATE:	APPROVED BY :	DATE:
technicien	2016/09/02		

APPENDIX J

QA LABORATORY AND FIELD TESTING RESULTS

APPENDIX J1
STOCKPILE QC RESULTS

APPENDIX J1A

QA RESULTS LAB –TILL STOCKPILE MATERIAL

Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

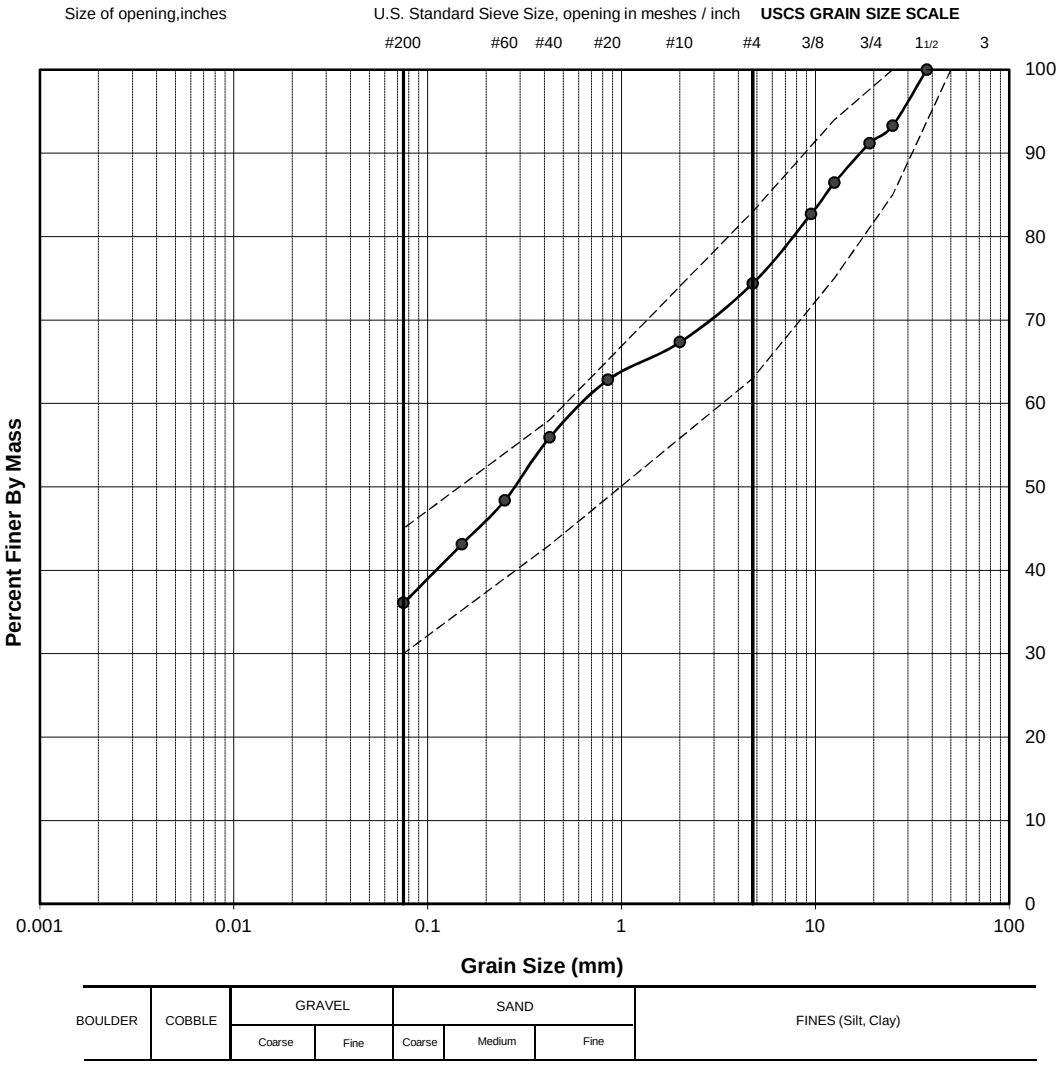
Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-14**
Client:	AEM	**Field Label:**	STCK-14
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-14

Remarks:
Sa. Location: Stock pile sieved till
Water content: 9,3%

Date Sampled:	June 23, 2016
Material Specification:	Processed Till
Method:	SPLIT, WASHED
Date Tested:	July 19, 2016

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	93.3
3/4"	19.0	91.1
1/2"	12.5	86.4
3/8"	9.5	82.7
#4	4.8	74.4
#10	2.0	67.3
#20	0.9	62.8
#40	0.4	55.9
#60	0.3	48.4
#100	0.2	43.1
#200	0.1	36.1



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 19, 2016		
TESTED BY	DATE	CHECKED BY	DATE

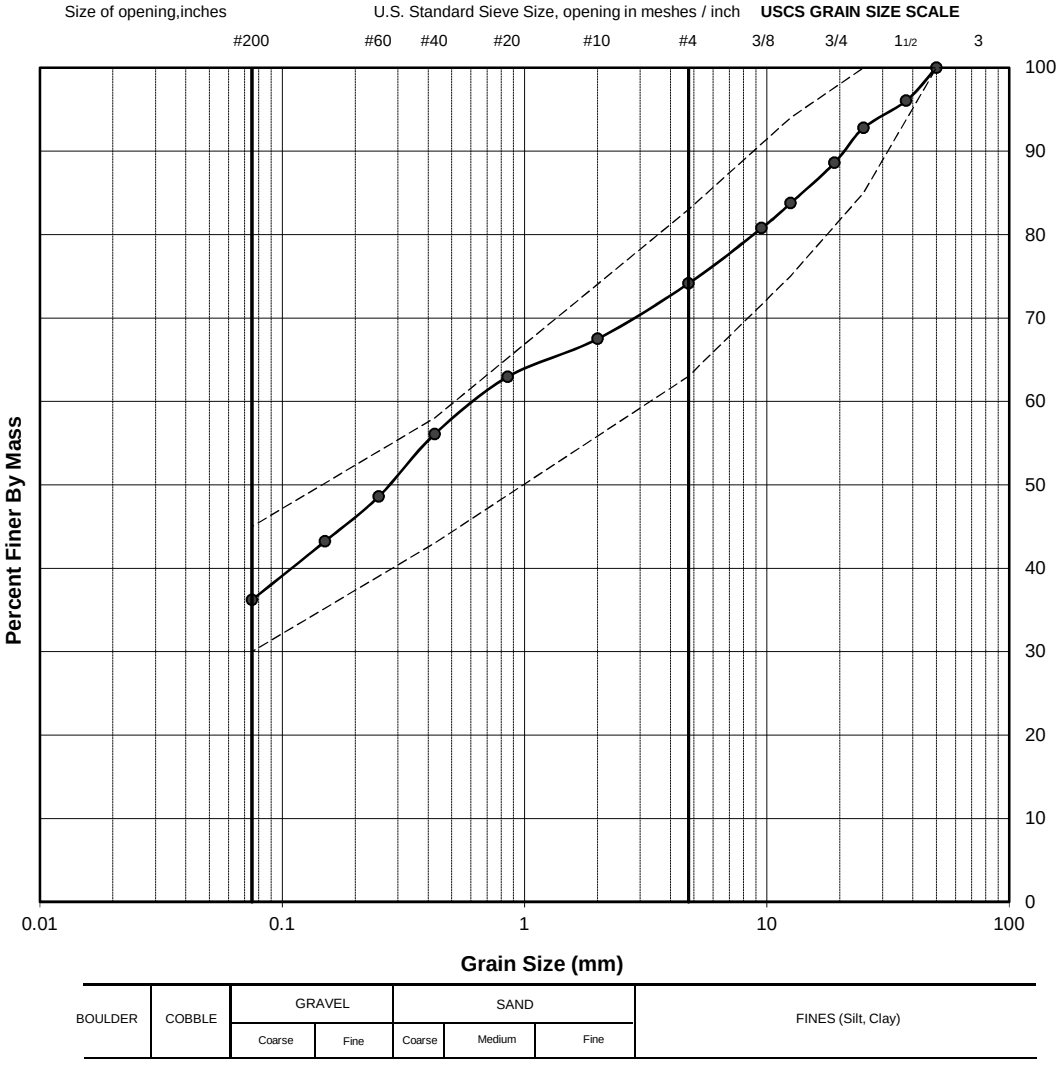
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-16**
Client:	AEM	**Field Label:**	STCK-16
Project:	Meadowbank Gold Project	**Depth (m):**	137.18
Location:	Nunavut	**Lab ID No:**	STCK-16
Remarks:	0.0	**Date Sampled:**	August 16, 2015
Sa. Location:	Stock pile sieved till	**Material Specification:**	Processed Till
Water content: 9%		**Method:**	SPLIT, WASHED
		Date Tested:	July 19, 2016

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	96.0
1"	25.0	92.8
3/4"	19.0	88.6
1/2"	12.5	83.7
3/8"	9.5	80.8
#4	4.8	74.1
#10	2.0	67.5
#20	0.9	62.9
#40	0.4	56.1
#60	0.3	48.6
#100	0.2	43.2
#200	0.1	36.2



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 19, 2016		
TESTED BY	DATE	CHECKED BY	DATE

Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-19**
Client:	AEM	**Field Label:**	STCK-19
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-19

Remarks:

Sa. Location: Stockpile rough till north of Central Dike

Water content: 11,4%

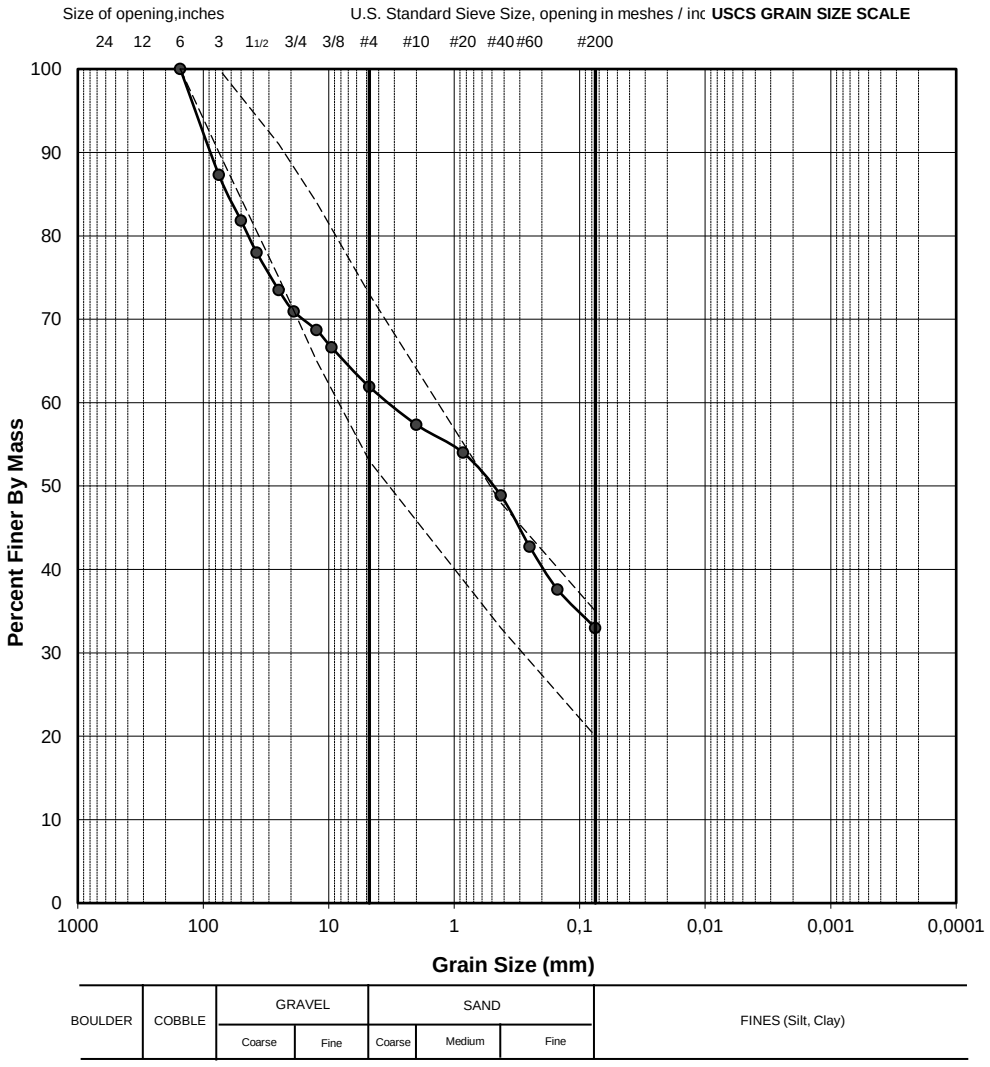
Date Sampled: July 6, 2016

Material Specification: Rough till

Method: SPLIT, WASHED

Date Tested: August 23, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200,0	100,0
6"	152,4	100,0
3"	75,0	87,3
2"	50,0	81,8
1.5"	37,5	78,0
1"	25,0	73,5
3/4"	19,0	70,9
1/2"	12,5	68,7
3/8"	9,5	66,6
#4	4,8	61,9
#10	2,0	57,4
#20	0,9	54,0
#40	0,4	48,9
#60	0,3	42,7
#100	0,2	37,6
#200	0,1	33,0



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 23, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J1B

QA RESULTS LAB - FINE FILTER STOCKPILE MATERIAL

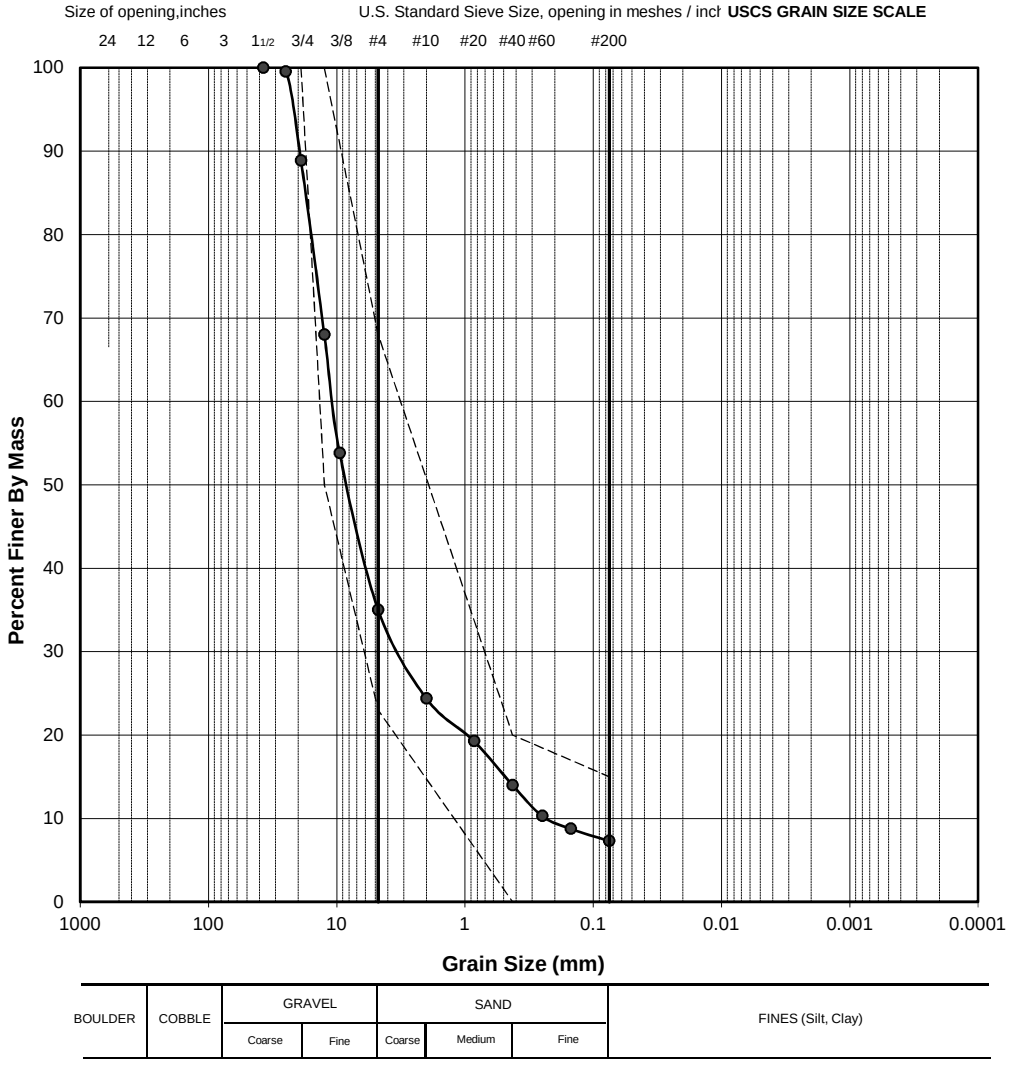
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-15**
Client:	AEM	**Field Label:**	STCK-15
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-15
Remarks:	SANA crusher	**Date Sampled:**	June 30, 2016
Sa. Location:	Stock pile 2	**Material Specification:**	Fine Filter
Moisture Content : 2,6%		**Method:**	SPLIT, WASHED
		Date Tested:	July 17, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	99.5
3/4"	19.0	88.9
1/2"	12.5	68.0
3/8"	9.5	53.8
#4	4.8	35.0
#10	2.0	24.4
#20	0.9	19.3
#40	0.4	14.0
#60	0.3	10.3
#100	0.2	8.7
#200	0.1	7.3



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 17, 2016		
TESTED BY	DATE	CHECKED BY	DATE

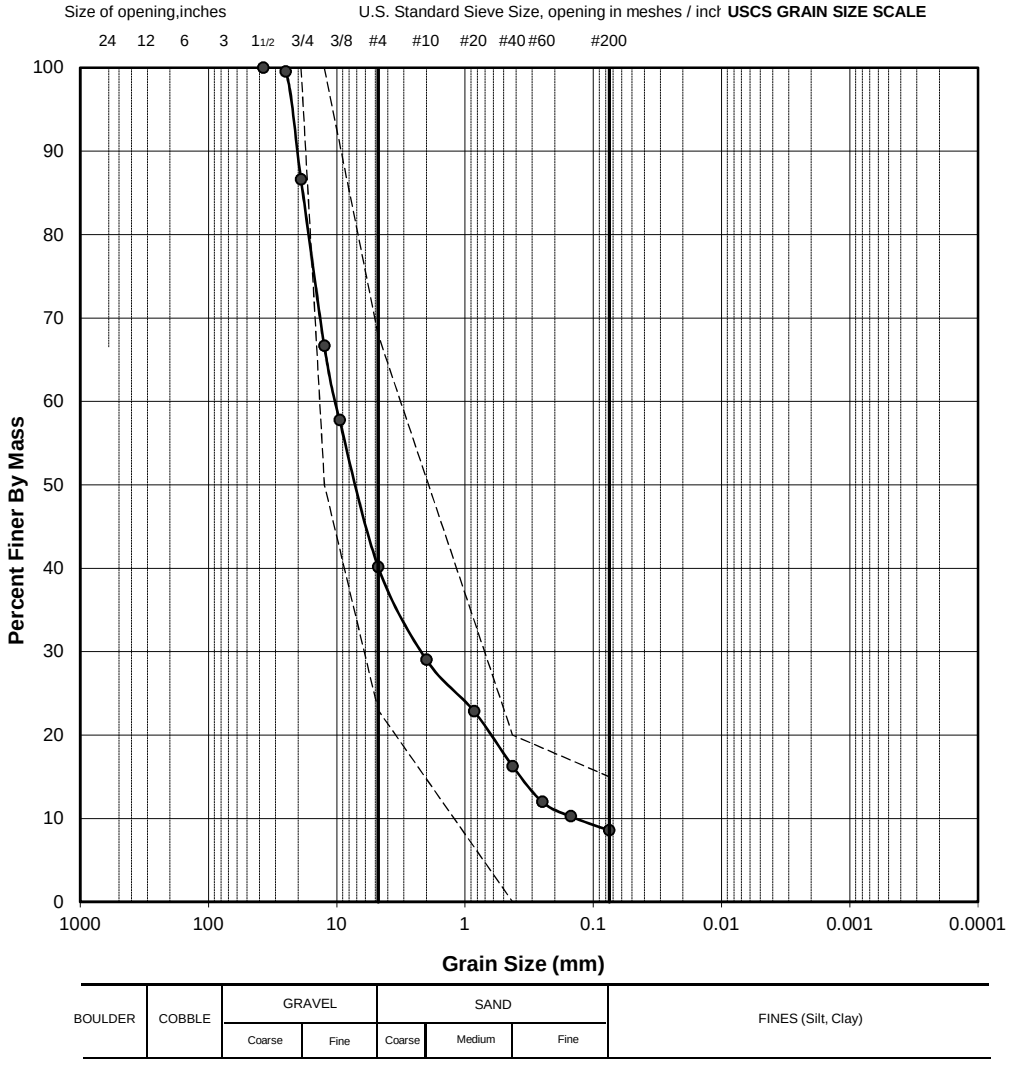
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-18**
Client:	AEM	**Field Label:**	STCK-18
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-18
Remarks:	0.0	**Date Sampled:**	July 4, 2016
Sa. Location:	Stock pile pit D	**Material Specification:**	Fine Filter
Moisture Content :	2,4%	**Method:**	SPLIT, WASHED
		Date Tested:	July 17, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	99.5
3/4"	19.0	86.6
1/2"	12.5	66.6
3/8"	9.5	57.7
#4	4.8	40.2
#10	2.0	29.0
#20	0.9	22.8
#40	0.4	16.2
#60	0.3	12.0
#100	0.2	10.2
#200	0.1	8.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 17, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J1C

