AGNICO EAGLE

November 18th, 2016

Mr. Karen Kharatyan
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: Water License 2AM-MEA1525 Part D, Item 14 - Submission of Landfarm As-Built Report

Dear Mr. Kharatyan,

In accordance with Water License 2AM-MEA1525, Part D, Item 14: "*The Licensee shall submit to the Board for review, within ninety (90) days of completion of each facility designed to contain, withhold, divert, retain waters or wastes during the construction phase, a Construction Summary Report prepared by a qualified Engineer (s) in accordance with Schedule D, Item 1*", please find enclosed with this letter final as-built drawings for modification made to the current landfarm and for the implementation of a new landfarm located north of Central Dike.

In accordance with the Water License 2AM-MEA1525, Part A, Item 1a: "*The Licensee may conduct mining, milling and associated activities at the Meadowbank Gold Mine in the Kivalliq Region of Nunavut (65° 01' 33'' N, 96° 04' 01'' W) including, in general, as follows: (…) Operation of a Landfarm*". The Meadowbank Mines operates a landfarm for treatment of soil contaminated with petroleum hydrocarbon (PHC) from the project.

Because of operational reasons, a new landfarm will have to be operated as the previous landfarm area will not be accessible next summer 2017. The technical memorandum attached to this letter present the details of the operation constrains for the landfarm and the reason for its relocation, the design and the as-built plan of the new landfarm as well as the transition plan for the contaminated soil. In the next Annual Report (2016), to be issue in March 2017, the Landfarm Design and Management Plan will be update to include the new information presented in this memo.

Should you have any questions, please contact the undersigned.

Regards,

Agnico Eagle Mines Limited – Meadowbank Division

AGNICO EAGLE

Marie-Pier Marcil
Marie-Pier.Marcil@agnicoeagle.com
819-759-3700 x5193
Senior Compliance Technician

Erika Voyer
Erika.Voyer@agnicoeagle.com
819-759-3700 x 6980
Senior Environmental Coordinator

cc: *Jamie Quesnel, Agnico Eagle Meadowbank Mine*
Murray Ball, Indigenous and Northern Affairs Canada
Luis Manzo, Kivalliq Inuit Association
Christine Wilson, Indigenous and Northern Affairs Canada

AGNICO EAGLE

Technical Memorandum – Landfarm 1 Extension and Landfarm 2 (New Location)

1 Introduction

The Meadowbank Mines, Agnico Eagle Mines (Agnico) operates a landfarm facility for treatment of soil contaminated with petroleum hydrocarbon (PHC) from the project. The location and the details of the modification to the existing landfarm facility (Landfarm 1) as well as the location and the design of the new landfarm facility (Landfarm 2) are presents in this memorandum. As-built drawings of the Landfarm 1 extension and Landfarm 2 facilities are presented in Appendix A and B respectively.

The Landfarm Design and Management Plan (LDMP) (Agnico, 2013) will be updated to include the Landfarm 1 extension and the new Landfarm 2 in the next Annual Report, to be issued in March 2017.

2 Background

When spills do occur, onsite storage and remediation is the most practical and efficient method of handling contaminated soil, particularly in an isolated location like Meadowbank. For PHC, bioremediation through landfarming has been identified as a viable remedial technique. This method involves spreading, mechanical mixing, and placing the contaminated soil in windrows within a containment area and promoting conditions favourable for the volatilization and aerobic microbial degradation of hydrocarbons. The landfarm facility at Meadowbank is operated in compliance with the Water License 2AM-MEA1525, Part F, Item 18: "*The Licensee shall dispose of all petroleum hydrocarbon contaminated soils and operate the Landfarm in accordance with the approved Landfarm Design and Management Plan, dated February 2013. Water accumulating in the landfarm shall be contained within the Landfarm and not be discharged to the environment.*"

The landfarm design was submitted by Agnico to the Nunavut Water Board in October 2012 and has been in use for soil decontamination since then. As presented on Figure 1 below, the previous landfarm is located on the north-west side of the South Tailings Cell (Tailing Storage Facility – TSF). The South Tailings Cell is currently active; tailings are deposited and water is reclaimed from the cell. The tailings and water level in the South Tailings Cell are increasing in elevation over time. With the current tailings deposition plan and water balance models, the Landfarm 1 is predicted to be flooded with reclaim water in summer 2017. For this reason, AEM decided to find an alternate location for a new landfarm (Landfarm 2), in order to continue the treatment of contaminated soil. Also, due to operational work at the buttress of Stormwater Dike an extension of the Landfarm 1 was also constructed to a higher elevation in order to continue treatment of soil in the Landfarm 1.

