

September 28th, 2016

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

Re: Water License 2AM-MEL1631 Part D, Item 3 / NIRB Project Certificate 11MN034

Condition 18 - Submission of Construction Summary Report for P-Area Containment

Madam, Sir,

An emergency situation close to the Portal #1 and the waste rock storage area necessitated the management of runoff water within the P-Area during and shortly after freshet 2016 that may have not met discharge criteria. Accordingly, four (4) temporary water containment structures were constructed to contain and manage the runoff water anticipated during the 2016 freshet in the P-Area. The location, composition, and construction methodology for the dikes were developed by Agnico Eagle. Initially the dikes were planned to be temporary to contain runoff during the 2016 freshet. Construction of the four (4) water containment structures started on approximately March 25, 2016 and was completed by May 10, 2016. Thereafter, construction continued with the installation of the water management pumping system and the three (3) evaporators. These were completed on June 28, 2016.

In accordance with Water License 2AM-MEL1631, Part D, Item 3 and Schedule D, and Project Certificate 11MN034 Condition 18, please find enclosed with this letter, a copy of the Construction Summary Report for the P-Area Containment.

Should you have any questions regarding this submission, please contact me or Jamie Quesnel.

Regards,

cc:

Agnico Eagle Mines Limited - Meliadine Division

Manon Turmel manon.turmel@agnicoeagle.com 819-759-3555 x8025

Sr Environmental Compliance Tech

Jamie Quesnel jamie.quesnel@agnicoeagle.com 819-759-3700 x 6838 Environmental Superintendent - Nunavut

David Abernethy, Indigenous and Northern Affairs Canada Luis Manzo, Kivallig Inuit Association



# MELIADINE – P-AREA CONTAINMENT CONSTRUCTION RECORD REPORT







PRESENTED TO

## **AGNICO EAGLE MINES LIMITED**

SEPTEMBER 2016
ISSUED FOR USE
FILE: ENG.EARC03038-01
AGNICO EAGLE DOCUMENT NUMBER: 6515-C-230-002 P1 DAMS

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## **EXECUTIVE SUMMARY**

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to provide geotechnical assistance and monitoring during the construction of four (4) temporary water containment structures close to Portal #1 at the Meliadine Gold Project, Nunavut. In addition, Tetra Tech Industries Inc. (Tetra Tech IND) was requested to provide design and installation assistance for three (3) evaporators which are also located within the P-Area close to Portal #1.

An emergency situation close to the Portal #1 and the waste rock storage area necessitated the management of runoff water within the P-Area during and shortly after freshet 2016 that may have not met discharge criteria. Accordingly, four (4) temporary water containment structures were constructed to contain and manage the runoff water anticipated during the 2016 freshet in the P-Area. The location, composition, and construction methodology for the dikes were developed by Agnico Eagle. Initially the dikes were planned to be temporary to contain runoff during the 2016 freshet. Construction of the four (4) water containment structures started on approximately March 25, 2016 and was completed by May 10, 2016. Thereafter, construction continued with the installation of the water management pumping system and the three (3) evaporators. These were completed on June 28, 2016.

The four (4) containment structures were composed of a central core (Material 0-30), a transition (Material 0-200), and an outer shell of Underground Waste Rock. The central core was constructed using two (2) construction methods, Method A and Method B. In Method A, the core material was placed, saturated, compacted, and left to freeze to essentially develop a frozen central core. Method B comprised placement of core material and compaction without moisture conditioning. Method A was used at the beginning of construction when the air temperatures were cold enough to allow overnight in situ freezing of each placed lift. Thereafter, the construction was switched to Method B to complete the dike core.

QA/QC in the field comprised visual observations during construction activities, coring of the frozen core material, and compaction testing. Laboratory testing was conducted mainly off site and consisted of particle size distribution analysis, moisture-density relationship determinations, specific gravity testing, and permeability testing. Single bead thermistors were used to monitor freeze back temperatures of the flooded lifts of the core material. Single bead thermistors were also installed at the top of the dike core for long term monitoring.

Three (3) evaporators were installed and commissioned along the DP1-B dike. The installation allows for the manual operation of the evaporators. The evaporators were installed on three (3) jetties in the prevailing wind direction on the north shore of the P-Area 1. A pumping station with two (2) submersible pumps was installed in the P-Area 1.

This report documents the as-built information for the four (4) temporary water containment structures DP1-A, DP1-B, DP2-A, and DP3-A, and the three (3) evaporators and supporting infrastructure. Construction activities that took place when Tetra Tech EBA was on site are described in this report.

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#### LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Limited (Agnico Eagle) and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are provided in Appendix A of this report.

## 1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to provide geotechnical assistance and monitoring during the construction of four (4) temporary water containment structures close to Portal #1 at the Meliadine Gold Project, Nunavut. In addition, Tetra Tech Industries Inc. (Tetra Tech IND) was requested to provide design and installation assistance for three (3) evaporators which are also located within the P-Area close to Portal #1.

An emergency situation close to the Portal #1 and the waste rock storage area necessitated the management of runoff water within the P-Area during and shortly after freshet 2016 that may have not met discharge criteria. Accordingly, four (4) temporary water containment structures were constructed to contain and manage the runoff anticipated during the 2016 freshet in the P-Area. Construction of the four (4) water containment structures started on approximately March 25, 2016 and was completed by May 10, 2016. Thereafter, construction continued with the installation of the water management pumping system and the three (3) evaporators. These were completed on June 28, 2016.

This report documents the as-built information for the four (4) temporary water containment structures DP1-A, DP1-B, DP2-A, and DP3-A, and the three (3) evaporators and supporting infrastructure. Construction activities that took place when Tetra Tech EBA was on site are described in this report.

## 2.0 CONSTRUCTION MONITORING AND COMMISIONING

Tetra Tech EBA had staff monitoring dike construction works during the following periods:

- Renata Klassen March 25 to April 22, 2016
- Edgar Lopez-Negrete April 17 to May 4, 2016

Tetra Tech IND had staff monitoring the installation and commissioning of the evaporators and associated infrastructure during the following period:

Orphé Beauchemin – June 23 to June 28, 2016

## 3.0 CIVIL EARTHWORKS CONSTRUCTION EQUIPMENT AND MATERIAL TYPES

The general layout of the four (4) temporary water containment structures DP1-A, DP1-B, DP2-A, and DP3-A is shown in Drawing 1. As-built information on the construction of the structures is presented in the following sections.

## 3.1 Construction Equipment

The following construction equipment was used for construction of the water containment structures:

- Caterpillar Inc. (CAT) 320C excavator
- CAT 345C excavator
- CAT 420E backhoe
- CAT 740 rock trucks
- CAT 966 loader



- CAT CS-563E compactor
- CAT D8 dozer
- CAT D6 dozer

## 3.2 Material Types and Properties

The following material types were used for construction and their use in the construction sequence are shown on the as-built drawings presented in Appendix B.

## 3.2.1 Underground Waste Rock

The Underground Waste Rock was mainly used for dike shell construction. Details on the measured material properties of this material are presented in Appendix C.

## 3.2.2 Material 0-200 mm

Material 0-200 comprised crushed rock with maximum particle size less than 200 mm. Material 0-200 was crushed on site and was used as a transition between the core material (Material 0-30) and the Underground Waste Rock. Details on the measured material properties of this material are presented in Appendix C.

### 3.2.3 Material 0-30 mm

This material was used for the core of the dike structures and the results of the tests undertaken on this material are presented in Appendix C.

### 3.3 Construction Material Quantities

Agnico Eagle provided Tetra Tech EBA with the finished quantities for each dike's structure as presented in Table 1.

**Table 1: Construction Material Quantities** 

Dike	Material	Quantity (m³)
	Material 0-30	649
DP1-A	Material 0-200	170
	Underground Waste Rock	2,518
	Material 0-30	1,054
DP1-B	Material 0-200	266
	Underground Waste Rock	12,212
	Material 0-30	866
DP2-A	Material 0-200	152
	Underground Waste Rock	3,302
	Material 0-30	2,048
DP3-A	Material 0-200	920
	Underground Waste Rock	9,648

#### 3.4 Dike Central Core Construction

The central core of the dike structures were constructed using two construction methods:

- Method A: Placed lifts approximately 300 mm thick of Material 0-30 that were saturated and compacted and allowed to freeze to essentially develop a frozen core; and
- Method B: Placed lifts approximately 200 mm thick of Material 0-30 that were compacted without moisture conditioning.

After some on-site trials for the construction of the frozen core (Method A) the following sequence of construction was used:

- Step 1: Place Material 0-30 in a thin layer (typically 150 mm to 200 mm) without compaction with raised edges to impound the water.
- Step 2: Flood the surface of the layer with hot water (typically between 45°C and 50°C) and compact with a steel drum roller.
- Step 3: Leave this wet compacted layer to freeze (typically overnight) while monitoring the freeze back progress using single bead thermistors.

The construction of the core for DP1-A and DP3-A started with Method A and was switched to Method B during the course of construction due to the warming weather conditions and construction difficulties associated with achieving consistency with the Method A technique. These difficulties typically comprised: heat loss of the sprayed water due to wind, blizzard conditions, blowing snow, high winds, and snow accumulation which resulted in poor and inconsistent saturation of the placed material. Method B construction is expected to be more permeable than the Method A construction and will possibly require downstream water management to intercept seepage passing through the dike structure. The minimum elevation to which Method A was used was 67.9 m at DP1-A and 65.7 m at DP3-A. For DP1-B and DP2-A the core was constructed using Method B.

## 4.0 CONSTRUCTION ACTIVITIES DP1-A

The dike was constructed between approximately March 25 and April 25, 2016. Construction activities for DP1-A consisted of foundation preparation, construction of the dike core, and placement and compaction of Material 0-200 and Underground Waste Rock. The location of the dike is shown on Drawing 2. It is an approximately 120 m long structure with a maximum height of 3.7 m to the top of the waste rock.

## 4.1 Foundation Preparation

Foundation preparation was undertaken below the dike footprint to remove snow, ice, boulders, and surface organics. More thorough cleaning was undertaken under the core area to provide a good contact between the cleaned existing ground and the new dike core material. The cleaning was carried out primarily with a CAT 420E backhoe with a steel plate welded across the teeth of the backhoe bucket. Photo 1 shows a section of the dike foundation cleaned prior to placement of the dike core material. The prepared foundation within the core base comprised frozen organic natural ground with relatively small amounts of residual loose material.

The dike was tied into a waste rock pile at the north end which was the lower ground. The waste rock was loose and contained a small layer about 0.5 m thick of snow at the base when connecting with the dike. Removal of loose waste rock from the waste rock pile was attempted but abandoned due to the proximity of a haul road. The south end of the dike is the higher ground.



## 4.2 Core Construction Material 0-30

The dike core was constructed of Material 0-30 using both construction Method A and Method B. The Method A core construction was undertaken between March 28 and April 18, 2016, and the balance of the core placement using Method B was completed on April 25, 2016. The maximum average as-built elevation of the top of core is 69.1 m.

The frozen core type (Method A) construction was used to an elevation of approximately 67.9 m, corresponding to Lift 4 in the lowest portion of the dike between the north end of the dike and approximate station STN 0+065. The flooded lifts were compacted with a CAT CS-563E compactor, typically with two (2) full passes immediately after flooding was complete (Photo 2). A combination of both static and/or vibration compaction was used. QA/QC monitoring of the frozen core generally comprised visual observation, monitoring freezeback of the placed material, and coring of the frozen layers.

The construction placement technique was switched from Method A to Method B on April 22 and continued until April 25, 2016. Method B, Material 0-30 was placed in lifts ranging between 200 mm and 300 mm and compacted with a CAT CS-563E compactor with a minimum of six (6) full passes. No moisture conditioning was used on the Material 0-30 during placement, compaction, and final grading. QA/QC monitoring during Method B consisted of visual observations during placement and compaction.

### 4.3 Material 0-200 Construction

Material 0-200 was placed beside Material 0-30 to provide a transition layer between Material 0-30 and the Underground Waste Rock. Material 0-200 construction was undertaken between April 9 and April 25, 2016. Material 0-200 was sourced from the site crusher. Material 0-200 was placed in lifts up to 600 mm thick and compacted with a CAT CS-563E compactor.

QA/QC on Material 0-200 consisted of visual observations. No compaction testing was carried out on Material 0-200.

## 4.4 Underground Waste Rock Construction

Underground Waste Rock was used to provide erosion protection and a thermal cover to the dike core materials (i.e. Material 0-30 and Material 0-200). Underground Waste Rock placement was undertaken between March 27 and April 25, 2016. The maximum average as-built top elevation is 70.46 m. Completed DP1-A is shown in Photo 3.

Underground Waste Rock was placed in lifts up to 1,000 mm thick and compacted with a CAT CS-563E compactor. The waste rock was sourced from underground excavations.

QA/QC on the Underground Waste Rock consisted of visual observations. No compaction testing was carried out on the waste rock.

### 5.0 CONSTRUCTION ACTIVITIES DP1-B

The DP1-B incorporates an existing road as part of the dike structure. The dike location is shown on Drawing 4. It is an approximately 350 m long structure between stations STN 0+080 and STN 0+420 with a maximum height of 3.4 m to the top of waste rock. The road portion of the dike comprises about 70% of the total dike length between stations STN 0+080 and STN 0+323.

Construction activities for the DP1-B observed by Tetra Tech EBA involved foundation preparation and placement of the initial lifts of Material 0-30 and Material 0-200. The dike construction started on April 4, 2016 and continued



after Tetra Tech EBA left site on May 4, 2016. Material 0-30 was not yet placed on the road section and two (2) lifts were completed on the off road section of the dike when Tetra Tech EBA left site.

## **5.1** Foundation Preparation

The foundation for DP1-B was prepared under the entire dike footprint. Foundation preparation along the road portion of the dike comprised scraping the road surface of loose materials, snow, and ice. Foundation preparation away from the road area comprised removal of crusher stockpiles and fill materials, snow, ice, and surface organics. More thorough cleaning of the foundation was undertaken away from the road area under the core to provide a good contact between the cleaned existing ground and the new dike core material.

The foundation preparation along the road portion of the dike between stations STN 0+080 and 0+323 was observed by Tetra Tech EBA as it progressed. Foundation preparation away from the road area between stations STN 0+323 and STN 0+420 was observed by Tetra Tech EBA, except for the final cleaning of the core base. The final cleaning was undertaken during the nightshift on April 26, 2016 and was not observed by Tetra Tech EBA. The area was covered with Material 0-30 the following morning when Tetra Tech EBA resumed work on dayshift.

### 5.2 Core Construction

The dike core was constructed of Material 0-30 using construction Method B. The Method B core construction started on April 26, 2016 and was in progress when Tetra Tech EBA left site on May 4, 2016. When Tetra Tech EBA left site, Material 0-30 was not yet placed on the road section and two (2) lifts were completed on the off road section of the dike. Material 0-30 was placed in lifts ranging between 200 mm and 300 mm and compacted with a CAT CS-563E compactor with a minimum of six (6) full passes (Photo 4). No moisture conditioning was used on the Material 0-30 during placement and compaction. QA/QC monitoring consisted of visual observations during placement and compaction. The maximum average as-built elevation of the top of core is 69.0 m.

## 5.3 Material 0-200 Construction

Material 0-200 was to provide a transition layer between Material 0-30 and Underground Waste Rock. No Material 0-200 construction was undertaken while Tetra Tech EBA was on site. Thus, no construction activities related to Material 0-200 construction for DP1-B were observed.

### 5.4 Underground Waste Rock Construction

Underground Waste Rock was used to provide erosion protection and a thermal cover to the dike core materials (i.e. Material 0-30 and Material 0-200). Underground Waste Rock construction started on April 5, 2016 and was in progress when Tetra Tech EBA left site on May 4, 2016. At this stage the waste rock within the road portion of the dike was placed approximately to the elevation of the adjacent access road, and the first lift of waste rock was placed on the off road section of the dike. The maximum average as-built top elevation is 70.7 m.

Underground Waste Rock was placed in lifts up to 1,000 mm thick and compacted with a CAT CS-563E compactor. The waste rock was sourced from the underground excavations.

QA/QC on the Underground Waste Rock consisted of visual observations. No compaction testing was carried out on the waste rock.

### 6.0 CONSTRUCTION ACTIVITIES DP2-A

The construction activities for DP2-A consisted of foundation preparation, construction of the dike core, and placement and compaction of Material 0-200 and Underground Waste Rock. The location of the dike is shown on



Drawing 6. It is an approximately 120 m long structure with a maximum height of 4.0 m to the top of the waste rock. The dike's construction started on March 29, 2016 and continued after Tetra Tech EBA left site.