QA RESULTS LAB - COARSE FILTER STOCKPILE MATERIAL

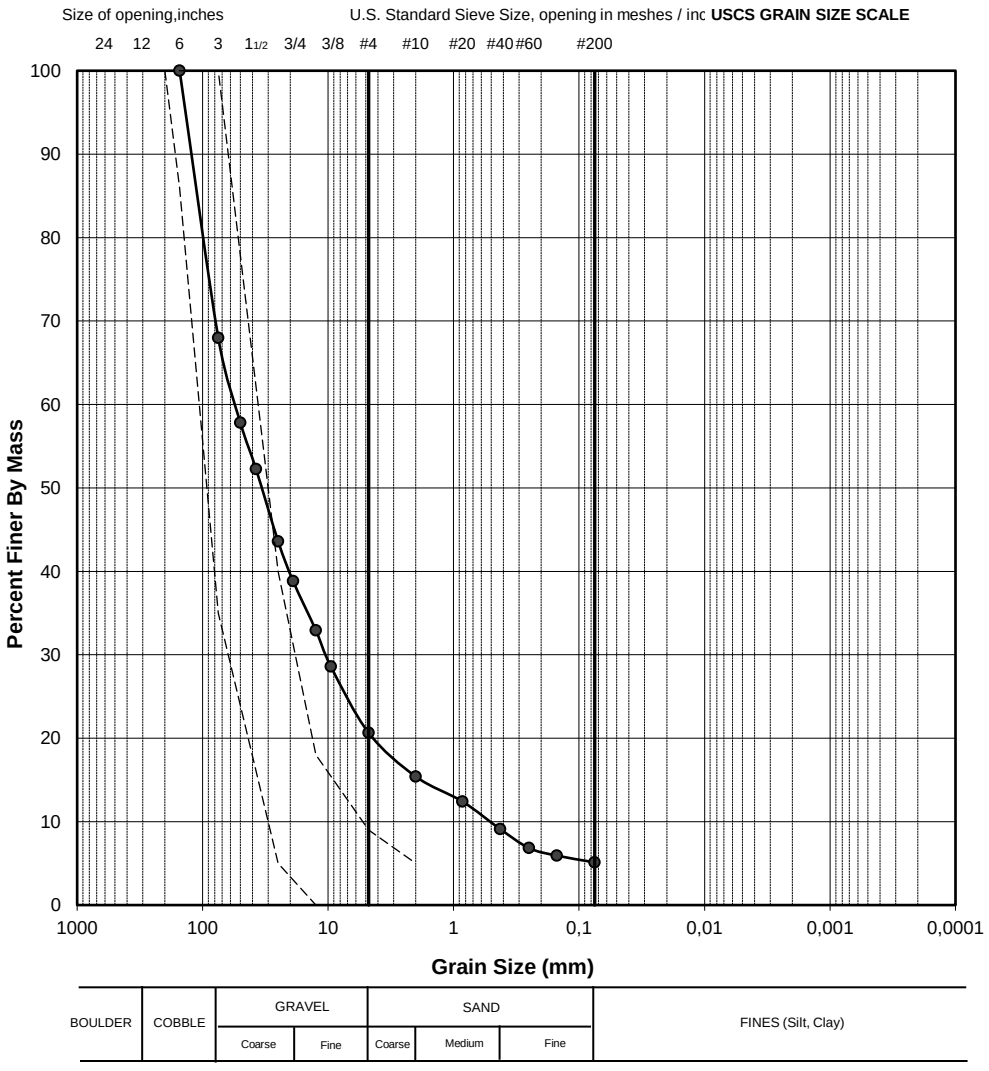
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**STCK-17**
Client:	AEM	**Field Label:**	STCK-17
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	STCK-17
Remarks:	SANA crusher	**Date Sampled:**	July 09, 2015
Sa. Location:	Stock pile 1	**Material Specification:**	Coarse Filter
Water content: 1,44%		**Method:**	SPLIT, WASHED
		Date Tested:	July 21, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200,0	100,0
6"	152,4	100,0
3"	75,0	68,0
2"	50,0	57,8
1.5"	37,5	52,2
1"	25,0	43,6
3/4"	19,0	38,8
1/2"	12,5	32,9
3/8"	9,5	28,6
#4	4,8	20,6
#10	2,0	15,4
#20	0,9	12,4
#40	0,4	9,1
#60	0,3	6,8
#100	0,2	5,9
#200	0,1	5,1



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 21, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J2A

QA RESULTS LAB – TILL CENTRAL DIKE STAGE 5

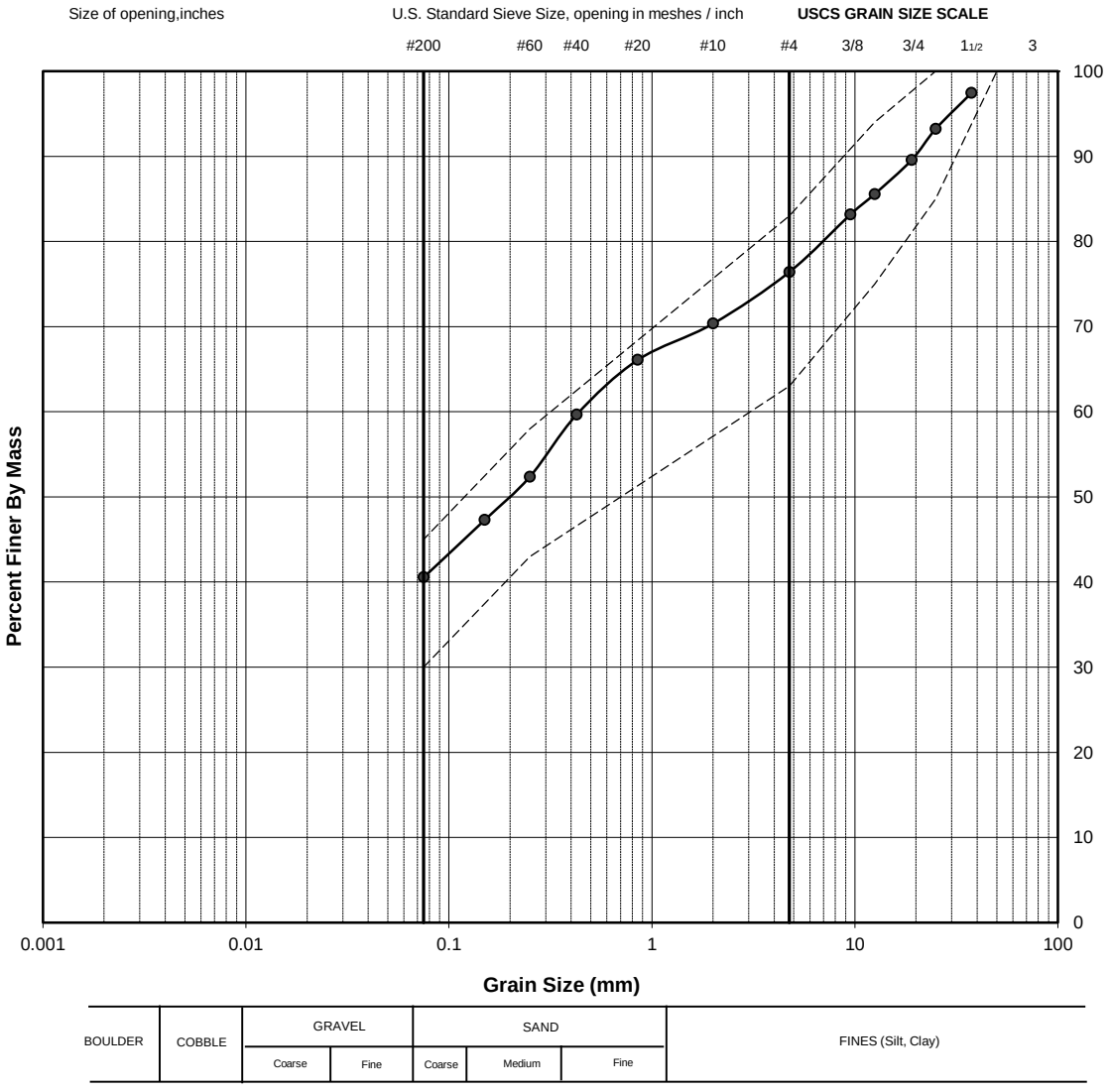
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**CD-543**
Client:	AEM	**Field Label:**	CD-543
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-543
Remarks:	El. 140,7	**Date Sampled:**	August 16, 2016
Sa. Location:	As placed Sta. 0+148,4/o.s. -34,1	**Material Specification:**	Sieved Till
Water content:	8,5%	**Method:**	SPLIT, WASHED
		Date Tested:	August 20, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	97.4
1"	25.0	93.2
3/4"	19.0	89.5
1/2"	12.5	85.6
3/8"	9.5	83.2
#4	4.8	76.4
#10	2.0	70.3
#20	0.9	66.1
#40	0.4	59.6
#60	0.3	52.3
#100	0.2	47.3
#200	0.1	40.5



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 20, 2016	M.D.Bonin	August 20, 2016
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J2B

QA RESULTS LAB- FINE FILTER CENTRAL DIKE STAGE 5

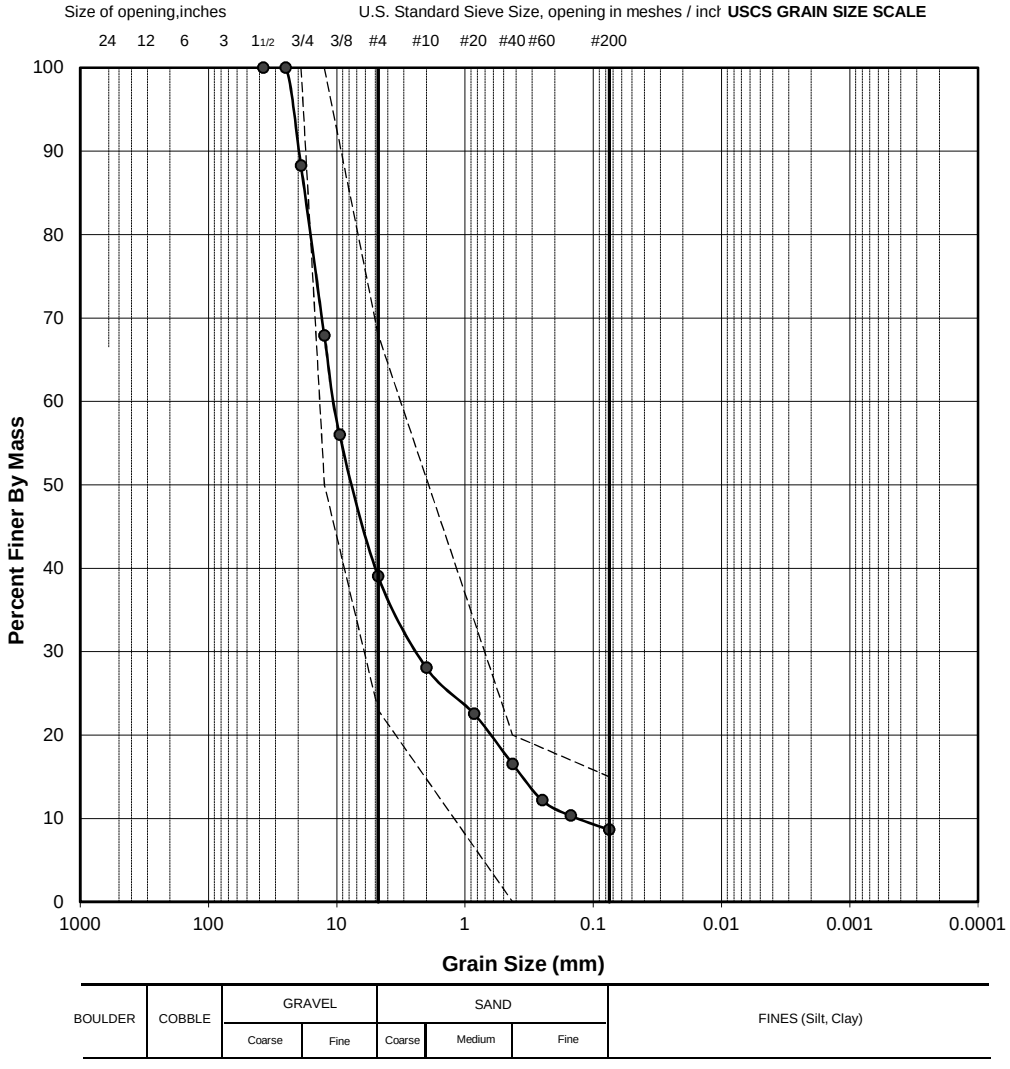
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**CD-540**
Client:	AEM	**Field Label:**	CD-540
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-540
Remarks:	EL: 141,06	**Date Sampled:**	July 5, 2016
Sa. Location:	As placed 0 + 143,5/-15,740	**Material Specification:**	Fine Filter
Moisture Content : 2,3%		**Method:**	SPLIT, WASHED
		Date Tested:	July 17, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	88.2
1/2"	12.5	67.9
3/8"	9.5	56.0
#4	4.8	39.0
#10	2.0	28.1
#20	0.9	22.5
#40	0.4	16.5
#60	0.3	12.2
#100	0.2	10.3
#200	0.1	8.6