3 Landfarm 1 – Located in Tailings Storage Facility, South Cell

The Landfarm 1 is in operation since October 2012. As mentioned, the Landfarm 1 is located in the South Tailings Cell as presented on Figure 1. Due to operational work required in September 2016 at the buttress of Stormwater Dike (as-built of these works to be submitted under a separate document), a part of the east section of the Landfarm 1 could not be used anymore. To ensure

sufficient capacity of the landfarm to store contaminated soil and to continue the decontamination process until the new landfarm was construct, the Landfarm 1 was slightly extended on the west site, to a higher elevation. This extension will also provide more capacity in summer 2017, as the eastern part of the Landfarm 1 will be flooded first with reclaim water, as per the tailing deposition and water balance forecast model.

The Landfarm 1 as-built extension is presented in Appendix A of this memo. The extension of the Landfarm 1 was completed in September 2016 with the same design criteria than the rest of the landfarm. The landfarm pad includes a layer of compacted till material with a thickness of approximately 2.8 m, with a hydraulic conductivity estimated of 1x10-7 m/s [1] . The slope of the till pad is 1.0% dipping towards the South tailing Cell. High berms of 1.2 m are constructed around the extension. With the extension, the Landfarm 1 area represents 5,247 m^2. Previously, the landfarm area was 3,712 m^2. The Landfarm 1 is located upstream of the Saddle Dam 3, therefore within the South Tailings Cell impoundment.

Contaminated soil may still be disposed in the Landfarm 1 in 2016 and 2017. However, Agnico intend to use mainly the Landfarm 2 as the remaining operating lifetime of the Landfarm 1 is limited due to the level of the reclaim water in the South Cell. In 2017, Agnico may have to move some soil still in remediation from Landfarm 1 to Landfarm 2 if required. Ultimately the Landfarm 1 pad will be flooded with reclaim water.

The Landfarm 1 will continue to be operated as per the Landfarm Design and Management Plan (LDMP) (Agnico, 2013) and as per the Water License, Part F, Item 18. The water sampling station ST-14 will remain in use until the Landfarm 1 will cease operation. As mentioned, the LDMP will be updated to include the extension of the Landfarm 1 and the new Landfarm 2 and submit in the next Annual Report.

[1] Hydraulic conductivity, Compacted till. Based on higher value from consolidation test results. Golder Associates. 2008b. Tailings Storage Facility Dike Design, Meadowbank Gold Project. Doc 784 ver. 0 08-1428-0029. December 17, 2008.