## **6.1** Foundation Preparation

Foundation preparation was undertaken below the dike footprint to remove snow, ice, boulders, and surface organics. More thorough cleaning was undertaken under the core area to provide good contact between the cleaned existing ground and the new dike core material. The cleaning was carried out primarily with a CAT 420E backhoe with a steel plate welded across the teeth of the backhoe bucket. Manual labour was used to remove loose materials present between large boulders and to remove fresh snow accumulated overnight over the dike footprint. The prepared foundation within the core base consisted of frozen organics with relatively small amounts of residual loose material and with an area of large boulders frozen into the substrate.

#### 6.2 Core Construction

The dike's core was constructed of Material 0-30 using construction Method B. The core construction started on April 19, 2016 and was in progress when Tetra Tech EBA left site on May 4, 2016. At this time the Material 0-30 was placed and compacted to a uniform elevation of 67.0 m. The maximum average as-built elevation of the top of core is 68.0 m.

Material 0-30 was placed in lifts ranging between 200 mm and 300 mm and compacted with a CAT CS-563E compactor with a minimum of six (6) full passes. No moisture conditioning was used on the Material 0-30 during placement and compaction. Low areas between the boulders were raised in 200 mm lifts. QA/QC monitoring consisted of visual observations during placement and compaction testing. Compaction test results are included in Appendix D. The average percentage of compaction was 92% of Standard Proctor maximum dry density.

The waste rock pile at the east end of the dike was excavated on April 26, 2016 to tie the dike in to the stockpile. The excavation proceeded about 20 m into the waste rock pile. Loose waste rock with layers of snow was removed but frozen waste rock could not be reached. The waste rock was loose and contained snow layers when tied into the dike. The west end of the dike was extended until it intersected with the natural ground at the top of core elevation.

#### 6.3 Material 0-200 Construction

Material 0-200 was placed adjacent to Material 0-30 to provide a transition layer between Material 0-30 and the Underground Waste Rock. Material 0-200 construction was undertaken on May 1, 2016 and was in progress when Tetra Tech EBA left site on May 4, 2016. Material 0-200 was sourced from the site crusher. Material 0-200 was placed in lifts up to 600 mm thick and compacted with CAT CS-563E compactor.

QA/QC on Material 0-200 consisted of visual observations. No compaction testing was carried out on Material 0-200.

### 6.4 Underground Waste Rock Construction

Underground Waste Rock was used to provide erosion protection and a thermal cover to the dike core materials (i.e. Material 0-30 and Material 0-200). Minor waste rock placement activities were conducted at DP2-A when Tetra Tech EBA was on site.



## 7.0 CONSTRUCTION ACTIVITIES DP3-A

The construction activities for DP3-A consisted of foundation preparation, construction of the dike core, and placement and compaction of Material 0-200 and Underground Waste Rock. The location of the dike is shown on Drawings 8 through 10. It is an approximately 300 m long structure with a maximum height of 3.4 m to the top of the waste rock. The dike was constructed between approximately March 28 and May 4, 2016.

The abutments for DP3-A consisted of a waste rock pad at the south end of the dike and the main access road at the north end.

## 7.1 Foundation Preparation

Foundation preparation was undertaken below the dike footprint to remove lake ice, snow, and surface organics. More thorough cleaning was undertaken under the core area to provide a good contact between the cleaned existing ground and the new dike core material. The cleaning was carried out primarily with a CAT 345C excavator and manual labour. Consequently, the prepared foundation within the core base consisted of frozen organics with relatively small amounts of residual loose materials.

### 7.2 Core Construction

The dike core was constructed of Material 0-30 using both construction Methods A and B. The Method A core construction was undertaken between April 2 and April 21, 2016, and the balance of the core placement using Method B was between April 22 and April 28, 2016. The maximum average as-built elevation of the top of core is 67.5 m.

The frozen core type (Method A) construction was used to approximate elevations and stations as below:

- Elevation 66.9 m at the north abutment decreasing in elevation to 66.3 m at station STN 0+255 (corresponding to Lift 3);
- Elevations 66.0 m and 66.3 m between stations STN 0+255 to STN 0+120 (corresponding to Lift 2);
- Elevation 65.7 m between stations STN 0+120 and STN 0+080 (corresponding to Lift 2);
- Elevation 66.0 m between stations STN 0+080 and STN 0+030 (corresponding to Lift 2); and
- Elevation 66.3 m between stations STN 0+030 and STN 0+000 (corresponding to Lift 2).

The lifts were flooded using a hose connected to a concrete truck (Photo 5). The flooded lifts were compacted with a CAT CS-563E compactor, typically with two (2) full passes immediately after flooding was complete. A combination of both static and/or vibration compaction was used. QA/QC monitoring of the frozen core generally comprised visual observation, monitoring freezeback of the placed material, and coring of the frozen layers.

The construction placement technique was switched from Method A to Method B on April 22 and continued until April 28, 2016. Method B was used from the elevations reached with Method A described in the above paragraph and continued to the top of core elevation at 67.5 m. Method B, Material 0-30 was placed in lifts ranging between 200 mm and 300 mm and compacted with a CAT CS-563E compactor with a minimum of six (6) full passes (Photos 6 and 7). No moisture conditioning was used on the Material 0-30 during placement, compaction, and final grading. QA/QC monitoring during Method B consisted of visual observations during placement and compaction testing. Compaction test results are included in Appendix D. The average percent compaction was 98% of Standard Proctor maximum dry density.



The side slope of the waste rock pad abutment at the south end was scraped of loose rocks and snow. Marine containers were stored on the waste rock pad and no excavation could proceed into the pad. The access road abutment at the north end was prepared by removing snow and loose materials from the side slope of the road.

#### 7.3 Material 0-200 Construction

Material 0-200 was placed beside the Material 0-30 to provide a separating layer between Material 0-30 and the Underground Waste Rock. Material 0-200 construction was undertaken between April 9 and April 28, 2016. Material 0-200 was sourced from the site crusher. Material 0-200 was placed in lifts up to 600 mm thick and compacted with CAT CS-563E compactor.

QA/QC on the Material 0-200 consisted of visual observations. No compaction testing was carried out on the Material 0-200.

## 7.4 Underground Waste Rock Construction

Underground Waste Rock was used to provide erosion protection and a thermal cover to the dike core materials (i.e. Material 0-30 and Material 0-200). Underground Waste Rock construction was undertaken between March 30 and May 4, 2016. The maximum average as-built top elevation is 69.0 m.

Underground Waste Rock was placed in lifts up to 1,000 mm thick and compacted with CAT CS-563E compactor. The completed DP3-A dike is shown in Photo 8. The waste rock was sourced from the underground excavations.

QA/QC on the Underground Waste Rock consisted of visual observations. No compaction testing was carried out on the waste rock.

## 8.0 QUALITY CONTROL TESTING

## 8.1 Saturation Testing

Saturation of the flooded lifts was assessed during construction and after freeze back as follows:

- Visual observations during flooding;
- Penetration tests during flooding to determine penetration of water; and
- Drilled cores collected from frozen lifts which were analysed for ice saturation.

Generally, visual observations and penetration tests during flooding indicated that the material was wet and saturated. Occasionally, the water did not penetrate to the bottom of the lifts. Water penetration was poor when the water temperature was less than 40°C, the core material was not flooded right after placement, and during cold, windy conditions.

Coring started on March 31 and proceeded until April 21, 2016. Unfortunately, the coring rig broke down between April 7 and April 18, 2016. Coring activities are shown in Photo 9. Coring was conducted to confirm visual observations during flooding activities.

Only the first lift of DP1-A was cored. The average percent of ice saturation calculated from the four (4) cores was 94.8%. The lowest percent saturation obtained was 93.1% (Appendix C).



The three (3) bottom lifts were cored at DP3-A. The average degree of saturation from the five (5) cores was 91.1% with the lowest value obtained being 80.2% (Appendix C). Two of the cores broke off during coring which may indicate dry material near the bottom of the lift.

Based on Tetra Tech EBA's experience, the degree of ice saturation in the cores was within typical ranges for frozen core construction (i.e. minimum 85% with single results not falling below 80%).

## 8.2 Field Density Testing

Field density testing was conducted during the period between April 29 and May 4, 2016. Density testing was conducted on DP2-A and DP3-A. Field density testing on DP2-A and DP3-A indicated an average compaction of 92% and 98% of the Standard Proctor Maximum Dry Density, respectively. A summary of the results is included in Appendix D.

## 8.3 Single Bead Thermistors

Single bead thermistors were used to monitor freeze back temperatures of the flooded lifts of the core material. Single bead thermistors were inserted into the flooded lifts about 2/3 from the lift bottom and the temperatures were measured. Freeze back was achieved when the temperatures reached -2°C.

Single bead thermistors were also installed in the dikes for longer term temperature monitoring. These single bead thermistors have been read periodically after the construction was completed. Tetra Tech EBA installed single bead thermistors in DP1-A and DP3-A on April 28, 2016 and their locations in the dikes are shown on Drawings 12 and 13. The temperature measuring points were located along the centerline of each dike slightly below (between 75 mm and 125 mm) the top of core elevation. Tetra Tech EBA prepared single bead thermistors on May 3, 2016 for future installation by Agnico Eagle in DP1-B and DP2-A. The single bead thermistors were placed in a steel pipe and covered with Material 0-30 for protection. Drawings 12 and 13 also show the locations of single bead thermistors installed by Agnico Eagle in DP1-B and DP2-A.

Temperature readings from the single bead thermistors installed at DP1-A and DP3-A are included in tables presented on Drawings 12 and 13. The temperatures measured on May 4, 2016 indicated that the top of the core in both dikes ranged between -5.51°C and -7.02°C (DP1-A) and -4.10°C and -5.21°C (DP3-A).

### 8.4 Moisture-Density Relationships

Moisture-density relationship testing was conducted on two (2) samples of the Material 0-30 and the results are presented in Appendix C. Moisture-density relationship testing was completed off site by Englobe, Rouyn-Noranda, QC. Moisture-density relationship testing was completed using standard Proctor (ASTM D 698) and modified Proctor (ASTM D 1557) compaction efforts and the results showed dry density of 2,379 kg/m³ at the optimum moisture content of 6% (standard Proctor) and 2,420 kg/m³ at the optimum moisture content of 5.7% (modified Proctor). Moisture-density relationship testing results from the standard Proctor test were used for the field density testing as no other results were available at the time.

### 8.5 Particle Size Distribution

Particle size distribution was conducted on the materials used for the dike construction and is included in Appendix C. Particle size distribution on Material 0-30 and Material 0-200 was completed off site by Englobe, Rouyn-Noranda, QC. Particle size distribution on the waste rock was completed on site.

The laboratory testing results on Material 0-30 indicated that this material comprises on average 65% gravel, 25% sand and typically 10% fines.



Material 0-200 was used as transition between the Material 0-30 and the Underground Waste Rock. The laboratory testing results on Material 0-200 indicated that the material meets the filter criteria against the Material 0-30.

## 8.6 Specific Gravity Testing

Specific gravity testing was done on two (2) samples of Material 0-30 and the results are included in Appendix C. Specific gravity testing was completed off site by Englobe, Rouyn-Noranda, QC. Specific gravity test results of 2.87 were used for calculating the core saturation.

## 8.7 Permeability Testing

Permeability testing was conducted on three (3) samples of Material 0-30 and the results are included in Appendix C. Permeability testing was completed off site by Englobe, Rouyn-Noranda, QC. Permeability testing results indicated the permeability of the Material 0-30 of 3.10E-02 cm/sec, 9.20E-02 cm/sec, and 1.10E-01 cm/sec on the three (3) samples.

### 9.0 DIKE DEFICIENCIES DURING CONSTRUCTION

The initial intent of the dike structures was to construct them as frozen core dike structures. However, construction started later than expected and was delayed on numerous occasions due to blizzard weather conditions, equipment breakdown, and equipment availability. Accordingly, only the lower portions of dikes DP1-A and DP3-A were constructed as frozen core structures between March 25 and April 21, 2016. Isolated areas may not be fully saturated. Thereafter and due to rapidly warming weather conditions, the balance of the dikes were constructed using non-moisture conditioned Material 0-30 at the core to the final core elevation.

### 10.0 EVAPORATORS INSTALLATION AND COMISSIONING

#### 10.1 Introduction

The evaporators were installed to maintain capacity in the P-Area and to protect the integrity of the dikes.

Three (3) evaporators provided by MINETEK were installed on the jetties in the P-Area 1 (Photo 10) and electrically connected to Meliadine power diesel generators.

In the same time, a pumping station (Photo 11) was immersed in P-Area 1, and two (2) submersible pumps were installed, as well as required hoses and strainers skids (Photo 12) to prevent material clogging the evaporator's nozzles.

MINETEK has designed, manufactured, and supplied the following equipment:

- Three (3) 400/200 evaporators;
- Water flow of 25 L/sec at ten (10) bars for each evaporator;
- Heavy duty construction stainless steel;
- Evaporation efficiency of about 30% to 35% over the period from July to September; and,
- Suitable for a 24/24 and 7/7 operation over that period.

Final commissioning was completed on June 28, 2016.



## 10.2 Operation Philosophy

The evaporator system is designed for vaporizing water into the atmosphere. The evaporator applies the principles of thermodynamics to accelerate the phase change from liquid water to vapor in large quantities.

The evaporator unit achieves increased evaporation by discharging water into a patented spiral water spray nozzle assembly designed to achieve an optimal water droplet size immediately prior to the introduction into a high velocity air stream. An extremely high air to water ratio mixture is generated and propelled into the atmosphere maximizing the exposed surfaces of fractured droplets to fresh, low humidity air resulting in water evaporation.

## 10.3 Construction and Commissioning Activities

#### Installation

The first phase of evaporator's installation, testing, and commissioning consisted of the construction of three (3) "fingers" or jetties to allow the physical installation of the evaporators, in the prevailing winds direction, on the north shore of P-Area 1 (Photo 10) as shown on Drawing 65-695-265-216 REV01 in Appendix E.

On June 3, 2016, Agnico Eagle construction team immerged a modified marine container in the middle of P-Area 1, where a new sump pit had been dug, to act as an oversized strainer to prevent lakebed sediments to get to the pumps and to the evaporators, and ensure a minimum level of water.

Another modified marine container was installed near pump sump to be used as an electrical room. Power cables were connected to the new electrical room from the main generators.

Two (2) submersible pumps were ordered and shipped to site. Both pumps where then submerged into the marine container, electrically wired, and linked to the strainer skids with flexible hoses.

The three (3) evaporators were installed, connected to the strainer skids, and wired on their respective jetties. A pressure relief valve is shown in Photo 13.

Based on Tetra Tech IND experience, the physical installation was performed adequately and in conformity with initial plans.

#### **12 Hours Operation Test**

Following the completion of equipment installation on June 26, 2016, a 12 hours test was performed on evaporators to evaluate their performances and reliability.

Following the 12 hours test, a surveyor from Agnico Eagle measured the difference in level of water between the end and the beginning of the test. No water from P-Area 2 or P-Area 3 was transferred into P-Area 1 during the tests.

The final level of water in P-Area 1 was measured on June 27, 2016 by the surveyor after the 12 hours operation test to confirm system's performance and level confirmations were done by Tetra Tech IND.

After estimations based on the model, the operation test evaporated approximately 706 m³ of water, which translates to a 92 % efficiency. The results were witnessed by the MINETEK representative and were accepted by all parties.



#### Final modification and equipment hand-over for operation

On June 28, 2016, the equipment was inspected with operation and maintenance responsible and MINETEK representative. Pre-operational checks were completed and equipment given to the operation team.

The three (3) evaporators during operation are shown in Photo 14. The sign off was scheduled for the following morning. Handover document is included in Appendix E.

## 11.0 LIMITATIONS

This report and its contents are intended for the sole use of Agnico Eagle Mines Limited (Agnico Eagle) and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are provided in Appendix A of this report.



## 12.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted, Tetra Tech EBA Inc. and Tetra Tech Industries Inc.

Prepared by:
Tetra Tech EBA Inc.
Edgar Lopez-Negrete, EIT
Geotechnical Engineer, Arctic Region
Direct Line: 867.920.2287 x258
Edgar.Lopeznegrete@tetratech.com

Prepared by:

Tetra Tech Industries Inc Orphé Beauchemin, P.Eng. Mechanical Engineer

Direct Line: 514.257.1112 x3463

Orphe.Beauchemin-Theriault@tetratech.com

Reviewed by:

Tetra Tech EBA Inc. Nigel Goldup, M.Sc., P.Eng.