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 17, 2016		
TESTED BY	DATE	CHECKED BY	DATE

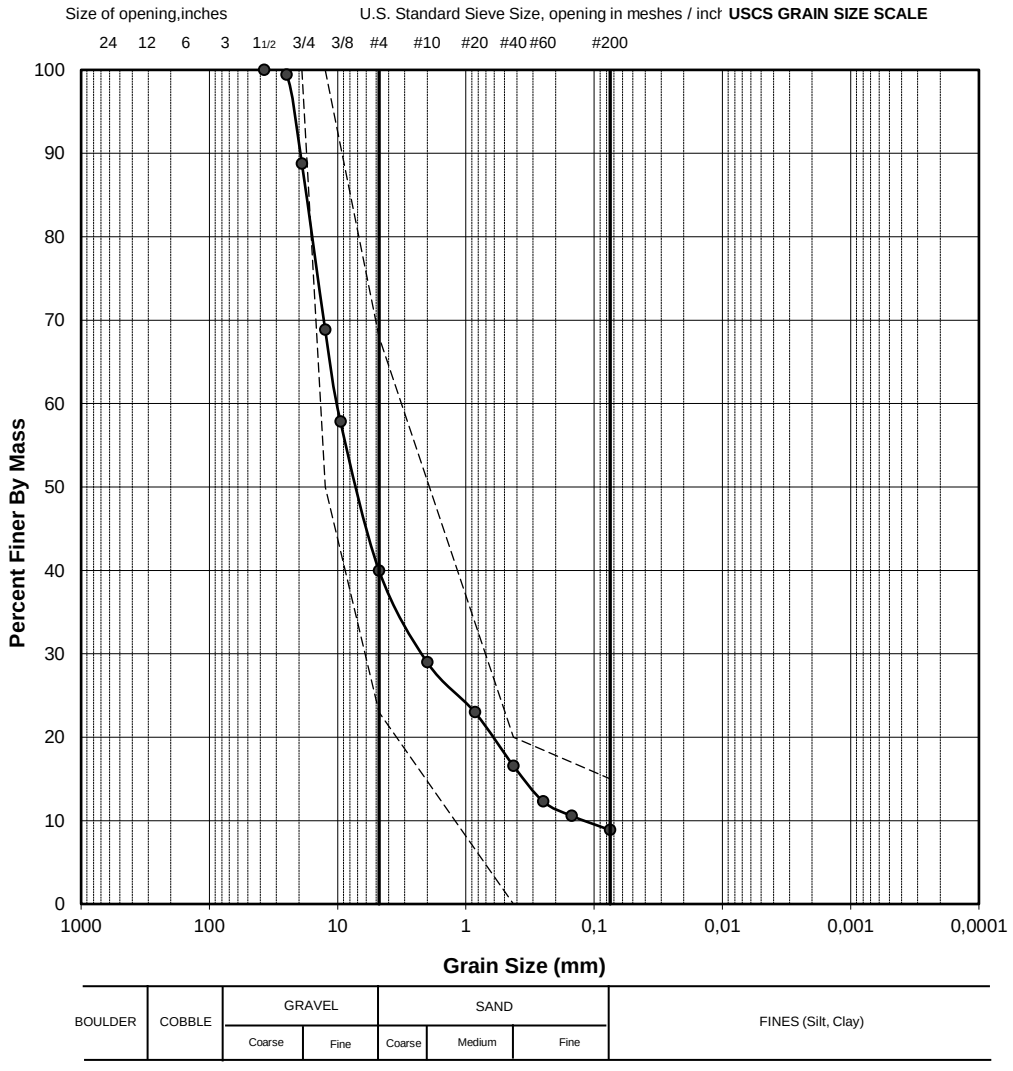
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**CD-542**
Client:	AEM	**Field Label:**	CD-542
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-542
Remarks:	EL: 143	**Date Sampled:**	August 9, 2016
Sa. Location:	As placed Sta. 0+578,3/o.s. -13,38	**Material Specification:**	Fine Filter
Moisture Content: 3,9%		**Method:**	SPLIT, WASHED
		Date Tested:	August 23, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	100,0
1"	25,0	99,4
3/4"	19,0	88,8
1/2"	12,5	68,8
3/8"	9,5	57,8
#4	4,8	40,0
#10	2,0	29,0
#20	0,9	23,0
#40	0,4	16,5
#60	0,3	12,3
#100	0,2	10,6
#200	0,1	8,9



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 23, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J2C

QA RESULTS LAB - COARSE FILTER CENTRAL DIKE STAGE 5

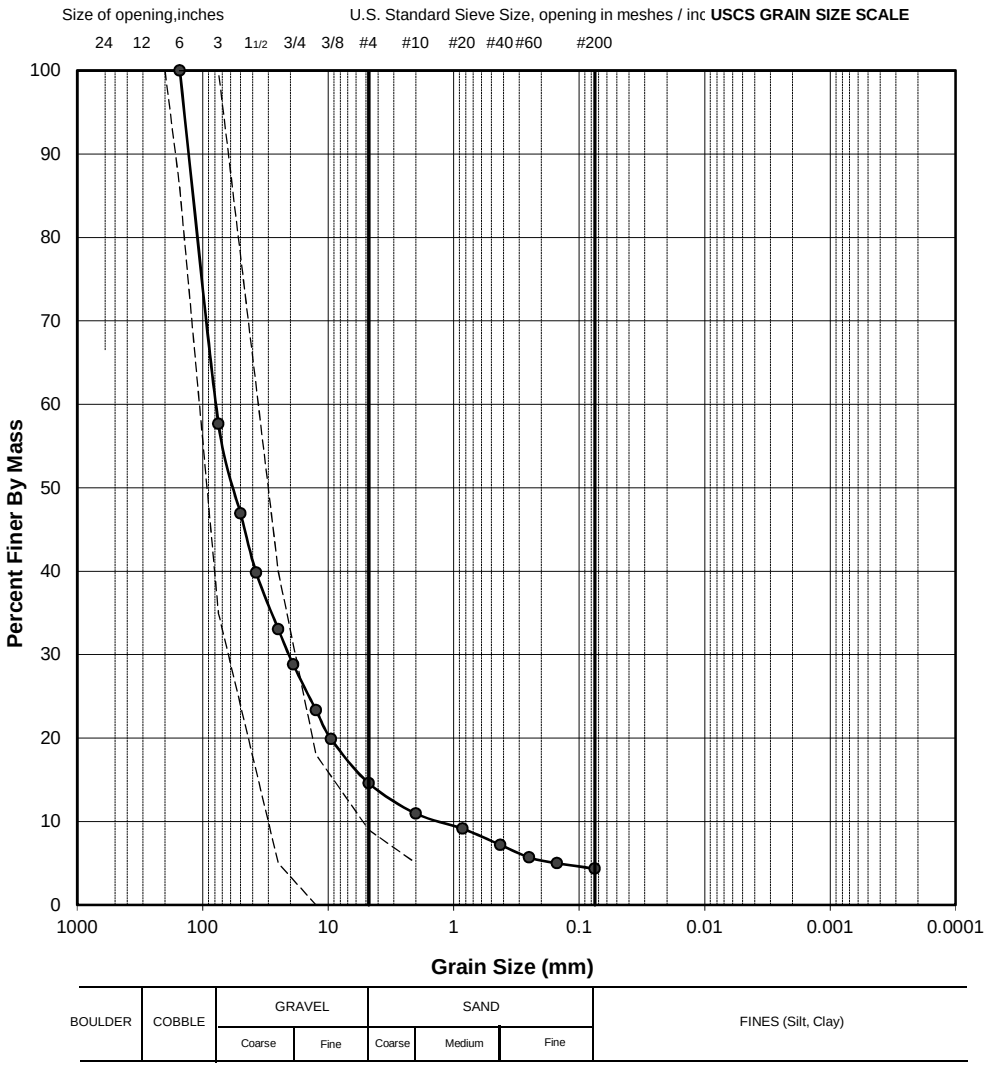
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**CD-541**
Client:	AEM	**Field Label:**	CD-541
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	CD-541
Remarks:	EL:140,6	**Date Sampled:**	July 09, 2015
Sa. Location:	As placed 160,4/23,5	**Material Specification:**	Coarse Filter
Water content: 3%		**Method:**	SPLIT, WASHED
		Date Tested:	July 20, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	57.7
2"	50.0	46.9
1.5"	37.5	39.8
1"	25.0	33.0
3/4"	19.0	28.8
1/2"	12.5	23.3
3/8"	9.5	19.9
#4	4.8	14.6
#10	2.0	10.9
#20	0.9	9.1
#40	0.4	7.2
#60	0.3	5.7
#100	0.2	5.0
#200	0.1	4.3



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	July 20, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J3A

QA RESULTS LAB – TILL SADDLE DAM 3 STAGE 2

Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD3-04**
Client:	AEM	**Field Label:**	SD3-04
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-04