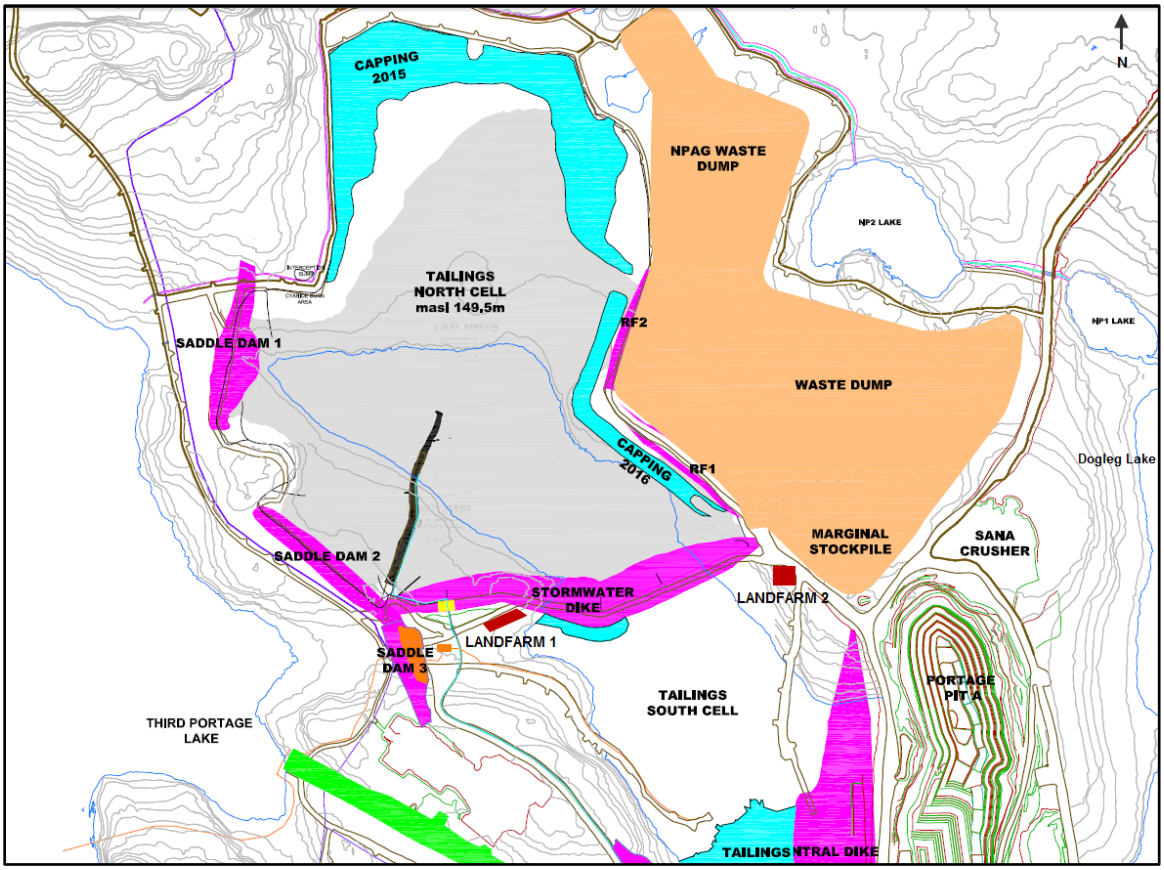


Figure 1 – Landfarm 1 and Landfarm 2 General Location

4 Landfarm 2 – Located North of Central Dike

As mentioned above, because of Landfarm 1 location in the South Tailings Cell, it was necessary to determine an alternate location. The Landfarm 2 facility was constructed in October 2016 in order to provide sufficient area for the treatment of contaminated soil.

4.1 Location

As presented on Figure 1, the Landfarm 2 is located on the north east side of the South Tailing Cell, north of the Central Dike. This location was chosen to minimize the waste footprint on site and the transport distance of contaminated material from spill locations. All of the waste generated at Meadowbank in the form of tailings, waste rock and site landfill is in close proximity. This location will facilitate the landfarm operation at closure. The Landfarm 2 is located within the South Tailings Cell, providing containment in case of runoff water from the contaminated material.

Proximity of Surface Water

The Landfarm 2 is adjacent to the current South Tailings Cell and is located 900 m from the nearest water body, Dogleg Lake situated on the east side. Surface drainage in the area of the Landfarm 2 is westerly, towards the South tailings Cell and away from surface watercourse.

Proximity of Groundwater

In the Meadowbank area, the shallow groundwater is estimated to be 1.5 m below surface (active layer of permafrost July to September), at the average depth of thaw. The Landfarm 2 is constructed on a pad formally used for disposal of soft sediment (lake bottom sediment) from excavation during the construction of Central Dike. Then, it was used as a till storage area during summer. The elevation of the natural ground, i.e. tundra, under the facility is 146.2 masl. The pad where the Landfarm 2 is constructed is at elevation 156.5 masl, meaning the pad is approximately 10 m thick over the tundra in the middle of the pad. During the construction of the Landfarm 2, a layer of approximately 0.5m of low permeability compacted till with a hydraulic conductivity of estimated at 10^{-7} m/s was placed. Therefore, no impacts to groundwater are anticipated.