Regional Manager and Geotechnical Engineer, Arctic Region

Direct Line: 780.451.2130 x301 Nigel.Goldup@tetratech.com

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Prepared by: Tetra Tech EBA Inc. Renata Klassen, M.Sc., P.Eng. Geotechnical Engineer, Arctic Region

Bevort Lumblay

Direct Line: 780.451.2130 x531 Renata.Klassen@tetratech.com

Prepared by:

Tetra Tech EBA Inc.

Benoit Tremblay, P. Eng.

Mechanical Engineer

Direct Line: 418.548.5522 463

Benoit.tremblay@tetratech.com

Date

PERMIT NUMBER: P 018

NT/NU Association of Professional Engineers and Geoscientists



## **PHOTOGRAPHS**





**Photo 1:** Prepared foundation at DP1-A (looking south). March 30, 2016.



Photo 2: Compaction of watered lift at DP1-A. April 10, 2016.



Photo 3: DP1-A at completion (looking north). April 30, 2016.



Photo 4: DB1-B during construction (looking south). April 29, 2016.



Photo 5: Watering a lift of Material 0-30 at DP3-A. April 15, 2016.



**Photo 6:** Compaction of the core material at DP3-A. April 22, 2016.



Photo 7: Compaction of core material at DP3-A (looking north). April 24, 2016.



**Photo 8:** DP3-A at completion (looking south). May 4, 2016.



Photo 9: Coring at DP3-A. April 21, 2016.



Photo 10: P-Area 1. June 25, 2016.



Photo 11: A pumping station. June 26, 2016.



Photo 12: Strainer skid. June 24, 2016.



Photo 13: Pressure relief valve. June 24, 2016.



Photo 14: Three evaporators during operation. June 28, 2016.

## **APPENDIX A**

**TETRA TECH'S GENERAL CONDITIONS** 



## **GENERAL CONDITIONS**

### **GEOTECHNICAL REPORT**

This report incorporates and is subject to these "General Conditions".

#### 1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

#### 2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

#### 3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

## 4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

#### 5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

#### 6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of testholes and/or soil/rock exposures. Stratigraphy is known only at the locations of the testhole or exposure. Actual geology and stratigraphy between testholes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

#### 7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

#### 8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

#### 9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

#### 10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

#### 11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

#### 12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

#### 13.0 SAMPLES

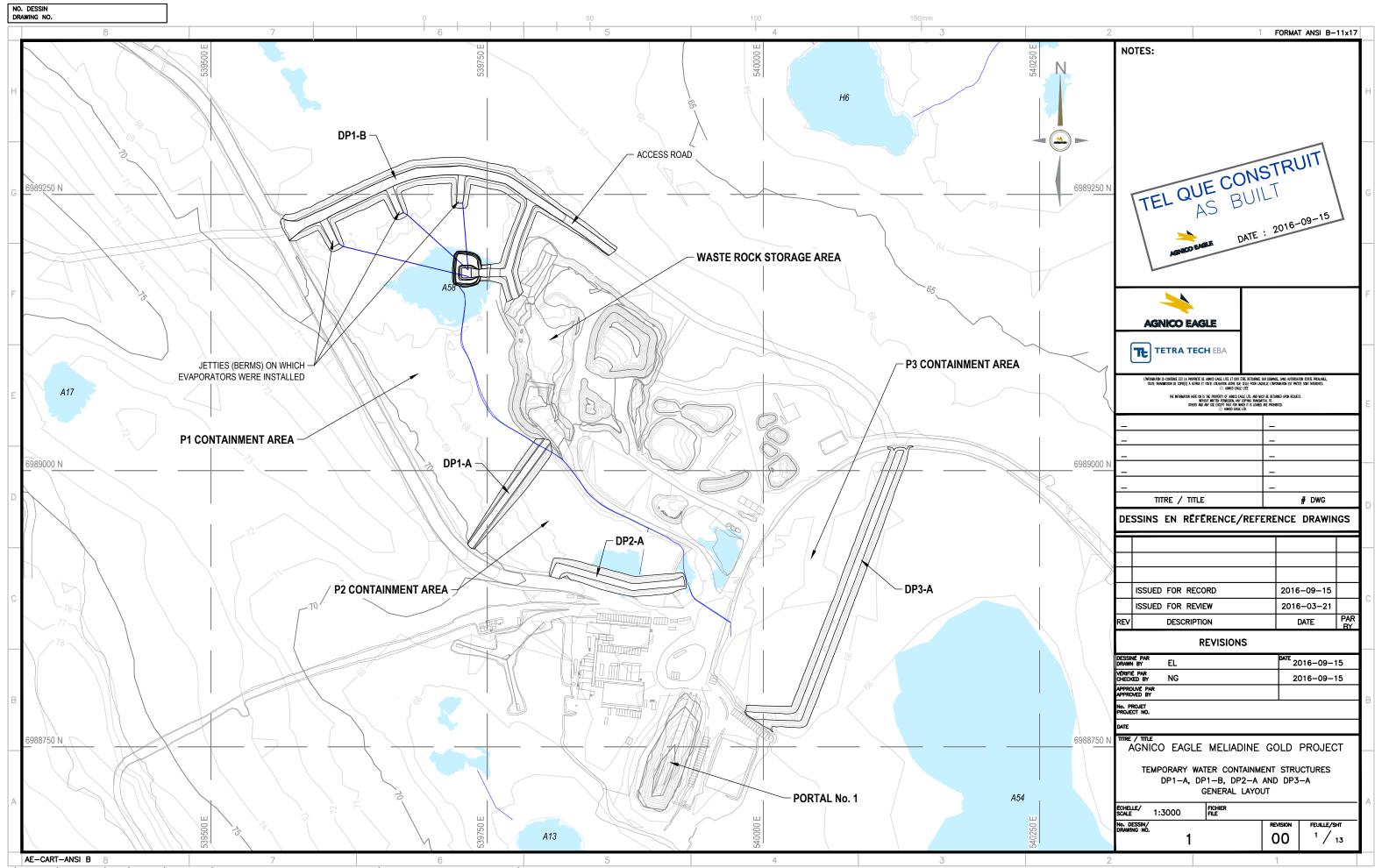
Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

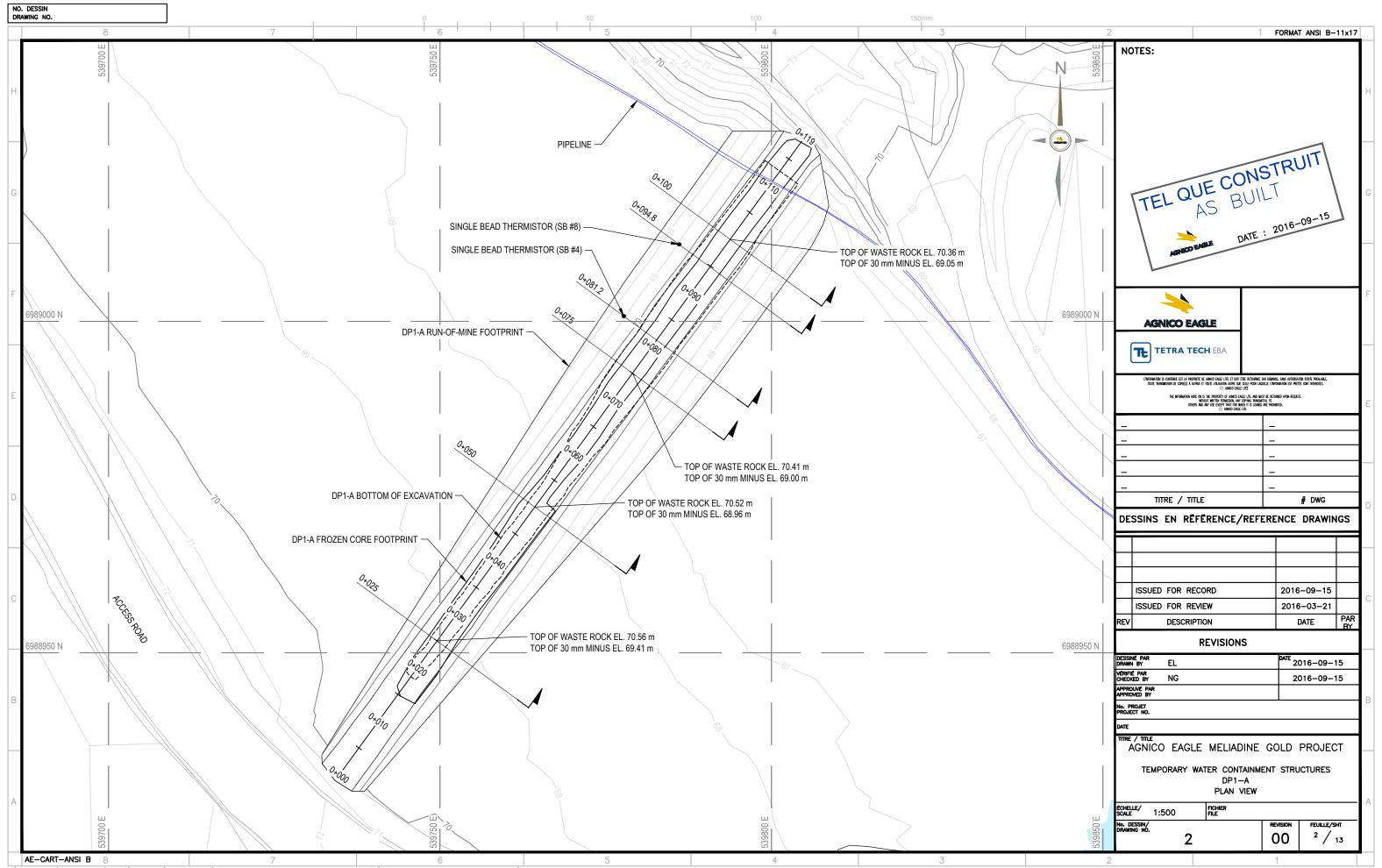
## 14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

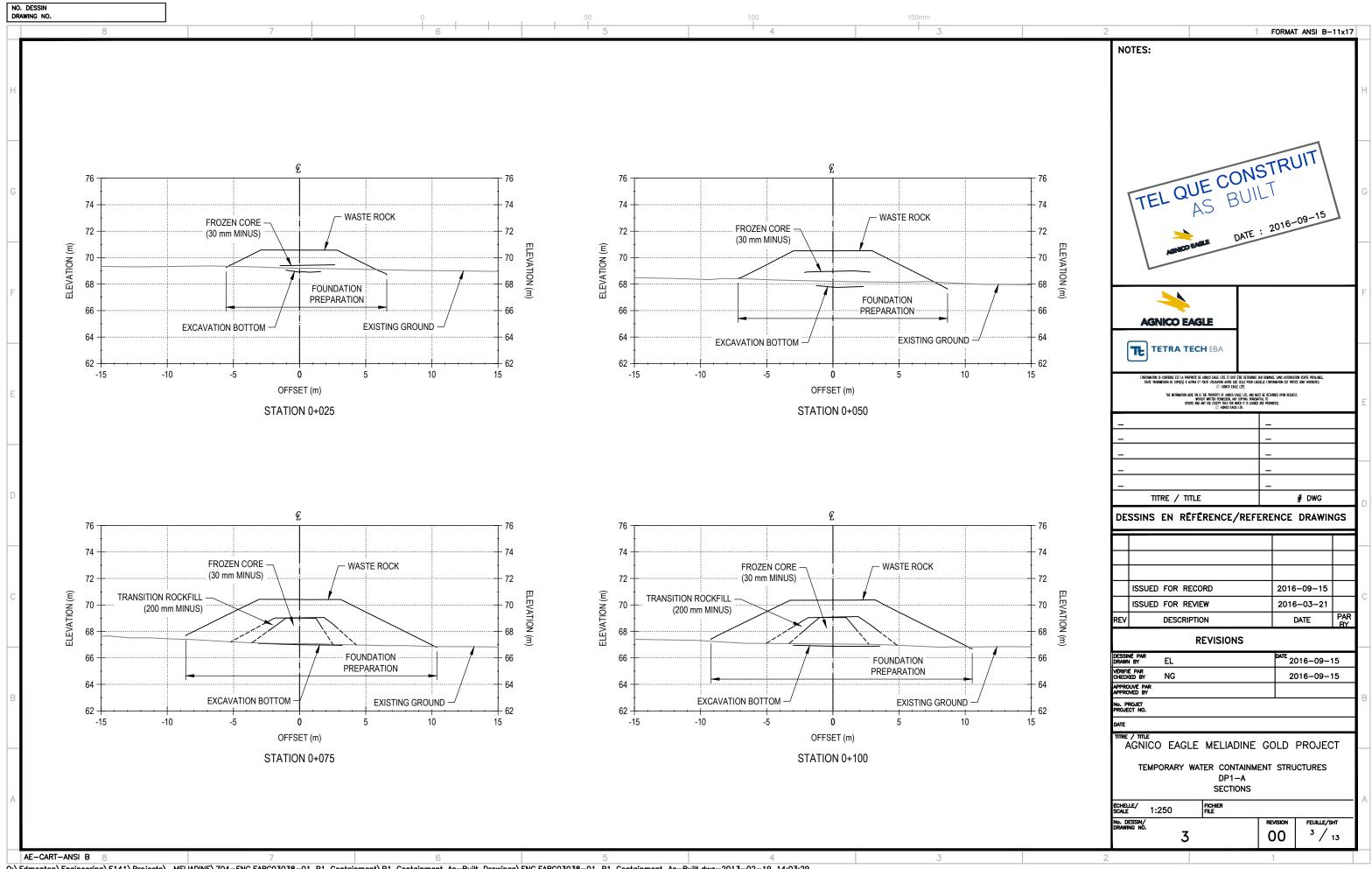
During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