Remarks: 0,0

Sa. Location: Stockpile near east dike toe of SD3, Sta. 20 + 620/o.s. -9

Water content: 6,4%

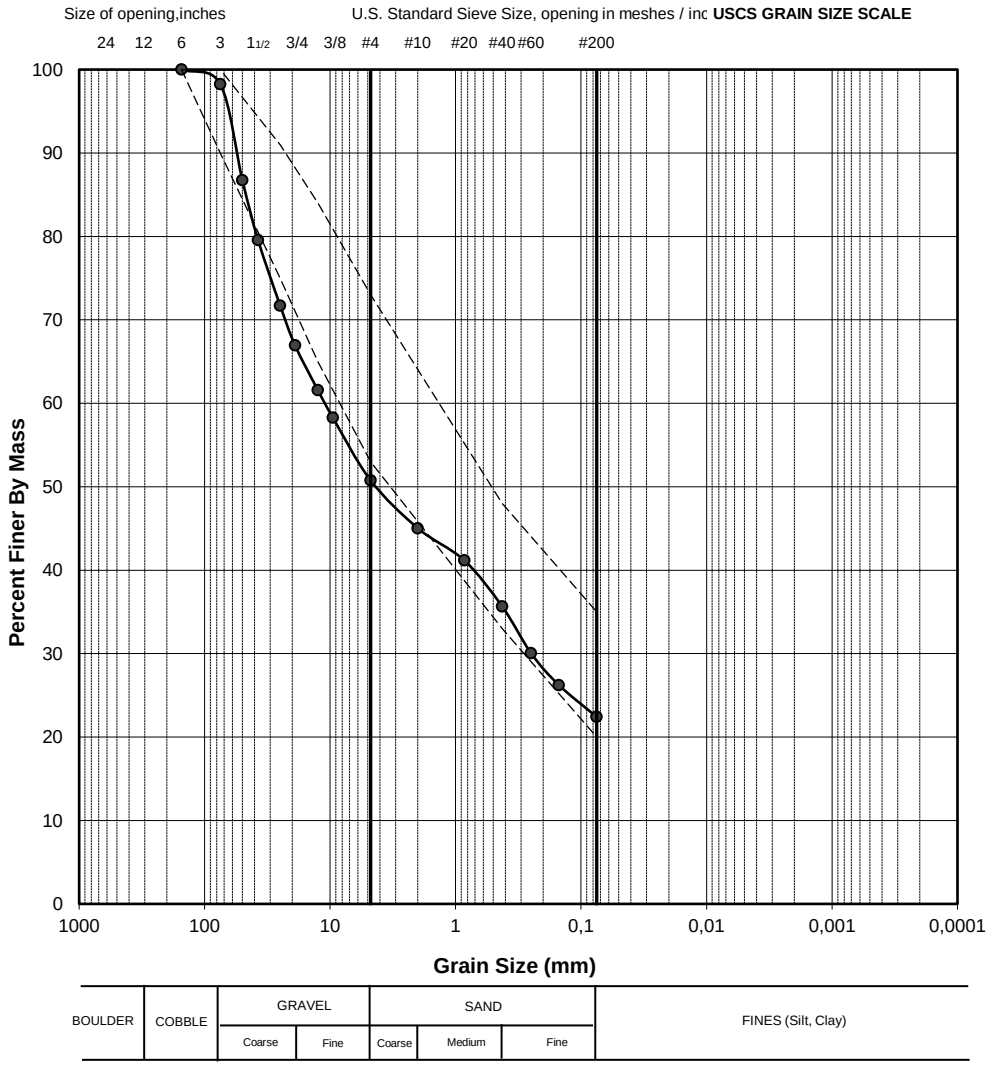
Date Sampled: July 30, 2016

Material Specification: Rough till

Method: SPLIT, WASHED

Date Tested: August 24, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200,0	100,0
6"	152,4	100,0
3"	75,0	98,2
2"	50,0	86,7
1.5"	37,5	79,6
1"	25,0	71,7
3/4"	19,0	66,9
1/2"	12,5	61,6
3/8"	9,5	58,3
#4	4,8	50,8
#10	2,0	45,0
#20	0,9	41,2
#40	0,4	35,7
#60	0,3	30,0
#100	0,2	26,2
#200	0,1	22,4



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 24, 2016		
TESTED BY	DATE	CHECKED BY	DATE

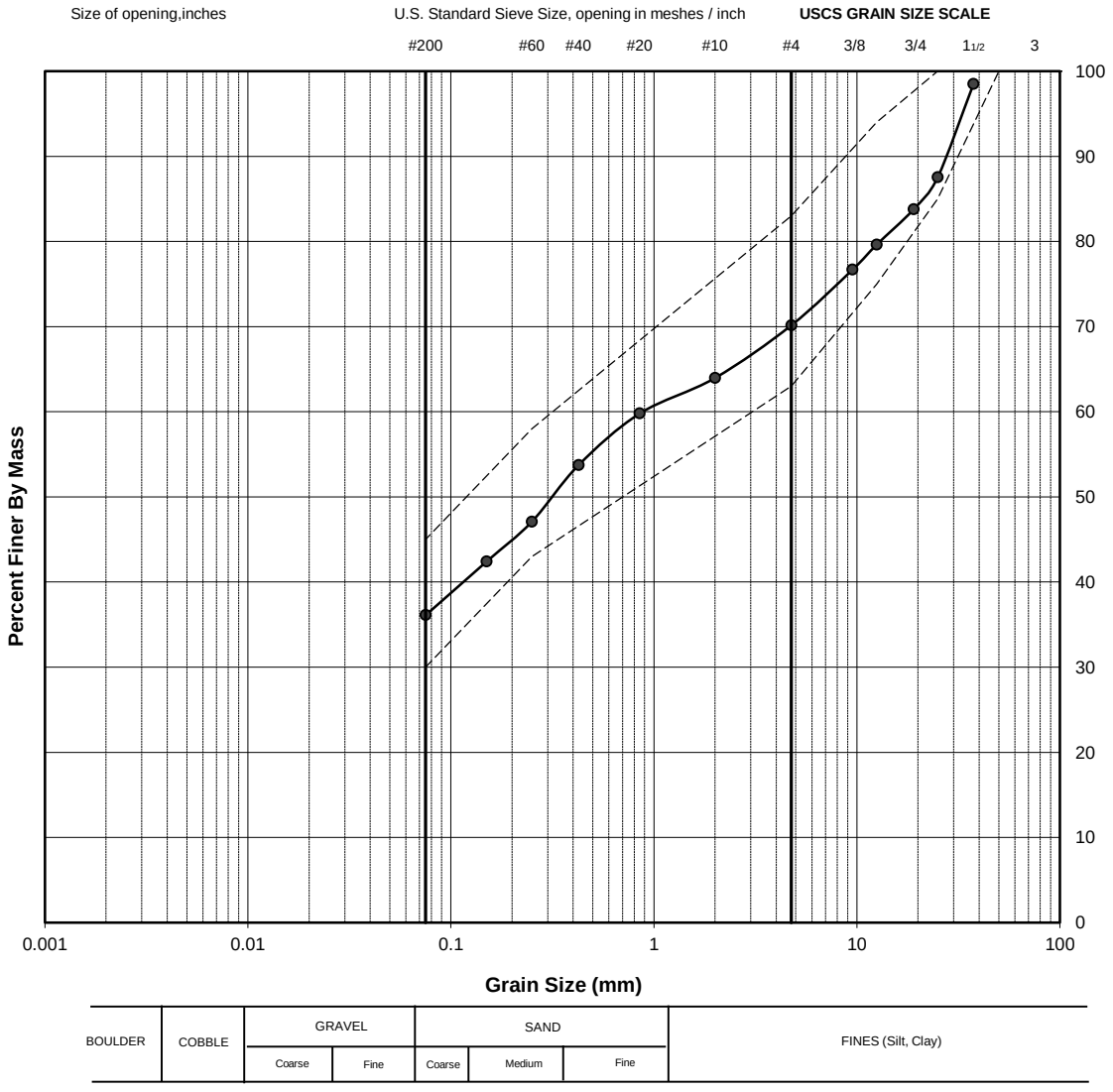
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD3-7**
Client:	AEM	**Field Label:**	SD3-7
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-7
Remarks:	El. 140,7	**Date Sampled:**	August 13, 2016
Sa. Location:	As placed Sta. 20+780/o.s. -15,5	**Material Specification:**	Sieved Till
Water content:	7,5%	**Method:**	SPLIT, WASHED
		Date Tested:	August 21, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	98.5
1"	25.0	87.5
3/4"	19.0	83.8
1/2"	12.5	79.6
3/8"	9.5	76.7
#4	4.8	70.1
#10	2.0	64.0
#20	0.9	59.8
#40	0.4	53.7
#60	0.3	47.1
#100	0.2	42.4
#200	0.1	36.1



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M.Nadon	August 21, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J3B

QA RESULTS LAB- FINE FILTER SADDLE DAM 3 STAGE 2

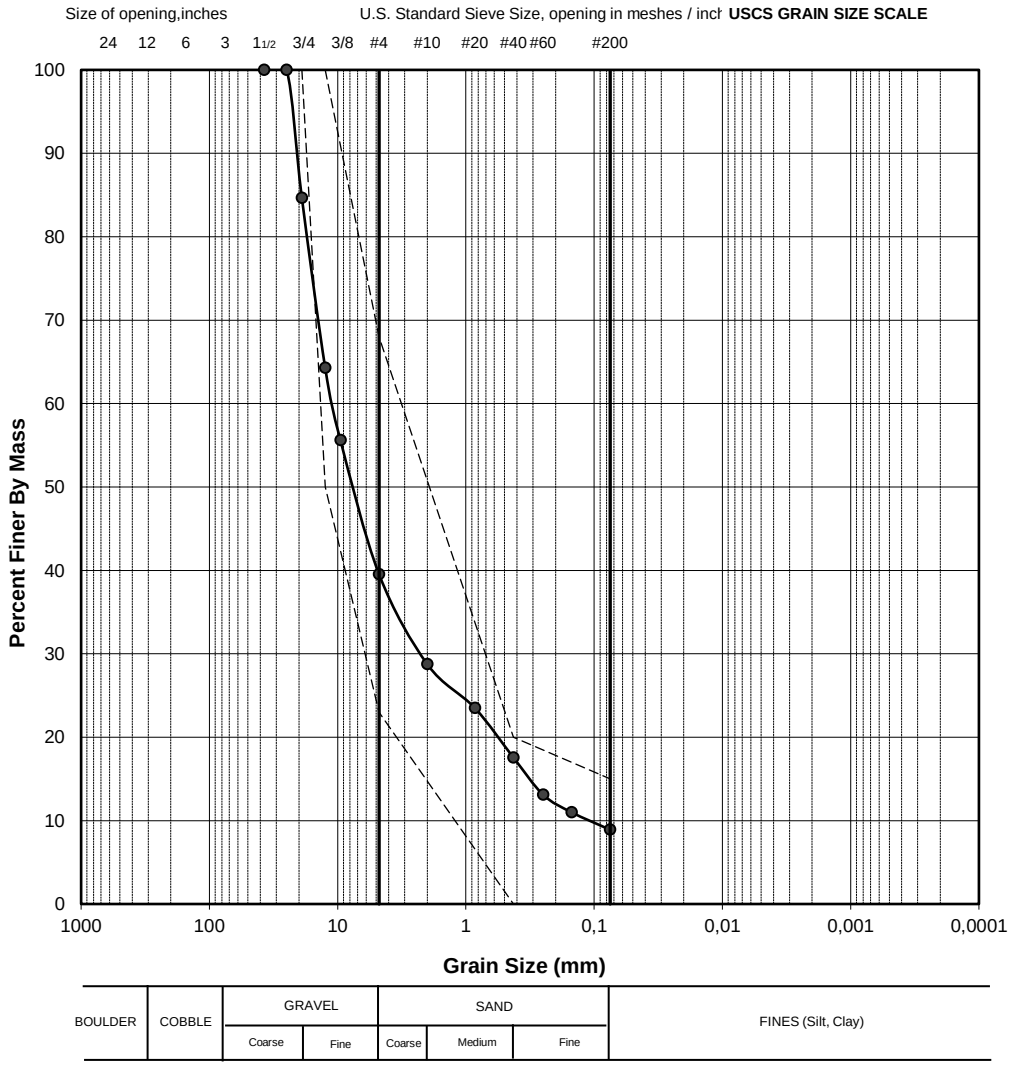
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD3-06**
Client:	AEM	**Field Label:**	SD3-06
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-06
Remarks:	EL: 140,5	**Date Sampled:**	August 1, 2016
Sa. Location:	As placed Sta. 20+700/o.s. -19	**Material Specification:**	Fine Filter
Moisture Content: 1,4%		**Method:**	SPLIT, WASHED
		Date Tested:	August 23, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	100,0
1"	25,0	100,0
3/4"	19,0	84,6
1/2"	12,5	64,3
3/8"	9,5	55,6
#4	4,8	39,5
#10	2,0	28,7
#20	0,9	23,5
#40	0,4	17,5
#60	0,3	13,1
#100	0,2	11,0
#200	0,1	8,9