4.2 Design

As for the Landfarm 1, the Landfarm 2 facility is designed with one soil remediation/storage cell.

Soil Volume Requirements

In September 2016, the Landfarm 1 held a total of 1,258 m^3 of contaminated soil, based on survey results. Currently production will continue through 2018 for an expected additional required landfarm capacity of 692 m^3 (2 years x 346 m^3/year; average yearly amount of contaminated soil, from LDMP (Agnico, 2013)). With an additional 30% for contingency, and conservatively assuming that no soil will be remediated in Landfarm 1 in 2017 and before closure, the total capacity of the landfarm should therefore be a minimum of 2,535 m^3.

Design Specifications

Specifications of the Landfarm 2 design is presented on the as-built drawing presented in Appendix B of this memo. The landfarm area is constructed with a 2.5 m high berm and a 0.5 m thick layer of compacted till base with hydraulic conductivity estimated of $1x10^{-7}$ m/s. The slope of the base is 3%, dipping towards the East side leading to a slope 7% dipping towards the South Tailings Cell. The pad underneath the till layer is varying between 6 m and 22.5 m high, considering the tundra underneath ranging from 151 masl to 134 masl.

Landfarm Area and Capacity

For the Landfarm 2, the useful area is 3,815 m^2, which is similar to the useful area of the Landfarm 1 before extension (3,712 m^2). As for the Landfarm 1, it is considered that contaminated material can be stockpiled up to 4 m high. Accounting for a 25% loss of area due to sloping at that windrow height, the landfarm area will allow for the storage of a maximum of 11,445 m^3. This will readily accommodate the estimated total of 2,535 m^3 of contaminated soil, should all of it needs to be stored until closure. In addition, ample room will be available to accommodate a designated area for spreading of contaminated coarse-grained material that

cannot be bioremediated. Based on the available area, maximum windrow size will be 15 m wide at base x 4 m high x 50 m long, but smaller piles will be used to maximize rates of biodegradation and volatilization.

Monitoring Station

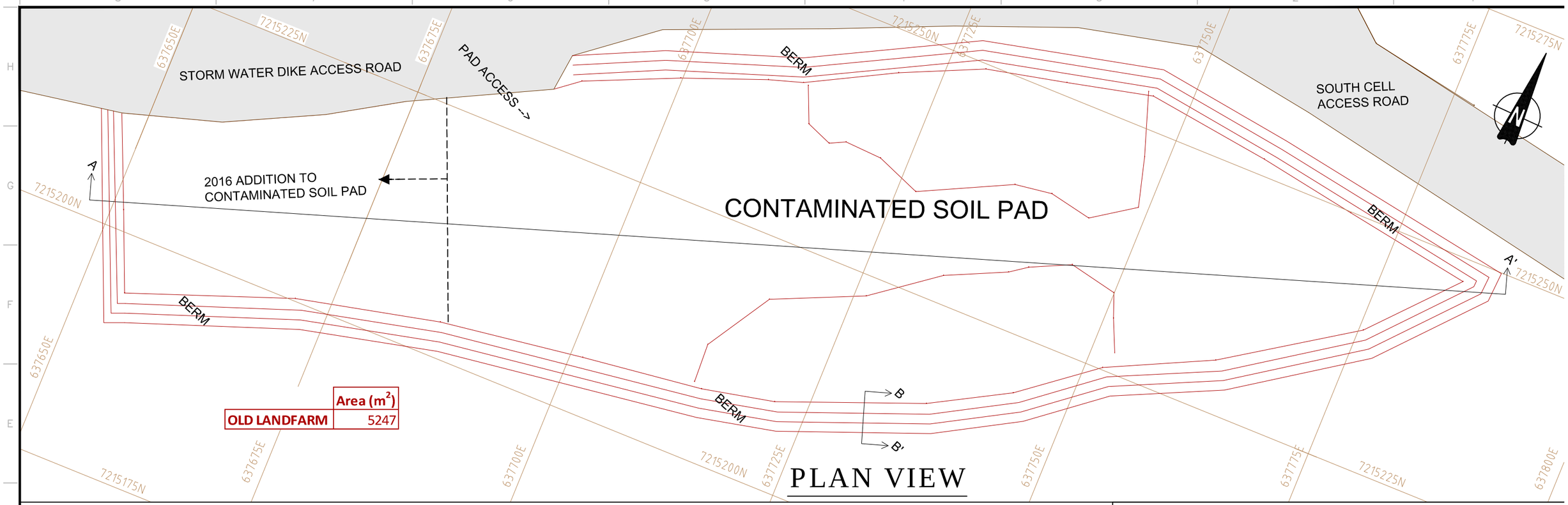
As per the Water License 2AM-MEA1525 Part F, Item 18; "*Water accumulating in the landfarm shall be contained within the landfarm and not be discharged to the environment*". The water will be managed and contained within the Landfarm 2, and discharge to the TSF if required. The monitoring station ST-14B will be created and sampled as per requirement of the Water License. In compliance with Part I, Item 5: "*The Licensee shall undertake the Monitoring Program provided in the Tables 1 and 2 of Schedule I. The Licensee shall establish the locations and GPS coordinates for all additional monitoring stations in consultation with an Inspector*". The exact GPS coordinates will be provide to Inspector during the next freshet when sample will be taken, if needed..