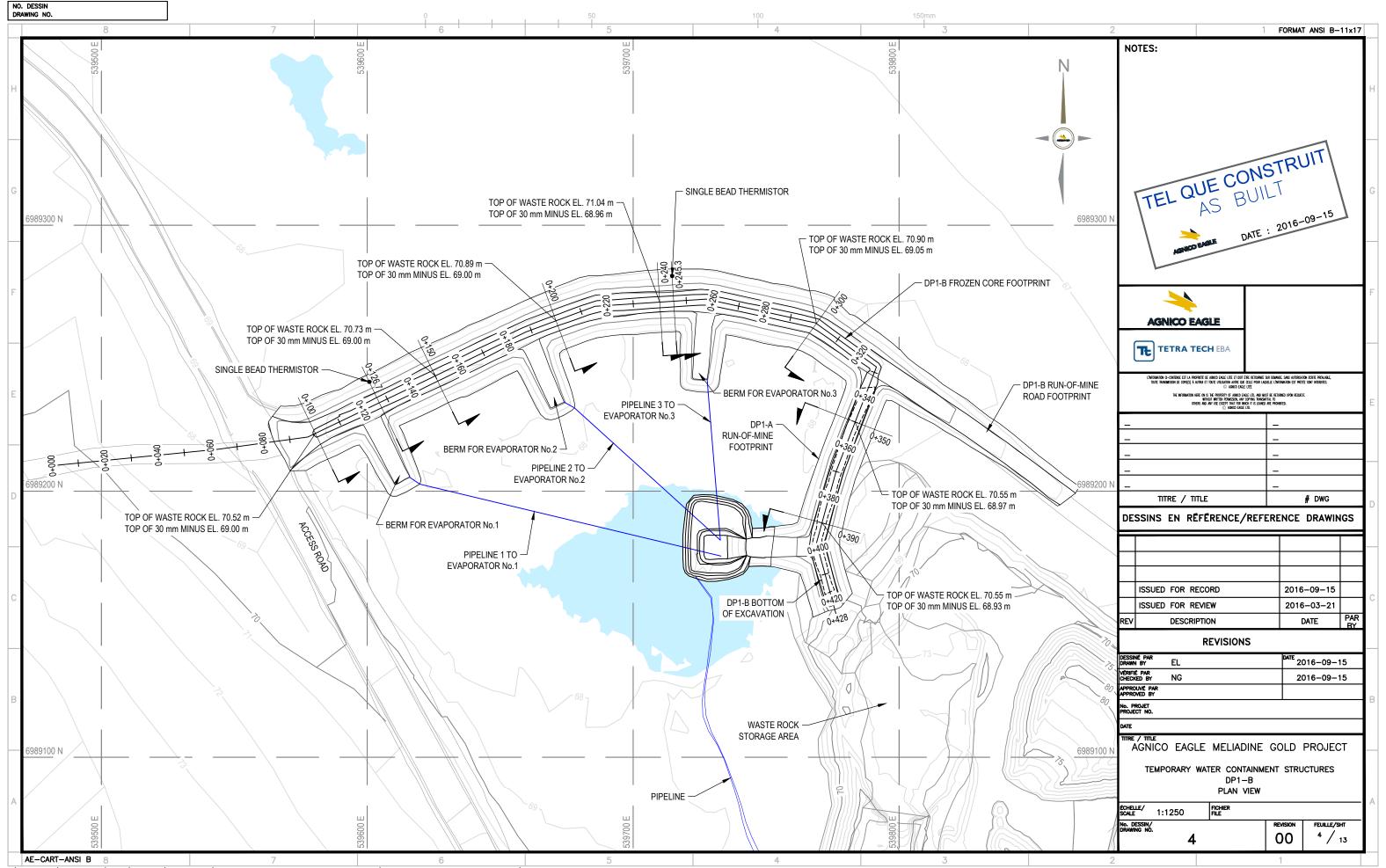
# APPENDIX B AS-BUILT DRAWINGS

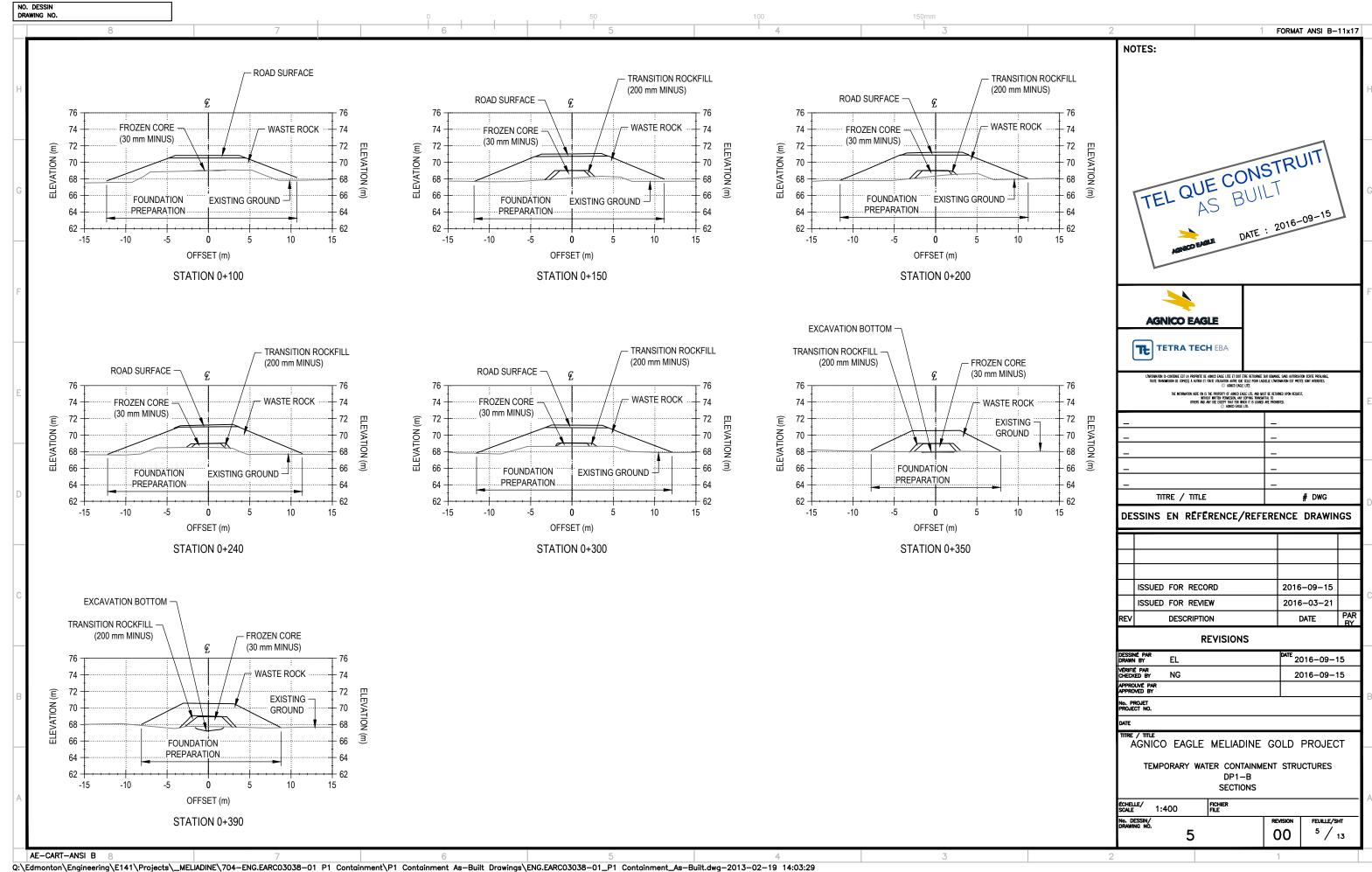


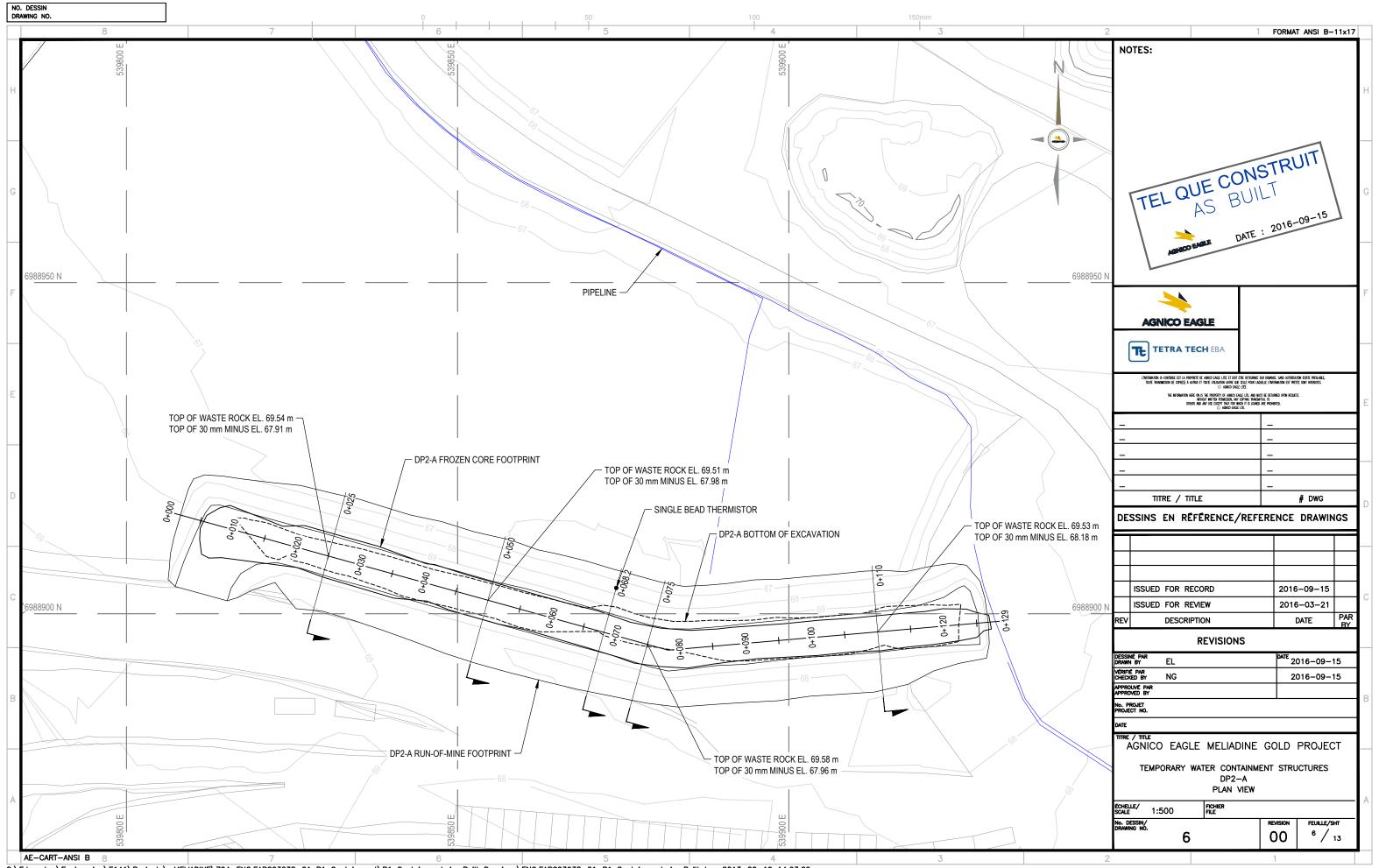


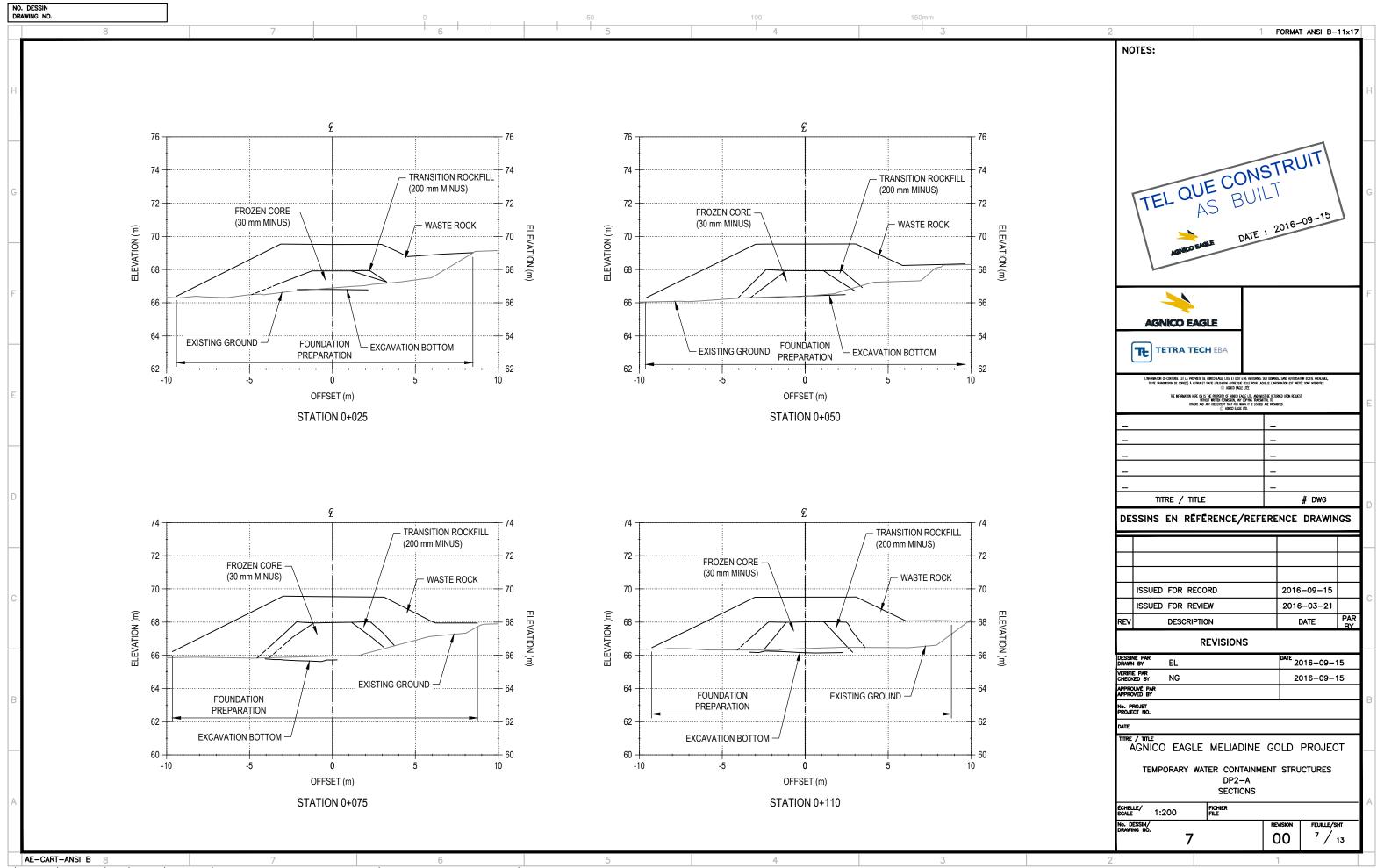


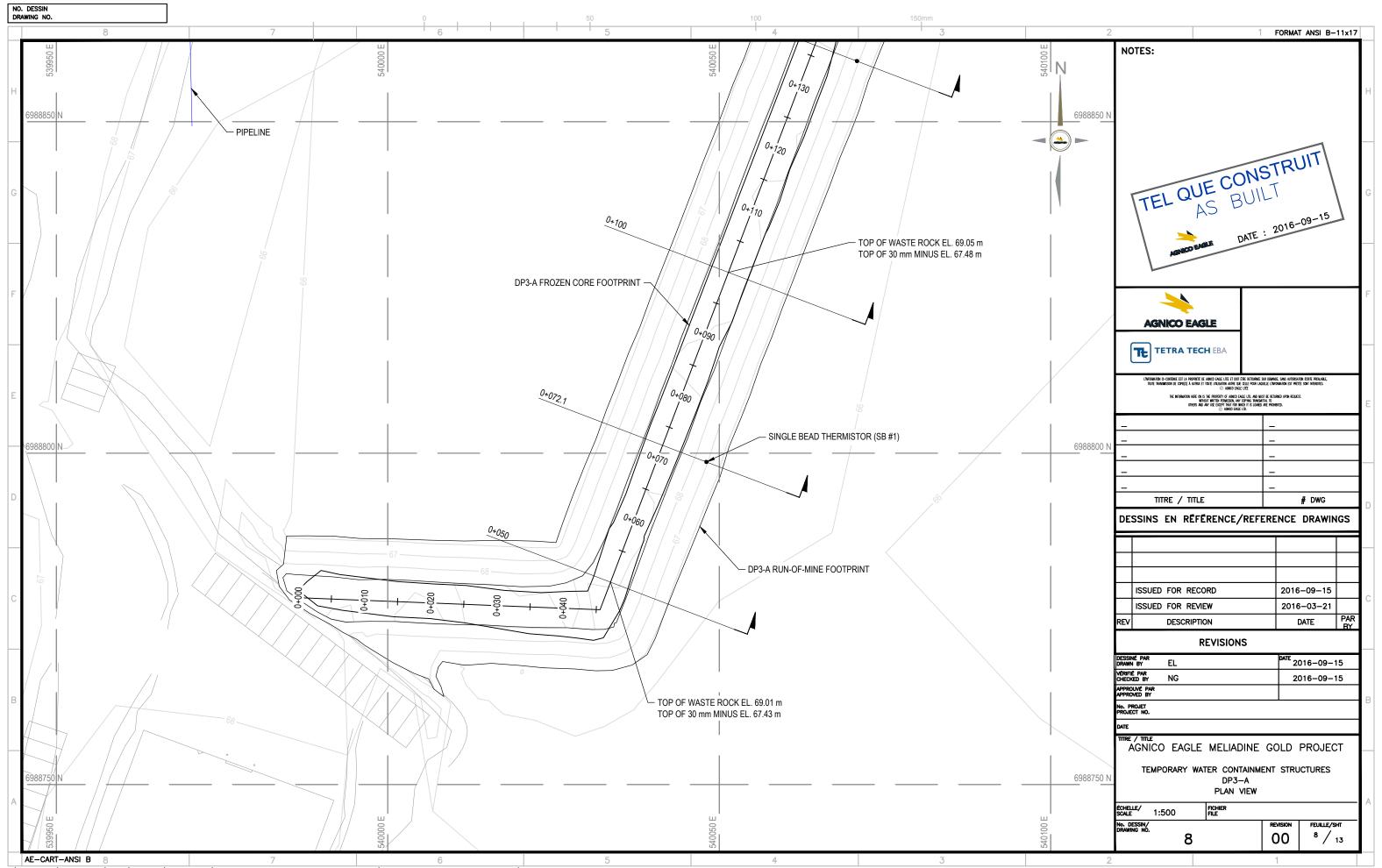


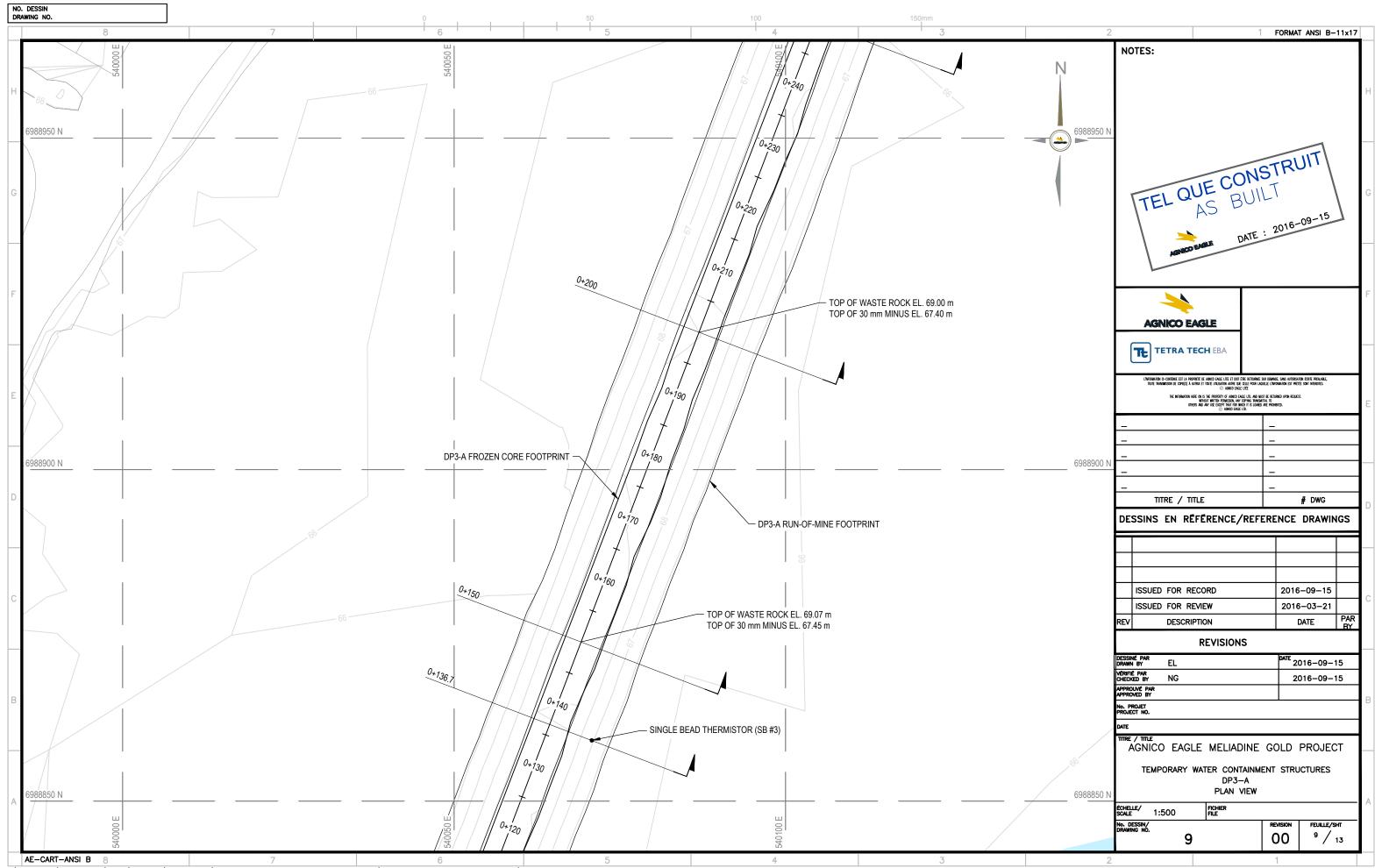


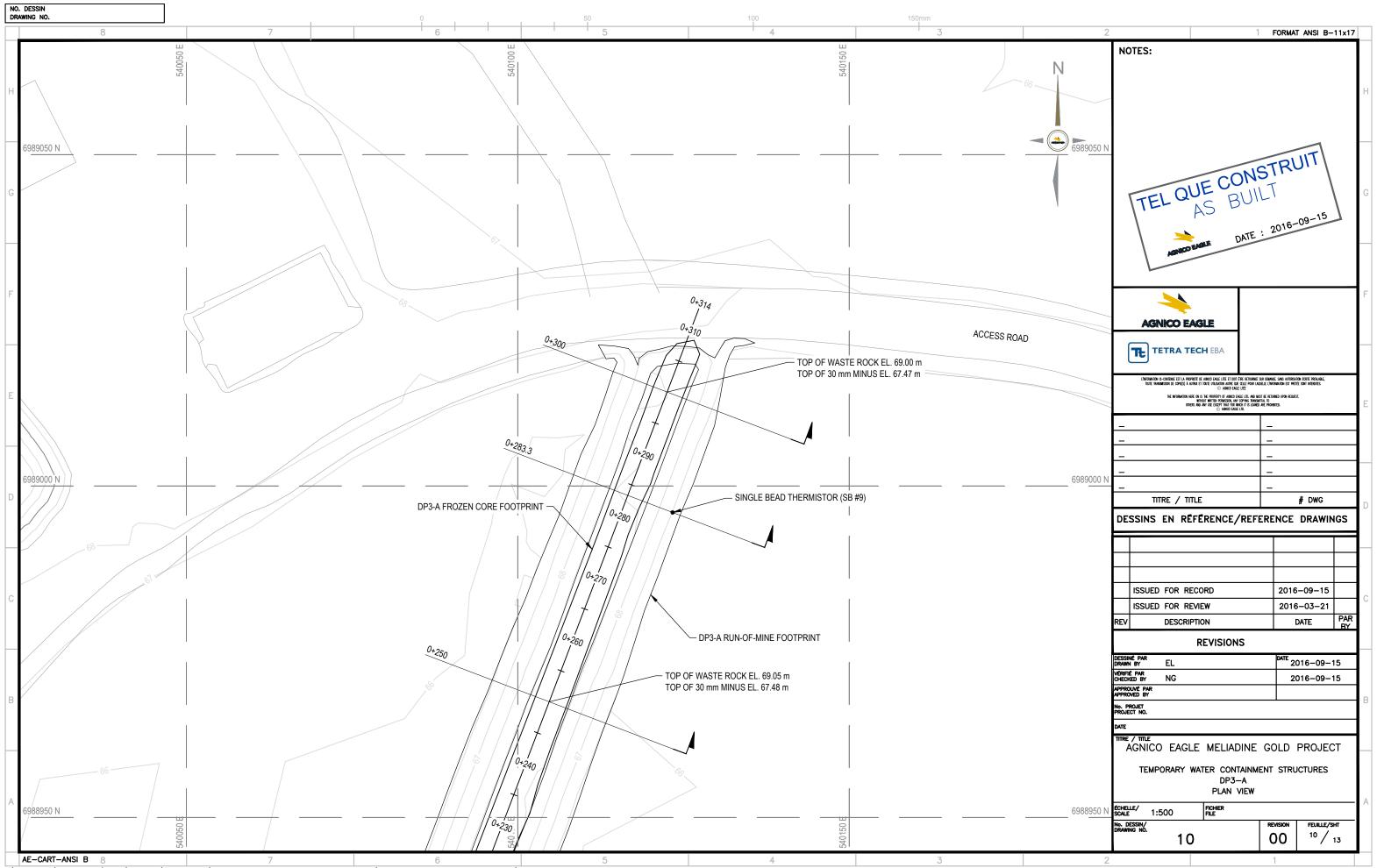


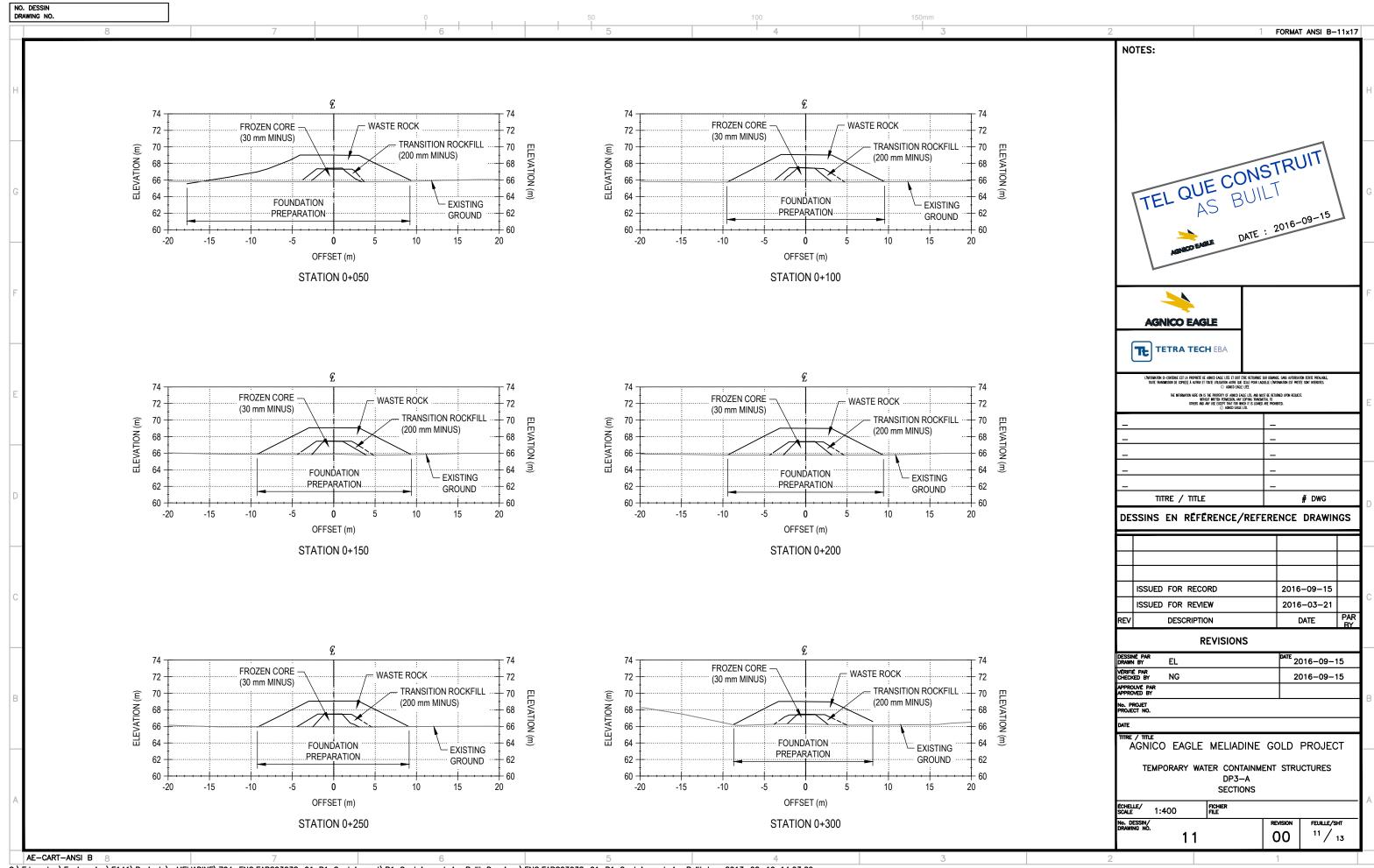


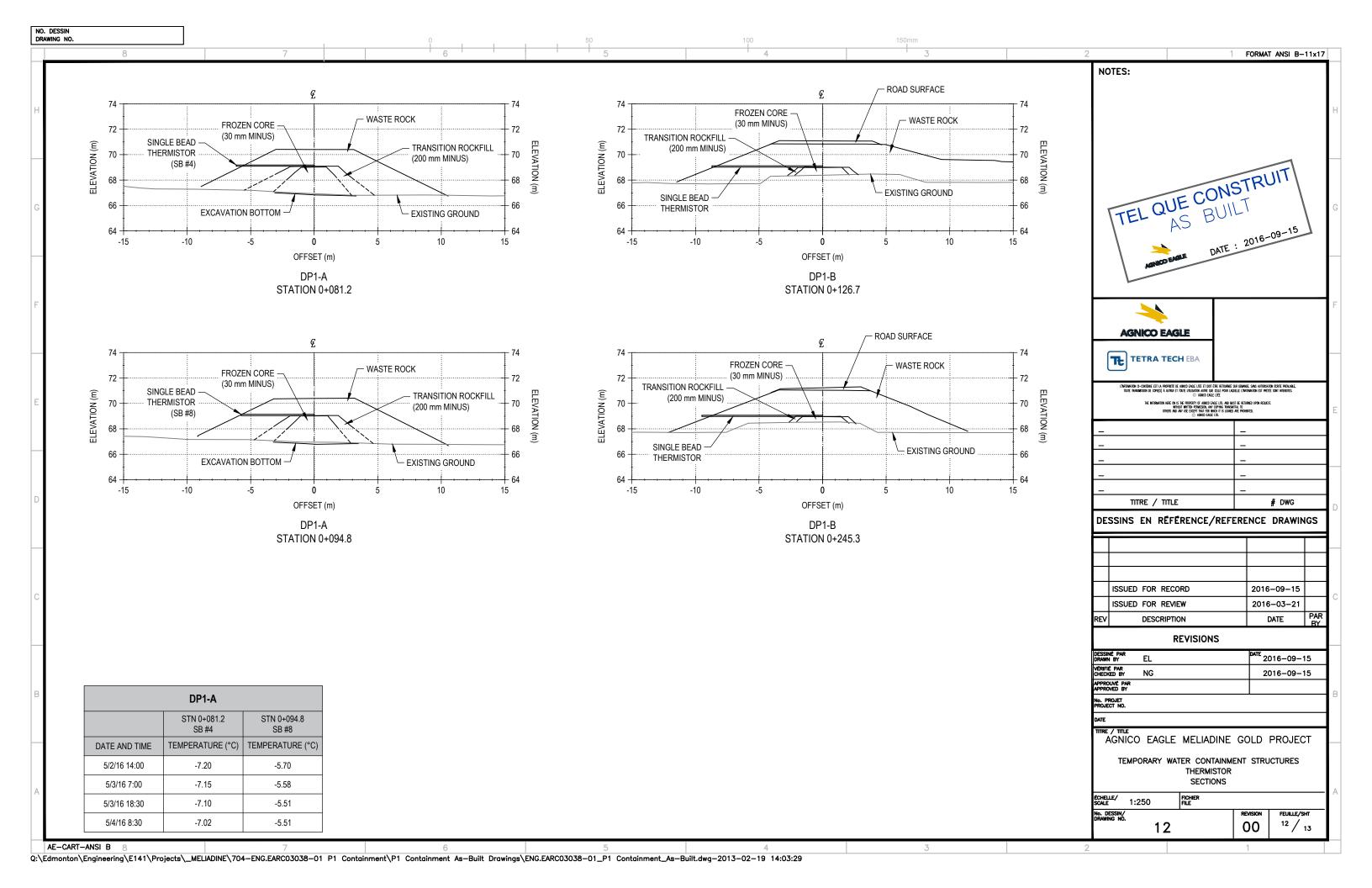


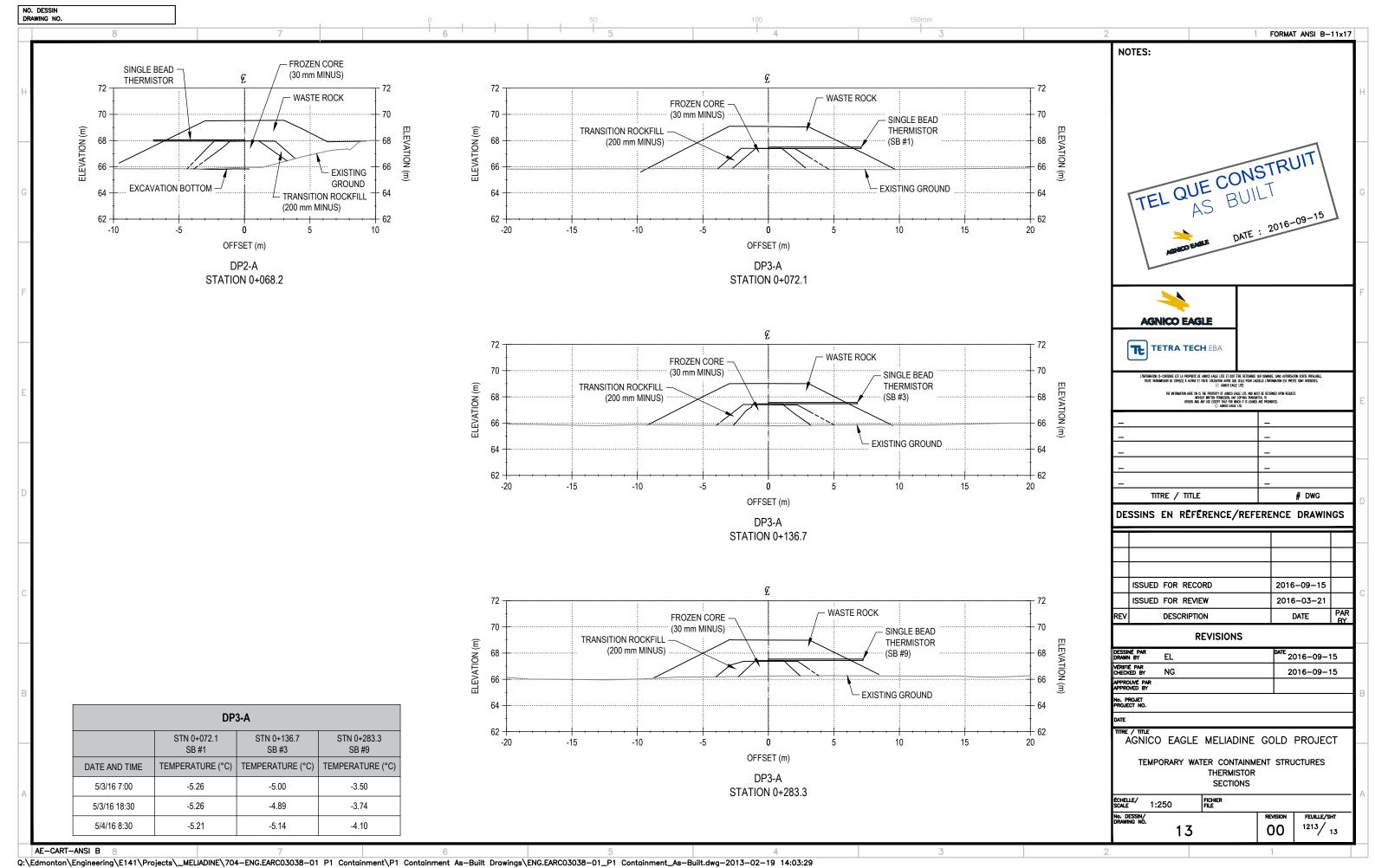












## APPENDIX C MATERIAL TESTING RESULTS







Rév. 0

1 de 1



Client MINE AGNICO EAGLE, DIVISION Laronde

Projet : Projet Meliadine; Contrôle des matériaux

Endroit:

Meliadine, Nunavut

Dossier: B-0010539-5

Réf. client : OP-402153-L

Rapport no : 33

Page

Échantillonnage Nº d'échantillon 33

Nº d'échantillon client

Type de matériau

Pierre concassé 0-30mm

Source première; ville

Endroit échantillonné

Waste pile (Crushed muck);

Spécification nº 2

Référence divers Fondation

Usage :

Calibre Classe

Prélevé le

: Par le client

22/09/2015 Reçu le

#### Analyse granulométrique (LC 21-040)

TAMIS	TAMISA						
(mm)	EXIGENCES	MESURÉ	Silt et argile	Sable		Gravie	100
112 80			<b></b> Granulom	étrie		X	90
56						1	80
40						1	70
31,5		100				A	60 %
20		92					
14		76			and a second		Sa oc
10		66					20 Family 30 P
5		48		مباخل الساب الساب	×		30 🖺
2,5		37		××			20
1,25		29		×		l li	10
0,630		23					10
0,315		19	0.01			10	100
0,160		16	0,01	0,1 1	Tamis (mm)	10	100
0,080		13,8	Cu: Cc:	MF: 4,28	D <sub>10</sub> :	D <sub>30</sub> : 1,383	D <sub>60</sub> : 7,978

Masse vol. sèche maximale	Humidité optimale	Retenu 5 mm
kg/m³	%	%

Proportions selon analyse granulométrique (%)

Cailloux: Sable: 0,0 34,2 Gravier: 52,0 Silt et argile: 13,8

Autres essais Exigé Mesuré Teneur en eau (NQ 2501-170) (%)

#### Remarques

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

#### UN ASTERISQUE ACCOMPAGNE TOUT RESULTAT NON CONFORME

Préparé par :

Date:

Richard Campbell, chef d'équipe

26/09/2015

Approuvé par :

Richard Campbell, chef d'équipe

Date:



## Essais sur sols, granulats et autres matériaux

Client: MINE AGNICO EAGLE, DIVISION Laronde

Projet : Projet Meliadine; Contrôle des matériaux

Endroit : Meliadine, Nunavut

Dossier: B-0010539-5

Réf. client : OP-402153-L

Rapport n° : 34

Page 1 de 1

Rév. 0

Échantillonnage

Nº d'échantillon : 34

N° d'échantillon client

Type de matériau

Pierre concassé 0-30mm

Source première; ville

Endroit échantillonné : Waste pile (Crushed muck);

Spécification n° 2

Référence : divers Usage : Fondation

Calibre : Classe :

Prélevé le :

Par : le client Reçu le : 2015-09-22

Analyse granulométrique (LC 21-040)

TAMIS	TAMISA	T (%)				
(mm)	EXIGENCES	MESURÉ	Silt et argile	Sable	Gravier X	100
112			Granulométrie			90
80			—◆— Fuseau		ř	
56						
40					+ + + + + + + + + + + + + + + + + + + +	70
31,5		100			×	60 🕏
20		87				50 🚼
14		60				50 <b>ts</b>
10		47				30 =
5		31				
2,5		24		XXX		20
1,25		19	×	XXXXX		10
0,630		15				0
0,315		13	0,01 0,1	1 Tamis	(mm) 10	100
0,160 0,080		9,5	Cu: 142,9 Cc: 14,3	MF: 4,87 D <sub>10</sub> : 0,0	098 D <sub>30</sub> : 4,427	D <sub>60</sub> : 14,018

Masse vol. sèche maximale	Humidité optimale	Retenu 5 mm
kg/m³	%	%

Proportions selon analyse granulométrique (%)

Cailloux: 0,0 Sable: 21,8
Gravier: 68,7 Silt et argile: 9,5

Autres essais	Exigé	Mesuré
eneur en eau (NQ 2501-170) (%)		2
		L

#### Remarques

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