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 23, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J3C

QA RESULTS LAB - COARSE FILTER SADDLE DAM 3 STAGE 2

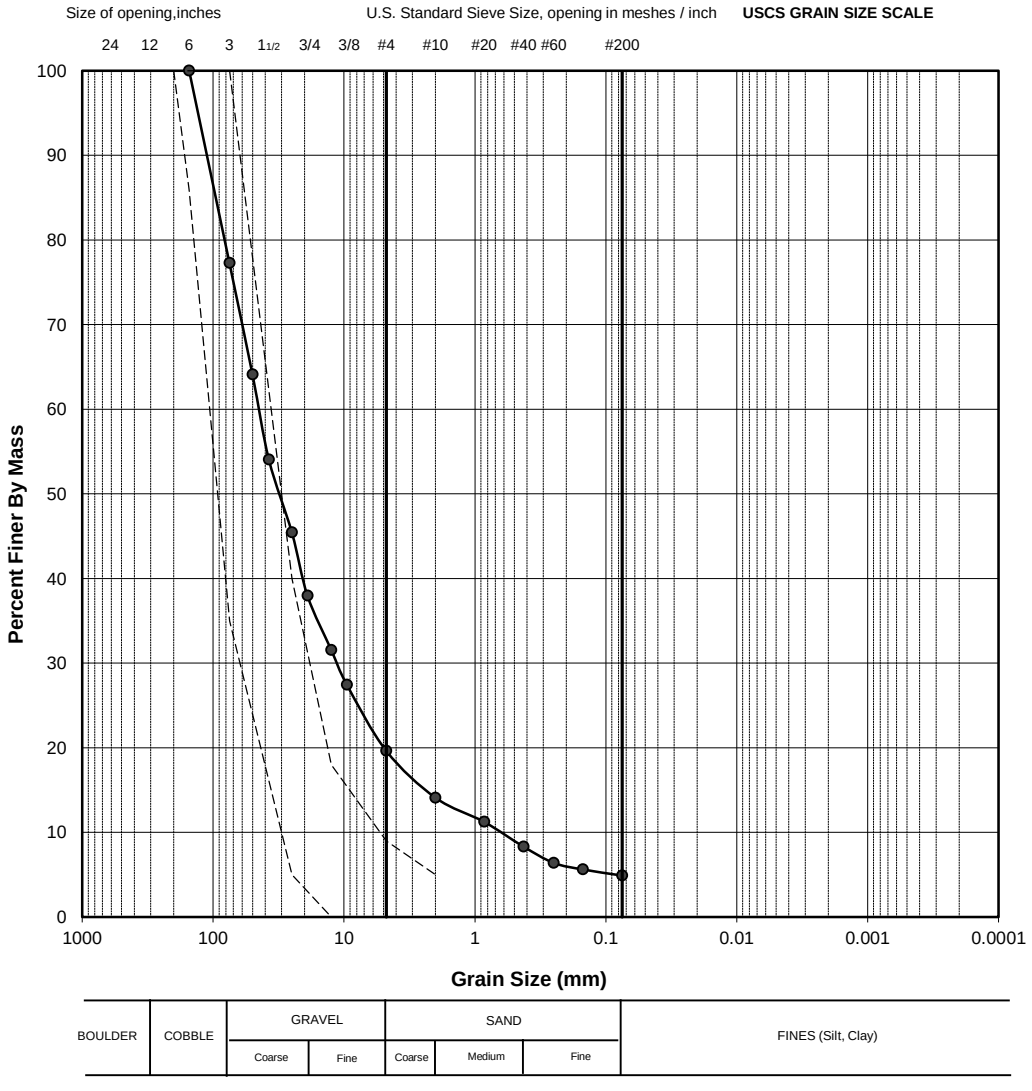
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD3-05**
Client:	AEM	**Field Label:**	SD3-05
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD3-05
Remarks:	EL:140,5	**Date Sampled:**	August 01, 2016
Sa. Location:	As place Sta.20+700/o.s. -18	**Material Specification:**	Coarse Filter
Water content: 3%		**Method:**	SPLIT, WASHED
		Date Tested:	August 19, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	77.3
2"	50.0	64.1
1.5"	37.5	54.1
1"	25.0	45.4
3/4"	19.0	38.0
1/2"	12.5	31.5
3/8"	9.5	27.4
#4	4.8	19.6
#10	2.0	14.1
#20	0.9	11.2
#40	0.4	8.3
#60	0.3	6.4
#100	0.2	5.6
#200	0.1	4.9



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 19, 2016	M.D.Bonin	August 20, 2016
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J4A

QA RESULTS LAB – TILL SADDLE DAM 4 STAGE 2

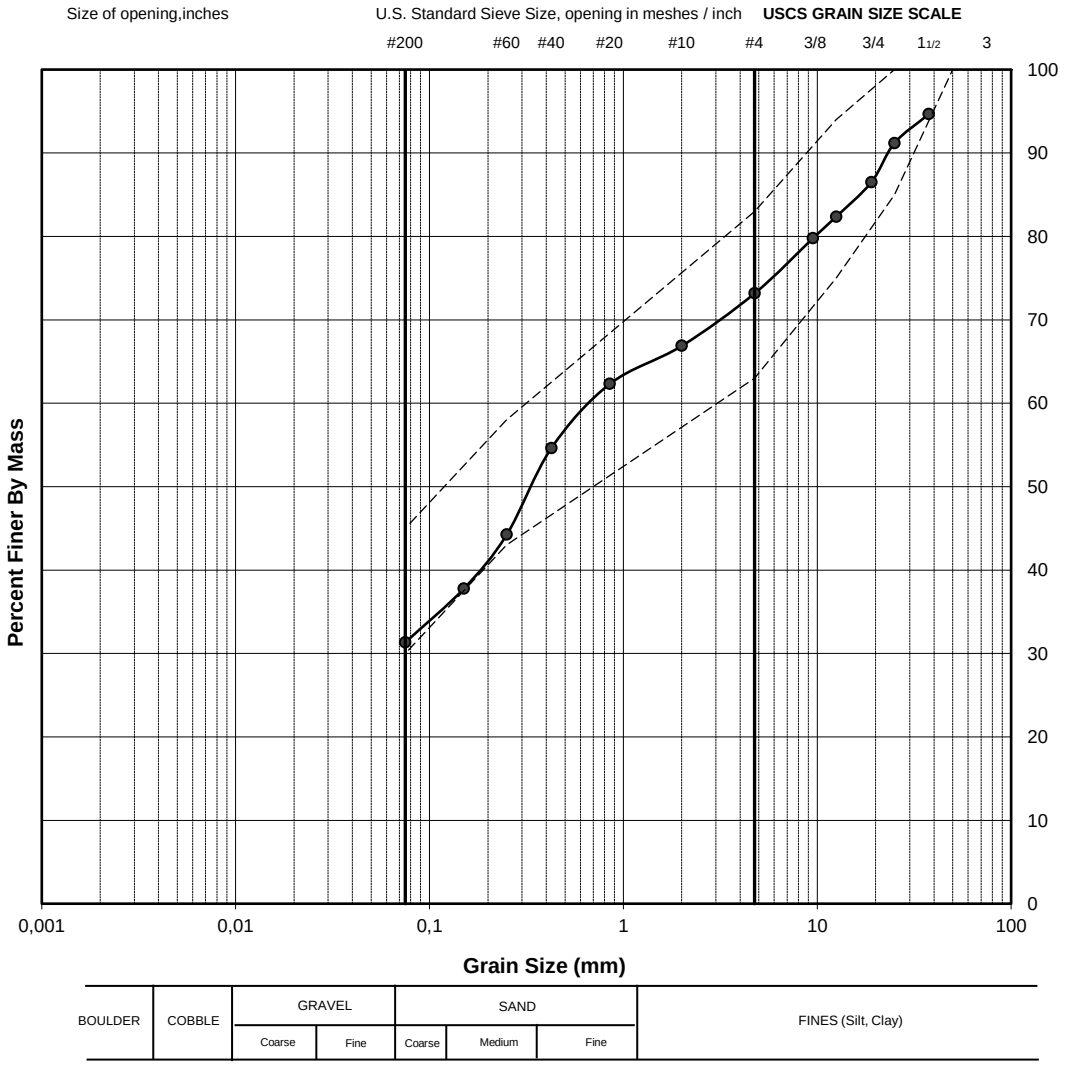
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD4-07**
Client:	AEM	**Field Label:**	SD4-07
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-07
Remarks:	El. 140,7	**Date Sampled:**	August 26, 2016
Sa. Location:	As placed sta. 40+368.9/-41.8	**Material Specification:**	Sieved till
Water content:	6,9%	**Method:**	SPLIT, WASHED
		Date Tested:	September 12, 2016

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	94,6
1"	25,0	91,2
3/4"	19,0	86,5
1/2"	12,5	82,3
3/8"	9,5	79,8
#4	4,8	73,2
#10	2,0	66,9
#20	0,9	62,3
#40	0,4	54,6
#60	0,3	44,2
#100	0,2	37,7
#200	0,1	31,3



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	September 12, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J4B