5 Landfarm Design and Management Plan Update

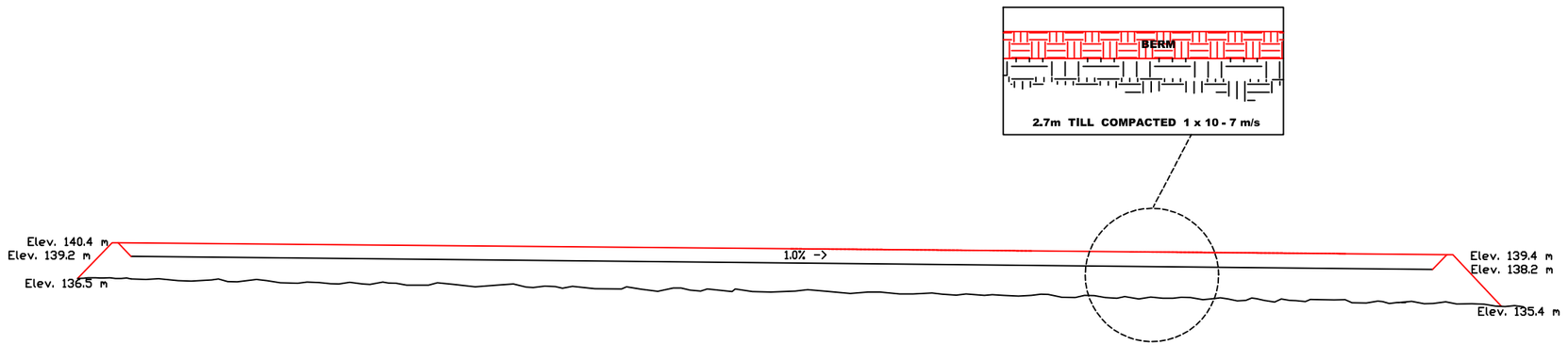
The Landfarm Design and Management Plan describe the design features and operational procedures for the landfarm constructed at the Meadowbank Gold Project site for the storage and treatment of petroleum hydrocarbon contaminated soil. As mentioned the next LDMP will include the changes for Landfarm 1 and 2 and will be presented with the next Meadowbank Annual Report, to be issued in March 2017.