UN ASTERISQUE ACCOMPAGNE TOUT RESULTAT NON CONFORME

Préparé par : Date :

Richard Campbell, chef d'équipe 2015-09-25

Approuvé par :

Richard Campbell, chef d'équipe

Date:

5/ 19/45



Endroit:

129, avenue Marcel-Baril Rouyn-Noranda, J9X 7B9 Téléphone: (819) 762-5119

## Essais sur sols, granulats et autres matériaux

MINE AGNICO EAGLE, DIVISION Laronde Client

Projet : Projet Meliadine; Contrôle des matériaux

Meliadine, Nunavut

Dossier: B-0010539-5 Réf. client : OP-402153-L

: 35 Rapport no Rév. 0

**Page** 1 de 1

Échantillonnage

Pierre concassé 0-30mm

Nº d'échantillon 35

Nº d'échantillon client

Type de matériau

Source première; ville

Endroit échantillonné Waste pile ( Crushed muck); Spécification nº 2

Référence divers Usage Fondation

Calibre Classe

Prélevé le

le client Par

Reçu le 22/09/2015

#### Analyse granulométrique (LC 21-040)

TAMIS	TAMISA	T (%)	Thinly of grantal	metrique (LC 21-0			1011
(mm)	EXIGENCES	MESURÉ	Silt et argile	Sable		Gravier	100
112 80			× Granulométrie 	J. H. H.			90
56 40						-I	70
31,5		100				*	60 8
20		85					
14		60			- I I I I I I		90 Pi
10		49					30
5		35					
2,5		28		XX			20
1,25		22	***	×			10
0,630		18					0
0,315		15	0,01 0,	1 1	Tamis (mm)	10	100
0,160		12					
0,080		10,5	Cu: Cc:	MF: 4,71	D <sub>10</sub> : D	<sub>30</sub> : 3,160	D <sub>60</sub> : 14,06

Retenu 5 mm Masse vol. sèche maximale Humidité optimale kg/m³ %

Proportions selon analyse granulométrique (%)

Cailloux: 0,0 Sable: 24,4 Gravier: 65,1 Silt et argile: 10,5

Autres essais	Exigé	Mesuré
Teneur en eau (NQ 2501-170) (%)		3

#### Remarques

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

UN ASTERISQUE ACCOMPAGNE TOUT RESULTAT NON CONFORME

Préparé par : Date:

Richard Campbell, chef d'équipe 26/09/2015 Approuvé par :

Richard Campbell, chef d'équipe

Date:



### Essais sur sols, granulats et autres matériaux

MINE AGNICO EAGLE, DIVISION Laronde Client

Projet :

Projet Meliadine; Contrôle des matériaux

**Endroit:** Meliadine, Nunavut Dossier: B-0010539-5

Réf. client : OP-402153-L

Rapport no 36 Rév. 0

**Page** 1 de 1

Échantillonnage

Nº d'échantillon 36

Nº d'échantillon client

Type de matériau

Source première; ville

Pierre concassé 0-30mm

Endroit échantillonné Waste pile (Crushed muck); Spécification nº 2

Référence divers Fondation Usage :

Calibre Classe

Prélevé le

Par

le client

22/09/2015 Reçu le

#### Analyse granulométrique (LC 21-040)

TAMIS	TAMISA	T (%)				
(mm)	EXIGENCES	MESURÉ	Silt et argile	Sable	Gravier	100
112			× Granulométri	9	×	
80			Fuseau			90
56					X X	80
40						70 _
31,5		100			//	60 8
20		93			*	
14		76				50 to
10		67		منسيس		30 1
5		50		36		
2,5		38		X		20
1,25		29	*			10
0,630		24				<u> </u>
0,315		20	0,01	0,1 1 Tamis (	(mm) 10	100
0,160		16				
0,080		13,9	Cu: Cc:	MF: 4,23 D <sub>10</sub> :	$D_{30}: 1,310 \qquad D_{\epsilon}$	<sub>0</sub> : 7,59

Masse vol. sèche maximale	Humidité optimale	Retenu 5 mm
kg/m³	%	%

Proportions selon analyse granulométrique (%)

Cailloux: 0,0 Sable: 35,9 Gravier: 50,2 Silt et argile : 13,9

Exigé Mesuré Autres essais Teneur en eau (NQ 2501-170) (%)

#### Remarques

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

UN ASTERISQUE ACCOMPAGNE TOUT RESULTAT NON CONFORME

Préparé par : Date:

26/09/2015 Richard Campbell, chef d'équipe

Approuvé par :

Richard Campbell, chef d'équipe

Date:



### Essais sur sols, granulats et autres matériaux

Client MINE AGNICO EAGLE, DIVISION Laronde

Projet Projet Meliadine; Contrôle des matériaux Dossier: B-0010539-5 Réf. client : OP-402153-L

Endroit:

Meliadine, Nunavut

Rapport no : 37 Rév. 0

> **Page** 1 de 1

> > 100 90 80

60

14,649

D<sub>60</sub>:

Échantillonnage

Nº d'échantillon 37

Nº d'échantillon client

Type de matériau

Source première; ville

Endroit échantillonné

Pierre concassé 0-30mm

Waste pile (Crushed muck);

Spécification nº 2

Référence divers Usage Fondation

Calibre Classe

Prélevé le

Par

le client

22/09/2015 Reçu le

#### Analyse granulométrique (LC 21-040)

TAMIS	TAMISA		, п				
(mm)	EXIGENCES	MESURÉ	Silte	t argile	Sable		Gravie
112 80				Granulométrie Fuseau			
56							/
40							
31,5		100					
20		86					/ /
14		56					1
10		43					100
5		28				4	×
2,5		22		4-1-11-11			
1,25		18			-×××	X	
0,630		15					
0,315		13	0.01	0.1		1	
0,160		11	0,01	0,1		1 Tamis (m	<b>m)</b> 10
0,080		9,1	Cu: 124,0	Cc: 17,7	MF: 4,93	D <sub>10</sub> : 0,118	D <sub>30</sub> : 5,535

Masse vol. sèche maximale	Humidité optimale	Retenu 5 mm
kg/m³	%	%

Proportions selon analyse granulométrique (%)

Cailloux: 0,0 Sable: 18,7 Gravier: 72,2 Silt et argile: 9,1

Autres essais	Exigé	Mesuré
eneur en eau (NQ 2501-170) (%)		3

#### Remarques

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

UN ASTERISQUE ACCOMPAGNE TOUT RESULTAT NON CONFORME

Préparé par : Date:

Richard Campbell, chef d'équipe 26/09/2015 Approuvé par :

Date:

Richard Campbell, chef d'équipe



### **Testing on Soils, Aggregates** and Other Materials

Client MINE AGNICO EAGLE, DIVISION Laronde Project #: B-0010539-5 Client ref. : OP-402153-L Project: Projet Meliadine; Contrôle des matériaux

Report # : 99 Location: Meliadine, Nunavut Rev. 0 Page 1 of 1

Sampling

Sampling # Your sampling # . 99

Material Source; location Crushed stone

Agnico Eagle, Mine Meliadine, Denis Duquette

Sampling location

The Frozen Core construction (0-30mm)

Meliadine;

Specification # 6

Reference Use

Calibre

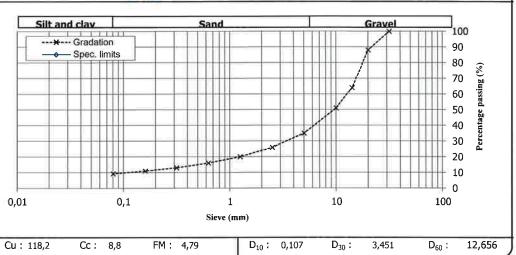
Class

Sampling date:

the client Ву Date received 2016-03-24

#### Sieve analysis (ASTM C 136)

SIEVE	% PASSING		
(mm)	REQUIREMENTS	RESULT	
112			
80			
56			
40			
31,5		100	
20		88	
14		64	
10		51	
5		35	
2,5		26	
1,25		20	
0,630		16	
0,315		13	
0,160		11	
0,080		9,2	



2			
	Maximum dry density	Optimum moisture	Retained 5 mm
	kg/m³	%	%

#### Proportions from sieve analysis (%)

Cobble: 0,0 Sand: 25,4 Gravel: 65,4 Silt and clay: 9.2

Other testing	Required	Result
Relative density (specific gravity) (OD) (ASTM C 127)		
Relative density (specific gravity) (SSD) (ASTM C 127)		
Apparent relative density(apparent specific gravity) (ASTM C 127)		
Absorption (ASTM C 127) (%)		
Relative density (specific gravity) (OD) (ASTM C 128)		
Relative density (specific gravity) (SSD) (ASTM C 128)		
Apparent relative density(apparent specific gravity) (ASTM C 128)		
Absorption (ASTM C 128) (%)		
l .		,

#### Remarks

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

RESULTS WITH AN ASTERISK DO NOT MEET REQUIREMENTS

Prepared by

Larry Dallaire, tech

Date:

2016-03-29

Approved by 🯏

Date:

Sofiane Bradai, ing.

2016-03-30



### **Testing on Soils, Aggregates** and Other Materials

: 100

Client **MINE AGNICO EAGLE, DIVISION Laronde** Project: Projet Meliadine; Contrôle des matériaux

Project #: B-0010539-5 : OP-402153-L

Client ref.