QA RESULTS LAB- FINE FILTER SADDLE DAM 4 STAGE 2

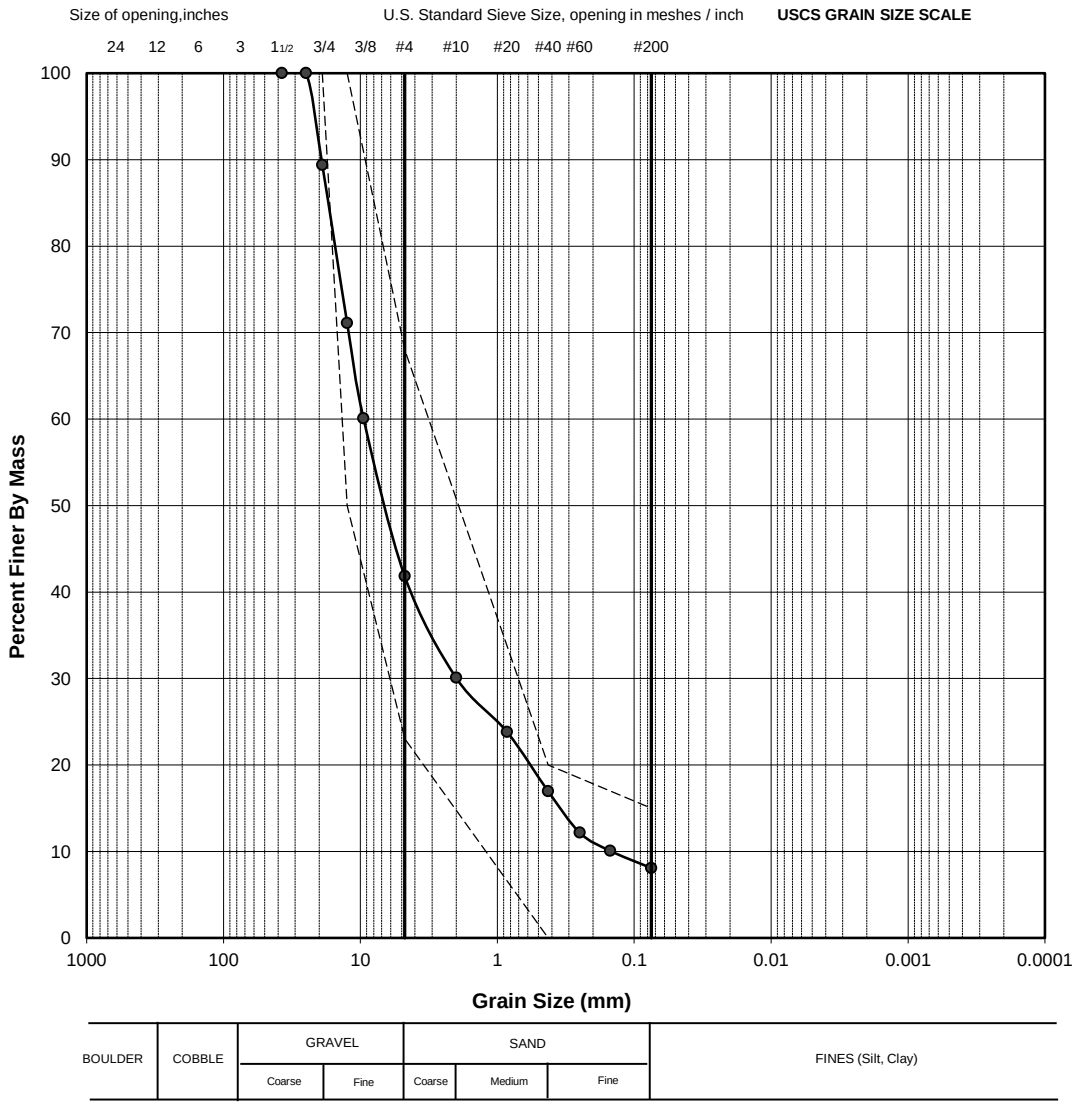
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD4-05**
Client:	AEM	**Field Label:**	SD4-05
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-05
Remarks:	EL: 140,5	**Date Sampled:**	July 31, 2016
Sa. Location:	As placed Sta. 40 + 420/o.s. -34	**Material Specification:**	Fine Filter
Moisture Content: 1,6%		**Method:**	SPLIT, WASHED
		Date Tested:	August 22, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87.5	100.0
3"	75.0	100.0
2"	50.0	100.0
1.5"	37.5	100.0
1"	25.0	100.0
3/4"	19.0	89.4
1/2"	12.5	71.1
3/8"	9.5	60.1
#4	4.8	41.8
#10	2.0	30.1
#20	0.9	23.8
#40	0.4	16.9
#60	0.3	12.2
#100	0.2	10.1
#200	0.1	8.1



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 22, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J4C

QA RESULTS LAB - COARSE FILTER SADDLE DAM 4 STAGE 2

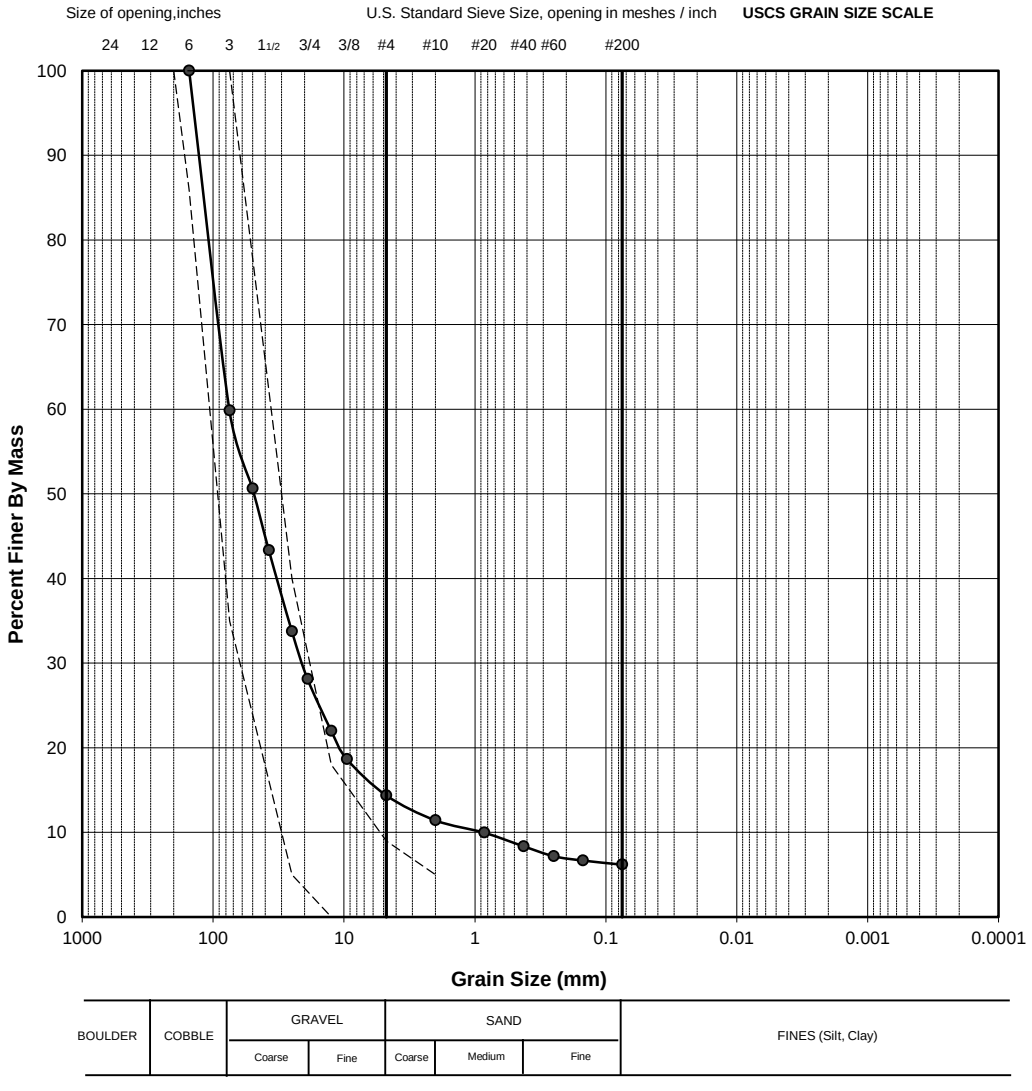
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD4-06**
Client:	AEM	**Field Label:**	SD4-06
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD4-06
Remarks:	EL:140,5	**Date Sampled:**	July 31, 2016
Sa. Location:	As place Sta.40+380/o.s. -31	**Material Specification:**	Coarse Filter
Water content: 1,1%		**Method:**	SPLIT, WASHED
		Date Tested:	August 21, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	59.9
2"	50.0	50.6
1.5"	37.5	43.3
1"	25.0	33.7
3/4"	19.0	28.1
1/2"	12.5	22.0
3/8"	9.5	18.6
#4	4.8	14.4
#10	2.0	11.4
#20	0.9	10.0
#40	0.4	8.4
#60	0.3	7.2
#100	0.2	6.7
#200	0.1	6.2



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 21, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J5A

QA RESULTS LAB – TILL SADDLE DAM 5 STAGE 2

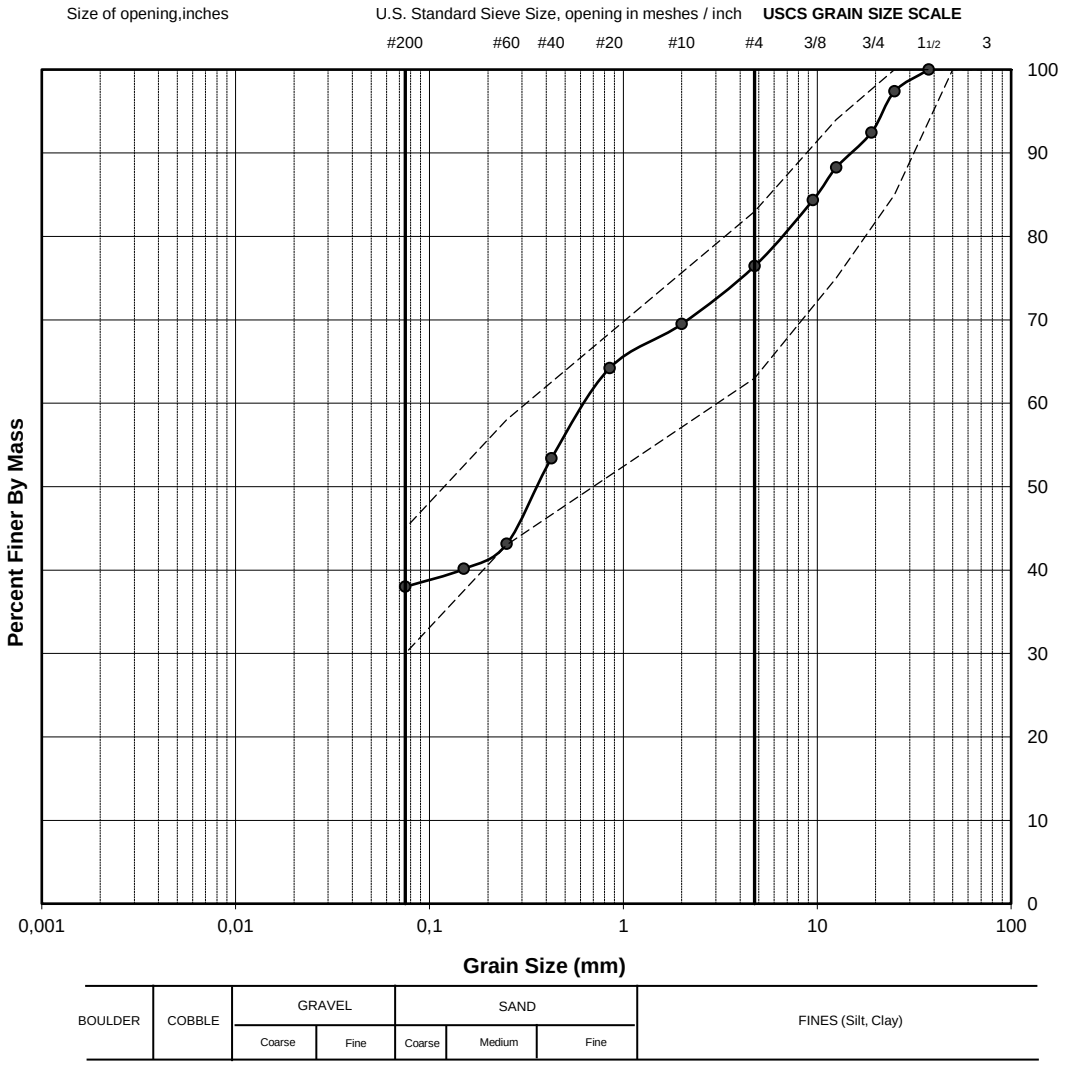
Golder Associates Ltd. - Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD5-03**
Client:	AEM	**Field Label:**	SD5-03
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD5-03
Remarks:	El. 140,7	**Date Sampled:**	August 19, 2016
Sa. Location:	As placed Sta. 40+632,6/o.s. -39,7	**Material Specification:**	Sieved till
Water content:	6,8%	**Method:**	SPLIT, WASHED
		Date Tested:	August 23, 2016