AGNICO EAGLE

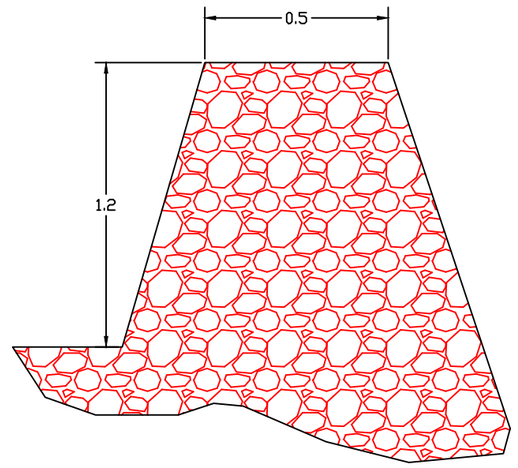
APPENDIX A
Landfarm 1 Modification As-built



PLAN VIEW



SECTION A-A'



SECTION B-B'

N:\product\AGNICO_EAGLE_Pos_PMS.jpg

DRAWN BY	S. DUBEAU	DATE 09/19/2016
SURVEY CHECK		DATE
GEOLOGY CHECK (Env. Ckeck) Erika Voyer		DATE 11/08/2016
ENGINEERING CHECK	P. MCMULLEN	DATE 10/07/2016

MODIFIED BY	DATE

MEADOWBANK DIVISION

CONTAMINATED SOIL PAD

ENVIRONMENT

LANDFARM

SCALE **N.T.S.** | DATE 09/19/2016 | FILE .DWG

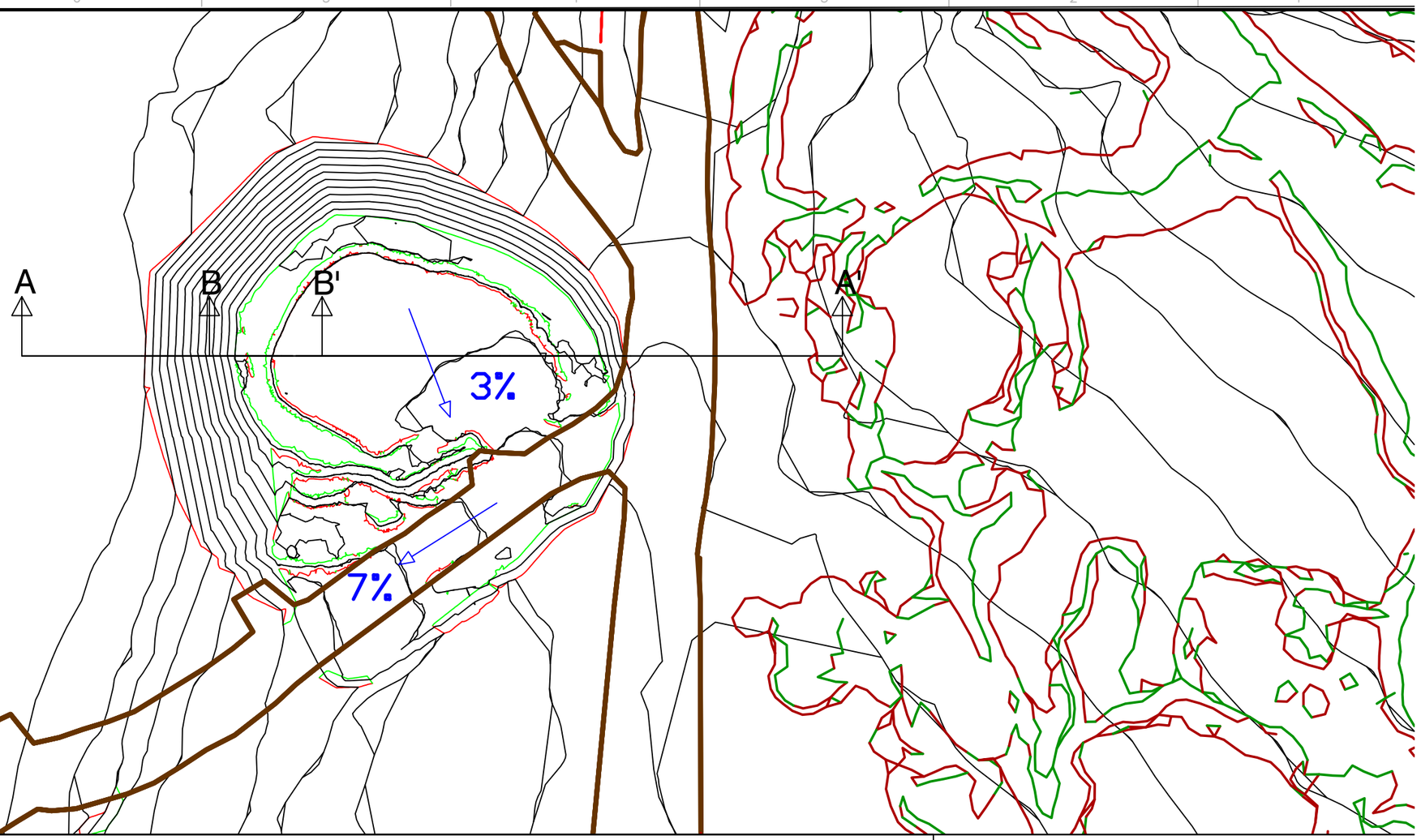
\\CAMBFS01\Groups\Engineering\04-MineEng\02-ENVIRONMENT\DRAWING\SEPT2016\LANDFARM_PAD.dwg, 08 Nov 2016