Rev. 0

Location: Meliadine, Nunavut Report #

**Page** 1 of 1

Sampling

Sampling #

100 :

Your sampling #

:

Material

Crushed stone

Source; location

Agnico Eagle, Mine Meliadine, Denis Duquette

Sampling location

The Frozen Core construction (0-30mm)

Meliadine;

Specification # 6

Reference Use

Calibre

Class

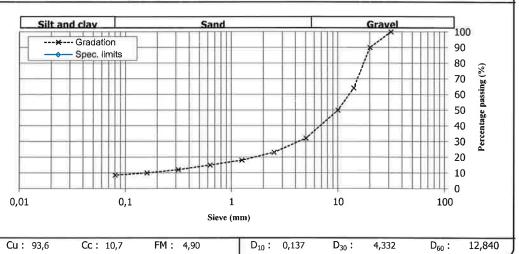
Sampling date :

the client

Date received : 2016-03-24

#### Sieve analysis (ASTM C 136)

% PASSING		
REQUIREMENTS	RESULT	
	100	
	90	
	64	
	50	
	32	
	23	
	18	
	15	
	12	
	10	
	8,6	



Maximum dry density	Optimum moisture	Retained 5 mm
kg/m³	%	%

Proportions from sieve analysis (%)

Cobble: 0,0

Sand:

Gravel: 68.2

Silt and clay: 8,6

Required Other testing Result Relative density (specific gravity) (OD) (ASTM C 127) Relative density (specific gravity) (SSD) (ASTM C 127) Apparent relative density(apparent specif gravity) (ASTM C 127) Absorption (ASTM C 127) (%) Relative density (specific gravity) (OD) (ASTM C 128) Relative density (specific gravity) (SSD) (ASTM C 128) Apparent relative density(apparent specif gravity) (ASTM C 128) Absorption (ASTM C 128) (%)

#### **Remarks**

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

RESULTS WITH AN ASTERISK DO NOT MEET REQUIREMENTS

Prepared by :

Larry Dallaire, tech.

Date:

2016-03-29

Approved by: M

Date:

Sofiane Bradai, ing.

2016-03-30



## **Testing on Soils, Aggregates** and Other Materials

Client MINE AGNICO EAGLE, DIVISION Laronde Project:

Projet Meliadine; Contrôle des matériaux

Location: Meliadine, Nunavut Project #: B-0010539-5

Client ref. : OP-402153-L

Report # 101 Rev. 0

Page of 1

Sampling

Sampling # 101

Your sampling #

Material Crushed stone

Source; location Agnico Eagle, Mine Meliadine, Denis Duquette

Sampling location The Frozen Core construction (0-30mm)

Meliadine;

Specification # 6

Reference Use Calibre

Class

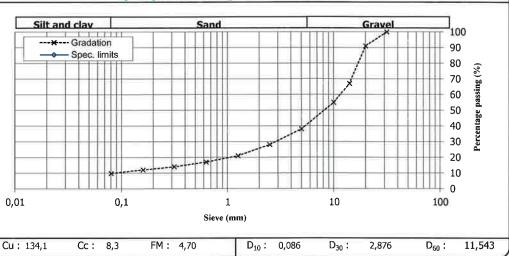
Sampling date:

the client

2016-03-24 Date received

#### Sieve analysis (ASTM C 136)

SIEVE	% PASSING		
(mm)	REQUIREMENTS	RESULT	
112			
80			
56			
40			
31,5		100	
20		91	
14		67	
10		55	
5		38	
2,5		28	
1,25		21	
0,630		17	
0,315		14	
0,160		12	
0,080		9,8	



Proctor normal 152 mr	m (ASTM D 698)	Method: C
Maximum dry density	Optimum moisture	Retained 5 mm
2379 kg/m³	6 %	62 %

Proportions from sieve analysis (%)

Cobble: 0,0 Sand: 28,1 Gravel: 62,1 Silt and clay: 9,8

Other testing	Required	Result	
		- 1	

#### Remarks

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

RESULTS WITH AN ASTERISK DO NOT MEET REQUIREMENTS.

Prepared by : Date:

2016-04-01 Larry Dallaire, tech.

Approved by :

Date:

Sofiane Bradai, ing.

2016-04-06



### **Testing on Soils, Aggregates** and Other Materials

Client MINE AGNICO EAGLE, DIVISION Laronde

Project: Projet Meliadine; Contrôle des matériaux

Location: Meliadine, Nunavut Project #: B-0010539-5 Client ref.

: OP-402153-L

Report #

: 103 **Page** 

Rev. 0 of 1

> 100 90 80

Percentage passing (%)

11,474

Sampling

Sampling #

Your sampling #

Material

Crushed stone

103

Source; location

Agnico Eagle, Mine Meliadine

Sampling location

The frozen core construction (0-30mm)

Meliadine;

Specification # 6

Reference Use

Calibre

Class

Sampling date:

the client

Date received: 2016-05-01

#### Sieve analysis (LC 21-040)

SIEVE (mm)	% PASS	ING							
STEAE (IIIII)	REQUIREMENTS	RESULT	Silt and cla	v	Sand		1	Gravel	
112 80 56 40 31,5		100	× Gra						
20 14 10 5. 2,5		90 68 54 36 26		××					
1,25 0,630 0,315 0,160		21 17 14 12	0,01	0,1	1 Sieve (i	mm)	10		100
0,080		10,1	Cu: Co	: FM	: 4,74	D <sub>10</sub> :	D <sub>30</sub> :	3,231	D <sub>60</sub> :

Proctor modifié 152 mm (NQ 2501-255)		Method: C		
 Maximum dry density	Optimum moisture	Retained 5 mm		
2420 kg/m <sup>3</sup>	5,7 %	64 %		

Proportions from sieve analysis (%) Cobble: 0,0 Sand: Gravel: 63,7 Silt and clay: 10,1

Other testing	Required	Result
Essai de perméabilité (éprouvette montée dans un moule cyl.) (ASTM D 2434) (cm/s)		3,1 X10-02
		1

#### Remarks

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

RESULTS WITH AN ASTERISK DO NOT MEET REQUIREMENTS.

Larry Dallaire, tech

Date:

2016-05-26

Approved by:

Date:

Michel Cliche, ing.



### Testing on Soils, Aggregates and Other Materials

MINE AGNICO EAGLE, DIVISION Méliadine Client Project:

104

Projet Meliadine; Contrôle des matériaux

Location: Meliadine, Nunavut Project #: B-0010539-5

Client ref. : OP-402153-L

Report #

: 104 **Page** 

Rev. 0 1 of 1

Sampling

Sampling #

Your sampling #

Material

Pierre concassée 0 - 200 mm

Source; location

Sampling location

Specification # 7

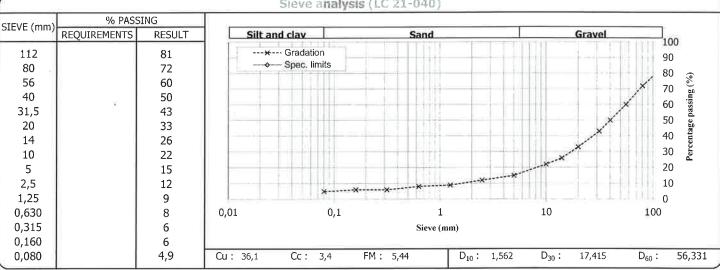
Reference Use

Calibre Class

Sampling date: 2016-05-13

the client Date received: 2016-05-13

Sieve analysis (LC 21-040)



Maximum dry density	Optimum moisture	Retained 5 mm
kg/m³	%	%

Proportions from sieve analysis (%) Cobble: 28,1 Sand: 10,4 Gravel: 56,6 Silt and clay: 4,9

Other testing	Required	Result
51		

#### Remarks

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

Date:

RESULTS WITH AN ASTERISK DO NOT MEET REQUIREMENTS.

Prepared by:

Larry Dallaire, tech. 2016-06-01 Approved by:

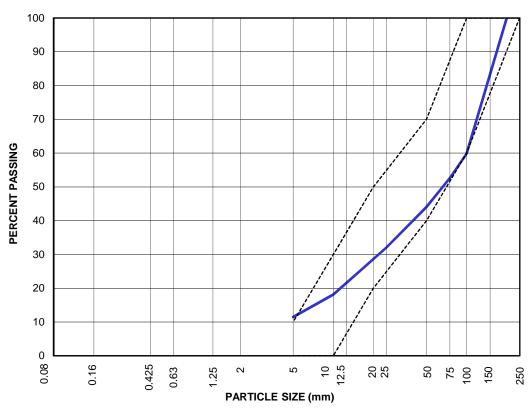
Michel Cliche, ing

000000 2016-0805

## **Tetra Tech EBA**

	SIEVE ANALYSIS REPORT							
P1 Containment	EBA SAMPLE NO: M16-D	DP1A-UGWR-PSD1-20160328						
Short Term Frozen Core	SAMPLE DESCRIPTION:	U/G Waste Rock						
Dam		collected during placement						
Meliadine, NU								
E14103077-03	MOISTURE CONT. :	0.0%						
Oct 10/14 By: RAK								
Agnico Eagle Mines Ltd.	BULK REL DENSITY:	n/a						
	BULK REL. DENSITY (SSD):	n/a						
Larry Chabot	APPARENT REL. DENSITY:	n/a						
Sylvain Chartier	ABSORPTION:	n/a						
	Short Term Frozen Core  Dam  Meliadine, NU  E14103077-03  Oct 10/14  By: RAK  Agnico Eagle Mines Ltd.  Larry Chabot	Short Term Frozen Core  Dam  Meliadine, NU  E14103077-03  Oct 10/14  By: RAK  Agnico Eagle Mines Ltd.  BULK REL DENSITY:  BULK REL. DENSITY:  APPARENT REL. DENSITY:						

PARTICLE	PERCENT
SIZE	PASSING
200	100
100	60
75	53
50	44
25	32
10	18
5	11



Remarks:	
Reviewed by:	P.Eng.

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The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.





## Essai de perméabilité à charge constante (ASTM D 2434)

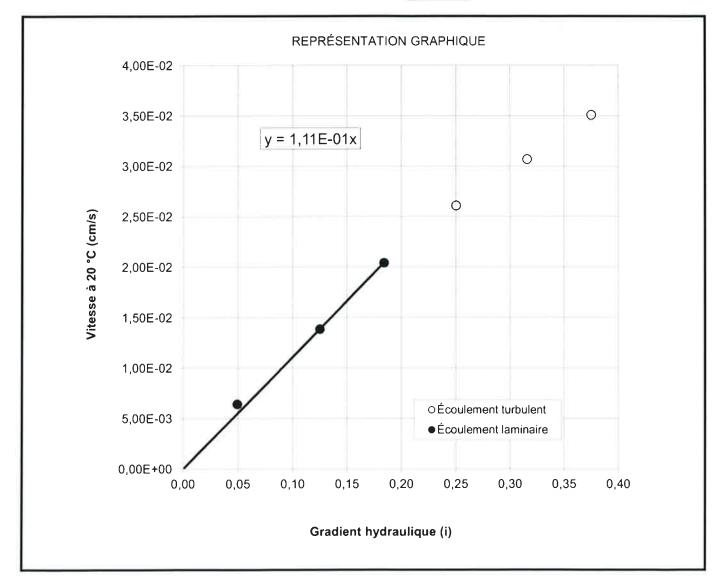
PROJET:	Projet Meliadine ; Contrôle	DOSSIER N <sup>O</sup> :	B-0010539-5		
CLIENT :	Mine Agnico Eagle, Division	on Laronde		DATE :	2016-04-18
PROVENANCE:		ÉCHANTILLON NO:	99	PROF. (m):	

Conductivité hydraulique à 20 °C (K) : 1,10E-01 cm/sec.

Degré de saturation initial (S<sub>r,i</sub>): 96,6%

Degré de saturation final (S<sub>r,f</sub>): 94,1%

Masse volumique sèche de l'échantillon durant l'essai (ρ<sub>d</sub>) : 2 172 kg/m³



Remarques: La densité relative des solides "Gs" est de 2,86.

Le matériau soumis à l'essai une pierre concassée 0-30 mm et correspond au tamisat 19 mm.

Le prélèvement et le transport de l'échantillon ont été effectués par un représentant du client.

Réalisé par :

R.Jean-Legras 2016-04-20

Vérifié par

Audrey Beaudoin, ing.

EQ-09-IM-005a rév, 00 (11-03)



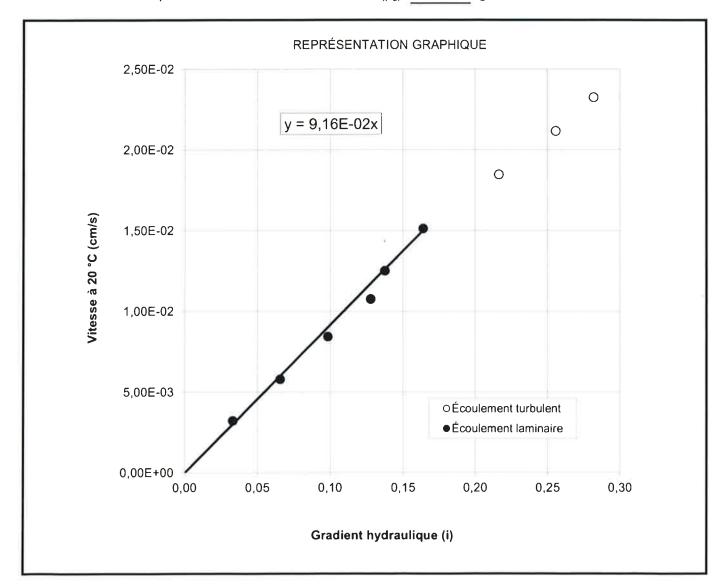
## Essai de perméabilité à charge constante (ASTM D 2434)

PROJET:	Projet Meliadine ; Contrôle des matériaux	DOSSIER N°;	B-0010539-5		
CLIENT :	Mine Agnico Eagle, Division Laronde		DATE:	2016-04-18	
PROVENANCE:	ÉCHANTILLON NO:	100	PROF. (m):		

Conductivité hydraulique à 20 °C (K): 9,20E-02 cm/sec.

Degré de saturation initial  $(S_{r,i})$ : 95,3% Degré de saturation final  $(S_{r,i})$ : 90,0%

Masse volumique sèche de l'échantillon durant l'essai (ρ<sub>d</sub>) : 2 284 kg/m³



Remarques: La densité relative des solides "Gs" est de 2,87.

Le matériau soumis à l'essai une pierre concassée 0-30 mm et correspond au tamisat 19 mm.

Le prélèvement et le transport de regnantillon ont été effectués par un représentant du client.

Réalisé par :

R.Jean-Legros 2016-04-20

Vérifié par :

Audrey beaudoin, ing.

∠C-09-IM-005a rév. 00 (11-03)



## Essai de perméabilité à charge constante (ASTM D 2434)

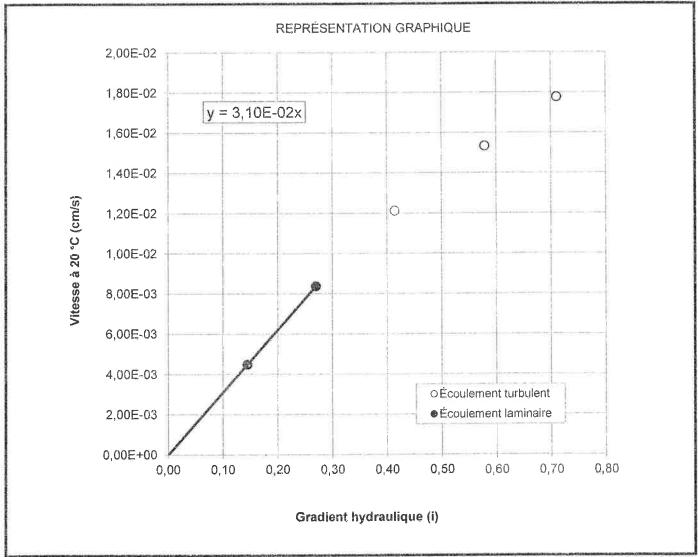
PROJET:	Projet Méliadine: Con	DOSSIER NO:	B-0010539-5		
CLIENT : Mine Agnico Eagle, Division Laronde				DATE :	2016-05-24
PROVENANCE	nile de réserve	ÉCHANTILLON NO:	103	PROF. (m):	

Conductivité hydraulique à 20 °C (K) : 3,10E-02 cm/sec.

Degré de saturation initial  $(S_{r,i})$ : 90,6%

Degré de saturation final (S<sub>r,f</sub>): 91,7%

Masse volumique sèche de l'échantillon durant l'essai ( $\rho_d$ ) : 2 231 kg/m³



Remarques:	La densité relative des solides "Gs" est de 2,86.
Le matériau soun	iis à l'essai une pierre concassée 0-30 mm et correspond au tamisat 19 mm.
Le prélèvement e	le transport de l'échantillon ont été effectués par un représentant du client.