Sieve Size (USS)	Sieve Size (mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	100,0
1"	25,0	97,4
3/4"	19,0	92,4
1/2"	12,5	88,2
3/8"	9,5	84,4
#4	4,8	76,4
#10	2,0	69,5
#20	0,9	64,2
#40	0,4	53,4
#60	0,3	43,1
#100	0,2	40,1
#200	0,1	38,0



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 23, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J5B

QA RESULTS LAB- FINE FILTER SADDLE DAM 5 STAGE 2

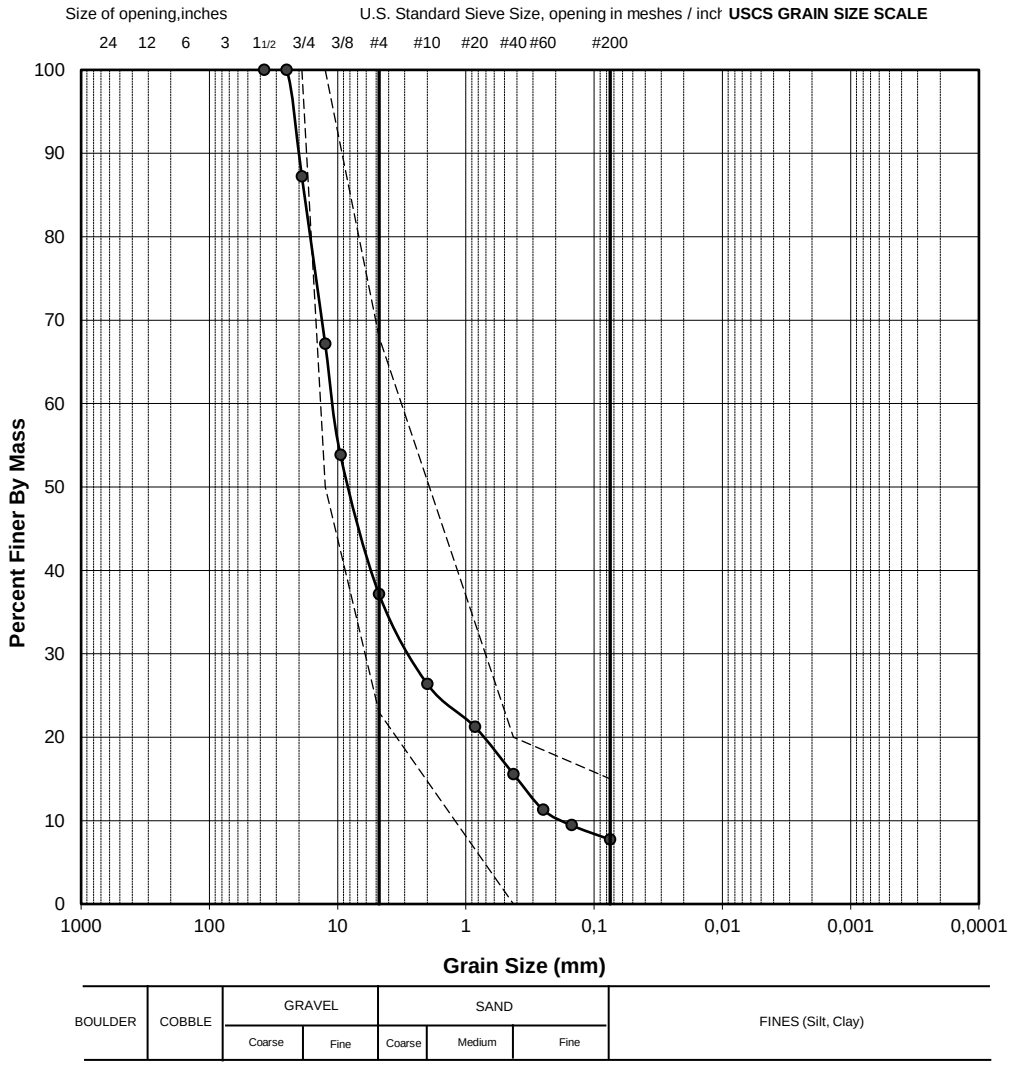
Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD5-01**
Client:	AEM	**Field Label:**	SD5-01
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD5-01
Remarks:	EL: 141	**Date Sampled:**	July 29, 2016
Sa. Location:	As placed Sta. 40+760/o.s. -36	**Material Specification:**	Fine Filter
Moisture Content: 2,8%		**Method:**	SPLIT, WASHED
		Date Tested:	August 23, 2016

Sieve Size (USS)	(mm)	Passing %
3.5"	87,5	100,0
3"	75,0	100,0
2"	50,0	100,0
1.5"	37,5	100,0
1"	25,0	100,0
3/4"	19,0	87,2
1/2"	12,5	67,1
3/8"	9,5	53,8
#4	4,8	37,1
#10	2,0	26,4
#20	0,9	21,2
#40	0,4	15,6
#60	0,3	11,3
#100	0,2	9,4
#200	0,1	7,7



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 23, 2016		
TESTED BY	DATE	CHECKED BY	DATE

APPENDIX J5C

QA RESULTS LAB - COARSE FILTER SADDLE DAM 5 STAGE 2

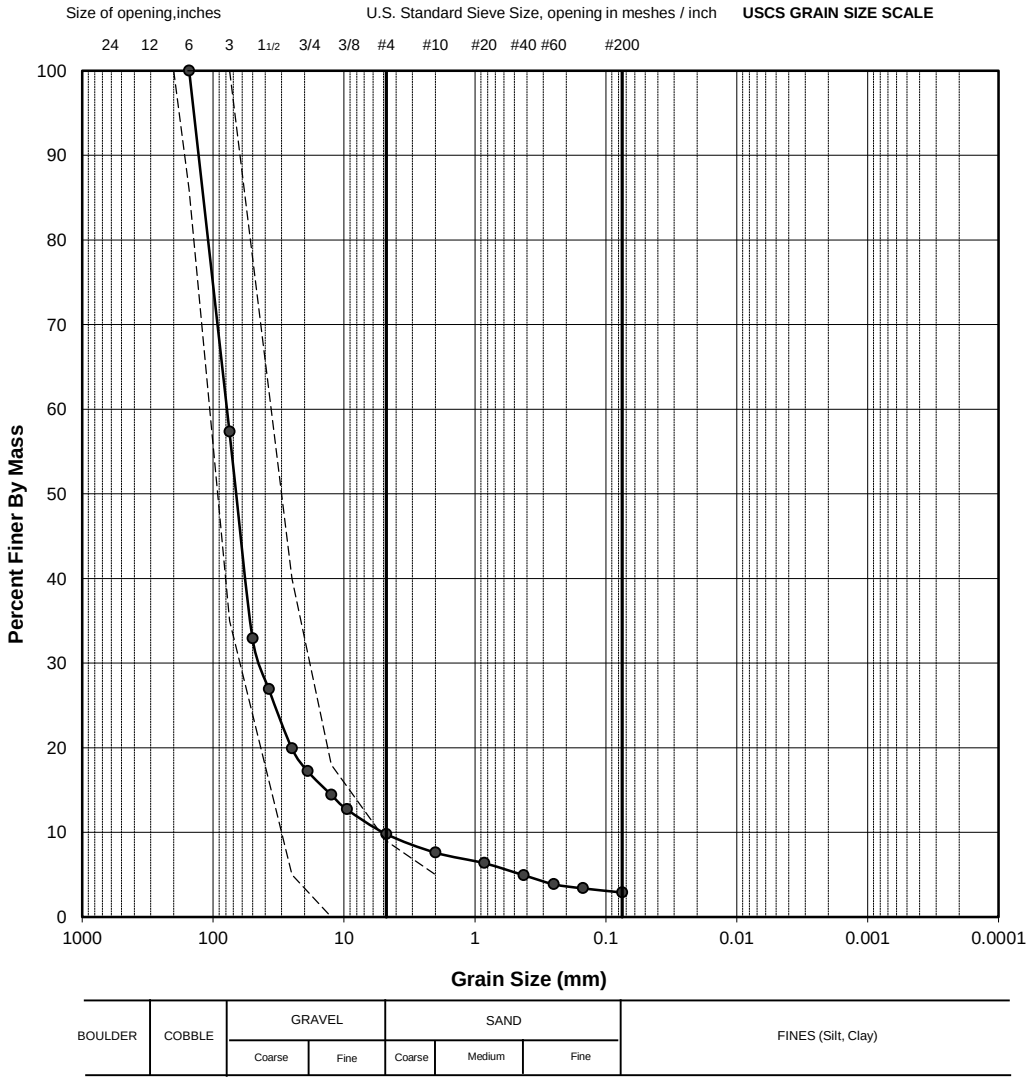
Golder Associates Ltd. Meadowbank Laboratory
Nunavut, Canada

PARTICLE SIZE ANALYSIS OF SOILS

Reference
ASTM C136-06 & C117-04

Project No.:	1656047	**Sample No.:**	**SD5-02**
Client:	AEM	**Field Label:**	SD5-02
Project:	Meadowbank Gold Project	**Depth (m):**	NA
Location:	Nunavut	**Lab ID No:**	SD5-02
Remarks:	EL:141,5	**Date Sampled:**	August 8, 2016
Sa. Location:	As placed Sta.40+732/o.s. -35,3	**Material Specification:**	Coarse Filter
Water content: 1,8%			
		Method:	SPLIT, WASHED
		Date Tested:	August 22, 2016

Sieve Size (USS)	(mm)	Passing %
8"	200.0	100.0
6"	152.4	100.0
3"	75.0	57.3
2"	50.0	32.9
1.5"	37.5	26.9
1"	25.0	19.9
3/4"	19.0	17.2
1/2"	12.5	14.4
3/8"	9.5	12.7
#4	4.8	9.8
#10	2.0	7.6
#20	0.9	6.4
#40	0.4	4.9
#60	0.3	3.9
#100	0.2	3.4
#200	0.1	2.9



** The test data given herein pertain to the sample provided only. This report constitutes a testing service only. Interpretation of the data can be provided upon request.*

M.Nadon	August 22, 2016		
TESTED BY	DATE	CHECKED BY	DATE

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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