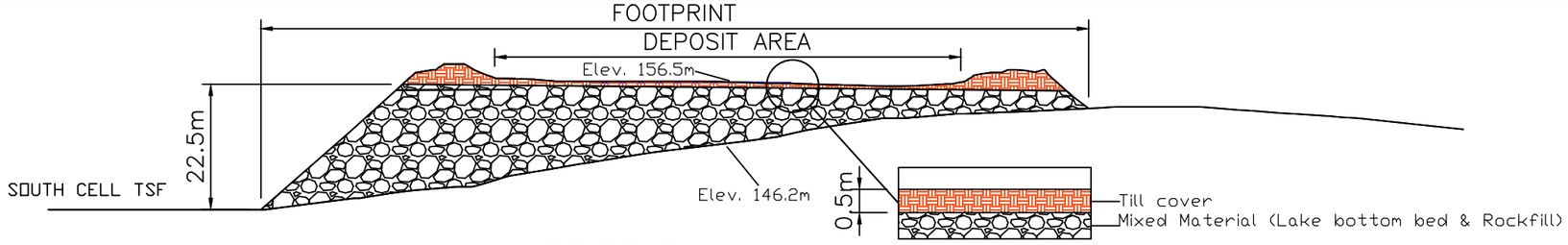
APPENDIX B
Landfarm 2 As-built

SOUTH CELL TSF

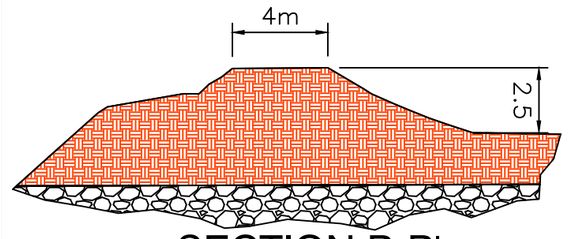
	Area (m^2)
Deposit area	3815
Footprint	18867

Material	Approx. Volume m^3
Till	13724
Mixed Material (Lake bottom bed & Rockfill)	160036





SECTION A-A'



SECTION B-B'

AGNICO EAGLE
MEADOWBANK

DRAWN BY	A. LAPORTE	DATE	11/08/2016
SURVEY CHECK	S. DUBEAU	DATE	11/08/2016
GEOLOGY CHECK (Env. Check) Erika Voyer		DATE	**11/08/2016**
ENGINEERING CHECK		DATE	

MODIFIED BY	DATE

MEADOWBANK DIVISION
ENGINEERING

SCALE	DATE	FILE
N.T.S.		.DWG

P:\Engineering\06–Surveying\18–Environnement\Contaminated soil pad\Contaminated_soil.dwg, 11 Nov 2016