Réalisé par :

R.Jean-Legros, 2016-06-02

Vérifié par : G.Joyal, géo.M.Sc.

0.9167

DENSITY OF ICE

#### CORE ICE SATURATION SUMMARY TEMPORARY WATER RETAINING STRUCTURES, MELIADINE MAXIMUM DRY OPTIMUM MOISTURE STANDARD PROCTOR MATERIAL ID MATERIAL DESCRIPTION DENSITY CONTENT SPECIFIC GRAVITY ID (%) (kg/m<sup>3</sup>) 6.0 M1 Material 0-30 2.870 2379 MOISTURE CONTENT FROZEN BULK DENSITY FROZEN DRY DENSITY COMPACTION ICE SATURATION CORE CONDITIONS STATISTIC (%) (kg/m³) (kg/m<sup>3</sup>) (%) (%) EXCELLENT AVERAGE 12.5% 2284 2035 85.6% 92.8% 2 GOOD MINIMUM 8.0% 2067 1715 72.1% 80.2% POOR / DAMAGED MAXIMUM 20.6% 2388 2184 91.8% 97.2%

173

7.3%

5.2%

STD. DEV.

4.1%

117

ORE ICE SATURATION SUMMARY  TEMPORARY WATER RETAINING STRUCTURES, MELIADINE											
SAMPLE#	COLLECTED	DAM	STATION/LOCATION	MATERIAL ID	ELEVATION/LIFT (approx.)	CORE CONDITION	MOISTURE CONTENT (%)	FROZEN BULK DENSITY (kg/m³)	FROZEN DRY DENSITY (kg/m³)	COMPACTION	ICE SATURATION (%)
M16-DP1A-DC1-20160402	2016-04-02	DP1-A	0+040 / D/S	M1	1	1	10.8%	2351	2123	89.2%	95.7%
M16-DP1A-DC2-20160403	2016-04-03	DP1-A	0+086 / D/S	M1	1	1	15.8%	2172	1876	78.9%	93.1%
M16-DP1A-DC3-20160403	2016-04-03	DP1-A	0+067 / D/S	M1	1	1	MEASUREMENT ERF	ROR - COULD NOT CA	ALCULATE		
M16-DP1A-DC4-20160403	2016-04-03	DP1-A	0+060 / D/S	M1	1	3	DAMAGED CORE				
M16-DP1A-DC5-20160404	2016-04-04	DP1-A	0+089 / U/S	M1	1	1	20.6%	2067	1715	72.1%	95.6%
M16-DP1A-DC6-20160404	2016-04-04	DP1-A	0+084 / U/S	M1	1	1	16.3%	2169	1865	78.4%	94.7%
M16-DP1A-DC7-20160407	2016-04-07	DP3-A	0+016 / U/S	M1	1	3	SUSPECTED MEASU	REMENT ERROR			
M16-DP1A-DC8-20160407	2016-04-07	DP3-A	0+025 / U/S	M1	1	1	11.7%	2304	2062	86.7%	93.7%
M16-DP1A-DC9-20160421	2016-04-21	DP3-A	0+110 / U/S	M1	2	2	9.0%	2380	2184	91.8%	89.3%
M16-DP1A-DC10-20160421	2016-04-21	DP3-A	0+110 / U/S	M1	2	3	10.8%	2361	2131	89.6%	97.2%
M16-DP1A-DC11-20160421	2016-04-21	DP3-A	0+120 / Centre	M1	2	2	9.7%	2388	2178	91.5%	95.3%
M16-DP1A-DC12-20160421	2016-04-21	DP3-A	0+230 / Centre	M1	3	2	8.0%	2360	2184	91.8%	80.2%



## APPENDIX D FIELD TESTING RESULTS



		COMPACTIO				PORT			
			ASTM Desig	nation D6938	3				
Project: Meli	adine Pro	ject: P1 Containment	Test App	paratus:	Nuclear	Troxle	er No:	60855	
			Specifie	d Compa	action:	% S	Std. Proctor	Max. Dry	Density
Project No.:	704-ENG	S.EARC03038-01	Specifie	d Moistu	re (MC):				
Client:	Agnico E	agle Mines Ltd.	Tempera				_°C Soil		oC
Attention:			_		29-April-	16	By:	ELN	
Contractor:			_Constru	ction Pe	riod:				
Soil Descrip	tion:	Material 0-30							
Material Usa	ge/Zone:	Dyke Core							
<b>Date</b> yyyy/mm/dd	Test No. Probe (mm)	Location:		Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
2016/04/29	<b>1</b> 200	DP3-A; STN 0 + 080;	CL of core	67.5	2299	3.7	2379	6.0	96.6
2016/04/29	<b>2</b> 200	DP3-A; STN 0 + 130;	CL of core	67.5	2349	3.2	2379	6.0	98.7
									-
									+
									+
									+-+
Remarks:					Bv:		D FOR U		

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.



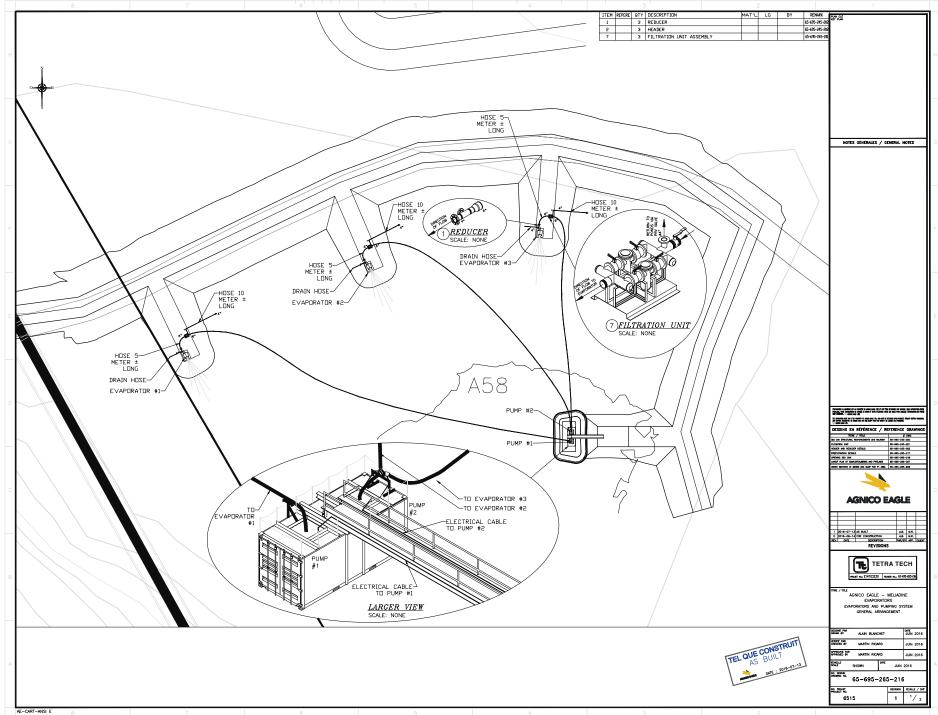
COMPACTION TESTING SUMMARY REPORT									
			ASTM Desig	nation D6938	3				
Project: Mel	iadine Pro	ject: P1 Containment	Test Ap	paratus:	Nuclear	Troxle	er No:	60855	
			Specifie	d Compa	action:	% S	Std. Proctor	Max. Dry	Density
Project No.:	704-ENG	S.EARC03038-01	Specifie	d Moistu	re (MC):				
Client:	Agnico E	agle Mines Ltd.	Tempera	ature	Air:	6	°C Soil	: <u> </u>	°C
Attention:			Date Tes	sted:	3-May-16	1	By:	ELN	
Contractor:			Constru	ction Pe	riod:				
Soil Descrip	tion:	Material 0-30							
Material Usa	ige/Zone:	Dyke Core							
Date yyyy/mm/dd	Test No. Probe (mm)	Location:		Elevation (m)	Dry Density (kg/m³)	MC %	Max. Dry Density	Opt. MC %	Comp % SPD
2016/05/03	<b>3</b> 200	DP2-A; STN 0 + 107; 0	CL of core	67.0	2211	3.5	2379	6.0	92.9
2016/05/03	<b>4</b> 200	DP2-A; STN 0 + 099; (	CL of core	67.0	2146	3.8	2379	6.0	90.2
2016/05/03	<b>5</b> 200	DP2-A; STN 0 + 069; 0	CL of core	67.0	2238	3.5	2380	6.0	94.0
2016/05/03	<b>6</b> 200	DP2-A; STN 0 + 056; 0	CL of core	67.0	2189	3.3	2381	6.0	91.9
Remarks:									
			R	eviewed	By:	ISSUE	D FOR U	SE	P.Eng.

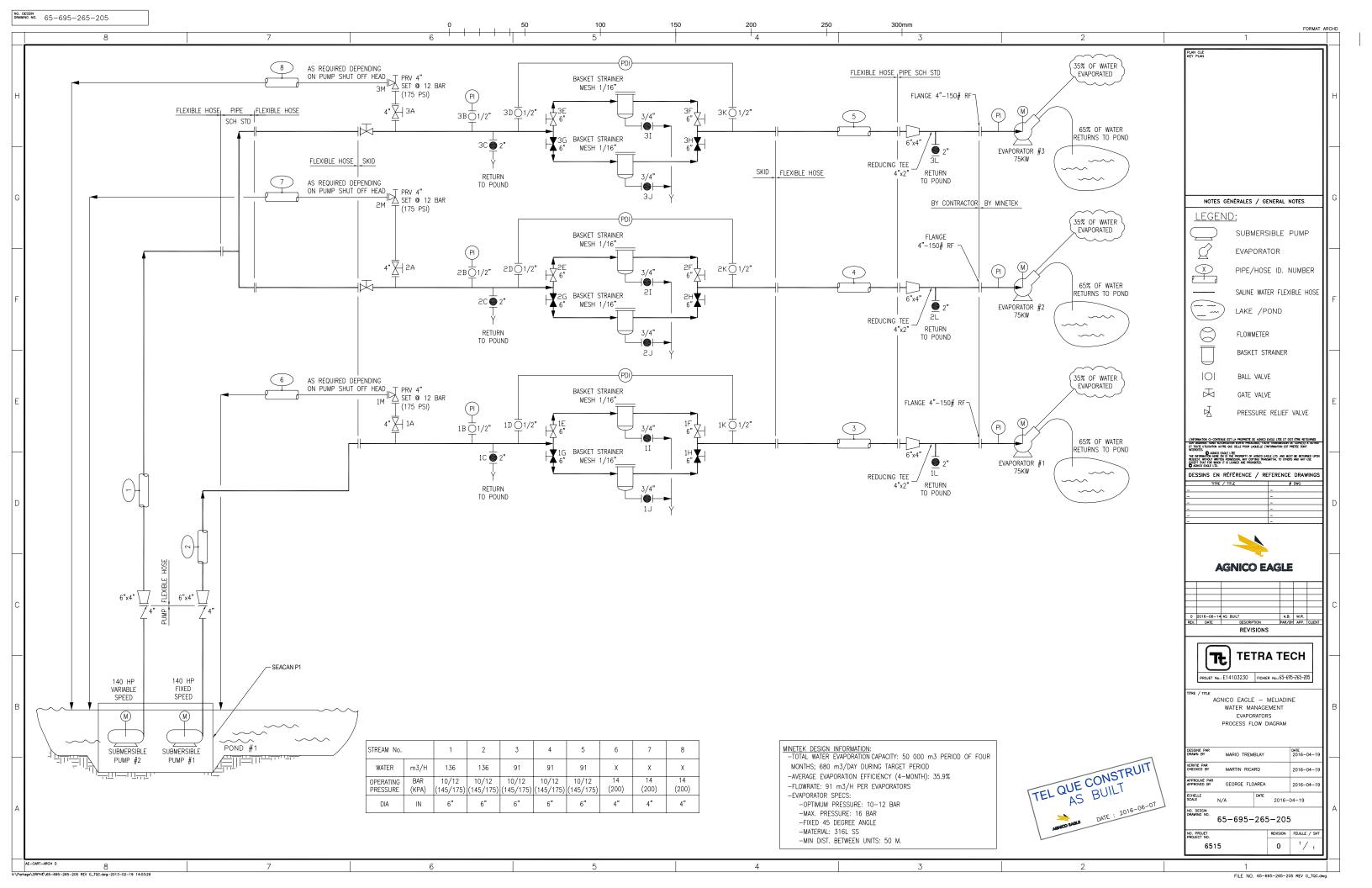
Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech EBA will provide it upon written request.



## APPENDIX E EVAPORATORS









## 6515-495-Hand Over Final Acceptation Certificate Project: Evaporators System

AREA: 65-495 Evaporators System

#### 1. TEST COMPLETION DECLARATION

The startup team confirm that the facilities appointed to the area mentioned here above were inspected and tested jointly with Maintenance and Operation Team and meets the design specifications and the desired level of performance for its intended use and that the sector is ready to be delivered to the Operation Department . At this stage, it will not be possible to add items in the deficiency list.

Name	Position	Initials	(a) (b)
Larry Chabot	AEM startup responsible	LC	200 SO(
Rejean Falardeau/Marco Lemelin	AEM Maintenance responsible	RF/ML	2014/06/29
Larry Chabot	AEM Commissioning Support	LC	4600 SUC

#### 2. ACCEPTANCE OF THE FINAL TEST COMPLETION

We recognize that the facilities of the area mentioned here above were inspected and tested and meet the design specifications and the desired level of performance for its intended use and that the area is ready to be delivered to the Operation.

We recognize that the responsibility for the operation, maintenance and servicing of the facilities was transferred from AEM startup responsible to the AEM Operation of the site.

Name	AEM Project Position	Initials	Date () Digitally signe
Jack Dutil	AEM Construction responsible	JD	Jack Jack Dutil  DN: cn=Jack D Date: 2016.07. 14:43323-04'00
Larry Chabot	AEM Startup responsible	LC	A CONTRACTOR
Lonny Syvret / Alexandre Banville	AEM Maintenance responsible	LS / AB	2016-06-29



## 6515-495-Hand Over Final Acceptation Certificate

**Project: Evaporators System** 

#### 3. KEY OBJECTIVES TO BE ACHIEVED

- On site Pre-verification
- inspection and acceptance reports
- start-up assistance for the evaporators
- AEM personnel training
- · Verification Test procedure
- System report.

#### 4. TRANSFER DOCUMENTATION

The following items, indicated by an "x" were provided in separate documents. The documentation received was considered and accepted as completed and final, except the items indicated in the list of deficiencies here attached. Items marked with an "-" are not applicable.

Item	Comm	ents
AEM3018MT-ITP-QL-001 Inspection Test Plan	X	
AEM3018MT-CS-QL-001 Evaporator equipment check sheet	X	
AEM3018MT-FO-QL-001 Evaporator inspection report	X	
AEM3018MT-FO-QL-002 System pressure flow results	X	
AEM3018MT-DTP-QL-001 Training presentation	X	
AEM3018MT-FO-TR-001 Training Register	X	100
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# 6515-495-Hand Over Final Acceptation Certificate Project: Evaporators System

### 5. DEFECT SUMMARY LIST

Defect Discipline Codes		Defect Category Codes		Defect Priority Codes			
X	Mining	A	Safely or critical to operation [Critical Defect]	1	Complete before Pre-Commissioning starts		
C	Civil/Structural	В	Within approved scope of work but not completed yet	2	Complete before Cold Commissioning starts		
M	Mechanical	C	Within approved scope of work not covered by constructor or supplier warranty	3	Complete before Hot Commissioning starts		
P	Electrical	D	Within approved scope of work covered by constructor or supplier warranty	4	Complete before Facility Ramp Up starts		
	Instrument & Control	E		5	Complete before Hand Over		
E	Environmental			6	Complete after Hand Over		
A	Admin						

No.	Discipline	Priority	Category	Description of Problem	Solution to be Used	Resp.	Target Date	Task Complete Accepted By	Date
1	P	8	A	Evaporator 1, E-stop removed	Add in at later stage	Agnico Eagle		8	246-16
2	P	6	A	Evaporator 2, E-stop removed	Add in at later stage	Agnico Eagle	190		24-6-16
3	P	6	A	Evaporator 3. E-stop removed	Add in at later stage	Agnico Eagle			24-6-18
		500							
Promi									